



CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

Final Plan
February 2020

PREPARED FOR



FUNDED BY



PREPARED BY



ACKNOWLEDGEMENTS

The City of Placerville and project staff would like to thank the residents of Placerville and El Dorado County, elected officials, and professional staff who supported this effort. In particular, the City of Placerville and the El Dorado County Transportation Commission are indebted to the Stakeholder Advisory Committee for their time and commitment to improving walking and biking in El Dorado County and providing valuable input throughout the project.

This Active Transportation Plan was funded by the Caltrans Fiscal Year 2017-18 Road Maintenance & Rehabilitation Account Sustainable Communities Grant Program. This Plan was completed in partnership with the City of Placerville, El Dorado County, Alta Planning and Design.

PREPARED IN PARTNERSHIP WITH



Stakeholder Advisory Committee

Member Organizations

El Dorado Hills Bike/Pedestrian
Safety Coalition

Bicycle and Pedestrian Advocates of
Cameron Park/Shingle Springs

Friends of El Dorado Trail

Utilitarian Cyclists Group

Walk Sacramento

Commission on Aging

El Dorado County Chamber of Commerce

Placerville Downtown Association

Shingle Springs/Cameron Park
Chamber of Commerce

El Dorado Hills Chamber of Commerce

Divide Chamber of Commerce

Coloma/Lotus Chamber of Commerce

Diamond Springs/El Dorado
Community Advisory Committee

Placerville Drive Business Association

Bike Friendly 50 Corridor
Members - El Dorado County

Shingle Springs Community Alliance

El Dorado Community Foundation

Museum/Historical Society

El Dorado County Office of Education

Folsom Lake College

Boys and Girls Club

El Dorado County Public Health

Schools

Disabled Advocate

Placerville Mobility Support Group

El Dorado County

Caltrans

SACOG

Sacramento - Placerville Transportation
Corridor Joint Powers Authority

El Dorado Transit

Cameron Park Community Services District

El Dorado Hills Community Services District

TABLE OF CONTENTS

Acknowledgements	2
Chapter 1: Introduction.	6
Chapter 2: Background and Existing Conditions	13
<i>Figure 2-1: Placerville Mode of Transportation to Work Other Than Driving Alone.</i>	14
<i>Figure 2-2: City of Placerville Boundaries</i>	15
<i>Figure 2-3: Population Density in Placerville</i>	16
<i>Figure 2-4: Active Transportation Commuter Density in Placerville</i>	17
<i>Figure 2-5: Density of Workers in Placerville.</i>	18
<i>Figure 2-6: Placerville Annual Bicycle and Pedestrian Collisions.</i>	23
<i>Figure 2-7: Placerville Bicycle Collision Severity.</i>	23
<i>Figure 2-8: Placerville Pedestrian Collision Severity</i>	24
<i>Figure 2-9: Collisions involving Bicyclists and Pedestrians in the City of Placerville</i> ..	25
Chapter 3: Vision, Goals & Strategies	27
Chapter 4: Public Engagement	34
<i>Figure 4-1: Web Tool respondents Biking and Walking Routes</i>	38
<i>Figure 4-2: Community Identified Routes</i>	39
<i>Figure 4-3: Community Identified Barriers To Biking and Walking</i>	40
<i>Figure 4-4: Community Identified Destinations</i>	41
Chapter 5: Recommended Programs.	43
<i>Figure 5-1: Programs Costs.</i>	52
Chapter 6: Pedestrian Projects	53
<i>Figure 6-1: Proposed Pedestrian Projects in Placerville.</i>	55
<i>Figure 6-2: Proposed Pedestrian Projects in Downtown Placerville</i>	56
<i>Figure 6-3: Marked Crosswalk</i>	57
<i>Figure 6-4: Curb Extensions</i>	58
<i>Figure 6-5: Pedestrian Refuge Island</i>	58
<i>Figure 6-6: Pedestrian Hybrid Beacon</i>	59
<i>Figure 6-7: Rectangular Rapid Flashing Beacon.</i>	59

Chapter 7: Bikeway Projects	60
<i>Figure 7-1: Existing and Proposed Bikeway Mileage.</i>	62
<i>Figure 7-2: Proposed Bicycle Facility Projects in Placerville.</i>	63
<i>Figure 7-3: Proposed Bicycle Facility Projects in Downtown Placerville</i>	64
<i>Figure 7-4: Example of Green Bike Lanes</i>	65
<i>Figure 7-5: Bike Racks in Placerville</i>	65
<i>Figure 7-6: Types of Bike Racks.</i>	65
Chapter 8: Implementation	66
<i>Figure 8-1: Bicycle Facility Planning Level Cost Estimates</i>	68
<i>Figure 8-2: Sidewalk Installation Planning Level Cost Estimates</i>	69
<i>Figure 8-3: Spot Improvement Facility Planning Level Cost Estimates</i>	69
<i>Figure 8-4: Maintenance Cost Estimates</i>	69
<i>Figure 8-5: Shared Use Path Routine Maintenance</i>	71
<i>Figure 8-6: Shared Use Path Capital Maintenance.</i>	72
<i>Figure 8-7: Prioritized Improvements in Placerville</i>	78
<i>Figure 8-8: Funding Source Eligibilities by Project Type.</i>	83
Appendix A: Design Guidelines	A1
Appendix B: Plan Review	B1
Appendix C: Proposed Project List	C1
Appendix D: ATP Compliance Checklist	D1



**CHAPTER 1:
INTRODUCTION**

Why Develop an Active Transportation Plan?

This Active Transportation Plan provides the City of Placerville with a blueprint for becoming a more bicycle- and pedestrian-friendly community. This plan serves as an outline for the City of Placerville to fulfill its commitment to enhancing the built environment and creating a more bicycle- and pedestrian-friendly community. This Plan will support the City of Placerville's efforts to improve the quality of life for residents and visitors by making walking and biking more convenient, comfortable, healthy, and safe modes of transportation.

The Active Transportation Plan (Plan) establishes a long-term vision for improving walking and bicycling in Placerville. This Plan is a critical tool in guiding a balanced transportation system that serves bicyclists and pedestrians as well. This Active Transportation Plan provides a set of recommended infrastructure improvements and studies paired with education, encouragement, enforcement, and evaluation programs. This document also provides a strategy to ensure implementation of these projects and programs is manageable and fundable, recognizing that limited funding and resources will require phased implementation over many years.

This Plan updates the previous 2010 City of Placerville Non-Motorized Transportation Plan and the 2007 City of Placerville Pedestrian Circulation Plan. The Active Transportation Plan utilizes the methodology laid out in the 2017 Active Transportation Connections Study commissioned by the El Dorado County Transportation Commission to prioritize this Plan's recommendations.

The City of Placerville's Plan process provided opportunities for elected and appointed officials, as well as key staff and leadership of the City, School District and community boards, commissions, and the public to participate in the development of the Plan. Ideally, the Plan should be reviewed every three to five years to update maps, project lists, and priorities as facilities are completed and new opportunities and needs arise.

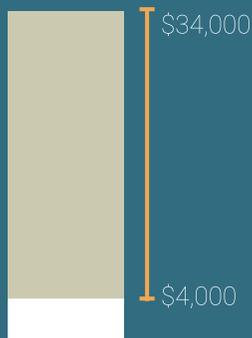
The remainder of this introduction provides a guiding vision for the Active Transportation Plan, as well as a summary of related Plans.

The following chapters cover the existing conditions in Placerville, including recent trends for bicycle and pedestrian involved collisions, the public engagement process that this Plan implemented, the facilities that this Plan recommends to improve walking and biking in Placerville, as well as a prioritization process to select the projects that will have the highest impact.

City of Placerville Active Transportation Plan Benefits

ECONOMIC BENEFITS

Walkability Pays Off



In a controlled study of 90,000 houses in 15 US metropolitan housing markets, houses with **ABOVE-AVERAGE WALKABILITY WERE FOUND TO SELL FOR ABOUT \$4,000 TO \$34,000 OVER** houses with just average levels of walkability.

Source: Cortright, 2009

Trails Can Help Revitalize Commercial Districts



Within the first year of its opening, Indian Creek Plaza in Caldwell, ID (served by the waterfront Indian Creek Trail), **A DOZEN NEW BUSINESSES** opened in the area and **CALDWELL HAS DOCUMENTED NEARLY A 300% INCREASE IN PEDESTRIAN TRIPS** across the 7th Street Bridge.

Source: KIVI Boise, One Year Later Indian Creek Plaza, 2019

Bicyclists Spend More

Customers who arrive by automobile spend the most per visit across all of the establishments, but **CYCLISTS SPEND THE MOST PER MONTH.**



Source: Clifton, Morrissey & Ritter, 2012

Bike Tourism is Big Business

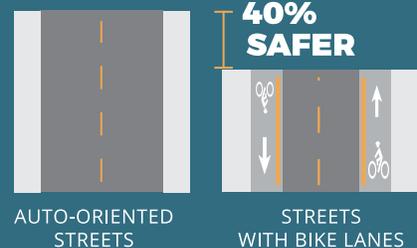


Cities can capture substantial sales revenue by establishing themselves as regional destinations for cyclists. One 2012 study of Oregon's tourism economy estimated that **BICYCLE TOURISM GENERATES APPROXIMATELY \$400 MILLION IN SALES REVENUE** statewide per year.

Source: The Oregon Bicycle Travel Survey, 2012

SAFETY BENEFITS

Streets with Bike Infrastructure are Safer



Bicycling in a dedicated bike facility, like a bike lane, is safer than riding on streets without bike facilities.

Source: NYC DOT "The NYC Pedestrian Safety Plan, 2012

The City of Denver experienced a

37% REDUCTION IN SIDEWALK RIDING

on one street after installing a bikeway & a

47% INCREASE IN BICYCLISTS

Source: The City & County of Denver Public Works, 2013

New York City experienced a

56% REDUCTION IN INJURIES

to all roadway users after installing separated bike lanes.

Source: NYC DOT "Measuring the Street", 2012

Safety in Numbers

The likelihood that a person walking or bicycling will be struck by a motorist

DECREASES AS THE # OF PEOPLE WALKING AND BICYCLING INCREASES.



Source: Jacobsen, PL. "Safety in Numbers", 2003.

City of Placerville Active Transportation Plan Benefits

HEALTH BENEFITS

Walkable Neighborhoods Encourage Walking



Residents of **WALKABLE COMMUNITIES** are

2x as **LIKELY TO MEET PHYSICAL ACTIVITY GUIDELINES**

compared to those who do not live in walkable neighborhoods

Source: Frank, Lawrence D. et al. (2004) Obesity relationships with community design, physical activity, and time spent in cars. American Journal of Preventive Medicine.

Walking & Biking are Healthy Activities



20 MINUTES OF WALKING OR BIKING

each day is associated with

21% LOWER RISK OF HEART FAILURE FOR MEN and

29% LOWER RISK FOR WOMEN

Source: Rahman, I., Bellavia, A., & Wolk, A. (2014). Relationship Between Physical Activity and Heart Failure Risk in Women.

Walking & Biking Improve Brain Function



Youth who engage in **60 MINUTES** of moderate to vigorous **PHYSICAL ACTIVITY**

daily have **BETTER COGNITIVE PROCESSING, ATTENTION SPANS, ACADEMIC PERFORMANCE AND SELF-ESTEEM**

BETTER COGNITIVE PROCESSING, ATTENTION SPANS, ACADEMIC PERFORMANCE AND SELF-ESTEEM

Source: Institute of Medicine

Walking Is Good for Mental Health



30 MINUTES OF WALKING per day can **REDUCE ANXIETY AND THE RISK OF DEPRESSION**

Sharma, A., Madaan, V., & Petty, F. D. (2006). Exercise for Mental Health. Primary Care Companion to The Journal of Clinical Psychiatry.

ENVIRONMENTAL BENEFITS

Walking & Biking Don't Pollute



BIKING 2 MILES, rather than driving, **AVOIDS EMITTING 2 lbs OF POLLUTANTS**, which would take 1.5 months for one tree to sequester.

Source: EPA, 2000

Walking & Biking Facilities Don't Require A Lot of Space

Nearly **1/3** of all developed land is dedicated to roads. Because of the smaller operator and vehicle footprint of people walking & bicycling, not only does **DEMAND FOR STREETS AND PARKING DECREASE BUT ALSO THE AMOUNT OF ROAD SPACE REQUIRED**

Source: Hashem Akbari, L. Shea Rose and Haider Taha (2003), "Analyzing The Land Cover Of An Urban Environment"

QUALITY OF LIFE BENEFITS

Walkability & Short Commutes Are Important to People

In a national survey,

70%



of respondents reported that **WALKABILITY AND A SHORT COMMUTE ARE IMPORTANT** when deciding where to live.

88%

of respondents who were living in areas

WHERE THEY COULD WALK TO DESTINATIONS reported being **MORE SATISFIED WITH THEIR QUALITY OF LIFE.**

Source: The National Association of Realtor's Community and Transportation Preferences Survey

RELATIONSHIP TO OTHER DOCUMENTS

City of Placerville Non-Motorized Transportation Plan (2010)

The overall goal and vision statement for the 2010 City of Placerville Non-Motorized Transportation Plan (NMTP) is to provide a safe, efficient, and convenient network of non-motorized facilities that establish alternative transportation as viable options in the City.

Of the 6 goals laid out in this Plan, 4 are relevant to this Active Transportation Plan. Relevant goals are listed below.

1) NON-MOTORIZED CIRCULATION

- Goal: Develop a bicycle and pedestrian system that enhances the safety and convenience of bicycling and walking to employment, residential neighborhoods, parks, education, commercial, and other activity centers within the City
- Objective: Increase bicycling and walking as a transportation mode to reduce congestion, improve air quality, and improve public health

2) SAFETY AND EDUCATION

- Goal: Maximize pedestrian and bicycle safety
- Objective: Improve pedestrian and bicycle safety and increase safety and awareness programs

5) MULTI-MODAL INTEGRATION

- Goal: Maximize multimodal connections to the bicycle and pedestrian system
- Objective: Develop a system that encourages use of multiple transportation modes

6) PEDESTRIAN MOBILITY

- Goal: Identify potential improvements or deficiencies in the pedestrian network in the City
- Objective: Identify important connections, barriers, and necessary improvements in the City's network

EDCTC Active Transportation Connections Study (2017)

The El Dorado County Transportation Commission commissioned a study to develop a custom tool to prioritize projects within El Dorado County. This tool was to incorporate seven elements: Health, Environment, Demand, Connectivity, Safety, Equity, and Cost-Effectiveness. This tool was used in this study to help prioritize projects based on local conditions.

City of Placerville Pedestrian Circulation Plan (2007)

The 2007 Pedestrian Circulation Plan extends the inventory conducted in the Non-Motorized Transportation Plan and provides project priorities and options for funding a "Pedestrian Circulation Improvement Program" for the construction and maintenance of an extensive sidewalk network throughout the City.

GOALS

- Promote convenient and safe pedestrian circulation (per City General Plan)
- Repair and upgrade the existing system of sidewalks
- Close gaps to increase the connectivity and viability of existing system
- Expand the system to provide greater opportunities to pedestrians

El Dorado County and City of Placerville Bicycle and Pedestrian Safety Assessment (2015)

The 2015 Safety Assessment was conducted to analyze pedestrian safety, enhance walkability and bikeability, and increase accessibility for pedestrians and bicyclists in unincorporated El Dorado County and Placerville. Priorities from the Assessment include:

- Reduce pedestrian- and bicycle-involved collisions
- Continue to seek funding for and support Safe Routes to Schools programming
- Improve bicycle parking
- Improve pedestrian and bicyclist safety
- Improve economic vitality
- Increase accessibility

The Assessment lists four focus areas in unincorporated El Dorado County:

- Pleasant Valley Road in Diamond Springs (Class II lanes and pedestrian enhancements)
- US-50 bicycle and pedestrian overcrossing in El Dorado Hills
- El Dorado Hills Boulevard/St Andrews Drive/Governor Drive intersection in El Dorado Hills (intersection redesign with bike path integration and pedestrian enhancements)
- New York Creek Bike Path at Silva Valley Parkway in El Dorado Hills (Class I path)

The Assessment also lists four focus areas in Placerville:

- US-50/Bedford Avenue and El Dorado Trail (increase trail connectivity)
- US-50/Spring Street (SR-49) (crossing and signal improvements)
- Main Street/Spring Street (US-49) and Main Street/Pacific Street (US-49) intersections (crossing improvements)
- Main Street/Canal Street and US-50/ Canal Street intersections (crossing improvements and intersection design changes)

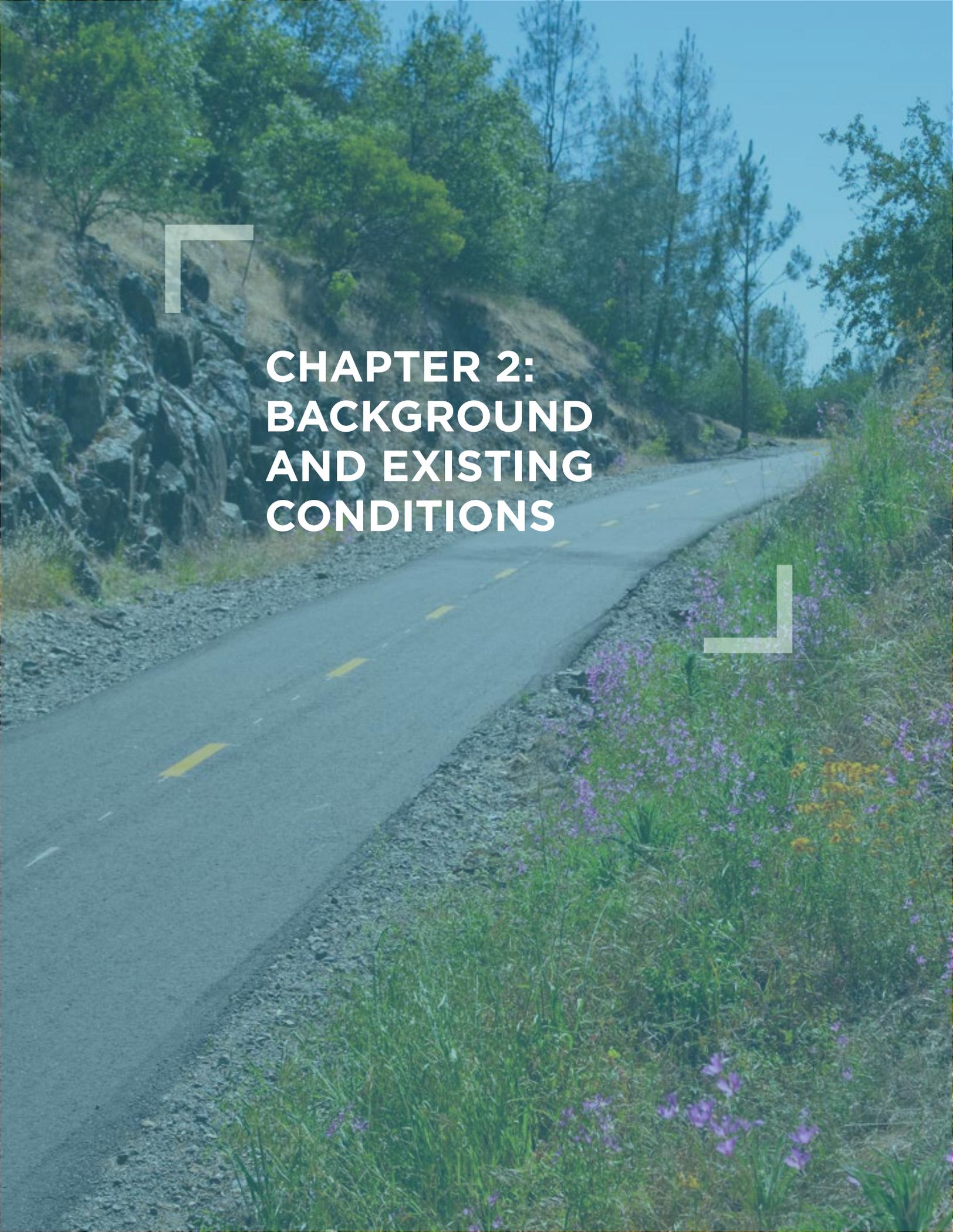
SUMMARY

The City of Placerville is well positioned to increase walking and bicycling for transportation. It has a mild climate most of the year and has a large network of existing bicycle and pedestrian facilities, with a growing network of on-street bikeways and off-street shared-use paths.

As the El Dorado Trail is implemented, users will be able to experience a comfortable, low-stress, off-street connection to the rest of El Dorado County.

These investments will provide a foundation upon which the City can continue to build a high-quality Citywide network for bicycling and walking—one that is accessible and comfortable for everyday use by residents and visitors of all ages and abilities.

Included in this Plan is an evaluation of existing conditions in Placerville, recommended goals and strategies to enact to make Placerville more bicycle and pedestrian friendly, as well as recommended programs and infrastructure improvements to help make bicycling and walking easier and safer. This Plan also includes a prioritization tool to help identify high-priority projects, as well as available funding sources to implement these recommended improvements.



**CHAPTER 2:
BACKGROUND
AND EXISTING
CONDITIONS**

Local Context

The planning area for the City of Placerville’s Active Transportation Plan (Active Transportation Plan) is the jurisdictional boundaries for the City of Placerville, El Dorado County’s only incorporated City.

Placerville is a rural, historic town in El Dorado County with a population of around 10,000 residents, according to 2017 American Community Survey from the Census Bureau. It resides in the foothills of California’s Sierra Nevada Mountains. Due to its historic development patterns as an old mining town and the geographic nature of the area, Placerville has narrower roads that contour the hills.

While the educational attainment of the City’s is higher than many other communities in El Dorado County and California, household median incomes remain lower for Placerville residents than their counterparts in El Dorado County.

TRANSPORTATION PATTERNS

Nearly 80 percent of workers in Placerville drive alone to work, according to 2016 five-year estimates from the American Community Survey. Just 1% walk to work, and 0% bicycle, as shown in Figure 2-1.

CALIFORNIA HEALTHY PLACES INDEX

The California Healthy Places Index (CHPI) measures a number of indicators that relate to public health, including several related to transportation and air quality. Data is available for counties and incorporated cities, as well as unincorporated community areas. With this index, a high score denotes a healthy community relative to other communities in California, and a low score denotes the community is impacted by poor health as measured by the provided criteria. For each geography, indicators also include a percentile showing how they compare to other counties or communities in California.

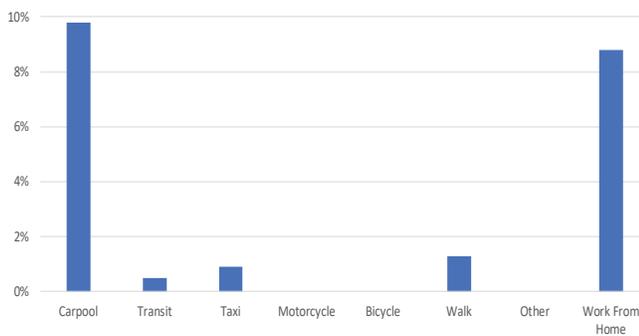


Figure 2-1: Placerville Mode of Transportation to Work Other Than Driving Alone

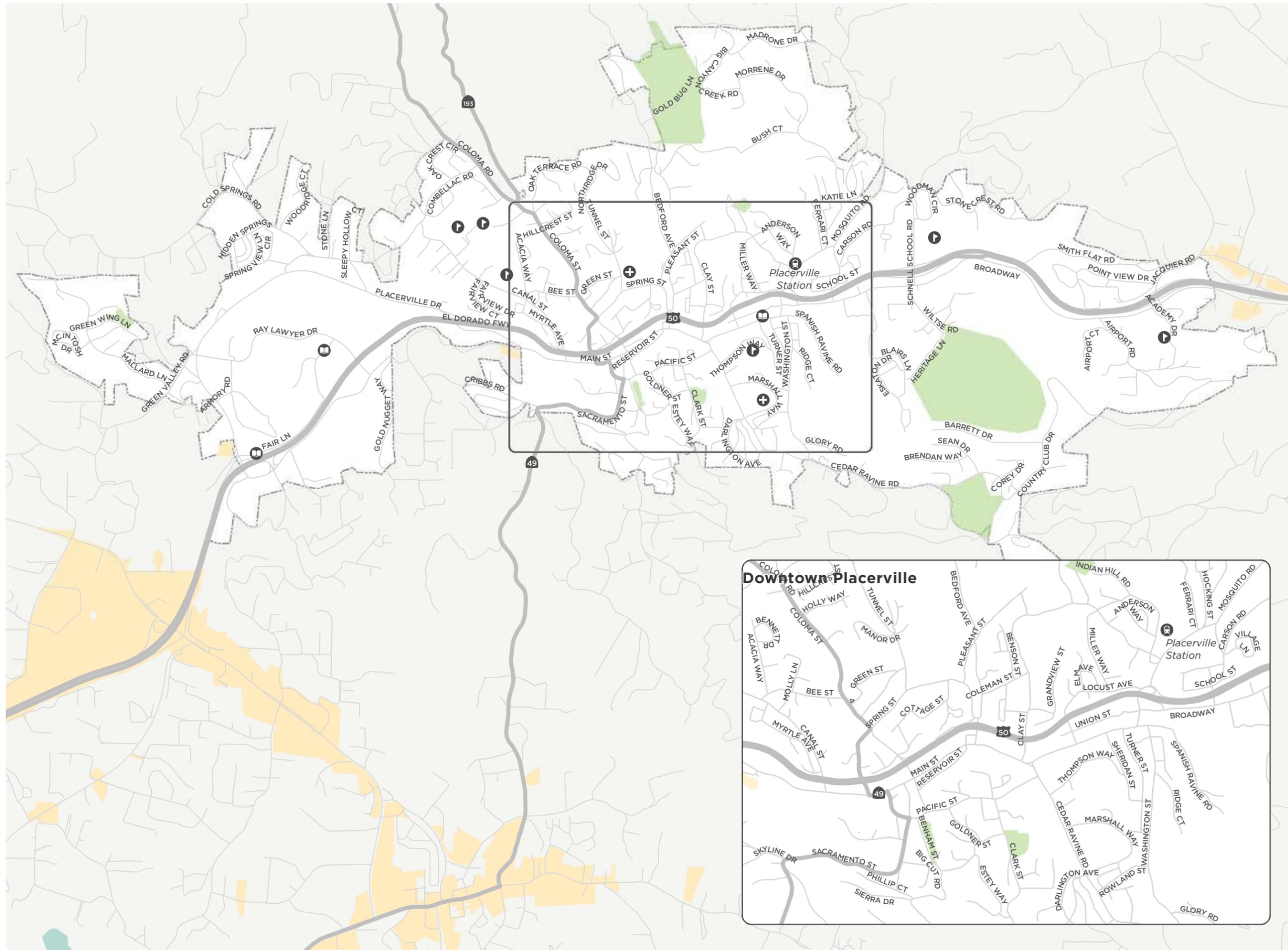
CITY OF PLACERVILLE

Placerville, CA

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

Destinations + Boundaries

-  School
-  Hospital
-  Library
-  Transit Center
-  Commercial Area
-  City of Placerville
-  Park
-  Water



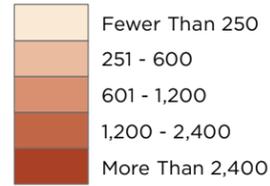
Map produced September 2018.
Sources: El Dorado County, Caltrain, Esri, US Census.

Figure 2-2: City of Placerville Boundaries

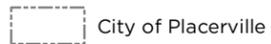
POPULATION DENSITY

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

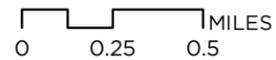
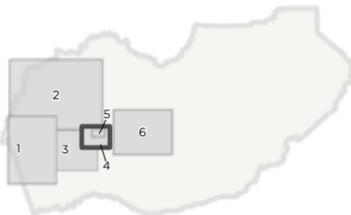
Population Per Square Mile



Destinations + Boundaries



Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

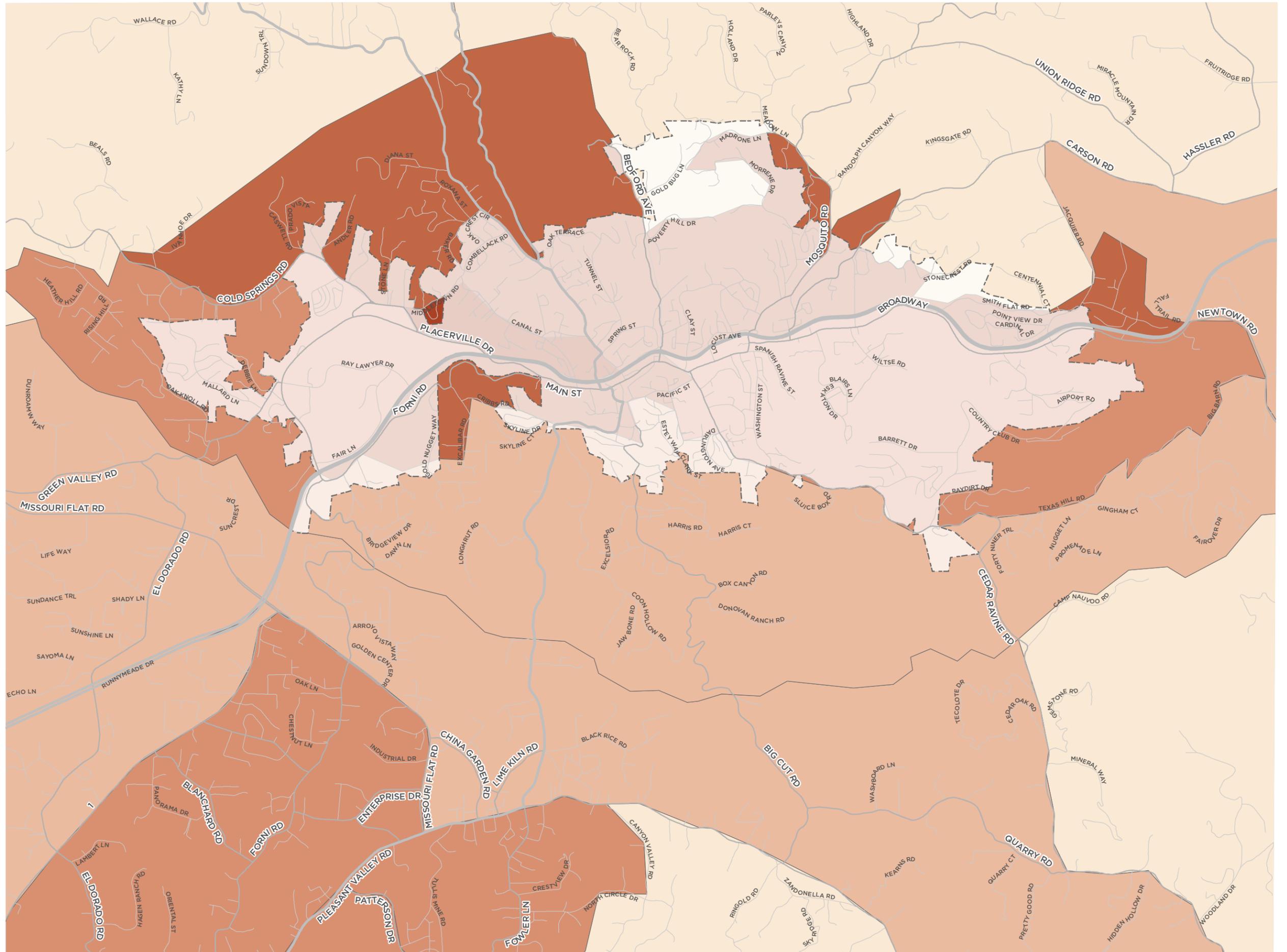
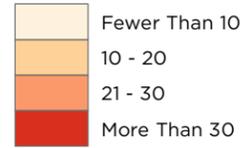


Figure 2-3: Population Density in Placerville (2017 ACS 5 Year Estimates 2013-2017)

ACTIVE TRANSPORTATION COMMUTERS

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

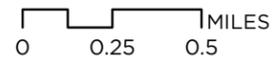
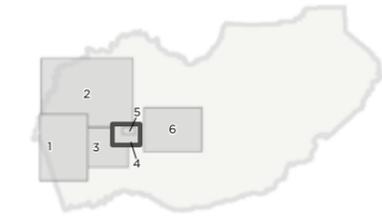
Walk or Bike To Work (Per Census Block Group)



Destinations + Boundaries

City of Placerville

Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

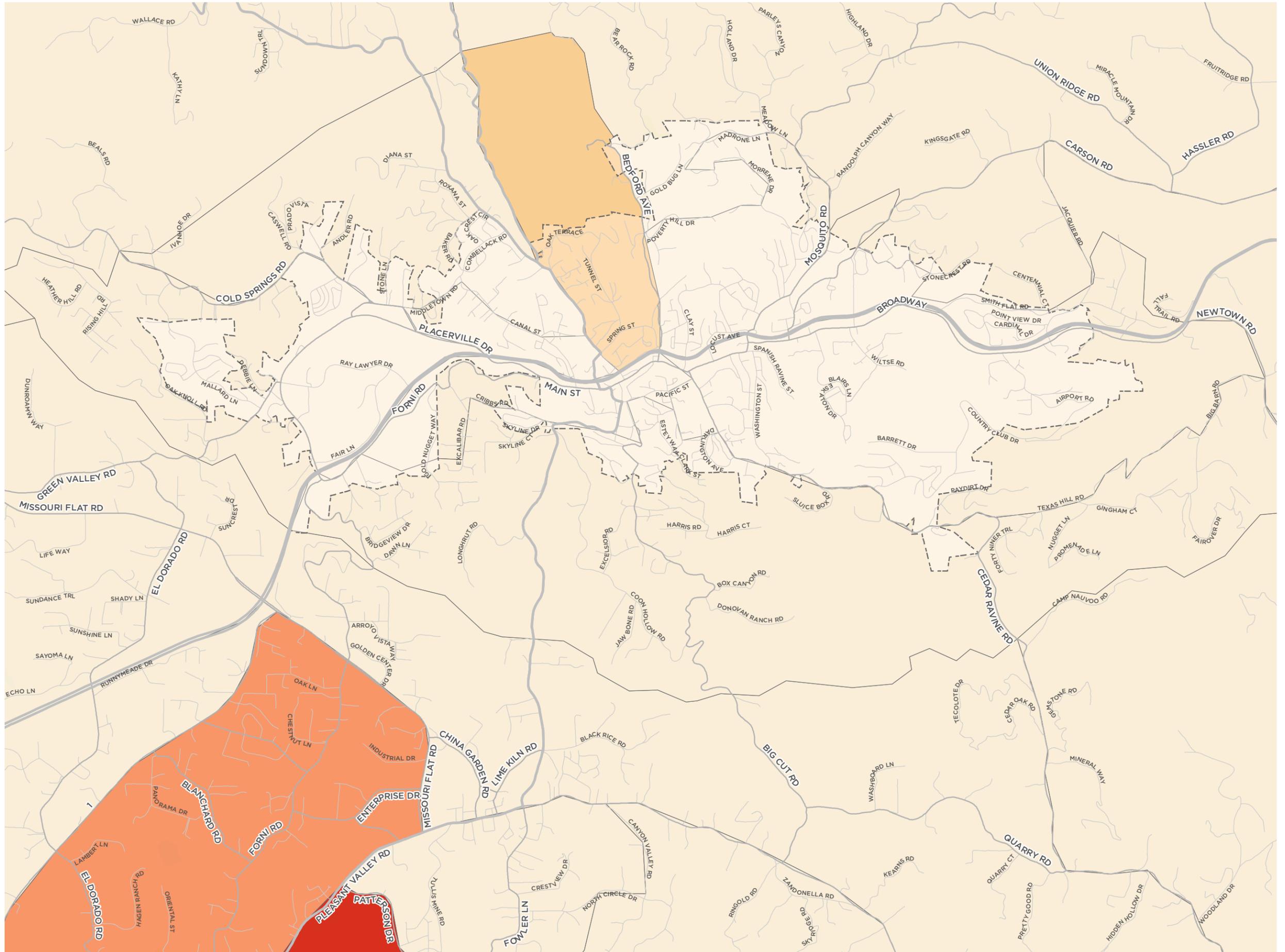
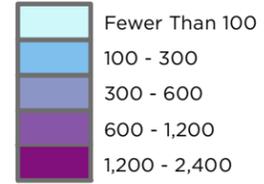


Figure 2-4: Active Transportation Commuter Density in Placerville

DENSITY OF WORKERS PER SQUARE MILE

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

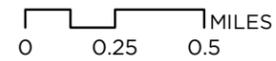
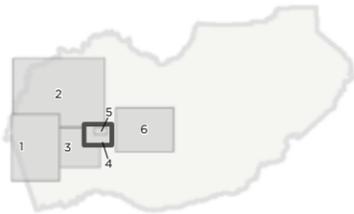
Walk or Bike To Work (Per Census Block Group)



Destinations + Boundaries

City of Placerville

Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

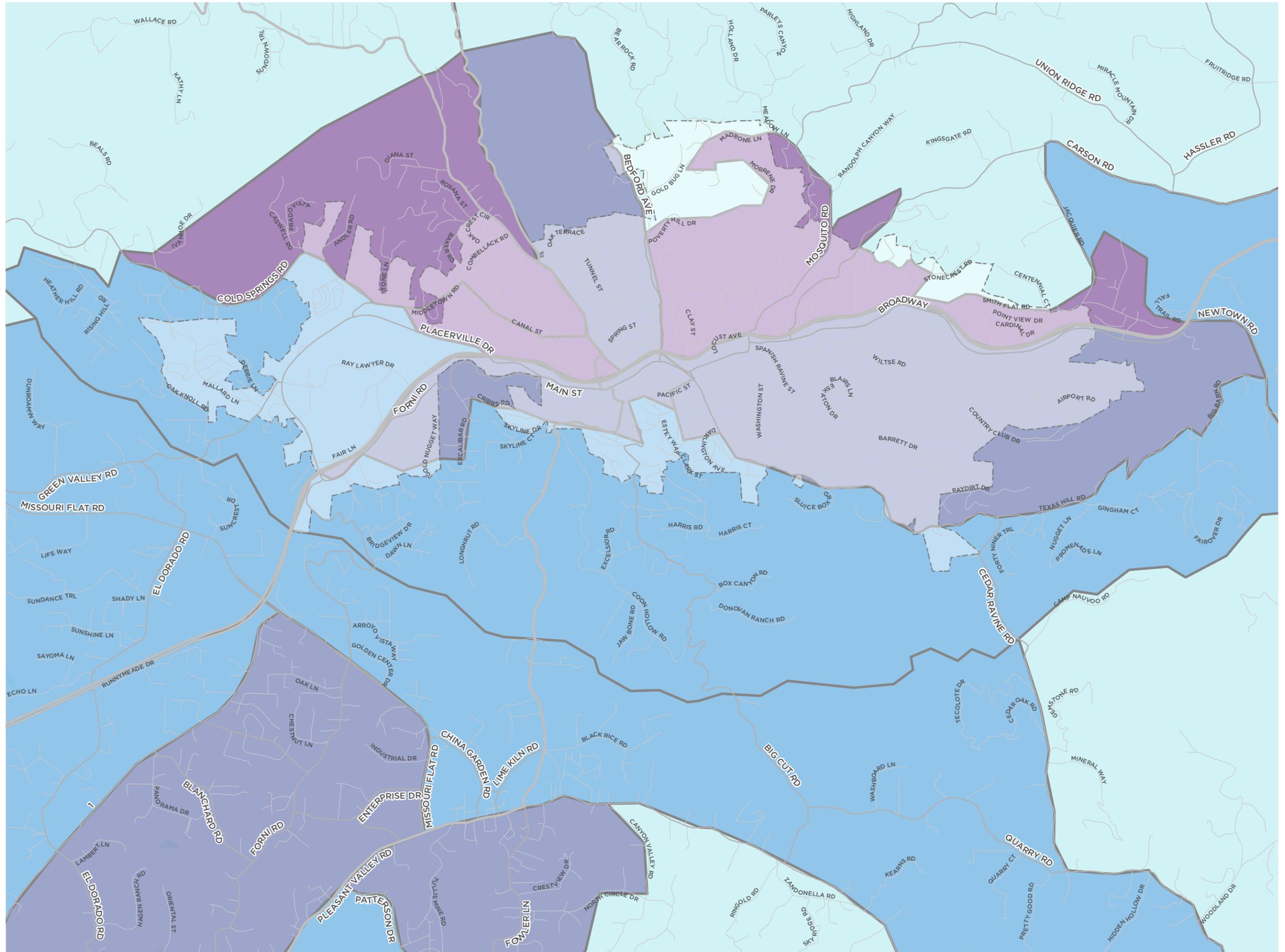


Figure 2-5: Density of Workers in Placerville (2017 ACS 5 Year Estimates 2013-2017)

For this Active Transportation Plan, indicators related to transportation and air quality provide insight into a region's current active transportation activity as well as the need for investment in transportation facilities that support improved air quality by reducing vehicle trips.

