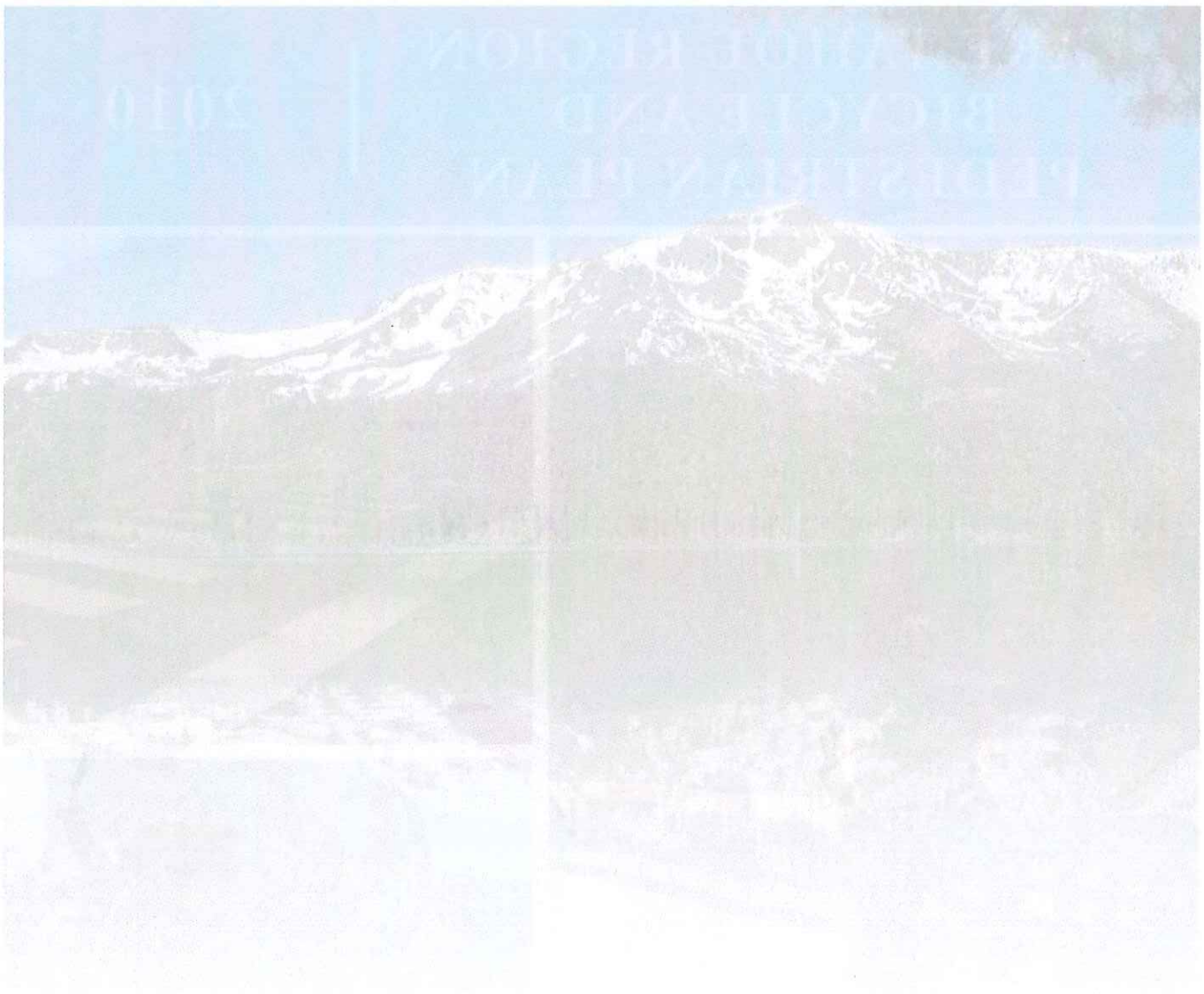
LAKE TAHOE REGION BICYCLE AND PEDESTRIAN PLAN | 2010

Establishing the Foundation for a World-Class Bicycle and Pedestrian Community at Lake Tahoe

TAHOE REGIONAL PLANNING AGENCY

Tahoe Metropolitan Planning Organization



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Lake Tahoe Bicycle and Pedestrian Plan
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Dan Thrift

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Section I: Introduction

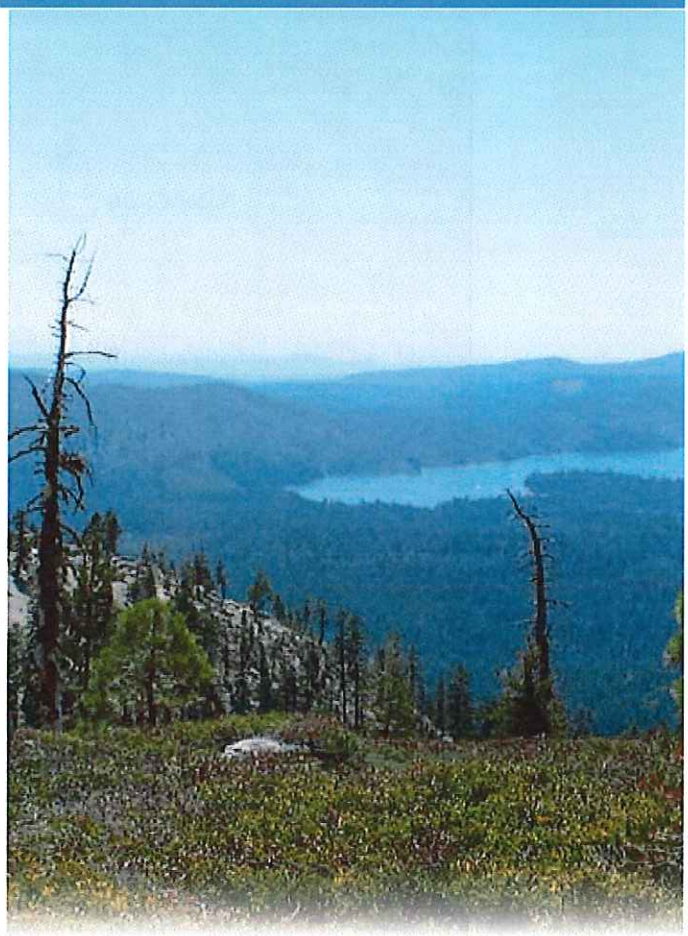
Let's bike and walk! Lake Tahoe's quiet forests, expansive meadows and sunny beaches invite and attract all types of outdoor enthusiasts. Lake Tahoe is a favorite playground for not only the 54,000 Basin residents, but also visitors from central California, Nevada and around the world. The Tahoe Regional Planning Agency (TRPA) and the Tahoe Metropolitan Planning Organization (TMPO) seek to improve bicycling and walking Region-wide in order to protect this beautiful natural environment, provide multiple mobility options, and maintain healthy communities.

Lake Tahoe communities have identified biking and walking opportunities as critical components of a well-rounded transportation system. A strong bicycle and pedestrian network draws people out of their cars, boosting the economy, improving air quality, and creating attractive, healthy communities. Connected bicycle paths, sidewalks, and transit can provide the backbone of a people-oriented transportation system that supports neighborhoods, commercial districts, and recreation areas. This connected transportation system that centers on non-motorized travel will also help Lake Tahoe meet TRPA environmental thresholds and greenhouse gas reduction targets.

Ultimately, Lake Tahoe communities envision an efficient and attractive bicycle and pedestrian network that encircles the Lake, providing complete connections between people and places.

The Lake Tahoe Bicycle and Pedestrian Plan (BPP) presents a guide for planning, constructing, and maintaining a regional bicycle and pedestrian network and support facilities and programs. The network includes on-street bicycle lanes and bicycle routes, and off-street paths and sidewalks. The BPP includes maps and prioritized project lists for the bicycle and pedestrian network, and lays out policies for local governing bodies and transportation agencies. Finally, to help ensure implementation, the BPP identifies potential funding sources and specifies recommended designs to encourage consistency and safety Region-wide.

The BPP serves as the Bicycle and Pedestrian element to both the TMPO Regional Transportation Plan (*Mobility 2030*), and the TRPA Transportation Plan (part of the TRPA Regional Plan). The TMPO is the federally-designated metropolitan planning organization for the Tahoe Region, and is responsible for transportation planning and distribution of federal transportation funding.

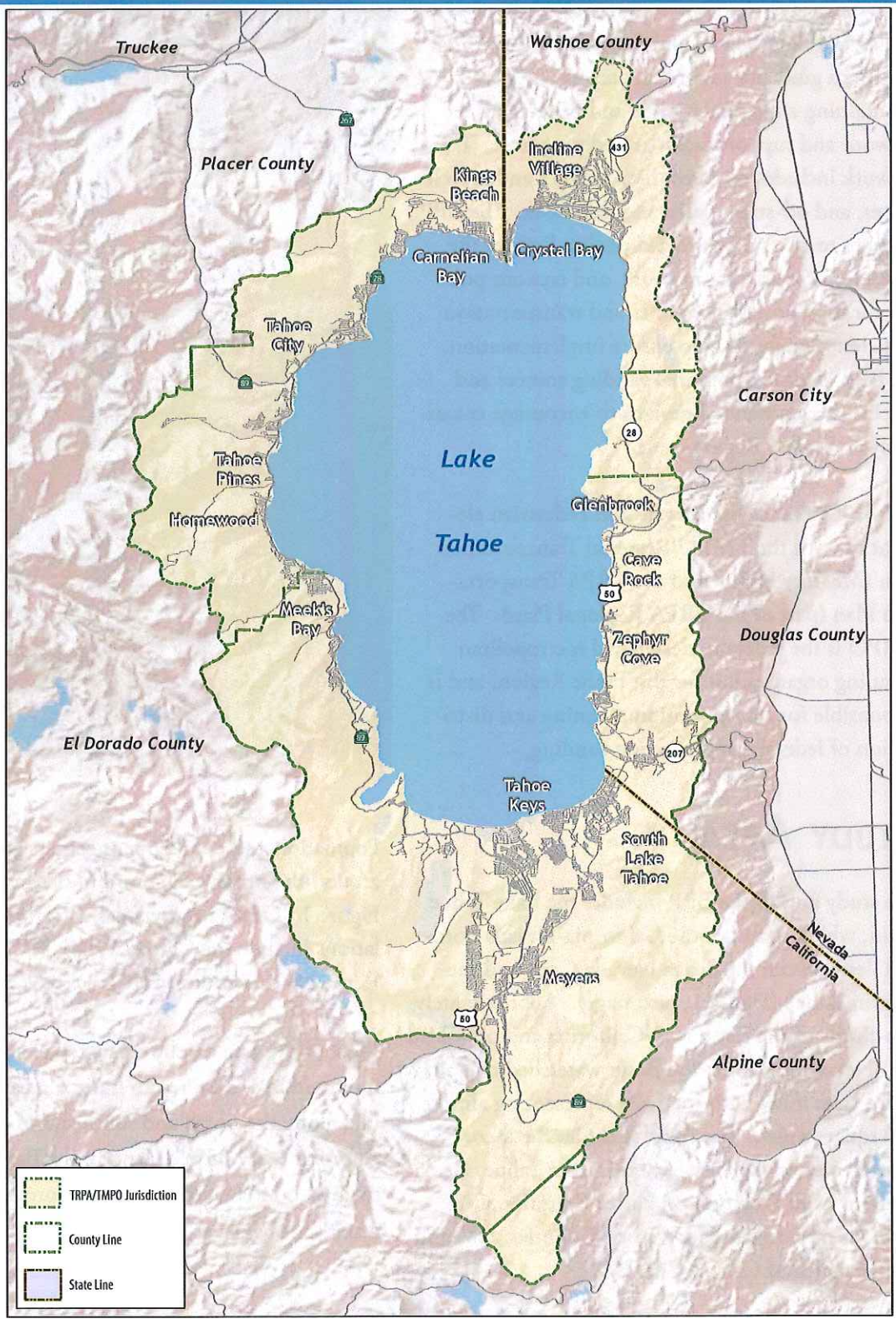


Study Area

The study area of the BPP includes the Lake Tahoe Basin, which straddles the California-Nevada border and lies between the Sierra Nevada Crest and the Carson Range (Figure 1, next page). Approximately two-thirds of the Basin is in California and one-third is in Nevada. In total, the Basin watershed contains 501 square miles with the Lake representing almost 200 square miles. The Basin includes the incorporated area of the City of South Lake Tahoe, CA, portions of El Dorado and Placer Counties, CA, portions of Douglas and Washoe Counties, NV, and the rural area of Carson City, NV.

Population and employment centers are clustered around the urbanized communities highlighted on Figure 1. Other nearby areas with significant populations include the Carson Valley, NV (25 miles), Reno, NV (37 miles), and Truckee, CA (15 miles).

Most of the area can be characterized as rolling to mountainous terrain with limited areas of level terrain along the north and south shores of the Lake. Approximately 85% of land in the Basin is publicly owned and managed by the US Forest Service and other state agencies.



TRPA Study Area

Figure 1: Study Area

Agency Roles and Responsibilities

Implementation of the BPP is a multi-agency effort, and the BPP fulfills multiple agency requirements. As a TMPO document, the BPP is incorporated by reference into the TMPO Regional Transportation Plan, *Mobility 2030*, and meets federal requirements for bicycle and pedestrian planning. The BPP is also part of the TRPA Regional Plan. Projects listed in the BPP are eligible for federal, state, and local grants. To apply for these grants, in most cases local jurisdictions will need to formally adopt the BPP.

Photo: Tara Pielaet

The primary responsibility for construction and maintenance of the bicycle and pedestrian network lies with local jurisdictions, including counties, the City of South Lake Tahoe, public utility districts, state transportation agencies, regional transportation districts and public lands agencies. Private developers also play an important role in implementation of the network by constructing and maintaining segments that cross their property. The Goals and Policies (page 60) and Prioritized Project List (page 77) are intended to assist and guide in project implementation.

The TRPA's primary implementation role is in carrying out the Goals and Policies, including writing supportive code. The TRPA will have an active role in the implementation of certain policies, such as working with project developers to accommodate bicyclists and pedestrians. Other policies direct the TRPA to collaborate with local jurisdictions and agencies, for instance in identifying and obtaining funding for projects. Finally, there are many instances where the TRPA will have an advisory role, by encouraging local agencies to increase walkability and bikeability through better signage, increased maintenance, or public outreach.

The BPP may be updated annually if there are sufficient technical changes.

Citizen and Community Input

The TRPA/TMPO held multiple meetings to solicit input on the BPP update. At three preliminary meetings, local planners, advocates and agency staff identified additions to the BPP that would strengthen their ability to provide for biking and walking needs. Staff also facilitated open houses with the public to review draft Goals and Policies, proposed project lists, and prioritization criteria.

Jurisdictions and stakeholders suggested the following additions to the BPP:

- Prioritize projects Region-wide so that Basin agencies can work together to construct projects that complement the existing network.
- Increase the focus on maintenance of existing facilities.
- Highlight the benefits of biking and walking to the environment, economy, and public health.
- Improve the TRPA's ability to require concurrent construction of bicycle and pedestrian facilities with new development, roadway and other capital projects.
- Provide consistent design guidance, particularly where there is flexibility in national or state standards.
- Update regularly the proposed project list and the status of high-priority projects.

The public indicated that bicycle and pedestrian planning should be prioritized as follows:

1. Path and lane construction and connectivity
2. Path, lane and sidewalk maintenance
3. Safety and education
4. Programs and events

They also indicated the following prioritization for project construction:

1. Fixes gap in existing network
2. Destination connectivity
3. Safety
4. Multi-modal connectivity
5. Predicted use
6. Environmental Impact
7. Cost/Benefit
8. Funding availability

The TRPA/TMPO meeting dates and locations were as follows:

- Jurisdiction and Stakeholder Meeting, Tahoe City, CA, October 2005
- Jurisdiction Meeting, Incline Village, NV, November 2008
- Lake Tahoe Bicycle Coalition (LTBC) Meeting, Stateline, NV, February 2009
- South Shore Public Open House, South Lake Tahoe, CA, October 2009
- North Shore Public Open House, Tahoe City, CA, October 2009
- Jurisdiction and Stakeholder Meeting, Stateline, NV, February 2010

In addition, TRPA/TMPO staff attended the meetings of multiple local groups to request input on the BPP. The list of contacts and detailed input from the public and the local agencies are presented in Appendix H.

Consistency with Other Plans

In order to ensure consistency with other planning efforts, a large number of documents were reviewed and incorporated into the BPP. A complete list is included in Appendix L, Consistency Review. Several of particular note are summarized here.

The ***Tahoe Regional Planning Compact*** states that the goal of transportation planning shall be:

a) To reduce dependency on the automobile by making more effective use of existing transportation modes and of public transit to move people and goods within the region

b) To reduce to the extent feasible air pollution which is caused by motor vehicles

In addition, Article I(b) of the Compact established TRPA's responsibility to set environmental threshold carrying capacities. The environmental thresholds were adopted in 1982, by TRPA Resolution 82-11. The thresholds cover various environmental components of the Tahoe Region, including air and water quality standards that are linked to transportation.

The ***TRPA*** and the ***TMPO Regional Transportation Plan, Mobility 2030*** contain general transportation goals and policies, many of which relate to biking and walking. The goals and policies of *Mobility 2030* serve as the basis for the goals and policies of the BPP. The Goals, Policies, and Actions section of the BPP is also consistent with the Goals and Policies of the Regional Plan.

Lake Tahoe Community Plans are part of the TRPA Regional Plan and outline bicycle and pedestrian policies and projects for specific neighborhoods in the Tahoe Region.

The California Bicycle Transportation Act (BTA). As California's Department of Transportation, Caltrans is the agency responsible for implementing bicycle and pedestrian facilities. Caltrans funds local facilities through its Bicycle Transportation Account (BTA). The BTA requires applicants to have adopted or updated a bicycle plan within the past five years. The adopted bicycle plan must comply with CA Streets and Highways Code Section 891.2, and include the eleven elements listed below. California cities and counties, with adoption of the BPP, will be eligible to receive BTA funding.

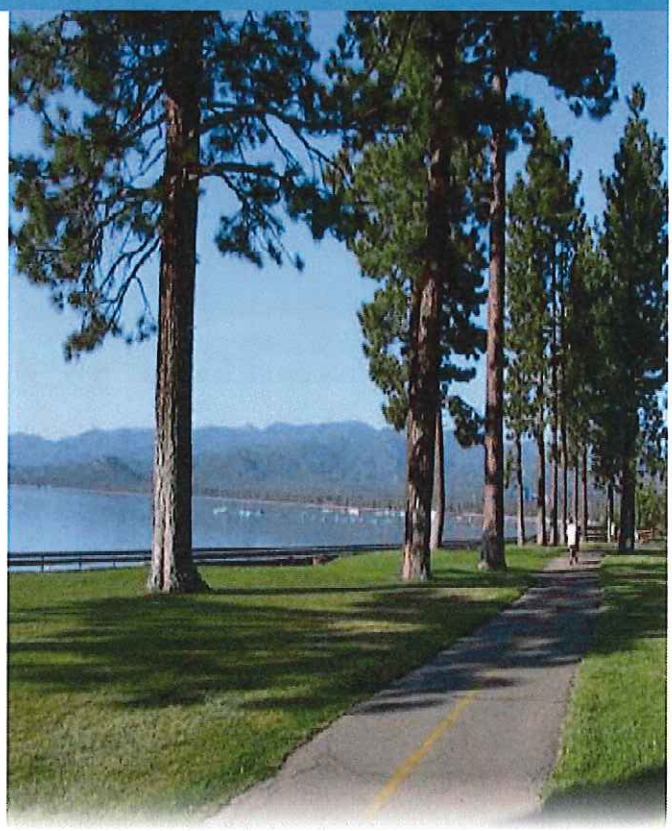
Elements for BTA eligibility:

- Estimated number of existing and future bicycle commuters;
- Land use and settlement patterns;
- Existing and proposed bikeways;
- Existing and proposed bicycle parking facilities;
- Existing and proposed multi-modal connections;
- Existing and proposed facilities for changing and storing clothes and equipment;
- Bicycle safety and education programs;
- Citizen and community participation;
- Consistency with transportation, air quality, and energy plans;
- Project descriptions and priority listings;
- Past expenditures and future financial needs.

California Highway Design Manual, Chapter 1000: Bikeway Planning and Design, Fifth Edition, California Department of Transportation (Caltrans), July 1, 1995 and the ***American Association of State Highway and Transportation Officials (AASHTO) Guides for the Development of Bicycle Facilities (1999) and Pedestrian Facilities (2004)*** identify specific design standards for bicycle and pedestrian accommodation, both off-street and on-street. They also provide classification systems for different types of bikeways (see page 15). Appendix A, Design and Maintenance Recommendations, is consistent with both Chapter 1000 and the AASHTO Guides.

The Nevada Department of Transportation (NDOT) plans for bicycling and walking in Nevada. NDOT's ***Nevada Bicycle Transportation Plan (2005)***, recommends that local agencies adhere to the AASHTO bicycle facility design standards.

The Federal Manual on Uniform Traffic Control Devices (MUTCD), 2009 Edition and the ***California MUTCD, 2010 Edition*** define the standards used by road managers to install and maintain traffic control devices on all public streets, highways, bikeways, and private roads open to public traffic. The Federal MUTCD is published by the Federal Highway Administration (FHWA), and the California MUTCD is published by Caltrans. Caltrans must officially adopt into the California MUTCD any new standards from updates to the Federal MUTCD. The Federal MUTCD was updated in December 2009, and Caltrans has until January 15, 2012 to adopt the newest standards. Appendix A, Design and Maintenance Recommendations



is consistent with both the Federal MUTCD and the California MUTCD.

Finally, ***Local Jurisdiction Plans and Local Agency Plans***, including general plans and transportation plans, contain project lists and policies that relate to bicycle and pedestrian planning in specific communities in the Basin. While most Basin jurisdictions refer to the BPP for their bicycle and pedestrian project lists, each has their own set of policies that relate to the promotion of bicycling and walking for transportation and recreation purposes. Some plans, such as the City of South Lake Tahoe General Plan or the North Lake Tahoe Resort Association Infrastructure and Transportation Integrated Work Plan include project lists or maps that have been incorporated into the BPP.

