



50
YEARS

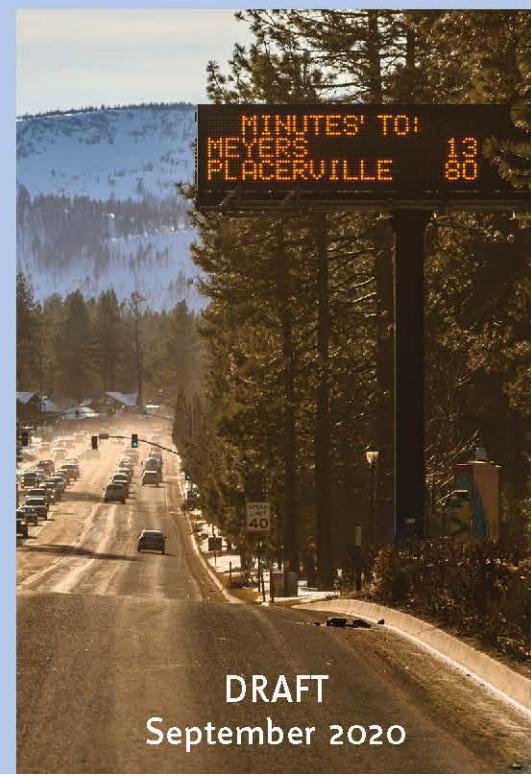
TAHOE
REGIONAL
PLANNING
AGENCY

Executive Summary

REGIONAL TRANSPORTATION PLAN

TAHOE REGIONAL PLANNING AGENCY

lake tahoe



DRAFT
September 2020

RTP Executive Summary

Lake Tahoe is one of Earth's iconic treasures. Expansive forests, marshes and meadows, boulder-strewn beaches and coves, and majestic mountain peaks surround the famously clear blue lake high in the Sierra Nevada. This awe-inspiring environment has attracted visitors from across the globe for generations. And today, its proximity to major metropolitan areas in northern California and Nevada makes it a natural outdoor playground for millions of people looking for unparalleled summer and winter recreation opportunities.

Vision

Tahoe's transportation system is interconnected, inter-regional, and sustainable, connecting people and places in ways that reduce reliance on the private automobile.

Visitation from outside the Region is the main driver of the Lake Tahoe Region's \$5 billion annual economy, based largely on seasonal tourism and outdoor recreation. But it also puts metropolitan-level travel demands on the Region's limited and largely rural transportation system. During peak times of visitation, Tahoe's roads clog with traffic and parking demands exceed capacity at recreation sites. This seasonal influx of motorists has consequences for the environment, for local communities and their mobility, and for air and water quality. As neighboring cities from Reno and Carson City to Sacramento and San Francisco continue to grow, transportation pressures and challenges at Tahoe will only increase.

There is broad consensus that to meet the growing travel demand the Tahoe Region needs a transportation system transformation.

Improvements are needed to help people travel to, from, and around the Region more efficiently. Improvements will also strengthen initiatives underway to conserve and restore Tahoe's environment; revitalize communities; improve quality of life for residents and quality of experience for visitors; improve mobility and safety for people walking and biking; improve recreation access and sustainability; and reduce emissions of greenhouse gases and build a resilient system in response to climate change.

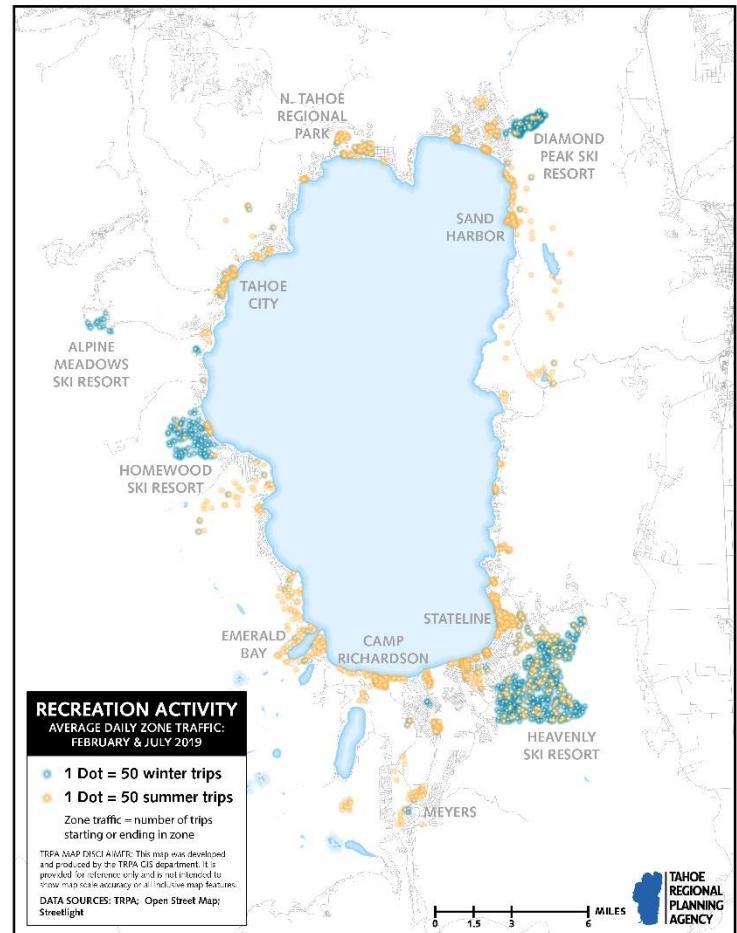


Figure i: Regional Recreation Hotspots

As the Tahoe Region's federally-designated metropolitan planning organization and the bi-state agency that California and Nevada created 50 years ago to manage growth, development, and land use in the Tahoe watershed, the Tahoe Regional Planning Agency (TRPA) plays a leading role in identifying solutions for the Region's transportation challenges. Every four years, TRPA evaluates and updates the plan for Tahoe's transportation system. The 2020 Regional Transportation Plan identifies a broad range of projects, programs, and strategies needed to comprehensively improve Tahoe's transportation system over the next 25 years.