Active Commuting measures the percent of workers age 16 and older who commute to work by transit, walking, or bicycling, using 2015 five-year estimates from the American Community Survey.

Access to Vehicles measures the percent of households that have access to one or more vehicles, using 2015 five-year estimates from the American Community Survey.

Clean Air - Ozone measures the average daily eight-hour maximum ozone concentration in parts per million during summer months (May to October), averaged over three years from 2012 to 2014. Data is from CalEnviroScreen 3.0.

Clean Air - PM 2.5 measures average annual concentration of particulate matter in micrograms per cubic meter. Data is from CalEnviroScreen 3.0.

City of Placerville

The CHPI score for Placerville is in the 54.7 percentile. While it receives good marks for Clear Air - PM^{2.5} (better than 55.4% of other California Cities), Clean Air - Ozone is markedly low (better than only 20% of other California Cities), as well as Active Commuting (better than only 32.2% of other California Cities) and Automobile Access (better than only 17.4% of other California Cities)

CalEnviroScreen

The California Office of Environmental Health Hazard Assessment developed the CalEnviroScreen tool to help identify communities that are disproportionately burdened by multiple sources of pollution. It combines pollution data (such as ozone concentrations and drinking water contaminants) with population indicators (such as birth weight and educational attainment).

This is also a tool used in California's Active Transportation Program grant application scoring. Communities that score in the most burdened 25% of the state are considered to be disadvantaged and receive a small advantage in the competitive funding process. No communities in Placerville meet this threshold.

EXISTING BICYCLING AND WALKING NETWORK

Bicycle Facilities

The California Department of Transportation (Caltrans) defines four classes of bicycle facilities:

Class I Shared Use Paths are paved trails completely separated from the street or highway. They allow two-way travel for people bicycling and walking, and are often considered the most comfortable facilities for children and inexperienced bicyclists because there are few potential conflicts between people bicycling and people driving.

The El Dorado Trail is the only example of a Class I Shared Use Path in Placerville.

Class II Bicycle Lanes are striped preferential lanes on the roadway for one-way bicycle travel that include pavement stencils and signs. Some bicycle lanes include a striped buffer on one or both sides to increase separation from the traffic lane or from parked cars, where people may open car doors into the bicycle lane.

Variations of the Class II Bicycle Lane are the **Uphill Climbing Lane**, where due to narrow roadway width, a Class II facility is installed in the uphill traveling direction to give bicyclist additional protection and the **Buffered Bike Lane**, where painted buffers increase the distance between bicyclists and drivers.

Segments of bicycle lanes exist in Placerville along Placerville Drive and Broadway.



Example of a Class I Shared Use Path



Example of a Class II Bicycle Lane



The El Dorado Trail in Placerville

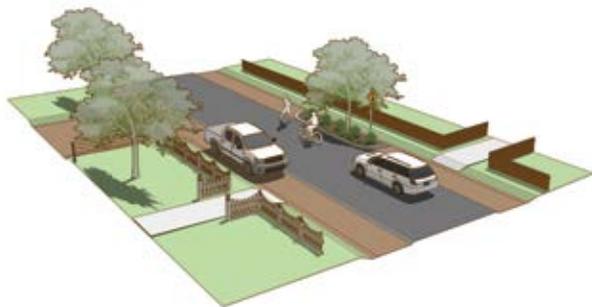


Example of a Class II Bicycle Lane on Ray Lawyer Drive

Class III Bicycle Routes are signed routes where people bicycling share a travel lane with people driving. Because they are shared facilities, bicycle routes are best suited for low-speed streets with relatively low traffic volumes or on higher-speed roadways that include a wide outside lane or shoulder to accommodate safe passing. Class III bicycle routes include shared lane markings or “sharrows” that encourage proper bicyclist positioning in the travel lane and alert drivers that bicyclists may be present.

Discretionary Shoulders are signed roadways where bicyclists are to travel in the shoulder when they are not being used for parking.

Class III bike routes have been designated on Main Street and a portion of the westbound lane of Broadway.



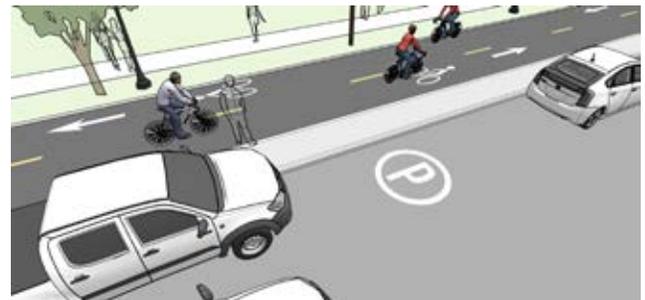
Example of a Class III Bicycle Route



Example of a Class III Bicycle Route on Main Street

Class IV Separated Bikeways are on-street bicycle facilities that are physically separated from motor vehicle traffic by a vertical element or barrier such as a curb, bollards, or parking aisle. They can allow for one- or two-way bicycle travel on one or both sides of the roadway.

No Class IV bikeways exist in Placerville.



Example of a Class IV Separated Facility



Example of a Class IV Separated Facility

Pedestrian Facilities

Conducting a sidewalk audit to inventory sidewalks within a 1/3 mile of activity generators and destinations was part of this planning process. Currently, a large network of sidewalks and marked crosswalks exist Placerville. However, in places this network is incomplete, in disrepair, or only has existing on one side of the street.

Completed Active Transportation Projects

Since the adoption of the 2010 City of Placerville Non-Motorized Transportation Plan, the following active transportation projects have been completed in Placerville:

- Upper Broadway Bike Lanes & Sidewalks (2020)
- El Dorado Trail in Placerville
- Class II Bike Lanes on Mallard Lane
- Class II Bike Lanes on Broadway
- Sidewalks on Fair Lane
- Class III Fog Line Striping on Spring Street
- Class III Fog Line Striping on Pacific Street
- Class III Fog Line Striping Schnell School Road
- Broadway
- Class III Bicycle Route on Main Street
- Class II Bike Lane on Forni Road
- Class II Bike Lane on Ray Lawyer Drive
- Class I El Dorado Trail segment on Forni Road
- Canal Street Fog Line Striping at El Dorado High School

BICYCLE AND PEDESTRIAN RELATED COLLISIONS

Data on bicycle- and pedestrian-related collisions can provide insight into locations or roadway features that tend to have higher collision rates, as well as behaviors and other factors that contribute to collisions. Collision data involving people walking and bicycling was acquired from the UC Berkeley Transportation Injury Mapping System (TIMS), which includes only fatal or injury collisions reported on roadways; typically, collisions on Class I facilities may not be reflected in this dataset, or may be reflected on the nearest roadway. Five years of data were evaluated, from 2013 through 2017.

A total of 142 collisions were reported in the City of Placerville during the five-year study period. Of these, 12 (8.5%) involved a pedestrian and 8 (5.6%) involved a bicyclist. On average during the five-year period, there were 2.4 collisions involving a pedestrian and 1.6 collisions involving a bicycle. Figure 2-6 shows annual totals of bicycle and pedestrian collisions in Placerville during the five-year period.

Bicycle collisions were highly concentrated along Ray Lawyer Drive while pedestrian collisions tended to be concentrated along Main Street and Broadway. Ray Lawyer Drive is a road that serves as a gateway into and out of Placerville for recreational rides. Many of the pedestrian collisions happened at, or near, intersections along Main Street and Broadway.

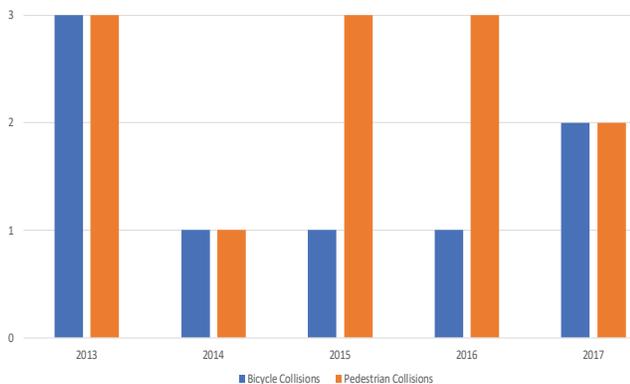


Figure 2-6: Placerville Annual Bicycle and Pedestrian Collisions

Bicycle Collisions

During the five year study period, the data show 8 collisions in Placerville involved a person riding a bicycle. Of these, none were fatal, while 2 resulted in severe injuries (Figure 2-7).

75% of collisions occurred during daylight hours, and an additional 13% occurred at night where street lights were present and functioning.

Bicyclists were determined to be at fault in 2 of the 8 collisions reported during the study period. Bicyclist violations included riding on the wrong side of the road, which can suggest a lack of adequate bicycle facilities, a lack of safe crossing opportunities, or a need for education on safe bicycling, and Automobile Right of Way, which suggests a lack of adequate infrastructure for the cyclist, forcing the user to use the travel lane.

Drivers were determined to be at fault in 3 of the 8 bicycle involved collisions during the study period. The most common violation was failing to yield the right of way.

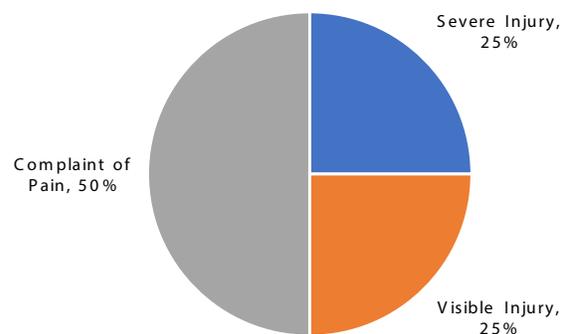


Figure 2-7: Placerville Bicycle Collision Severity

Pedestrian Collisions

There were 12 collisions in Placerville that involved a pedestrian during the five year study period. Of these, none were fatal, while 2 resulted in severe injuries (Figure 2-8).

Almost two-thirds (58%) of the pedestrian collisions occurred during daylight hours. A third of the pedestrian collisions occurred at night where street lights were present and functioning. This can suggest a lack of safe, marked crossings for the pedestrians near the location of the collision.

Pedestrians were determined to be at fault in 2 of the 12 collisions. Those collisions were all under the umbrella of Pedestrian Violation, terms commonly used to describe collisions with pedestrians crossing at unmarked crossings. This often suggests a lack of adequate crossings or pedestrian facilities.

Drivers were determined to be at fault in 6 of the 12 collisions. The violations included unsafe starting or reversing, unsafe speed, driving on the wrong side of the road, and failure to yield to pedestrians.

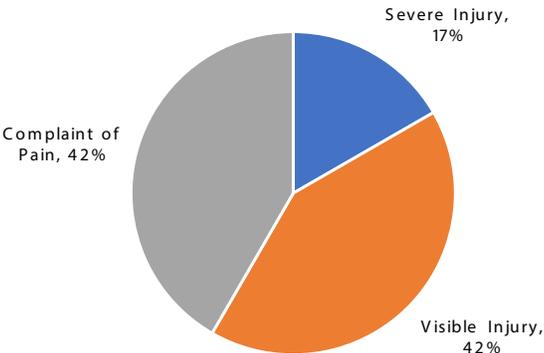


Figure 2-8: Placerville Pedestrian Collision Severity

EXISTING ACTIVE TRANSPORTATION PROGRAMS

May is Bike Month

May is Bike Month is a national campaign to get more people to enjoy the benefits of bicycling by promoting and supporting cycling events during the month of May. El Dorado County has been participating in this annual campaign since 2005.

Bicycle Rodeos

California Highway Patrol conducts educational events called Bicycle Rodeos. These events are conducted once a year at the El Dorado County Library in Placerville. The educational program includes bicycle inspections, helmet fit checks, as well as a riding skills event.

BICYCLE AND PEDESTRIAN COLLISIONS

Placerville, CA

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION
PLAN

Bicycle Collisions (2013 - 2017)

-  Severe Injury
-  Minor Injury

Pedestrian Collisions (2013 - 2017)

-  Severe Injury
-  Minor Injury

Destinations + Boundaries

-  Hospital
-  Library
-  Transit Center
-  Commercial Area
-  Water
-  Park

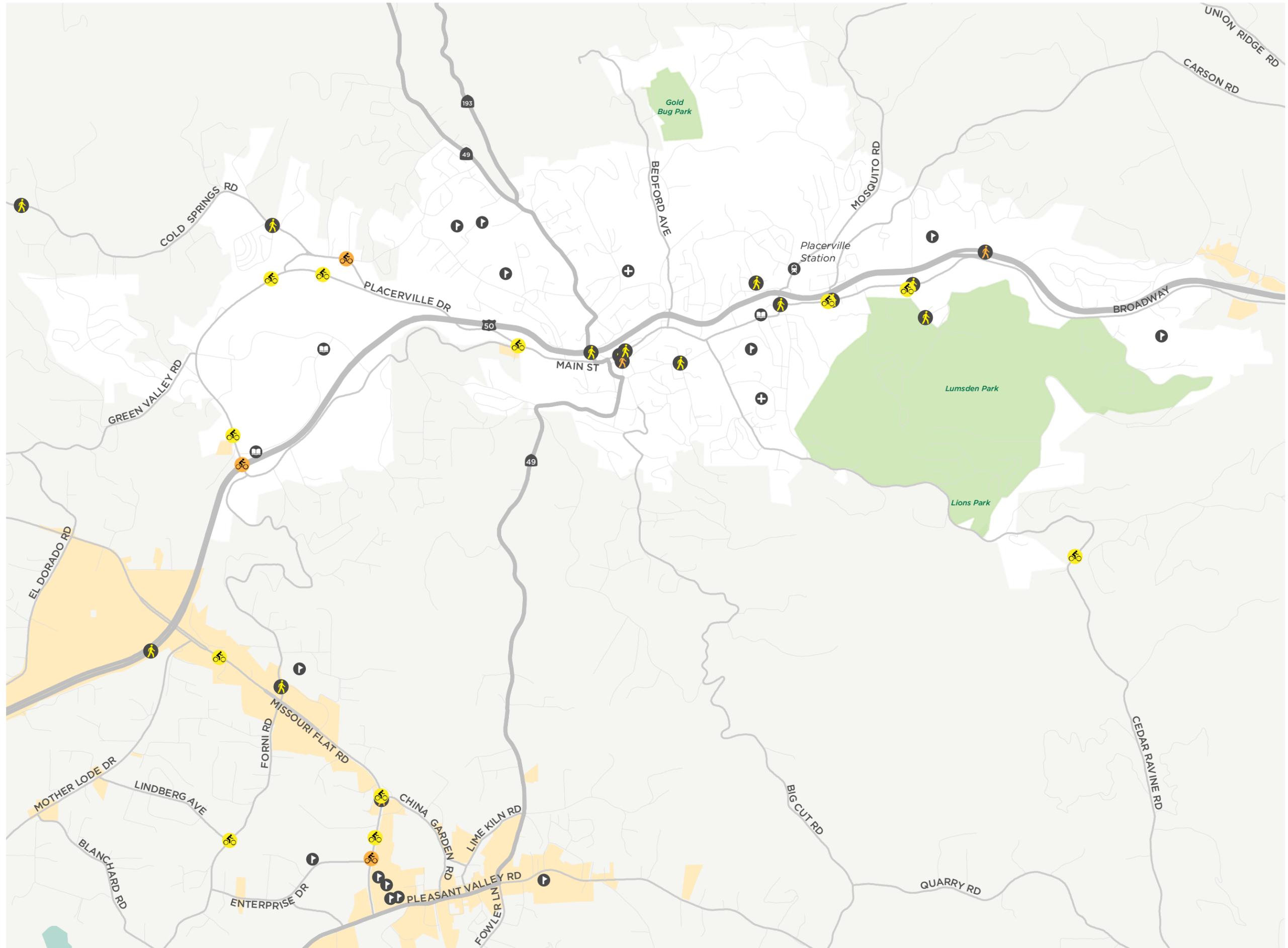


Figure 2-9: Collisions involving Bicyclists and Pedestrians in the City of Placerville

This page is intentionally left blank.



**CHAPTER 3:
VISION, GOALS
& STRATEGIES**

The Active Transportation Plan vision, goals, objectives, and strategies were developed with input from the Stakeholder Advisory Committee. They are intended to address the active transportation needs and to provide guidance and strategies to support the active transportation mode. Within this Chapter these elements are presented by topic area and are not presented in any prioritized manner. Active transportation projects will be considered where needs exist and there is available funding to deliver and maintain the improvements that will serve as a viable transportation alternative.

Vision

Placerville aims to be a healthy, safe, and thriving region where walking and bicycling are increasingly feasible options for travel, providing people of all ages and abilities safe, convenient, and accessible multi-modal transportation options.

Goals

- 1. Safety:** Design bicycle and pedestrian facilities that are safe, accessible and comfortable for people of all ages and abilities.
- 2. Health:** Provide people of all ages and abilities with access to walking and bicycling facilities to improve health and enhance quality of life
- 3. Connectivity:** Identify, develop, and maintain a connected, safe and convenient bicycle and pedestrian network that meets the needs of commuters and recreational users of all skill levels.
- 4. Funding and Implementation:** Identify and pursue local, county, regional, state and federal programs that would fund bicycle and pedestrian capital improvements and programs.



A Placerville resident utilizing the El Dorado Trail to enjoy the benefits of active transportation on a nice day.



The El Dorado Trail provides a safe and comfortable connection for active transportation across Placerville as well as connections to El Dorado County.

Objectives & Strategies



GOAL 1: SAFETY

Design bicycle and pedestrian facilities that are safe, accessible and comfortable for people of all ages and abilities.

Objective 1.1: Improve safety for people walking and bicycling through education and enforcement programs.

- **Strategy 1.1.1:** Work with local law enforcement agencies, EDCTC, schools, and other partners to develop and provide bicycling and walking education to school children in Placerville.
- **Strategy 1.1.2:** Maintain a countywide bike map that includes information on safe bicycling behavior.
- **Strategy 1.1.3:** Develop an online or printed brochure to educate people of all ages and abilities on how to bicycle safely and drive motorized vehicles with an awareness of bicyclists and pedestrians. Share this information with driver education providers and high schools, and post information on the EDCTC, El Dorado County and City of Placerville websites.

Objective 1.2: Proactively address safety for people walking and bicycling at potential conflict locations.

- **Strategy 1.2.1:** Review the number, locations, and contributing factors of bicycling related collisions to identify and implement ongoing improvements at key locations throughout the transportation network.
- **Strategy 1.2.2:** Enhance the visibility and safety of crossings through enhanced visibility of Class I Shared Use Path crossings, proper marking of Class II bicycle lanes at intersection approaches, and clear marked crosswalks for pedestrians.
- **Strategy 1.2.3:** Use performance measures from the El Dorado County Active Transportation Connections Study to understand and develop solutions to barriers to safe pedestrian and bicycle transportation.
- **Strategy 1.2.4:** Work to address safety challenges identified by Placerville residents and as reported in the El Dorado County Active Transportation Connections Study Survey, and identified in the El Dorado County and City of Placerville Bicycle and Pedestrian Safety Assessments.

- **Strategy 1.2.5:** Increase the number of streets in El Dorado County and its communities that are pedestrian and bicycle friendly by closing gaps in the existing active transportation network and providing bicycle and pedestrian amenities in new developments whenever feasible.
- **Strategy 1.2.6:** Analyze the best practices, new technologies, and innovations in active transportation facilities and safety improvements to determine what can be applied in the City of Placerville.
- **Strategy 1.2.7:** Encourage retrofit projects on substandard bicycling and walking facilities to meet or exceed most recent design standards.
- **Strategy 1.2.8:** Coordinate with Caltrans to address safety concerns and provide safe and comfortable bicycle and pedestrian facilities on Caltrans maintained facilities in the County.



GOAL 2: HEALTH

Provide people of all ages and abilities with access to walking and bicycling facilities to improve health and enhance quality of life.

Objective 2.1: Increase walking and bicycling as transportation modes to improve air quality and public health.

- **Strategy 2.1.1:** Work to increase the percent of adults in Placerville that walk at least 150 minutes per week for transportation or recreation in order to meet the minimum level of physical activity recommended by the Centers for Disease Control and Prevention.
- **Strategy 2.1.2:** Construct active transportation projects and support the implementation of programs that increase the physical activity level of residents.
- **Strategy 2.1.3:** Increase the number of walking and bicycling trips by encouraging the development of infrastructure that provides the amenities of a recreational route, connects to multiple destinations, including work and shopping destinations, and decreases safety concerns.

Objective 2.2: Improve coordination with local and regional public health agencies.

- **Strategy 2.2.1:** Evaluate health outcomes using the preferred criterion identified in the El Dorado County Active Transportation Connections Study.



GOAL 3: CONNECTIVITY

Identify, develop, and maintain connected and convenient bicycle and pedestrian networks that meet the needs of commuters and recreational users of all skill levels.

Objective 3.1: Provide safe and accessible connections to important community destinations.

- **Strategy 3.1.1:** Support the Safe Routes to School (SRTS) program for students, and support implementation of additional SRTS program activities at schools.
- **Strategy 3.1.2:** Support the development of a bicycle network that safely and comfortably connects residential neighborhoods to destinations like employment centers, grocery stores, community centers, schools and shopping areas.
- **Strategy 3.1.3:** Identify and eliminate gaps to provide comprehensive community-wide networks and reduce travel time and trip distance for bicyclists and pedestrians.
- **Strategy 3.1.4:** Identify major activity centers and coordinate active transportation, housing and land use planning to maximize opportunities for increased active transportation and transit use.

- **Strategy 3.1.5:** Install directional signage to guide people bicycling to key destinations and routes.
- **Strategy 3.1.6:** Maintain a robust public outreach strategy to engage and solicit input from community stakeholders, the general public, underrepresented/disadvantaged communities and local jurisdiction staff regarding active transportation needs and projects.
- **Strategy 3.1.7:** Analyze priority active transportation improvements using a performance-based approach as identified in the El Dorado County Active Transportation Connections Study.

Objective 3.2: Support regional connectivity for active transportation.

- **Strategy 3.2.1:** Maximize coordination between EDCTC, El Dorado County, the City of Placerville, Community Services Districts, and neighboring jurisdictions to create continuity across boundaries.
- **Strategy 3.2.2:** Develop active transportation routes along major arterials and highways to support long distance bicycle commuting.
- **Strategy 3.2.3: Coordinate** Active Transportation Plan implementation with county and regional planning efforts such as the El Dorado County Regional Transportation Plan and Sacramento Area Council of Governments Metropolitan

Transportation Plan/Sustainable Communities Strategy.

Objective 3.3: Maintain the active transportation network at an acceptable condition.

- **Strategy 3.3.1:** Use the California Manual of Uniform Traffic Control Devices (CAMUTCD) and the Caltrans Highway Design Manual as guidance for contractors and County and City inspectors to address the impact of roadway construction and maintenance projects on active transportation facilities, and require safe and convenient accommodation for bicyclists and pedestrians through construction zones.
- **Strategy 3.3.2:** Develop a system for identifying, evaluating, reporting, and responding to maintenance and safety issues on the active transportation

network, including a system for residents to report maintenance needs.

Objective 3.4: Support multimodal connections between active transportation and transit.

- **Strategy 3.4.1:** Create Safe Routes to Transit for pedestrians and bicyclists.
- **Strategy 3.4.2:** Work with El Dorado Transit Authority to provide bicycle parking at transit stops and bicycle racks on buses.
- **Strategy 3.4.3:** Ensure new transit stops are accessible for pedestrians, including convenient crossings of nearby arterials.
- **Objective 3.5:** Implement the El Dorado Trail.
- **Strategy 3.5.1:** Develop sections of the El Dorado Trail as identified in this Plan.
- **Strategy 3.5.2:** Develop bicycle and pedestrian connections from the El Dorado Trail to employment centers and other destinations.



GOAL 4: FUNDING AND IMPLEMENTATION

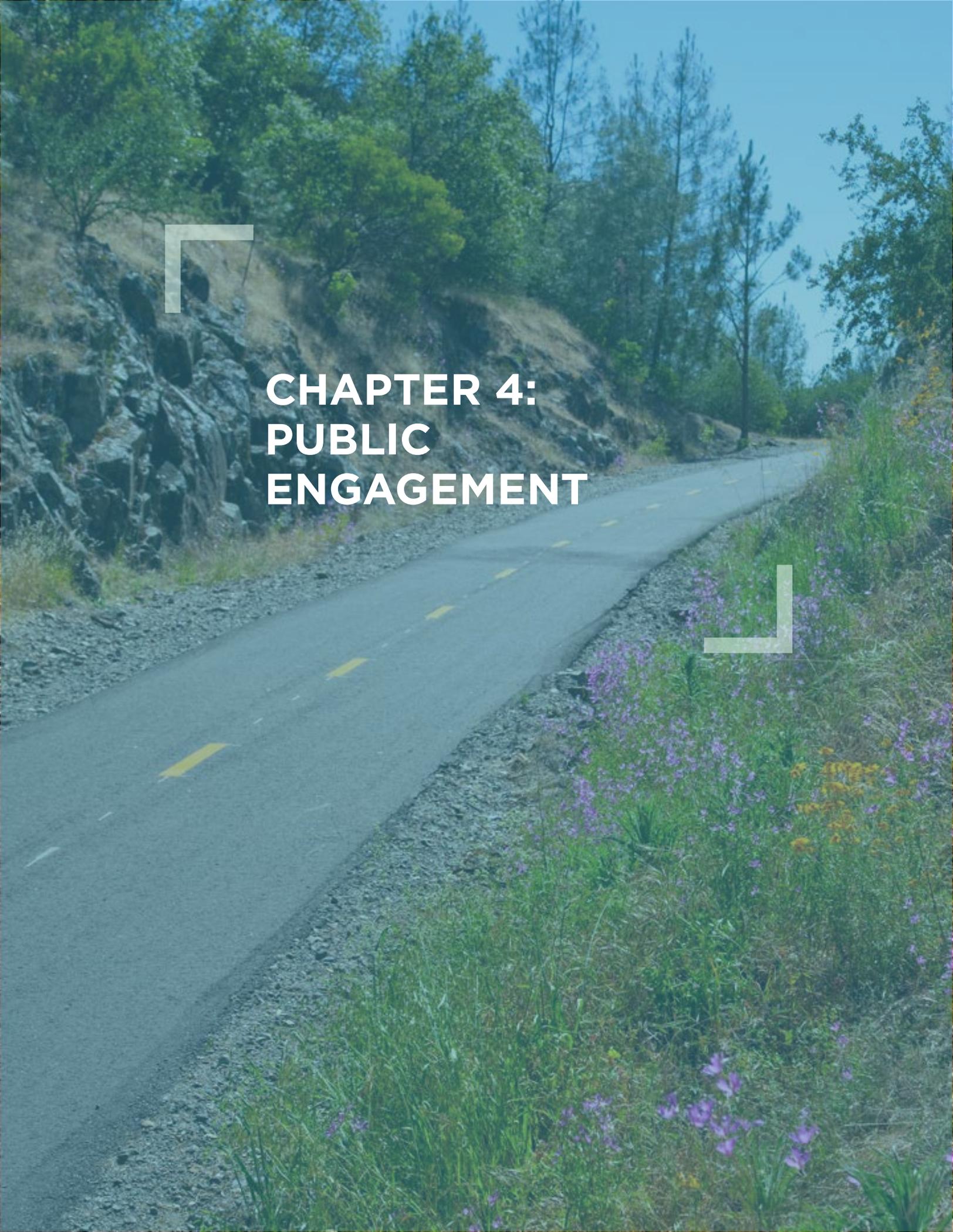
Identify and pursue local, county, regional, state and federal programs that would fund bicycle and pedestrian capital improvements and programs.

Objective 4.1: Identify and prioritize improvements for bicycling and walking in Placerville.

- **Strategy 4.1.1:** Incorporate local and regional planning for active transportation infrastructure and support facilities.
- **Strategy 4.1.2:** Consider use of the Capital Improvement Program (CIP) for construction and maintenance of bicycle and pedestrian projects.
- **Strategy 4.1.2:** Maintain a list of low-cost bicycle and pedestrian improvements to be incorporated into annual transportation budgets, including routine repaving or other maintenance activities as appropriate.
- **Strategy 4.1.3:** Maintain a regularly updated Active Transportation Plan that identifies existing conditions, future needs, and implementation priorities in addition to providing specific recommendations for active transportation facilities in existing, new, and redeveloping areas.

Objective 4.2: Pursue funding to implement and maintain the projects and programs in this Plan.

- **Strategy 4.2.1:** Support the development of an active transportation funding and life cycle maintenance strategy.
- **Strategy 4.2.2:** Partner with other agencies and private businesses and organizations to pursue funding of priority active transportation projects.
- **Strategy 4.2.3:** Support projects that are more competitive for grant funding, including projects that will reduce reliance on motor vehicles, especially for short trips, to reduce greenhouse gases and other pollutants. Where applicable, use findings from the El Dorado County Active Transportation Connections Study in support of this strategy.



**CHAPTER 4:
PUBLIC
ENGAGEMENT**

Community Input

Community engagement within Placerville has been a priority throughout the Plan development process. A variety of outreach opportunities were used to seek input from a diverse set of Placerville residents and community members.

The Plan development process also included extensive coordination with partner agencies to ensure this Active Transportation Plan meets community needs, advances initiatives of local and regional partners, and includes projects and programs that can feasibly be implemented.

Ongoing outreach ensured a continuous feedback loop that informed the final project list and Plan. Specific events and opportunities included:

COMMUNITY MEETINGS

- 3 Stakeholders Meetings
- 3 Non-Traditional Outreach Events
- 2 Public Meetings

ONLINE

- Interactive Mapping Tool

STAKEHOLDER MEETINGS

A Stakeholder Advisory Committee was developed to help incorporate feedback of individuals involved in the planning process, public works priorities, experts in bicycle and pedestrian safety and advocacy, as well as other key stakeholders in the City of Placerville and El Dorado County. The Committee reviewed selected project deliverables and provided guidance on bicycle and pedestrian network recommendations. They also played an important role in promoting this plan's public engagement tools and activities.

Three Stakeholder meetings were held as a part of the outreach efforts to support this Plan.

The three Stakeholder Meetings took place on the following dates:

- October 24, 2018
- April 25, 2019
- August 15, 2019



Cyclists enjoying the El Dorado Trail.

