

# CHAPTER 1: INTRODUCTION

Lake Tahoe’s quiet forests, expansive meadows, and sunny beaches invite and attract all types of outdoor enthusiasts and promote an active lifestyle. Lake Tahoe is a favorite playground not only for the Region’s 55,000 residents<sup>1</sup>, but also visitors from Central and Northern California, Nevada, and around the world. The Tahoe Regional Planning Agency (TRPA)/Tahoe Metropolitan Planning Organization (TMPO)’s Regional Transportation Plan (RTP) and Active Transportation Plan (ATP) serve to help protect this beautiful natural environment by providing a framework for a comprehensive multi-modal transportation system.

Bicycling, walking, and other forms of active transportation are important methods of travel that promote healthy lifestyles, improve air quality, boost the local economy, and enhance community character. Active transportation includes any method of travel that does not rely entirely on a car to travel between origin and destination. This can include walking, biking, skateboarding, roller-skating, cross country skiing, using public transit, or driving to an intercept lot, parking, and then using another form of travel. The TRPA/TMPO seeks to increase active transportation through an improved, expanded, and community-driven bicycle and pedestrian network.



*Meyers Bikeway, Sawmill Pond Connection.  
Photo: Mike Vollmer*

## 1.1 PLAN OVERVIEW

The *Linking Tahoe: Active Transportation Plan* presents a guide for planning, designing, constructing, and maintaining a regional active transportation network that includes innovative infrastructure, support facilities, and awareness programs. The infrastructure network includes on-street bike facilities such as bike lanes, bike routes, and intersection designs that promote safety and convenient travel for bicycling and walking. The network also includes offstreet, shared-use paths and sidewalks that appropriately integrate with the roadway and existing and planned land-use design. The ATP outlines goals, policies, and actions that support implementation of high priority projects and guides long-term planning that will transform Tahoe’s transportation system. To support this process, the plan includes analysis of current conditions, provides data for future projects, and outlines levels of project priority. To help ensure feasible implementation, the ATP identifies potential funding sources and recommended designs to encourage consistent and safer access for all roadway users.

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<sup>1</sup> U.S. Census Bureau, 2010

## Plan Vision - Complete Streets

This plan seeks to improve the environment and quality of life in the Tahoe Region by increasing safe and convenient bicycle and pedestrian travel. Through a complete streets approach, this plan promotes transportation projects that accommodate the needs of all travelers when designing transportation improvements on and off-roadways. Complete streets are designed and operated to facilitate safe, comfortable, and efficient travel for roadway users of all ages and abilities such as pedestrians, bicyclists, transit riders, motorists, commercial vehicles, and emergency vehicles. A complete streets approach also supports economic vitality by designing for aesthetic improvements, place-making, and by building natural partnerships between private, public, and community entities. This vision can be realized by creating a high-quality environment that makes active transportation more appealing than driving in the Tahoe Region and beyond.



***The Kahle Drive Vision: US Highway 50 and Kahle Drive intersection.***

*Designed by Design Workshop as part of a TRPA On Our Way grant to Douglas County*

## Plan Development and Approval Process

The 2016 Active Transportation Plan is an update to the 2010 Lake Tahoe Region Bicycle and Pedestrian Plan. To develop the plan, staff undertook over six months of public and stakeholder outreach. TRPA/TMPO also met with the Bicycle & Pedestrian Technical Advisory Committee (BPTAC) every six weeks to collectively develop and review the plan's goals, policies, actions, and project criteria. The BPTAC is made up of federal, state, local, and advocacy representatives. After all community and stakeholder feedback was consolidated and integrated into the plan, TRPA/TMPO went back to each local jurisdiction to vet all recommendations with a specific focus on new infrastructure locations and actions related to goals and policies. Agency stakeholders were also invited to participate in "Transforming Tahoe's Transportation: A Workshop on Completing Our Streets." This 1.5-day workshop brought regional implementers together to reimagine our roadway system, discuss challenges and opportunities, and conceptualize improvements for Lake Tahoe roadways. Recommendations within this plan and the *Lake Tahoe Complete Street Resource Guide* (Appendix A) illustrate much of the information discussed at the workshop.

TRPA/TMPO released a draft of this plan for public comment on January 15, 2016 with a 30-day comment period. The comment period closed on February 16, 2016, and comments were incorporated into the plan as appropriate. The Tahoe Transportation Commission is expected to recommend the plan for approval on March 12, 2016, and the TRPA/TMPO Governing Board is expected to adopt the plan on March 23, 2016.

## Overview of Public Outreach



Help shape bicycling, walking, and safety improvements in your community.

### Active Transportation Plan Community Gathering

Spanish interpretation available on-site.

**Tuesday, April 14, 5:30-7:30pm**  
South Lake Tahoe Public Library, 1000 Rufus Allen Blvd.  
South Lake Tahoe, CA • Snacks and childcare provided

**Thursday, April 16, 5:30-7:30pm**  
Kings Beach Elementary, 8125 Steelhead Ave.  
Kings Beach, CA • Snacks and childcare provided

Take our survey: [tahoempo.org/ATPsurvey](http://tahoempo.org/ATPsurvey)

Public input is an essential part of creating a strong active transportation plan that guides funding, planning, and implementation of the existing and future active transportation network. **As the Region continues to focus on improving multi-modal transportation options, understanding users - who they are, how they act, what their needs are, and why, is critical.** Comprehensive public participation, both in the form of community member and agency stakeholder feedback, is the backbone of a successful active transportation plan. TRPA/TMPO met with all local jurisdictions during the development of this plan and solicited detailed guidance from the Bicycle & Pedestrian Technical Advisory Committee, through regular meetings.

TRPA/TMPO conducted extensive outreach throughout Lake Tahoe and its surrounding areas to gain public input on the existing and future active transportation network. Activities included community gatherings, association presentations, booths at events, and a survey that was available both online and in hard copy from March

2015 to June 2015. Staff collected feedback that clarified current active transportation trends, specific locations that are working well or are in need of improvements, and gathered qualitative crash data to supplement law enforcement reporting. Additionally, the data collected helps identify the types of infrastructure that users are interested in seeing constructed in the Lake Tahoe Region and provides guidance for project prioritization.

TRPA/TMPO marketed input opportunities through flier distribution, advertisements in print and online newspapers, social media, organization list-serves, and targeted mailings. Brochures, posters, and magnets were produced and distributed to the public through these many forums. TRPA/TMPO sought to reach a wide variety of demographics throughout the Region. Because the Latino community makes up over 20 percent of the total regional population, TRPA/TMPO translated all outreach materials into Spanish, offered translation services at community gatherings, attended Spanish-speaking parent teacher association meetings at three different elementary schools, and hired Vaca Consulting to conduct door to door outreach in the North Shore Latino community to increase workshop attendance and conduct survey completion. Detailed analysis and documentation of outreach can be found in the *2015 Community Outreach Report*, Appendix B.

## Community Outreach Highlights:

- In total, 630 people signed-in at stakeholder and community meetings between January and July 2015.
- Participants identified closing connectivity gaps that limit the ability to get from one destination to another as the top priority for active transportation planning.
- Participants identified shared-use paths that are completely separated from roadway traffic as a preferred infrastructure design. This was in response to a general question about preferred infrastructure and not specific to any one location.
- The most common biking routes identified by survey participants were US Highway 50 from Sierra Tract through Stateline (South Shore), the Pope Beach bike path (South Shore), and State Route 89/State Route 28 from Tahoma to Dollar Point (West and North Shores). The most common transit routes used by survey respondents in combination with bikes are TART State Route 89 and TART Mainline.