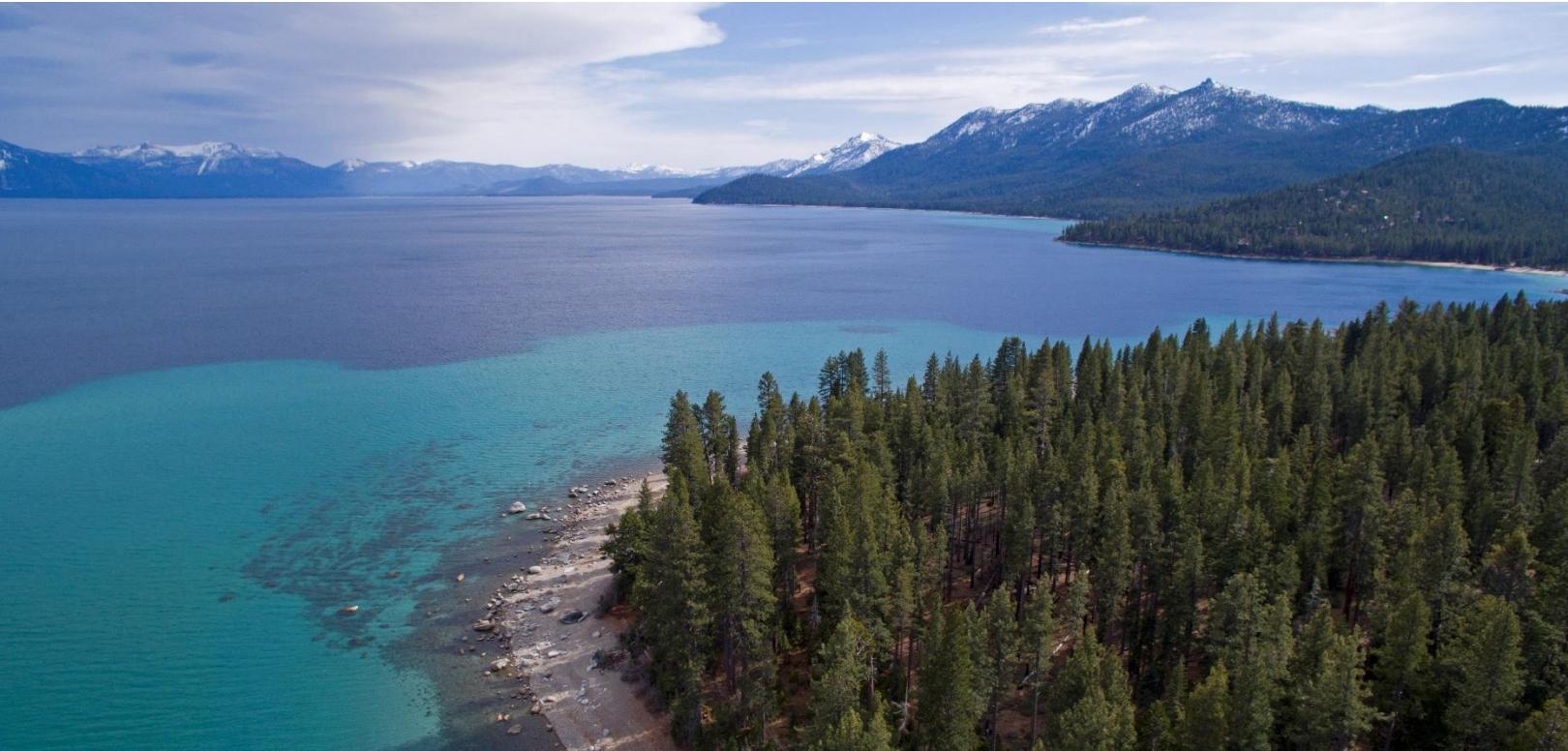
The Region cannot simply build its way out of its transportation challenges, expanding and creating more roads to meet ever-growing driving demands. Instead, the plan focuses on transit, trails, technology, and community enhancements to provide more travel options for residents and visitors.

Expanded transit services and a robust network of trails, sidewalks, and bike lanes will ensure that every Tahoe resident has safe, reliable, and

convenient alternatives to travel throughout the Region to homes, workplaces, schools, commercial areas, and recreation sites without having to drive — and make it easier for recreation and vacation visitors to arrive without a car or leave their cars parked while exploring everything Tahoe has to offer. New technologies will improve how roads, traffic signals, and parking areas are operated and put real-time information about road conditions and the most convenient travel options at the fingertips of everyone planning a trip in the Region. The Communities focus area will ensure that all corridors in Tahoe have more travel options than just the automobile — and that roadways are maintained to ensure safe and efficient movement of people and goods.

With strong and growing partnerships and collaborations in place, the plan is the foundation for the Tahoe Region to make transformative transportation improvements a reality and to deliver a world-class transportation system that complements and enhances Tahoe's environment, communities, and outdoor recreation opportunities.

Figure ii: Sugar Pine State Park credit: Drone Promotions



BI-STATE PARTNERSHIP

Over the last five years, the Region and partners from the states of California and Nevada, have been partnering to create a world-class transportation system for Tahoe that serves visitors' and residents' travel needs in ways that preserves the Region's environment.

The Nevada Department of Conservation and Natural Resources and California Natural Resources Agency convened the first Bi-State

Consultation on Transportation for the Tahoe Region in 2017 and reconvened in 2019. The Consultation represents a diverse group of stakeholders that work together to develop a 10-Year Action Plan of key transportation projects, to strengthen public-private partnerships, and to identify needed funding and funding sources to implement transformative projects at Tahoe.

The Bi-State Consultation is advancing several high priority transportation projects and is committed to developing funding for them:

Transit enhancements to double transit ridership in town centers and at popular recreation areas

Build paths, institute parking management, and provide transit service within the Region's two highest use recreation corridors:

State Route 89 in California along Tahoe's West Shore with some of the Region's most popular beaches, trail heads, and iconic vista points, including Emerald Bay

State Route 28 in Nevada along Tahoe's East Shore serving popular state parks, beaches, and lakeshore trails