STAKEHOLDER ADVISORY COMMITTEE MEMBER ORGANIZATIONS

Bicycle and Pedestrian Advocacy Organizations

- El Dorado Hills Bike/Pedestrian Safety Coalition
- Bicycle and Pedestrian Advocates of Cameron Park/Shingle Springs
- Friends of El Dorado Trail
- Utilitarian Cyclists Group
- Walk Sacramento

Seniors

- Commission on Aging

Chambers of Commerce, Business, Community or Tourist-Oriented Groups

- El Dorado County Chamber of Commerce
- Placerville Downtown Association
- Shingle Springs/Cameron Park Chamber of Commerce
- El Dorado Hills Chamber of Commerce
- Divide Chamber of Commerce
- Coloma/Lotus Chamber of Commerce
- Diamond Springs/El Dorado Community Advisory Committee
- Placerville Drive Business Association
- Bike Friendly 50 Corridor Members – El Dorado County
- Shingle Springs Community Alliance
- El Dorado Community Foundation
- Museum/Historical Society

Schools, Youth, and Health Groups

- El Dorado County Office of Education
- Folsom Lake College
- Boys and Girls Club
- El Dorado County Public Health
- Schools
- Disabled Advocate

Public Agencies

- City of Placerville
- El Dorado County
- Caltrans
- SACOG
- SPTC JPA

Service Providers

- El Dorado Transit
- Cameron Park Community Services District
- El Dorado Hills Community Services District

PUBLIC WORKSHOPS

As part of an effort to conduct comprehensive and equitable outreach, non-traditional events were identified for outreach. The County held two non-traditional, pop-up outreach events in the Fall of 2018.

The first pop-up event was held at the El Dorado Hills Farmer's Market on Sunday, October 28, 2018 from 8:00 am to 1:00 pm, and at the Placerville Farmer's Market on Saturday, November 3, 2018 from 8:00 am to 12:30 pm. Many participants were vendors or patrons of the farmer's markets and were invited to engage with project staff to provide feedback on active transportation. A map of the project area was available to help identify specific locations of concerns or opportunities for walking and bicycling, though project staff collected general comments as well.

The Placerville Farmer's Market is hosted on the El Dorado Bike Trail. As a result, some individuals were actively using the trail for recreational walking or bicycling when they stopped to participate in the pop-up event. Another result of the location of this event was that some participants limited their feedback to the El Dorado Bike Trail. In most cases, project staff were able to prompt participants to provide further feedback about the broader City of Placerville and the surrounding region.

Key themes from the responses received include:

- Concerns about drivers speeding and failing to stop at stop signs.
- Lack of sidewalks, especially on hilly terrain where sight distance may be limited, is a concern.
- Additional sidewalks and bike lanes, especially to and from neighborhood parks and civic amenities, would be welcomed.
- Parents would like to see safer routes to schools, especially to cross busy roads on foot, and to provide dedicated space for bicycling.
- Increased connectivity between existing facilities would be welcomed.

The third outreach event was held at the Placerville Earth Day event on April 27, 2019. At this event, participants used tablets to complete the online webmap, identifying barriers, desired routes, and destinations.

INTERACTIVE MAP

A custom interactive webmap was developed to allow El Dorado County and the City of Placerville residents to identify walking and biking destinations, barriers, and routes that could be improved. The webmap received 517 responses from over 150 unique users. Many of these responses identified infrastructure deficits within the City of Placerville. The interface for the webtool and its results is shown below in Figure 4-1.

Identified destinations discussed the needs for safe connections to facilitate travel between downtown, Lions Park, and schools within the City.

Respondents were also asked to highlight walking routes and biking routes. Respondents used online tools to draw lines where infrastructure improvements were necessary, which roads or streets posed barriers, or which streets they use for walking and biking. Respondents often free-hand drew lines to symbolize the need to connect certain areas or to parallel dangerous roads. Respondents identified multiple streets where a lack of sidewalk have led to community concern for safety.

Walking and Biking Barriers were also identified by the survey respondents. Many of the identified barriers pointed to a lack of safe crossings for bicyclists and pedestrians or a lack of sidewalks or other pedestrian facilities.

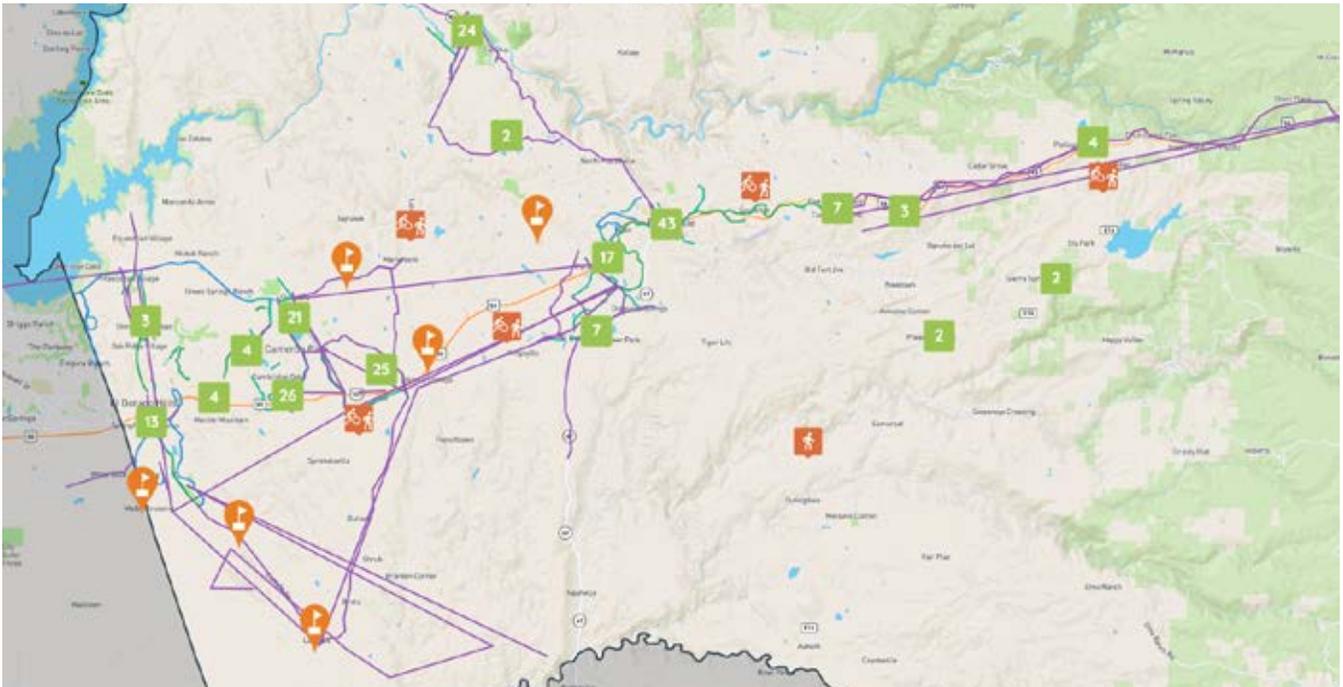


Figure 4-1: Respondents were asked to draw biking and walking routes, as well as identify barriers and destinations. Some respondents chose to draw the routes by hand, which are symbolized by the straight lines drawn on the map.

CITY OF PLACERVILLE PUBLIC INPUT

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

Identified Routes

- Biking Route
- Walking Route

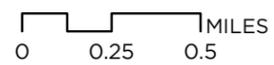
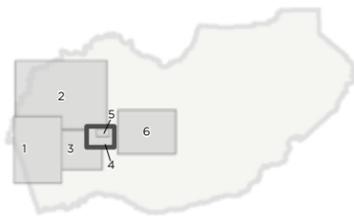
Activity Generators

-  Trailhead
-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Destinations + Boundaries

- Park
- Water

Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

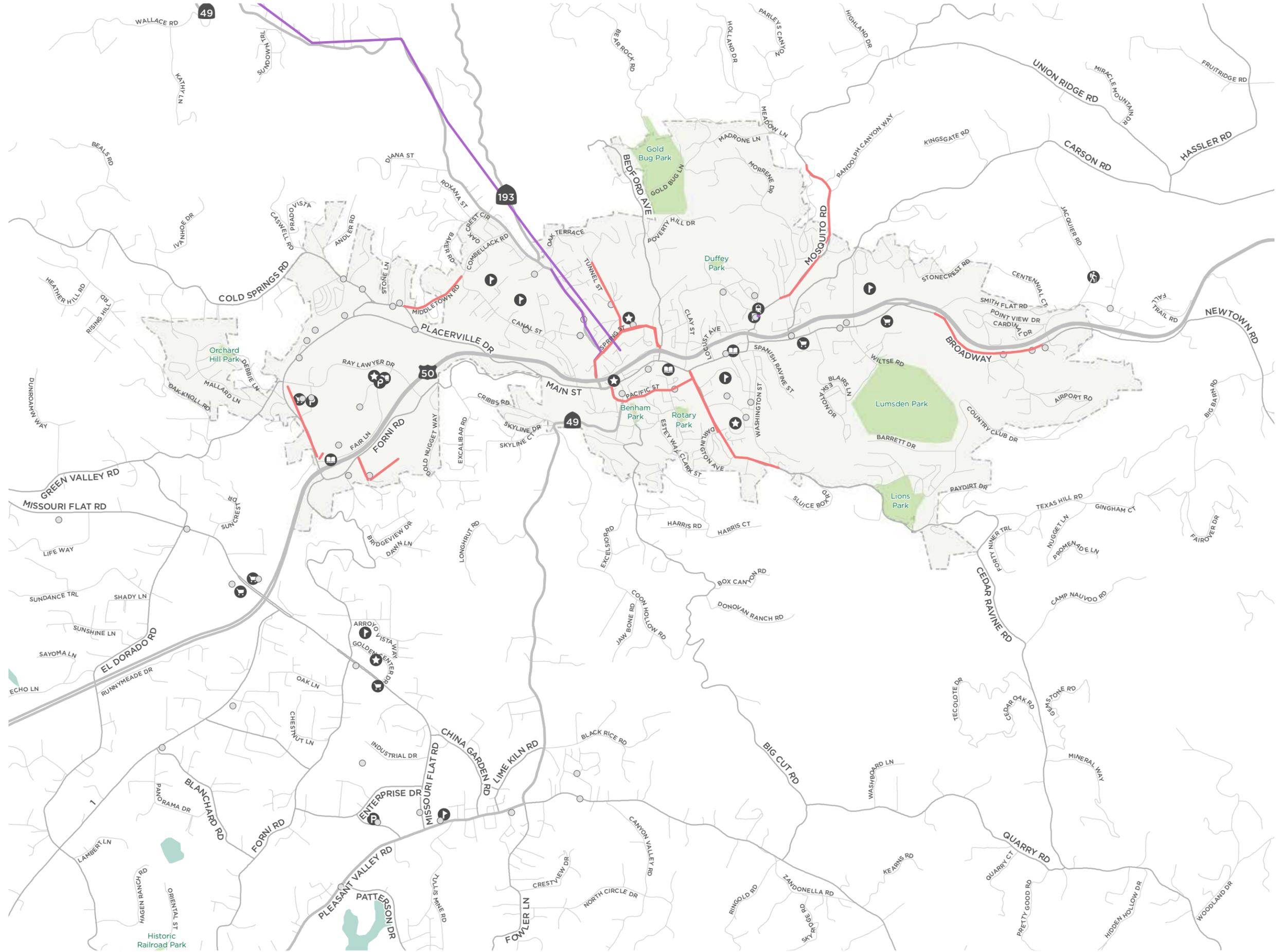


Figure 4-2: Community Identified Routes

CITY OF PLACERVILLE PUBLIC INPUT

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

Identified Barriers

- Biking Barrier
- Walking Barrier
- Walking and Biking Barrier

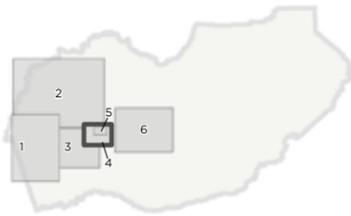
Activity Generators

-  Trailhead
-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Destinations + Boundaries

- Park
- Water

Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



0 0.25 0.5 MILES



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

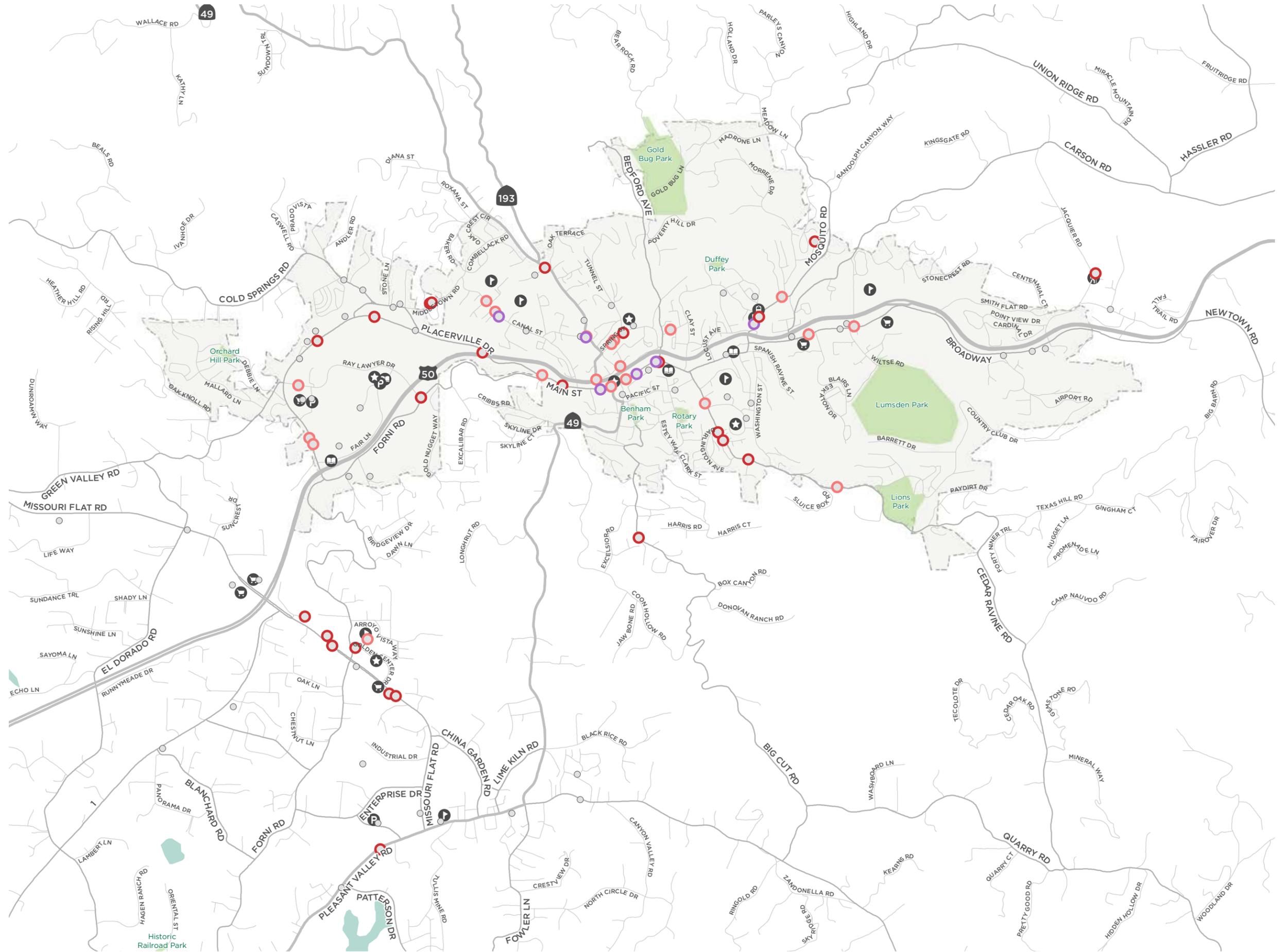


Figure 4-3: Community Identified Barriers To Biking and Walking

CITY OF PLACERVILLE PUBLIC INPUT

CITY OF PLACERVILLE ACTIVE TRANSPORTATION PLAN

Identified Destinations

-  Destination

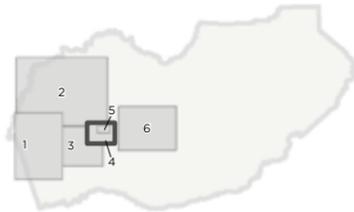
Activity Generators

-  Trailhead
-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Destinations + Boundaries

-  Park
-  Water

Maps intended for planning purposes only. Proposed Improvements are not intended for route planning or navigation.



0 0.25 0.5 MILES



Map produced July 2019
Sources: El Dorado County, Caltrain, Esri, US Census.

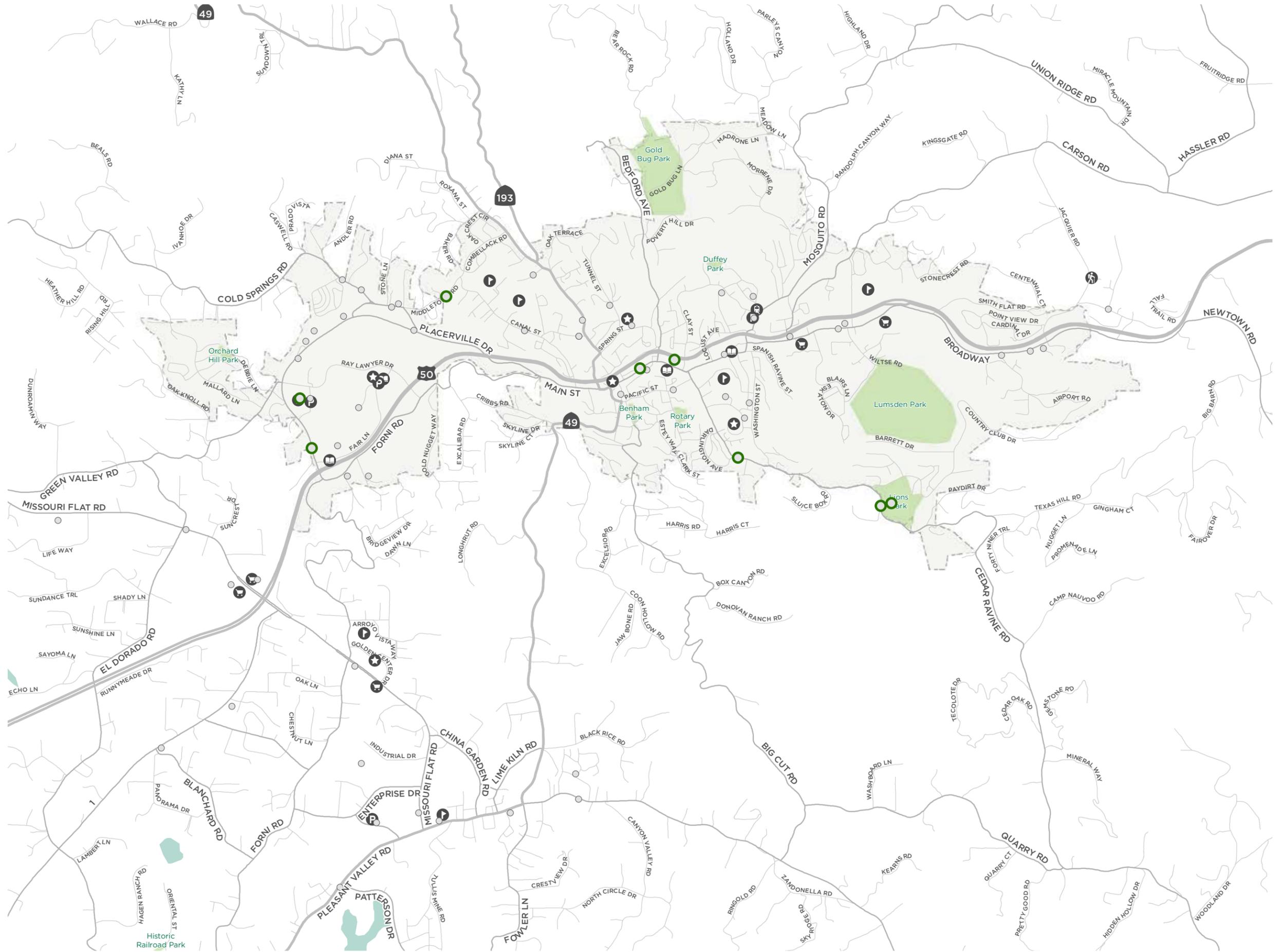


Figure 4-4: Community Identified Destinations

This page is intentionally left blank.



**CHAPTER 5:
RECOMMENDED
PROGRAMS**

This section describes recommended bicycle and pedestrian related programs for Placerville. The recommendations are organized in four E's:

- **Education** programs are designed to improve safety and awareness. They can include programs that teach students how to safely cross the street, or teach drivers where to anticipate bicyclists and how to share the road safely.
- **Encouragement** programs provide incentives and support to help people leave their car at home and try walking or bicycling instead.
- **Enforcement** programs enforce legal and respectful walking, bicycling, and driving. They include a variety of approaches, ranging from police enforcement to neighborhood signage campaigns.
- **Evaluation** programs are an important component of any investment. They help measure success at meeting the goals of this plan and to identify adjustments that may be necessary.

Programs recommended on the following pages should include outreach and education in both English and Spanish to serve the diverse Placerville community.

Available funding sources for these programs are included in Chapter 8. Potential funding sources include the following statewide programs: Active Transportation Program, Office of Traffic Safety, and Affordable Housing & Sustainable Communities.



In addition to implementing facilities, it is frequently necessary to implement programs to support the use of active transportation. Active transportation programs promoting bicycling and walking to school have been great successes in other communities.



Implementing programs aimed at promoting active transportation can also serve as a tool to engage the community and gather input around the community's vision for the active transportation network.

EDUCATION

“StreetSmarts” Campaign

Placerville can join with other California cities and Counties by implementing a “StreetSmarts” media campaign. StreetSmarts uses print media, radio, and television to educate the community about safe driving, bicycling, skateboarding, and walking behavior.

A “StreetSmarts” campaign would give Placerville an opportunity to tailor the public outreach to address the most current priorities they have heard from the community.

Artwork for the updated campaign could be created by local students as part of a Traffic Safety Poster Contest, or photos of local families on streets that will be familiar to the community could be used. Posters could also highlight and share information about newly completed projects, such as green transition areas. Funding could be provided by a grant from the California Office of Traffic Safety.

To maximize engagement and effectiveness of the campaign, the City can develop messaging and choose graphics with involvement from the Bicycle and Pedestrian Advisory Board, Well Dorado, law enforcement, schools, business owners, civic leaders, and community advocates.

Bicycle Safety Education for Adults

Bicycling education for adults can build confidence and improve safety by incorporating both presentations and on-bike practice covering rules of the road and safe bicycling skills. This program can build off of the success of similar programs dedicated to educating school children on the benefits of bicycling and bicycling safety protocol.

The League of American Bicyclists offers multiple curricula that can be taught by League Certified Instructors in the area, or bicycling advocacy groups in the region may be interested in partnering to offer educational opportunities to Placerville residents.

The City can support these efforts by advertising classes, providing meeting space, or by direct funding of classes.

More information on the League of American Bicyclists courses is available at bikeleague.org/ridesmart.

Safe Routes to School Program

Placerville would benefit from a robust Safe Routes to School (SRTS) program

This Plan recommends the City seek grant funding to prepare a SRTS Plan to document and evaluate effectiveness of existing program activities, and identify priority programs to expand to all schools. This should include suggested routes to school maps at all schools, which help families plan their walking or bicycling trip to school by highlighting enhanced crossings and bikeways.

A Safe Routes to School program could be piloted for a time of one to two years at interested schools to assess interest in and viability of a City-wide program.

ENCOURAGEMENT

Train Staff to Support Bicycle and Pedestrian Programs

This Plan recommends training City Planning and Engineering staff in active transportation needs, education, and outreach. Staff could ensure that all planning, public works, and transportation projects account for bicyclists and pedestrians. They can also write grant applications to fund projects and programs and serve as a City liaison for all bicycle and pedestrian coordination with the public and neighboring jurisdictions.

If funding is not available to create a new position, the City can hire interns to work on bicycle and pedestrian projects until a suitable full-time staff member can be found. Partner organizations and foundations could fund staff member salaries, fellowships, or contractor salaries for a set period of time. The City should apply for grants from one or more of these foundations.

Social Walks/Rides

Supporting social walks and bicycle rides in Placerville can provide many benefits to the community. People who are uncomfortable bicycling or walking alone, or who are unfamiliar with the best routes to use, will benefit from having a group to show them the way. Rides can also be used as informal education opportunities to remind participants about safe walking and bicycling behavior and sharing the road, or combined with other efforts like tours of historic neighborhoods.

This Plan recommends the City pursue grants to fund and promote rides and walks, as well as partner with or support local organizations who wish to host the rides or walks.

Bike Rack Program

Bike Rack programs coordinate and streamline bike rack installations. This also ensures bike racks are properly installed so as to not block sidewalks while still being usable for bicyclists.

Currently, there are no bike corrals installed in Placerville. The City could install bike corrals in high-traffic locations such as in vehicle parking spots in El Dorado Hills. This not only sends a statement that secure bike parking is important to community members, but bike corrals increase visibility at intersections for all roadway users. An increase in visibility should reduce the risk of a collision in these locations.

The City could also develop customized bike racks. These racks can serve as a “brand,” highlighting Placerville’s identity as a bicycle-friendly community, while doubling as art features.

Where appropriate, this program could also coordinate with local businesses to provide bicycle lockers or other secure parking for employees and long-term visitors. Secure long-term parking is a key component of the bicycle network to encourage employees to bicycle instead of driving, and helps reduce bicycle theft. Bicycle lockers should also be considered in downtown Placerville and at commercial hubs to serve people shopping or running multiple errands who would like a secure place to store their bicycle and deposit purchases or other items during their trip.

Bicycle Friendly Business Program

Bicycle Friendly Business programs recognize businesses who make it easy and convenient for both employees and customers to arrive by bicycle. This requires different strategies to accommodate the different needs of customers and employees. For customers, providing bicycle parking and supporting City bicycling projects can make it safer and easier to travel by bicycle. Some businesses also choose to offer discounts or incentives to people who bicycle.

For employees, offering secure long-term parking for bicycles is key. This could include a secure gated bicycle parking area, or access to bicycle lockers. If space is not available for dedicated secure bicycle parking, business owners and landlords can consider allowing employees and tenants to bring bicycles inside and store them in their workspace or another designated location. Providing changing areas, showers, or lockers to store belongings can also make it easier for employees to bicycle to work.

By recognizing businesses who support bicycling, Placerville can support their local economy while fostering partnerships with the Chamber of Commerce and business owners to build community support for bicycling projects and programs. The League of American Bicyclists has a Bicycle Friendly Business program that the City of Placerville can model theirs off of.

Walk & Roll to School Days

Walk & Roll to School Days are events that encourage students and families to try walking or bicycling to school. The most popular events of this type are International Walk to School Day held in early October, and Bike to School Day held in early May. Many communities choose to celebrate walking and bicycling on both days, in addition to roller skating, skateboarding, and scootering.

Families that live too far from their school to walk or bicycle the full distance should be encouraged to park at a designated location a few blocks away or up to one mile from campus. From there, parents and students can complete their trip to school by walking or rolling.

Volunteers can set up a welcome table for participating students, and may opt to provide refreshments, small incentive prizes, or an interactive poster that allows students to record their mode of transportation used that day.

Once established on an annual basis, Walk & Roll to School Days can be expanded by adding monthly or weekly events, coordinating friendly competitions between classrooms, or by organizing groups to walk or bicycle together.



Example of Walk & Roll to School Days program

Wayfinding

Wayfinding signs direct bicyclists or pedestrians along the existing network and to key community destinations. Signs typically include distance or time and direction (using an arrow) to key destinations. Placerville currently does not have a consistent wayfinding sign program implemented throughout the City.

The California Manual on Uniform Traffic Control Devices (CA MUTCD) includes standard bicycle wayfinding signs, but they are also used for Class III Bicycle Route signs. This may cause confusion for bicyclists, and does not serve pedestrian wayfinding. Some cities have modified the standard sign to change “bike route” to “bikeway,” and others have developed and installed non-standard enhanced wayfinding signs that include unique branding for the community. The non-standard option provides the most flexibility to meet community needs and serve both bicyclists and pedestrians.

This Plan recommends the City develop a comprehensive wayfinding program for bicyclists and pedestrians. This wayfinding should also take into account existing network connections. With segments of the El Dorado Trails creating an extensive off-road travel route, this method of travel should be prioritized in the wayfinding system of its on-street counterpart facilities.



An example of wayfinding for bicyclists.

ENFORCEMENT

Targeted Enforcement

The Placerville Police Department currently conducts targeted enforcement periodically based on requests from the community or focus areas of grant funding received.

This Plan recommends continuing these efforts, with a focus on those behaviors that create the greatest risk or potential conflict, and care should be taken that programs do not unfairly target specific demographics or modes of transportation. This Plan also recommends continuing current educational enforcement activities, where officers stop individuals and discuss the unsafe behavior observed without issuing citations.

Behaviors and locations for targeted enforcement should be reviewed each year based on collision data and community input. Current behaviors cited as challenges during public outreach for this Plan include drivers failing to stop at red lights and yield to pedestrians in crosswalks, parking in bicycle lanes, pedestrians crossing streets at undesirable locations, and bicyclists riding on the wrong side of the road.

Crossing Guard Program

Crossing guards can improve safety and comfort for students and families walking to school by increasing visibility of crossing pedestrians and helping children only cross the street when oncoming traffic has yielded. Providing training and resources to volunteer crossing guards can help ensure best practices are met for equipment use and crossing protocols.

The City can support a crossing guard program by sharing training resources with schools, offering meeting space for trainings, or pursuing funding for materials including high visibility vests and stop paddles.

California offers free online resources for crossing guard training, available at:

caActive Transportation
Planresources.org/?pid=1305.

EVALUATION

Annual Report Card

An annual report card serves as an evaluation assessing the City's progress toward goals and objectives outlined in this Plan, implementation of the recommended projects and programs, and changing mode splits for active transportation. In addition to tracking these data, annual report cards can incorporate a review of effectiveness to evaluate costs and benefits of various efforts and adjust investments to maximize results.

This Plan recommends the City develop an Annual Report Card that tracks progress toward implementing this Plan, in addition to incorporating annual collision data, SRTS program and participation data, and other relevant information to highlight successes and challenges of improving walking and bicycling in the community each year. Specific performance measures identified by the City and the community should be included in this card on an annual basis to allow tracking of key metrics time and a better understanding of successes and challenge areas.

The League of American Bicyclists issues report cards for states, communities, and universities throughout the country. This could be used to model El Dorado County's Annual Report Card off of. More information can be found at bikeleague.org/community.

Student Hand Tallies and Parent Surveys

Student hand tallies and parent surveys are two of the most commonly used tools to measure change in behavior and attitudes related to walking and bicycling. They are increasingly included as required elements on applications for competitive grant programs, or are required to be included as part of the scope of work for grant funded projects in school areas. Collecting this data may increase Placerville's competitiveness in these programs by having robust data to make a strong case for walking and bicycling improvements.

Teachers or volunteers collect hand tally data at the classroom level, asking students for information on how they traveled to and from school on two consecutive days that week. Tallies should be conducted each year on a Tuesday, Wednesday, or Thursday and should collect information on the day of the tallies as well as the previous day. Avoid collecting data that may reflect unusual travel patterns due to minimum schedule days, holidays, Fridays, or school events.

Parent surveys gauge knowledge and opinions of walking and bicycling to school. Surveys should be conducted once per year and can either be sent home with students or made available online.

The National Center for Safe Routes to School provides a standard survey form that gathers information on modes of travel to school, interest in and perceptions of walking and bicycling to school, barriers or challenges that prevent walking or bicycling to school, and interest in volunteer opportunities. Additional questions can be added to measure opinions on any specific challenges or opportunities within Placerville or at the specific school site.

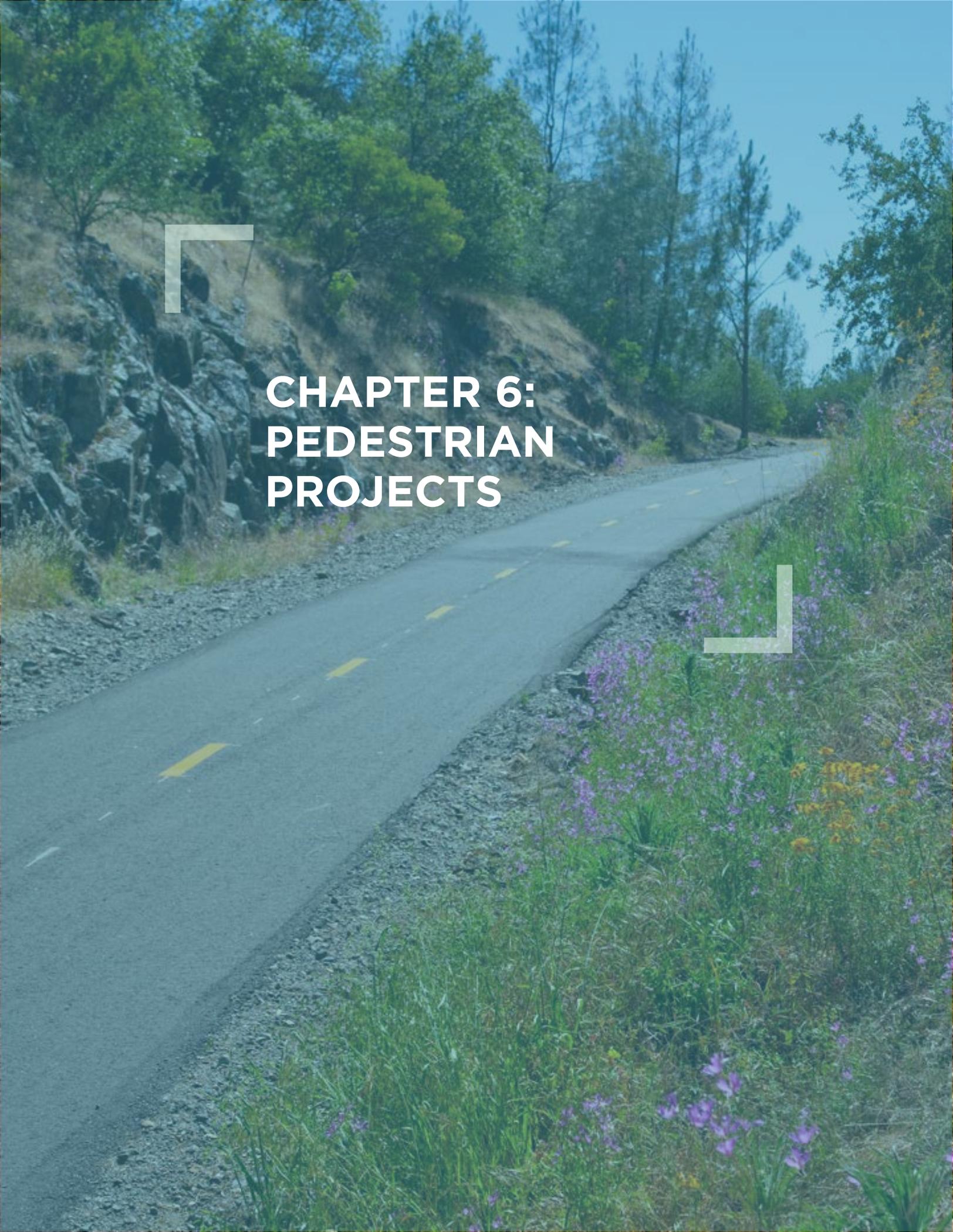
Instructions and data collection forms are available at saferoutesdata.org.

SUMMARY

On the following page is a summary of recommended programs. In addition, potential stakeholder agencies have been identified for lead and supporting roles for development and implementation of these programs.