*Left: South Shore Community Gathering. Right: Transforming Tahoe Transportation Workshop.*

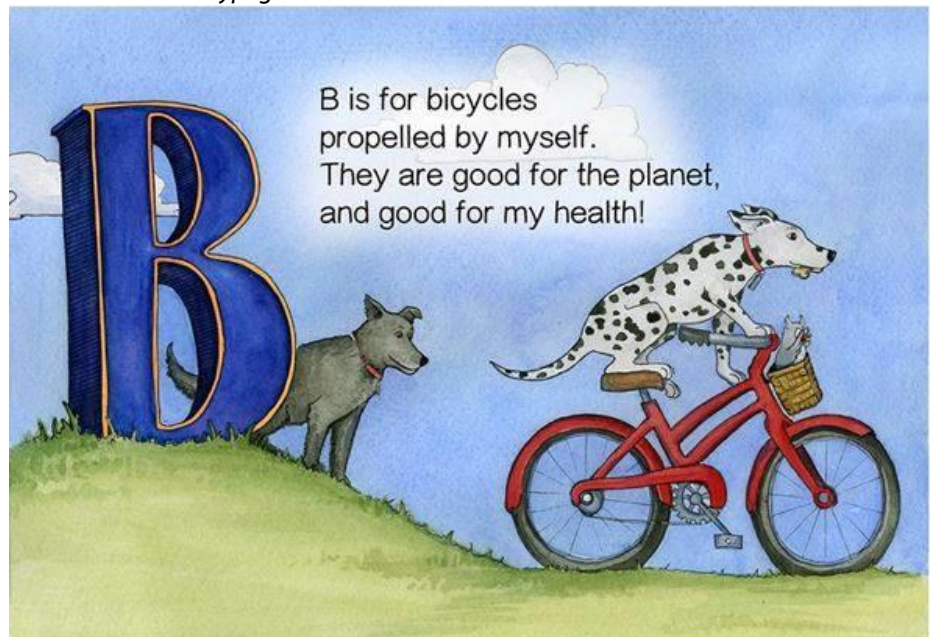
## Planning for the Five “E’s”

Encouraging community members to use active transportation to reach their destinations relies on a variety of components. The League of American Bicyclists promotes the use of the “5 E’s” when seeking to change behavior by getting people out of their cars and onto their bike or other modes. This plan touches on each of the 5 E’s, which are described below.

- *Engineering* includes offering safe and convenient infrastructure by altering the roadway through physical changes to the road and adjacent areas, such as rethinking the width of vehicle lanes, the addition of bicycle lanes, shared-use paths, enhanced crosswalks, and adding bicycle racks. This plan offers a variety of engineering solutions in the *Lake Tahoe Complete Street Resource Guide*, located in Appendix A, or as highlights in Chapter 4: Network Recommendations.

*Illustration: Buddypegs*

- *Education* expands people’s understanding of how to use infrastructure and the benefits associated with increasing active transportation use. This plan offers a variety of methods for community members, schools, law enforcement, and government agencies to provide educational opportunities and increase awareness.



- *Enforcement* assists in reminding roadway users of their legal rights, the rules of the road and encourages safety between user types. This plan lays out methods where partnerships between schools, police, governments, and advocacy groups can help keep our streets safe.
- *Encouragement* to use active transportation and sustain that activity helps keep momentum growing for biking and walking as primary travel modes. Group activities like the Lake Tahoe Bike Challenge help users find camaraderie and an overall sense of moving towards the same goal. This plan outlines encouragement opportunities in Chapter 5.
- *Evaluation* of how a transportation system is working, who and how many people are riding and why, is an important measure in active transportation planning and implementation. Use of data can help create user friendly, safe networks, and supports grant applications and other funding opportunities. TRPA/TMPO assists in evaluating our system through the development and implementation of the *Bicycle & Pedestrian Monitoring Protocol*, collision reporting, the 2015 Community Outreach Report, and in documenting performance measures so we can continue to improve.

## How to Use this Plan

This plan should act as a guidebook and resource for multiple stakeholders. Below is a roadmap that explains what readers should expect in each section.

### Chapter 1: Introduction

This chapter introduces the plan with a brief overview of public outreach, the review and approval process, and the organization of the plan. The physical study area, the multiple agency roles and responsibilities, and the many policies and plans that govern the Region's land-use and transportation system development are explained. Finally, the chapter provides local and international research on the benefits of active transportation.

### Chapter 2: Needs Analysis

This chapter explains terminology used in the active transportation field, such as user type and infrastructure type. Also illustrated are current conditions related to land-use, infrastructure, current use patterns, estimated volume, and multi-modal connections. The chapter includes a discussion of current challenges and solutions to safety, connectivity, implementation, and maintenance issues. Users will find this information helpful when identifying and substantiating the need for projects.

### Chapter 3: Goals, Policies & Performance Measures

This chapter sets the policy framework for decisions that impact active transportation in the Lake Tahoe Region. Goals, policies, and performance measures should be considered when making land-use decisions, during public and private project development and implementation, in forming partnerships, and when considering maintenance and funding expenditures. Readers should use this section as a resource during project development, design, implementation, and long-term maintenance. This chapter also highlights some notable projects implemented over the last five years in the Lake Tahoe Region.

### Chapter 4: Network Recommendations

Recommendations for the active transportation network are divided into the six corridors shown in Section 1.1. Each corridor contains references to relevant local plans, proposed network infrastructure including locations for intersection improvements, additional infrastructure considerations not currently proposed, and corridor-specific data such as crash analysis. This chapter also highlights five complete street designs that should be considered during project development at Lake Tahoe. Users should refer to this section when planning current and future projects.

### Chapter 5: Programs

This chapter contains current and proposed methods that should be implemented to increase active transportation through encouragement, education, evaluation, and enforcement programs. School districts, law enforcement, local jurisdictions, and advocacy groups will find this section helpful in forming partnerships, securing volunteers, and supporting awareness of active transportation.

### Chapter 6: Implementation Plan

This chapter outlines the actions that partners can undertake to assist in the implementation of this plan's recommendations. This section also contains cost estimates, project prioritization criteria, and funding strategies. Readers should refer to this section when implementing the plan's goals and policies and developing and implementing projects.

## **Description of Appendices:**

Appendix A, *Lake Tahoe Complete Street Resource Guide* and Appendix H, *Existing & Prioritized Project List* are printed in hard copy with the plan. All other appendices can be found on the TMPO website.

### A. Lake Tahoe Complete Streets Resource Guide

This resource guide was produced from federal, state, and local standards and includes recommendations from the “Transforming Tahoe’s Transportation: A Workshop on Completing Our Streets,” sponsored by the TRPA/TMPO and facilitated by Alta Planning + Design, the FHWA, and Caltrans for all agency implementers in November 2015.

### B. 2015 Community Outreach Report (Online)

This report is a study derived from public participation and community input on the existing and desired active transportation network. TRPA/TMPO collected data through a variety of methods including community gatherings, public workshops, informational booths at local events, and the 2015 Active Transportation Plan Survey. The first section of the report captures data from the 2015 survey. The second section covers public participation data gathered from community meetings, agency stakeholder meetings, local events, and awareness and encouragement programs between January 2015 and July 2015.

### C. Lake Tahoe Region Bicycle & Pedestrian Monitoring Protocol

The Protocol builds on previous bicycle and pedestrian monitoring efforts and improves the understanding of active transportation use in the Lake Tahoe Region. The protocol establishes a clear and consistent approach to collecting bicycle and pedestrian volume data. By implementing the protocol, TRPA/TMPO, in partnership with local jurisdictions, creates an ongoing monitoring program that tracks changes in active transportation volumes in a consistent manner.