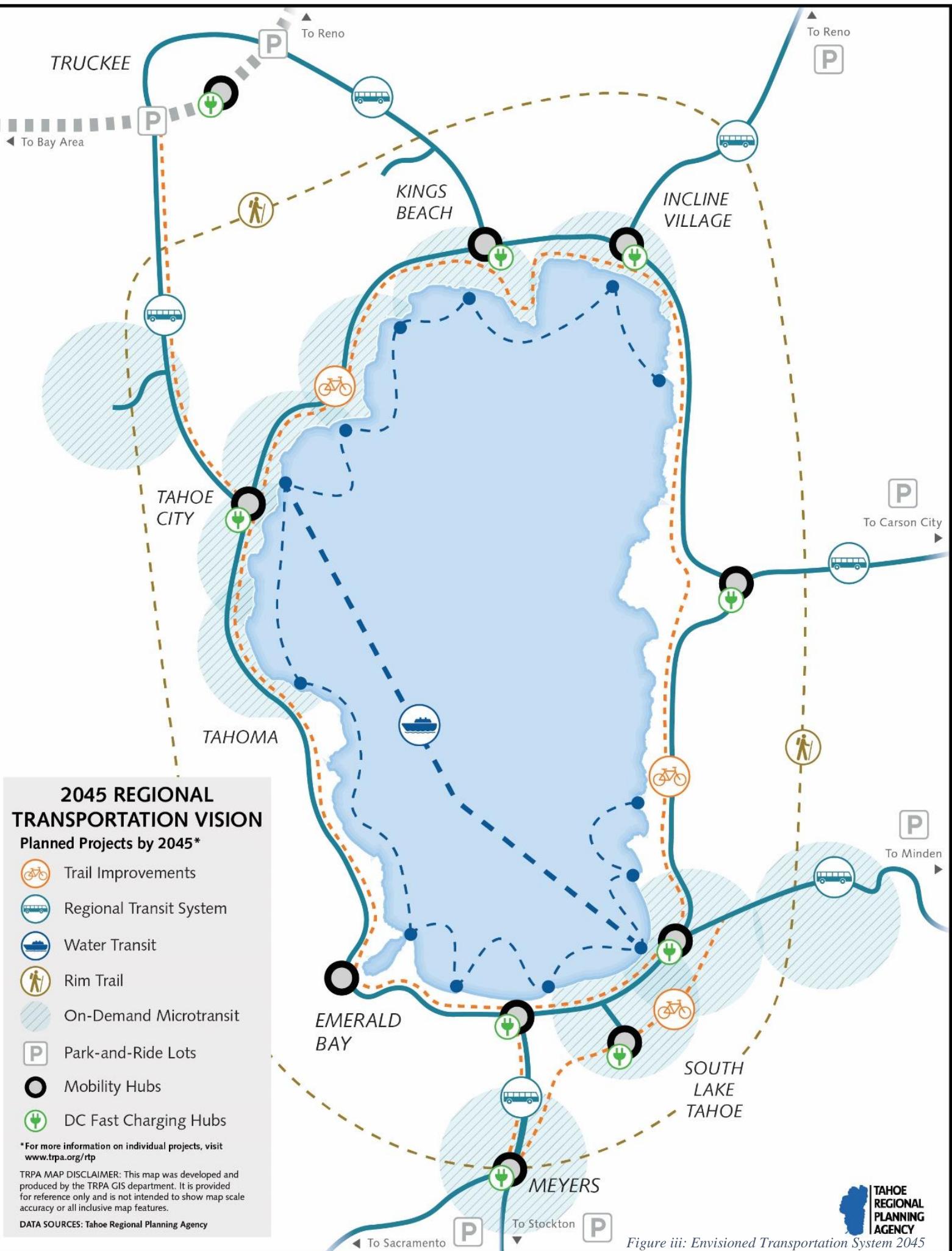
Advance the South Shore Community

Revitalization Project on Tahoe's South Shore to re-route US 50 from the center of town to its edge and reimagine the community core as a gathering place for visitors and residents with connections to mountain and lakeside recreation, nearby neighborhoods, convenient parking, and free and frequent transit, as guided by the Main Street Management Corridor Plan

Support implementation of **adaptive corridor management**, including a transit priority lane within the Resort Triangle between Truckee and the North Shore in Placer County, California on State Routes 267 and 89

Seventeen agencies committed to collaboratively advocate for funds to implement these catalytic projects, including working together to develop new regional revenue sources that are critical to delivery of the Regional Transportation Plan.

The Bi-State Consultation on Transportation has delivered clear priorities within the plan's project list, revenue forecast and approach to project implementation through collaboration.



REGIONAL GOALS

Regional goals and policies establish the organizing framework for transportation planning at Lake Tahoe. They represent stakeholder feedback and public input, as well as input from previous plans, such as the 2016 Active Transportation Plan, the 2016 Tahoe-Truckee Plug-In Electric Vehicle Readiness Plan, and the 2015 Intelligent Transportation Systems Strategic Plan.

The Regional Plan and the RTP share six major goals for the transportation system. See Appendix A for more information on the Regional Plan and RTP goals and policies.

Look for each goal's icon throughout this document to find where it is demonstrated in the plan



Figure iv: Kings Beach Commercial Core credit: Placer County



Environment

Goal: Protect and enhance the environment, promote energy conservation, and reduce greenhouse gas emissions.

Plan Approach: A transportation system that provides alternatives to driving can help preserve Tahoe's environment by reducing greenhouse gas emissions and roadway runoff into the lake. Assessing projects for vehicle miles traveled (VMT) and mitigating those impacts is part of TRPA's and California jurisdictions' development review.



Connectivity

Goal: Enhance and sustain the connectivity and accessibility of the Tahoe transportation system, across and between modes, communities, and neighboring regions, for people and goods.

Plan Approach: A seamless, efficient, and accessible transportation system is accomplished through the individual elements of transit, trails, and technology while enhancing their integration through a corridor approach.



Safety

Goal: Increase safety and security for all users of Tahoe's transportation system.

Plan Approach: Residents, commuters, and visitors are more likely to bike, walk, and take transit if they feel safe. Addressing high crash rate locations, eliminating gaps in bike and pedestrian paths, improving pedestrian crossings, and lighting transit stops are all proposed safety improvements.



Economic Vitality and Quality of Life

Goal: Support the economic vitality of the Tahoe Region to enable a diverse workforce, sustainable environment, and quality experience for both residents and visitors.

Plan Approach: The Tahoe Region's economy is built on the world-renowned recreational access residents and visitors enjoy. The transportation system supports this by connecting workers to jobs, visitors to recreation hot spots, and residents to attractive town centers and affordable housing.



Operations and Congestion Management

Goal: Provide an efficient transportation network through coordinated operations, system management, technology, monitoring, and targeted investments.

Plan Approach: A well-executed transportation management system incorporates monitoring data, real-time information, and dynamic operations that tracks, shares, and responds to travel needs, including congestion, snowstorms, and special events.

System Preservation

Goal: Provide for the preservation of the existing transportation system through maintenance activities that support climate resiliency, water quality, and safety.

Plan Approach: Maintaining the existing transportation system to operate at its highest level supports safe and efficient movement of people and goods in the Region. Keeping roadway pavement in safe condition, plowing paths for winter use, and planning for climate change resiliency makes initial investments last and reduces large and costly rehabilitation projects.

PLANNING CONTEXT

The Lake Tahoe Region is a uniquely complex transportation planning landscape. It includes the states of California and Nevada and their respective transportation departments, El Dorado, Placer, Douglas, and Washoe counties, the City of South Lake Tahoe, Carson City and County, the Tahoe Transportation District, and multiple public utility districts, improvement districts, and land management agencies. Tahoe is also the ancestral home of the Washoe Tribe of Nevada and California, making the tribe an important partner in planning initiatives.

TRPA's planning and regulatory authority, unique among federally designated metropolitan planning organizations, has created a long history of integrated land use and transportation planning in the Tahoe Region.

This integration can be seen when mixed-use development is concentrated in town centers, affordable and achievable workforce housing for residents is incentivized, and town centers and recreation sites are connected with biking, walking, and transit options. As a result, the Region achieves economic vitality, community revitalization, and environmental restoration and conservation goals. These actions also serve to meet California and Nevada targets to reduce greenhouse gas emissions.

While TRPA has these planning and regulatory authorities, the Region is most effective at achieving shared goals when work is completed by the Region's many private, community, and local, state, and federal government partnerships, which support the quality of life for residents, employees, and visitors.

TRPA Thresholds

The TRPA Bi-State Compact mandates the establishment of threshold standards and plans to attain and maintain them. The threshold standards address nine key resource areas: Water quality, air quality, scenic resources, soil conservation, fisheries, vegetation, wildlife, noise, and recreation. The Regional Transportation Plan, in its implementation, is a threshold attainment plan. Improvements in the plan will help achieve and sustain five of nine adopted thresholds:

Water Quality: Return the lake to 1960s water clarity and algal levels by reducing nutrient and sediment in surface runoff and groundwater.

Air Quality: Achieve the strictest of federal, state, or regional standards for carbon monoxide, ozone, and particulates; increase visibility; reduce U.S. 50 traffic; and reduce vehicle miles traveled.

Scenic Resources: Maintain or improve 1982 roadway and shoreline scenic travel route ratings, maintain, or improve views of individual scenic resources, and maintain or improve the quality of views from public outdoor recreation areas.

Noise: Minimize noise disturbance from single events and minimize background noise disturbances in accordance with land use patterns.

Recreation: Preserve and enhance high quality recreational experiences. Preserve undeveloped shorezone and other natural areas and maintain a fair share of recreational capacity for the public.