Figure 5-1: Programs Costs

E'S	Program Name	Cost	Lead Agency	Support Agency
Education	"StreetSmarts" Campaign	\$\$	Department of Public Works	EDCTC
Education	Bicycle Safety Education for Adults	\$\$	Department of Public Works	EDCTC
Education	Safe Routes to School Program	\$\$\$\$	Department of Public Works	EDCTC; Interested schools or School Districts
Encouragement	Train Staff to Support Bicycle and Pedestrian Programs	\$\$\$	Department of Public Works	EDCTC
Encouragement	Social Walks/Rides	\$	Department of Public Works	EDCTC
Encouragement	Bike Rack Program	\$\$	Planning Department	EDCTC
Encouragement	Bicycle Friendly Business Program	\$	Department of Public Works	EDCTC
Encouragement	Walk & Roll to School Days	\$	Department of Public Works	EDCTC; Interested schools or School Districts
Encouragement	Wayfinding	\$\$\$	Department of Public Works	EDCTC
Enforcement	Targeted Enforcement	\$\$	Police Department	EDCTC
Enforcement	Crossing Guard Program	\$	Department of Public Works	EDCTC; Interested schools or School Districts
Evaluation	Annual Report Card	\$	Department of Public Works	EDCTC
Evaluation	Student Hand Tallies and Parent Surveys	\$	Department of Transportation	EDCTC; Interested schools or School Districts



**CHAPTER 6:
PEDESTRIAN
PROJECTS**

The pedestrian network includes Class I Shared Use Paths and sidewalks. Sidewalks and pathways are an essential element of a pedestrian network. They not only provide a comfortable walking space separate from the roadway, but are also a foundational element of Americans with Disabilities Act (ADA) compliance.

Sidewalks and pathways should provide a smooth surface free of obstructions at least five feet wide. In some areas, where high pedestrian activity is expected, wider sidewalks may be desirable. Sidewalks and pathways can either be adjacent to the curb or separated by a planted landscaping strip.

There is a large network of streets with sidewalks or pathways in Placerville, but the network is inconsistent. In places in Placerville, sidewalks have fallen into disrepair. This Plan recommends maintenance and rehabilitation of these facilities, in addition to the recommended network improvements.

The potential pedestrian network in the City of Placerville faces engineering challenges. In places, topography, narrow existing roadways, or limited right of way constrains efforts to implement a robust network of pedestrian facilities. In response to these barriers, the City of Placerville should identify appropriate alternatives to increase the safety and comfort of the pedestrian experience in Placerville.

In this Active Transportation Plan, not every street without a sidewalk or pathway is recommended for improvement due to limited available funding and the

engineering challenges that exist within the City of Placerville. Instead, sidewalk and pathway recommendations are focused on those corridors where they are likely to serve large numbers of pedestrians or address a priority community concern, such as walking routes to and from destinations like schools, civic buildings, and shopping centers or employment centers.

This Plan includes 7.6 miles of proposed sidewalks, along with 0.8 miles of proposed Class I. These are mapped in Figures 6-1 and 6-2.



A cohesive and complete network for pedestrians will greatly improve walkability and the general quality of life of Placerville residents and visitors.

PLACERVILLE PROPOSED PEDESTRIAN AND DISABLED IMPROVEMENTS

Map 1

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION
PLAN

Proposed Improvements

-  Spot Improvement
-  Add Sidewalk
-  Class I Shared-Use Path

Existing Network

-  Class I Shared-Use Path
-  Sidewalk Both Sides
-  Sidewalk One Side
-  No Sidewalk or Segment Not Included in Sidewalk Audit

Activity Generators

-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Destinations + Boundaries

-  Park
-  Water
-  Placerville City Limits
-  El Dorado County

0 0.25 0.5 MILES



Map produced July 2019
Sources: El Dorado County,
Caltrain, Esri, US Census.

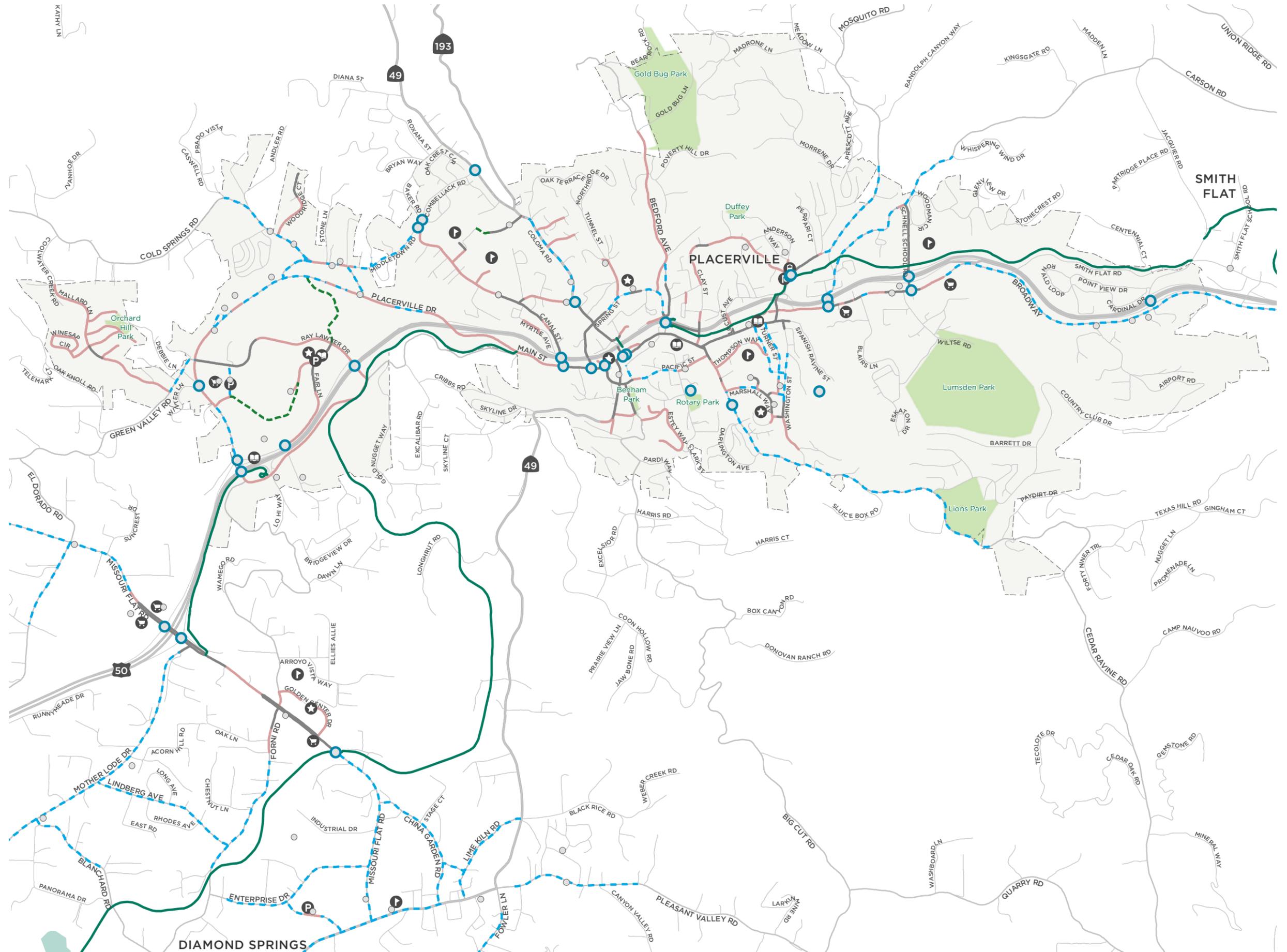


Figure 6-1: Proposed Pedestrian Projects in Placerville

DOWNTOWN PLACERVILLE PROPOSED PEDESTRIAN AND DISABLED IMPROVEMENTS

Map 2

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION
PLAN

Proposed Improvements

-  Spot Improvement
-  Add Sidewalk
-  Class I Shared-Use Path

Existing Network

-  Class I Shared-Use Path
-  Sidewalk Both Sides
-  Sidewalk One Side
-  No Sidewalk or Segment Not Included in Sidewalk Audit

Activity Generators

-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Destinations + Boundaries

-  Park
-  Placerville City Limits
-  El Dorado County

0 0.1 0.2 MILES



Map produced July 2019
Sources: El Dorado County,
Caltrain, Esri, US Census.



Figure 6-2: Proposed Pedestrian Projects in Downtown Placerville

Pedestrian Oriented Spot Improvements

In addition to network projects for bicycling and walking, locations for new or improved crossings have been gathered and consolidated through this Plan from numerous public outreach events, a review of prior plans, the Sidewalk Audit, and public input from the webmap. Spot Improvement recommendations are included in maps in Chapters 6 and 7.

Specific facility recommendations and designs for these locations will be developed by the City on a case-by-case basis due to the highly varied context at each intersection or midblock crossing location. Some locations represent multiple alternatives identified for possible crossings, and improvements may not ultimately be recommended at all locations. Some typical crosswalk markings and enhancements are described on the following pages, as well as in the Design Guidelines in Appendix A.



Figure 6-3: Marked Crosswalk

CROSSWALK MARKINGS

Crosswalk markings highlight crossings to motorists, increasing awareness that people may be crossing the street. Crosswalk markings can also be used to guide people walking to desired crossing locations, or to designate legal midblock crosswalks.

Standard “transverse” markings consist of two parallel lines that mark the edges of the crosswalk, shown at left and right in the illustration at bottom left.

High visibility crosswalk markings can include “continental” crosswalks with bold white bars that run perpendicular to the pedestrian path of travel (shown in Figure 6-3), and “ladder” crosswalks which combine continental markings with the traditional transverse lines.

These markings are more noticeable to drivers and are typically used at uncontrolled crossings, where slower walkers are expected (near schools and senior centers), and where high numbers of pedestrian related crashes have occurred. In school areas, crosswalk markings are yellow.

CURB EXTENSIONS

Curb extensions improve visibility of pedestrians and reduce crossing times by shortening the length of the crossing. This may reduce pedestrian collisions by reducing the length of time that pedestrians are exposed to potential conflicts with motorists. Curb extensions also narrow the perceived roadway width for drivers, which may reduce speeds. At signalized intersections, curb extensions can reduce delays by allowing for shorter pedestrian “walk” phases due to the reduced crossing distance.

Curb extensions extend the sidewalk or curb line out into the parking lane on a street, reducing the effective street width. They can only be used where there is on-street parking, and should not encroach into bicycle lanes.

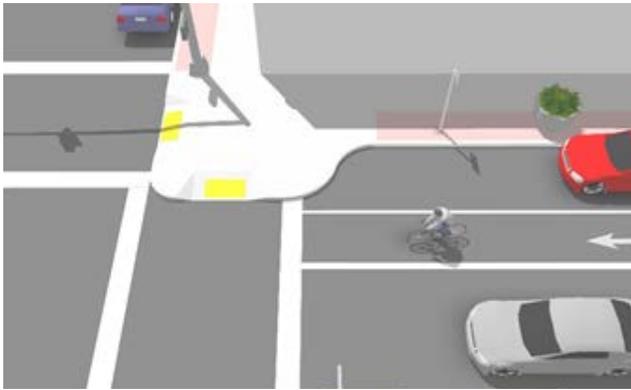


Figure 6-4: Curb Extensions



Figure 6-5: Pedestrian Refuge Island

ADVANCE STOP OR YIELD LINE

Advance stop bars are placed six to ten feet before a marked crosswalk to indicate to motorists where they should stop. At uncontrolled or midblock crossings, yield lines are used instead of stop bars. Advance stop bars or yield lines improve visibility of pedestrians by discouraging drivers from encroaching into the crosswalk. This is especially important at uncontrolled crossings on multi-lane streets, where a vehicle stopped too close to a crosswalk may hide a pedestrian from view of an approaching driver in the second lane.

PEDESTRIAN REFUGE ISLAND

Pedestrian refuge islands can improve pedestrian comfort and reduce collisions by providing a safe waiting area in the median on wide or busy streets. This allows people walking to cross the roadway in two stages, waiting for a gap in one direction of oncoming traffic at a time.

The waiting area should be protected by a physical barrier on either side, such as raised median islands or planters. The crossing surface should remain level through the waiting area, and may be angled to encourage pedestrians to face oncoming traffic as they approach the second crossing leg. Refuge islands may be combined with beacons or other treatments to further improve challenging crossings.

RECTANGULAR RAPID FLASHING BEACON

Rectangular Rapid Flashing Beacons (RRFBs) are used to increase visibility of pedestrians at marked crosswalks where traffic signals or stop signs are not warranted. They consist of a pedestrian crossing sign supplemented by a pair of bright rectangular lights that flash in a rapid alternating pattern when a pedestrian presses a button. Many assemblies are solar powered stand-alone units that can be installed without costly wiring work.

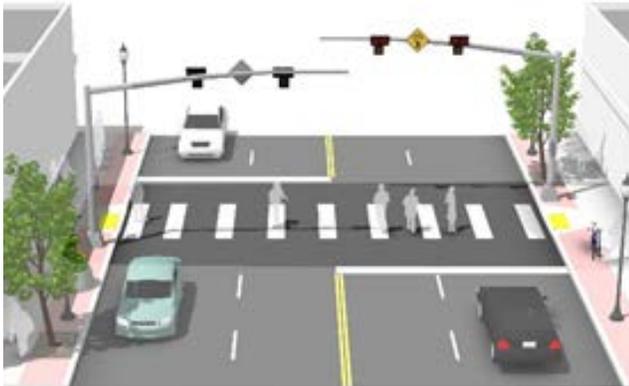


Figure 6-6: Pedestrian Hybrid Beacon



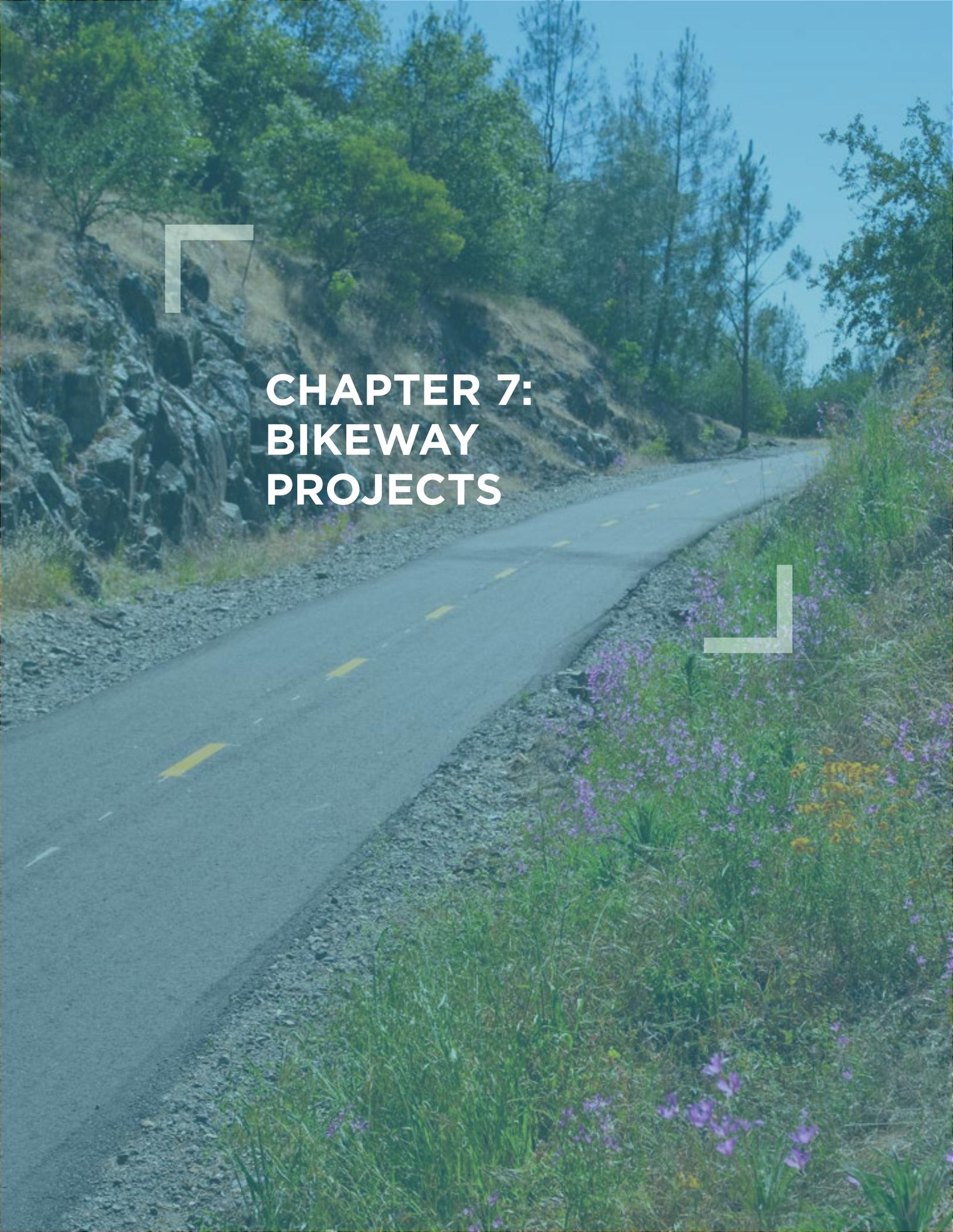
Figure 6-7: Rectangular Rapid Flashing Beacon

PEDESTRIAN HYBRID BEACON

Pedestrian hybrid beacons, sometimes referred to as HAWK beacons, are a traffic control device that can be activated by a pedestrian to stop cross traffic. The beacon consists of three lights on an overhead mast arm that remain dark until a pedestrian presses a button to request a walk phase. Yellow lights flash in an alternating pattern to alert motorists that a red phase will be starting, followed by a solid red light that requires motorists to stop. A pedestrian signal shows a “walk” phase during this red signal, followed by a flashing hand and then “do not walk” phase. After the pedestrian phase concludes, the red signal goes dark and motorists may proceed.

LEAD PEDESTRIAN INTERVAL

Lead pedestrian intervals improve visibility of pedestrians at signalized intersections by beginning the “walk” phase a few seconds before the complementary green signal for drivers. This allows pedestrians to get a head start across the street, bringing them forward into the field of view of drivers who may be turning across the crosswalk



**CHAPTER 7:
BIKEWAY
PROJECTS**

The following chapter presents recommended bikeway improvements throughout El Dorado County. These recommendations are based on a review of existing conditions, data-driven analyses, and community input documented in the earlier chapters of this Plan.

Bicycle network projects are categorized based on the four classifications recognized by Caltrans, along with two sub-classifications, described in detail in Chapter 2 and the Bicycle and Pedestrian Facility Guidelines in Appendix A. These include:

- **Class I Shared Use Paths:** Dedicated paths for walking and bicycling completely separate from the roadway
- **Class II Bicycle Lanes:** Striped lanes for bicyclists
- **Class II Uphill Climbing Lane:** Where roadway width cannot accommodate bicycles lanes on both sides, a bicycle lane is to be installed on one side to give cyclists more protection as they climb uphill, while the bicyclists travelling downhill are to share the lane with traffic
- **Class III Bicycle Routes:** Signed routes for bicyclists on low-speed, low-volume streets where lanes are shared with motorists
- **Class III Discretionary Shoulder:** Signed and marked shoulders for bicycle travel when not being used for parking



Multi-generational users enjoying access to a Class I facility.



Bicyclists enjoying a comfortable Class III facility.

Figure 7-1: Existing and Proposed Bikeway Mileage

Facility	Existing Facility Mileage	Proposed New Facility Mileage	# of Projects	Total Existing + Proposed Miles
Class I Shared Use Paths	4.1	0.8	3	4.9
Class II Bicycle Lanes	4.8	6.7	20	11.5
Class II Uphill Climbing Lanes	1.2	0.4	2	1.6
Class III Bicycle Routes	1.1	8.2	34	9.3
Class III Discretionary Shoulders	0	1.9	7	1.9
Total	11.2	16.1	66	27.3

PLACERVILLE BICYCLE FACILITIES

Map 1

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION
PLAN

Proposed Improvements

-  Spot Improvement
-  Class I Shared-Use Path
-  Class II Bicycle Lane
-  Class II Uphill Climbing Lane
-  Class III Bicycle Route
-  Class III Discretionary Shoulder
-  Class IV Separated Bike Lane

Activity Generators

-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center
-  Trailhead

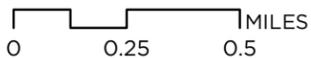
Existing Bikeways

-  Class I Shared-Use Path
-  Class II Bicycle Lane
-  Class IIU Uphill Climbing Lane
-  Class III Bicycle Route

Destinations + Boundaries

-  Park
-  Water
-  Placerville City Limits

Maps intended for planning purposes only.
Proposed Improvements are not intended
for route planning or navigation.



Map produced July 2019
Sources: El Dorado County,
Caltrain, Esri, US Census.

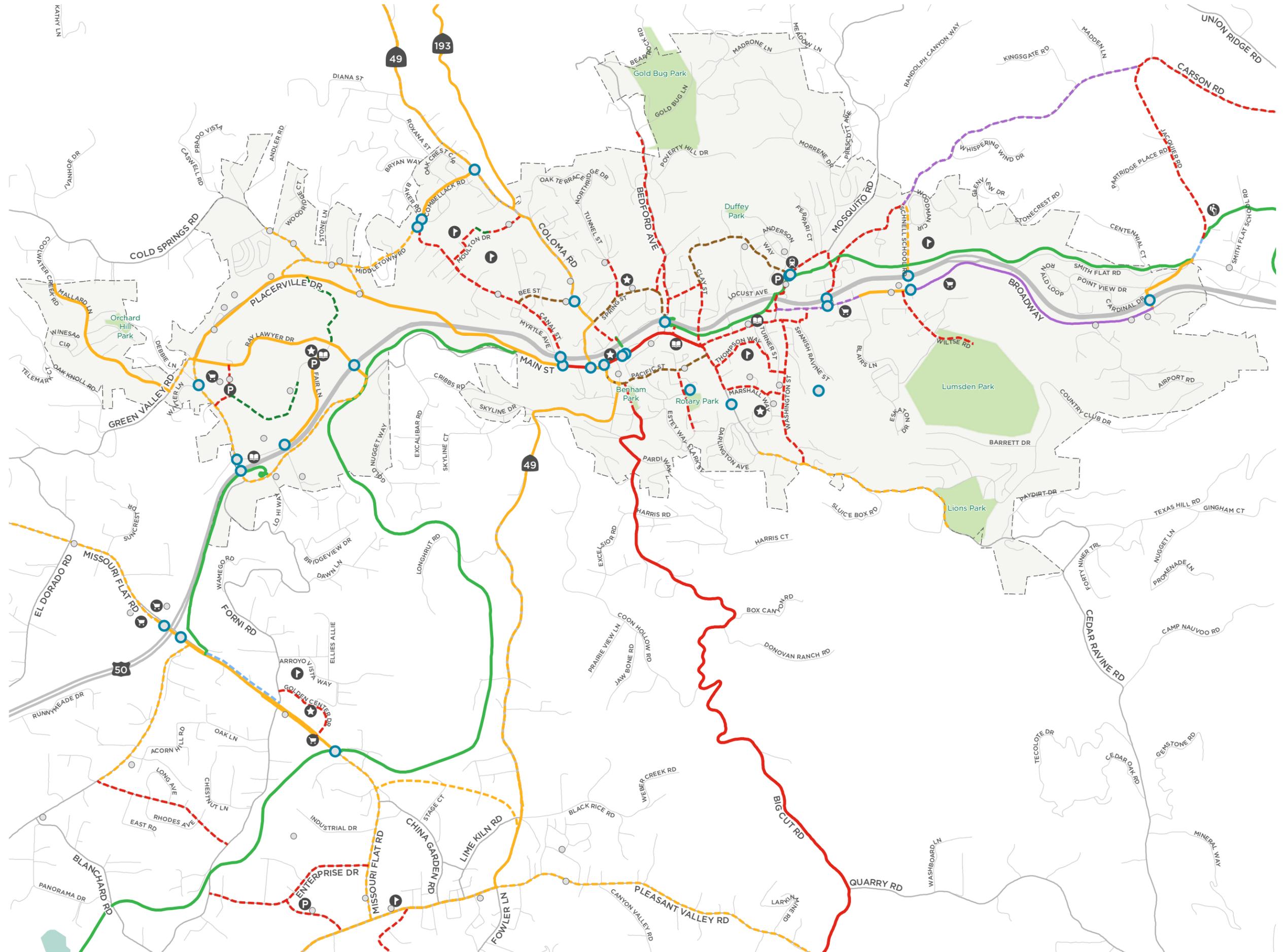


Figure 7-2: Proposed Bicycle Facility Projects in Placerville

DOWNTOWN PLACERVILLE BICYCLE FACILITIES

Map 2

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION
PLAN

Proposed Improvements

-  Spot Improvement
-  Class I Shared-Use Path
-  Class II Bicycle Lane
-  Class II Uphill Climbing Lane
-  Class III Bicycle Route
-  Class III Discretionary Shoulder

Activity Generators

-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

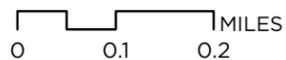
Existing Bikeways

-  Class I Shared-Use Path
-  Class II Bicycle Lane
-  Class III Uphill Climbing Lane
-  Class III Bicycle Route

Destinations + Boundaries

-  Park
-  Placerville City Limits

Maps intended for planning purposes only.
Proposed Improvements are not intended
for route planning or navigation.



Map produced July 2019
Sources: El Dorado County,
Caltrain, Esri, US Census.

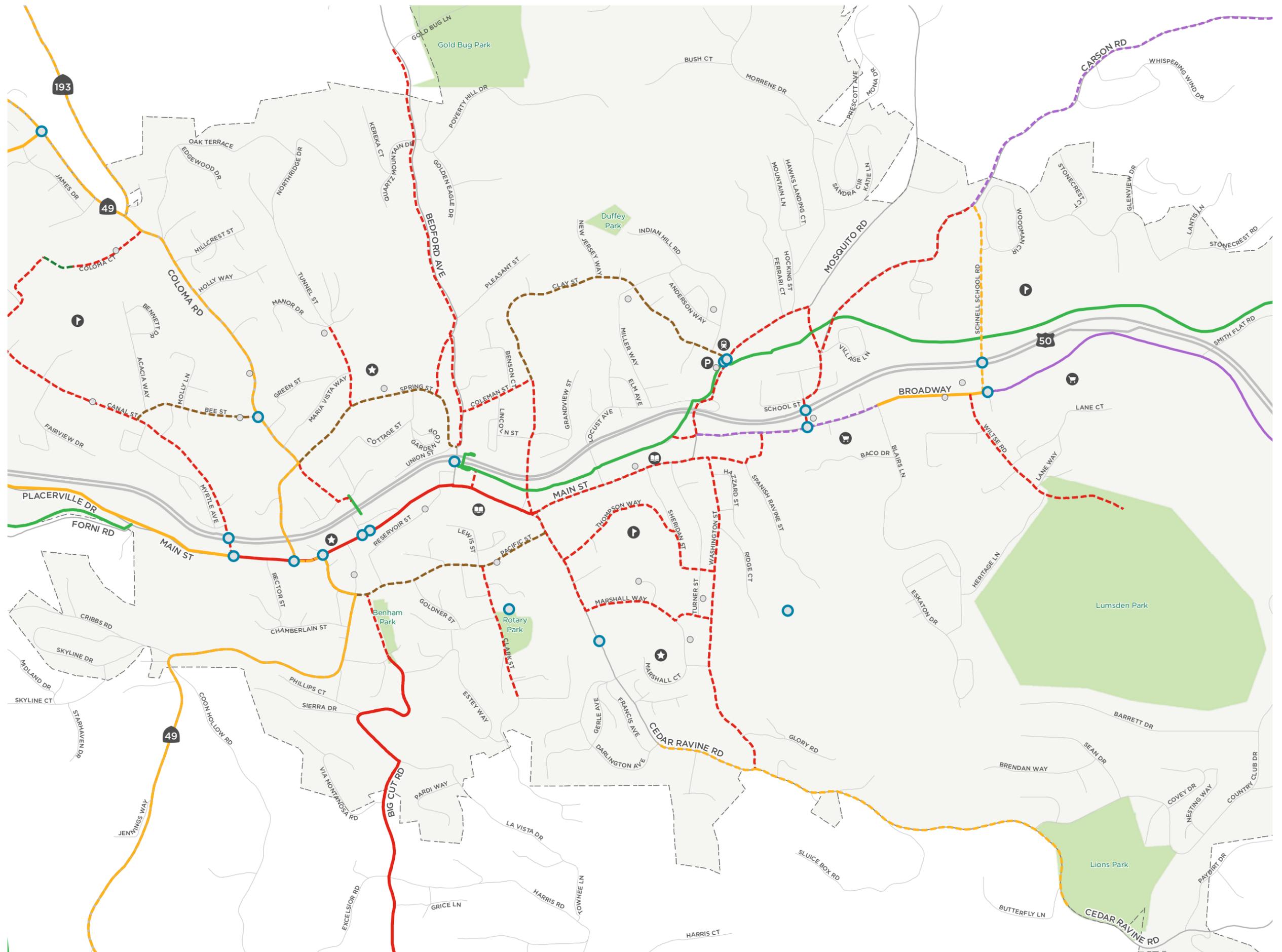


Figure 7-3: Proposed Bicycle Facility Projects in Downtown Placerville

Bicycle Oriented Spot Improvements

GREEN BIKE LANES

Green bike lanes better inform notify drivers of the distinct lanes of travel. Green bike lanes reduce conflicts between bicyclists and drivers.

When approaching intersections, green bike lanes can inform drivers when to look for bicyclists to yield the right-of-way before merging. This is especially important as most bicycle collisions happen near intersections.



Figure 7-4: Example of Green Bike Lanes

BICYCLE RACKS AND BICYCLE LOCKERS

Providing adequate bicycle parking is essential to create a more bikeable environment in El Dorado County. Bicycle Racks serve people who leave their bicycles for relatively short periods of time, typically for shopping or errands, dining, or recreation. Bicycle racks provide a high level of convenience and moderate security. Bike lockers provide a secure long-term bicycle parking options. Bicycle lockers may vary in design and operation including keyed lockers that are rented to one individual on an annual or monthly basis or e-lockers that can be reserved online in hourly increments and unlocked with a credit card or an access code.



Figure 7-5: Bike Racks in Placerville



Figure 7-6: Types of Bike Racks



**CHAPTER 8:
IMPLEMENTATION**

This Plan includes projects, programs, and policy changes intended to create a more walkable and bikeable environment in El Dorado County. Implementation of this Plan will require community support and political leadership in addition to significant funding.

This chapter outlines a strategy towards implementation of the infrastructure projects and includes the following sections:

Project Evaluation presents the method and data sources used to prioritize projects for implementation, along with a summary of the results

Funding Strategies provides an overview of competitive funding sources and eligibilities for the projects in this Plan

The intent of evaluating projects is to create a strategic list to guide implementation. The project list and evaluation results are flexible concepts that serve as guidelines. Over time as development occurs or other changes to land uses and the transportation network take place, this framework can be used to reevaluate remaining projects and continue pursuing implementation of this Plan.

A detailed list of all projects is included in Appendix A. Typical costs for each type of infrastructure project are included in Chapters 6 and 7.

CAPITAL COST ESTIMATES FOR ON-STREET BICYCLE AND PEDESTRIAN FACILITIES

Figures 8-1 through 8-3 present planning level unit cost assumptions used to develop project construction cost estimates. Unit costs are typical or average costs informed by Alta Planning + Design’s experience working with California communities.

At the planning level, cost assumptions do not consider project-specific or location-specific factors that may affect actual costs, including acquisition of right of way, significant grading, or relocation of utilities, among other factors. For some projects, actual costs may differ significantly from the planning level estimates.

Cost estimates for projects in this Plan are in 2019 dollars, and do not include cost escalation.

Cost estimates are not provided for recommended studies in this plan. These costs can vary widely based on the included outreach and other components.

MAINTENANCE COST ESTIMATES FOR ON-STREET BICYCLE AND PEDESTRIAN FACILITIES

Maintaining the walking and bicycling environment once improvements have been implemented preserves the investment and will help support a high quality of life for El Dorado County residents.

On-street bikeways should be maintained as part of the normal roadway maintenance program, with emphasis placed on keeping bicycle lanes and roadway shoulders clear of debris and keeping vegetation overgrowth from blocking visibility.

Figure 8-4 lists typical maintenance activities, frequencies, and costs. All estimated costs are in 2019 dollars.

Figure 8-1: Bicycle Facility Planning Level Cost Estimates

Item	Unit	Cost Estimate (Low)	Cost Estimate (High)
Class I Shared-Use Path	Mile	\$700,000	\$1,000,000
Class II Bicycle Lane	Mile	\$80,000	\$400,000
Class III Bicycle Route	Mile	\$20,000	\$30,000

Figure 8-2: Sidewalk Installation Planning Level Cost Estimates

Item	Unit	Cost Estimate (Low)	Cost Estimate (High)
Sidewalk, Curb, Gutter (no curb ramp)	Square Foot	\$10	\$20

Figure 8-3: Spot Improvement Facility Planning Level Cost Estimates

Item	Unit	Cost Estimate (Low)	Cost Estimate (High)
High Visibility Crosswalk	Each	\$2,000	\$5,000
Transverse Crosswalk with advance stop bar	Each	\$2,000	\$3,500
Pedestrian Refuge Island	Each	\$10,000	\$75,000
RRFB	Each	\$25,000	\$50,000
Study for HAWK	Each	\$2,000	\$75,000
HAWK	Each	\$200,000	\$400,000
Curb Extensions	Each	\$15,000	\$30,000
Pedestrian Overcrossing	Each	\$1,000,000	\$5,000,000
Advance Yield/ Stop Lines	Each	\$500	\$2,000
Bicycle Loop Detection	Each	\$2,000	\$4,000
Traffic Control Study	Each	\$2,000	\$40,000
New sign with foundation and pole	Each	\$375	\$800
Tightening turning radii	Per Corner	\$10,000	\$100,000
Parking Restriction	Linear Foot	\$25	\$50
Curb Ramp	Each	\$3,500	\$10,000
Bike Racks	Each	\$800	\$2,000
Bike Lockers	Each	\$2,000	\$3,500
Green Bike Lanes	Mile	\$160,000	\$800,000

Figure 8-4: Maintenance Cost Estimates

Activity	Frequency	Unit	Cost Estimate
Crosswalk restriping	5-7 years	Each	\$2,800
Sidewalk and curb ramp repair	As needed	Each	Varies
Sign repair	As needed	Each	\$300
Class II Bicycle Lane restriping, replacing signs/stencils	Ongoing, annually	Mile	\$6,000
Class III Bicycle Route restriping, replacing signs/stencils	Ongoing, annually	Mile	\$2,500
Class IV Separated Bicycle Lane restriping, replacing signs/stencils	Ongoing, annually	Mile	\$8,200

SHARED USE PATH MAINTENANCE AND UPKEEP

Like natural surface trails, shared use paths require regular routine and capital maintenance to provide a quality experience to users. Maintenance activities will vary depending on the surface material (asphalt or concrete). Additionally, environmental contexts will affect the schedule which maintenance will be required. Due to Placerville being at a lower elevation than much of El Dorado County, capital maintenance like sealcoating might be required less frequently than in higher lying areas that experience more freeze and thaw issues through the winter and spring. Similarly, routine maintenance such as litter and trash removal might be required more frequently in highly trafficked areas in Placerville.

Much like other pedestrian and bicycle facilities, diligent maintenance and upkeep for Shared Use Paths is essential to ensuring that the trails and paths are utilized to their full extent, as users are more easily affected by cracks, potholes, and other obstructions than drivers.