### D. Lake Tahoe Unified School District Safe Routes to School Master Plan

This document outlines recommendations for the Lake Tahoe Unified School District’s schools using the “5 E’s” approach. Districts without a local SRTS plan can reference this document as a guide when pursuing programs for their districts.

### E. 2015 Fact Sheets

Responding to community and stakeholder needs, the TRPA/TMPO and its partners developed three fact sheets to assist in educating, promoting awareness, and offering solutions to identified active transportation challenges. The 2015 Fact Sheets are:

- Three-Feet for Safety Act
- Reducing User Conflicts on Shared-Use Paths
- Rules of the Road

### F. Maintenance Responsibilities Chart and Plan Template

Developed by partners for use in the State Route 28 Corridor Management Plan, project applicants should use this template when submitting permits to TRPA and local jurisdictions for project review and approval.

## G. Environmental Findings

This appendix documents that the TRPA/TMPO Active Transportation Plan meets all environmental requirements for the California Environmental Quality Act, National Environmental Policy Act, and TRPA.

## H. Existing & Prioritized Project List

This appendix lists all completed projects and prioritizes proposed projects.

## I. Resolutions (County & City resolutions supporting implementation of planned projects)

This appendix documents local jurisdiction adoption of the Active Transportation Plan and will be added after the plan is adopted



*Meyers Road Safety Audit: Pioneer Trail & US 50 Intersection. Photo: Morgan Beryl*



## 1.2 STUDY AREA

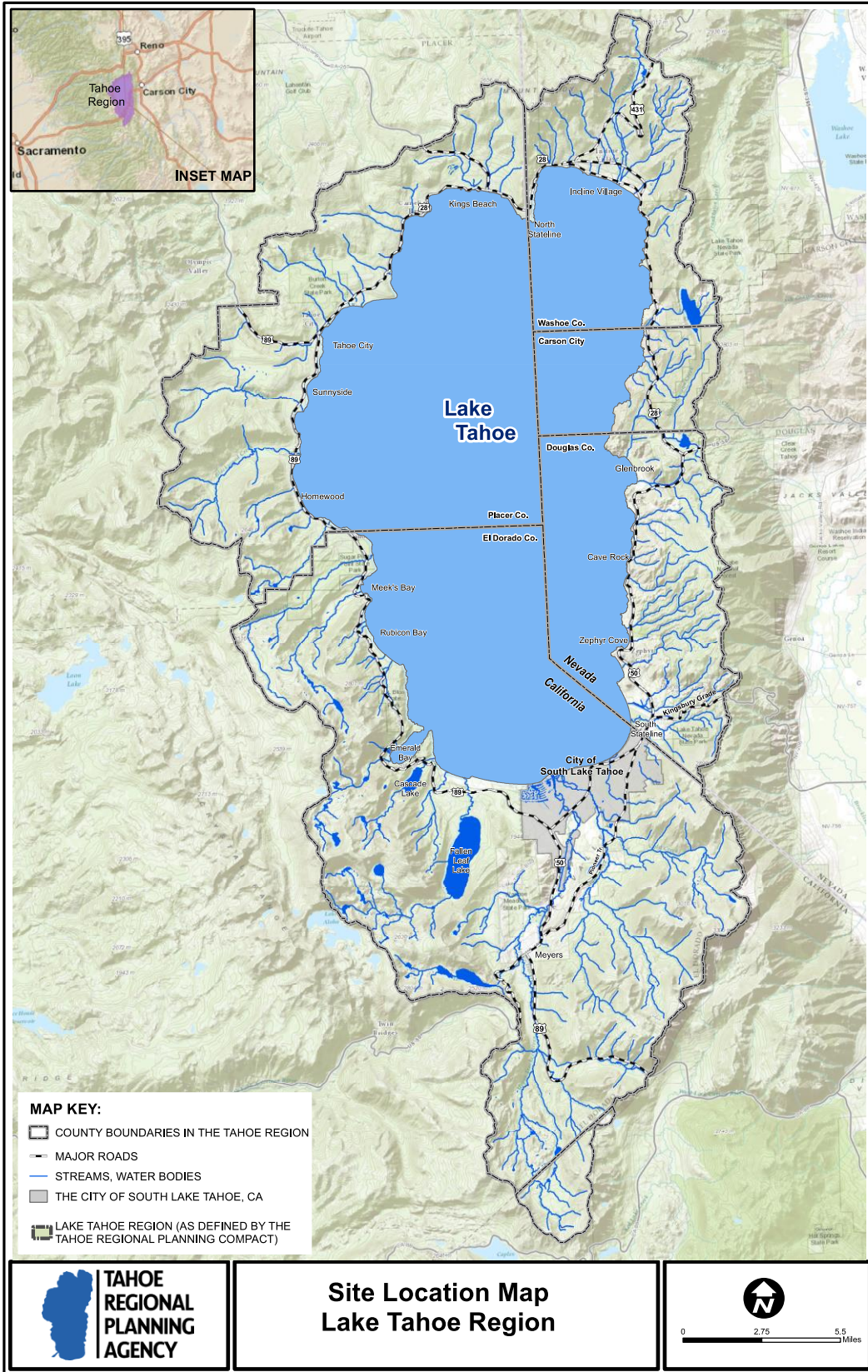
The Lake Tahoe Region is located on the California-Nevada border between the Sierra Nevada Crest and the Carson Range. Approximately two-thirds of the Region is in California and one-third is in Nevada. In total, the Region comprises about 501 square miles including the waters of Lake Tahoe, which measures 191 square miles. Lake Tahoe is the dominant natural feature of the Region and is the primary focus of local environmental regulation seeking to protect and restore its exceptional water clarity. The Region contains the incorporated area of the City of South Lake Tahoe and portions of El Dorado County and Placer County in California, and Washoe and Douglas Counties and the rural area of Carson City in Nevada. The Region is within the Fourth Congressional District of California and the Second Congressional District of Nevada. The TRPA is a separate legal entity governed by a body of seven voting delegates from California and seven voting delegates from Nevada. There is also a non-voting federal representative to the Governing Board. The TRPA Board, with the addition of a representative from the United States Forest Service, serves as the TMPO Board. In the State of California, TRPA serves as the Regional Transportation Planning Agency.



*View from Castle Rock. Photo: Tom Lotshaw*

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 90 percent of the land in the Region is publicly owned. Some 78 percent is managed by the U.S. Forest Service (USFS) and the balance by state and local agencies. The California Department of Transportation (Caltrans) District 3 designates the Tahoe Region as a “protected land” in their 2014 *Complete Streets Implementation Plan: Partnering with Communities on Complete Streets*. These areas are rural compact towns, and are located in lands protected for open space or natural resource. The focus of these towns is tourism and recreation. A local example is Tahoe City on State Route 28.