Currently, TRPA is updating the air quality vehicle miles traveled (VMT) threshold, an

outdated standard designed to limit nitrogen tailpipe emissions. The new threshold will target reducing greenhouse gas emissions from

mobile sources and improving traveler mobility in the Region by providing more active transportation choices.

PUBLIC PARTICIPATION

People helped develop the plan and ensure it meets the travel needs of residents, commuters, and visitors. In total, 8,517 people helped inform the development of the Regional Transportation Plan: 2,173 through direct engagement at meetings, and 6,344 through surveys, with 624 Spanish speaking residents engaged through both outreach methods. Following the shelter-in-place orders required due to the Covid-19 pandemic, TRPA pivoted its outreach for the plan to online platforms, successfully reaching more than 2,000 people.

Private Partners

Private partners play an essential role in achieving the plan's transportation vision by

providing easements, constructing improvements, offering transportation services, maintaining paths, and contributing funding. For example, mitigation fees charged to new development projects advance the implementation of the regional transportation plan by providing local governments and implementors monies to leverage larger grant opportunities. The private sector is also a key partner to implementing travel demand management strategies that encourage more people to bike, walk, carpool, or use transit services to reduce overall dependence on the personal automobile and greenhouse gas emissions.



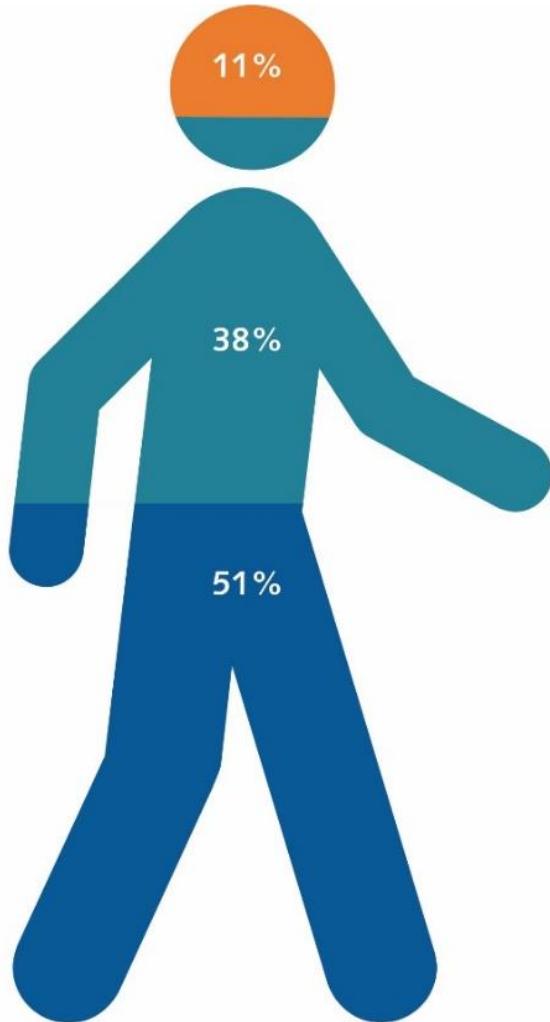
Figure v: State Route 89 Corridor Plan Stakeholder Workshop, 2019

THE PLAN

Lake Tahoe's transportation system must serve everyone—and to do so successfully requires understanding the needs of three distinct groups of users: Residents, commuters, and visitors. Knowing "who" is using the system, when and how they are traveling, the purpose of their trip, and where they are traveling to and from, helps TRPA and its partners build a better transportation system, and one that can scale with the seasons.

Everyday Tahoe

Everyday Tahoe trips include commutes to work or school and routine short trips around town that are often less than two miles in length. Everyday Tahoe trips account for 51 percent of all trips made within the Region.



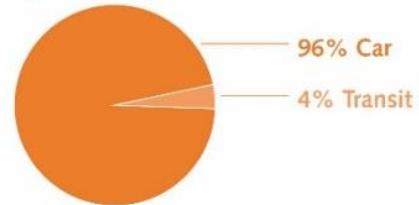
Discover Tahoe

Discover Tahoe trips include residents and visitors traveling longer distances to recreation areas around the Region. Discover Tahoe trips account for 38 percent of all trips made to, through, and within the Region.

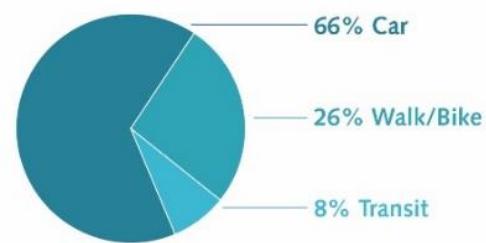
Visit Tahoe

Visit Tahoe trips are long-distance trips to and from Tahoe from the Northern California and Northern Nevada Mega-region, including connecting airports. They account for 11 percent of all trips made within the Region.

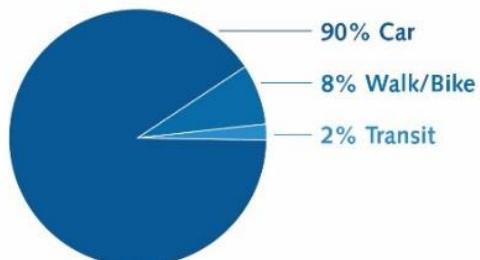
VISIT TAHOE *Regional Entry and Exit Travel*



DISCOVER TAHOE *Recreation Travel*



EVERYDAY TAHOE *Resident and Workforce Travel*



Strategies

The Regional Transportation Plan incorporates two main strategies to achieve the Region's envisioned transportation system: travel demand management and transportation system management.

Travel Demand Management (TDM)

Travel Demand Management (TDM) strategies shift the travel choices people make away from the personal automobile to walking, biking, transit, and carpooling, during busier travel times when there is less capacity on roadways and less parking at recreation sites.

Everyday Tahoe – Residential and Workforce Travel:

Because Everyday Tahoe trips are shorter and follow a similar pattern, they are the easiest trips to make using transit, biking, or walking. TDM strategies for Everyday Tahoe travelers include employer trip reduction programs; enhanced transit access to residential neighborhoods, school and work locations; and education and encouragement programs, such as the Lake Tahoe Bike Challenge and Bike to School week.

Discover Tahoe – Recreation Travel: Access to popular recreation sites and points of interest is often limited by parking availability and inadequate transit services which combine to create roadway congestion, and safety concerns and environmental degradation caused by people seeking parking further from their destination. TDM strategies for Discover Tahoe travelers include providing real-time travel information, parking management systems, marketing travel options, and incentivizing the use of transit.

Visit Tahoe – Regional Entry and Exit Travel:

Peaks in visitor travel typically occur over holiday weekends, for special events, and on high snowfall days. TDM strategies targeting the millions of visitors to the Region each year include encouraging travel to and from Tahoe during non-peak times, leaving the car at home and arriving by public or private transit that provides amenities like carrying recreation gear, and educating visitors about how they can conveniently access all the region has to offer on foot, bike, or transit once here.

Figure vii: Waiting for the Bus in Kings Beach credit: Novus Select



Transportation System Management (TSM)
 Transportation System Management (TSM) projects for transit, trails, technology, and communities provide a reliable, safe, and convenient transportation system. When coupled with TDM strategies, transportation in Tahoe can truly be transformed.

Transit

Transit services will be added incrementally over the next 25 years to provide 15-minute service between town centers and popular recreation destinations; 30- to 60-minute service between neighborhoods and town centers; and inter-regional service for commuters and visitors from neighboring regions.