Funding for Maintenance of Shared Use Paths

Dedication of fund sources for maintenance of existing Class I Shared Use Paths is a challenge for many public agencies, including Placerville. Since there are few funding sources available for maintenance of Class I paths, the City should work strategically with EDCTC to identify funding mechanisms for ongoing

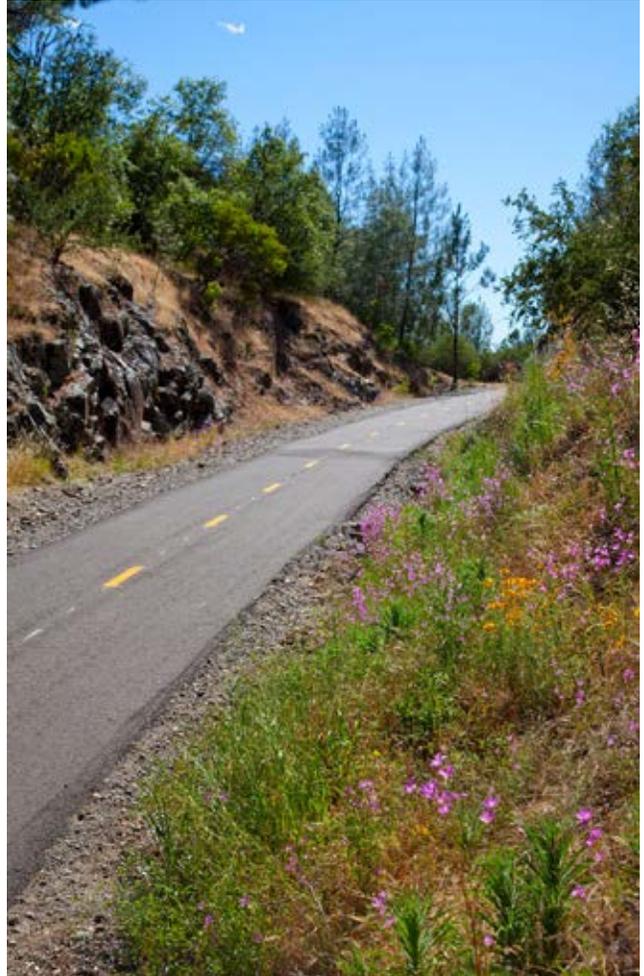


Photo of the El Dorado Trail in El Dorado County

shared use path maintenance. The City and EDCTC should look to local, state, federal, and private funding sources, as well as taxes, fees and recreation grants. Development of an annual funding and maintenance strategy could help to optimize the use of limited funds and further the life of existing pavements.

ROUTINE MAINTENANCE

Maintenance needs will vary depending on the unique context and needs of each path. However, general routine maintenance includes sweeping, snow removal or grooming, landscaping and vegetation control, and repairs to the path surface. Figure 8-5 lists typical shared use path and sidepath routine maintenance tasks, including frequency and estimated annual costs. Overall, routine maintenance for Shared Use Paths can range between \$500 and \$1,500 a year per mile.

TRAIL INSPECTION AND UPKEEP

Trail inspections should happen each year. Inspections can be done using handheld devices running applications, such as ArcGIS Collector, to assess trail conditions of pre-determined lengths. Photos can be uploaded to give context to the field notes. Trail conditions can then be assigned scores that can be factored into the repaving and trail maintenance schedule. Based on the score of the Shared Use Paths, maintenance schedules can be adjusted to a higher or lower frequency than the suggested capital maintenance schedule.

Figure 8-5: Shared Use Path Routine Maintenance

Maintenance Activity	Function	Frequency	Est. Annual Cost (per mi.)
Path sweeping	Keep paved surfaces debris free	Twice annually (once in spring and once in fall)	\$140 (x2)
Litter and trash removal	Keep path clean and maintain consistent quality of experience for users	Annually, or as needed	\$70
Mowing path shoulders (native opens space areas)	Increases the effective width of the path corridor and helps prevent encroachment	Twice annually, in late spring and mid-to late-spring	\$100 (x2)
Tree and brush trimming	Eliminate encroachments into path corridor and open up sight lines	Annually, or less frequently as needed	\$100
Weed abatement	Manage existence and/or spread of noxious weeds, if present	Twice annually, in late spring and mid to late summer	\$140 (x2)
Safety Inspections	Inspect path tread, slope stability, and bridges or other structures	Annually	\$20
Snow removal/grooming	Limited to sections of the path where year-round access is desired	As needed (assume 20 events)	\$1,000
Sign and other amenity inspection/replacement	Identify and replace damaged infrastructure	Annually (assume 2 sign replacements)	\$100
Crack sealing and repair	Seal cracks in asphalt to reduce long term damage	Annually	\$250

Capital Maintenance

Major or capital maintenance activities typically involve more intensive maintenance repairs such as pavement seal coating, pavement overlays, pavement reconstruction, or other structural rehabilitations. Needs can vary widely based upon environmental factors, such as soil conditions, drainage and the quality of initial construction. Any paved path surface will deteriorate over time with asphalt surfaces dropping in quality rapidly after 10 years. Preservation efforts such as seal coating extend the life of asphalt efficiently and at a lower cost than waiting for the surface to require reconstruction. Overlays may be needed after multiple seal coats or at approximately 30 years of service. A full reconstruction is typically needed after 50 years if the seal coat and overlay have been provided. Table 5.2 describes a typical 10-year capital maintenance scenario for paved paths.

Concrete paths will require significantly less capital maintenance than asphalt paths. Although they may require isolated jacking or replacement, limited capital maintenance expenditures can generally be expected for upwards of 50 years.

Financial planning for major or capital maintenance can be challenging. Typically asphalt shared use paths require greater capital maintenance activities with age and ultimately require full reconstruction at some point. Some jurisdictions stay focused on eventual reconstruction and treat this as a maintenance item to be budgeted for, whereas some treat this as a separate capital project to be considered at a later date.

Capital Maintenance Guidance

Seal cracks as soon as possible to stop pot holes from forming.

Sealcoat the asphalt path surfaces on a regular basis to provide protection from the elements and extend the pavement's usable life.

When minor to modest damage is present, overlays can sufficiently repair the surface without having to complete a total reconstruction.

Figure 8-6: Shared Use Path Capital Maintenance

Maintenance Activity	Time	Long Term Capital Costs		
Sealcoat	Year 10	\$0.21/SF	\$1.90/LF	\$10,000/mi
Sealcoat	Year 20	\$0.21/SF	\$1.90/LF	\$10,000/mi
Overlay	Year 30	\$3.00/SF	\$20.00/LF	\$105,000/mi
Sealcoat	Year 40	\$0.21/SF	\$1.90/LF	\$10,000/mi
Reconstruction	Year 50	\$8.00/SF	\$65.00/LF	\$343,000/mi

Prioritization Methodology

This Plan utilizes a methodology for prioritization custom built for the El Dorado County Transportation Commission's 2017 Active Transportation Connections Study. The tool utilized seven categories to assess the priority of a project. The methodology for the prioritization tool is provided below.

Following a review of scoring rubrics for state and federal active transportation grant programs, the following seven categories were identified as reoccurring areas of evaluation:

- **Health**
- **Environment**
- **Demand**
- **Connectivity**
- **Safety**
- **Equity**
- **Cost-Effectiveness**

These seven common evaluation areas formed the foundation for the prioritization tool developed through the 2017 Active Transportation Connections Study. EDCTC worked with its advisory committee to select one preferred evaluation criteria that represented each evaluation area. In the event that no locations within the county would perform well under common grant criteria, EDCTC identified evaluation criteria that provided insight into a project's ability to address local concerns. For example, proposed projects in El Dorado County typically perform poorly in grant applications that define equity by identifying locations near low-income households or schools with a large percentage of students that are eligible

for free and reduced lunches. In lieu of including an equity evaluation criterion that would align well with grant applications but show few eligible projects in El Dorado County, EDCTC and its advisory committee elected to select an equity evaluation criterion that would help with internal prioritization: the number of youths and seniors living near a proposed project. This approach allows EDCTC to identify projects that would have strong equity implications within the context of the county even though they may not perform well under some grant application criteria.

Below are the preferred evaluation criteria for each evaluation area:



Understanding the importance of transportation investments on health outcomes is a featured component in El Dorado County's Regional Transportation Plan. The plan notes that if the design of new and/or rehabilitated facilities considers the needs of pedestrians and bicyclists, the transportation network can contribute to improved public health. The preferred health evaluation criterion is the percent of adults within 2 miles of a proposed project that walked at least 150 minutes for transportation or leisure in the past week (the minimum level of physical activity recommended by the Centers for Disease Control and Prevention). Physical activity serves as a proxy for a variety of health concerns such as obesity, diabetes, heart disease, mental health, and other chronic diseases, and the data is readily available through the California Health Interview Survey.



ENVIRONMENT

Transportation systems that support walking and bicycling help reduce reliance on motor vehicles, especially for short trips, resulting in reduced emissions of greenhouse gases and other criteria pollutants. This not only improves air quality but also reduces the potential for pollutants in stormwater runoff to reach groundwater and local waterways. The preferred environmental evaluation criterion is the estimated pounds of greenhouse gases and other criteria pollutants that would be removed from the atmosphere each year if the proposed projects were built. Estimated reductions in greenhouse gas and criteria pollutant emissions are derived from a combination of forecasted demand estimates and national trip replacement and trip distance factors.



DEMAND

Forecasting demand helps identify projects that are more likely to be well used by local residents and visitors to El Dorado County. Forecasted demand estimates were based on walking and bicycling counts from around the county and through an analysis of how those counts correlate with demographic and socioeconomic data from populations living near existing facilities. Separate approaches to forecasting demand were developed for pedestrian activity and bicycle activity.



CONNECTIVITY

Projects that connect residents to employment centers, grocery stores, community centers, schools, and shops can have a large influence on one's willingness to walk or bicycle for short-distance trips. The preferred connectivity criterion is the annual number of trips that begin or end near the proposed project provided by the County's travel demand model.



SAFETY

Pedestrians and bicyclists face unique safety concerns, and improving safety conditions can make the transportation network more accessible and attractive to people of all ages and abilities. The preferred safety evaluation criterion is the number of safety barriers that would be removed if a project was implemented. This evaluation criterion relies on expert analysis to identify challenges presented by the existing design of a travelway and potential opportunities presented by the proposed project. It allows for a more nuanced view of safety in a rural area like El Dorado County, where low numbers of reported walking- or bicycling-related collisions may not accurately represent challenges or capture how these challenges limit a person's willingness to walk or bicycle.



EQUITY

Without access to multiple transportation options, some people may have difficulty getting to work, accessing healthy food, going to school, or engaging in social activities. Ensuring equitable access to walking and bicycling facilities for transportation is particularly important for communities that have been historically disadvantaged, do not have access to a motor vehicle, rely heavily on walking and bicycling for their daily transportation needs, or are otherwise disconnected from active transportation opportunities. The preferred equity evaluation criterion is the number of youths (18 years and under) and seniors (64 years and over) within 2 miles of a proposed project, as captured by the U.S. Census Bureau's American Community Survey.



COST-EFFECTIVENESS

Health, environment, demand, connectivity, safety, and equity benefits come at a price. Being able to weigh the benefits of a proposed project against its costs helps place projects on an even playing field for evaluation. While a large project may show considerable benefits, its costs may be prohibitive to pursuing outside funding. Likewise, a small project may not show as many benefits as other projects, but its relatively low cost may make it a more cost-effective choice for implementation. The preferred cost-effectiveness evaluation criterion is the estimated capital costs of a given proposed project.

Prioritization Results

The results from this Prioritization methodology are mapped on Page 78. Due to the large amount of recommendations and limited funding, the recommendations were combined into the following groups:

- **Top Five Projects** - These are the five highest scoring projects within each District
- **Class I/IV** - Class I Shared Use Path and Class IV Separated Bicycle Facility
- **Class II/III** - Class II Bicycle Lane and Class III Bicycle Route
- **Pedestrian** - Pedestrian oriented spot improvements and sidewalk projects
- **Bike (Other)** - Bicycle Oriented Spot Improvements

TOP PROJECTS IN PLACERVILLE

Rank	Project	Begin	End	Facility
1	Placerville Dr	Forni Rd	Ray Lawyer Dr	Class II
2	Cold Springs Rd	Placerville Dr	Hidden Springs Cir	Class II
3	Green Valley Rd	Mallard Ln	Placerville Dr	Class II
4	Bedford Ave	Gold Bug Ln	Spring St	Class III
5	Schnell School Rd	Broadway	Carson Rd	Spot Improvement

CLASS I/IV PROJECTS

Rank	Project	Begin	End	Facility
1	Trail	Amory Dr	Fairlane Crt	Class I
2	Trail	Placerville Dr	Ray Lawyer Dr	Class I
3	Connector Trail	Coloma Crt	Spear St	Class I

CLASS II/III BICYCLE PROJECTS

Rank	Project	Begin	End	Facility
1	Placerville Dr	Forni Rd	Ray Lawyer Dr	Class II
2	Cold Springs Rd	Placerville Dr	Hidden Springs Cir	Class II
3	Green Valley Rd	Mallard Ln	Placerville Dr	Class II
4	Bedford Ave	Gold Bug Ln	Spring St	Class III
5	Pierroz Rd	Placerville Dr	Cold Springs Rd	Class II

PEDESTRIAN PROJECTS

Rank	Project	Begin	End	Facility
1	Carson Rd	US 50		Spot Improvement
2	Fair Ln	Placerville Dr		Spot Improvement
3	Placerville Dr	660 Feet West of Cold Springs Rd	390 Feet West of Cold Springs Rd	Sidewalk
4	Fair Ln	Fair Lane Crt		Spot Improvement
5	Pierroz Rd	Cold Springs Rd	Placerville Dr	Sidewalk

BIKE (OTHER) PROJECTS

Rank	Project	Begin	End	Facility
1	Schnell School Rd	Broadway	Carson Rd	Spot Improvement
2	Broadway	Carson Rd		Spot Improvement
3	Broadway	Carson Rd		Spot Improvement
4	Placerville Dr	Helmrich Ln	Forni Rd	Spot Improvement
5	County Road 145	US 50		Spot Improvement

PROJECTS NEAR SCHOOLS

Rank	Project	Begin	End	Facility
1	Placerville Dr	Forni Rd	Ray Lawyer Dr	Class II
2	Cold Springs Rd	Placerville Dr	Hidden Springs Cir	Class II
3	Schnell School Rd	Broadway	Carson Road	Spot Improvement
4	Carson Rd	US 50		Spot Improvement
5	Pierroz Rd	Placerville Dr	Cold Springs Rd	Class II

PROJECTS NEAR TRANSIT

Rank	Project	Begin	End	Facility
1	Placerville Dr	Forni Rd	Ray Lawyer Dr	Class II
2	Cold Springs Rd	Placerville Dr	Hidden Springs Cir	Class II
3	Green Valley Rd	Mallard Ln	Placerville Dr	Class II
4	Bedford Ave	Gold Bug Ln	Spring St	Class III
5	Schnell School Rd	Broadway	Carson Rd	Spot Improvement

CITY OF PLACERVILLE PRIORITIZED IMPROVEMENTS

CITY OF PLACERVILLE
ACTIVE TRANSPORTATION PLAN

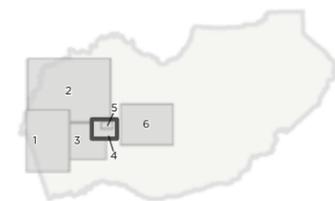
Proposed Improvements

-  Spot Improvement
-  Class I Shared-Use Path
-  Class II Bicycle Lane
-  Class III Bicycle Route
-  Add Sidewalk

Destinations + Boundaries

-  Park
-  Water
-  Trailhead
-  Bus Stop
-  Employment Center
-  Grocery Store
-  School
-  Library
-  Transit Center

Maps intended for planning purposes only.
Proposed Improvements are not intended
for route planning or navigation.



0 0.25 0.5
MILES



Map produced July 2019
Sources: El Dorado County,
Caltrain, Esri, US Census.

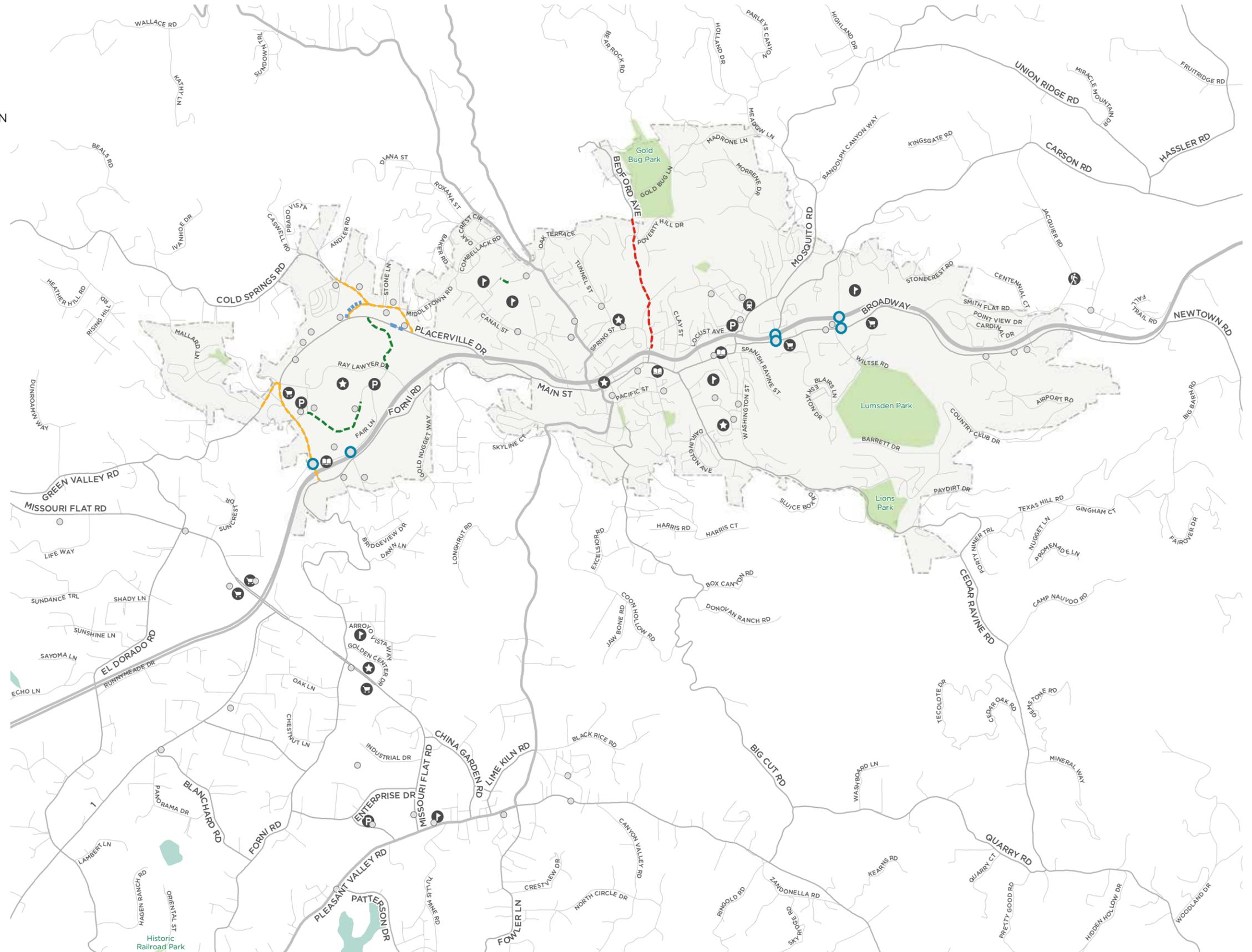


Figure 8-7: Prioritized Improvements in Placerville

Funding

A variety of sources exist to fund bicycle and pedestrian infrastructure projects, programs, and studies. Local and regional funding sources that can be used for construction or maintenance of bicycle or pedestrian improvements, along with statewide and federal grant programs, are described on the following pages.

Eligibilities for the funding programs listed in this section are summarized in Table 8-9 and on pages 66-68.

FUNDING SOURCES

A variety of bicycle and pedestrian funding sources exist. As stated previously, some bicycle and pedestrian funding sources allow use for maintenance of existing facilities. Others are limited to new construction. Local and regional funding sources for bicycle and pedestrian improvements, along with competitive grant programs, are described below.

Local & Regional Opportunities

No information was available about tax measures or other funding sources specifically dedicated to transportation projects in El Dorado County. Opportunities should be explored to implement bicycle or pedestrian improvements through general funds and in cooperation with partner agencies, as discussed below.

GENERAL FUND & EXISTING PROJECTS

When possible, bicycle or pedestrian projects from this Plan should be incorporated into the City's annual budget for transportation improvements. Some improvements may also be folded into larger, complementary projects. For example, bicycle lanes could be added to paving projects within the City.

PARTNER AGENCIES

Multiple local partners may be interested in joining with Placerville or its communities to improve health and safety through bicycling and walking improvements. Relationships with local tribal governments, community groups, and philanthropic groups should be fostered. Partners should be invited to discussions about projects that would benefit all stakeholders. Partner agencies may also be able to provide matching or leveraging funds for competitive grant programs, if available.

Competitive Grant Programs

The eligible activities and other information about the following competitive grant programs is based on application cycles that occurred prior to August 2019.

Because funding programs often change application forms or program guidelines, future application cycles may have updated eligibilities or requirements.

CALIFORNIA ACTIVE TRANSPORTATION PROGRAM

California's Active Transportation Program (Active Transportation Plan) funds infrastructure and non-infrastructure projects that support the program goals of shifting trips to walking and bicycling, reducing greenhouse gas emissions, and improving public health. Competitive application cycles occur every one to two years, typically in late Spring or Summer.

Eligible projects include construction of new bicycling or walking facilities, new or expanded program activities, or projects that include a combination of infrastructure and program components. Active Transportation Plan funding can be used for all project phases, including design, environmental documents, and securing right of way in addition to construction.

Competitive projects in past cycles tend to be those that serve schools, address high-crash locations, incorporate public health concerns, and benefit disadvantaged communities—defined by the Active Transportation Plan as those with low median household income, high pollution burdens based on CalEnviroScreen, or high percentages of students who qualify for free or reduced price meals. Typically no local match is required, although points are awarded to communities who do identify leveraging funds.

Funds are programmed by the California Transportation Commission (CTC).

TRANSPORTATION PLANNING GRANTS

Caltrans Transportation Planning Grants are available to communities for planning, study, and design work to identify and evaluate projects, including conducting outreach or implementing pilot projects. Applications are accepted multiple times per year. Communities are typically required to provide at least an 11.47 percent local match, but staff time or in-kind donations may be used for this match.

Competitive applications typically demonstrate strong potential to reduce greenhouse gas emissions, integrate land use planning with transportation, and articulate a strong project need, including crash data, health burdens, and environmental concerns.

Funds are programmed by Caltrans.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

Caltrans offers applications for Highway Safety Improvement Program (HSIP) grants every one to two years. Projects on any publicly owned road or active transportation facility are eligible, including bicycle and pedestrian improvements.

HSIP guidelines place a strong emphasis on safety, specifically by reducing crashes. Competitive projects should be able to demonstrate a strong need based on crash data at the project location, include nationally recognized crash reduction countermeasures, are cost-effective, and are implementation-ready.

Funds are programmed by Caltrans.

SOLUTIONS FOR CONGESTED CORRIDORS PROGRAM

Funded by SB1, the Congested Corridors Program strives to reduce congestion in highly traveled and congested corridors through performance improvements that balance transportation improvements, community impacts, and environmental benefits. This program can fund a wide array of improvements including bicycle facilities and pedestrian facilities.

Competitive projects must be detailed in an approved corridor-focused planning document. These projects must include aspects that benefit all modes of transportation using an array of strategies that can change travel behavior, dedicate right of way for bikes and transit, and reduce vehicle miles traveled.

Funds are programmed by the CTC.

OFFICE OF TRAFFIC SAFETY

Under the Fixing America's Surface Transportation (FAST) Act, five percent of Section 405 funds are dedicated to addressing nonmotorized safety. These funds may be used for law enforcement training related to pedestrian and bicycle safety, enforcement campaigns, and public education and awareness campaigns.

Funds are programmed by the California Office of Traffic Safety.

RECREATIONAL TRAILS PROGRAM

The Recreational Trails Program helps provide recreational trails for both motorized and nonmotorized trail use. Eligible products include: trail maintenance and restoration, trailside and trailhead facilities, equipment for maintenance, new trail construction, and more.

Funds are programmed by the California Department of Parks and Recreation.

AFFORDABLE HOUSING AND SUSTAINABLE COMMUNITIES PROGRAM

The AHSC program funds land-use, housing, transportation, and land preservation projects that support infill and compact development that reduces greenhouse gas emissions. Projects must fall within one of three project area types: transit-oriented development, integrated connectivity project, or rural innovation project areas. Fundable activities include: affordable housing developments, sustainable transportation infrastructure, transportation-related amenities, and program costs.

Funds are programmed by the Strategic Growth Council and implemented by the Department of Housing and Community Development.

CULTURAL, COMMUNITY AND NATURAL RESOURCES GRANT PROGRAM - PROPOSITION 68

Proposition 68 authorizes the legislature to appropriate \$40 million to the California Natural Resources Agency to protect, restore, and enhance California's cultural, community, and natural resources. One type of eligible project that this program can fund are projects that develop future recreational opportunities including: creation or expansion of trails for walking, bicycling, and/or equestrian activities and development or improvement of trailside and trailhead facilities, including visitor access to safe water supplies.

Funds are programmed by the California Natural Resources Agency.

URBAN GREENING GRANTS

Urban Greening Grants support the development of green infrastructure projects that reduce GHG emissions and provide multiple benefits. Projects must include one of three criteria, most relevantly: reduce commute vehicle miles travels by constructing bicycle paths, bicycle lanes or pedestrian facilities that provide safe routes for travel between residences, workplaces, commercial centers, and schools. Eligible projects include green streets and alleyways and non-motorized urban trails that provide safe routes for travel between residences, workplaces, commercial centers, and schools.

Funds are programmed by the California Natural Resources Agency.

FUNDING ELIGIBILITY TABLE

Funding Source	On-Street Bikeways	Trails	Safe Routes to School	Safe Routes to Transit	Crossings/ Intersections	Programs	Studies
Local and Regional Sources							
City and County General Funds	•	•	•	•	•	•	•
Partner Agencies	•	•	•	•	•	•	•
Competitive Grant Programs							
Active Transportation Program (CTC)	•	•	•	•	•	•	
Sustainable Transportation Planning Grants (Caltrans)							•
Highway Safety Improvement Program (Caltrans)	•		•	•	•		
Solutions for Congested Corridors (CTC)	•	•			•		
Office of Traffic Safety (CA OTS)						•	
Recreational Trails Program (CA DPR)		•					
Affordable Housing & Sustainable Communities (CA HCD)	•			•		•	
Cultural, Community, and Natural Resources (CA NRA)		•					
Urban Greening Grants (CA NRA)	•	•	•	•			

Figure 8-8: Funding Source Eligibilities by Project Type

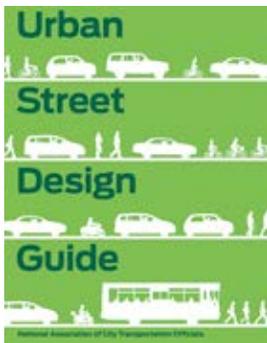
This page left intentionally blank



**APPENDIX A:
DESIGN
GUIDELINES**

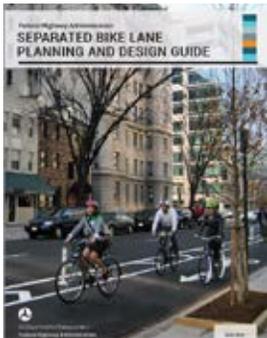
Guidance Basis

The sections that follow serve as an inventory of pedestrian and bicycle design treatments and provide guidelines for their development. These treatments and design guidelines are important because they represent the tools for creating a bicycle-friendly, safe, accessible community. The guidelines are not, however, a substitute for a more thorough evaluation by a professional upon implementation. The following standards and guidelines are referred to in this guide:



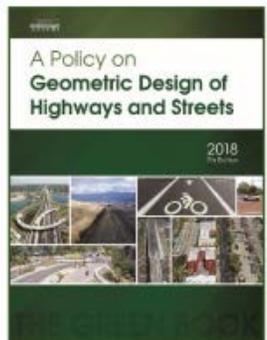
NATIONAL GUIDANCE

A blueprint for designing 21st century streets, the NACTO **Urban Street Design Guide (2013)** unveils the toolbox and tactics cities use to make streets safer, more livable, and more economically vibrant. The Guide outlines both a clear vision for complete streets and a basic road map for how to bring them to fruition. The document charts the principles and practices of the nation’s foremost engineers, planners, and designers working in cities.



Separated Bike Lane Planning and Design Guide (2015)

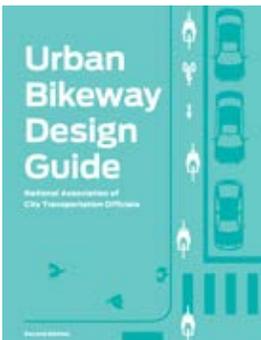
provides national guidance on the planning and design of separated bike lane facilities. Released by the Federal Highway Administration (FHWA), this guide documents best practices as demonstrated around the U.S., and offers ideas on future areas of research, evaluation, and design flexibility.



AASHTO GUIDE (2018) provides national guidance on the design of highways and streets. The 7th edition of the “The Green Book” offers an updated framework for geometric design that is more flexible, multimodal, and performance based than in previous editions.



NCHRP's Improving Pedestrian Safety at Unsignalized Crossings Report recommends engineering treatments to improve pedestrian safety at unsignalized locations with high speeds and traffic volumes.



The National Association of City Transportation Officials' (NACTO) **Urban Bikeway Design Guide (2012)** provides cities with state-of-the-practice solutions that can help create complete streets that are safe and enjoyable for bicyclists. The designs were developed by cities for cities, since unique urban streets require innovative solutions. In August 2013, the Federal Highway Administration issued a memorandum officially supporting use of the document.

A3

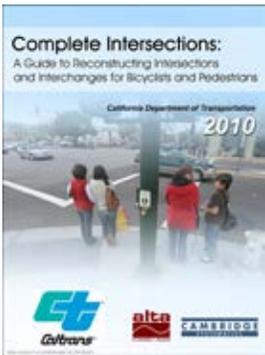


CALIFORNIA GUIDANCE

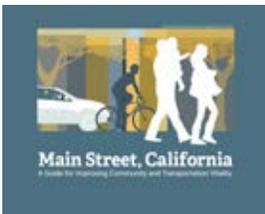
The **California Manual on Uniform Traffic Control Devices (CAMUTCD) (2014)** is an amended version of the FHWA MUTCD 2009 edition modified for use in California. While standards presented in the CA MUTCD substantially conform to the FHWA MUTCD, the state of California follows local practices, laws and requirements with regards to signing, striping and other traffic control devices.



The **California Highway Design Manual (HDM) (Updated 2015)** establishes uniform policies and procedures to carry out highway design functions for the California Department of Transportation.



Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians (2010) is a reference guide that presents information and concepts related to improving conditions for bicyclists and pedestrians at major intersections and interchanges. The guide can be used to inform minor signage and striping changes to intersections, as well as major changes and designs for new intersections.



Main Street, California: A Guide for Improving Community and Transportation Vitality (2013) reflects California’s current manuals and policies that improve multi-modal access, livability and sustainability within the transportation system. The guide recognizes the overlapping and sometimes competing needs of main streets.

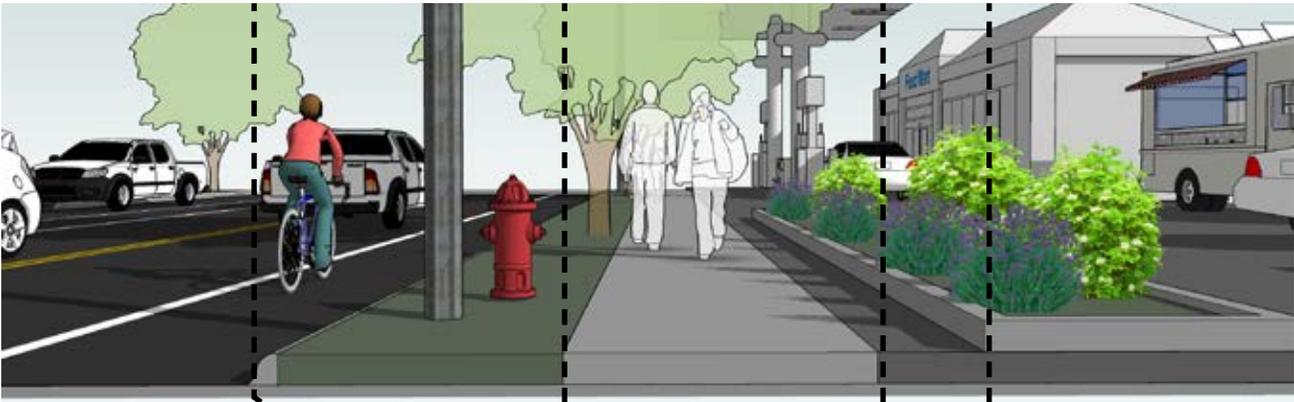


The Caltrans Memo: **Design Flexibility in Multimodal Design (2014)** encourages flexibility in highway design. The memo stated that “Publications such as the NACTO “Urban Street Design Guide” and “Urban Bikeway Design Guide,” ... are resources that Caltrans and local entities can reference when making planning and design decisions on the State highway system and local streets and roads.”

This page left intentionally blank

Sidewalk Zones & Widths

Sidewalks are the most fundamental element of the walking network, as they provide an area for pedestrian travel separated from vehicle traffic. Providing adequate and accessible facilities can lead to increased numbers of people walking, improved accessibility, and the creation of social space.



Enhancement Zone

The enhancement zone, or curbside lane, can act as a flexible space to further buffer the sidewalk from moving traffic, and may be used for a bike lane, shoulder and/or parking lane. Curb extensions and bike corrals may occupy this space where appropriate.

Buffer Zone

The buffer zone, also called the furnishing or landscaping zone, buffers pedestrians from the adjacent roadway, and is also the area where elements such as street trees, signal poles, signs, and other street furniture are properly located.

Pedestrian Through Zone

The through zone is the area intended for pedestrian travel. This zone should be entirely free of permanent and temporary objects.

Wide through zones are needed in downtown areas or where pedestrian flows are high.

Frontage Zone

The frontage zone allows pedestrians a comfortable “shy” distance from the building fronts, fencing or landscaping. It provides opportunities for window shopping, to place signs, planters, or chairs.

Street Classification	Parking Lane/ Enhancement Zone	Buffer Zone	Pedestrian Through Zone	Frontage Zone
Local Streets	Varies	4 - 6 feet	6 feet	N/A
Downtown and Pedestrian Priority Areas	Varies	4 - 6 feet	12 feet	2.5 - 10 feet
Arterials and Collectors	Varies	4 - 6 feet	6 - 8 feet	2.5 - 5 feet

TYPICAL APPLICATION

- All streets where pedestrian access is desired or anticipated
- Sidewalks should be continuous on both sides of urban commercial streets, and should be required in areas of moderate residential density.

DESIGN FEATURES

- Wider sidewalks should be installed near schools, at transit stops, in downtown areas, or anywhere high concentrations of pedestrians exist.
- At transit stops, an 8 feet by 5 feet clear space is required for accessible passenger boarding/alighting at the front door location per ADA requirements.
- When retrofitting gaps in the sidewalk network, locations near transit stops, schools, parks, public buildings, and other areas with high concentrations of pedestrians should be the highest priority.

FURTHER CONSIDERATIONS

Materials and Maintenance

Sidewalks are typically constructed out of concrete and are separated from the roadway by a curb or gutter and sometimes a landscaped boulevard. Less expensive walkways constructed of asphalt, crushed stone, or other stabilized surfaces may be appropriate. Ensure accessibility and properly maintain all surfaces regularly. Surfaces must be firm, stable, and slip resistant. Colored, patterned, or stamped concrete can add distinctive visual appeal.

Approximate Cost

Cost of standard sidewalks range from \$15 to \$25 per square foot for concrete sidewalk. This cost can increase with additional right-of-way acquisition or addition of landscaping, lighting or other aesthetic features. As an interim measure, an asphalt concrete path can be placed until such time that a standard sidewalk can be built. The cost of asphalt path can be less than half the cost of a standard sidewalk.