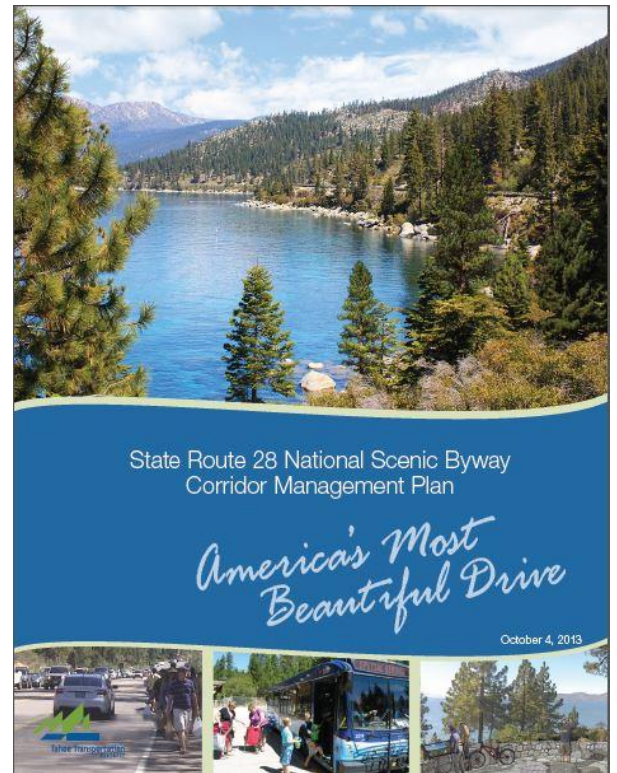
**FIGURE 1-1: LAKE TAHOE REGION**



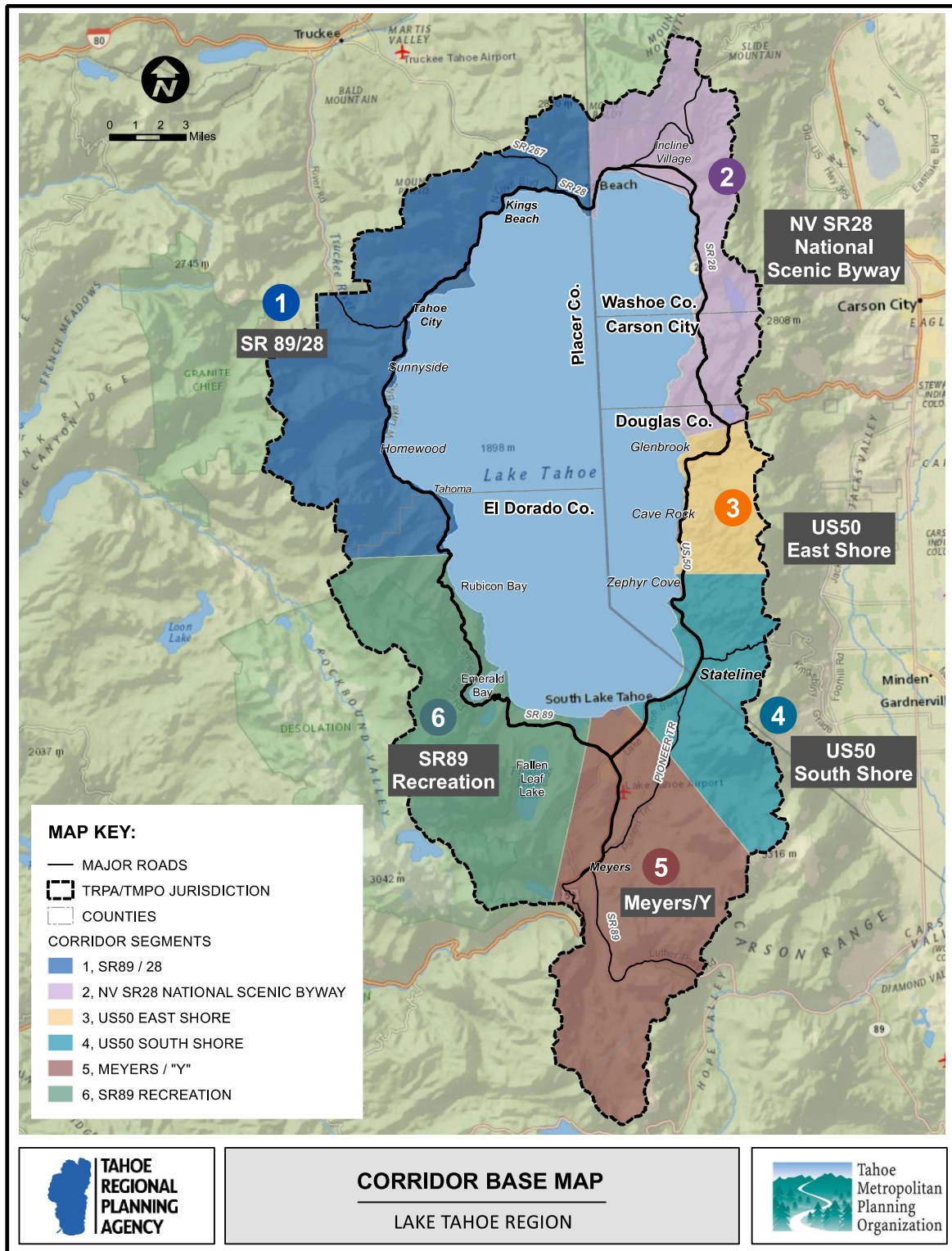
TRPA MAP DISCLAIMER: This map was developed and produced by the TRPA GIS department. It is provided for reference only and is not intended to show map scale accuracy or all inclusive map features. The material on this map was compiled using the most current data available, but the data is dynamic and accuracy cannot be guaranteed.

## Corridor Connection Planning

As part of developing the Regional Transportation Plan, the TRPA/TMPO is partnering with the Tahoe Transportation District (TTD) to conduct corridor planning. Agencies throughout the Region and the public are participating in the corridor planning process to create holistic projects that serve all current and future users of the transportation system. Corridor Plans are expected to be complete by 2018. The eight individual corridor plans (encompassing six corridors around the Lake plus two inter-regional entry corridors) will address multi-modal transportation solutions, environmental improvement, safety for all roadway users, support for economic vitality, quality of life, and accelerated delivery of projects and services. Some examples of the specific concerns that corridor plans aim to address are peak-period congestion, inadequate transit service, active transportation and vehicle conflict, lack of funding for infrastructure and maintenance and insufficient safe, environmentally responsible parking. Figure 1-2 illustrates the six corridors within the Region. This plan uses the corridor connection plan framework for organizing data and illustrating existing and proposed infrastructure.



**FIGURE 1-2: LAKE TAHOE REGION CORRIDORS**



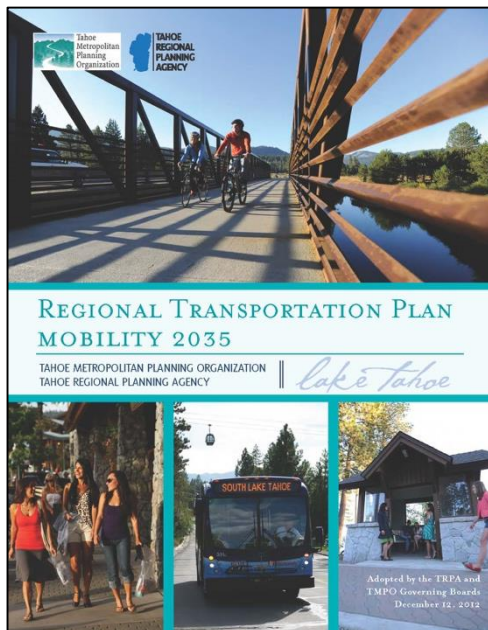
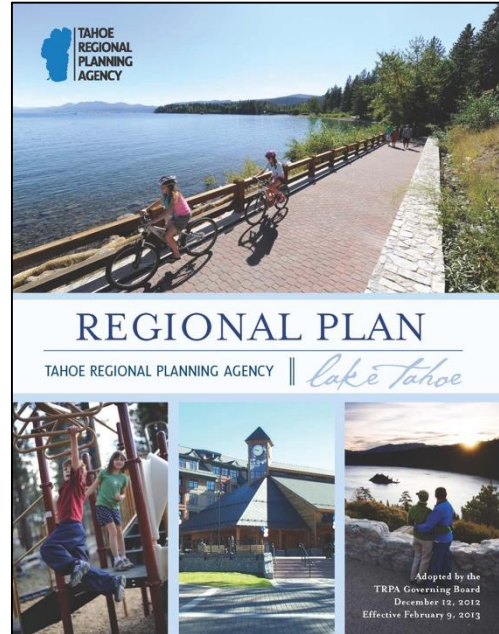
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## Agency Roles & Responsibilities

Implementation of the ATP is a multi-agency collaboration, and the ATP fulfills multiple agency requirements. As the TMPO document, the ATP is incorporated by reference into the TMPO Regional Transportation Plan and meets federal requirements for active transportation planning. The ATP is also part of the TRPA Regional Plan. Projects listed in the ATP are eligible for federal, state, and local grants. To apply for these grants, in most cases local jurisdictions will need to formally adopt the ATP. Adoption should take place shortly after the plan is approved by the TRPA/TMPO Board.