Bikeway Classifications

Class I/Bike Route

Caltrans Chapter 1000 and the ***AASHTO Guide for the Development of Bicycle Facilities (1999)*** provide for three distinct types of bikeway classifications as generally described below and depicted in Figure 2 on the following page. The Class I, Class II, and Class III types are unique to California, while the State of Nevada classifies bicycle facilities as Shared-Use Path, Bicycle Lane, and Signed Shared Roadway (previously Bike Route).

Class II/Bike Route

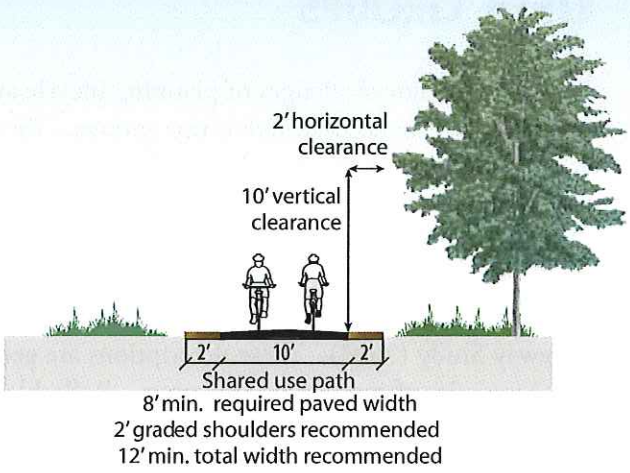
For consistency with other regional documents and past practices, the BPP refers to facilities as follows:

- Class I/Shared-Use Path - Provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross-flow from vehicles minimized.
- Class II/Bike Lane - Provides a striped lane for one-way bicycle travel on a street or highway.
- Class III/Bike Route - Provides for shared use with bicycle or motor vehicle traffic, typically on lower volume roadways.

Class III/Bike Route

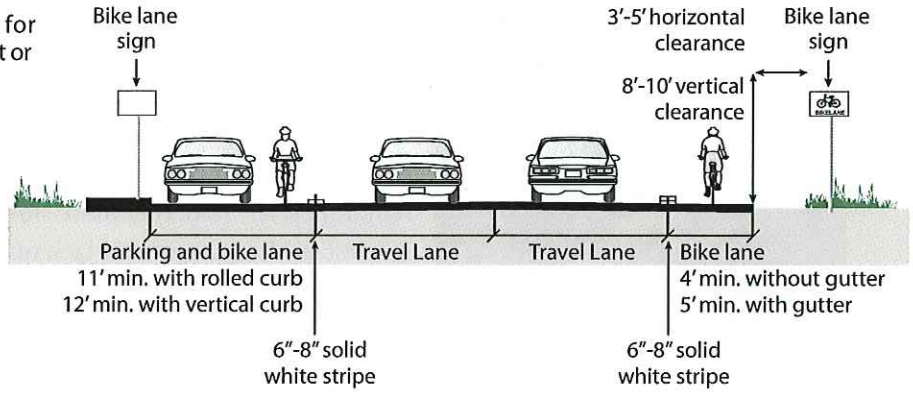
Shared Use Path
(Class I)

Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow minimized.



Bike Lane
(Class II)

Provides a striped lane for one-way bike travel on a street or highway.



Signed Shared Roadway
(Class III/Bike Route)

Provides for shared use with pedestrian or motor vehicle traffic, typically on lower volume roadways.

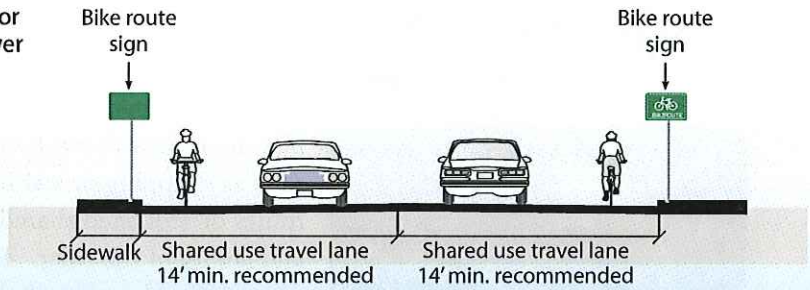
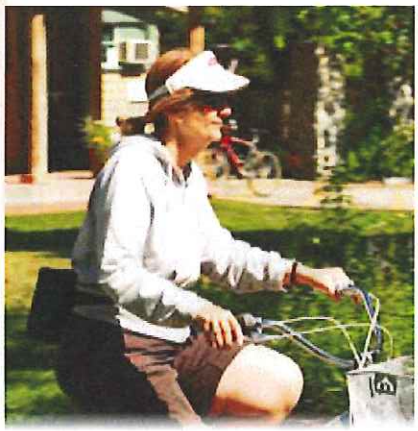


Figure 2. Bikeway Classifications

User Groups

One of the major challenges of planning bicycle and pedestrian facilities at Lake Tahoe is providing for the needs of different user groups. The diverse population of visitors and residents at Lake Tahoe guarantees a wide variety of preferences for facility types, including bicycle lanes and shared use paths. Both must be provided in order to meet the TRPA and TMPO goals of improving mobility and reducing environmental impacts.

The following description of user groups is adapted from the SR-89 Cascade to Rubicon Bay Bikeway Study (2003). These descriptions are generalizations, and the average user may have characteristics of more than one group. Rollerbladers and skateboarders are not addressed explicitly but could fall into any of the categories described here. The BPP does not address mountain bikers, hikers, and equestrians, who generally use the unpaved trail system, managed by the U.S. Forest Service. More information on the unpaved trail system can be found on maps available through the Lake Tahoe Basin Management Unit and local outdoor retailers.



Casual Users

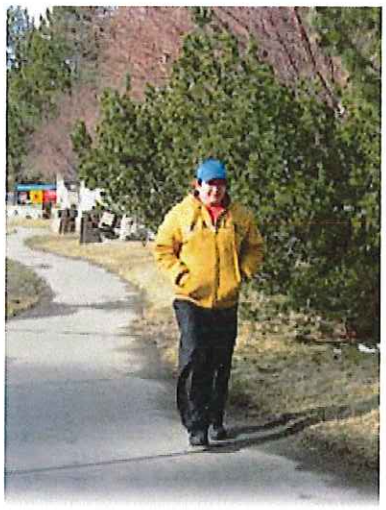
This group includes families with young children, tourists or others out for a recreational ride or stroll and seeking a relaxed trip with attractive scenery. Casual cyclists generally prefer riding off-street on shared-use paths. They are typically not comfortable riding in traffic, and will avoid riding on busy streets, riding on the sidewalk if necessary. Tourists, often on rental bicycles, may ride more slowly than others due to their interest in the scenery and lack of familiarity with local routes. Tourists are not as adept as local riders at navigating confusing routes or traffic situations, thus clear signage is helpful. Bike routes that extend through low-traffic residential streets are generally acceptable for casual cyclists, even if not the most direct route between destinations.

Casual users may drive to a bike path, seeking designated parking areas or parking along the side of the road. Recreational destinations are important attractions for casual users.

Commuter and Utilitarian Cyclists

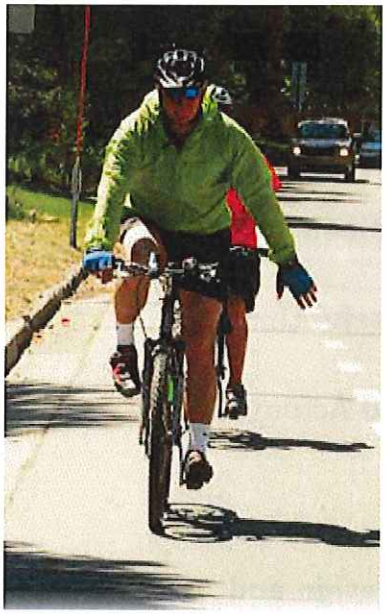
Commuters and utilitarian cyclists are those who use their bicycles to ride to work or school or to complete small errands such as shopping or visiting friends. They prefer on-road routes or separated shared-use paths, depending upon the age and ability of the rider. These cyclists are usually looking for direct routes between their neighborhoods and shopping and employment areas, although they may deviate a significant

distance for a route that is perceived to be safer. Commuter and utilitarian cyclists can often access their destinations along neighborhood streets, and designation of cross-town bicycle routes is a low-cost way to quickly provide good access for many riders. A large portion of this group is made up of "choice" riders who will decide whether or not to ride based on the availability of safe routes. The average cycling trip to work is 2.13 miles (National Household Travel Survey (NHTS) (2001-2002)).



Commuter and Utilitarian Pedestrians

Similar to their cycling counterparts, commuting and utilitarian pedestrians (this includes wheelchair users) are those who walk to work or school or errands. This user group generally needs sidewalks and paths that are separated from traffic and cleared of snow in the winter. They may also be comfortable walking on quiet, neighborhood streets. Many pedestrians are accessing transit. Paved, cleared continuous paths leading from neighborhoods to transit stops are vital for encouraging transit use and for providing safety for passengers getting on and off buses. Pedestrian commuting and walking trips generally range from about 0.25 miles to 1.5 miles in length (NHTS).



Road Cyclists

Road cyclists are those who use bicycling for intensive recreational purposes or exercise. Roadways are the type of facility that best accommodates their desire for higher speeds, longer distances, and fewer conflicts with other recreational users. Typical trip distances for the road cyclist can range from 20 to over 100 miles. While the average road cyclist would likely prefer to ride on roads with little or no traffic, they are generally comfortable riding in traffic if necessary. To this end, a road cyclist will tend to ride in a manner similar to a motor vehicle (e.g. riding in the vehicle lane when approaching traffic signals or making left turns) and in those cases may be referred to as "vehicular cyclists." Many of the scenic roadways around and entering Lake Tahoe provide ideal terrain for road cyclists. Improvements such as widening, adding bicycle lanes, and placing "Share the Road" signs can enhance the experience and encourage more riders to visit Lake Tahoe.

How To Use This Plan

The BPP is a handbook for multiple stakeholders. Various users will find different sections useful. The following text clarifies terminology used throughout the document and highlights each section of the BPP.

Terminology

Much of the text in this Plan refers to the bicycle and pedestrian "network" or bicycle and pedestrian "facilities." For the purposes of this document the "network" includes shared-use paths, bicycle lanes, bike routes, wide shoulders, and sidewalks. "Facilities" includes the network as well as other support facilities such as bicycle storage racks, lockers, crossing treatments and street markings. Shared-use paths may be referred to as "paths" or "trails." For more details on terminology, see the Definitions and Acronyms section, page 90.

Section 2. Benefits of Bicycling and Walking

Useful to those wishing to make the case for biking and walking in Lake Tahoe, whether to support a project, event, or overall culture shift.

Section 3. Benchmarks and Progress

Highlights progress and accomplishments made since the 2003 plan and sets new benchmarks for the current BPP.

Section 4. Infrastructure and Programs

Describes existing bicycle and pedestrian facilities and programs, and highlights needed improvements to promote safe biking and walking.

Overview of Plan

Section 1: Introduction

Section 2: Benefits of Bicycling and Walking

Section 3: Benchmarks and Progress

Section 4: Infrastructure and Programs

Section 5: Analysis of Demand/ Bicycle Trail User Model

Section 6: Goals, Policies, and Actions

Section 7: Proposed Network

Section 8: Cost and Funding Analysis

Section 9: Implementation

Section 10: Useful Links

Definitions and Acronyms

References

Appendix A, Design and Maintenance Recommendations

Appendix B, Maps and Project Lists

Other Appendices

Section 5. Analysis of Demand/Bicycle Trail User Model

Estimates existing and future demand for the bicycle and pedestrian network using the Tahoe Bicycle Trail User Model. The model, developed specifically for the Lake Tahoe Region, will be used to help estimate the impacts of biking and walking Region-wide for the Regional Plan update. It can also be used to estimate biking and walking on individual path segments. Jurisdictions, departments of transportation, funders, and other long-term bicycle planners will find the model useful for estimating potential use of planned paths.

Section 6. Goals, Policies, and Actions

Sets the policy framework for decisions relating to biking and walking in the Lake Tahoe Region, incorporating the recommendations in the Infrastructure and Programs section. Local jurisdictions, departments of transportation, transit agencies, and TRPA environmental review staff will find Policies and Actions here that relate to their activities. This section also houses a Bicycle and Pedestrian Accommodation Policy (similar to "Complete Streets").

Section 7. Proposed Network

Includes the complete list and map of the bicycle and pedestrian network proposed in the Region, which includes recommendations made in the Infrastructure and Programs section. It also includes a shorter, prioritized list of projects.

Section 8. Cost and Funding Analysis

Includes a summary of costs and projected revenue sources for priority projects. This section also lists potential grant sources for construction of bicycle and pedestrian facilities, maintenance, and outreach.

Section 9. Implementation

Graphically depicts who is responsible for bicycle paths that are on the ground and how bicycle paths progress from planning to implementation in the Tahoe Region. It also depicts how projects are incorporated into the TMPO Regional Transportation Plan (*Mobility 2030*) and the Environmental Improvement Program (EIP). The multi-billion dollar EIP encompasses hundreds of projects designed to restore Lake Tahoe's clarity and environment. This section will be helpful for agencies who want to make sure that their projects are lined up for as much funding and support as possible.

Section 10. Useful Links

Highlights web links to other organizations and documents.

Definitions and Acronyms

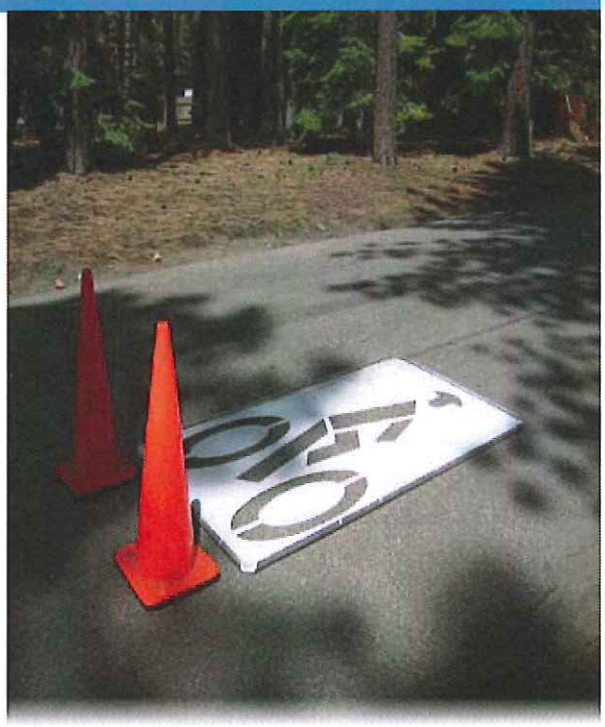
Includes a list of definitions for transportation terms and acronyms.

References

Lists references cited throughout the BPP.

Appendix A: Design and Maintenance Recommendations

Identifies preferred designs for best accommodating bicyclists and pedestrians in roadway projects, new and existing development, and on bicycle facilities. This section will be especially useful to local jurisdictions, private developers building new commercial, multi-family, or tourist accommodation projects, and TRPA project review staff. All project implementers will want to refer to this section for consistency Region-wide, and to provide the amenities and features most commonly requested by the public that are approved in federal and state design manuals.



Appendix B: Maps and Project Lists

All maps and project lists are presented near the end of the document for easy reference and comparison.

Other BPP Appendices:

C. Utility Providers
D. Roadway Information for Nevada Facilities
E. Funding Memo
F. Bike Trail User Model
G. Environmental Findings

Web Appendices: www.tahoempo.org

H. Comments on Draft BPP
I. Maintenance Memo
J. Crosswalk Memo
K. Use Estimation
L. Consistency Review

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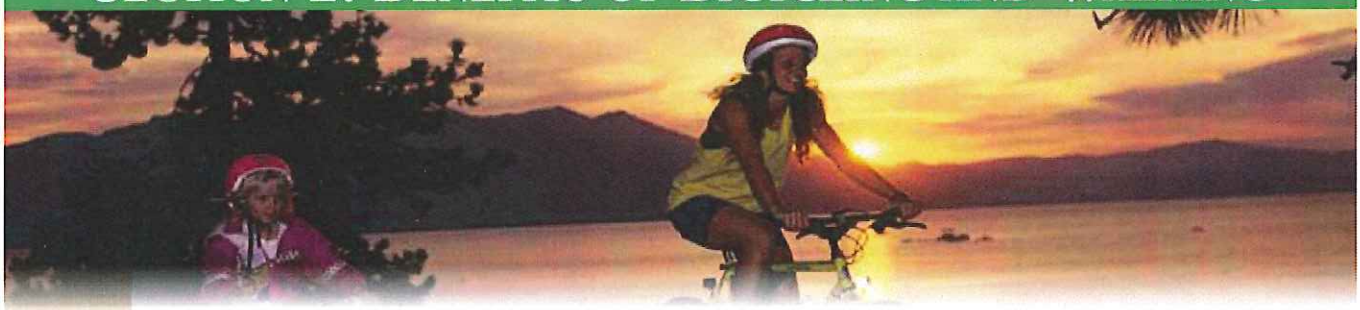
Section 2: Benefits of Bicycling and Walking



Bicycling and walking can provide multiple benefits to Lake Tahoe communities, including reducing air pollution, meeting greenhouse gas reduction targets, improving the local economy, and improving public health. Beyond the tangible benefits, biking and walking are pleasurable, relaxing outdoor activities that residents and visitors to Lake Tahoe seek out and enjoy. Biking and walking are critical for meeting the TRPA Compact goals of attaining environmental thresholds and reducing dependency on the private automobile.

How do we quantify the benefits of bicycling and walking? How do we evaluate the benefits versus the costs of building facilities? To answer these questions at a general level, the TRPA/TMPO compiled data from Tahoe surveys and research from other areas. Major findings include:

- The built-out bicycle and pedestrian network is estimated to reduce Vehicle Miles Traveled (VMT), a TRPA air quality threshold indicator, by 8,500 miles on a peak summer day.
- Overnight and day visitors who visit Lake Tahoe primarily for cycling purposes are estimated to bring between $6 and $23 million in local direct expenditures annually to Lake Tahoe communities. This compares favorably to an average of $3 million per year (over the last 10 years) spent on construction of the existing network.
- Neighborhood design, including the proximity of transportation systems, parks, and paths, is related to physical activity levels. Changing the built environment, such as introducing traffic calming, paths, and bicycle infrastructure increases levels of physical activity in the community.

The following pages describe in more detail the variety of benefits, as well as some of the costs associated with shared-use paths and bicycle and pedestrian-friendly communities.

Environmental Benefits

Shared-use paths can have impacts on multiple environmental threshold areas, including air quality, water quality, soils, wildlife, and recreation. The overall impact appears to be either positive or neutral on each of these threshold areas.

Vehicle Miles Traveled (VMT) is a TRPA **air quality** threshold indicator. VMT is linked to emission of nitrogen oxides, particulate matter, hydrocarbons, and greenhouse gas. Shared-use paths can both reduce VMT (as people shift from their cars to biking and walking) and contribute to VMT (as some may elect to drive to a path as a recreation amenity). To quantify potential impacts, LSC Consultants, with assistance from Alta Planning and Design, developed a Tahoe Bicycle Trail User Model that accounts for both the vehicle trip generation and reduction attributable to bicycle facilities. Estimates from the model indicate that if the full network were constructed, biking and walking trips would reduce VMT by approximately 8,500 miles on a peak summer day. This translates into a reduction of approximately 1,400 metric tons per year of carbon dioxide, a key greenhouse gas (U.S. Environmental Protection Agency). Lake Tahoe paths with greater proximity to population centers and popular destinations have the greatest potential to reduce VMT. Scenic paths far from population centers with unlimited parking are less likely to reduce vehicle trips, and in some cases may increase them (TMPO).

The Lake Tahoe Total Maximum Daily Load (TMDL), a program of research dedicated to identifying the primary sources of **water quality** degradation in Lake Tahoe, did not find that shared-use paths have a significant positive or negative impact on water quality. While paths in sensitive areas can impact stream environment zones (SEZ), and must be mitigated to allow ecosystem function to continue, these paths are not associated with the same runoff impacts as roadways due to the lack of road sanding or heavy vehicle use. While shared-use paths can reduce VMT and hence atmospheric deposition, the primary strategies of the TMDL are currently focused on treatment of roadway runoff, advanced vacuum sweeping techniques and application of alternative roadway abrasives. The strategies do not focus on construction of paths. Over time, shared-use paths and bicycle lanes may positively affect water quality by reducing the need for impervious surfaces such as additional vehicle lanes or parking spaces.

Shared-use paths have a positive impact on the TRPA **recreation** threshold. Paths often provide excellent non-auto access to Lake Tahoe's recreation destinations, in addition to serving as recreation attractions. Even though biking or walking on a path sometimes involves a car trip, biking or walking as a recreation activity is generally considered to impact environmental thresholds less than other recreation activities such as boating, jetskiing, driving around the Lake, or off-roading.

Paths can have adverse impacts on **wildlife** and **sensitive plant species**, and are not permitted in wildlife protection areas or buffer zones, unless proven mitigation measures are implemented.

Economic Impacts

Bicycle paths provide many economic benefits including increased property values, direct expenditures at local businesses, employment opportunities, and personal savings from reduced vehicle use. Bicycle paths can increase the draw of the Region, encouraging visitors to extend their stay and spend more money. Surveys show that Lake Tahoe bicycle paths and bicycling events, such as America's Most Beautiful Bike Ride (AMBBR), an event with over 3,500 registered riders, attract users with relatively high disposable income.

Specific survey findings from the Lake Tahoe Bicycle Coalition and the TRPA indicate:

- Over 52 percent of Lake Tahoe path users have annual income levels of over $100,000, and 65 percent have a college degree or higher.
- Fifty-six percent of AMBBR survey respondents have incomes over $100,000, and 75 percent have at least a college degree.
- Twenty-seven percent of AMBBR respondents spent more than $2,500 on the purchase of their bicycle.

Many areas have conducted studies to understand the extent of **direct expenditures** related to bicycling on state and local economies. In 1999, the Maine Department of Transportation estimated that direct spending by bicycle tourists in Maine totaled $36.3 million. The Colorado Department of Transportation found the total economic benefit from bicycling to the State of Colorado to exceed $1 billion annually. The Mineral Wells to Weatherford Rail-Trail near Dallas, Texas, was estimated to generate local revenues of $2 million annually in 1999 (Rails-to-Trails Conservancy).