Senior zones

Right-of-way near assisted living facilities, community centers, and similar uses may benefit from key enhancements that promote the safe and comfortable use of public space for seniors. Providing comfortable pedestrian conditions in these locations is important for encouraging an active lifestyle for older adults. Design upgrades geared toward seniors include a diversity of treatments that promote safe crossings.

TYPICAL APPLICATION

- Senior zone upgrades should concentrate heavily on right of way within 1/2 mile of designated senior facilities
- Upgrades should also be made along pedestrian routes connecting facility users to transit stops and popular destinations
- Campus facilities with private roadways should also make appropriate upgrades



DESIGN FEATURES

Signage

- Install senior zone warning signage visible to all drivers within 500 feet. of the facility.
- Install enhanced wayfinding signage within 1/2 mile of senior facilities to help guide older pedestrians to transit stops and destinations.

Traffic Calming

- Slowing speeds on streets adjacent to senior facilities provides safer and more comfortable conditions for older pedestrians.
- Installing speed humps, curb extensions, and stop signs in key locations may be appropriate interventions to consider.
- Reduce speed limits on streets directly adjacent to senior facilities to 25 mph or less (in areas deemed appropriate by an engineer).

Crossing Enhancements

- Providing safe crossing opportunities for seniors may include:
- Signalization updates to provide additional pedestrian phase time for older adults and pedestrians with mobility challenges is important in senior zones. Pedestrian clearance intervals should be timed to 3.0 feet per second rather than the MUTCD standard 3.5 feet per second.
- Pedestrian signal count down displays are also useful to seniors crossing the roadway.

Amenities

- Providing adequate pedestrian amenities for seniors may include:
- Installing benches along key routes and within public parks to offer older pedestrians the opportunity to rest.
- Planting street trees to offer shading for older adults during warm weather.
- Adding pedestrian scale street lighting for easier navigation in low light conditions.

FURTHER CONSIDERATIONS

Signage

- SENIOR ZONE signage (SW50-1P) may be used above speed limit signs on any street or road, other than a State highway, exceeding 25 mph that is adjacent to some form of senior facility (CA MUTCD). Warning signage should be visible to drivers within 500 feet. of a senior facility.

Accessibility

- Any deficiencies in meeting ADA guidelines should be addressed within the senior zone itself, as well as along key routes identified to serve older adults, potentially including routes to transit stops, public parks, community centers, grocery stores, and other senior serving uses.
- Curb ramp design and crosswalk placement should provide a direct line of travel from curb ramp to curb ramp to promote ease of travel for users with visual impairments and mobility devices as they proceed through the crosswalk.
- It's important to consider the turn radius of wheelchairs or other mobility devices when designing and installing ADA curb ramps. Curb ramp design should easily accommodate wheelchair and mobility scooter users attempting to turn from one crosswalk into another.



Source: City of Portland

Pedestrian/Bike Circulation within commercial Parking areas

Pedestrians and bicyclists accessing retail stores and services must often walk or bike through parking lots to reach their final destination. Key improvements can enhance the safety and comfort of this connection to reduce the likelihood of conflicts with vehicles entering, exiting, and parking in the parking lot.

TYPICAL APPLICATION

- Bicycle and pedestrian circulation upgrades in private commercial areas are most important in mid-size to large parking lots and locations with high volumes of visitors and high turnover.

DESIGN FEATURES

Signage

- Private commercial parking lots can incorporate pedestrian warning signage.
- Pedestrians and bike warning signage can be used in combination with advisory speed limit signage to draw attention to the presence of bicyclists and pedestrians in parking lots.

Traffic Calming

- Slowing vehicle speeds in parking lots can promote safe and comfortable circulation for bicyclists and pedestrians. Traffic calming improvements to consider may include:
 - Speed humps
 - Stop signs at high volume pedestrian crossing locations
 - Landscaped end cap medians to slow turning movements

Sidewalks and Striping

- Sidewalks provide the most protection for pedestrians navigating parking lots.
- Some larger parking lot configurations may support the installation of a central walkway median that can help separate pedestrians from vehicles.
- High pedestrian volume conflict points in parking lots may be improved through the striping of diagonal walkway markings.

Amenities

- Commercial areas can improve the comfort of their parking lots for pedestrians through the provision of:
 - Landscaped strips and street trees surrounding the perimeter of the parking lot with islands scattered throughout
 - Adequate lighting throughout the parking lot
 - Security cameras covering the extent of the parking lot
 - Adequate bike parking



Lafayette Station Site Improvement.

Source: BART.gov

FURTHER CONSIDERATIONS

Signage

- W11-15 signs (see right) can be used to highlight the presence of cyclists and pedestrians.
- Pairing this signage with a 10 MPH advisory speed limit sign can help further communicate the need for low speeds and driver diligence.

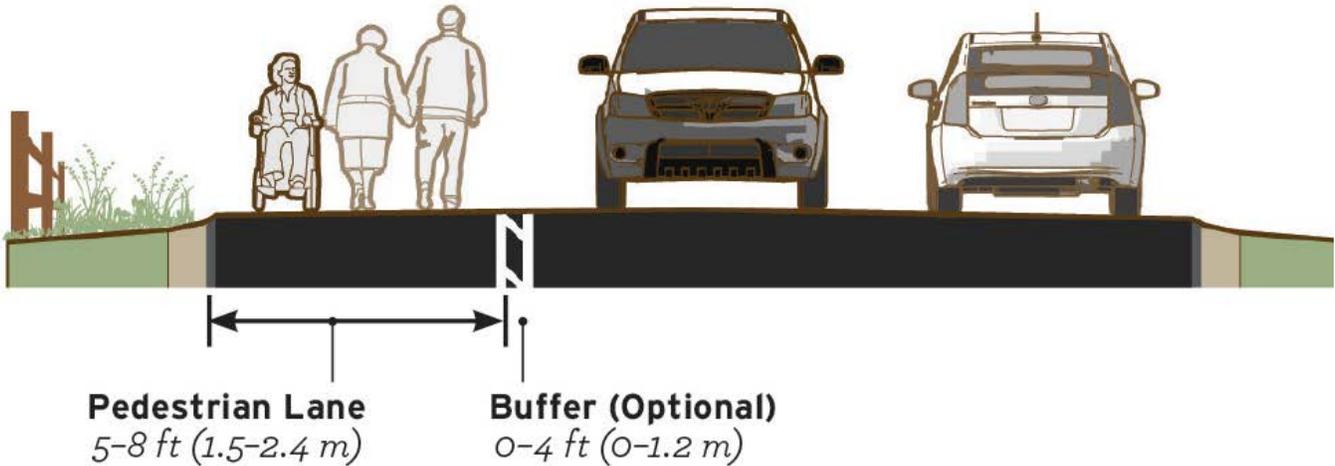
Accessibility

- In addition to ensuring sidewalks include ADA compliant curb ramps, special attention should be paid to provide safe pedestrian connections from accessible parking spaces to the each store front.



Pedestrian Lane

A pedestrian lane is an interim or temporary pedestrian facility that may be appropriate on roads with low to moderate speeds and volumes. A pedestrian lane is a designated space on the roadway for exclusive use of pedestrians. The lane may be on one or both sides of the roadway and can fill gaps between important destinations in a community.



Pedestrian Lane
5-8 ft (1.5-2.4 m)

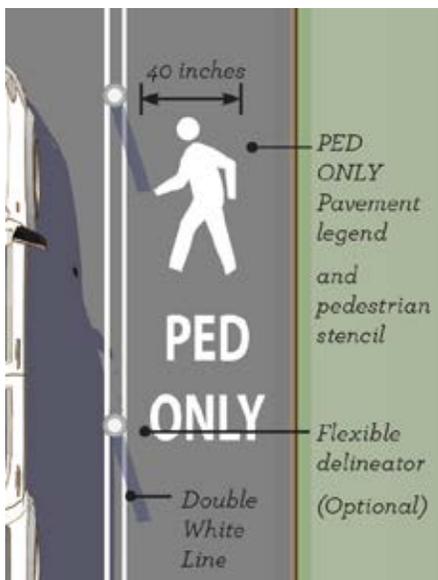
Buffer (Optional)
0-4 ft (0-1.2 m)

TYPICAL APPLICATION

- Pedestrian lanes should be designed to support and promote side-by-side walking within the lane. Because of the lack of physical separation, additional width beyond this should be included for added comfort.

DESIGN FEATURES

- 8 feet width is preferred
- 5 feet width is the minimum to allow for side-by-side walking and maneuverability by users of mobility devices.
- Pedestrian lanes are intended for use by pedestrians and must meet accessibility guidelines for a pedestrian access route.
- There is no maximum grade as long as the pedestrian lane is a part of the adjacent street.
- The cross slope of pedestrian access routes should be 2 percent maximum. This may be problematic on some roadways with substantial crowns.
- The surface of pedestrian access routes shall be firm, stable, and slip resistant.

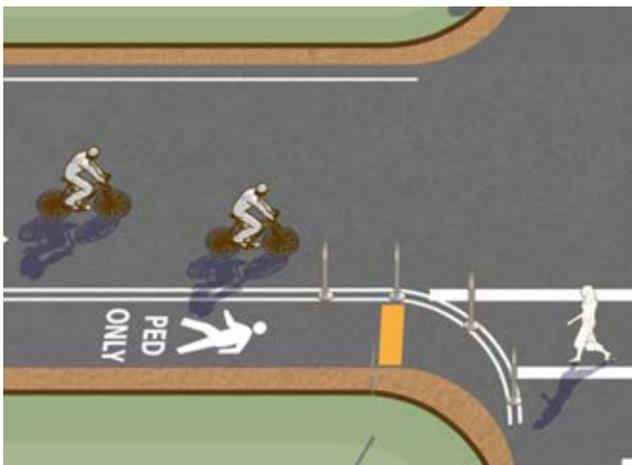


FURTHER CONSIDERATIONS

Markings

Separate a pedestrian lane from the adjacent travel lanes with some form of longitudinal marking.

- Use a double white line for extra emphasis and to discourage motor vehicle encroachment.
- If additional comfort is desired, mark a buffer to increase separation between pedestrians and motor vehicles.
- Mark pedestrian lanes with the appropriate pavement word markings.
- Use a PED ONLY legend marking to designate exclusive pedestrian use of the lane.
- For additional awareness, use a pedestrian symbol to communicate exclusive pedestrian use.
- Markings should be visible to “approaching traffic for all available departures” (MUTCD 2009, p. 415).



Intersections

Configure pedestrian lanes with treatments to provide for a safe, clear, and accessible passage at street crossings.

- Define the corner at intersections with a double solid white line to reduce motor vehicle encroachment into the pedestrian areas. Use flexible delineators where a more robust treatment is desired.
- Place stop lines or yield lines outside of the pedestrian area.
- Crosswalks may be marked to clearly delineate the crossing paths of pedestrians.
- Provide detectable warnings in advance crosswalks, even in the absence of a curb ramp transition.

Signs

Pedestrian Warning Sign (W11-2) paired with an “ON ROADWAY” legend plaque may be used to indicate to drivers to expect pedestrians within the paved road surface.

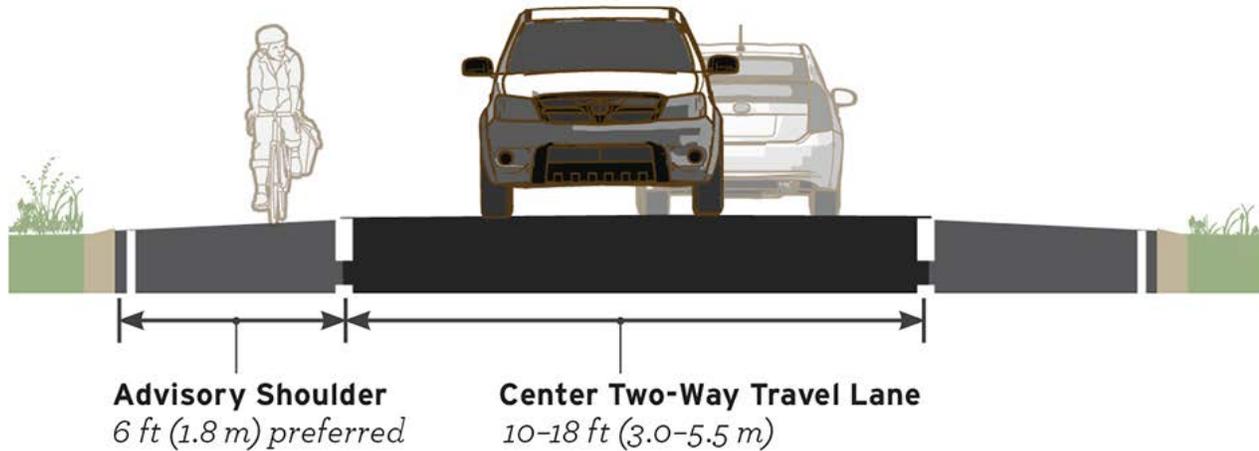
Accessibility

Any deficiencies in meeting ADA guidelines during implementation as a restriping project should be identified in the ADA transition plan and be corrected in the next resurfacing. Note that pedestrian lanes are an interim facility, and a full sidewalk construction should be planned for future implementation.



Advisory Shoulder

Advisory shoulders create usable shoulder for bicyclists and/or pedestrians on a roadway that is otherwise too narrow to accommodate one. The shoulder is delineated by pavement markings and optional pavement color. Motorists may only enter the shoulder when no bicyclists or pedestrians are present and must overtake these users with caution due to potential oncoming traffic.



TYPICAL APPLICATION

- Low volume, low speed roadways with limited roadway width and few intersections/driveways

DESIGN FEATURES

Advisory Shoulder

- Unlike a conventional shoulder, an advisory shoulder is a part of the traveled way, and it is expected that vehicles will regularly encounter meeting or passing situations where driving in the advisory shoulder is necessary and safe.
- The advisory shoulder space is a visually distinct area on the edge of the roadway, offering a prioritized space for people to bicycle and walk.

- The preferred width of the advisory shoulder space is 6 feet. Absolute minimum width is 4 feet when no curb and gutter is present.
- Consider using contrasting paving materials between the advisory shoulder and center travel lane to differentiate the advisory shoulder from the center two-way travel lane in order to minimize unnecessary encroachment and reduce regular straddling of the advisory shoulder striping.

Two-Way Center Travel Lane

The two-way center travel lane is created from the remaining paved roadway space after the advisory shoulder has been accounted for.

- Preferred two-way center travel lane width is 13.5 to 16 feet, although may function with widths of 10 to 18 feet.

FURTHER CONSIDERATIONS

Markings

- A broken lane line used to delineate the advisory shoulder should consist of 3 feet line segments and 6 feet gaps.
- Where additional edge definition is desired, stripe a normal solid white edge line in addition to the broken advisory shoulder line.
- If the advisory shoulder is intended for bicycle use only, bicycle lane markings and green pavement can be used in a similar manner to conventional bicycle lanes.
- In general, do not mark a center line on the roadway. Short sections may be marked with center line pavement markings to separate opposing traffic flows at specified locations, such as around curves, over hills, on approaches to controlled intersections, and at bridges. At these locations, widen the paved roadway surface to provide space for paved bicycle-accessible shoulders and conventional width travel lanes.

Intersections

- Advisory shoulder designs work best on road segments without frequent stop or signal controlled intersections that require vehicles to stop within the roadway. The designer should strive to maintain the visual definition of the advisory shoulder through all driveways and street crossings, and provide a conventional shoulder at controlled intersections.
- At minor street crossings, use a dotted line extension on both sides of the advisory shoulder to maintain delineation of the advisory shoulder space.

- If contrasting pavement material is used, maintain the material through driveway crossings and minor intersections.
- Where the road is controlled by a stop sign or traffic signal, discontinue the advisory shoulder 50 feet in advance of the intersection. At these locations, provide a bicycle accessible paved shoulder outside of the full width travel lanes or design for operation as a shared roadway.

Signs

Use signs to warn road users of the special characteristics of the street. Potential signs for use with advisory shoulders include:

- Use an unmodified two-way traffic warning sign (W6-3) to clarify two-way operation of the road.
- Use a NO CENTER LINE warning sign (W8-12) to help clarify the unique striping pattern.
- Use a NO PARKING ON PAVEMENT (R8-1) to discourage parking within the advisory shoulder.

Accessibility

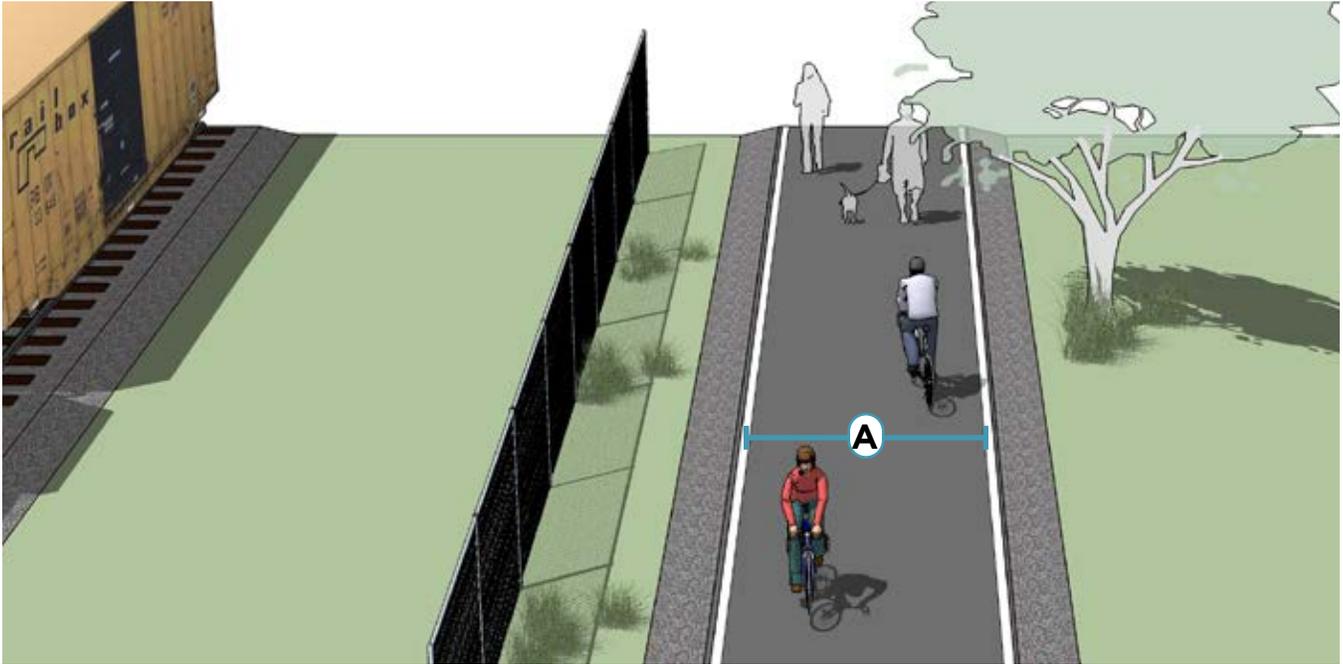
Advisory shoulders as described here are not intended for primary use by pedestrians. When advisory shoulders are intended for use by pedestrians, they should meet accessibility guidelines.

Implementation

In order to install advisory shoulders, an approved Request to Experiment is required as detailed in the MUTCD 2009, Sec. 1A.10. FHWA is also accepting requests for experimentation with a similar treatment called “dashed bicycle lanes”.

Shared Use Path (Class I)

Shared use paths (Class I) are off-street facilities that can provide a desirable transportation and recreation connection for users of all skill levels who prefer separation from traffic. They often provide low-stress connections to local and regional attractions that may be difficult, or not be possible on the street network.



A16

TYPICAL APPLICATION

- In abandoned rail corridors (commonly referred to as Rails-to-Trails or Rail-Trails).
- In active rail corridors, trails can be built adjacent to active railroads (referred to as Rails-with-Trails).
- In utility corridors, such as powerline and sewer corridors.
- In waterway corridors, such as along canals, drainage ditches, rivers, and creeks.
- Through parks and across other public lands
- Along roadways.

DESIGN FEATURES

- **A** 8 feet is the absolute minimum width (with 2 foot shoulders) allowed for a two-way travel and is only recommended for constrained situations (Caltrans Design Manual).
- 10 feet is recommended in most situations and will be adequate for moderate use.
- 12 feet is recommended for heavy use situations with high concentrations of multiple users. A separate track (5 foot minimum) can be provided for pedestrian use.

FURTHER CONSIDERATIONS

Lateral Clearance

- A 2 foot or greater shoulder on both sides of the path should be provided. An additional foot of lateral clearance (total of 3 feet) is required by the MUTCD for the installation of signage or other furnishings.
- If bollards are used at intersections and access points, they should be colored brightly and/or supplemented with reflective materials to be visible at night.

Overhead Clearance

- Clearance to overhead obstructions should be an 8 foot minimum, with 10 feet recommended.

Striping

- When striping is desired, use a 4 inch dashed yellow centerline stripe.
- Solid centerlines can be provided on tight or blind corners, and on the approaches to roadway crossings.
- 4 inch solid white edge lines are optional, but will narrow the effective width of the facility.

Materials and Maintenance

- Shared use paths must be regularly maintained so that they are free of potholes, cracks, root damage, and debris. Signage and lighting should also be regularly maintained to ensure shared use path users feel comfortable, especially where visibility is limited.
- Adjacent landscaping should be regularly pruned, to allow adequate sightlines, daylight, and pedestrian-scale lighting, and so as not to obstruct the path of travel of trail users.

Approximate Cost

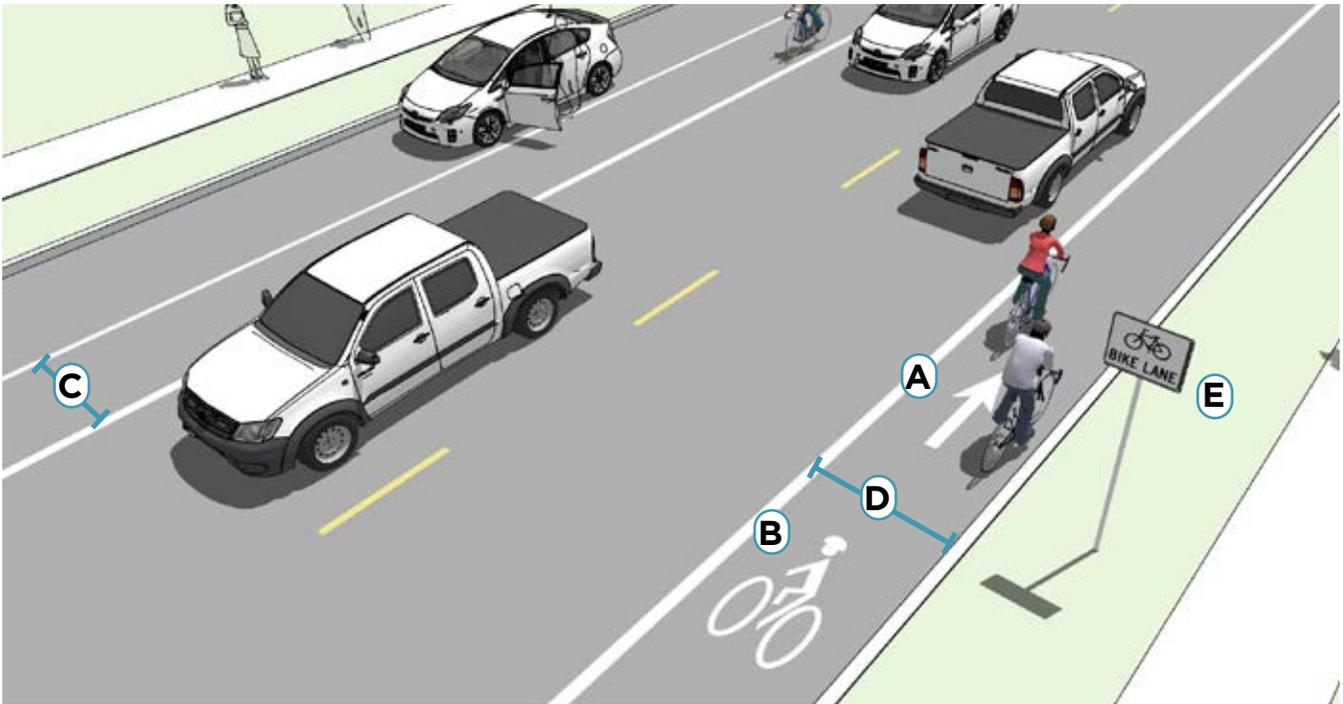
- The cost of a shared use path can vary, but typical costs are between \$65,000 per mile to \$4 million per mile. These costs vary with materials, such as asphalt, concrete, boardwalk and other paving materials, lighting, other amenities and ROW acquisition.



Prince Memorial Greenway connects users to downtown Santa Rosa. Source: Peter Stetson.

On-Street Bicycle Lanes (Class II)

On-street bike lanes (Class II) are a portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes enable bicyclists to ride at their preferred speed without interference from prevailing traffic conditions and facilitate predictable behavior and movements between bicyclists and motorists.



A18

TYPICAL APPLICATION

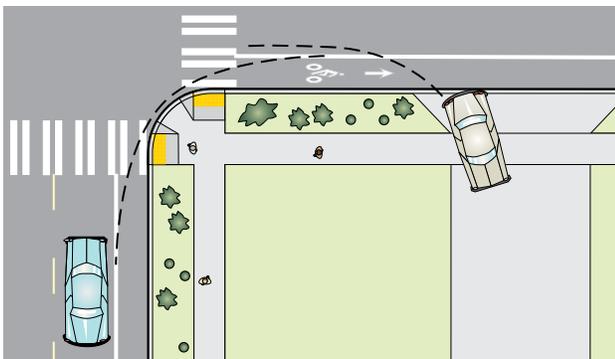
- Bike lanes may be used on any street with adequate space, but are most effective on streets with moderate traffic volumes greater than or equal to 6,000 ADT (with a greater than 3,000 ADT min.).
- Bike lanes are most appropriate on streets with low to moderate speeds of 25 mph or more.
- Appropriate for skilled adult riders on most streets.
- May be appropriate for children when configured as 6+ feet wide lanes on lower-speed, lower-volume streets with one lane in each direction.

DESIGN FEATURES

- A** Mark inside line with 6 inch stripe. Mark 4 inch parking lane line or “Ts”.
- B** Include a bicycle lane marking (MUTCD 9C-3) at the beginning of blocks and at regular intervals along the route (MUTCD 9C.04).
- C** 6 feet width preferred adjacent to on-street parking (5 feet min.).
- D** 6 feet preferred adjacent to curb and gutter (5 feet min.) or 3 feet minimum/ 4 feet preferred wider than the gutter pan width.
- E** Signage consists of an optional R81 (CA) sign, which must be placed at the beginning of each bike lane and at major changes in direction. It should also be placed at every arterial street and at 1/2 mile intervals.

FURTHER CONSIDERATIONS

- On high speed streets (greater than or equal to 40 mph) the minimum bike lane should be 6 feet.
- On streets where bicyclists passing each other is to be expected, where high volumes of bicyclists are present, or where added comfort is desired, consider providing extra wide bike lanes up to 7 feet wide, or configure as a buffered bicycle lane.
- It may be desirable to reduce the width of general purpose travel lanes in order to add or widen bicycle lanes.
- On multi-lane and/or high speed streets, the most appropriate bicycle facility to provide for user comfort may be buffered bicycle lanes or physically separated bicycle lanes.



Bike lane word, symbol, and/or arrow markings (MUTCD Figure 9C-3) shall be placed outside of the motor vehicle tread path in order to minimize wear from the motor vehicle path (NACTO 2012).

Manhole Covers and Grates

- Manhole surfaces should be manufactured with a shallow surface texture in the form of a tight, nonlinear pattern
- If manholes or other utility access boxes are to be located in bike lanes within 50 feet of intersections or within 20 feet of driveways or other bicycle access points, special manufactured permanent nonstick surfaces are required to ensure a controlled travel surface for bicyclists breaking or turning.
- Manholes, drainage grates, or other obstacles should be set flush with the paved roadway. Roadway surface inconsistencies pose a threat to safe riding conditions for bicyclists. Construction of manholes, access panels or other drainage elements will be constructed with no variation in the surface. The maximum allowable tolerance in vertical roadway surface will be 1/4 of an inch.

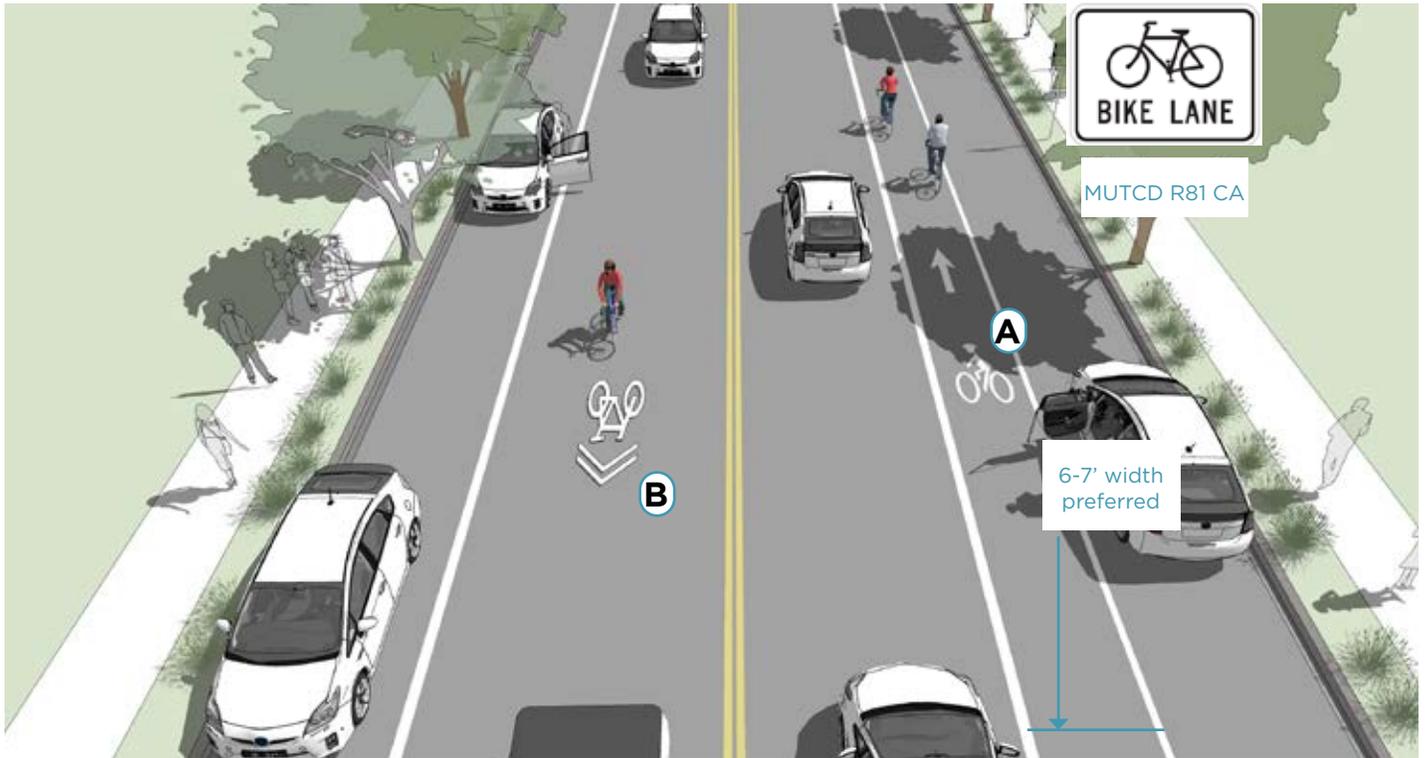
Approximate Cost

- The cost for installing bicycle lanes will depend on the implementation approach. Typical costs are \$16,000 per mile for the application of a bike lane on new pavement.



Bicycle lanes provide an exclusive space, but may be subject to unwanted encroachment by motor vehicles.

Uphill Climbing Bike Lanes



A20

TYPICAL APPLICATION

- Sections of roadway with moderate to high traffic volumes and speeds where steep grades may prevent bicyclists from traveling at a safe speed for general travel lanes.
- Climbing lanes should be 6 to 7 feet wide to provide adequate maneuvering space for uphill pedaling.
- Mark inside line with 6 inch stripe. Mark 4 inch parking lane line or “Ts”.

DESIGN FEATURES

- A** Same features as Class II bike lanes.
 - If the roadway is two-way, downhill cyclists on the opposite side of the street will likely be traveling closer to vehicle travel speeds, making a designated lane less necessary.
- B** In these instances climbing lane treatments may be paired with shared lane markings on the downhill general travel lane.

FURTHER CONSIDERATIONS

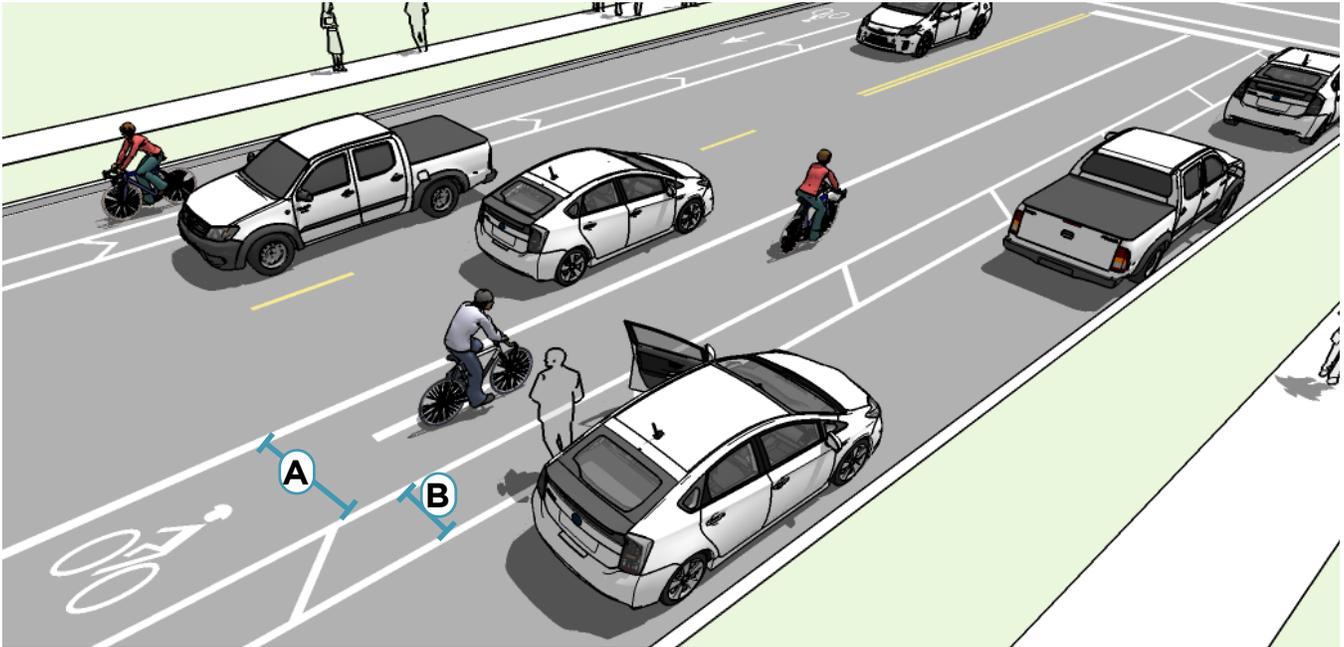
Approximate Cost

- Climbing lanes cost approximately the same amount as standard bike lanes on a per-mile basis, but are often applied over shorter distances

This page left intentionally blank

Buffered Bicycle Lanes (Class IV)

Buffered bike lanes (Class IV) are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



A22

TYPICAL APPLICATION

- Anywhere a conventional bike lane is being considered.
- On streets with high speeds and high volumes or high truck volumes.
- On streets with extra lanes or lane width.
- Appropriate for skilled adult riders on most streets.