The primary responsibility for construction and maintenance of the active transportation 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 providing easements and constructing and maintaining segments that are adjacent to their property.

Input from the public, advocacy community, and other associations are also an essential part of project implementation. The content within this plan is intended to assist and guide the project implementation process.



The TRPA/TMPO's primary role is to carry out the goals and policies located herein, and incorporate regulations into TRPA's Code of Ordinances. The TRPA/TMPO will have an active role in the implementation of certain policies, such as working with private developers to accommodate active transportation into their project plans. Other policies direct the TRPA/TMPO to annually report on plan implementation and provide data for regional project analysis. Finally, there are many instances where the TRPA/TMPO will have an advisory role through collaborating with partnering agencies to encourage implementation of projects and programs that support realization of a complete transportation network.

**TABLE 1-1: AGENCIES & RESPONSIBILITIES**

| AGENCY TYPE              | AGENCY  | RESPONSIBILITY |        |              |             |         |
|--------------------------|---|----------------|--------|--------------|-------------|---------|
|                          |   | Planning       | Design | Construction | Maintenance | Funding |
| FEDERAL                  | US Forest Service   | X              | X      | X            | X           | X       |
|                          | Federal Lands   | X              | X      | X            |             | X       |
| STATE                    | Caltrans  | X              | X      | X            | X           | X       |
|                          | Nevada Department of Transportation (NDOT)  | X              | X      | X            | X           | X       |
|                          | California Tahoe Conservancy (CTC)  | X              | X      | X            |             | X       |
|                          | California State Parks  | X              | X      | X            | X           | X       |
|                          | Nevada State Parks  | X              | X      | X            | X           | X       |
| LOCAL JURISDICTION       | Counties  | X              | X      | X            | X           | X       |
|                          | City of South Lake Tahoe  | X              | X      | X            | X           | X       |
| PUBLIC UTILITY DISTRICTS | North Tahoe Public Utility District (NTPUD)   |                |        | X            | X           | X       |
|                          | Tahoe City Public Utility District (TCPUD)  | X              | X      | X            | X           | X       |
| REGIONAL TRANS. DISTRICT | Tahoe Transportation District (TTD)   | X              | X      | X            |             | X       |
| METRO-PLANNING ORG.      | Tahoe Regional Planning Agency / Tahoe Metropolitan Planning Organization (TRPA/TMPO) | X              |        |              |             | X       |

## Associated Plans, Policies, & Codes

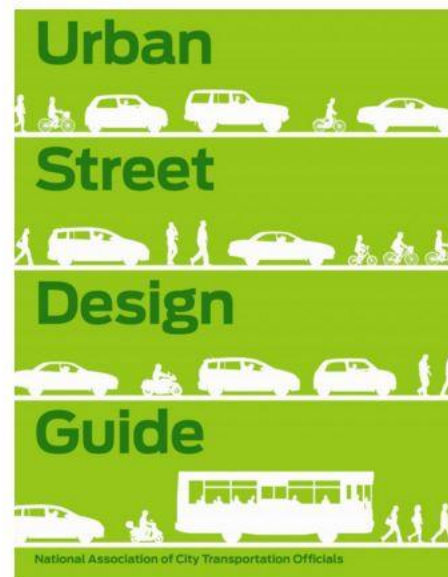
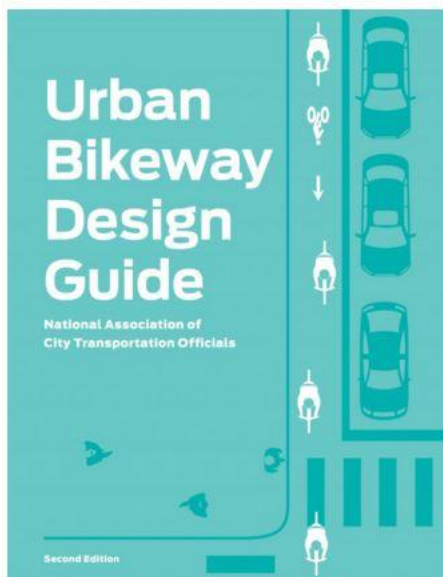
To ensure this plan meets all requirements and is consistent with other planning efforts, a large number of relevant plans, policy documents, and codes were reviewed and incorporated. Described below are some of the most often cited documents that affect active transportation planning.

### FEDERAL:

Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), signed by President Obama in July 2012, MAP-21 contains a variety of active transportation programs including the Transportation Alternatives Program (TAP), which consolidates the Safe Routes to School Program (SRTS) and the Regional Trails Program. TAP promotes and funds projects that provide active transportation infrastructure on the roadway, along abandoned railroad corridors, for school populations, and recreational trails.

In December 2015, the Fixing America's Surface Transportation (FAST) Act recently updated MAP-21. The FAST Act is a five-year bill that impacts active transportation through an increase in funding and updates to policy. Changes include making nonprofits eligible for funding, inclusion of complete streets language, and institution of a new safety education program. The FAST Act also renames the TAP to the Surface Transportation Program (STP) Setaside. For more information on the differences between MAP-21 and the FAST Act, check out the League of American Bicyclists website.

Manual on Uniform Traffic Control Devices (MUTCD) defines standards used by road managers nationwide to install and maintain streets, highways, bikeways, and private roads open to public travel. The Federal MUTCD is published by the Federal Highway Administration (FHWA). The most current MUTCD is the 2009 edition, last amended in May 2012. The FHWA supports design flexibility through their 2013 memo "Bicycle and Pedestrian Facility Design Flexibility" where they refer planners and engineers to guides published by the American Association of State Highway and Transportation Officials, the National Association of City Transportation Officials, and the Institute of Transportation Engineers.



## STATE - California:

California Active Transportation Program (California ATP), signed by Governor Brown in 2013, consolidates existing federal and state transportation programs, including the TAP, Bicycle Transportation Account, and State Safe Routes to Schools, into a single program with a focus to make California a national leader in active transportation. The California ATP is administered by the California Department of Transportation Division of Local Assistance, Office of Active Transportation and Special Programs. The program offers grant funds for projects that:

- Increase the proportion of trips accomplished by biking and walking,
- Increase safety and mobility for non-motorized users,
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas (GHG) reduction goals,
- Enhance public health,
- Ensure that disadvantaged communities fully share in the benefits of the program, and
- Provide a broad spectrum of projects to benefit many types of active transportation users.

Deputy Directive 64-R2, first signed in October 2008 and renewed in 2014, directs Caltrans to implement complete streets.

*"The Department provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System."*

To implement this directive Caltrans published the *Complete Streets Implementation Plan 2.0* in June 2014.



California Highway Design Manual, Chapter 1000: Bikeway Planning and Design, 6<sup>th</sup> Edition was most recently revised in July 2015. This manual, along with the California MUTCD, identifies specific design and signage standards for active transportation facilities. Design Information Bulletins, such as the 2015 bulletin number 89 on Class IV Bikeway Guidance should also be reviewed during project design.