Lake Tahoe visitor direct expenditures related to bicycle paths can be calculated from local data. Tahoe-specific studies show the average daily expenditure for visitors is approximately

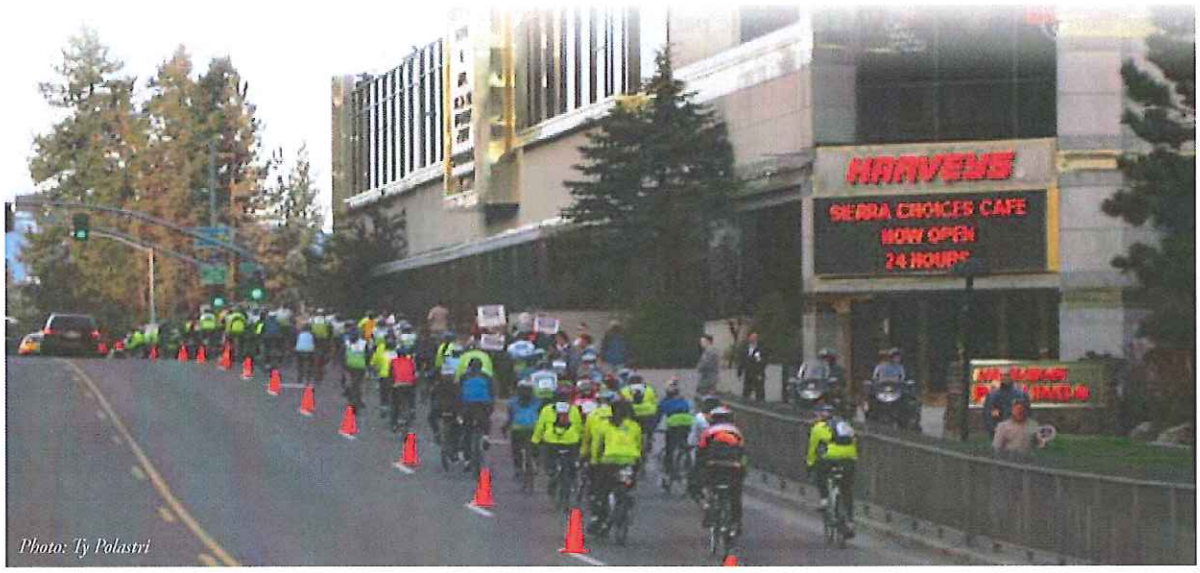


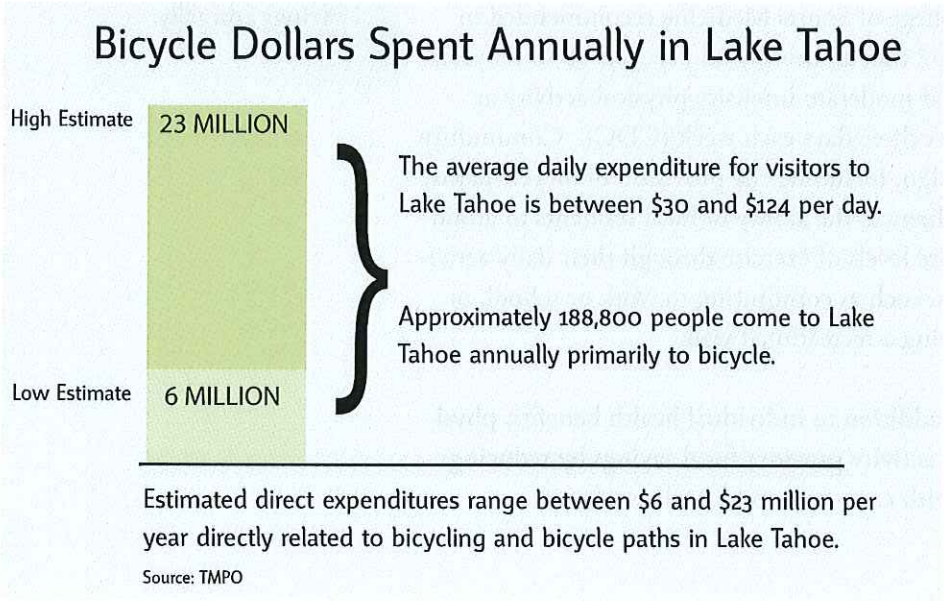
Photo: Ty Palastri

$124 per day (TMPO; Lake Tahoe Visitors Authority (LTVA); North Lake Tahoe Resort Association (NLTRA); TRPA/Tahoe Coalition of Recreation Providers (TCORP)). This is probably a high estimate, as it is not broken down by visitor activity while in the Region. For a low estimate, the research in Maine, which has many similar characteristics to Lake Tahoe, found an average daily expenditure of approximately $30 for visitors who participated in partial day bicycle trips. Tahoe bike path surveys show that approximately 30 percent of path users come to Lake Tahoe primarily for cycling purposes, or approximately 188,800 people annually (TRPA/TCORP; TMPO). Multiplying these by the estimated expenditure yields a low estimate of $6 million per year and a high estimate of $23 million per year directly related to bicycling and bicycle paths in Lake Tahoe.

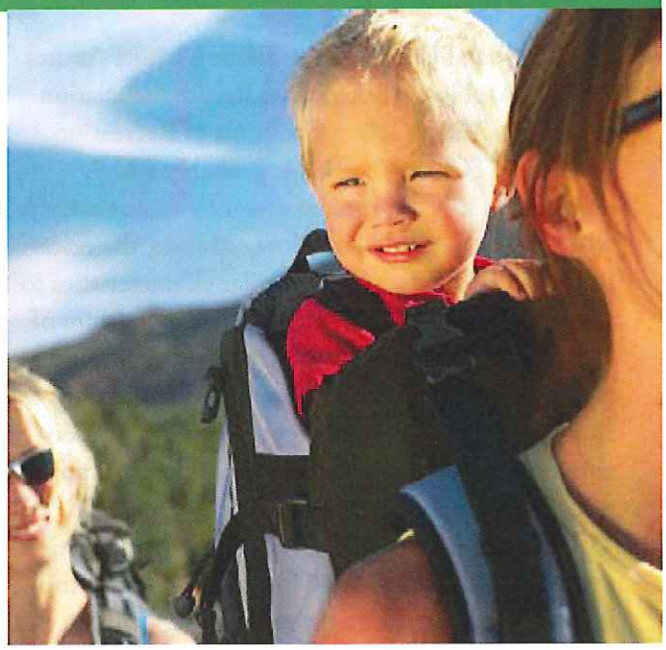
Visitors are attracted to regions that offer a variety of activities, and the opportunity to bicycle or walk can play an important role in enticing visitors. A study conducted by the LTVA in 2008 stated that length of stay is "probably the most important factor to influence the economic impacts on the Tahoe Region..." Expanding bicycling and walking opportunities could encourage people to extend their stay. Approximately 13% of visitors surveyed in a North Carolina Northern Outer Banks study stated that their visit duration was longer by an average of three to four days due to the excellent bicycling opportunities (Lawrie).

Property value is another source of economic benefit to the Tahoe Region related to bicycle paths. Multiple studies show increases in property values based on proximity to a bicycle path or greenway. A 1998 study of property values along the Mountain Bay Trail in Brown County, Wisconsin showed that lots adjacent to the trail sold faster and for an average of 9 percent more than similar property not located next to the trail (Rails-to-Trails Conservancy). Several other studies also show a range of increases in property values and faster sales times for houses in proximity to trails and greenways (Los Angeles County Metropolitan Transportation Authority).

There are **other economic benefits** of bicycling and walking that are not so easily quantified, such as job creation and savings from fuel consumption, car payments, car maintenance, and car storage. Savings from these sources can free up discretionary income and allow both residents and visitors to spend more in Lake Tahoe communities.



Health Impacts



In recent years, public health professionals and urban planners have become increasingly aware that the impacts of motor vehicles on public health extend far beyond the negative effects of air pollution that include asthma and other respiratory diseases. Reliance on the automobile has led to lack of physical activity, which in turn has been linked with cardiovascular disease, thromboembolic stroke, hypertension, type 2 diabetes, and osteoporosis (Haskell). During the past 20 years there has been a dramatic increase in obesity in California and Nevada as well as the United States as a whole. In 2008, California's obesity rate was approximately 22 percent, compared to less than 10 percent in 1990. Nevada's obesity rate was approximately 27 percent in 2008 compared to approximately 17 percent in 1999 (1990 data was not available for Nevada) (Centers for Disease Control and Prevention (CDC)).

The Centers for Disease Control/American College of Sports Medicine recommended in 2007 that all healthy adults aged 18 to 65 years need moderate-intensity physical activity at least three days each week (CDC). Community design, including the provision of bicycle paths, influences the ability of local residents to attain these levels of exercise through their daily activities, such as commuting to work or school, or taking a recreational walk.

In addition to individual health benefits, physical activity provides fiscal savings by reducing health care costs and lost days of work.

- Annual per capita health cost savings from physical activity have been found to vary between $19 and $1,175, with a median value of $128.
- Multiplying the $128 median value of annual per capita health cost savings by the population of Lake Tahoe communities yields over $7 million of health care cost savings annually.

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Section 3: Benchmarks and Progress

The 2003 Bicycle and Pedestrian Master Plan was the launching point for major improvements to the bicycle and pedestrian network, as well as the catalyst for strengthening policy language. The 2003 Plan also set several ambitious benchmarks. This section charts the Region's progress toward those benchmarks and describes new strategies for meeting bicycle and pedestrian goals.

New Facilities

The 2003 plan envisioned 60 additional miles of bicycle and pedestrian facilities by 2008, and 174 additional miles of bicycle and pedestrian facilities by 2023. As a measure of success, between 2003 and 2010 approximately 13 miles of the proposed network were built (Table 1). In addition, another 19 miles, mostly of bicycle lanes, are currently in construction or scheduled to be within the year, bringing the total to 31 miles. (See the "status" column in Table 18, Proposed Bicycle and Pedestrian Project List, Appendix B.) These miles of bikeway fill important gaps in the network.

New Policies

Since 2003, several new policies have been implemented at TRPA to help facilitate concurrent construction of facilities in new and re-development and roadway projects. In the past, although projects were listed in the Bicycle and Pedestrian Plan, they were sometimes overlooked by developers and project reviewers. While many new projects did include the proposed bicycle and pedestrian components, such as the Sierra Shores development in South Lake Tahoe, and the Caltrans water quality improvements in the North Shore, a few projects invested significant capital into improvements without providing for the bicycle facilities called out in the BPP.

Facility Name	Responsible Agency	Miles
Sawmill 1A Shared-Use Path (2007)	El Dorado County	1.2
Sawmill 1B Shared-Use Path (2008)	El Dorado County	0.3
15th Street Bike Path and Bridge (2003)	City of South Lake Tahoe	0.3
15th Street Bike Lanes (2008)	City of South Lake Tahoe	0.3
Lyons Avenue (2006)	City of South Lake Tahoe	0.3
Ski Run Blvd Shared-Use Path - 2004	City of South Lake Tahoe	1
South Lake Tahoe Ballfields Shared-Use Path (2003)	City of South Lake Tahoe	0.5
(2007)	City of South Lake Tahoe	0.3
Lakeside Trail Shared-Use Path - Phases IB, IIA, IIB, III, IV (2004-2007)	TCPUD	0.4
SR 28 through Incline Sidewalk 2006	Washoe County/IVGID	2.1
Country Club Sidewalk (Incline Village)	Washoe County/IVGID	0.5
Incline Way Sidewalk (Incline Village)	Washoe County/IVGID	0.1
Tanager Sidewalks (Incline Village)	Washoe County/IVGID	0.2
College Way Bike Lanes (Incline Village)	Washoe County/IVGID	0.4
Kings Beach to North Stateline Bike Lanes (2009)	Caltrans	0.9
SR 89 Emerald Bay Road Bicycle Route	Caltrans	3.6
USFS Tallac Historic Site Trail	USFS	0.6
Total		13

Table 1. Facilities constructed since adoption of 2003 Bicycle and Pedestrian Master Plan

To address this problem, TRPA staff incorporated a bicycle and pedestrian checklist into its project application process, and created an interactive, online map: http://gis.trpa.org:82/BIKEMAP. By visiting this site, project applicants can determine the proximity of their project to proposed and existing facilities and include them into their plans at the earliest stage. In addition, TRPA staff has held multiple meetings with Caltrans and NDOT planners, designers, and engineers to discuss the need for bicycle and pedestrian accommodation. Building on this, the 2010 BPP includes policy language on accommodation of bicyclists and pedestrians ("Complete Streets" language) that is anticipated to be adopted into the TRPA Code of Ordinances with the Regional Plan update. On-going meetings with Caltrans and NDOT are also called for as part of this BPP.

Notable accomplishments in the period from 2003 to 2010 include:

- Completion of the first phases of the Sawmill Bike Path in Meyers, which will eventually connect the existing Pat Lowe Memorial Trail to the South Tahoe "Y"
- Over three miles of new sidewalk in the Incline Village Commercial Area
- New bicycle lanes in the Incline Village and Kings Beach areas
- Shared-use paths on both sides of Ski Run Boulevard in South Lake Tahoe
- Missing links on the Lakeside Bike Trail in Tahoe City
- City of South Lake Tahoe allocation of $25,000 towards community bicycle racks
- Completion of the 15th Street Bike Trail in the City of South Lake Tahoe
- Sixty thousand copies of the Lake Tahoe Bicycle Trail Map distributed
- Bicycle and pedestrian checklists in TRPA project applications, plus on-line, interactive map of proposed bicycle and pedestrian network
- Recognition of the City of South Lake Tahoe as a bronze-level League of American Bicyclists (LAB) Bicycle-Friendly Community 2006, 2008
- Recognition of North Lake Tahoe-Truckee Resort Triangle with "Honorable Mention" by LAB Bicycle Friendly Community Program.

Cascade to Rubicon Bay Bikeway Study

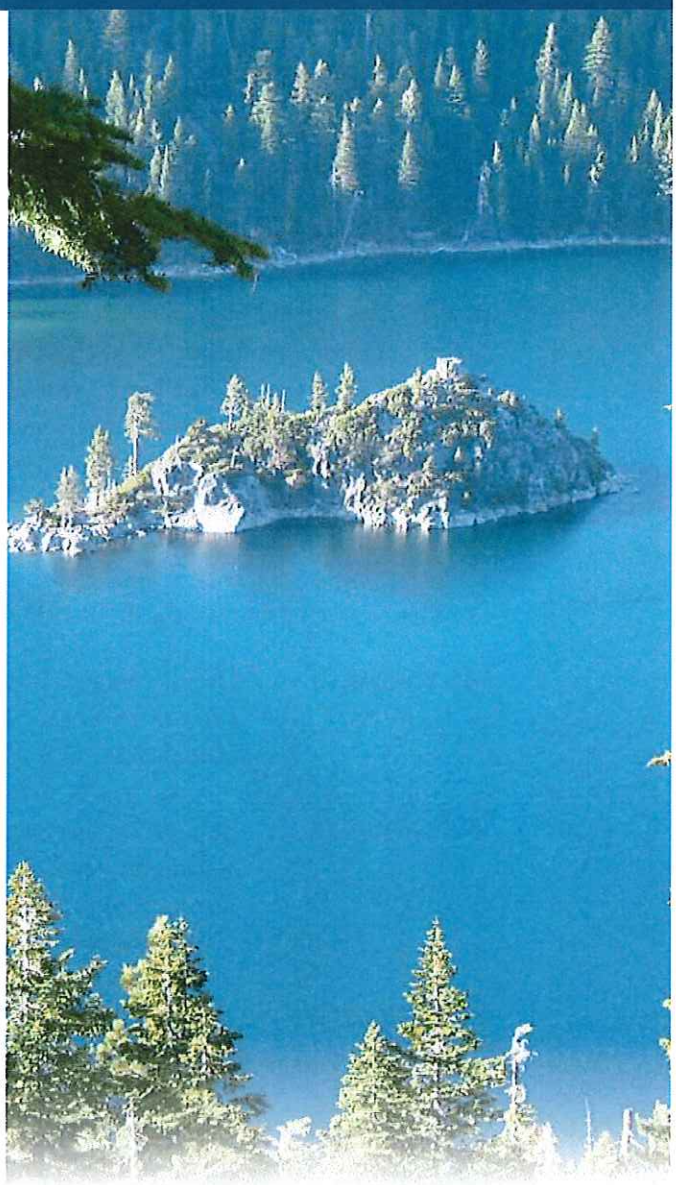
Another important plan published concurrently with the 2003 Bicycle and Pedestrian Master Plan is the Caltrans State Route 89—Cascade to Rubicon Bay Bikeway Study. This plan researched several ways to improve bicycle access along the severely constrained section of roadway around Emerald Bay.

There were three major recommendations from this study:

- Widen the highway from 2 to 4 feet where feasible. Divert riders onto a combination of on-street neighborhood routes and new Class I/ Shared-Use Paths where topography allows.
- Facilitate a bicycle ferry from Camp Richardson to Meek's Bay.
- Expand existing transit to better serve bicyclists around the Emerald Bay Area.

Improvements to transit have occurred around the Emerald Bay Area, implementing some of the goals of the SR-89 study. During the summer, there is now hourly service from both Tahoe City and South Lake Tahoe to Emerald Bay by trolley with bicycle racks.

While this section of roadway remains one of the most difficult sections of the round-the-lake bikeway to complete, feasible improvements have been identified and are included in the BPP. Some lower cost improvements, such as routing bicyclists through the Rubicon neighborhood on a Class III/Bike Route could happen in a short timeframe.



Improvements to transit have occurred around the Emerald Bay area.

Benchmarks and Monitoring

Setting benchmarks and monitoring progress helps track the effectiveness of plans, projects, and programs. The TRPA runs a robust monitoring program to track progress toward the benchmarks listed below.

In 1999, the Federal Highway Administration (FHWA) and the National Highway Traffic Safety Administration established two goals pertaining to bicyclists and pedestrians: 1) to improve safety and 2) to increase use by the year 2022. Specifically, the national goals were to reduce the number of bicycle and pedestrian injuries and fatalities by 10 percent and increase the number of trips made by biking and walking to 15 percent. The goals of the 2010 BPP mirror the broader performance measures of the Federal Highway Administration, while establishing specific benchmarks attainable for a 20-year horizon.

In order to track progress, the 2010 BPP sets the following performance benchmarks:

Benchmark 1: Double the percentage of commuters who bicycle or walk to work from 3.8 percent of all employed residents to 7.6 percent of all employed residents per U.S. Census data by 2023.

Benchmark 2: Increase the percentage of residents and visitors who bicycle and walk to commercial and recreation destinations from 16 to 25 percent in the summer, and from 13 to 20 percent in the winter by 2023. By 2030, increase to 30 percent in the summer and 25 percent in the winter.

Benchmark 3: Implement 20 percent (approximately 45 miles) of all recommended facility improvements within five years (by 2015).

Benchmark 4: Implement 40 percent (approximately 90 miles) of all recommended facility improvements within ten years (by 2020).

Benchmark 5: Decrease the bicycle and pedestrian accident rate.

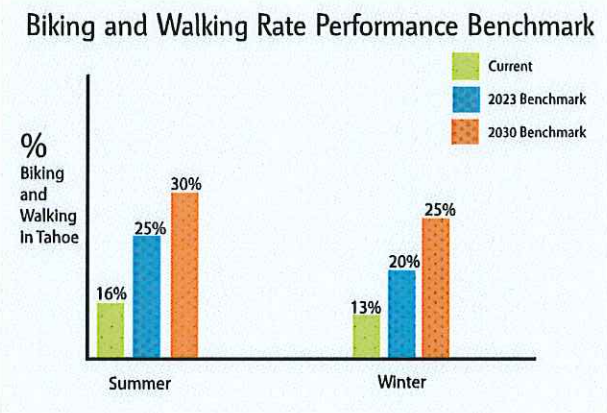
Section 6, Goals, Policies, and Actions on page 60 is the strategy to achieve these benchmarks. The actions specified in Section 6 are the new, near-term activities that will move the Region closer to meeting the benchmarks set here.

The first two benchmarks address the percentage of trips made by biking and walking, which is a good measure of air quality improvement and the success of the BPP. Almost all of the goals, policies, and actions in Section 6 relate to achieving these two benchmarks. Benchmark 1 is measured through U.S. Census journey-to-work data, and will be evaluated when the next U.S. Census is available, anticipated near the end of 2010. Although "journey-to-work" data only

captures resident trip patterns, it is an extremely useful measurement because it is easily comparable to other regions. Current journey-to-work data are shown in Table 9 on page 54.

Since visitor travel is not captured by Census journey-to-work data, TRPA developed performance measures and associated monitoring protocols that capture the biking and walking rates of both residents and visitors. These studies focused on travel to commercial and recreation destinations. In the 2006/2008 studies, the percentage of people who bicycled to commercial or recreation areas in the summertime was 4 percent, and the percentage who walked was 12 percent. In the winter, the percentage who bicycled was 1 percent and the percentage who walked was 12 percent. These surveys are conducted every four years. Benchmark 2 is related to these performance measures.

Completion of the pedestrian and bicycle network and improvement of pedestrian crossings, as called for in Goal 1 are crucial to achieving the non-auto mode shares specified in Benchmarks 1 and 2. Benchmarks 3 and 4 are direct measures of on-the-ground network completion.



Benchmark 5 relates to pedestrian and bicyclist safety. As with the goal of increasing the mileage of on-the-ground facilities, reducing the number of pedestrian and bicycle-related collisions also contributes to shifting more people out of their cars. This benchmark should be tracked by comparing the rate of pedestrian and bicycle-related collisions in relation to overall collisions. The rate of collisions was not tracked in past documents, so a comparison cannot be made at this time, however the current rate is about 1%. Goals 1 and 2 and associated policies help achieve Benchmark 5.

BPP GOALS

GOAL 1:
A complete bicycle and pedestrian network that provides convenient access to basin destinations and destinations outside the Basin.