Prioritizing and funding foundational service first meets everyone's daily needs, including transit-dependent riders and employees, makes it easier for recreational travelers to use transit to travel around the Tahoe Region, and assures visitors to Tahoe they can do so without their personal automobiles.

- **Everyday Tahoe – Residential and Workforce Travel:** Frequent, local, and community routes will be prioritized in the short-term and provide necessary services for everyone, and especially for transit-dependent populations.
- **Discover Tahoe – Recreation Travel:** Seasonal service to popular recreation sites, such as beaches, trailheads, and ski resorts, will help residents and visitors recreate without driving.
- **Visit Tahoe – Regional Entry and Exit Travel:** Public and private transit providers will build on the existing water transit and regional services to provide more options for commuters and visitors to travel to Tahoe without bringing their cars.

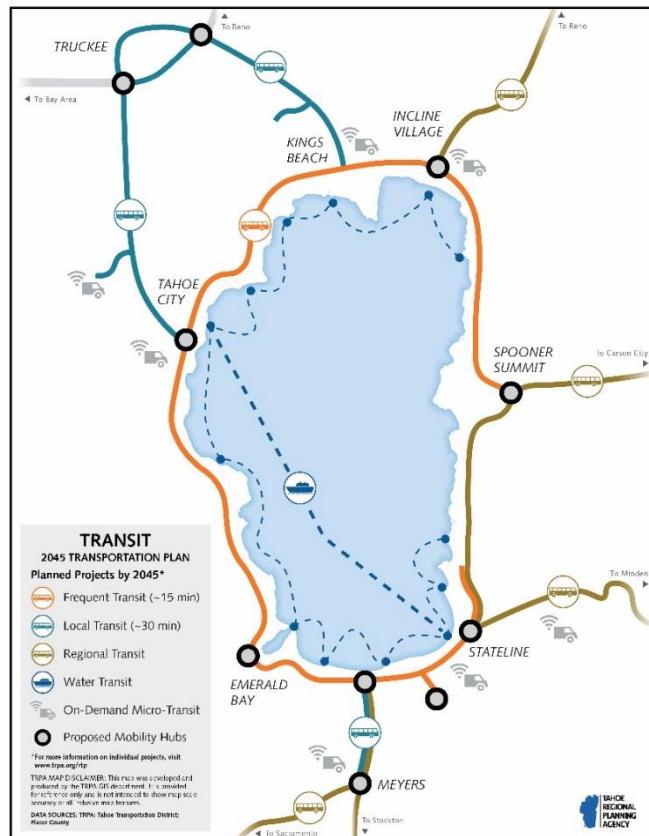


Figure viii: Envisioned Transit System

Trails

The Tahoe Region has excelled at building a growing system of shared-use paths, sidewalks, bicycle lanes, crosswalks, and Americans with Disabilities Act facilities. The network is critical to increasing trips by foot and bike in the Region by providing enjoyable, and crucial, walking and biking routes. Between 2018 and 2019, bike paths and sidewalks at Tahoe that have monitoring stations recorded a 15 percent increase in summertime use.

- **Everyday Tahoe – Residential and Workforce Travel:** Closing gaps in the sidewalk and trail system will increase safety, ensure the system is accessible to people with a disability, and provide critical community, work, and recreation connections for people who do not have access to a car.

- Discover Tahoe – Recreation Travel:** Completing the Tahoe Trail around the lake and improving connectivity within and between communities will improve access to beaches, trails, and other recreation areas, and support new modes of active transport such as e-scooters and e-bikes.
- Visit Tahoe – Regional Entry and Exit Travel:** Improving connectivity and safety between communities combined with promoting biking and walking as a primary mode of transportation to the Region's visitors will allow visitors to enjoy Tahoe car-free.

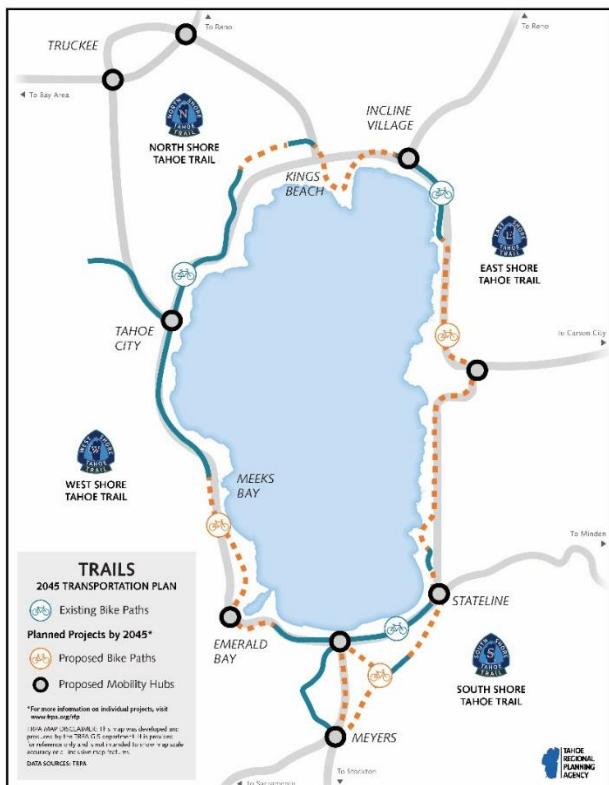


Figure ix: Envisioned Trails System

Technology

Technology creates opportunities to better connect people with information about the many ways to travel around the Region, informs better planning by TRPA and its many partners through new data and analysis, and ensures

charging facilities for electric vehicles are available throughout the Region.

- Everyday Tahoe – Residential and Workforce Travel:** Providing real-time travel information, online interactive maps, and building awareness of app-based transportation services, such as on-demand microtransit and bike and scooter sharing, will provide better and more informed travel choices for every day travel needs.
- Discover Tahoe – Recreation Travel:** Providing a region-wide transportation trip planning tool and informational kiosks at popular activity centers, combined with managed parking at heavily-visited recreation destinations, will enable recreation travelers to make more informed, cost-effective travel choices.

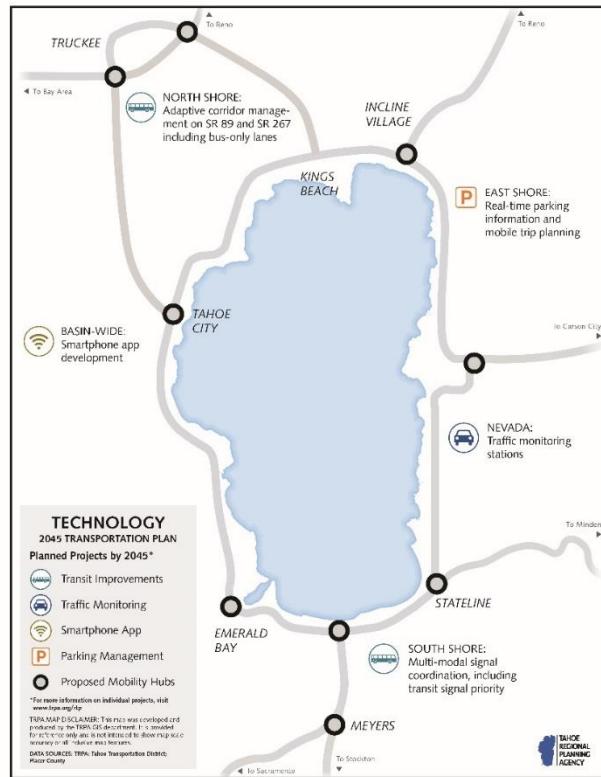


Figure x: Envisioned Technology System

- Visit Tahoe – Regional Entry and Exit Travel:** Provide real-time information and video feeds of roadway conditions

and travel restrictions, allowing drivers to plan ahead, and install more electric vehicle charging stations around the lake to reduce transportation's impact to the environment by reducing GHG emissions.