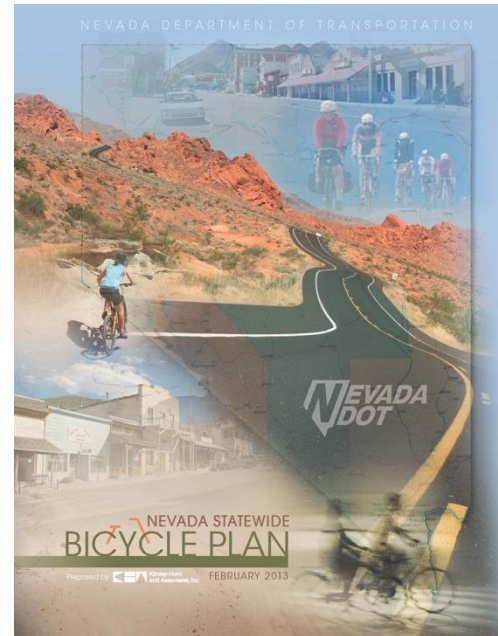
2014 Caltrans Memorandum "Design Flexibility in Multi-Modal Design" provides for flexibility in design through experimental project processes. The memo identifies design documents such as the National Association of City Transportation Officials' "Urban Street Design Guide," "Urban Bikeway Design Guide," and the Institute of Transportation Engineers' "Designing Urban Walkable Thoroughfares" as important resources when considering designs that accommodate all users.



## STATE - Nevada:

The Nevada Statewide Bicycle Plan, published in February 2013, includes policies, standards, and performance measures to increase active transportation use and improve safety through its “Zero Fatalities” initiative. All design recommendations in the Nevada Statewide Bicycle Plan utilize federal standards found in the MUTCD.

Nevada Strategic Highway Safety Plan (SHSP), published in 2006, was developed to save lives by addressing the frequency, rate, and primary factors contributing to fatal and severe injury crashes in Nevada. The plan identifies five critical emphasis areas, including seatbelts, lane departures, impaired driving, pedestrians, and intersections that represent the greatest opportunity to save lives and reduce the number of severe crashes and injuries. The plan also identifies critical safety strategies in the areas of enforcement, education and emergency service, in addition to engineering improvements. Using these strategies, the plan's goal is to reduce Nevada traffic fatalities and injuries in half of 2008 numbers by 2030. The plan was updated in 2010 and 2011.



The Nevada Department of Transportation also produces a variety of guidelines that apply to active transportation facilities on roadways, including the Road Design Guide, Standard Plans/Specifications for Road and Bridge Construction, Landscape and Aesthetics Master Plan, and the US395, West US50, SR28, SR207, and SR431 Landscape and Aesthetics Corridor Plan.

## REGIONAL:

### Tahoe Regional Planning Agency Bi-State Compact

Article I(b) of the compact established TRPA’s responsibility to establish environmental threshold carrying capacities. TRPA adopted thresholds for the Region in Resolution 82-11 in 1982. The thresholds cover various environmental components of the Tahoe Region, including air and water standards that are linked to transportation.


In addition, the 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.

TRPA Regional Plan & Regional Transportation Plan (Mobility 2035) contains general transportation goals and policies, many of which relate to active transportation. These are the backbone of the more specific goals, policies, actions and performance measures found in the ATP.

The TRPA Code of Ordinances implements the TRPA’s policies by informing public and private project permitting. Relevant transportation code sections include:

**Transportation Code Affecting Bicycle and Pedestrian Facilities**  
**August 21, 2013**

| Code Description   | Section       |   |
|--|---------------|---|
| Bicycle Path Coverage Waiver *                                 | 30.4.6.D.3    |    |
| Accommodation of Bicycle and Pedestrian Facilities in Projects | 65.3          |    |
| Bicycle and Pedestrian Facility Maintenance Plan               | 36.5.5        |   |
| Traffic and Air Quality Mitigation Program                     | 65.2          |  |
| Vehicle Level of Service Exemption                             | Policy T-10.7 |  |

\*Code section 30.4.6.D.3 is currently not recognized by Lahontan Regional Water Quality Control Board.

## LOCAL:

### Plans for Specific Geographic Areas within the Region

After adoption of the 1987 Regional Plan, over 170 different plans were adopted for certain geographic areas. These include plan area statements, community plans, and other detailed specific or master plans. With adoption of the 2012 Regional Plan, local, state, federal, and tribal governments are encouraged to adopt area plans to supersede the older plans. Area plans must be found in conformance with the Regional Plan. Some examples of adopted local area plans include the *2013 Tourist Core Area Plan* and *Tahoe Valley Area Plan* for the City of South Lake Tahoe and the 2013 Douglas County *South Shore Area Plan*.



#### **Tourist Core Area Plan**

Linking Neighborhoods • Building Community • Promoting Recreation  
October 15, 2013



### **1.3 BENEFITS OF ACTIVE TRANSPORTATION**

Active transportation provides multiple benefits to Lake Tahoe communities by reducing air pollution and traffic congestion, meeting greenhouse gas reduction targets, and improving the local economy and public health. Beyond these tangible benefits, biking and walking are pleasurable and relaxing outdoor activities that residents and visitors seek out and enjoy. Increasing active transportation is critical for meeting the TRPA goals of attaining environmental thresholds and reducing dependency on the private automobile.

To help quantify the benefits of active transportation the TRPA/TMPO compiled data from Tahoe surveys and global research. Some findings include:



*NV Stateline to Stateline Bikeway. Photo: Mike Vollmer*

- The built-out active transportation network is estimated to reduce Vehicle Miles Traveled (VMT), a TRPA/TMPO air quality threshold indicator, by 8,500 miles on a peak summer day.
- Overnight and day visitors who travel to Lake Tahoe primarily for cycling purposes bring an estimated \$6 million to \$23 million in local direct expenditures annually to Lake Tahoe communities.
- Neighborhood design, including proximity to multi-modal transportation systems, is directly related to physical activity levels. Improving the built environment through traffic calming, connectivity and support facilities encourages active transportation as a convenient and preferred method of transport. This increases physical activity levels related to overall health.

**Environmental Benefits:**

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

Vehicle Miles Traveled (VMT) is a TRPA **air quality** threshold indicator. VMT is linked to emissions of nitrogen oxides, particulate matter, hydrocarbons, and greenhouse gases. 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 when the full network is constructed, biking and walking trips will 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 green-house gas.<sup>2</sup> Lake Tahoe paths with greater

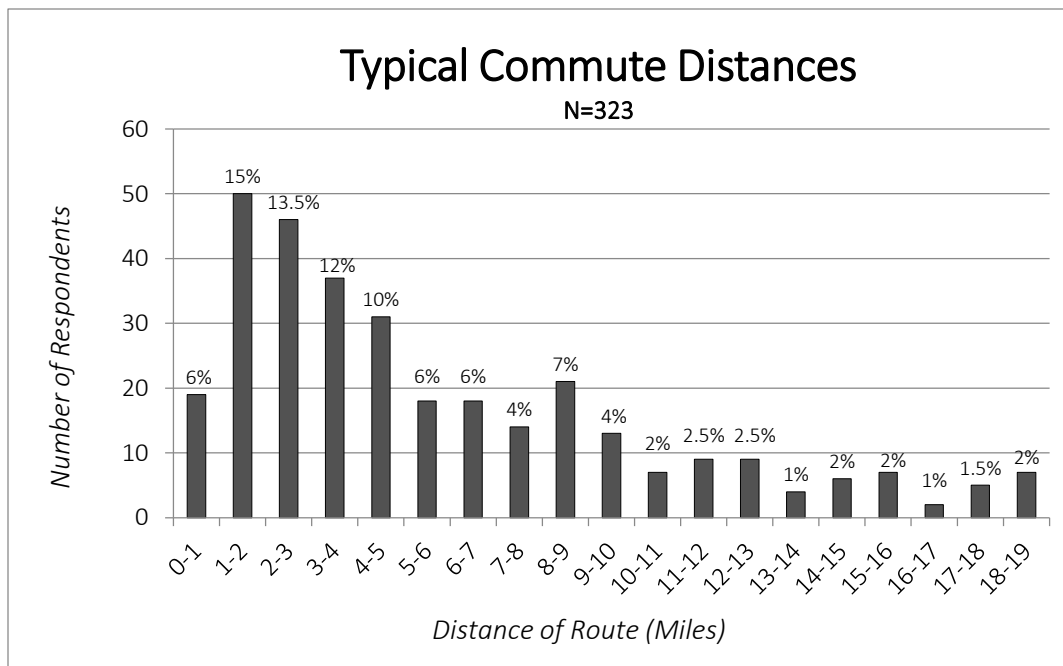


Figure 1-3: Typical Commute Distances. Source: 2015 Active Transportation Plan Survey