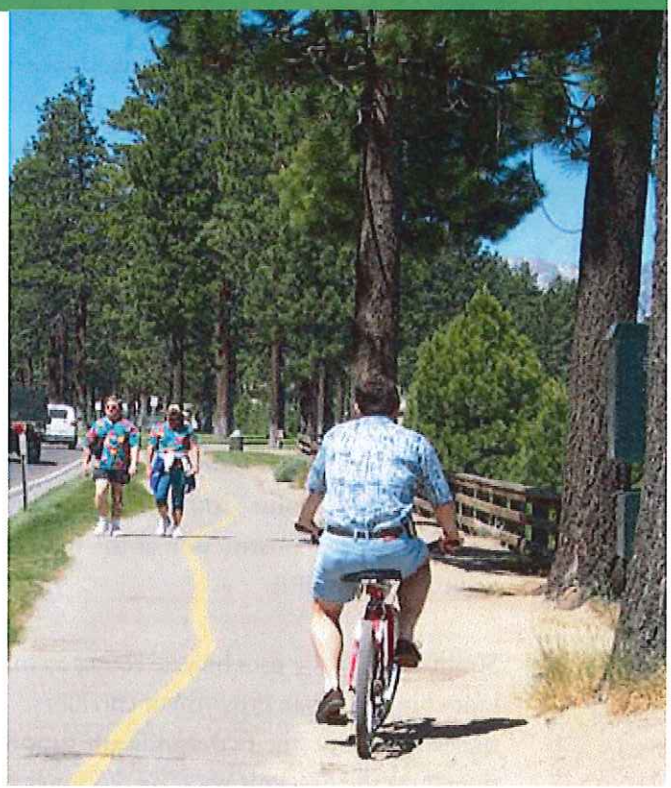
GOAL 2:
To raise awareness of the bicycle and pedestrian network and encourage safe and increased bicycling and walking

GOAL 3:
To provide environmental, enconomic, and social benefits to the Region through increased bicycling and walking.

Section 4: Infrastructure and Programs

This section describes the status of bicycle and pedestrian facilities in the Region as of 2010, as well as support facilities and programs. The discussion focuses on connectivity and gaps in the network, safety issues, and multi-modal connections, and includes recommendations for future improvements.

Existing facilities include shared-use paths, bicycle lanes, bicycle routes, and sidewalks. Table 2 (page 36) breaks out the mileage of existing bicycle and pedestrian facilities by jurisdiction. See Appendix B, Figure 8 for a map displaying the existing bicycle and pedestrian facilities within the Lake Tahoe Basin and Table 17, Existing Bicycle and Pedestrian Network, for a list of these projects.



Bicycling

The infrastructure that supports bicycling in the Region includes shared-use paths, bicycle lanes and routes, and end-of-trip support facilities such as bicycle parking and showers.

Shared-Use Paths

Existing shared-use paths are concentrated in the north shore communities of Tahoe City, CA and Incline Village, NV and the south shore community of South Lake Tahoe, CA. Over 13 miles of nearly continuous Class I/Shared-Use Path stretches from the mid-point of Tahoe's west shore at Sugar Pine Point State Park through Tahoe City and north to Squaw Valley. There are other segments of 1 to 5 mile-long paths scattered throughout Stateline, NV, Meyers, CA, El Dorado County, CA, and Kings Beach, CA.

Major gaps in the network are along the east shore of Lake Tahoe, around Emerald Bay and Homewood on the west shore, between Tahoe City and Kings Beach, Crystal Bay and Incline Village, and Meyers, CA and South Lake Tahoe, including connections to both the South Tahoe "Y" and Stateline. There are also localized gaps. There are two gaps in South Lake Tahoe's otherwise continuous network. One is a section along the Lake from El Dorado Beach to Ski Run Blvd, and the other is a section along Harrison Avenue, a short street near U.S. Highway 50 fronting several blocks of businesses. (See Figure 8, Existing Bicycle and Pedestrian Network Map in Appendix B.)

There are also missing links in the Lakeside Trail in Tahoe City, and at Homewood, on the west shore. These gaps in otherwise continuous paths are the highest priority for completion. Next in priority are extensions to existing paths that begin to complete the round-the-lake network, such as Phase 1 of the Nevada Stateline-to-Stateline Bikeway (see Chapter 7, Proposed Network, page 74)

Bicycle Lanes and Bicycle Routes

South Lake Tahoe, El Dorado County and Incline Village are the communities with significant bicycle lanes and routes. South Lake Tahoe and Meyers have bicycle lanes on six of the eleven major

connectors or arterials. All of these bicycle lanes feed directly into cross-town corridors by connecting to either shared-use paths or signed, stenciled bicycle routes. An 8-mile, continuous bicycle lane is located along Pioneer Trail in the South Shore. Three and a half miles of continuous bicycle lane along State Route 28 connect Incline Village from end to end. Two bicycle lane and shoulder projects, on State Route 28 from Dollar Hill to Kings Beach in the North Shore, and on State Route 89 from Meyers to the El Dorado/Alpine County line in the South Shore are under construction at the time of printing of the BPP.

South Lake Tahoe uses bicycle routes as important connections in cross-town corridors. With the exception of the two significant gaps mentioned on the previous page, a combined system of shared-use paths and bicycle routes connects the South Tahoe "Y" to Stateline on both the east and west sides of U.S. Highway 50. South Lake Tahoe has recently undertaken an effort to add a "sharrow" stencil to its on-street routes. The on-street route system could be further enhanced by adding directional signage to U.S. Highway 50 alerting riders that an alternative route exists.

South Lake Tahoe "sharrow"

Bicycle Parking and Showers

End-of-trip infrastructure such as bicycle racks, bicycle lockers and showers also promote bicycling by increasing its security and convenience. In the Lake Tahoe Region, almost all schools, libraries, transit stations, and recreation centers have some form of bicycle rack. Some government buildings, office buildings, retail centers, public spaces and parks have designated bicycle parking. "Bike to Work, School, Play" riders who participated in an end-of-event survey in 2009 reported that 22 out of the 26 different work locations represented had adequate bicycle parking for employees. Thirteen out of the 26 employers had showers available for employees.

The City of South Lake Tahoe, working in collaboration with the Lake Tahoe Bicycle Coalition initiated a new program in 2010 distributing bicycle racks to public centers and businesses.

Jurisdiction	Class I Path	Class II Bike Lane (1)	Class III Bike Route	Sidewalk	Total
El Dorado County, CA	9	7	4	0	20
City of South Lake Tahoe	8	8	9	4	29
Placer County, CA	14	2	2	1	19
Douglas County, NV	2	0.1	1	1	5
Washoe County, NV	10	4	7	6	26
Carson City, NV	0	0	0	0	0
Total	**43**	**21**	**22**	**12**	**99**

Note 1: Miles of roadway with Bike Lanes. For maintenance purposes, this figure should be doubled since bicycle lanes are on both sides of the roadway.

Table 2. Miles of existing bicycle and pedestrian facilities

All commercial, tourist, recreation and residential centers should have short-term bicycle parking, such as inverted "U" racks. Bicycle lockers should be considered in locations where bicyclists may need to leave their bicycle for several hours, such as at a transit center. Until recently, TRPA only required the installation of secure bicycle parking for employers with more than 100 employees (TRPA Code of Ordinances, Chapter 97). However, bicycle storage is now required as part of all new developments. Project applicants and TRPA project review staff should refer to Appendix A, Design and Maintenance Recommendations for specifics on amount and type of bicycle storage required.

Inverted "U" bicycle parking at Heavenly Village in South Lake Tahoe.

Walking

A safe and comfortable walking environment is vital to the success of tourist-centered communities. At some point, virtually all travelers become pedestrians, walking from their parked car to a storefront, stepping off a bus, or strolling from their accommodations to the Lake. Planning for pedestrian safety and convenience requires integrating pedestrian needs into street design and building design from the earliest stages. In addition to sidewalks and paths, slow vehicle speeds, convenient and safe crossings, and mixed land-uses also support walking.

Sidewalks

Pedestrians use both sidewalks and shared-use paths for walking. The provision and maintenance of sidewalks is not consistent among the communities in Lake Tahoe. Both Tahoe City and Incline Village have emphasized construction and maintenance of their sidewalk network in providing an attractive frontage and access to businesses and recreation areas along major travel routes. Significant gaps in the sidewalk network are most noticeable in South Lake Tahoe and Kings Beach. Both of these communities have high volumes of pedestrians, many of whom access transit along the main highway. Most sidewalks along U.S. Highway 50 in South Lake Tahoe are planned to be constructed by 2012 through a Caltrans water quality project. The sidewalks in Kings Beach are planned to be constructed through an upcoming commercial core improvement project.

Crossing Protection

There are few marked crossings at unsignalized crossing points in the Lake Tahoe Region, particularly along the state highways. In recent years, the trend has been removal of marked crosswalks by roadway agencies due to concerns that traditional crosswalk markings do not afford enough protection for pedestrians on busy roadways. Exceptions include a flashing beacon on the West Shore Trail at the crossing of Sequoia Avenue and State Route 89 in Sunnyside, and crosswalks in the downtown areas of Tahoe City, Kings Beach, North Stateline and other limited locations. Crosswalks have been maintained on some residential streets and lower volume streets, particularly near schools.

While the current high traffic volumes and speeds on most major roadways in the Lake Tahoe Region may mean that traditional crosswalks (two painted

lines) are not appropriate, removing crosswalks altogether discourages walking and biking and does not meet the goals of pedestrian and bicycle-friendly communities. There are a variety of crossing treatments that can be considered during project design to enhance safety and walkability for pedestrians, depending on vehicle speeds and volumes.

Advance stop bars are placed 30 to 50 feet in front of the crosswalk and are generally accompanied by a "yield here to pedestrians" sign. The main purpose of advance stop bars is to provide a better line of sight between the pedestrian and an approaching driver whose view may be partially blocked by another car that has already stopped at the crosswalk.

In-roadway warning signs are placed in the roadway, between travel lanes to alert drivers to the presence of a crosswalk. The purpose of these signs is to remind drivers of the state law to yield or stop for pedestrians in the crosswalk. These signs have been used successfully in Tahoe City during the summer.

In-roadway warning sign.

Finally, **flashing beacons** may be used to alert drivers to crossing pedestrians. Some flashing beacons are designed to flash only when activated by a pedestrian, while others flash constantly. Pedestrian-activated flashing beacons have a much higher vehicle compliance rate than constantly-flashing beacons. The "Sequoia Crossing" of SR 89 by the West Shore Trail south of Tahoe City is a good example of a flashing beacon activated by a pedestrian or cyclist.

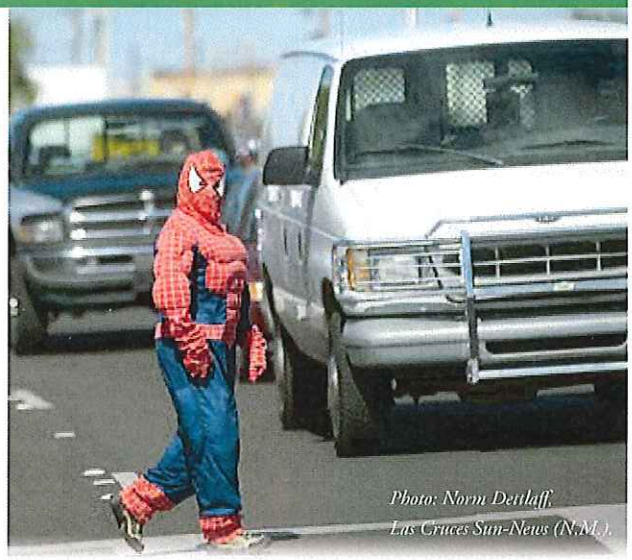
The "HAWK" Pedestrian Crossing

HAWK (High-intensity activated crosswalk) beacons are an innovative new form of pedestrian signal, which have been used extensively in Tucson, Arizona. The HAWK signal displays a solid red phase to drivers while pedestrians see a "Walk" phase. The signal then changes to a flashing "Don't Walk" phase for pedestrians and a flashing red phase for vehicle traffic so that vehicles may proceed if the crosswalk is clear. Evaluations of HAWK beacons on both 4-lane and 6-lane roadways report a driver yielding rate exceeding 95 percent (Fitzpatrick). HAWK signals are approved for use in Nevada but not yet in California.

A detailed discussion of crossing treatments and some traffic calming measures appropriate for different locations in Lake Tahoe is included in Appendix A, Design and Maintenance Recommendations.

In addition to physical improvements, **education** can increase the effectiveness of existing crossings. Some communities have undertaken crosswalk enforcement operations in coordination with local police departments to educate drivers on pedestrians' right to cross

the road. In Las Cruces, New Mexico, local police officers dressed as superheroes attempted to cross at marked crosswalks to draw attention to the need for vehicles to stop at crossswalks.

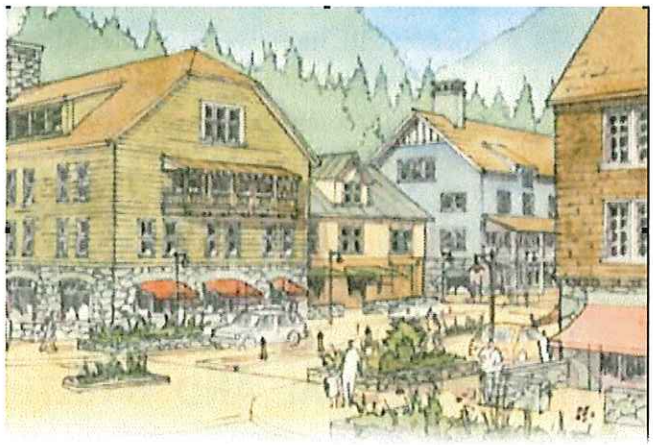


Crosswalk enforcement operation in Las Cruces, New Mexico.

Street Design

Other treatments can be applied to streets and highways to increase walkability, particularly in urban centers or areas with high pedestrian volumes. In some cases, treatments may physically slow traffic, for instance with speed humps. In other cases, road design, including narrower roadways, street trees or pedestrian refuge islands naturally signals drivers to drive more slowly in order to safely navigate the roadway.

Pedestrian refuge islands can be installed in the middle of multi-lane roadways at intersections or mid-block locations. They reduce pedestrian exposure to motor vehicles, allow pedestrians to consider traffic coming from one direction at a time and provide a place for slower pedestrians to rest or wait. These island can also include paver stones or vegetation to aesthetically break up large expanses of asphalt.



Street trees and furniture increase appeal.

Street trees and furniture can increase appeal for pedestrians as well as slowing vehicle speeds by effectively reducing driver sight-distance. Street trees and furniture also provide a buffer between vehicles and pedestrians by cutting down on noise and increasing the feeling of safety.

Road diets are becoming popular in locations where roadways have been designed much wider than is necessary for existing or anticipated traffic. Particularly on 4-lane roadways without a center turn-lane, where average daily traffic is less than 15,000 cars per day, there are opportunities for re-design. In such cases, incorporating a center turn-lane, and converting width from an outside lane to wider sidewalks, pedestrian refuge islands, bicycle lanes, and other features increases safety and mobility for all users. Placer County is planning this type of re-design in the community of Kings Beach.

Land Use Design

Finally, land use design plays perhaps the most important role in creating walkable and bikeable communities. A mix of residential, retail and other commercial uses increases the population living within walking distance of their destinations. The opportunity to live and stay in downtown areas decreases the need for housing in outlying areas, and ultimately will be one of the greatest factors in reducing long-distance commuting by vehicle.

The preferred alternative proposed for the update of the 20-year TRPA Regional Plan envisions a shift of this type in the location and form of new and re-development. This alternative proposes walkable, mixed-use nodal centers, with incentives to shift existing development out of sensitive, outlying areas. A focus on "Complete Streets" and safe access for users of all modes of transportation will provide a means for people to travel safely to their destinations without the need to rely on an automobile.

Regional and Multi-Modal Connections

Full connectivity between populated areas and major attractions, both inside and outside the Region, is important if the bicycle and pedestrian network is to adequately serve residents and visitors. Visitors who wish to enjoy Lake Tahoe by bicycle or foot may wish to arrive in the Region without their car. Once here, in order to travel between communities at the Lake, they require good connections via regional bikeways and transit. The extent of

existing regional and multi-modal connections is discussed below, and a map of major trip attractors, generators and transit connections is shown in Figure 9 (Major Trip Attractors and Generators, Appendix B).

Regional Connections

Because Lake Tahoe communities are relatively small, most of the existing bicycle and pedestrian network is focused on connecting communities to recreation areas and providing strong internal connections. Some regional bicycle travel, however, occurs between communities in the Lake Tahoe Region and areas outside the Region such as Truckee, CA, Reno, NV, Gardnerville/Minden, NV, and Carson City, NV. California State Routes (SR) 89 and 267 provide direct access to and from Truckee. There is a shared-use path along SR 89 from Tahoe City to Squaw Valley Ski Resort. Bicycle lanes or wide shoulders are planned for the near future along both of these roadways, and a bicycle path paralleling SR 267 will eventually connect Kings Beach to Northstar Resort and the Martis Valley. Placer County and the Town of Truckee have expressed interest in completing a shared-use path connecting Squaw Valley to the Truckee Legacy Trail Network, and are

also working with Caltrans on a bicycle and pedestrian tunnel in Truckee to improve connections between Tahoe City and Truckee.

U.S. Highway 50 and Nevada State Routes 207 and 431 provide connections to and from Carson City, Gardnerville/Minden, and Reno. State Route 431 is currently signed as a bicycle route. A possible future connection between Stateline, NV and the Gardnerville/Minden area could be made via an existing dirt trail along the old Pony Express trail in Douglas County to a planned paved, shared-use path on the Carson Valley side.

Bicyclists were observed along each of the routes listed above during summer field visits, with the highest concentration of bicyclists on the shared-use path along SR 89 between Truckee and Tahoe City.

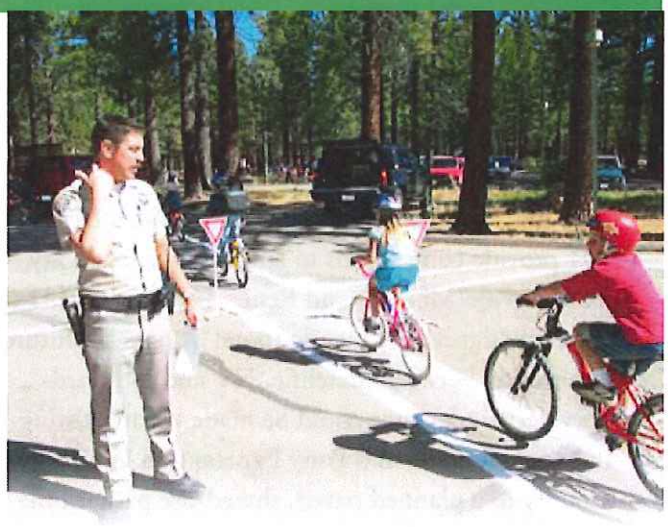
Multi-Modal Connections

Multi-modal connections in the Region are important when barriers to continuous bicycle and pedestrian travel exist. In the Lake Tahoe Region, these barriers include topography, distance or lack of continuous bicycle and pedestrian facilities. Transit service is provided by several publicly-operated transit systems, tourist-oriented trolley services, and privately-operated shuttle systems and taxi services. On the South Shore, a consortium of public and private transit providers, including El Dorado County, the City of South Lake Tahoe, Douglas County, Heavenly Resort, and several casinos operate BlueGO, a coordinated transit system. Service on the north shore is operated by Placer County, with funding from Washoe County Regional Transportation Commission to serve the Nevada portion of the North Shore. This service is known as the Tahoe Area Regional Transit (TART) system.

In addition to fixed-route systems, BlueGO provides flex route and demand-response service to Douglas County and El Dorado County, including the City of South Lake Tahoe. Specific transit stops and service areas are displayed in Figure 9, Appendix B. All BlueGO and TART buses are equipped with bicycle racks.

Transit service to communities outside of the Region is relatively good, with service provided by BlueGO from the South Shore to Carson City and the Minden/Gardnerville area; South Tahoe Express between the South Shore and Reno, NV; North Lake Tahoe Express between North Shore, Truckee, and Reno; and by Amtrak to Sacramento and train connections to other major destinations throughout California. Both Amtrak and BlueGO provide carrying capacity for bicycles on these inter-regional connections.

Safety and Outreach



Safety is a major concern for users of the bicycle and pedestrian network. People often cite their perceptions about safety as the reason they do not bicycle or walk more often. Given the potential for serious injuries involving accidents with motor vehicles, this concern is understood. In addition to the physical improvements described on the previous pages, such as enhanced crossing treatments and traffic calming, safety education for both children and adults is an important component of a comprehensive plan. Existing bicycle and pedestrian safety programs in the Lake Tahoe Region are summarized in Table 3 on the following page.

As indicated in Table 3, law enforcement agencies in the Region are actively involved with student education through bicycle rodeos or other events. These events are particularly useful in demonstrating how bicyclists and pedestrians are to use the roadway system safely.

Beyond safety education, outreach programs that encourage biking and walking are a vital part of Lake Tahoe's planning effort. Many individuals wish to ride or walk more often, but lack information on bicycle routes, basic bicycle maintenance, and ways to incorporate riding into their commute to work. Outreach and events put on by local agencies and organizations can make bicycling and walking fun activities and can be useful ways to disseminate important tips.

Local agencies and advocacy groups have put significant effort into providing a well-publicized and popular "Bike to Work, School, and Play Challenge" each year, attracting over 700 participants in 2009, many of whom were students. Two schools in South Lake Tahoe have started bicycle clubs, and the South Lake Tahoe police, California Highway Patrol, and El Dorado County Sheriff's departments continue to hold their "Bicycle Rodeo" event for kids annually. In addition, the Lake Tahoe Bicycle Coalition distributes a popular Lake Tahoe Bike Trail Map.

Bike to Work, School, and Play Week attracted over 700 participants in 2009, many of whom were students.