DESIGN FEATURES

- A** The minimum bicycle travel area (not including buffer) is 5 feet wide.
- B** Buffers should be at least 2 feet wide. If buffer area is 4 feet or wider, white chevron or diagonal markings should be used (CA MUTCD 9C-104).
 - For clarity at driveways or minor street crossings, consider a dotted line.
 - There is no standard for whether the buffer is configured on the parking side, the travel side, or a combination of both.



The use of pavement markings delineates space for bicyclists to ride in a comfortable facility.



The use of pavement markings delineates space for bicyclists to ride in a comfortable facility.

FURTHER CONSIDERATIONS

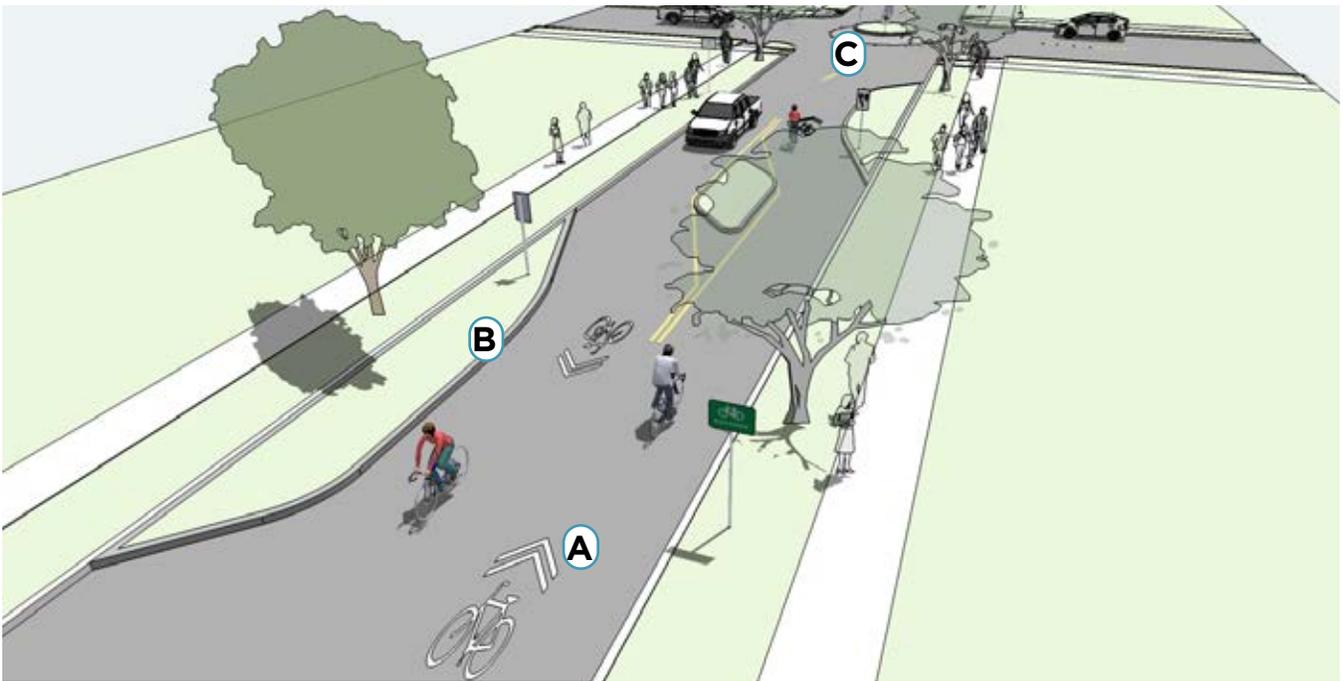
- Color may be used within the lane to discourage motorists from entering the buffered lane.
- A study of buffered bicycle lanes found that, in order to make the facilities successful, there needs to also be driver education, parking signage and proper pavement markings.
- On multi-lane streets with high vehicles speeds, the most appropriate bicycle facility to provide for user comfort may be physically separated bike lanes.
- NCHRP Report #766 recommends, when space is limited, installing a buffer space between the parking lane and bicycle lane where on-street parking is permitted rather than between the bicycle lane and vehicle travel lane.

Approximate Cost

- The cost for installing buffered bicycle lanes will depend on the implementation approach. Typical costs are \$25,000 per mile on new pavement. However, the cost of large-scale bicycle treatments will vary greatly due to differences in project specifications and the scale and length of the treatment.

Bicycle Routes (Class III)

Bicycle routes (Class III) are low-volume, low-speed streets modified to enhance bicyclist comfort by using treatments such as signage, pavement markings, traffic calming and/or traffic reduction, and intersection modifications. These treatments allow through movements of bicyclists while discouraging similar through-trips by non-local motorized traffic.



TYPICAL APPLICATION

- Parallel with and in close proximity to major thoroughfares (1/4 mile or less).
- Follow a desire line for bicycle travel that is ideally long and relatively continuous (2-5 miles).
- Along routes that create sufficient network density of routes suitable for all ages and abilities.
- Avoid alignments with excessive zigzag or circuitous routing. The bikeway should have less than 10 percent out of direction travel compared to shortest path of primary corridor.
- Streets with travel speeds at 35 mph or less (20 mph recommended) and with traffic volumes of fewer than 1,500 vehicles per day.

DESIGN FEATURES

- A** Signs and pavement markings are the minimum treatments necessary to designate a street as a bicycle boulevard.
- B** Implement volume control treatments based on the context of the bicycle boulevard, using engineering judgment. Target motor vehicle volumes range from 1,000 to 1,500 vehicles per day.
- C** Intersection crossings should be designed to enhance safety and minimize delay for bicyclists and pedestrians. Treatments should not be an attractor for vehicular access.



Bicycle boulevards are established on streets that improve connectivity to key destinations and provide a direct, low-stress route for bicyclists, with low motorized traffic volumes and speeds, designated and designed to give bicycle travel priority over other modes.



Neighborhood bikeways may require additional traffic calming measures to discourage through trips by motor vehicles.

FURTHER CONSIDERATIONS

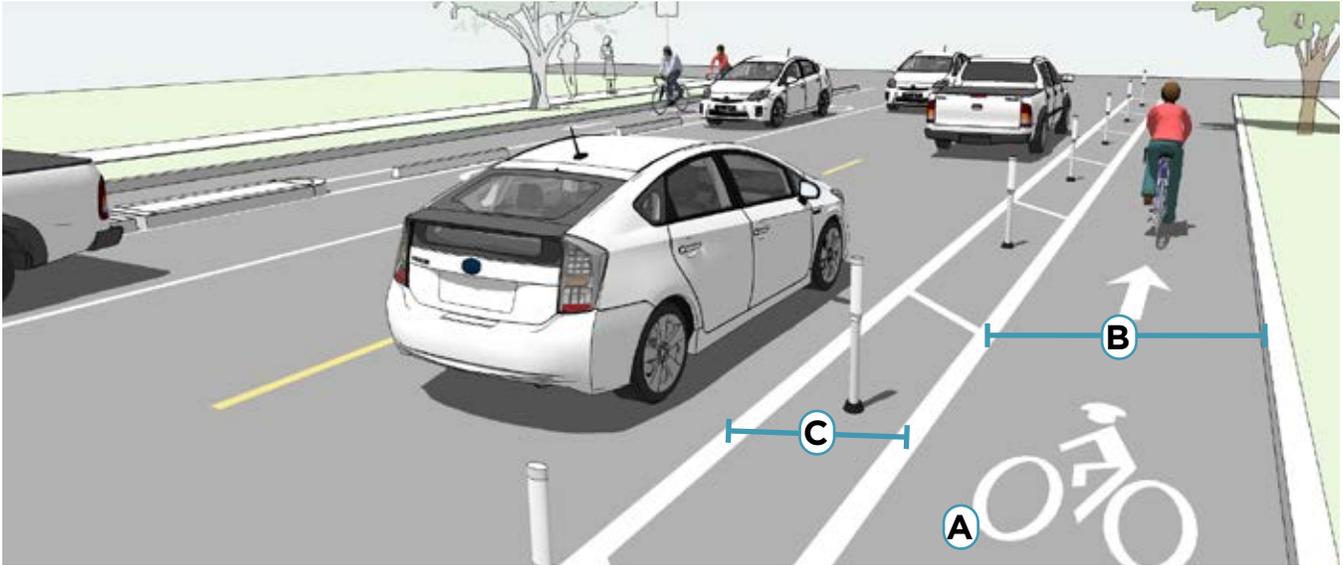
- Bicycle boulevards are typically located on streets without existing signalized accommodation at crossings of collector and arterial roadways. Without treatments for bicyclists and pedestrians, these intersections can become major barriers along the bicycle boulevard and compromise safety.
- Traffic calming can lower speeds along bicycle boulevards and even deter motorists from driving on a street. Anticipate and monitor vehicle volumes on adjacent streets to determine whether traffic calming results in inappropriate volumes. Traffic calming can be implemented on a trial basis. For more information on traffic calming strategies, see page 32).

Approximate Cost

- Costs vary depending on the type of treatments proposed for the corridor. Simple treatments such as wayfinding signage and markings are most cost-effective, but more intensive treatments will have greater impact at lowering speeds and volumes, at a higher cost.

Separated Bikeways (Class IV)

Separated Bike Lanes (Class IV) have different forms but all share common elements—they provide space that is intended to be exclusively or primarily used for bicycles, and are separated from motor vehicle travel lanes, parking lanes, and sidewalks. In situations where on-street parking is allowed they are located to the curb-side of the parking (in contrast to bike lanes).



Class IV bikeways may be at street level, at sidewalk level, or at an intermediate level. When retrofitting protected bikeways onto existing streets, a one-way street-level design may be most appropriate. This design provides protection through physical barriers and can include flexible delineators, curbs, on-street parking or other barriers.

TYPICAL APPLICATION

- Street retrofit projects with limited funds for relating curbs and drainage.
- Streets with high motor vehicle volumes and/or speeds and high bicycle volumes.
- Streets for which conflicts at intersections can be effectively mitigated using parking lane setbacks, bicycle markings through the intersection, and other signalized intersection treatments.
- Appropriate for most riders on most streets.

DESIGN FEATURES

- A** Pavement markings, symbols and/or arrow markings must be placed at the beginning of the protected bikeway and at intervals along the facility (MUTCD 9C.04).
 - B** 7 foot width preferred to allow passing (5 foot minimum).
 - C** 3 foot minimum buffer width when adjacent to parking. 18 inch minimum adjacent to travel lanes. Channelizing devices should be placed in the buffer area (NACTO, 2012).
- If buffer area is 4 feet or wider, white chevron or diagonal markings should be used.



Protected Bikeways can be separated from the street with parking, planters, bollards, or other design elements.

FURTHER CONSIDERATIONS

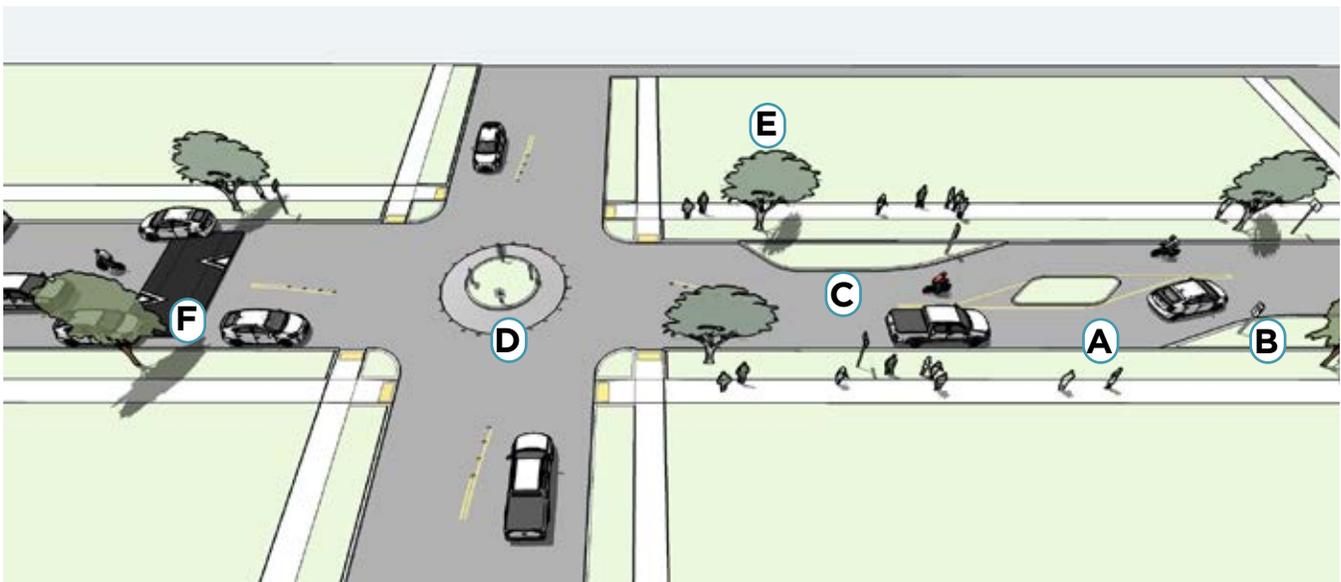
- Protected bikeway buffers and barriers are covered in the MUTCD as preferential lane markings (section 3D.01) and channelizing devices (section 3H.01). Curbs may be used as a channeling device, see the section on islands (section 3I.01).
- A retrofit protected bikeway lane has a relatively low implementation cost compared to road reconstruction by making use of existing pavement and drainage and by using parking lane as a barrier.
- Gutters, drainage outlets and utility covers should be designed and configured as not to impact bicycle travel.
- Special consideration should be given at transit stops to manage bicycle and pedestrian interactions.

Approximate Cost

- The implementation cost is low if the project uses existing pavement and drainage, but the cost significantly increases if curb lines need to be moved. A parking lane is the low-cost option for providing a barrier. Other barriers might include concrete medians, bollards, tubular markers, or planters.

Traffic Calming Strategies

Traffic calming may include elements intended to reduce the speeds of motor vehicle traffic to be closer to bicyclist travel speeds, or may include design elements that restrict certain movements for motorized travel to discourage the use of bicycle boulevard corridors for through travel by automobiles. Traffic calming treatments can cause drivers to slow down by constricting the roadway space or by requiring careful maneuvering. Such measures may reduce the design speed of a street, and can be used in conjunction with reduced speed limits to reinforce the expectation of lowered speeds. They can also lower vehicle volumes by physically or operationally reconfiguring corridors and intersections along the route.



A28

TYPICAL APPLICATION

- Use traffic calming to maintain an 85th percentile speed below 20 mph (25 mph maximum).
- Maintain a minimum clear width of 14 feet with a constricted length of at least 20 feet in the direction of travel.
- Bring traffic volumes down to 1,500 cars per day (3,000 cars per day maximum). Bikeways with daily volumes above this limit should be considered for traffic calming measures.

DESIGN FEATURES

Speed Reduction

- A** Median islands create a pinchpoint for traffic in the center of the roadway and offers shorter crossing distances for pedestrians when used in tandem with a marked crossing.
- B** Chicanes slow drivers by requiring vehicles to shift laterally through narrowed lanes and which avoids uninterrupted sightlines.
- C** Pinchpoints, chokers, or curb extensions restrict motorists from operating at high speeds on local streets by visually narrowing the roadway.

- D** Neighborhood traffic circles reduce speed of traffic at intersections by requiring motorists to move cautiously through conflict points.
- E** Street trees narrow a driver's visual field, subconsciously queuing drivers to slow down.
- F** Speed humps slow drivers through vertical deflection. To minimize impacts to bicycles, use a sinusoidal profile and leave a gap along curb so that bicyclists may bypass the hump when appropriate. Speed cushions operate in a similar fashion to speed humps, but allow for unimpeded travel by emergency vehicles.

Volume Reduction

- Partial closure diverters allow bicyclists to proceed straight across the intersection but forces motorists to turn left or right. All turns from the major street onto the bikeway are prohibited. Can incorporate curb extensions with stormwater management features and/or a mountable island.
- Right-in/right-out diverters force motorists to turn right while bicyclists can continue straight through the intersection. The island can provide a through bike lane or bicycle access to reduce conflicts with right-turning vehicles. Left turns from the major street onto the bikeway are prohibited, while right turns are still allowed.
- Median refuge island diverters restrict through and left-turn vehicle movements along the bikeway while providing refuge for bicyclists to cross one direction of traffic at a time. This treatment prohibits left turns from the major street onto the bikeway, while right turns are still allowed.
- Full diverters block all motor vehicles from continuing on a neighborhood bikeway, while bicyclists can continue unrestricted. Full closures can be constructed to be permeable to emergency vehicles.

Bike Intersection Crossings

Bicycle pavement markings through intersections guide bicyclists on a safe and direct path through the intersection and provide a clear boundary between the paths of through bicyclists and vehicles in the adjacent lane.



TYPICAL APPLICATION

- Streets with conventional, buffered, or separated bike lanes.
- At direct paths through intersections.
- Streets with high volumes of adjacent traffic.
- Where potential conflicts exist between through bicyclist and adjacent traffic.

DESIGN FEATURES

- A** Intersection markings should be the same width and in line with leading bike lane.
- Dotted lane line extensions should be 2 foot line segments with 2 to 6 foot gaps between them (CAMUTCD 3B.08).
- All markings should be white, skid resistant and retro reflective (CAMUTCD 9C.02.02).
- B** Dotted white lines may be enhanced with solid green, or dashed green within the same extents as the dotted line itself.



Intersection crossing markings can be used at signalized intersections or high volume minor street and driveway crossings.

FURTHER CONSIDERATIONS

The National Committee on Uniform Traffic Control Devices has submitted a request to include additional options for bicycle lane extensions through intersections as a part of future MUTCD updates. Their proposal includes the following options for striping elements within the crossing:

- Bicycle lane markings
- Double chevron markings, indicating the direction of travel.
- Green colored pavement.

Approximate Cost

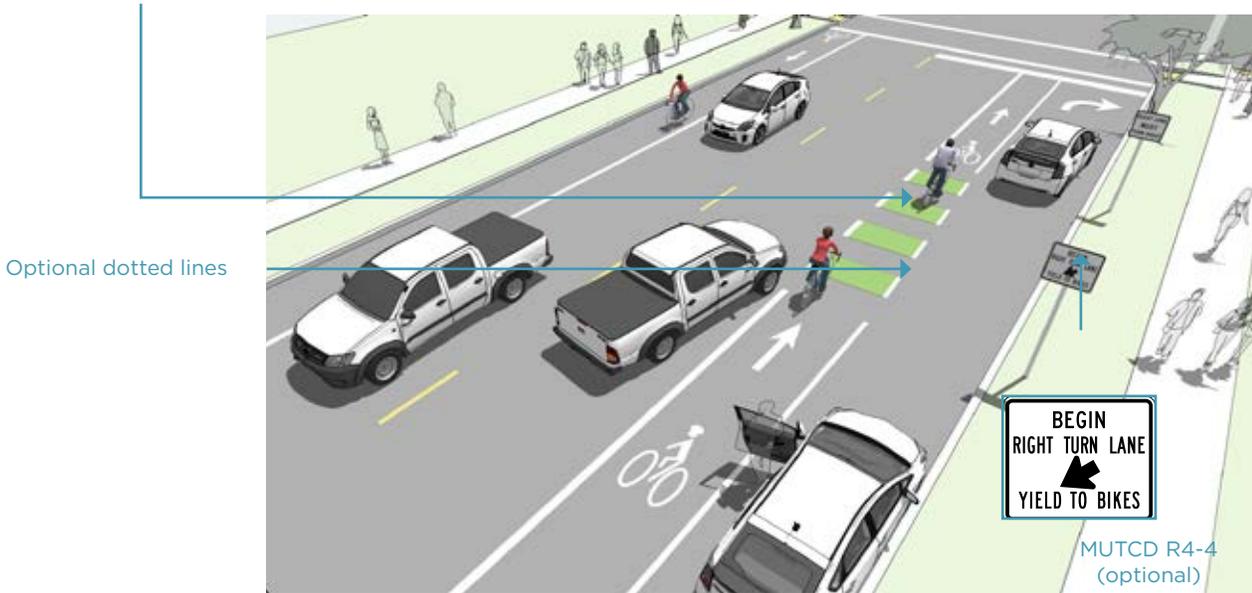
The cost for installing intersection crossing markings will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Typical thermoplastic green markings range from \$8-15 per square foot depending on quantity.

Bike Lanes at Right-Turn Lanes

At right-turns add lanes to place the bike lane between the right-turn lane and the right-most through lane or, where right-of-way is insufficient, to use a shared bike lane/turn lane. The design (below) illustrates conflict markings, with signage indicating that motorists should yield to bicyclists through the conflict area.

Colored pavement may be used in the weaving area to increase visibility and awareness of potential conflict



TYPICAL APPLICATION

- Locations where vehicular traffic must cross over dedicated bike facilities to enter into a right-turn lane

DESIGN FEATURES

At auxiliary right turn only lanes (add lane):

- Continue existing bike lane width; standard width of 5 to 6 feet or 4 feet in constrained locations.
- Use R4-4 signage to indicate that motorists should yield to bicyclists through the conflict area.
- Consider using colored conflict areas to promote visibility of the mixing zone.

Where a through lane becomes a right turn only lane:

- Do not define a dotted line merging path for bicyclists.
- Use shared lane markings to indicate shared use of the lane in the merging zone.



Drivers wishing to enter the right turn lane must transition across the bicycle lane in advance of the turn.

FURTHER CONSIDERATIONS

- The bicycle lane maintains a straight path, and drivers must weave across, providing clear right-of-way priority to bicyclists.
- Maintaining a straight bicycle path reinforces the priority of bicyclists over turning cars. Drivers must yield to bicyclists before crossing the bike lane to enter the turn lane.
- Through lanes that become turn only lanes are difficult for bicyclists to navigate and should be avoided.
- The use of dual right-turn-only lanes should be avoided on streets with bike lanes (AASHTO, 2013). Where there are dual right-turn-only lanes, the bike lane should be placed to the left of both right-turn lanes; however, this merge is uncomfortable for most bicyclists. Keeping the bike lane to the right of the turn lanes is possible if a bicycle signal phase is implemented to separate bicyclists from turning vehicles.

Approximate Cost

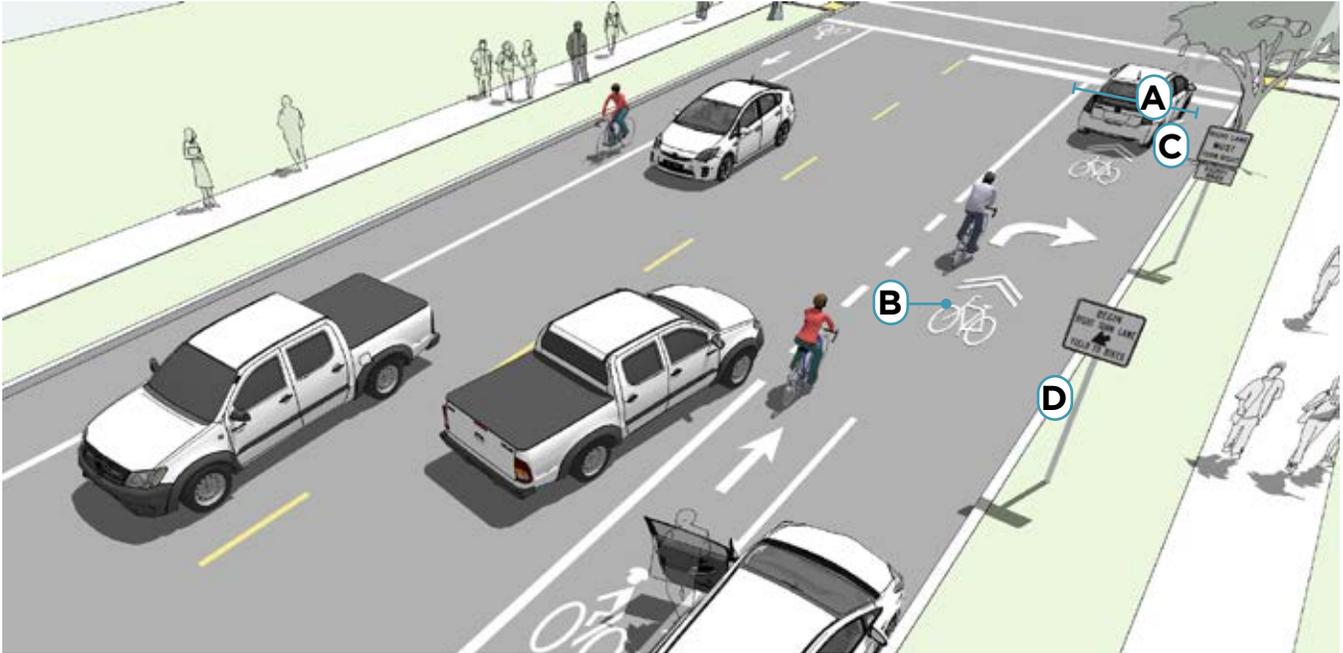
- The cost for installing bicycle lanes will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects.

Materials and Maintenance

- Because the effectiveness of markings depends entirely on their visibility, maintaining the visibility of markings should be a high priority.

Combined Bike Lane/Turn Lane

Where there isn't room for a conventional bicycle lane and turn lane a combined bike lane/turn lane creates a shared lane where bicyclists can ride and turning motor vehicles yield to through traveling bicyclists. The combined bicycle lane/turn lane places shared lane markings within a right turn only lane.



A34

TYPICAL APPLICATION

- Most appropriate in areas with lower posted speeds (25 MPH or less) and with lower traffic volumes (10,000 ADT or less).
- May not be appropriate for high speed arterials or intersections with long right turn lanes.
- May not be appropriate for intersections with large percentages of right-turning heavy vehicles.

DESIGN FEATURES

- A** Maximum shared turn lane width is 13 feet; narrower is preferable (NACTO, 2012).
- B** Shared Lane Markings should indicate preferred positioning of bicyclists within the combine lane.
- C** A “Right Lane Must Turn Right” (CA MUTCD R3-7R) sign with an “EXCEPT BIKES” plaque may be needed to permit through bicyclists to use a right turn lane.
- D** Use “Begin Right Turn Lane Yield To Bikes” signage (CA MUTCD R4-4) to indicate that motorists should yield to bicyclists through the conflict area.
- There should be a receiving bicycle lane or shoulder on the far side of the intersection



Shared lane markings and signs indicate that bicyclists should right in the left side of this right turn only lane.

FURTHER CONSIDERATIONS

- This treatment is recommended at intersections lacking sufficient space to accommodate both a standard through bike lane and right turn lane.
- Not recommended at intersections with high peak motor vehicle right turn movements.
- Combined bike lane/turn lane creates safety and comfort benefits by negotiating conflicts upstream of the intersection area.

Materials and Maintenance

- Because the effectiveness of markings depends entirely on their visibility, maintaining the visibility of markings should be a high priority.

Approximate Cost

- The cost for installing a combined bike/turn lane will depend on the implementation approach. On roadways with adequate width for reconfiguration or restriping, costs may be negligible when provided as part of routine overlay or repaving projects. Some roadways can be retrofitted with simple shared lane markings and accompanying signage.

Local Neighborhood Accessways

Neighborhood accessways provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own rights-of-way and easements.



A36

TYPICAL APPLICATION

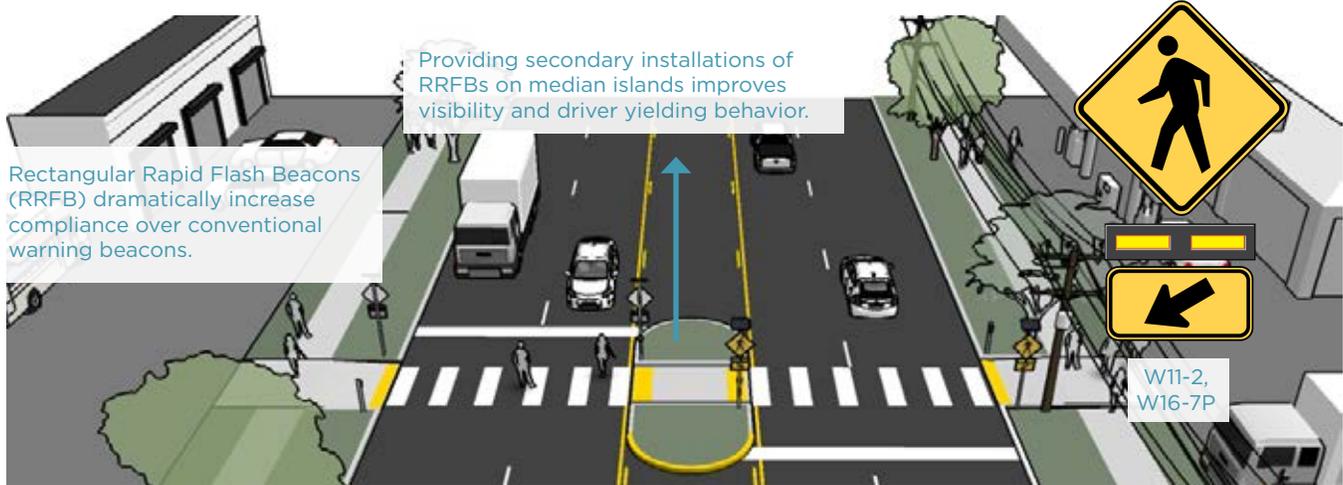
- Neighborhood accessways should be designed into new subdivisions at every opportunity and should be required by City/County subdivision regulations.
- For existing subdivisions, neighborhood and homeowner association groups are encouraged to identify locations where such connections would be desirable. Nearby residents and adjacent property owners should be invited to provide landscape design input.

DESIGN FEATURES

- A** Neighborhood accessways should remain open to the public.
- Accessways shall be designed with 12 feet minimum of right of way and 8 feet of pathway, to accommodate emergency and maintenance vehicles and be considered suitable for multi-use.
- Trail widths should be designed to be less than 8 feet wide only when necessary to protect mature trees over 18 inches in caliper, wetlands or other ecologically sensitive areas.
- Lighting and fencing may be included at accessways where additional security is desired.

Active Warning Beacons

Active warning beacons are placed at unsignalized crossings to increase motor vehicle yielding compliance on multi-lane or high volume roadways. These enhancements include pathway user or sensor actuated warning beacons or Rectangular Rapid Flash Beacons (RRFB) shown below.



TYPICAL APPLICATION

- RRFB's are typically activated by pedestrians manually with a push button, or can be actuated automatically with passive detection systems.
- RRFBs shall not be used at crosswalks controlled by YIELD signs, STOP signs, or traffic control signals.
- RRFBs shall initiate operation based on user actuation and shall cease operation at a predetermined time after the user actuation or, with passive detection, after the user clears the sidewalk.

DESIGN FEATURES

- Guidance for marked/unsignalized crossings applies.
- RRFBs are user actuated lights that supplement warning signs at unsignalized intersections or mid-block crossings.
- Push buttons should be easy to identify and located on the right-hand side of the path. They should be positioned so that bicyclists do not have to dismount to activate.

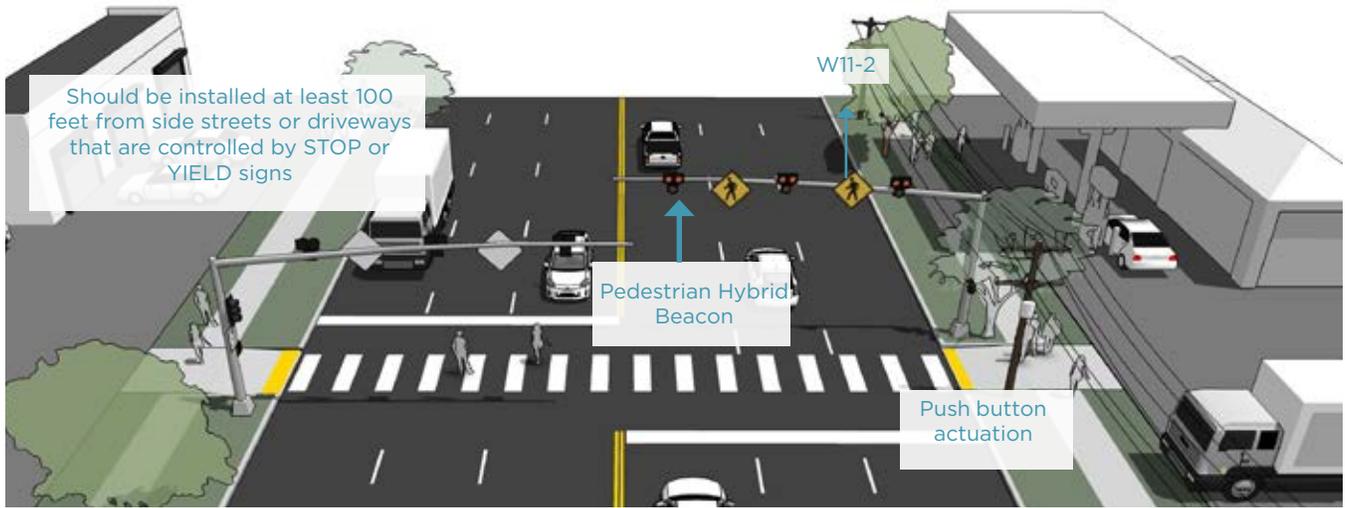
- A study of the effectiveness of going from a non-beacon arrangement to a two-beacon arrangement RRFB installation increased yielding from 18 percent to 81 percent. A four beacon arrangement raised compliance to 88%. Additional studies of long-term installations show little to no decrease in yielding behavior over time.
- Where possible, RRFBs work well as multi-beacon installations on mast arms or in median refuge island crossings to improve driver yielding behavior.
- See FHWA Interim Approval 21 (IA-21) for more information on device application standards.

FURTHER CONSIDERATIONS

- RRFBs should not be considered on roadways with posted speeds higher than 45mph with 35mph maximum preferred.
- RRFBs vary in cost, depending on site conditions, but generally cost between \$10,000 to \$25,000 for two units.

Pedestrian Hybrid Beacons

Hybrid beacons, otherwise known as High-intensity Activated Crosswalk beacons (HAWK), are used to improve non-motorized crossings of major streets. A hybrid beacon consists of a signal-head with two red lenses over a single yellow lens on the major street, and a pedestrian signal head for the crosswalk.



TYPICAL APPLICATION

- Hybrid beacons are only used at marked mid-block crossings or unsignalized intersections with high pedestrian volumes and/or within school zones on a walking route.

DESIGN FEATURES

- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance.
- Hybrid beacons are normally activated by push buttons, but may also be triggered by infrared, microwave or video detectors. The maximum delay for activation of the signal should be two minutes, with minimum crossing times determined by the width of the street

- Hybrid beacons are not required to be installed at least 100 feet from side streets or driveways that are controlled by STOP or YIELD signs. Uncontrolled locations are often ideal locations to locate hybrid beacons to assist Bicycle Boulevard crossings of major roadways.
- Parking and other sight obstructions should be prohibited for at least 100 feet in advance of and at least 20 feet beyond the marked crosswalk to provide adequate sight distance. (CA MUTCD 4F)
- Hybrid beacons have less stringent warrants than full signals.
- If installed within a signal system, signal engineers should evaluate the need for the hybrid beacon to be coordinated with other signals.