<sup>2</sup> U.S. Environmental Protection Agency, 2010

proximity to population centers and popular destinations have the greatest potential to reduce VMT. When a connected, safe, and convenient network is in place, research indicates that short car trips, which have high emission rates per mile due to cold vehicle starts, are substituted with active transportation trips. A 1 percent shift from short car trips to active transportation can reduce fuel consumption by 2 to 4 percent.<sup>3</sup> Short trips are typically three miles or less, which is the typical average commute by Tahoe residents as reflected in 2015 Community Outreach Report, Appendix B.

The Lake Tahoe Total Maximum Daily Load (TMDL), a program of research dedicated to identifying and reducing the primary sources of **water quality** degradation in Lake Tahoe, did not find that shared-use paths negatively impact water quality by generating fine sediment particles (FSP) in urban runoff. 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 and heavy vehicle use. Although the primary TMDL strategies focus on reducing urban runoff FSP through treatment of roadway runoff, advanced vacuum sweeping techniques and application of alternative roadway abrasives, mobile sources such as automobiles, buses, and boats predominantly produce nitrogen that is transported and deposited on the lake surface through atmospheric deposition. Shared-use paths can reduce VMT and hence the load of nitrogen to the atmosphere from mobile sources. Over time, shared-use paths and bicycle lanes may also positively affect water quality by reducing the need for impervious surfaces such as additional vehicle lanes or parking spaces and by reducing the amount of cars on the road.<sup>4</sup>



*Chimney Beach. Photo: Mike Vollmer*

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

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<sup>3</sup> Litman, 2015

<sup>4</sup> California Regional Water Quality Control Board & Nevada Divisions of Environmental Protection, 2010.

### **Equity Benefits:**

Multi-modal infrastructure provides transportation options for those who cannot afford a car or are unable to drive due to age or disability. Public funds are disproportionately used for roadways that accommodate drivers, with only 1.5 percent spent on active transportation.<sup>5</sup> Typically, large portions of the population are unable to drive due to a variety of reasons. On average, anywhere between 20-40 percent of people may not have access to or be able to drive a car.<sup>6</sup> The 2012 Regional Transportation Plan, as shown in Table 1-2, illustrates the percentage of Lake Tahoe residents that are transit-dependent or part of historically underserved communities.

|                                     | <b>Latino</b> | <b>Filipino</b> | <b>Zero-car households</b> | <b>Seniors (65+)</b> |
|-------------------------------------|---------------|-----------------|----------------------------|----------------------|
| <b>South Lake Tahoe</b>             | 31%           | 4%              | 8%                         | 10%                  |
| <b>Stateline</b>                    | 33%           | 4%              | N/A                        | 8%                   |
| <b>Kings Beach</b>                  | 56%           | 0%              | N/A                        | 6%                   |
| <b>Incline Village, Nevada</b>      | 18%           | 0%              | N/A                        | 18%                  |
| <b>Sunnyside-Tahoe City CDP, CA</b> | 5%            | 0%              | N/A                        | 11%                  |
| <b>Tahoe Vista CDP, CA</b>          | 25%           | 0%              | N/A                        | 10%                  |

*Table 1-2: Transit Dependent and Historically Underserved Populations. Source: 2010 Census*

Question 11 in the 2015 the Active Transportation Plan Survey asked respondents if they typically have a car available for their use. Only 3 percent indicated they do not have access to a car. Of those responses, 52 percent indicated it was due to unaffordability.

Additionally, the 2010 census indicates 20 percent of the Lake Tahoe Region population is age 18 or under. This is a significant part of the population that must rely on our multi-modal system or depend on other drivers for transportation.

Improving multi-modal infrastructure provides transportation options for those that depend on its safety and functionality while also serving those who prefer to use active modes by choice. Lake Tahoe residents primarily travel by car (84 percent), however, 58 percent of survey respondents noted they would prefer to travel by foot, bike, or transit.

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<sup>5</sup> Railstotrails.org

<sup>6</sup> Litman, 2015

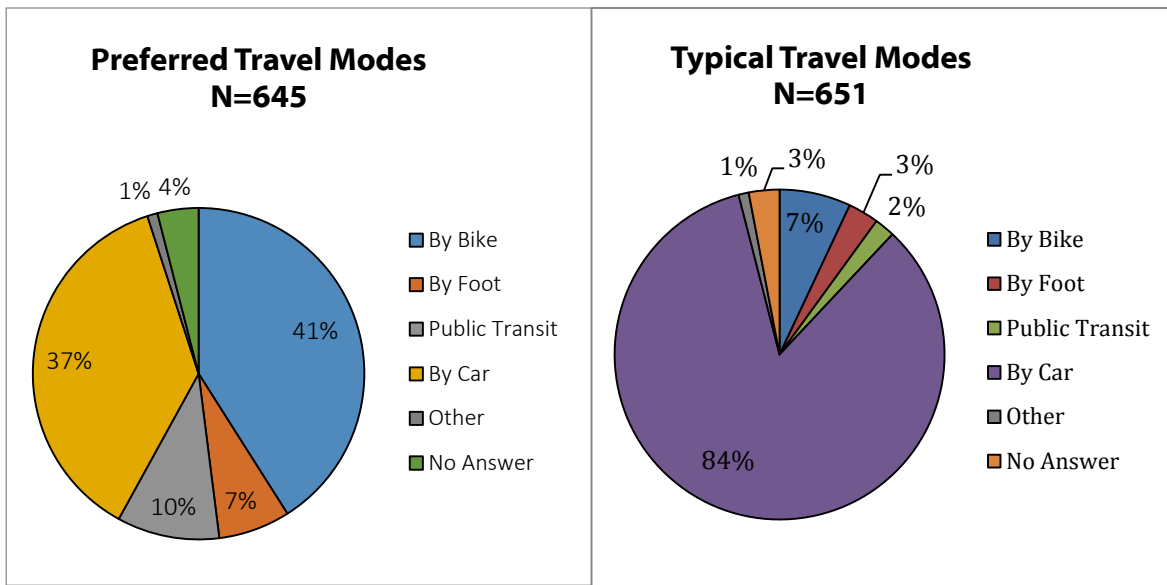


Figure 1-4: Preferred & Typical Travel Modes. Source: 2015 Active Transportation Plan Survey

**Economic Benefits:**

Bicycle paths provide many economic benefits including increased direct expenditures at local businesses, increased property values and employment opportunities, and personal savings from reduced vehicle use (or the need to own a car at all). Increases in transportation efficiency through multi-modal options also reduce costs related to roadway rehabilitation, support facility needs and potential property damage due to vehicle collisions.