Communities

The Communities focus area of the plan is where elements of transit, trails, and technology come together with land use, often through a corridor planning framework. The Communities approach enhances the Region's economic vitality by more efficiently connecting workers to jobs, visitors to recreation hot spots, residents to attractive town centers with affordable housing and to recreation, and freight to businesses.

- Everyday Tahoe – Residential and Workforce Travel:** A complete streets approach in town centers ensures that all roadways include sidewalks, bike lanes, shared-use paths, and amenities such as landscaping, benches, and pedestrian lighting to encourage travel by foot, bike, and transit; and funding is prioritized to maintain roads and paths, which are critical for moving people and goods.
- Discover Tahoe – Recreation Travel:** Seventeen mobility hubs and transit centers are planned to be built within the Tahoe Region and at key entry points from neighboring regions. Each hub will be appropriately sized for its location, include park and ride lots that are reservable online, and provide simple and convenient access to frequent transit services that carry recreation equipment and luggage.

- Visit Tahoe – Regional Entry and Exit**

Travel: Corridor planning provides seamless, efficient, and accessible transportation services that always include active transportation options, improves the sustainability of outdoor recreation at Tahoe, and facilitates transit-oriented development in town centers that connects people to housing, lodging, commercial areas, and popular recreation destinations in the Region.

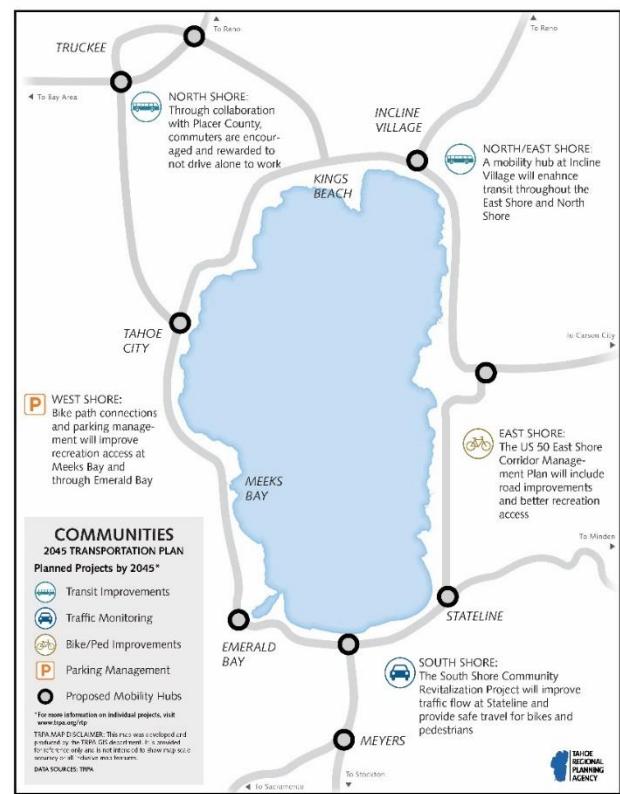


Figure xi: Envisioned Communities System

Supporting Advancements in Planning

Implementing the regional transportation plan will be further advanced by the following concurrent planning efforts:

Understanding Tahoe Travel: Establishing methods to better understand the Everyday Tahoe, Discover Tahoe, and Visit Tahoe travel groups, their travel needs, and the proportion of VMT that each produces.

Efficient and Accelerated Implementation: The 17 public agencies that committed to

the corridor planning framework continuing to advance catalyzing change to Tahoe's transportation system through collaborative implementation and new transportation funding.

Transportation Demand Management: Strengthening existing partnerships within the transportation management associations on the North and South Shores to implement effective transportation demand management strategies through public-private partnerships.

IMPLEMENTATION

The Tahoe Region is building a world-class transportation system to meet its goals for environmental conservation and restoration, community revitalization, and sustainable recreation. The Regional Transportation Plan lays out the steppingstones for achieving that system. Corridor planning is key in the plan's approach. It coordinates projects, services, and roadway management throughout the Region's six main travel corridors to accelerate Regional Transportation Plan implementation. It also identifies committed champions to spearhead needed improvements and ensure that plans for long-term operations and maintenance are in place.

Tahoe's transportation system will be achieved over the next 25 years through three steps:

- By 2025, strengthening the existing transportation system to ensure foundational transit services and trails infrastructure are in place for all travelers in Tahoe, from the Everyday traveler who relies on the system to get to work, to the Discover Tahoe traveler and their interest in visiting the most popular recreation sites, and for the Visit Tahoe traveler

who will be confident that enjoying Tahoe is possible without a car.

- By 2035, the foundation will be built stronger and expanded to provide more for all travelers in Tahoe: More transit routes, more frequent transit service, more travel options with completed and continuous path and sidewalk routes to popular destinations, and more programs to support commuters, recreators, and help visitors make more informed transportation choices.
- By 2045, the expanded foundation of the prior two steps will be connected to neighboring communities and the broader Mega-region to meet the travel needs of recreationists who visit Tahoe for the day, and visitors to the Region from larger cities and connecting airports.

The Tahoe Region will continue progress on each of these three steps concurrently, though implementation must be phased both for the system to function as intended and because there is not currently adequate funding available to pay for everything to be implemented today.

To prepare for accelerated implementation as envisioned in the Bi-State Consultation, these steps are built to flex and adapt as new funding sources and partnerships become available. For example, the plan envisions inter-regional transit service between nearby cities and Tahoe to be fully in place by 2045. However, inter-

regional partnerships between TRPA and the Regional Transportation Commission of Washoe County, Nevada will pilot transit service between Reno and Sparks to Incline Village and Sand Harbor State Park, anticipated to start in summer 2021, implementing the first step towards the plan's larger transit vision.

2021 to 2025

Transit: Transit service in the Region is free and frequent on core routes; private partners increase the number of people using transit and microtransit services; mobile source GHG emissions are reduced because fewer people are traveling in their personal automobile, and when they do drive it's more often with a zero-emission vehicle; and the most vulnerable users in our communities have more transit options.

Trails: Seven miles of new shared-use paths are constructed; people who walk and bike are served by projects in high-use areas with separated paths, on-street bicycle lanes, safe and accessible transit stops, frequent and safe road crossings, and amenities such as water fountains, landscaping, benches, and shelters.

Technology: Access to the East Shore Trail and recreation sites is improved through real-time parking information and other parking management strategies; walking and bicycling are prioritized at traffic signals in California, reducing the barrier and safety concerns that intersections present for vulnerable users.

Communities & Corridors: Commuters are encouraged and rewarded to not drive alone to and from work; every corridor in Tahoe has a plan for providing more and safer transportation choices; and students can confidently and safely walk, bike, or ride transit to and from school.