Agency	Contact Number	Programs Offered
CHP - South Lake Tahoe Area	(530) 577-1001	Bicycle Rodeos late May / early June - Skills Instruction - Free Bicycle Inspection and Repair - Helmet Program
CHP - North Tahoe Area	(530) 582-7570	Pedestrian Safety Education Program "When in Doubt Don't Step Out" Works in conjunction with schools to conduct bike safety programs
Nevada Highway Patrol	(775) 684-4808	No programs currently offered
Placer County Sheriff - Kings Beach Area	(530) 581-6369	No programs currently offered due to budget constraints
Placer County Sheriff - Tahoe City Area	(530) 581-6300	No programs currently offered
Tahoe City Public Utility District	(530) 583-3796	Annual Bike Derby at Rideout Community Center North Tahoe/Truckee Bicycle Map
El Dorado County Sheriff - South Lake Tahoe Area	(530) 573-3000	Work in conjunction with CHP and Kiwanis to conduct bicycle education programs
Washoe County - Incline Village Constable's Office	(775) 832-4103	Annual Bicycle Rodeo (June) - Skills Instruction - Free Helmet Program - Challenge Course
Washoe County School District	(775) 348-0200	Safe Routes to School Program
Douglas County Sheriff	(775) 586-7250	No programs currently offered in Lake Tahoe
City/County of Carson City	(775) 887-2020	No programs currently offered in Lake Tahoe
South Lake Tahoe Police Department	(530) 542-6100	South Tahoe Middle School Police Activities League (PAL) Bike Club Work in conjunction with CHP and El Dorado County Sheriff's Department to conduct bicycle rodeos
Tahoe Truckee School District	(530) 541-2850	No District program offered -Up to individual sites to coordinate programs
State of Nevada	(775) 888-RIDE	Bicycle and Pedestrian Program - Safe Routes to School Program - Safety Education Office of Traffic Safety -Ped/Bike education programs and grants Lake Tahoe/Nevada State Park -Mountain Bike Safety Patrol Nevada Bicycle Advisory Board -Education Outreach Nevada Department of Transportation -Bicycle/Pedestrian program and outreach
State of California	(916) 653-2750	Bicycle and Pedestrian Programs -Interactive videos to schools -"From A to Z by Bike" book hand-outs
Lake Tahoe Community College	(530) 541-4660	Mountain biking and road riding courses
Lake Tahoe Unified School District	(530) 541-2850	No District program offered -PAL Bike Club at South Tahoe Middle School: Bike safety, bike maintenance, bike rides -Bobcat Outdoor Club at Bijou Community School: Bike skills & safety, bike maintenance, bike rides
Douglas County School District	(775) 782-5134	No District program offered - Up to individual sites to coordinate programs
Tahoe Regional Planning Agency	www.tahoempo.org	Lake Tahoe Bike Challenge
Lake Tahoe Bicycle Coalition	www.tahoebike.org	Bike Week/Bike Month Bike Film Fest Bicycle Awards Lake Tahoe Bike Trail Map

Table 3. Bicycle and pedestrian safety and outreach program summary

Maintenance

Local agencies in the Tahoe Region have made a significant investment in the construction of pedestrian and bicycle facilities, providing valuable recreational and transportation benefits to local residents and visitors. The TRPA/TMPO has found through public input and discussions with local agencies that Tahoe area shared-use paths and sidewalks are sometimes not maintained at a high enough standard to meet user needs. Major maintenance issues in Lake Tahoe include lack of consistent snow removal from sidewalks and paths during the winter months, forcing users into the street, and insufficient long-term sidewalk and bicycle facility maintenance, such as crack repair and re-striping.

Basin agencies have successfully addressed facility maintenance in some locations, using a variety of strategies. The following highlights the obstacles agencies face, the costs of maintenance, and ideas from Lake Tahoe and other areas that could be considered when developing long-term maintenance strategies.

Obstacles to Proper Maintenance

Based on input from Lake Tahoe public agencies, there are three main obstacles to successful shared-use path and sidewalk maintenance programs in the Lake Tahoe Region.

- Lack of dedicated funding
- Lack of proper equipment
- Confusion or conflicts regarding responsibilities

The first and most common issue is a lack of dedicated funding. Grants are typically not available for maintenance activities, but are available for construction of new facilities. Second, proper equipment or appropriately trained personnel may not be available. For example, shared-use paths require narrow snow-blowers for snow removal, but jurisdictions may not own these machines, or the machines may not be capable of removing the heavily-packed snow pushed on to paths by snow-plows. Third, there may be confusion or conflicts between different parties regarding whose responsibility it is to maintain sidewalks and shared-use paths. In most cases in Lake Tahoe, where there is no business improvement district or other type of assessment district, maintenance of sidewalks falls to the private property owner. Jurisdictions are responsible for enforcing this private maintenance role, but they may lack the funding or political will to effectively do so.

Photo: Ty Polastri

Maintenance Costs

Costs for maintaining paths vary widely, based on the level of maintenance provided by an agency. Annual per-mile costs of path maintenance range from a low of $1,050 for basic maintenance of a path in the City of South Lake Tahoe to a high of $14,000 per mile for landscaping, snow removal and path maintenance in the Ski Run Business Improvement District. Table 4 summarizes the costs for maintaining facilities in selected areas of the Tahoe Region, based on conversations with members of each agency.

Agency	Costs	Notes
City of South Lake Tahoe	$1,050 per mile per year for basic maintenance of Class I paths	No snow removal.
Ski Run BID (City of South Lake Tahoe)	$14,000 per mile per year to maintain landscaping and Class I path $4,500 per mile for slurry seal	Includes snow removal.
Tahoe City Public Utility District	$11,000 per mile per year to maintain, repair, restripe and plow (once) paths	Annually, $5,000 to $6,000 is spent for snow removal and $25,000 to $30,000 for repairing cracks on the entire path system
North Tahoe Public Utility District	$8,000 per mile per year to maintain trail and blow snow	

Table 4: Costs of maintaining paths and sidewalks in the Tahoe Region (2008)

Strategies for Improving Maintenance

Many formulas can work to improve sidewalk and path maintenance. Successful models in Lake Tahoe and other regions seek to minimize costs overall, and to plan in a source of maintenance funding before paths are constructed. Maintenance funding should cover short and long-term costs, including snow removal, crack repair, sweeping and striping, and maintenance of adjacent infiltration devices.

Minimize costs by consolidating maintenance responsibilities.

Private property owners and jurisdictions can reduce expenditures by entering into cooperative maintenance agreements. Cooperative maintenance agreements allow for a single entity, such as the local public agency or a private contractor, to carry out snow removal and other maintenance. This can reduce the cost and time associated with individual property owners setting up separate maintenance contracts or doing the work themselves. The agreements also ensure that an entity with adequate staff, equipment and experience carries out the work. The Ski Run Business Improvement District in South Lake Tahoe is an example of this. Another way to consolidate maintenance responsibility is for private property owners to have the option to transfer responsibility to the local public agency. The City of Madison, WI, incentivizes this through a program whereby private property owners are charged only 50 percent of the cost to do repairs and snow removal if they allow the City to conduct the work. In other communities, such as Mammoth Lakes, CA, Davis, CA and Vail, CO, the Public Works Department is responsible for maintaining sidewalks and paths. Jurisdictions can also pool funds to cost-share special equipment purchases.

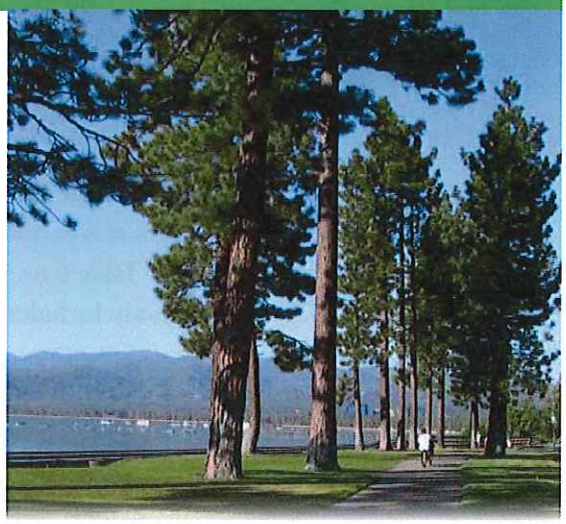
Pursue innovative funding sources for on-going and long-term maintenance that is linked to the mileage of the facilities.

Maintenance of paths and sidewalks is one of many community needs that must compete for scarce funds. Dedicated funding sources for maintenance can help address this. South Shore's Measure S--a property tax assessment passed in 2000 for construction and maintenance of recreation facilities--set aside $5,000 per year per mile for maintenance of 25 miles of planned shared-use paths in the City of South Lake Tahoe and El Dorado County. The two jurisdictions are able to use this funding as a local match when pursuing grant funds for path construction. Vail, CO, applies a 1 percent Real Estate Transfer tax to all real estate transactions, a portion of which is allocated to path maintenance. When establishing a funding mechanism to provide for sidewalk and path maintenance, it should be structured to reflect the average lifespan of sidewalks and paths, and allow for increases in inflation and the mileage of the facilities.

Permitting and granting agencies such as the TRPA, the CTC, and the North Lake Tahoe Resort Association (NLTRA), can assist this process by being diligent in requiring projects to show adequate maintenance funding as part of grant and permit applications and by assisting implementers to identify additional sources of maintenance funding. TRPA could also consider incentivizing maintenance of facilities by tying maintenance to its annual building allocation system.

For additional details on existing maintenance challenges and recommendations, please see Appendix I (Maintenance Memo, www.tahoempo.org).

Collision Analysis



Perceptions of safety directly influence the choice to bike or walk. Poor sight distances, crime or threats from motor vehicles may cause people to switch away from biking or walking. Overall, both accident and crime rates are low in Lake Tahoe compared to other areas. However, hazards to bicyclists and pedestrians do exist. Examples include:

- Areas where sidewalks are discontinuous or uncleared of snow, forcing pedestrians and wheelchair users into the street
- Where sight distances for crossing are poor, due to parked cars, signs, or roadway curvature
- Areas where shared-use paths or sidewalks cross multiple driveways and sidestreets

The BPP analyzes accident data and provides information on safety improvements.

Accident Data

LSC Transportation Consultants conducted an extensive analysis on pedestrian and bicycle collisions with vehicles between 2003 to 2007. A few improvements have been made since 2007, however the data from this period is still considered current. Table 5 shows the total accidents by regional jurisdiction. Table 6 on the following page shows accident rates at specific Basin locations. The data only includes accidents involving a motor vehicle.

Jurisdiction	Total Accidents (1)	Pedestrian	Bicycle	Injury (2)	Fatal
El Dorado County, CA	19	7	12	18	1
City of South Lake Tahoe, CA	155	67	88	157	3
Placer County, CA	77	33	44	72	7
Carson City, NV	0	0	0	0	0
Douglas County, NV	5	5	0	2	0
Washoe County, NV	7	6	1	0	4
Total	**263**	**118**	**145**	**249**	**15**

Note 1: Accident rates are not available at the time of printing the BPP, however in the future, accident rates, rather than total accidents, should be reported. Accident rates take into account bicycle and pedestrian collisions in comparison to the amount of overall activity by bicyclists, pedestrians, and motor vehicles.

Note 2: The sum of injuries and fatalities may be higher than total accidents because sometimes the number of people in the party was greater than 1.

Source: Reported accidents according to the California Statewide Integrated Traffic Records System (SWITRS) and Nevada Highway Patrol.

Table 5. Lake Tahoe Region bicycle and pedestrian accident summary 2003-2007

As Table 6 indicates, there were 29 locations with two or more accidents in the six year period. The most significant "hot spot" was the U.S. 50/Friday Avenue intersection, which has since been improved with a full intersection signal. Other intersections with relatively high accident rates include SR 28 and Fox Street, Bear Street, Coon Street and Grove Street on the North Shore, and U.S. 50 and Stateline and Park Avenue on the South Shore. It should also be noted that only one of the 29 high accident intersections is not on the state highway system.

	# Accidents				
Location (1)	Bicycle	Pedestrian	Total	Annual Average Daily Traffic (AADT), 2002-2007 (2)	Accident Rate per Average Daily Traffic
Pioneer Trail & Wildwood (unsignalized)	2	0	2	n/a	n/a
SR 28 & Fox Street (unsignalized)	0	4	4	14883	0.027%
SR 28 & Grove Street (unsignalized)	2	1	3	11733	0.026%
US 50 & Friday Ave (new signal)	1	7	8	33667	0.024%
US 50 & Stateline (signal)	0	7	7	33667	0.021%
SR 28 & Bear Street (unsignalized)	0	3	3	14883	0.020%
SR 28 & Coon Street (signal)	1	2	3	14883	0.020%
SR 28 & SR 267 (signal)	2	1	3	18100	0.017%
US 50 & Park Avenue (signal)	4	1	5	33667	0.015%
US 50 & Pioneer Trail (East) (signal)	4	1	5	33667	0.015%
US 50 & Blue Lake (unsignalized)	1	4	5	33833	0.015%
SR 28 & Southwood Blvd (signal)	0	2	2	13758	0.015%
SR 89 & Fountain (unsignalized)	2	0	2	14767	0.014%
SR 28 & Beaver Street (unsignalized)	0	2	2	14883	0.013%
US 50 & Edgewood Circle (unsignalized)	3	0	3	32116	0.009%
US 50 & Glorene (unsignalized)	1	2	3	33583	0.009%
US 50 & Herbert (unsignalized)	3	0	3	33833	0.009%
US 50 & Sierra (signal)	2	1	3	33833	0.009%
US 50 & 4H Camp Road (unsignalized)	2	0	2	23317	0.009%
US 50 & Kingsbury Grade (signal)	0	2	2	23317	0.009%
US 50 & Lake Tahoe Blvd (signal)	1	1	2	33583	0.006%
US 50 & Midway (unsignalized)	2	0	2	33667	0.006%
US 50 & 3rd Street (signal)	1	1	2	33833	0.006%
US 50 & Al Tahoe Blvd (signal)	2	0	2	33833	0.006%
US 50 & Lyons (signal)	1	1	2	33833	0.006%
US 50 & Ski Run (signal)	1	1	2	33833	0.006%
US 50 & Tahoe Keys (signal)	1	1	2	33833	0.006%
US 50 & Tallac (signal)	0	2	2	33833	0.006%
US 50 & Truckee Drive (unsignalized)	1	1	2	33833	0.006%

Note1: Locations with more than one recorded bicycle or pedestrian accident, including accidents within 100 ftt of intersection

Note 2: Annual Average Daily Traffic Count taken from nearest intersection with available data. See "August Traffic Volumes", www.tiims.org.

Source: California Statewide Integrated Traffic Records System, and NDOT

Table 6. High accident locations in the Tahoe Region

Other data of interest include the type of location where accidents happen. As shown in Table 7, the majority of accidents occurred at unsignalized locations, or at mid-block crossings without a Class I/Shared-Use Path crossing. Only 17 percent of total accidents occurred at signalized intersections.

Location Type	Pedestrian			Bicycle			Total	
	Number	Percent		Number	Percent		Number	Percent
Public Street Intersection Unsignalized	51	52%		64	46%		115	49%
Public Street Intersection Signalized	16	16%		25	18%		41	17%
Midblock Location Without Class I/Shared-Use Path	27	28%		49	35%		76	32%
Midblock Location With Class I/Shared-Use Path	1	1%		1	1%		2	1%
Public Street Intersection Signalized With Trail Crossing	3	3%		0	0%		3	1%
Total	**98**	**100%**		**139**	**100%**		**237**	**100%**
Note: Intersection accidents include all accidents within 100 feet								
Source: California Statewide Integrated Traffic Records System, and NDOT								

Table 7. Accident location type

Since this data was collected, two marked shared-use path crossings have not been re-painted along the SR 89 West Shore Trail due to safety concerns. These locations could be good candidates for the installation of enhanced crossing treatments. It will be important to note any change in collision rates at these locations in the next update of the BPP if these crossings are not re-marked or otherwise enhanced.

Safety issues can be addressed in multiple ways. Intersections can be improved through enhanced pedestrian treatments. Another solution includes increasing driver, bicyclist and pedestrian awareness. Several states have incorporated bicycle and pedestrian safety into their driving tests. At Lake Tahoe, possible education activities, in addition to those shown in Table 3 on page 43 could include bicycle safety classes through Parks and Recreation Departments or Barton Health Extension. Bicycle rental and retail shops can distribute safety information and maps and encourage safe riding. In addition,
police need to enforce traffic laws for drivers, bicyclists and pedestrians, creating a safe atmo sphere for all.

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Section 5: Analysis of Demand / Bike Trail User Model

Actual use of the bicycle and pedestrian network is perhaps the most important indicator of the quality of the system, although biking and walking rates are also closely tied to land use, population density, and visitation. A quality biking and walking network to support surrounding land uses is critical to achieving increased biking and walking levels. This section analyzes both existing use and future demand for the system.

Population and Employment Trends

The following discussion contains estimates and forecasts of existing and future population and employment levels that can be used to determine trends and how they affect demand for bicycle and pedestrian facilities.

Existing Population and Employment

According to the 2000 census, the Region had an estimated total population of approximately 60,000 and an estimated total employment level of about 49,500. Table 8 shows updated population estimates by County based on the Tahoe Transportation Model.

Future Resident Population, Visitor Population, and Employment

According to the U.S. Census Bureau, the resident population of the Region increased by approximately 7,000 between 1990 and 2000. While the 2010 census data is not yet available, indicators such as school enrollment, gaming employment and traffic volumes indicate that population in the Tahoe Region has declined since 2000 (*Mobility 2030*). With the current recession (2009-2010) and a shift away from gaming as a primary economic driver, accurately estimating population and employment levels for the coming decade is difficult. A major focus of the TRPA Regional Plan Update, and of planning in general in Lake Tahoe, is on how to re-make the Region into a thriving residential and tourist attraction. Improved bicycle and pedestrian facilities play a strong role in this shift. "Smart growth" principles that support bikeable and walkable communities are central in this planning effort.

As part of the TRPA Regional Plan Update, several alternative planning scenarios are under study. The population, employment and travel estimates associated with these scenarios will be analyzed in 2010 and 2011.

Future growth and changes in population and employment are important to bicycle and pedestrian planning for two reasons. First, new developments often require upgrades to existing roadways, which may create an opportunity to construct new bicycle and pedestrian facilities. Second, changes in land-use patterns can make bicycling or walking more convenient.

Jurisdiction	Population	Percent of Total
City of South Lake Tahoe	22854	42%
El Dorado County (Tahoe portion)	9484	17%
Placer County (Tahoe portion)	8874	16%
Washoe County (Tahoe portion)	7765	14%
Douglas County (Tahoe portion)	5370	10%
Total:	54347	100%
Note: From population synthesizer in the Tahoe Transportation model based on Census 2000 population		

Table 8. Tahoe Region population, 2005 Census.

Bicycle and Pedestrian Travel Demand

Bicycle and pedestrian trips are not easily measured or projected for an entire region without extensive data collection efforts. While data is still somewhat limited, the TRPA has recently undertaken a monitoring program and development of a Bicycle Trail User Model. Both of these efforts increase understanding of current use of the bicycle and pedestrian network, and also help project future use as more links are completed. Available data includes the 2000 Census, user surveys and user counts, and Basin-wide mode share surveys.

Mode	Percent of Work Trips
Drive Alone	77%
Carpool	12%
Transit	2%
Bicycle or Walked	3%
Worked at Home	4%
Other	2%
Total	100%

Source: 2000 Census Journey-to-Work

Table 9: Existing journey-to-work mode split summary for the Lake Tahoe Region

Existing Demand

A common term used in describing demand for bicycle and pedestrian facilities is "mode share" or "mode split." Mode split refers to the percentage of people who choose to take different forms of transportation including walking, bicycling, public transit, or driving. From the 2000 Census, mode split information is available for the journey-to-work trip. Table 9 presents this information for the Lake Tahoe Region. As shown in Table 9, bicycle and pedestrian trips represent approximately 3 percent of home-based work trips for Lake Tahoe residents. These numbers are fairly consistent with mode splits across California and Nevada. However, many other tourist-based mountain resort areas have higher bicycle and walking rates, as shown in Figure 3 below.

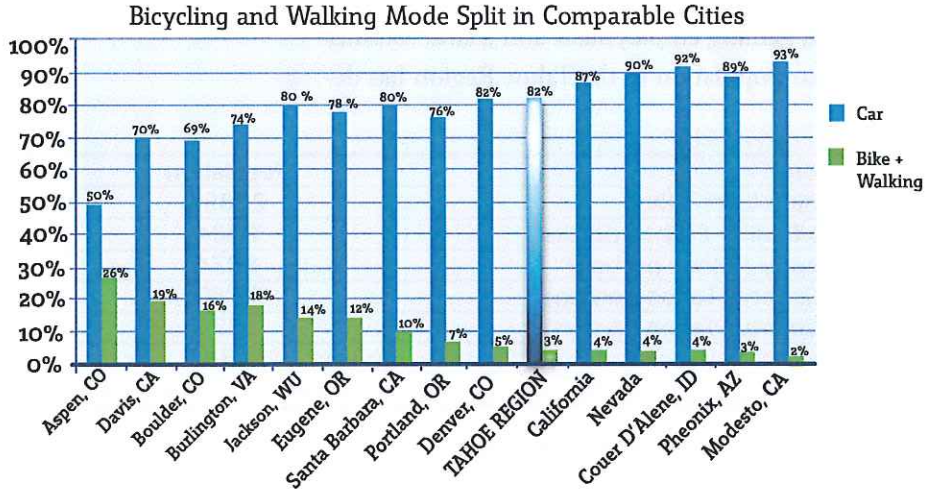

Figure 3. Bicycling and walking journey-to-work comparison among other regions and cities (2000 census)

As mentioned in the Benchmarks and Progress section, journey-to-work data does not tell the whole story for Lake Tahoe. According to local surveys, over 70 percent of visitors participate in walking activities while almost 40 percent bicycle on paved paths. TRPA mode split surveys of both residents and visitors show overall biking and walking rates to recreation and commercial areas to be about 13 percent in winter and 16 percent in summer.

Another way of understanding existing usage is to review user counts. While user counts can fluctuate annually based on external factors such as visitation, economy, or weather, they are still a useful tool for identifying popularity of the bicycle and pedestrian network. Combined with written user surveys, the TRPA/TMPO has begun to establish a body of knowledge on how and why people use the bikeways and sidewalks in Lake Tahoe.

Usage on the monitored facilities ranges from a low of around 200 passes per day on an on-street bicycle route to over 1,000 passes per day on popular shared-use paths. A sidewalk near Stateline, NV, attracts over 5,000 pedestrians on a busy summer day. A sum of the existing usage on all monitored facilities yields over 16,000 users per day.

Table 10 on the following page shows per day usage estimates by facility based on 2007 and 2009 TRPA/TCORP surveys and counts. Note that the totals are for Class I/Shared-Use Paths only. The counts need to be repeated in the coming years as part of TRPA's on-going monitoring effort.