Safe and convenient bicycle infrastructure increases the draw of the Region to visitors and residents, encouraging those interested in living a recreational and healthy lifestyle to extend their stay and spend more money. Approximately 13 percent of visitors surveyed in a North Carolina Northern Outer Banks study stated that their average visit duration was three to four days longer due to the excellent bicycling opportunities.<sup>7</sup>

Catering to these characteristics in visitors is a focus for many businesses, organizations and agencies in the Region. Media campaigns recognize the economic benefit to businesses by attracting active, health-minded people to Lake Tahoe. 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, attracts users with relatively high disposable income.<sup>8</sup>



Harrison Avenue. Photo: Tom Lotshaw

<sup>7</sup> Lawrie, 2004

<sup>8</sup> Lake Tahoe Bike Coalition, 2009

## Lake Tahoe-specific research indicates:

- 56 percent of AMBBR survey respondents have incomes over \$100,000 and 75 percent have at least a college degree. Of those, 27 percent spent more than \$2,500 on the purchase of their bicycle.
- Out of the 662 respondents for the 2015 Active Transportation Plan Survey, roughly 62 percent indicate they ride their bike in general, and of those, 27.5 percent have an income of \$100,000 or higher.
- Tahoe-specific studies estimate 188,800 people visit Tahoe annually to take advantage of cycling opportunities and make average daily expenditures of approximately \$124.<sup>9</sup> Multiplying these expenditures yields an estimate of roughly \$6 million to \$23 million per year related to active transportation.

National research on the connection between active transportation users and high **direct expenditures** continues to grow. A recent study in Portland, Oregon illustrated that customers who frequent businesses by bicycle spend \$10 more per month than customers who arrive by vehicle. Multiple countries, such as Canada, Germany, Switzerland, and the United States support this research, showing that though active transport users often buy less per visit to restaurants, bars, and convenience stores, they typically frequent businesses more often, giving them more opportunities to purchase items that may not be on the shopping list.<sup>10</sup> A survey conducted in Bern, Switzerland indicates businesses profited almost \$2,000 more per square meter of bicycle parking than vehicle parking.<sup>11</sup>



*East Shore Kayakers. Photo: Mike Vollmer*

**Employment opportunities** increase when multi-modal transportation is accessible and offered as a convenient method of travel. Lower-income people who depend on public transportation systems are more able to access educational and employment opportunities. This increases the quality and quantity of the low wage labor pool for service-oriented industries, which is the predominant employment in Lake Tahoe.

Multiple recent studies illustrate the positive economic impacts on **property values and real-estate sales**. In 2010, Vancouver, British Columbia reported 65 percent of Realtors used nearby bicycle facilities as a selling point for properties. North Carolina found that the 40 homes adjacent to the installation of a new bikeway rose by \$5,000 or more in value. Further, the urban advocacy blog, *This Big City*, noted that in a list of 39 elements homebuyers list as important decision-making factors,

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<sup>9</sup> TRPA, 2009.

<sup>10</sup> York Common Cents, 2012

<sup>11</sup> Szczepanski, 2013



accessible bike infrastructure was listed as number three.<sup>12</sup> Many studies conducted over the last two decades throughout the United States, including Boulder, Colorado and Omaha, Nebraska, note that surveyed residents believe existing or planned bicycle infrastructure will or has positively impacted their property values.<sup>13</sup>



Tahoe City

There are other personal user economic benefits of active transportation such as job creation and overall savings from fuel consumption, car payments, maintenance, parking, 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.<sup>14</sup>

**Health Benefits:**

Increasingly, the health benefits related to active transportation are being recognized by health professionals, urban planners, and policy makers. Funding opportunities for active transportation are tied to how projects illustrate production of health benefits for community members, such as decreasing adult and youth obesity and blood pressure. Federal and state policies seek to increase physical activity not only for direct health benefits to constituents, but also because healthier people produce cost savings and reduce strain on the health care system. 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.<sup>15</sup>

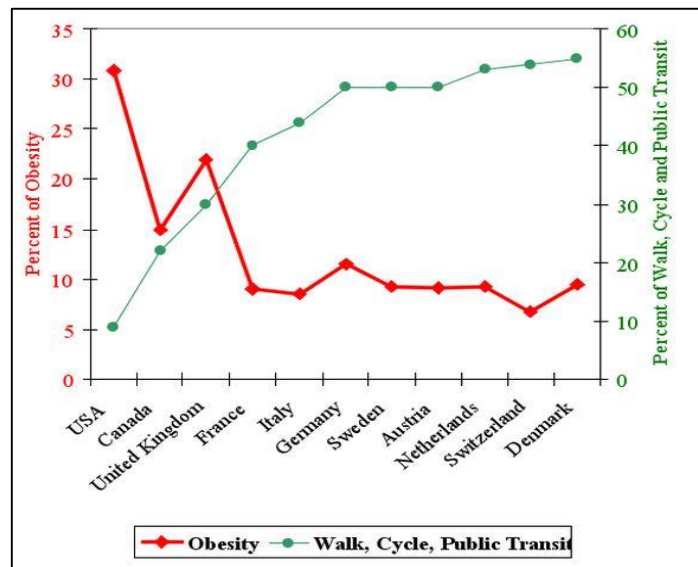


Figure 1-5: Obesity vs. Activity. Source: Bassett et al

Reliance on the automobile, often due to the layout of the built environment, has led to a lack of physical activity in the United States. Multiple studies indicate that areas with unconnected, “sprawl” land-use patterns and low multi-modal transportation have the highest obesity rates (Figure 1-5).

Other issues related to inadequate physical activity can include heart disease, diabetes, osteoporosis, dementia, and mental health. The 2012 Barton Community Health Needs Assessment prioritizes mental health and dementia as two priority focus areas for South Lake Tahoe residents. There is research that indicates consistent walking and biking reduces appearance of dementia and long-term cognitive decline.<sup>16</sup> Additionally, exercise, social interaction, and sunlight have been identified as the most effective treatment for mental illness, particularly depression.<sup>17</sup> In general, a

<sup>12</sup> Green, 2013

<sup>13</sup> Racca & Dhanju, 2006

<sup>14</sup> FHWA, 2015

<sup>15</sup> TRPA, 2009.

<sup>16</sup> Litman, 2015.

<sup>17</sup> Owen, 2015

sense of higher overall well-being has also been connected to the amount of time people spend in active transport in comparison to time in vehicle transport.<sup>18</sup>

The U.S. Center for Disease Control (CDC) recommends 22 minutes of moderate physical activity per day for adults. Active transportation is one of the most effective ways to achieve this goal. That is why the CDC has instituted the Healthy People 2020 program focusing on promoting walking and biking. In South Lake Tahoe, roughly 58 percent of residents consistently meet the recommended physical activity levels, which is above national and state averages.<sup>19</sup> This percentage illustrates the importance of physical activity to Lake Tahoe residents. Offering infrastructure that provides opportunities for increased biking and walking can be considered a critical element of meeting physical activity goals.

### ***Enhanced Community Character***

One goal in the Regional Transportation Plan is to support a region that offers the ability to walk, work, and play within our communities. Tahoe residents have called for walkable, mixed-use town centers with reliable and convenient public transit, and streets that encourage biking and walking. A balanced transportation system can help to preserve and enhance the character of communities in the Region and provide a unique identity and a sense of “place” in each community. These goals are supported by recent reports and studies. A report by The National Association of Realtors found that there has been a 25 percent increase in walking to destinations since 2001. The association also found that millennials prefer walking to driving by 12 percent, and prefer short, active transport commutes to work and recreation.<sup>20</sup>



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<sup>18</sup> Litman, 2015.

<sup>19</sup> Barton Health, 2012

<sup>20</sup> National Association of Realtors, 2015