FURTHER CONSIDERATIONS

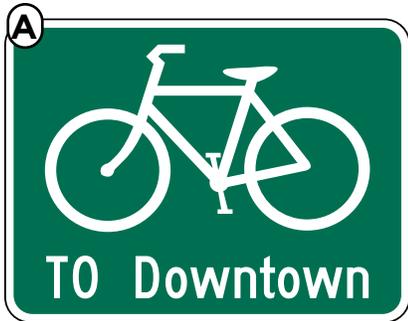
- Each crossing, regardless of traffic speed or volume, requires additional review by a registered engineer to identify sight lines, potential impacts on traffic progression, timing with adjacent signals, capacity, and safety.

Approximate Cost

- Hybrid beacons are more expensive than other beacons, ranging in costs from \$50,000 to \$150,000, but are generally less expensive than full signals.

Wayfinding Sign Types

The ability to navigate through a city is informed by landmarks, natural features, and other visual cues. Signs throughout the city should indicate to bicyclists the direction of travel, the locations of destinations and the travel time/distance to those destinations. A bicycle wayfinding system consists of comprehensive signing and/or pavement markings to guide bicyclists to their destinations along preferred bicycle routes.



D11-1c



D1-1



D11-1/D1-3a

TYPICAL APPLICATION

- Wayfinding signs will increase users' comfort and accessibility to the bicycle network.
- Signage can serve both wayfinding and safety purposes including:
 - Helping to familiarize users with the bicycle network
 - Helping users identify the best routes to destinations
 - Helping to address misconceptions about time and distance
 - Helping overcome a "barrier to entry" for people who are not frequent bicyclists (e.g., "interested but concerned" bicyclists)

DESIGN FEATURES

- (A)** Confirmation signs indicate to bicyclists that they are on a designated bikeway. Make motorists aware of the bicycle route. Can include destinations and distance/time but do not include arrows.
- (B)** Turn signs indicate where a bikeway turns from one street onto another street. These can be used with pavement markings and include destinations and arrows.
- (C)** Decision signs indicate the junction of two or more bikeways and inform bicyclists of the designated bike route to access key destinations. These include destinations, arrows and distances. Travel times are optional but recommended.



Wayfinding signs can include a local community identification logo, as this example from Oakland, CA.



Custom street signs can also act as a type of confirmation sign, to let all users know the street is prioritized for bicyclists. This example is from Berkeley, CA.

FURTHER CONSIDERATIONS

- Bicycle wayfinding signs also visually cue motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes.
- Too many road signs tend to clutter the right-of-way, and it is recommended that these signs be posted at a level most visible to bicyclists rather than per vehicle signage standards.
- A community-wide bicycle wayfinding signage plan would identify:
 - Sign locations
 - Sign type - what information should be included and design features
 - Destinations to be highlighted on each sign - key destinations for bicyclists
 - Approximate distance and travel time to each destination

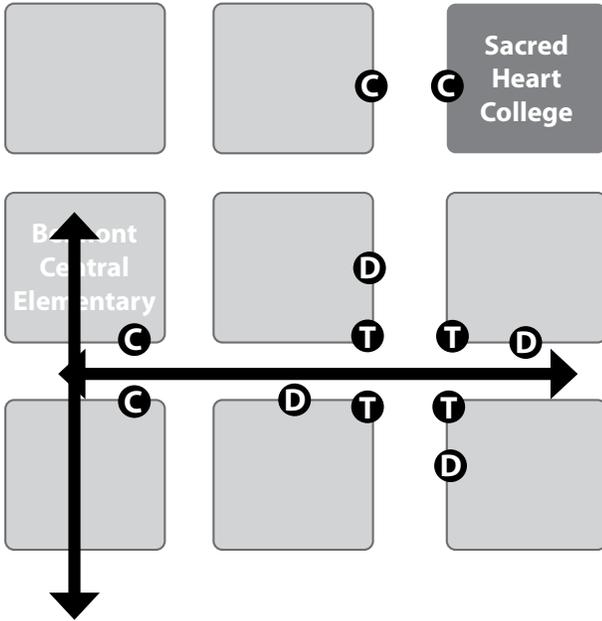
- Green is the color used for directional guidance and is the most common color of bicycle wayfinding signage in the US, including those in the MUTCD.
- Check wayfinding signage along bikeways for signs of vandalism, graffiti, or normal wear and replace signage along the bikeway network as-needed.
- Language presented in the Community Wayfinding section of the MUTCD provides some flexibility on logos and colors, which may be integrated into a comprehensive system that reflects the local identity and integrates with pedestrian and vehicular wayfinding signage.

Approximate Cost

- Wayfinding signs range from \$150 to \$500

Wayfinding Sign Placement

Signs are placed at decision points along bicycle routes – typically at the intersection of two or more bikeways and at other key locations leading to and along bicycle routes.



D Decision Sign



C Confirmation Sign



T Turn Sign



TYPICAL APPLICATION

Confirmation Signs

- Placed every ¼ to ½ mile on off-street facilities and every 2 to 3 blocks along on-street bicycle facilities, unless another type of sign is used (e.g., within 150 feet of a turn or decision sign).
- Should be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route.

Turn Signs

- Near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through).
- Pavement markings can also indicate the need to turn to the bicyclist.

Decision Signs

- Near-side of intersections in advance of a junction with another bicycle route.
- Along a route to indicate a nearby destination.

DESIGN FEATURES

- MUTCD guidelines should be followed for wayfinding sign placement, which includes mounting height and lateral placement from edge of path or roadway.
- Pavement markings can be used to reinforce routes and directional signage.

FURTHER CONSIDERATIONS

- It can be useful to classify a list of destinations for inclusion on the signs based on their relative importance to users throughout the area. A particular destination's ranking in the hierarchy can be used to determine the physical distance from which the locations are signed. For example, primary destinations (such as the downtown area) may be included on signage up to 5 miles away. Secondary destinations (such as a transit station) may be included on signage up to two miles away. Tertiary destinations (such as a park) may be included on signage up to one mile away.



**APPENDIX B:
PLAN REVIEW**

This review of local, regional, and statewide plans and policies documents the context for the City of Placerville Active Transportation Plans. Relevant goals, policies, and facility improvements identified will inform the goals and recommendations in the Active Transportation Plan.

The review of local and regional plans will also provide information about potential improvements. All of the projects identified in prior plans will be considered within the evaluation of potential projects. These will be supplemented by information from the needs analysis and public input during the planning process.

LOCAL & REGIONAL PLANS

EDCTC Active Transportation Connections Study (2017)

The El Dorado County Active Transportation Connections Study, completed in August 2017, established a method for evaluating and prioritizing bicycle and pedestrian projects on the western slope of El Dorado County. The evaluation methodology is focused on seven themes shared by three popular competitive grant funding sources: the Active Transportation Program (Active Transportation Plan), the Highway Safety Improvement Program (HSIP), and Congestion Management and Air Quality (CMAQ) funding programs. Evaluation criteria were selected for each of the seven evaluation areas that produced meaningful results for El Dorado County and use reliable, readily available data sources. These evaluation areas and selected criteria are described below.

HEALTH

The criterion selected to evaluate health is the percent of adults within two miles of a proposed project that walked at least 150 minutes for transportation or leisure in the past week. This is the minimum level of physical activity recommended by the Centers for Disease Control and Prevention. The percent in the project area was compared to the statewide average of 33 percent.

ENVIRONMENT

The criterion selected to evaluate environmental impacts is the estimated pounds of greenhouse gases and other criteria pollutants that would be removed from the atmosphere each year if the proposed projects were built. The threshold identified was 70,000 pounds per year.

DEMAND

Forecasted demand for projects was estimated based on counts of people walking or bicycling on facilities similar to the proposed project and on demographic and socioeconomic data about the people and surrounding environment where the facility is located.

CONNECTIVITY

The criterion selected to evaluate connectivity is the annual number of trips that currently begin or end near the proposed project, which serves as a proxy for how many people are likely to visit the project area by any mode of transportation.

SAFETY

The criterion selected to evaluate safety is the number of safety barriers likely to be removed if a project was implemented. Unlike an evaluation based solely on crash data at a given location, this criterion accounts for locations where barriers to safety may exist but no walking or bicycling activity is present.

EQUITY

The criteria typically used by grant funding programs to evaluate equity—median household income and percent of students receiving free or reduced-price meals—tend to show few competitive projects in El Dorado County. Instead, the number of youths 18 and under and seniors 64 and older living near a proposed project was selected as the preferred criterion to identify projects that have strong equity implications within the county even though they may not perform well under some grant application criteria.

COST

The cost effectiveness of projects will be evaluated by measuring the capital costs of the proposed projects against the benefits captured by the other six evaluation areas.

SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (2016)

The 2016 Sacramento Area Council of Governments (SACOG) Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) supports the Sacramento Region Blueprint, which implements smart growth policies, including housing choice, compact development, mixed-use development, natural resource conservation, use of existing assets, quality design and transportation choice. It also seeks to provide increased transportation options while reducing congestion, shortening commute times, and improving air quality.

By 2036, the plan proposes that El Dorado County have 70 miles of Class I facilities, 225 miles of Class II bike lanes, totaling 295 miles (includes 31 miles of existing facilities in 2012)

Planned projects, derived from EDCTC documents such as the County and City Bike Plans, include:

- Caltrans - D3: SR-49 from Southview Court (Placerville) to Gold Hill Road - Class II bike lanes (CAL20634)
- Placerville: Broadway between Main Street and Schnell School Road - Class II bike lanes (ELD19423)
- Placerville: Main Street between Spring Street and Clay Street - Class II bike lanes (ELD19442)
- Placerville: Mallard Lane between city limits and Green Valley Road and Green Valley Road between Mallard Lane and Placerville Drive - Class II lanes (ELD19443)
- Placerville: Middletown Road between Canal Street and Cold Springs Road - Class II bike lanes (ELD19447)
- Placerville: Placerville Drive between Green Valley Road and Forni Road/US-50 (ELD19455)
- Placerville: Placerville Drive between Cold Springs Road and US-50 - widen Placerville Drive to accommodate 4 travel lanes, center turn lane, sidewalks, and bike lanes on both sides of the street (ELD19408)
- Placerville: Placerville Drive between Fair Lane and Ray Lawyer Drive - widen Placerville Drive to accommodate 4 travel lanes, center turn lane, sidewalks, and bike lanes on both sides of the street (ELD19409)
- Placerville: Placerville Drive between Ray Lawyer Drive and Cold Springs Road - widen Placerville Drive to accommodate 4 travel lanes, center turn lane, sidewalks, and bike lanes on both sides of the street (ELD19410)
- Placerville: Upper Broadway between Schnell School Road and Point View Drive - Class II bike lanes (ELD19465)

Sacramento – Placerville Transportation Corridor Alternatives Analysis (2015)

The Sacramento-Placerville Transportation Corridor (SPTC) alternatives analysis evaluates the opportunities, constraints, benefits, and costs of providing transportation improvements within a 31-mile portion of the SPTC between the Humbug Willow Creek Bikeway in Folsom and the intersection with Missouri Flat Road in Diamond Springs. While there is active excursion train use in some areas, the corridor remains underutilized compared to similarly developed rail-with-trail corridors. A study conducted in partnership with the Rails-to-Trails Conservancy analyzed the cost, user demand, and economic benefits if similar corridors and anticipated that with increased rail capacity, paved paths/improved natural trails could potentially draw up to 850,000 annual users and \$13 million in annual regional economic benefit. Implementation of all

modes along the corridor is constrained by the hilly terrain of El Dorado County, available right of way, and the availability of probable funding sources. Four alternatives for this corridor were considered:

- Federal Railroad Administration (FRA) Rail Upgrade
- Paved Path off Rail Bed
- Paved Path on Rail Bed
- Separated Natural Trail

Three investment scenarios were analyzed:

- Existing conditions: Excursion motorcars + natural trail
- Invest scenario 1: FRA Class I Rail + separated natural trail
- Investment scenario 2: FRA Class I Rail + paved path off rail bed
- Investment scenario 3: Paved Path on rail bed + natural trail

El Dorado County and City of Placerville Bicycle and Pedestrian Safety Assessment (2015)

The 2015 Safety Assessment was conducted to analyze pedestrian safety, enhance walkability and bikeability, and increase accessibility for pedestrians and bicyclists in unincorporated El Dorado County and Placerville. Priorities from the Assessment include:

- Reduce pedestrian- and bicycle-involved collisions
- Continue to seek funding for and support Safe Routes to Schools programming
- Improve bicycle parking
- Improve pedestrian and bicyclist safety
- Improve economic vitality
- Increase accessibility

The Assessment lists four focus areas in unincorporated El Dorado County:

- Pleasant Valley Road in Diamond Springs (Class II lanes and pedestrian enhancements)
- US-50 bicycle and pedestrian overcrossing in El Dorado Hills
- El Dorado Hills Boulevard/St Andrews Drive/Governor Drive intersection in El Dorado Hills (intersection redesign with bike path integration and pedestrian enhancements)
- New York Creek Bike Path at Silva Valley Parkway in El Dorado Hills (Class I path)

The Assessment also lists four focus areas in Placerville:

- US-50/Bedford Avenue and El Dorado Trail (increase trail connectivity)
- US-50/Spring Street (SR-49) (crossing and signal improvements)
- Main Street/Spring Street (US-49) and Main Street/Pacific Street (US-49) intersections (crossing improvements)
- Main Street/Canal Street and US-50/Canal Street intersections (crossing improvements and intersection design changes)

City of Placerville Non-Motorized Transportation Plan (2010)

The overall goal and vision statement for the 2010 City of Placerville Non-Motorized Transportation Plan (NMTP) is to provide a safe, efficient, and convenient network of non-motorized facilities that establish alternative transportation as viable options in the City.

Of the 6 goals laid out in this Plan, 4 are relevant to this Active Transportation Plan. Relevant goals are listed below.

1) NON-MOTORIZED CIRCULATION

- Goal: Develop a bicycle and pedestrian system that enhances the safety and convenience of bicycling and walking to employment, residential neighborhoods, parks, education, commercial, and other activity centers within the City

- Objective: Increase bicycling and walking as a transportation mode to reduce congestion, improve air quality, and improve public health

2) SAFETY AND EDUCATION

- Goal: Maximize pedestrian and bicycle safety
- Objective: Improve pedestrian and bicycle safety and increase safety and awareness programs

5) MULTI-MODAL INTEGRATION

- Goal: Maximize multimodal connections to the bicycle and pedestrian system
- Objective: Develop a system that encourages use of multiple transportation modes

6) PEDESTRIAN MOBILITY

- Goal: Identify potential improvements or deficiencies in the pedestrian network in the City
- Objective: Identify important connections, barriers, and necessary improvements in the City's network

The NMTP proposes 8.55 miles of Class II facilities, 5.95 miles of Class III routes, and 2.35 miles of Class I shared-use paths. Bike racks and bike lockers have also been proposed at six locations (commercial centers and transit hubs).

City of Placerville Pedestrian Circulation Plan (2007)

The 2007 Pedestrian Circulation Plan extends the inventory conducted in the Non-Motorized Transportation Plan and provides project priorities and options for funding a “Pedestrian Circulation Improvement Program” for the construction and maintenance of an extensive sidewalk network throughout the City.

GOALS

- Promote convenient and safe pedestrian circulation (per City General Plan)
- Repair and upgrade the existing system of sidewalks
- Close gaps to increase the connectivity and viability of existing system
- Expand the system to provide greater opportunities to pedestrians

SIDEWALKS

The Plan provides design guidelines for sidewalk installation based on various roadway configurations.

The City was divided into seven areas and sidewalk improvements were identified within each area. Projects are listed by priority within each area. In total, across all seven areas, there are 14 miles (almost 75,000 linear feet) of sidewalk proposed at a cost of \$5.6M (2007 dollars). Projects with the highest priority are near schools, parks, and other known high-pedestrian volume locations.

SACOG Regional Bicycle, Pedestrian, and Trails Master Plan (2015)

The 2015 SACOG Regional Bicycle, Pedestrian, and Trails Master Plan envisions a complete transportation system that supports healthy living and active communities where bicycling and walking are viable and popular travel choices in a comprehensive, safe, and convenient network.

GOALS

- **Goal 1:** Increase and improve bicycle and pedestrian access and mobility for residents and visitors of all ages and abilities
- **Goal 2:** Improve and maintain the quality and operation of bikeway and walkway networks
- **Goal 3:** Improve bicycle and pedestrian safety
- **Goal 4:** Increase the number of bicycle and pedestrian trips
- **Goal 5:** Increase the number of high-quality support facilities to complement the bicycle and walkway networks
- **Goal 6:** Increase education, encouragement and awareness programs about bicycle and pedestrian travel
- **Goal 7:** Create a comprehensive regional bicycling and walking network within and between communities with strong current and future demand
- **Goal 8:** Increase collaboration among stakeholders throughout the region to seek funding and implement bicycle and pedestrian projects, programs, and related efforts
- **Goal 9:** Increase collection of bicycle and pedestrian related data

STATEWIDE PLANS

Several state-level plans and policies will guide development of and provide requirements for the Active Transportation Plans. Plans include *Toward an Active California: Statewide Bicycle and Pedestrian Plan* as well as the *California Transportation Plan 2040*. Policies include the *California Complete Streets Policy* and the *2014 Design Flexibility in Multimodal Design Memorandum*. The *El Dorado County and City of Placerville Active Transportation Plans* will be consistent with each of these plans and policies.

Toward an Active California: Statewide Bicycle and Pedestrian Plan

This 2017 plan is the first bicycle and pedestrian plan developed for the state. Primarily a policy document, it aims to align Caltrans policies and programs to support increased walking and bicycling in California. The plan includes strategies and actions intended to influence change at the state level while informing development of local plans like the *Active Transportation Plans*. These are organized into four key objectives: safety, mobility, preservation, and social equity.

Caltrans Strategic Management Plan

The Strategic Management Plan provides direction for Caltrans as an organization. The most recent 2015-2020 plan set a goal to double walking and triple bicycling in California by 2020, based on 2010 levels.

California Complete Streets Deputy Directive 64

This policy is the foundation of active transportation policy in California, requiring Complete Streets principles to be integrated in all agency activities since 2008. Caltrans monitors and guides Complete Streets progress in the *Complete Streets Implementation Action Plan* released in 2010 and the updated *Complete Streets Implementation Action Plan 2.0* released in 2014.

Smart Mobility 2010: A Call to Action for the New Decade

Caltrans' Smart Mobility framework provides tools and resources to help state and local agencies create a more sustainable transportation system, with policies centered on public health and safety. The Smart Mobility framework incorporates the *California Transportation Plan* and *Regional Blueprint* planning efforts, calling on the state Department of Transportation to design and implement complete streets that support walking, bicycling, and transit as everyday transportation choices.

Main Street California: A Guide for Improving Community and Transportation Vitality

This 2013 document is focused on the design of state highways in California that also serve as main streets or local commercial streets in communities. The guide consolidates information from existing Caltrans manuals and policies, as well as national resources, to help communities improve multimodal access, livability, and sustainability while meeting appropriate engineering standards. The guide helps readers find information about standards and procedures described in the Caltrans Highway Design Manual (HDM), the California Manual of Uniform Traffic Control Devices (MUTCD), and the Project Development Procedures Manual.

Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians

This guide provides direction on implementing an important component of Caltrans' Complete Streets policy by identifying "actions that will improve safety and mobility for bicyclists and pedestrians at intersections and interchanges." The guide is intended primarily for Caltrans planners, engineers, and other highway designers working as generalists or specialists in advising, engineering, or designing for safe travel for all highway users at intersections and interchanges.



**APPENDIX C:
PROPOSED
PROJECT LIST**

Sidewalk Projects

Project ID	Street	From	To	Mileage
1	Placerville Dr	Pierroz Rd	Cold Springs Rd	0.04
2	Armory Dr	Ray Lawyer Dr	Placerville Dr	0.13
3	Bedford Ave	Pleasant St	Bedford Ct	0.09
4	Broadway	Blairs Ln	Blairs Ln	0.04
5	Broadway	US 50	Smith Flat Rd	0.32
6	Broadway	Smith Flat Rd	Newtown Rd	0.98
7	Carson Rd	School St, Rosier St	Woodman Cir	0.54
8	Carson Rd	Schnell School Rd	Glennview Dr	0.07
9	Cedar Ravine Rd	Washington St	Washington St	0.57
10	Cedar Ravine Rd	Nicks Ln	Masada Ct	0.38
11	Cold Springs Rd	Middletown Rd	Placerville Dr	0.15
12	Cold Springs Rd	Stone Ln	Middletown Rd	0.05
13	Cold Springs Rd	Kelli Dr	Blacks Ln	0.36
14	Coloma St	Oak Terrace	Bee St	0.42
15	Coloma St	Coloma Ct	Oak Terrace	0.03
16	Corker St	Turner St	Washington St	0.03
17	Marshall Way	Fowler Way	300 Feet West of Fowler Way	0.07
18	Middletown Rd	Canal St	Poplar Ln	0.19
19	Mosquito Rd	Hocking St	Wildlife Way	0.39
20	Pacific St	Goldner St	Lewis St	0.17
21	Pierroz Rd	Cold Springs Rd	Placerville Dr	0.11
22	Pierroz Rd	Cold Springs Rd	Cold Springs Rd	0.04
23	Pierroz Rd	Cold Springs Rd	Cold Springs Rd	0.04
24	Placerville Dr	US 50	Armory Dr	0.28
25	Placerville Dr	Vicini Dr	Vicini Dr	0.11
26	Placerville Dr	US 50	US 50	0.13
27	Placerville Dr	Vicini Dr	Middletown Rd	0.40
28	Placerville Dr	Cold Springs Rd	Cold Springs Rd	0.05
29	Quartz Aly	Reservoir St	Pacific St	0.07

Project ID	Street	From	To	Mileage
30	Sheridan St	Main St	Sherman St	0.21
31	Sherman St	Sheridan St	Washington St	0.07
32	Spring St	Cottage Ct	Tunnel St	0.14
33	Spring St	Garden St	Union St	0.17
34	Turner St	Main St	Washington St	0.26
35	Vicini Dr	Placerville Dr	Placerville Dr	0.09
36	Washington St	Ridge Ct	Corker St	0.21
37	Green Valley Rd	El Dorado Rd	Placerville Dr	0.19
38	Schnell School Rd	Broadway	US 50	0.05

Bicycle Projects

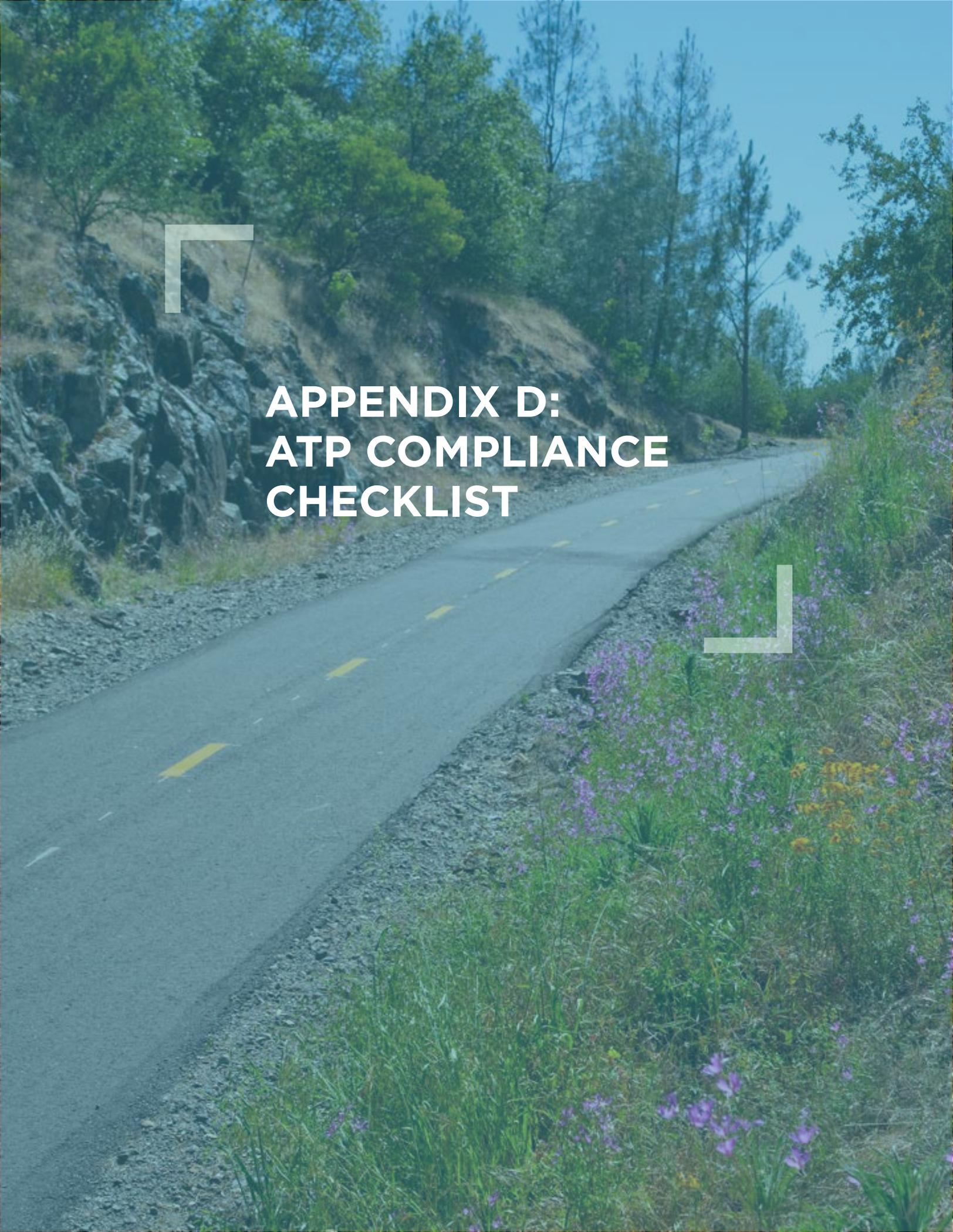
Class	Project ID	Street	From	To	Mileage
3	39	Benham St	Fiske St	Pacific St	0.13
3	40	Washington St	Spanish Ravine	Cedar Ravine	0.66
3	41	Cedar Ravine Rd	Thompson Way	Pacific St	0.23
3	42	Marshall Way	Corker St	Cedar Ravine Rd	0.20
3	43	Corker St	Marshall Way	Washington St	0.08
3	44	Thompson Way	Cedar Ravine Rd	Sheridan St	0.29
Fog Line Striping	45	Pacific St	Main St	Cedar Ravine Rd	0.53
2	46	Schnell School Rd	Broadway	Carson Rd	0.38
3	47	Wiltse Rd	Broadway	Ln Way	0.42
2	48	SR 49	Gold Hill Rd	Baker Rd	0.07
3	49	Big Cut Rd	Parkview Dr	Pleasant Valley Rd	0.43
3	50	Carson Rd	Village Ln	Broadway	0.17
3	51	Dimity Ln	Mosquito Rd	Carson Rd	0.10
3	52	Broadway Court	El Dorado Trail	Mosquito Rd	0.05
2	53	Cedar Ravine Rd	Darlington Ave South	Butterfly Ln	0.41
3	54	Sheridan St	Thompson Way	Washington St	0.14
3	55	Clark St	Bartlett Ave	Pacifica St	0.28
2	56	Placerville Dr	Forni Rd	Ray Lawyer Dr	0.58
2	57	Forni Rd	Ray Lawyer Dr	Placerville Dr	0.73
3	58	Amory Dr	Ray Lawyer Dr	Placerville Dr	0.14
3	59	Amory Dr	Placerville Dr	Trail	0.08
1	60	Trail	Amory Dr	Fairlane Court	0.43
2	61	Green Valley Rd	Mallard Ln	Placerville Dr	0.19
2	62	Cold Springs Rd	Placerville Dr	Hidden Springs Cir	0.55
2	63	Pierroz Rd	Placerville Dr	Cold Springs Rd	0.15
1	64	Trail	Placerville Dr	Ray Lawyer Dr	0.37
2	65	Middletown Rd	Cold Springs Rd	Canal St	0.23
2	66	State Route 49	Coloma Court	Combella Rd	0.18
3	67	Coloma Court	State Route 49	End Of St	0.16
1	68	Connector Trail	Coloma Court	Spear St	0.06
3	69	Canal St	Main St	Middletown Rd	0.93

Class	Project ID	Street	From	To	Mileage
3	70	Moulton Dr	Canal St	Coloma Court	0.20
3	71	SR 49	Coloma Court	US 50 Trail Crossing	0.73
Fog Line Striping	72	Bee St	Canal St	Coloma St	0.26
Fog Line Striping	73	Spring St	Coloma St	Pleasant St	0.33
3	74	Tunnel St	Spring St	Manor St	0.17
Fog Line Striping	75	Spring St	Bedford Ave	Pleasant St	0.13
3	76	Pleasant St	Spring St	Bedford Ave	0.13
3	77	Bedford Avenue	Coleman St	Clay St	0.15
3	78	Alley	Main St	El Dorado Trail	0.03
3	79	Clay St	Main St	Coleman St	0.28
6	80	Cedar Ravine Rd	Main St	Marshall Way	0.20
6	81	Clay St	Coleman St	Arizona Way	0.21
6	82	Clay St	Arizona Way	Pennsylvania Court	0.27
3	83	Mosquito Rd	Dimity Ln	Broadway	0.38
3	84	Spanish Ravine St	Spanish Ravine - Broadway Connector	Washington St	0.08
3	85	Spanish Ravine - Broadway Connector	Spanish Ravine St	Broadway	0.09
Uphill Climbing Lane / Downhill Class III	86	Broadway	Blairs Lane	Mosquito Rd	0.37
3	87	Bedford Ave	Gold Bug Ln	Spring St	0.73
3	88	Carson Rd	Dimity Ln	Schnell School Rd	0.46
Uphill Climbing Lane/ Downhill Class III	89	Carson Rd	Schnell School Rd	Jacquier Rd	0.07
2	90	SR 49	Baker Rd	Cribbs Rd	2.24
2	91	Cedar Ravine Rd	Darlington Ave South	Butterfly Ln	0.08
2	92	Cedar Ravine Rd	Darlington Ave South	Butterfly Ln	0.11
2	93	Main St	Sheridan St	Turner St	0.05

Class	Project ID	Street	From	To	Mileage
2	94	Main St	Turner St	Spanish Ravine St	0.04
2	95	Spanish Ravine Rd	Main St	Washington St	0.04
2	96	Main St	Cedar Ravine Rd	Locust Ave	0.14
2	97	Main St	Locust Ave	Sheridan St	0.09

Spot Improvement Projects

Project ID	Street	Cross Street	Recommendation
106	County Road 145	US 50	Green bike lanes across US 50 overcrossing and dashed green bike lanes across US 50 on and off ramps
107	Schnell School Rd	Broadway	High visibility crosswalks along Schnell School Rd, tightening curb radii, advance yield markings, painted green bike lanes across US 50 on and off ramps
108	Carson Rd	US 50	High visibility crosswalk on three legs at intersection of Rosier Street, School Street, and Carson Road.
109	Ray Lawyer Dr	US 50	High visibility crosswalks
110	Placerville Dr	Helmrich Ln	Dashed green bike lanes across US 50 on and off ramps
111	Coloma Rd	Bee St	High visibility crosswalk
112	Mosquito Rd	El Dorado Trail	High visibility crosswalks across US 50 on and off ramps
113	Main St	Sacramento St	Red curbs and signage
114	Bedford Ave	El Dorado Trail	High visibility crosswalk across Main Street to orient users to the El Dorado Trail, tighten curb radii
115	Main St	Spring St	High visibility crosswalks, pedestrian refuge island
116	Main St	Pacific St	High visibility crosswalks, pedestrian refuge island
117	Main St	Canal St	Refresh high visibility crosswalks
118	US 50	Canal St	High visibility crosswalks, lead pedestrian interval
119	Broadway	Carson Rd	Bike racks
120	Broadway	Carson Rd	Bike racks
121	Placerville Dr	Winter Ln	Bike racks
122	Mosquito Rd	Clay St	Bike lockers
123	Main St	Center St	Bike lockers
124	Fair Ln	Placerville Dr	High visibility crosswalk
125	Fair Ln	Fair Lane Crt	High visibility crosswalk
126	Combella Rd	David Cir	High visibility crosswalk
127	Middletown Rd	Canal St	High visibility crosswalk
128	Coloma Rd	Combella Rd	High visibility crosswalk
129	Cedar Ravine	Darlington Rd	Need Ped activated signal and “slow speed, narrow road” signs



**APPENDIX D:
ATP COMPLIANCE
CHECKLIST**

Subject	Requirement	Section(s)
Mode Share	The estimated number of existing bicycle trips and pedestrian trips in the plan area, both in absolute numbers and as a percentage of all trips, and the estimated increase in the number of bicycle trips and pedestrian trips resulting from implementation of the plan.	Chapter 2
Description of Land Use/ Destinations	A map and description of existing and proposed land use and settlement patterns which must include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings, major employment centers, major transit hubs, and other destinations. Major transit hubs must include, but are not limited to, rail and transit terminals, and ferry docks and landings.	Chapter 2
Pedestrian Facilities	A map and description of existing and proposed pedestrian facilities, including those at major transit hubs and those that serve public and private schools.	Chapter 6
Bicycle Facilities	A map and description of existing and proposed bicycle transportation facilities including those at major transit hubs and those that serve public and private schools.	Chapter 7
Bicycle Parking	A map and description of existing and proposed end-of-trip bicycle parking facilities. Include a description of existing and proposed policies related to bicycle parking in public locations, private parking garages and parking lots and in new commercial and residential developments. Also include a map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These must include, but not be limited to, bicycle parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles or ferry vessels.	Chapter 7
Wayfinding	A description of existing and proposed signage providing wayfinding along bicycle and pedestrian networks to designated destinations	Chapter 5 & Appendix A
Non-Infrastructure	A description of existing and proposed bicycle and pedestrian education, encouragement, enforcement, and evaluation programs conducted in the area included within the plan. Include efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the law impacting bicycle and pedestrian safety, and the resulting effect on collisions involving bicyclists and pedestrians	Chapter 5
Collision Analysis	The number and location of collisions, serious injuries, and fatalities suffered by bicyclists and pedestrians in the plan area, both in absolute numbers and as a percentage of all collisions and injuries, and a goal for collision, serious injury, and fatality reduction after implementation of the plan.	Chapter 2
Equity Analysis	Identify census tracts that are considered to be disadvantaged or low-income and identify bicycle and pedestrian needs of those disadvantaged or low-income residents.	Chapter 2
Community Engagement	A description of the extent of community involvement in development of the plan, including disadvantaged and underserved communities.	Chapter 4
Coordination	A description of how the active transportation plan has been coordinated with neighboring jurisdictions, including school districts within the plan area, and is consistent with other local or regional transportation, air quality, or energy conservation plans, including, but not limited to, general plans and a Sustainable Community Strategy in a Regional Transportation Plan	Chapter 1 & 2
Prioritization	A description of the projects and programs proposed in the plan and a listing of their priorities for implementation, including the methodology for project prioritization and a proposed timeline for implementation.	Chapter 8
Funding	A description of future financial needs for projects and programs that improve safety and convenience for bicyclists and pedestrians in the plan area. Include anticipated cost, revenue sources and potential grant funding for bicycle and pedestrian uses	Chapter 8

Subject	Requirement	Section(s)
Implementation	A description of steps necessary to implement the plan and the reporting process that will be used to keep the adopting agency and community informed of the progress being made in implementing the plan.	Chapter 8
Maintenance	A description of the policies and procedures for maintaining existing and proposed bicycle and pedestrian facilities, including, but not limited to, the maintenance of smooth pavement, ADA level surfaces, freedom from encroaching vegetation, maintenance of traffic control devices including striping and other pavement markings, and lighting	Chapter 8
Resolution	A resolution showing adoption of the plan by the city, county or district. If the active transportation plan was prepared by a county transportation commission, regional transportation planning agency, MPO, school district or transit district, the plan should indicate the support via resolution of the city(s) or county(s) in which the proposed facilities would be located.	Appendix E