2026 to 2035

Transit: More people ride transit by choice because it is free, frequent, and easy to use; commuters from the Carson Valley have affordable and reliable transit options to jobs at Tahoe; and popular recreation sites can be reached with shuttles and water taxis.

Trails: Forty-seven miles of new paths, bike lanes, bike routes, and sidewalks are built; the Tahoe Trail is extended from Baldwin Beach to Meeks Bay on the South Shore and from Sand Harbor State Park to Spooner Lake State Park on the East Shore.

Technology: Transit is prioritized at traffic signals in California and heavy traffic is carried on California highways on the North Shore without road widening by adapting travel lanes during busy traffic periods.

Communities & Corridors: Main Street improvements on the South Shore are completed, providing better walking, biking, and transit service in one of the most heavily-visited areas at Tahoe; more people park their cars once and travel around the Region by transit, walking, or biking; and recreation access is improved with new paths and parking management strategies at Meeks Bay.

2036 to 2045

Transit: Five million people ride transit in the Region every year; cross-lake passenger ferry service provides an alternative to driving between the North and South shores; and mega-regional transit brings visitors to Tahoe without the need for a personal vehicle.

Trails: One-hundred and ten miles of new paths, bike lanes, bike routes, and sidewalks are added to the transportation system, completing the Tahoe Trail, and giving the Region a fully interconnected multi-modal transportation system.

Technology: Road construction information is shared with travelers to increase their trip planning abilities; more people do not drive to work and are rewarded for doing so; and emergency communication services are integrated for better information sharing and response with the California Intelligent Mobile Observation System.

Communities & Corridors: Roads are paved, potholes are filled, and regular maintenance is completed on all local roads at Tahoe; U.S. 50 is rerouted around popular gathering and recreation areas on the South Shore, and a new main street is built with improved transit service and infrastructure for pedestrians and bicyclists.

Figure xii: Connecting Area Plans to Transportation Options



FUNDING

Lake Tahoe, like other resort destinations, experiences high visitation and demand for transportation. Complex funding strategies are needed that can build a system that goes well beyond the needs of residents and nearby commuters. All of the plan's projects are needed to fully realize the envisioned transportation system; but not all projects have the funding needed for implementation.

An estimated \$2.2 billion in revenue is anticipated to be available for transportation system improvements over the plan's 25-year planning period. TRPA forecasts that investments of nearly \$3.2 billion will be needed for transportation infrastructure, transit services, active transportation, and other programs over the same time period, leaving a shortfall of approximately \$1 billion to fully fund the plan. With time, strategies will be identified to close the funding shortfall, which is not anticipated to deter current plan

implementation because the Region cannot fully build and maintain all the transportation infrastructure and provide all the transportation services the plan envisions all at once.

Today at Lake Tahoe, there is broad alignment around the Region's transportation challenges and solutions needed to address them. All agree that new funding sources are needed to complete the transformative changes identified by the plan. The continuing work of the Bi-State Transportation Consultation for the Tahoe Region re-convened in 2020 to reinforce alignment around transportation priorities and identify additional transportation revenue that could be supported by the two states and the many regional partners will accelerate the plan's implementation going forward. Additionally, TRPA and its many partners at the local, state, and federal levels, are collaborating to identify other regional revenue sources needed to fully fund the needed transportation system improvements.

Figure xiii: Vibrant Downtown Tahoe City



PERFORMANCE MEASURES

TRPA measures the transportation system at Tahoe to know what is happening on roads, paths, and bus routes. Such information is critical for the agency to adapt planning initiatives, direct funding to projects and programs, respond to emerging issues, and refine projects and programs for better outcomes. It is also how TRPA continuously manages for success.

To do so, TRPA collects data from a variety of sources, including surveys, U.S. Census data, "Big Data," and the TRPA Travel Demand Model. The agency uses these data, tools, and analysis to monitor specific transportation performance measures every one to four years.

Performance measures include Daily VMT Traveled, non-auto mode share, resident access to walking and biking infrastructure and transit services, serious injury crash rates, and roadway pavement conditions.

Daily VMT Traveled

Originally adopted as a TRPA air quality threshold, Daily VMT Traveled measures the distance of all trips on a typical summer day in Tahoe.

DAILY VMT TRAVELED

TARGET: 10% Reduction from 1981

PERFORMANCE: NOT ON TARGET

1981 Daily VMT: 1,303,301
2018 Daily VMT: **1,398,994** 

Figure xiv: Daily VMT Traveled

Non-Auto Mode Share

Measures the proportion of all trips that are made by foot, bike, scooter, and transit.

NON-AUTO MODE SHARE

TARGET: Improve average non-auto mode share calculated from the two most recent TRPA travel survey results.

PERFORMANCE: ON TARGET



Figure xv: Non-Auto Mode Share

Rate of Serious Injuries per 100 Million Vehicle Miles Traveled (VMT)

Measure is a national standard for tracking the safety of a region's roadways.

RATE OF SERIOUS INJURIES PER 100 MILLION VEHICLE MILES TRAVELED (VMT)

TARGET: Reduce serious injury crashes by 1.5% in California and 0.5% in Nevada (based on a five-year rolling average).

PERFORMANCE: NOT ON TARGET

California: Nevada:

Goal:	3.336	4.9
Actual:	3.136	4.9

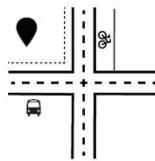


Figure xvi: Rate of Serious Injuries

Priority Communities' Transportation Access: $\frac{1}{4}$ Mile to Transit Service, $\frac{1}{2}$ mile to Class I Bike Path, and $\frac{1}{4}$ mile to Pedestrian Facilities (Class 1 Bike Path and Sidewalks)

Measures how well the transportation system supports the Region's residents, their economic vitality, and quality of life, especially the most vulnerable in Tahoe communities, including people living below the federal poverty line, that are disabled, or live in a household with zero vehicles.

TRANSPORTATION ACCESS IN PRIORITY COMMUNITIES:



- $\frac{1}{4}$ mile to transit stops
- $\frac{1}{2}$ mile to bike paths
- $\frac{1}{4}$ mile to pedestrian facilities

NEW TARGET: Increase access to each mode from Priority Communities to 100% by 2045.

PERFORMANCE: ON TARGET



Figure xvii: Transportation Access in Priority Communities

Note: Priority Communities are those that have three or more environmental justice criteria: low-income, minority, disabled, zero vehicle

MOVING FORWARD

The Tahoe Region is making progress on longstanding transportation challenges. Accelerating that progress is needed to improve the health of the Region's environment, the vitality of its communities, the quality of life of residents, the quality of the recreation experience for both residents and visitors, and

household, senior household. This is a new Performance Measure and so cannot be compared to prior measures.

Pavement Condition

Measure provides key information about maintenance efforts and needs in the Region and helps direct operations and maintenance plans and funding.

This measure is tracked using data from state departments of transportation and local jurisdictions.

PAVEMENT CONDITION

TARGET: Maintain levels for "Good" and "Poor" pavement conditions.

California: Nevada:

Good: $\geq 29.9\%$ $\geq 55.8\%$

Poor: $< 7.2\%$ $< 6.5\%$

PERFORMANCE:

California: **NOT ON TARGET**

Nevada: **ON TARGET**



California: Nevada:

Good: **30.7%** **79.4%**

Poor: **33.6%** **4.7%**

Figure xviii: Pavement Condition Index

to meet greenhouse gas reduction goals set by the states of California and Nevada.