			Estimated Peak Summer Daily Use (7AM to 7PM) on Facility											
			Total	Bicyclists				Walker/Other						
Facility	Location	Facility Type	Total	Total	Resident: Bike to Trail	Visitor: Bike to Trail	Drive to Trail	Total	Resident: Walk to Trail	Visitor: Walk to Trail	Drive to Trail	Daily Bicyclists on Adjacent Street	Total Daily Bicyclists in Corridor	Total Peak Hour Facility Use
North Shore Trail	State Recreation Area, E. of Lighthouse Center	Class I	606	377	186	146	45	229	113	89	28	51	428	91
North Shore Trail	Lake Forest, at N. End of Lake Forest Rd.	Class I	546	366	211	83	72	180	104	41	35	50	416	79
West Shore Trail	64 Acres, S Boundary	Class I	916	797	142	241	415	118	21	36	62	16	813	147
West Shore Trail	Kaspian, at Restrooms	Class I	792	640	344	181	114	152	82	43	27	14	654	106
Truckee River Trail	64 Acres, Near Bike Bridge	Class I	1,246	1,000	172	258	570	246	42	63	140	16	1,016	219
El Dorado Beach	US 50 150 feet east of Lakeview, on the bike path	Class I	693	541	303	202	36	152	85	57	10	–	–	120
Camp Richardson	Camp Richardson Resort sign	Class I	1,685	1,260	383	401	476	425	129	135	161	–	–	273
Elks Point Road	Northwest corner of Elks Point Road/U.S. 50	Class I	357	171	71	71	28	186	78	78	31	–	–	49
Incline Lakeshore Path	In front of Incline Beach	Class I	1,856	364	184	46	133	1,492	756	189	547	–	–	253
National Ave.	At TV Rec Area at National Ave./SR28	None	231	–	–	–	–	–	–	–	–	231	–	0
US 50 (1)	At Santa Fe Drive in Meyers (Sawmill Bike Path)	Class I	70	56	15	30	11	14	4	8	2	46	102	12
Helen Avenue Trail	Behind McDonalds Near South Y	Class I	183	117	–	–	–	66	–	–	–	–	–	16
Pioneer Trail	Trout Creek	Class II	293	161	–	–	–	132	–	–	–	0	161	26
Pioneer Trail	Stateline S. of US 50	Class II	611	70	–	–	–	541	–	–	–	300	370	61
SR 89	N. of US 50 (Alpina Café)	Class III	205	205	–	–	–	0	–	–	–	0	205	–
US 50	West of Stateline	Sidewalk	5,952	238	–	–	–	5,714	–	–	–	80	318	910
US 50	S. of Airport	None	–	–	–	–	–	–	–	–	–	27	27	–
Total: Existing Tahoe Region Class I Facilities			8,950	5,690	2,055	1,694	1,941	3,260	1,443	753	1,064	–	–	–
Source: Table A in Appendix B of the Impacts Memorandum, based in turn on MOST RECENT surveys and counts conducted by TCORP, TCPUD and TRPA.														
Note 1: Counts on the Sawmill Bike Path were conducted before the trail was officially open to the public. Note 2: Daily figures for many locations are estimates based upon limited available hourly counts, as shown in Table A of Appendix B of the Impacts Memorandum.														

Table 10. Estimated bike trail, lane, route, and sidewalk use on existing facilities

Future Demand/ Bicycle Trail User Model

Future bicycle and pedestrian trips will depend on a number of factors such as demographics, availability of well-connected facilities, and location, density, and type of future land development. For many years the TRPA has maintained a transportation model that estimates future vehicle trips based on different land use scenarios. The model does not estimate changes in bicycling and walking, however. Bicycling and walking are increasingly part of the solution to reduce greenhouse gas emissions, improve mobility, and create more community-oriented places. The ability to estimate the number of trips that will occur via these modes is also becoming more important. A few general models exist to predict bicycle path use, but most rely on journey-to-work data, and none are geared toward the unique tourist environment of Lake Tahoe. To inform both the TRPA Regional Plan and the BPP, a simple model was created that can predict both regional bicycling and walking rates and expected use on individual facilities in the Lake Tahoe Region. [1]

Using the Tahoe Bicycle Trail User Model, TRPA/ TMPO estimated future daily and annual use for a complete regional network, assuming high quality, well-maintained Class I/Shared-Use Paths on all major corridors in the Tahoe Region (Figure 4, next page). This yielded approximately 40,000 trips on the entire network on a peak summer day (2.5 percent of all trips), and almost 6 million annual trips assuming no winter path maintenance. The estimated 40,000 daily trips represent a four-fold increase over current bicycling and walking rates on Class I/ Shared-Use Paths.[2] Assuming the same rates of commuting that were reported in the 2007 TRPA/ TCORP surveys, approximately 40 percent (16,000) of these daily trips would be for commute purposes.

[1] For more details on how to use the Tahoe Bicycle Trail User Model, and for the interactive model itself, please see Appendix F. You may link to the interactive model documents from the Tahoe Metropolitan Planning Organization website, http://www.tahoempo.org.

[2] Current rates are probably higher than the 9,000 mentioned in Table 10 on the previous page, since not all existing paths were monitored.

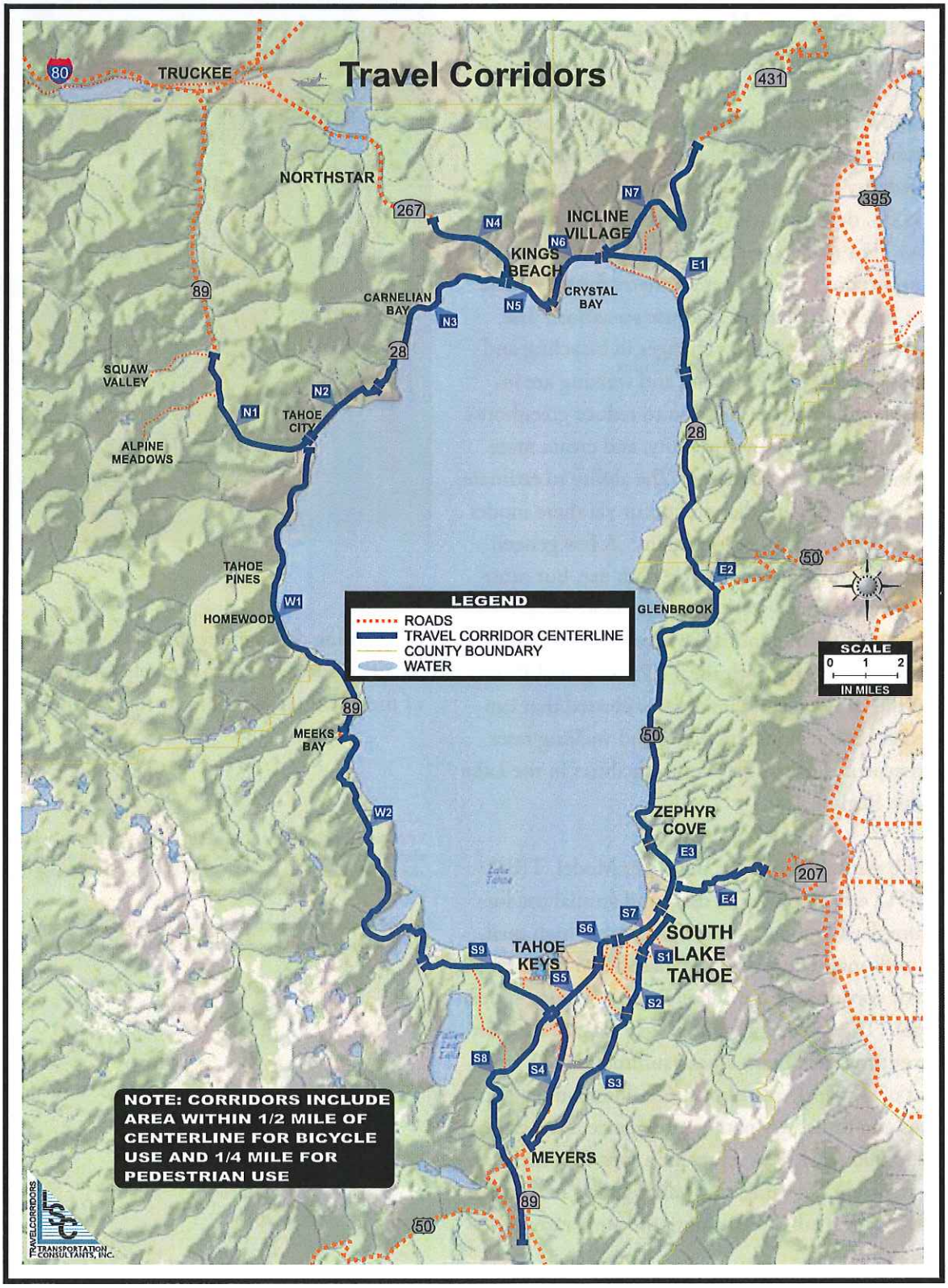

Figure 4. Bicycle Trail User Model corridors

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Section 6: Goals, Policies and Actions

The goals, policies, and actions of the BPP are intended to provide specific direction on how the Tahoe Regional Planning Agency, the Tahoe Metropolitan Planning Organization, and other local, state, regional, and federal agencies and organizations can improve bicycling and walking in Lake Tahoe.

THREE MAJOR GOALS OF THIS PLAN

GOAL 1: Complete a bicycle and pedestrian network that provides convenient access to Basin destinations and destinations outside the basin

GOAL 2: Raise awareness of the bicycle and pedestrian network and encourage safe and increased bicycling and walking

GOAL 3: Provide environmental, economic, and social benefits to the Region through increased bicycling and walking.

THE GOALS, POLICIES, AND ACTIONS IN THIS BICYCLE AND PEDESTRIAN PLAN FOLLOW THESE GUIDELINES:

Goals are a statement of a target, an ambition, or an end state toward which the TRPA and other agencies and organizations are working.

Policies provide direction for the TRPA and other agencies on how to meet the goals. The policies often describe critical activities in which local agencies are already engaged as part of their day-to-day work.

Actions are specific tasks that TRPA or other agencies will or could do to implement the goals and policies in the BPP. In some cases, actions refer to a one-time plan or project (such as the adoption of a change to the TRPA's code); in others, the action is on-going and will occur over a period of years. The actions specified here are generally new actions that should be undertaken to meet the benchmarks specified in the BPP.

Each goal is followed by several focused goals, which express various aspects of the goal in more detail. Each focused goal is accompanied by policies.

The goals of the Lake Tahoe Bicycle and Pedestrian Plan expand on the more general transportation goals of the Tahoe Regional Planning Compact (Public Law 96-551), the TRPA Regional Plan, and the TMPO Regional Transportation Plan, *Mobility 2030*. *Mobility 2030* identifies the following overarching vision for the future of transportation in the Tahoe Region:

Transportation Vision

An innovative multi-modal transportation system is in place that gives priority to viable alternatives to the private automobile, appeals to users and serves mobility needs, while improving the environmental and socioeconomic health of the Basin.

The role of the BPP is to provide the goals, policies and actions necessary to support the bicycling and walking aspect of this Region-wide vision. Several of the BPP goals, policies, or actions were derived from *Mobility 2030*, and these are indicated with "M2030."

Once the BPP is approved by the TRPA, the policies in this section will become part of the Regional Plan. These policies will be implemented through the Code of Ordinances.

Several policies and actions refer to recommendations or requirements that may vary with circumstances. An example is the amount of bicycle storage--such as racks or lockers--recommended with new development. In these cases, readers are referred to another section or appendix (such as Appendix A, Design and Maintenance Recommendations).

While many actions are currently underway or will be underway soon, not all actions are listed. The BPP highlights the highest priority actions.

Finally, the goals, policies and actions listed on the following pages are intended to help the TRPA and other agencies address the 5 "E's" promoted by the League of American Bicyclists in its "Bicycle-Friendly Communities" initiative.

The 5 "E's" represent a comprehensive approach to bicycle and pedestrian planning.

The 5 E's

Engineering	**Goal 1: Complete a bicycle and pedestrian network that provides convenient access to Basin destinations and destinations outside the Basin.**
Encouragement **Education** **Enforcement**	**Goal 2: Raise awareness of the bicycle and pedestrian network and encourage safe and increased bicycling and walking**
Evaluation	**Goal 3: Provide environmental, economic, and social benefits to the Region through increased bicycling and walking.**

Goal 1: Complete a bicycle and pedestrian network that provides convenient access to Basin destinations and destinations outside the Basin

Focused Goal: A complete bicycle and pedestrian network

Construct, upgrade, and maintain a complete regional network of bicycle and pedestrian facilities that connects communities and destinations. (M2030)

Policies

1.1 To the extent possible, accommodate all users, encompassing a wide range of abilities and travel objectives, by the bicycle and pedestrian network.

1.2 Encourage the adoption of the Lake Tahoe Bicycle and Pedestrian Plan by local agencies and work collaboratively to achieve implementation. (M2030)

1.3 All hard-surface bicycle and pedestrian facilities should conform to the most recent design standards adopted by Caltrans and the Nevada Department of Transportation (NDOT), except where unique standards have been established by TRPA in consideration of environmental conditions and regional consistency.

1.4 Prioritize constructing pedestrian and bicycle facilities in urbanized areas of the Region, facilities that increase connectivity of the bicycle network, and facilities that can be constructed concurrently with other projects. (M2030) (See Table 19, Prioritization Criteria, in Appendix B.)

1.5 Projects should go forward, regardless of where they are on the priority list, when an opportunity or eminent loss of an opportunity makes implementation favorable or necessary.

1.6 The bicycle and pedestrian network shall conform to the requirements of the Americans with Disabilities Act (ADA).

1.7 Design shared-use paths to support emergency vehicle access where possible.

1.8 Actively pursue funding for priority projects and programs.

1.9 To facilitate cost savings, coordinate project construction with the needs of utility providers, particularly water suppliers and communications providers. (Note: For a list of water suppliers, refer to Appendix C)

1.10 Pursue "experimental status" for unique designs from the Federal Highway Administration where adherence to published standards is not feasible, or where different standards would provide safety, economic, environmental, or social benefits.

Focused Goal: Bicyclist and Pedestrian Accommodation

Create and maintain bikeable, walkable communities through existing and new development. (M2030)

Policies

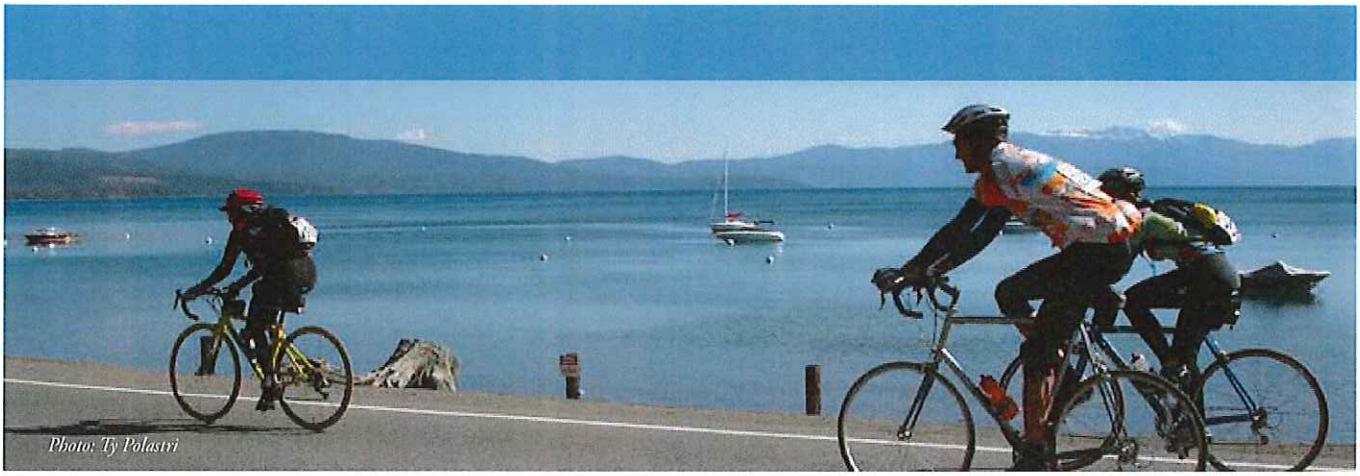
1.11 Include pedestrian and bicycle access equal to or greater than private vehicle access as a feature of new development and redevelopment projects proposed in proximity to major bicycle and pedestrian routes. (M2030)

1.12 Incorporate segments of the bicycle and pedestrian network into new and redeveloped commercial, tourist, multi-family, public service and recreation projects consistent with the Lake Tahoe Region Bicycle and Pedestrian Plan. Implementation of the facilities will be through construction, easements, or in-lieu fees as appropriate to the scale of development. (M2030)

1.13 Increase bicycle and pedestrian support facilities, such as sidewalks, bicycle racks, bicycle lockers, and bike-share programs at commercial and tourist centers, recreational areas, transit centers, lodging properties, and government buildings. (M2030) (See the Design and Maintenance Recommendations)

1.14 In addition to those bicycle and pedestrian facilities shown in the BPP, consider shared-use paths and sidewalks where a connection to the existing network is needed to provide improved safety or convenience.

1.15 Accommodate bicyclists and pedestrians as described in the Lake Tahoe Bicycle and Pedestrian Plan in all roadway improvement projects. Include specialized pedestrian crossing treatments, traffic calming, and bicycle-activated signals as appropriate to the scale of the project. (M2030) (See the Design and Maintenance Recommendations)



1.16 Construct, upgrade, and maintain pedestrian and Class II bicycle facilities (bike lanes) meeting AASHTO standards where feasible along major travel routes when the edge of roadway[1] is altered or improved. Where bicycle lanes are not feasible due to environmental or land ownership constraints, provide as much shoulder area as possible for safe bicycle passage.

[1] *curbline*

1.17 Implement a "Lake Tahoe Scenic Bike Loop" with the widest possible shoulder on the Lake side of the highways circling Lake Tahoe where bicycle lanes are not feasible or have not yet been constructed. (See the Design and Maintenance Recommendations)

1.18 Where shared-use paths intersect with driveways or roadways, give priority to bicyclists in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). (M2030)

1.19 Consider innovative shared roadway treatments (e.g. off-peak only parking/bike lanes that can be used for vehicles during peak flows, sharrows, etc.) in constrained areas where roadway is limited.

Focused Goal: Transit Integration

Integrate the transit, bicycle and pedestrian networks to provide seamless transitions and stimulate both increased transit ridership and increased use of the bicycle and pedestrian network. (M2030)

Policies

1.20 Provide secure bicycle storage on all transit vehicles and at all major transit stops and stations.

1.21 Maximize bicycle carrying capacity on new transit vehicles using best available technology. (M2030)

1.22 Prioritize sidewalk improvements that provide pedestrian access to transit stops
(See Table 19, Prioritization Criteria, in Appendix B.)

Focused goal: Maintenance

Maintain the bicycle and pedestrian network to a high standard that encourages ridership and improves the safety of all users. (M2030) (See Design and Maintenance Recommendations section)

Policies

1.23 Where feasible, maintain the year-round use and condition of identified sidewalks and bike facilities. (M2030) (Note: See Figure 12, Shared-Use Path and Sidewalk Maintenance Map, in Appendix B).

1.24 Pursue innovative funding that covers the costs of on-going and long-term maintenance and that increases as the mileage of facilities to be maintained increases. (See Appendix I, Maintenance Memo)

1.25 Require a maintenance plan before issuing a permit or funding for any bicycle and pedestrian facilities. The maintenance plan shall specify a strategy for long and short-term funding for the life of the project.

1.26 Up to 25 percent of a Air Quality Mitigation Funds may be set aside for operations and maintenance of completed or future EIP projects, including EIP bicycle path projects.

1.27 Consider creative funding mechanisms for bicycle path and sidewalk maintenance. Examples include, but are not limited to: non-profit maintenance partnerships, bicycle registration programs, renting conduit under shared-use paths to utility companies, or forming business improvement districts (See Appendix I, Maintenance Memo)

1.28 Encourage jurisdictions and private property owners to minimize maintenance costs by consolidating maintenance responsibilities. (See Appendix I, Maintenance Memo)

1.29 Design and construct all portions of the bicycle and pedestrian network to reduce long-term maintenance costs and encourage efficient operation. (see Design and Maintenance Recommendations)

1.30 Maintain and upgrade infiltration devices along paths as appropriate over time.

1.31 Encourage jurisdictions and roadway agencies to snow-clear, sweep, and stripe bicycle routes where needed before major cycling events.

5-Year Supportive Actions for Goal 1

The following actions should be pursued within a 5-year time frame to support Goal 1. The actions are organized by responsible party.

TRPA/TMPO Actions:

- Collaborate with local agencies and organizations to implement the BPP, focusing on high priority projects. Facilitate workshops to highlight new BPP elements.
- Incorporate priority BPP projects into the Regional Transportation Plan (RTP), the Environmental Improvement Program (EIP), the TMPO Transportation Improvement Program (TIP), and the Statewide Transportation Improvement Program (STIP).
- Update the TRPA Code of Ordinances to provide detailed specifications on bicycle and pedestrian accommodation in new and re-development and roadway projects.
- Incorporate Appendix A, Design and Maintenance Recommendations, Appendix B, Maps and Project Lists, and Goal 1 and associated policies into TRPA project review.
- Conduct annual training with TRPA permit review staff and Memorandum of Understanding (MOU) partners on how to incorporate the BPP into development project design.
- Support research on the impact of raised boardwalks on vegetation and SEZ function, with a goal of reducing coverage mitigation requirements for boardwalks if they are shown to have reduced impacts compared to hard coverage.
- Meet with NDOT, Caltrans and local jurisdictions to develop plans to incorporate striping and regular maintenance of bicycle lanes and wide shoulders into all roadway improvement projects, including routine maintenance.

State and Local Jurisdiction Actions

To meet Goal 1, state and local jurisdictions could consider undertaking the following actions:

- Identify specific locations in need of pedestrian crossing improvements and determine appropriate crossing treatment. Include specific crossing improvement locations as projects on the "proposed project list."

- Maintain an up-to-date inventory of the condition of sidewalks and paths to facilitate budgeting for future repair work and to prioritize improvements. (Local jurisdictions)

- Consider ordinances that address snow storage on bicycle paths, such as specifying a "use period" when bicycle paths must be cleared of snow. (Local jurisdictions)

- Work with property owners responsible for sidewalk maintenance to establish a plan of action for restoration and on-going maintenance of sidewalks. (Local jurisdictions)

- Enforce sidewalk maintenance by responsible property owners. Where enforcement is not possible, develop voluntary maintenance programs with positive publicity for participants. (Local jurisdictions)

Goal 2: Raise awareness of the bicycle and pedestrian network and encourage safe and increased bicycling and walking.

Focused Goal: Education and Outreach

Cultivate enthusiasm for bicycling and walking at Lake Tahoe and awareness of the bicycle and pedestrian network through education, outreach, and signage. (M2030)

Policies

2.1 Encourage and support all Basin communities to seek recognition as League of American Bicyclists' "Bicycle Friendly Communities."

2.2 Provide clear and consistent signage to help bicyclists identify the best routes to reach their destination safely, quickly, and easily.

2.3 Use signage and traffic control devices consistent with the Manual on Uniform Traffic Control Devices (MUTCD) and those established by federal, state, and local standards to ensure a high level of safety for bicyclists, pedestrians, and motorists.

2.4 Promote National "Bike to Work" and International "Walk to School" days and other events to encourage biking and walking. (TRPA, local jurisdictions, local advocacy groups)

Focused Goal: Enforcement

Encourage safe bicycling and walking through enforcement of traffic and parking violations.

Policies

2.5 Encourage all state and local law enforcement agencies to cite drivers, cyclists, and pedestrians who create unsafe and unlawful cycling and walking conditions.

2.6 Encourage all state and local law enforcement agencies to enforce parking restrictions at recreation destinations, especially where nearby bicycle or pedestrian facilities provide a convenient alternative to driving.

5-Year Supportive Actions for Focused Goal 2

The following actions should be pursued within a 5-year time frame to support Goal 2. The actions are organized by responsible party.

TRPA/Multiple Entity Actions:

- Develop a Region-wide bike route numbering or naming system consistent with local wayfinding signage and the U.S. Bicycle Route System that directs cyclists onto the best possible route for bicycle travel to their destination. Consider naming routes after historic Washoe Tribe routes where information is available. (TRPA, local jurisdictions)

- Meet with local school officials to develop safe routes to schools programs. Help apply for funding where needed. (TRPA, TMPO, CA & NV Safe Routes to Schools Coordinators, LTBC, local jurisdictions, health departments, others)

- Convene a multi-agency group that meets with local law enforcement and district attorneys to provide training updates on applicable bicycle and pedestrian laws, determine what enforcement actions will be supported, and encourage increased enforcement that supports BPP goals. (TRPA)

- Develop employer incentive programs to encourage biking and walking to work. (TRPA)

- Conduct public workshops on "Complete Streets" and new strategies for land use and transportation integration.

- Continue and expand the current bicycle education program for school children. Coordinate efforts by the California Highway Patrol, Nevada Highway Patrol, the state DOTs and local law enforcement agencies with Safe Routes to School and Bike Week activites.
  (Local schools, law enforcement, DOTs, LTBC)

- Continue and expand adult bicycle education programs through the local colleges, parks and recreation departments or other local agency departments that teach adults how to ride defensively. (Bicycle advocacy groups, local parks and recreation departments, adult educational institutions)

- Include bicycle and pedestrian safety information as part of visitor packages offered through the visitor centers, hotels, resorts, and bicycle rental shops. (TRPA, LTBC, chambers of commerce)

- Support distribution and updating of Lake Tahoe Bike Trail Maps. (TRPA, local jurisdictions)

- Conduct outreach to minority and non-English speaking communities about safe bicycling and walking practices. (TRPA, local jurisdictions, LTBC)

Local Jurisdiction Actions

To meet Goal 2, local jurisdictions could consider undertaking the following action:

- Integrate bicycle route numbering or naming system into wayfinding signage plans.

Goal 3: Provide environmental, economic, and social benefits to the Region through increased bicycling and walking.

Focused goal: Reduced Environmental Impacts

Reduce vehicle miles traveled (VMT), emissions, erosion, runoff, and other environmental impacts through careful implementation of the bicycle and pedestrian network.

Policies

3.1 Minimize roadway capacity or parking facilities where they can be effectively replaced by transit, bicycling and/or walking facilities.

3.2 Seek partnerships and opportunities for environmental restoration in conjunction with BPP facility implementation.

3.3 Include design features, landscaping, signage, or barriers on shared-use paths through sensitive environmental areas to discourage pets and humans from leaving the path.

3.4 Incorporate Best Management Practices (BMPs) into bicycle and pedestrian facility design to filter all sheet flow associated with project improvements.

Focused goal: Evaluation

Attain bicycle and pedestrian goals and environmental thresholds through performance measures consistent with the Regional Transportation Plan and the Regional Plan for the Lake Tahoe Basin.

3.5 Conduct biannual monitoring of the bicycle and pedestrian network to track use levels over time. This data will be provided to local operational authorities to aid in prioritizing construction, maintenance and enforcement.

3.6 Develop measures for tracking bicycling and walking impacts on local economies. (M2030)

3.7 Track bicycle and pedestrian accident rates and identify high-priority locations for safety improvements with each update of the BPP.

5-Year Supportive Actions for Goal 3

The following actions should be pursued within a 5-year time frame to support Goal 3. The actions are organized by responsible party.

TRPA/TMPO Actions:

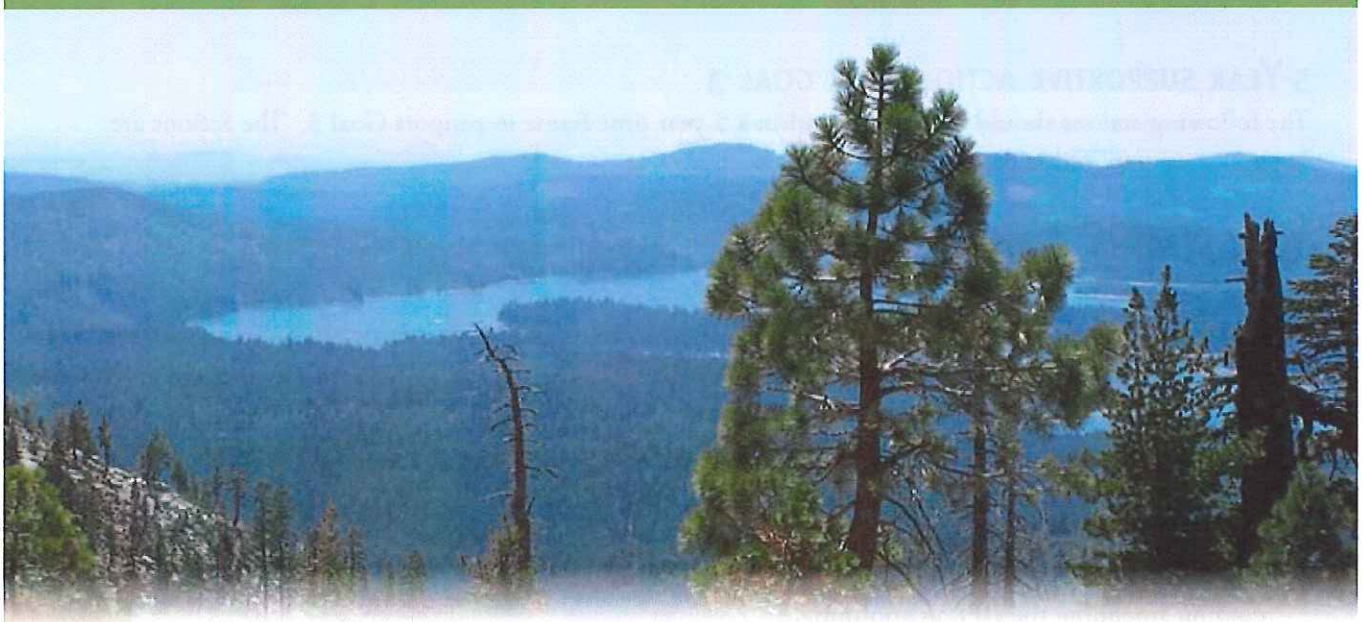
- Conduct non-auto mode share surveys every four years to determine the change in bicycling and walking as a portion of total mode split Region-wide. (TRPA)
- Report on the results of the monitoring program with every update of the BPP, and through the biannual TMPO Transportation Monitoring Report. (TRPA)
- Evaluate monitoring and act on results to further advance the policies contained herein, up to and including amending the BPP, as appropriate.
- Update project maps and lists every 2 years. Provide an annual progress report to interested groups, such as the Lake Tahoe Bicycle Coalition or TRPA/TMPO Governing Board.
- Update the entire BPP every 5 years, emphasizing improvements called for in survey/monitoring reports.
- Assist employers in meeting requirements associated with TRPA Code Chapter 97 "Employer-Based Trip Reduction Program."

Local Jurisdiction Actions (on-going)

To meet Goal 3, local jurisdictions could consider undertaking the following actions:

- Provide plastic doggie-bags at strategic locations along popular paths to encourage path users to pick up after their pets.
- Provide for trash receptacles and associated trash collection along paths.

Section 7: Proposed Network



This section describes the proposed bicycle and pedestrian network for the Region, including paths, lanes, routes and sidewalks. This network was developed based on previous planning efforts and direct input from the public and interested agencies and groups.

All proposed alignments identified in the BPP are conceptual, with only the beginning and the end of the proposed path being project specific. As projects go into detailed planning and design, more precise alignments will be developed. For more information on how projects progress from a line on the map to a constructed facility on the ground, see Section 9, Implementation, page 84.

Proposed shared-use paths, bicycle lanes, bicycle routes, and sidewalks

Recognizing the needs of different bicycling user groups, the proposed network focuses on providing both a strong off-street network of shared-use paths and sidewalks as well as on-street bicycle lanes on all major highways and collectors. Where bicycle lanes cannot be constructed due to topographic constraints, shoulder widening and signage are called for.

New signed bicycle routes are included on the project list, particularly in South Lake Tahoe. Bicycle routes can be implemented quickly and easily. With good directional signage, these routes can provide an excellent network, particularly for bicycle commuters.

New sidewalks are called for in all Lake Tahoe communities, but particularly in South Lake Tahoe and Kings Beach. Figure 11, Existing and Proposed Bicycle and Pedestrian Network, in Appendix B shows proposed sidewalks where sidewalks are currently missing or in extremely poor condition.

Maps and Project Lists

The combined existing and proposed bicycle and pedestrian network map is shown in Figure 11, in Appendix B. Table 18, also in Appendix B, shows the full list of proposed projects, including project mileage and project costs. The proposed network includes a total of 162 miles of new bicycle and pedestrian shared-use paths, bicycle lanes, bicycle routes, and sidewalks, and 80 miles of non-standard facilities (Table 11). A breakout of proposed mileage by jurisdiction is shown in Table 11, below.

To facilitate timely construction of the network, the complete project list and map show all currently planned projects. While it is highly unlikely that these projects will all be constructed within the next twenty years, including them on the list highlights where important linkages are needed, and makes projects eligible for funding should an opportunity arise to construct. The proposed network includes all Environmental Improvement Program (EIP) bicycle and pedestrian projects. However, not all of the proposed projects in the BPP are EIP projects.

All projects on the BPP proposed list underwent an initial screening process. Projects that are included on the proposed list are determined to be important links in the network and feasible to construct. See Table 12, below, for the screening criteria. Projects that were proposed but that were screened out are listed on the "Proposed Projects, Screened Out" list (Table 21, Appendix B).

Jurisdiction	Class I Path	Class II Bike Lane	Class III Bike Route	Sidewalk	Other (1)	Total
El Dorado County, CA	22	9	14	0	39	84
City of South Lake Tahoe	8	10	8	7	0.1	33
Placer County, CA	16	15	1	4	28	62
Douglas County, NV	14	1	1	2	15	34
Washoe County, NV	12	12	0	6	10	40
Carson City, NV	4	0	0	0	5	9
Total	**76**	**47**	**24**	**20**	**98**	**262**
Note 1: Includes shoulder widening, path upgrades, and Bicycle Ferry						

Table 11. Length of Proposed Network by Class

For a project to be included in the "proposed project list" of the Bicycle and Pedestrian Plan, at least one of the following must be true:		
Number	Criteria	Explanation
1	Needed because of high existing or predicted use and does not duplicate another route	Existing or predicted use to be verified using the TRPA Bicycle and Pedestrian Use Models. The threshold for "high" use is 100 or more users on any day (roughly 8 users per hour). Of the corridors monitored in the Tahoe Basin, the 20% with the lowest usage had under 100 riders per day.
2	Planning or design already started	
3	Can be built concurrently with another project	
4	Provides safe route to school	A safe route to school may be a route identified in a school's "Safe Routes to School" plan, or, in the absence of a plan, any route within a 1-mile radius of a school.
5	Fills a gap in existing network	Does the project connect two facilities that were not linked before? Does the project fix a section that deterred pedestrians and bicyclists from using another, complete path, for example due to lack of maintenance? Does the project upgrade a section that was not built to current design standards?
And all of the following must be true:		
6	There is reasonable belief that right-of-way (ROW) acquisition is possible	
7	Environmental impacts can be mitigated	
8	Design can meet Federal, State, and/or Tahoe-specific design standards	As specified in the "Design Guidelines" section of the BPP, AASHTO, MUTCD, and the California Highway Design Manual.

Table 12. Screening Criteria

Prioritized Project List

The BPP includes a limited prioritized project list, in addition to the full list of projects. While the prioritized list is by no means cast in stone, it should serve as a general guide for local jurisdictions, TRPA/TMPO staff, granting agencies, and local advocacy groups as to which projects best serve the stated needs of local communities. Recognizing funding limitations, it is not mandated to build the paths in the BPP by a certain date, nor in the order in which they appear on the list. In fact, there are certain instances when projects that are not high on the prioritized list should be constructed ahead of those that are:

- When an opportunity, such as a road widening or re-paving, makes implementation favorable
- When an eminent loss of an opportunity, such as the sale of a right-of-way, makes implementation necessary
- When resolution of a major obstacle, such as access to flood channel right-of-way, makes implementation necessary

The prioritization process was developed over time with input from the local jurisdictions and the public. TRPA/TMPO developed a set of prioritization criteria and asked public workshop attendees to weight these criteria at two public workshops. These weights, with some adjustments, were applied to eight prioritization criteria for each individual project. TRPA staff and the local jurisdictions then scored each project and sorted by highest score. The public's weighting can be seen in Appendix H, Comments on Draft BPP, on the TMPO website at www.tahoempo.org.

Since jurisdictions are likely to work simultaneously on projects that are at different stages of development, the TRPA/TMPO split projects into two categories:

- "Planning-Level"--projects that have not undergone any level of planning to date
- "Design-Level"--projects for which some level of planning has already been started.

The prioritized list includes the top six-eight projects from each of the jurisdictions around the Lake: Douglas County, South Lake Tahoe, El Dorado County, TCPUD, NTPUD, and Washoe County. Projects on the prioritized list are incorporated by reference into the RTP, which makes them eligible to move onto the annual Federal Transportation Improvement Program (FTIP) list.

Criteria for prioritizing proposed projects:

- **Closing gaps** – Closing gaps between existing facilities improves functionality of the existing network.
- **Estimated Use and Cost/Benefit** -- High-priority bicycle and pedestrian facilities should reflect use levels that are commensurate with the level of investment required for construction and maintenance. Predicted use levels were based on the Bicycle Trail User Model (Appendix F). For a full explanation of how predicted use was developed for project prioritization, see Appendix K, Use Estimation (www.tahoempo.org).
- **Improves network** – Proposed facilities should not closely parallel existing facilities, unless they are providing for a different user group.

- **Multi-modal connectivity** – New facilities should support transit and walking modes.

- **Safety** - The network should provide the highest level of safety possible while eliminating major safety concerns such as narrow roadways. Projects that can address a location where accidents have occurred receive higher points.

- **Connectivity** - The network should provide connections to major activity centers, multimodal transfer locations, and to routes that provide access to neighboring counties. This is captured through the "Estimated Use" criterion.

- **Environmental Impact** – While environmental impacts must be mitigatable for projects to pass the initial screening, projects that are in more sensitive areas will face more challenges. Projects that cross more than 5 percent of stream environment zones, are within a wildlife habitat buffer, or have other known environmental issues receive negative points.

- **Timeline (design-level projects only)** – Projects which are further along in the planning and design process receive higher scores, recognizing the investment in time and resources.

- **Regional Equality** – The network should provide balanced access from all portions of the Region's population centers for both commuting and recreation routes.

Table 19 in Appendix B shows the detailed prioritization criteria and weights. Table 20 in Appendix B shows the scored, prioritized project lists.


Photo: Ty Polastri

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Section 8: Cost and Funding Analysis

Implementation of the proposed bicycle and pedestrian network will require funding from local, state, and federal sources and coordination with multiple agencies. To facilitate funding efforts, this section presents conceptual construction cost estimates for the proposed network.

Cost Estimates

Table 14, below contains a unit cost summary for the construction of bicycle and pedestrian facilities in the Region. These cost estimates are based on actual costs experienced in the Region and similar communities in California and Nevada. However, they should be used only to develop conceptual construction cost estimates. More detailed estimates should be developed after preliminary engineering as individual projects advance to implementation.

The total cost of the network is higher than that expected for bicycle facilities in communities with level terrain. Higher unit cost estimates were used given the unique topographic characteristics and environmental constraints of the Region.

A summary of the network costs by jurisdiction and type of facility is presented in Table 15 on the following page. Conceptual construction cost estimates for individual routes are contained in Table 17, Proposed Bicycle and Pedestrian Project List in Appendix B. Conceptual construction costs for Lake Tahoe's proposed network were based on the highest unit costs for Class II/Bike Lane facilities, the moderate unit costs for Class I/Shared-Use Path, and the low unit costs for Class III/Bike Route facilities. This approach results in unit costs for Class II/Bike Lanes that include some roadway widening. Additionally, certain unit costs were adjusted based on known project costs.

Facility Type	Estimated Cost per Mile
Class III/Bike Route	
signing only	$5,000
signing plus minor road improvements	$40,000
signing plus moderate roadway improvement	$150,000
signing plus major roadway improvement	$300,000
Class II/Bike Lane	
signing and striping only	$5,000
signing and striping plus minor roadway improvement	$50,000
signing and striping plus moderate roadway improvement	$300,000
signing and striping plus major roadway improvement	$500,000
Class I/Shared Use Path	
construct asphalt path on graded right of way with drainage and new sub-base	$1,000,000
construct asphalt path on un-graded right of way with drainage and new sub-base	$2,000,000
construct asphalt path with some boardwalking and/or bridges	$4,000,000
Sidewalk	
Five-foot wide sidewalk	$1,000,000

Table 14. Conceptual unit cost estimates for bikeway construction

Jurisdiction (Lake Tahoe portion)	Class I/Shared Use Path	Class II/Bike Lane	Class III/Bike Route	Sidewalk	Other (1)	Total
El Dorado County, CA	$50,196,100	$6,098,109	$69,694	$0	$42,372,584	$98,736,487
City of South Lake Tahoe, CA	$19,064,561	$35,898,343	$476,519	$38,344,179	$200,000	$93,983,601
Placer County, CA	$36,186,317	$3,375,957	$4,201	$10,240,513	$16,734,677	$66,541,665
Douglas County, CA	$50,038,538	$641,922	$3,240	$11,845,721	$15,604,125	$78,133,546
Washoe County, CA	$43,600,894	$8,851,323	$0	$10,797,488	$5,966,526	$69,216,232
Carson City, NV	$16,014,259	$0	$0	$0	$0	$16,014,259
Total	**$215,100,670**	**$54,865,653**	**$553,653**	**$71,227,902**	**$80,877,912**	**$422,625,790**
Note 1: Includes shoulder widening, path upgrades, and Bicycle Ferry						

Table 15. Total cost of proposed network by jurisdiction

Table 15 shows a total cost for constructing the proposed network of approximately $423 million. This total consists of approximately $163 million for new facilities in Nevada and approximately $259 million for new facilities in California.

The Tahoe Scenic Bike Loop was assigned the cost of a Class III/Bicycle Route in places where there is currently no facility. This is most likely the first step in creation of the route. In places where there is already a Class III/Bicycle Route, or where the responsible agency is already planning a Class II/Bike Lane, the bicycle lane cost was assigned.

Funding Strategy

Much of the existing bicycle and pedestrian network was constructed by local agencies. With an approximate total length of 98 miles, the existing network represents a substantial investment. To add approximately 95 miles of high priority facilities to this network will require an investment close to $200 million, which equates to an annual cost of $10 million per year over 20 years in constant 2009 dollars (Table 20, Prioritized Project List, in Appendix B).

Although some of the proposed network will be constructed as part of future development and roadway projects, a substantial portion of the total cost will rely on public funding. Descriptions of and links to known available funding sources, including state bond funding, federal planning grants, and smaller grants such as the California Bicycle Transportation Account and the National Scenic Byways Program, are provided in Appendix E, Funding Memo.

Reasonably foreseeable revenue sources are identified in Table 16, on the following page. All priority projects which are to be carried over from the BPP to the RTP must have an identified reasonably foreseeable revenue source.

The following options should be considered by the Region for fulfilling the funding commitment necessary to complete and maintain the proposed network:

- Prepare joint applications with other local and regional agencies for competitive funding programs at the state and federal levels
- Use existing funding sources as matching funds for state and federal funding
- Include bicycle and pedestrian projects in local traffic impact/mitigation fee programs
- Include proposed bikeways as part of roadway projects involving widening, overlays, or other improvements.

Local jurisdictions should also take advantage of private contributions, if appropriate, in developing the proposed network. This could include a variety of resources such as volunteer labor during construction, or monetary donations towards specific improvements.

Local Sources	Assumptions	Type	2010-2012	2013-2017	2018-2022	2023-2030
North Lake Tahoe Resort Association Transient Occupancy Tax	Approximately 1/3 of tota	planning, cons	$3,000,000	$7,000,000	$7,000,000	$10,000,000
Tahoe-Douglas Transportation District Transient Occupancy Tax			$30,000	$50,000	$50,000	$50,000
Washoe County Regional Transportation Commission	$50K per year		$150,000	$250,000	$250,000	$400,000
TRPA Air Quality Mitigation Fund	$250K per year during recession, increasing to $500K/year then to $750K/year in later years		$750,000	$2,500,000	$3,750,000	$6,000,000
Placer County Development Fees	$50K per year during recession, increasing to $100K/year		$150,000	$500,000	$500,000	$800,000
Other Local Sources	$855K/year		$2,565,000	$4,275,000	$4,275,000	$6,840,000
State Sources	**Assumptions**		**2010-2012**	**2013-2017**	**2018-2022**	**2023-2030**
California Tahoe Conservancy		planning, cons	$3,227,000	$4,000,000	$4,000,000	$8,000,000
Nevada Bond Sales (Question 1)		planning, cons	$4,000,000			
State Transportation Improvement Program (STIP)	50% of allocation	construction	$1,000,000	$1,000,000	$1,000,000	$1,000,000
California Bicycle Transportation Account			$250,000	$500,000	$500,000	$800,000
Recreational Trails Program	$200,000 every two years		$200,000	$400,000	$600,000	$400,000
Safe Routes to Schools			$50,000	$150,000	$150,000	$200,000
Transportation Planning Grant program	$200,000 every two years		$200,000	$400,000	$400,000	$800,000
Other State Sources	$500K/year		$1,500,000	$2,500,000	$2,500,000	$4,000,000
Federal Sources	**Assumptions**		**2010-2012**	**2013-2017**	**2018-2022**	**2023-2030**
Federal Lands Highway Program (1/2 percent)			$2,500,000	$2,500,000	$2,500,000	$2,500,000
Congestion Mitigation and Air Quality Program (CMAQ)	60% for bike/ped		$744,000	$1,500,000	$1,500,000	$1,500,000
Regional Surface Transportation Program	60% for bike/ped		$650,000	$1,320,000	$1,320,000	$1,320,000
National Scenic Byways Program		planning, cons	$400,000	$1,000,000	$400,000	$1,000,000
Transportation, Community, and System Preservation (TCSP)			$50,000	$100,000	$100,000	$200,000
Alternative Transportation in Parks and Public Lands (ATPPL)			$0	$250,000	$250,000	$250,000
Transportation Enhancement (TE)			$200,000	$200,000	$200,000	$200,000
Other Federal Sources	$500K/year		$1,500,000	$2,500,000	$2,500,000	$4,000,000
Private or Concurrent Sources						
Caltrans			$12,000,000	$12,000,000	$12,000,000	$12,000,000
Other Private or Concurrent Sources	$550K/year		$1,650,000	$2,750,000	$2,750,000	$4,400,000
Total			**$36,766,000**	**$47,645,000**	**$48,495,000**	**$66,660,000**
Total to 2030						**$199,566,000**
Note: Not all revenue sources can be used for all projects.						

Table 16: Bicycle and pedestrian facility funding sources for the Lake Tahoe Region

Section 9: Implementation

The previous sections have described the process for identifying needed bicycle and pedestrian improvements, and have highlighted the conceptual alignments of new facilities. Physical implementation of projects is the next step, and can face significant obstacles. These obstacles include securing funding and right-of-way, working with property owners to come to agreement on route alignment and property acquisition, and meeting environmental standards and other permitting requirements. In Lake Tahoe, the mountain topography and complicated regulatory environment can make implementation of projects difficult.

The following pages describe the basic steps needed to implement projects in Lake Tahoe. The other sections in the BPP offer some strategies for overcoming obstacles, such as funding.

Project Implementation

The primary responsible implementing entities for the bicycle and pedestrian facilities in Lake Tahoe are the local jurisdictions and other special districts. This includes the City of South Lake Tahoe, El Dorado County, Placer County, Douglas County, Carson City, Washoe County, California State Parks, Nevada Division of State Parks, United States Forest Service, Tahoe City Public Utility District and North Tahoe Public Utility District. The California Tahoe Conservancy (CTC), while administering major funding sources, is not typically a project implementer. In the case of the South Tahoe Greenway, however, the CTC is implementing planning, design, and environmental review. Other project implementers include Caltrans, NDOT, and private developers, who may construct projects from the BPP concurrently with roadway improvements, new, or re-development.

The flow-chart in Figure 5, below shows how bicycle and pedestrian projects are implemented. Project implementers usually start by pursuing planning funds for high priority projects listed in the BPP. Next, they conduct initial feasibility, design, property acquisition (where needed) and environmental review of the project, including necessary public outreach. During this time they also pursue funding for the construction of the project. After these steps are complete, the implementer submits the project to TRPA and other local agencies for the necessary permits. Once construction funds are secured, construction begins. After project completion, the implementing agency is responsible for maintaining the project over time, unless maintenance agreements have been made with other agencies.

Funding for different stages of project planning, construction, and maintenance are available from different sources. Planning funding is often available from federal and state sources, while construction funding is most often found from state sources, such as California and Nevada bond measures. Maintenance funding is almost never available from state and federal sources, and must be obtained at the local level, through local sales taxes, assessment districts, or other local sources. For more details on funding sources, see Appendix E, Funding Memorandum.

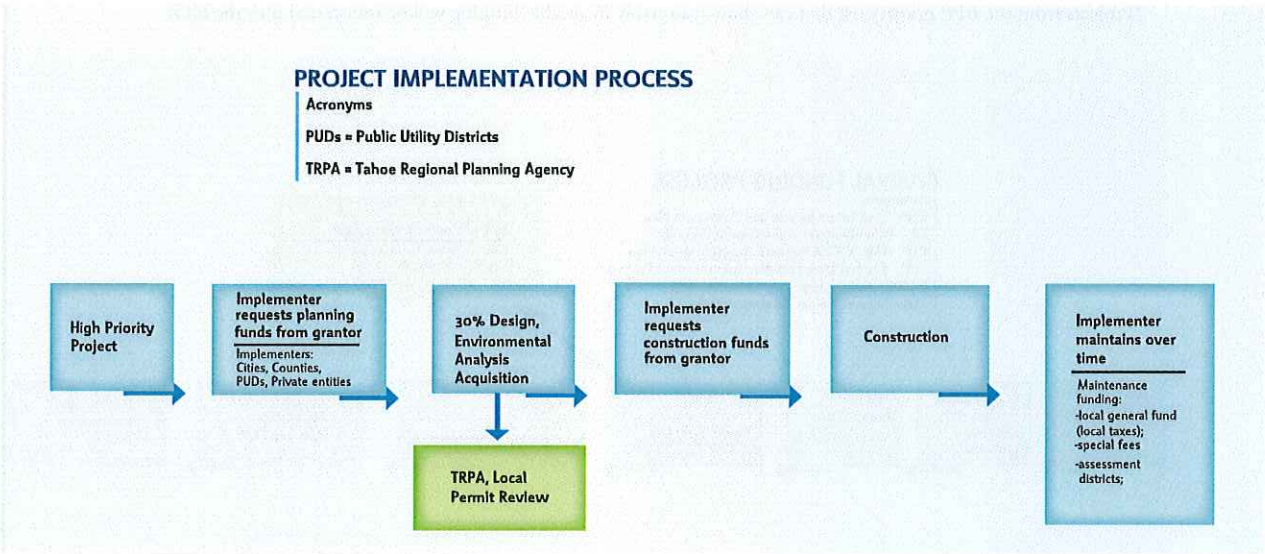


Figure 5.

Federal Funding Process

Most grant sources require that bicycle and pedestrian projects be listed in an approved bicycle or pedestrian plan before they can be eligible for funding. This can be a stand-alone bicycle and pedestrian plan, or a bicycle and pedestrian element of a regional transportation plan. Some funding sources, particularly federal sources, also require that projects be listed in other plans, such as the Lake Tahoe Environmental Improvement Program (EIP), and the TMPO Regional Transportation Plan (*Mobility 2030*). The BPP priority project list will directly populate the RTP[1] and the EIP project lists. Amendments to the BPP priority project list will trigger amendments to the corresponding documents for consistency.

The RTP is a 20-year, financially-constrained document. Therefore, the RTP must show reasonably projected revenues for all projects. This rule of financial constraint helps planning and implementing agencies to be realistic about the sequencing and prioritization of projects, and can spur agencies to increase funding efforts. The RTP is updated every four years, but can be amended as needed.

Once a project has received federal funding, it is listed in the Federal Transportation Improvement Program (FTIP). This is the document that programs, or commits, specific funds to specific transportation projects. This commitment is particularly important for flexible funding sources, which can be used for multiple projects. The FTIP is the authorization to use federal funds, not to exceed the amount programmed. A project cannot commence use of federal funds unless it is listed in the FTIP. The FTIP is a four-year funding document, but it is updated every two years, and amended as needed. Figure 6, below shows the federal funding process.

[1]Projects from the BPP priority list that can show reasonably forseeable funding will be transferred into the RTP.

Figure 6.

TRPA Project Review Process

Part of the project implementation process includes project review for consistency with local and regional ordinances. The TRPA is responsible for ensuring that projects are consistent with the Regional Plan by reviewing them and issuing permits for construction. In addition, projects--particularly development projects--may need permits from local jurisdictions to ensure consistency with local policies and building codes.

Depending on the scale of the project, implementers complete between 30 and 90 percent design and the necessary environmental review as required by TRPA, California Environmental Quality Act (CEQA), and the National Environmental Protection Act (NEPA). Early coordination with permitting entities is recommended to identify potential issues in the preliminary design phase, preventing costly changes later. Figure 7 below illustrates this process. The process is similar for varying types of projects, including bicycle paths, new development, or roadway improvement projects. Some projects are exempt from project review because the activity is routine or has a minor impact. Road overlays often fall into this category.
Once TRPA has received the project application, staff reviews the project for consistency with the Regional Plan, including the BPP. In the case of new, redevelopment, or roadway improvement projects, staff reviews projects to ensure that they incorporate elements of the BPP, such as providing appropriate levels of bicycle parking, and constructing or maintaining proposed or existing facilities.

Depending on the scale of the project, staff may either approve the project, or take it to the Hearings Officer or Governing Board for approval. Requirements for when a project must go to the Hearings Officer or the Governing Board are explained in the TRPA Code of Ordinances, Chapter 4. Projects that go to the Hearings Officer or Governing Board require a public notice that includes notification of property owners within 300 feet of the project, as well as notice in local newspapers. Conditions may be imposed upon the project during the staff, Hearings Officer, or TRPA Governing Board review. Examples of these conditions include features to increase safety for bicyclists and pedestrians, or modifications to bicycle paths to ensure protection of the surrounding environment.

After approval of the project at the staff, Hearings Officer, or Governing Board level, a permit is issued and the project may begin construction. A more detailed summary of the project review process can be found in the TRPA Code of Ordinances, Chapter 4, Project Review and Exempt Activities.

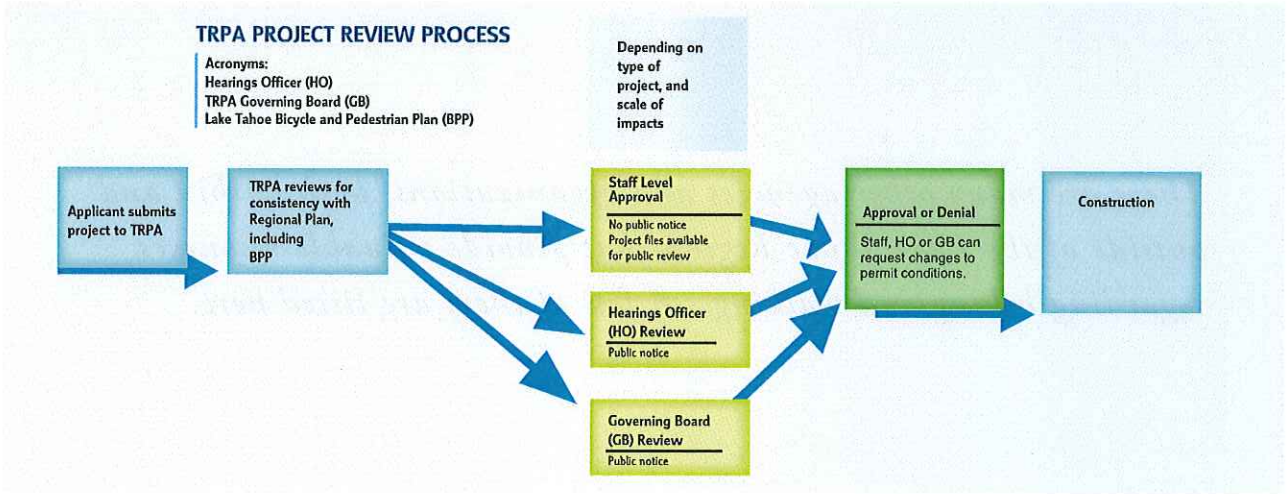
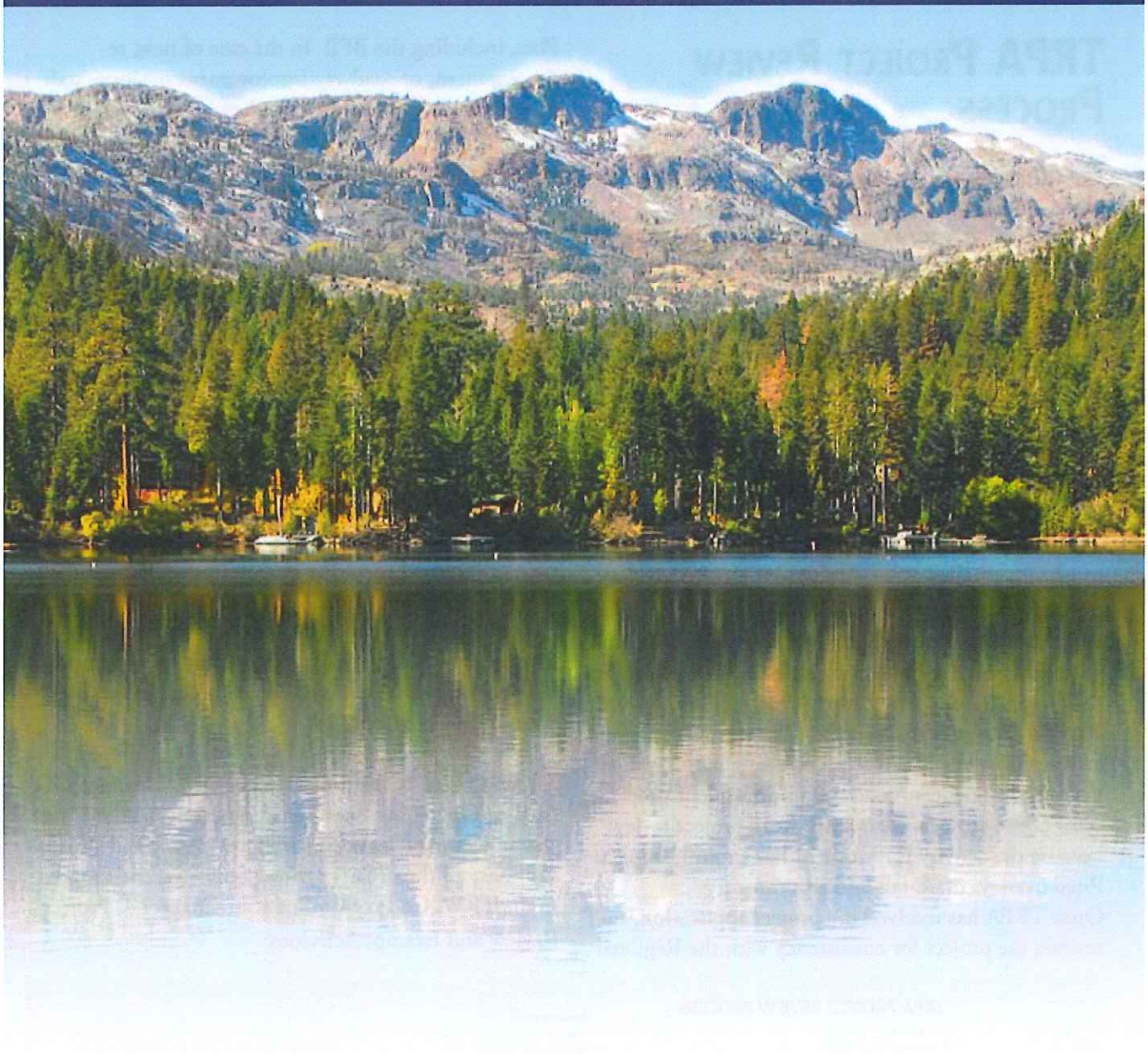


Figure 7.

Section 10: Useful Links



There are many other agencies and organizations, both within and outside of the Lake Tahoe Region that provide valuable resources regarding biking and walking. A few of them are listed here.

Tahoe Metropolitan Planning Organization (TMPO)

www.tahoempo.org

The TMPO website provides links to the websites for current projects in the planning phases around Lake Tahoe, including the South Tahoe Greenway, the North Tahoe Bike Trail, and the Nevada Stateline to Stateline Bikeway. There are also links to bicycle and pedestrian monitoring studies, as well as other transportation plans and studies. The TMPO website includes a link to an interactive GIS map of the bicycle and pedestrian network.

Lake Tahoe Region Bicycle and Pedestrian Plan

www.tahoempo.org/bikeplan_update.aspx?SelectedIndex=2

Link to the on-line version and see up-to-date project lists and project status.

Interactive Bicycle Map

gis.trpa.org:82/BIKEMAP

The direct link to the interactive GIS map of existing and proposed bicycle and pedestrian facilities in Lake Tahoe.

Lake Tahoe Bicycle Trail User Model

www.tahoempo.org/bike_trail_model.aspx?SelectedIndex=2

Download and use this model to estimate existing and future use of individual bicycle paths in Lake Tahoe, or the network as a whole.

Lake Tahoe Bicycle Coalition

www.tahoebike.org

The Lake Tahoe Bicycle Coalition's website provides links to a printable map of the Region's bicycle network, local events, and ways to get involved in promoting bicycling in Lake Tahoe.

Tahoe Transportation District

www.tahoetransportation.org

The Tahoe Transportation District is the lead agency for several regional projects, including the Nevada Stateline to Stateline Bikeway, the U.S. Highway 50 Stateline Core Project, and the Lake Tahoe Waterborne Ferry.

Lake Tahoe Water Trail

www.laketahoewatertrail.org

The Lake Tahoe Water Trail provides an opportunity to plan a custom paddle trip around the 72-mile shoreline of Lake Tahoe.

US Forest Service Lake Tahoe Basin Management Unit (LTBMU

www.fs.fed.us/r5/ltbmu

The LTBMU manages over 450 miles of unpaved trails for hikers, mountain bikers, and equestrians.

Definitions and Acronyms

AASHTO – American Association of State Highway and Transportation Officials
ADA – Americans with Disabilities Act
ADT – Average Daily Traffic
AMBBR – America's Most Beautiful Bike Ride

Bicycle and pedestrian network – shared-use paths, bicycle lanes, bicycle routes, wide shoulders, and sidewalks.

Bicycle and pedestrian facilities – shared-use paths, bicycle lanes, bicycle routes, wide shoulders, and sidewalks plus all other bicycle and pedestrian support facilities such as bicycle storage racks, lockers, crossing treatments and street markings.

Bikeway – shared-use path, bicycle lane, bicycle route or wide shoulder.

Bicycle storage – bicycle racks, locker, or other location for safely and securely storing bicycles.

BID – Business Improvement District
BPMP – 2003 Lake Tahoe Bicycle and Pedestrian Master Plan
BPP – 2010 Lake Tahoe Region Bicycle and Pedestrian Plan
BTA – California Bicycle Transportation Act, California Bicycle Transportation Account
CA MUTCD – California Manual on Uniform Traffic Control Devices
Caltrans – California Department of Transportation
CDC – Centers for Disease Control and Prevention
CEQA – California Environmental Quality Act
CFDs – Community Facilities Maintenance Districts
CHP – California Highway Patrol

Class I/Shared-Use Path – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross-flow from vehicles minimized.

Class II/Bike Lane – Provides a striped lane for one-way bicycle travel on a street or highway.

Class III/Bike Route – Provides for shared use with bicycle or motor vehicle traffic on streets and highways.

CTC – California Tahoe Conservancy
EIP – Environmental Improvement Program
Facilities – shared-use paths, lanes, routes, sidewalks, bicycle storage, lockers, showers, crosswalks, street furniture, and other bicycle and pedestrian amenities.

FHWA – Federal Highway Administration
FTIP – Federal Transportation Improvement Program
HAWK – High-Intensity Activated Crosswalk

Jurisdictions – includes all agencies responsible for constructing and maintaining routes, including cities, counties, public utility districts, and the USDA Forest Service.

LAB – League of American Bicyclists
Lake Tahoe Scenic Bike Loop – envisioned to provide bicycle lanes meeting AASHTO standards on the highways encircling Lake Tahoe. Where lanes cannot be constructed, or until they can be constructed, the loop should provide 3-5 feet of shoulder on the lake side where possible.

LTVA – Lake Tahoe Visitors Authority
LTBC – Lake Tahoe Bicycle Coalition
M2030 – Lake Tahoe Regional Transportation Plan, Mobility 2030 (TMPO Plan)

Measure S – a bond measure for the City of South Lake Tahoe and Lake Tahoe portion of El Dorado County that pays for a variety of maintenance activities, including maintenance of bike paths.

Mobility 2030 – Lake Tahoe Regional Transportation Plan (TMPO Plan)

Mode split or mode share -- percentage of people who choose to take different forms of transportation, such as walking, bicycling, transit, or driving.

MOU – Memorandum of Understanding
MUTCD – National Manual on Uniform Traffic Control Devices
NDOT – Nevada Department of Transportation
NEPA – National Environmental Policy Act
NHP – Nevada Highway Patrol
NHTS – National Household Travel Survey
NLTRA – North Lake Tahoe Resort Association

NTPUD – North Tahoe Public Utility District

PAL – Police Activities League

PBID – Parcel and business improvement district

Pedestrian -- someone who travels by foot or by wheelchair

PPP – Public Participation Plan

PUDs – Public Utility Districts

RET – Real Estate Transfer Tax

Routes – shared-use paths, lanes, routes, and sidewalks.

RTP – Lake Tahoe Regional Transportation Plan (Mobility 2030)

RTPA – Regional Transportation Planning Agency

RTTPC – Resort Triangle Transportation Planning Coalition

SAFETEA -LU – Safe Accountable Flexible, Efficient Transportation Equity Act: A Legacy for Users (the Federal Transportation Bill)

SEZ – Stream environment zone

Sharrow – a street marking that can be used to indicate that bicyclists and vehicles share the road

SLT – South Lake Tahoe

SNPLMA – Southern Nevada Public Lands Management Act

SSTMA – South Shore Transportation Management Association

STIP – Statewide Transportation Improvement Program

SWITRS – California Statewide Integrated Traffic Records System

TAC – Lake Tahoe Bicycle and Pedestrian Plan Technical Advisory Committee

TART – Tahoe Area Regional Transit

TCORP – Tahoe Coalition of Recreation Providers

TCPUD – Tahoe City Public Utility District

TIP – Transportation Improvement Program

TMPO – Tahoe Metropolitan Planning Organization

TNT-TMA - Truckee North Tahoe Transportation Management Association

TOT – Transient Occupancy Tax

TRPA – Tahoe Regional Planning Agency

TWSA – Tahoe Water Suppliers Association

VMT – Vehicle Miles Travelled

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