Many private partners, advocacy groups, and public agencies at all levels of government are working together to advance the Region toward Tahoe's Regional Transportation Plan goals, thanks in part to the Bi-State Consultation on

Transportation and the Corridor Planning Framework.

TRPA is also broadening its partnerships inter-regionally to improve the effectiveness of transportation planning, projects, and programs at Tahoe and to strengthen collaboration and innovation on transportation issues with partners such as the Sacramento Area Council of Governments, The Regional Transportation

Commission of Washoe County, the Carson Area Metropolitan Planning Organization, the University of California, Davis Institute of Transportation Studies, and the University of Nevada, Reno.

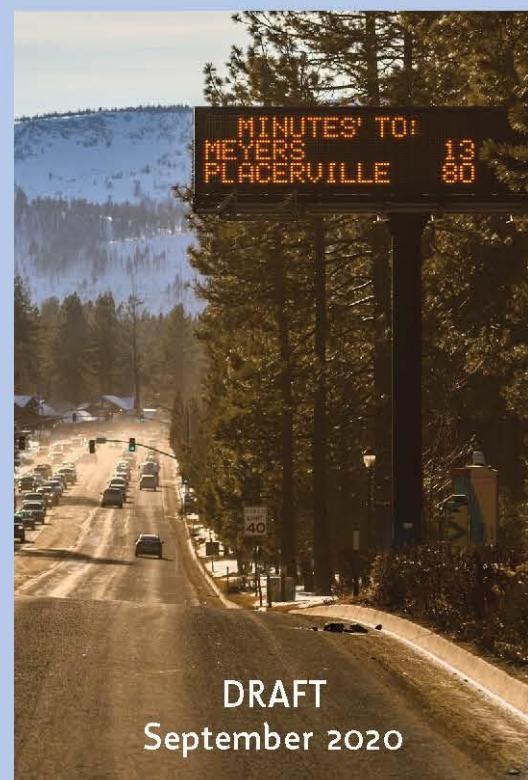
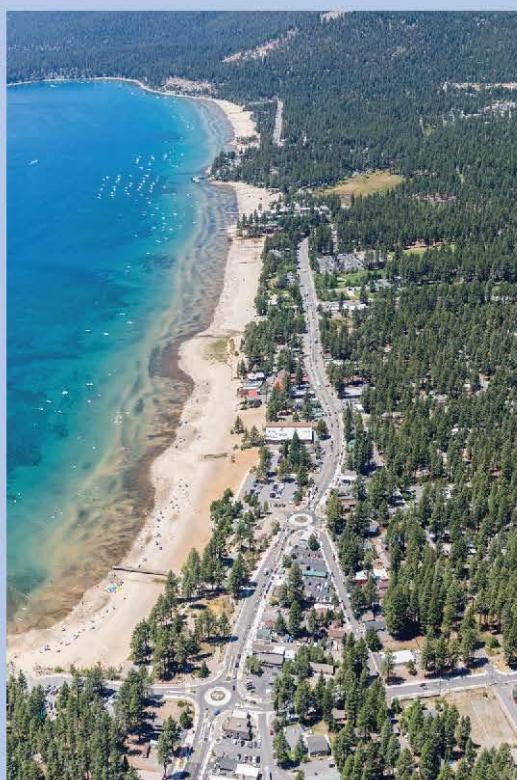
Continued innovation, partnerships, and solutions needed to develop a world-class transportation system for the Tahoe Region are truly within reach.



REGIONAL TRANSPORTATION PLAN

TAHOE REGIONAL PLANNING AGENCY

lake tahoe



DRAFT
September 2020

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CHAPTER 1

INTRODUCTION



Figure 1: Tahoe Trail Near Tahoe City credit: Drone Promotions

Introduction

It is hard to imagine that the Lake Tahoe community of today could have been as large as San Francisco. Plans in the 1950s and 1960s called for a year-round population of 750,000 people at Tahoe with freeways ringing the mountaintops. A superhighway was planned for what is now the Tahoe Rim Trail.

Early growth and development restrictions at Lake Tahoe sparked controversy, but conflict gradually gave way to compromise and collaboration as competing interests learned to work together. Creation of the Tahoe Regional Planning Agency (TRPA) in December of 1969 and this growing spirit of collaboration have helped ensure the Tahoe Basin remains a world-class natural resource to protect.

TRPA's mission is to lead the cooperative effort to preserve, restore, and enhance the Lake Tahoe Region, while improving local communities and visitor's interactions with our irreplaceable environment.

There is broad consensus that the Tahoe Region needs a transportation system transformation to help people travel to, from, and around the Region more efficiently. Improvements are also needed to strengthen initiatives underway to conserve and restore Tahoe's environment; revitalize communities; improve quality of life for residents and quality of experience for visitors; improve mobility and safety for people walking and biking; improve recreation access and sustainability; reduce emissions of greenhouse gases (GHG), and build a resilient system in response to climate change.

In the Region, there is a strong link between land use and transportation. Land uses, such as public beaches or a popular micro-brewery, attract people — and people need transportation of some kind to get to those places. This push-and-pull between land use and transportation can also happen in the reverse. The development of the nation's transportation system, from the transcontinental railroad to the National Highway System, provides a classic example of transportation leading to land use changes — with many towns and cities developing along these critical transportation corridors.

Vision

Tahoe's transportation system is interconnected, inter-regional, and sustainable, connecting people and places in ways that reduce reliance on the private automobile.

At Lake Tahoe, recognizing and leveraging this interplay between land use and transportation is accomplished through the Regional Plan, the land use plan for the Lake Tahoe Region, as well as the Regional Transportation Plan (RTP), which serves as the transportation element of the Regional Plan.

The RTP guides project and program design and implementation through goals, policies, and projects linked to foreseeable revenues. It is the guide for improving Tahoe's transportation system and complements the Regional Plan's goals for environmental conservation and restoration and community revitalization through better, wiser, and more sustainable transportation choices.

THE TAHOE REGION

Lake Tahoe is situated in a beautiful and environmentally sensitive enclosed watershed, and its communities are supported by a robust seasonal recreation tourist economy that supports just over 50,000 residents and attracts millions of visitors each year. Town centers and popular recreation destinations are dispersed around the lake, connected by state and federal highways, local roads, bike lanes, and shared use paths.

Split by the California-Nevada border, the Tahoe Region is a uniquely complex transportation planning landscape.

The Region includes two states, five counties, one city, one transportation district, and multiple public land management agencies and public utility districts. Culturally, the lake is the center of the Washoe Tribe's world, both geographically and spiritually, and is known as Dá O Ga.

MEGA-REGION

Lake Tahoe serves as the outdoor playground for the neighboring metropolitan areas in Northern California and Nevada, from San Francisco, San Jose, and Sacramento, to Carson City and Reno, that together make up the Trans-Sierra Mega-region. In addition to being a popular destination for overnight visitors, Tahoe also attracts a high number of day

visitors who drive up to enjoy Tahoe but do not stay overnight. As neighboring cities in California and Nevada continue to grow, so will visitation to Tahoe.

Travel to Tahoe from the Mega-region is possible by regional air, rail, roadway, and transit systems.

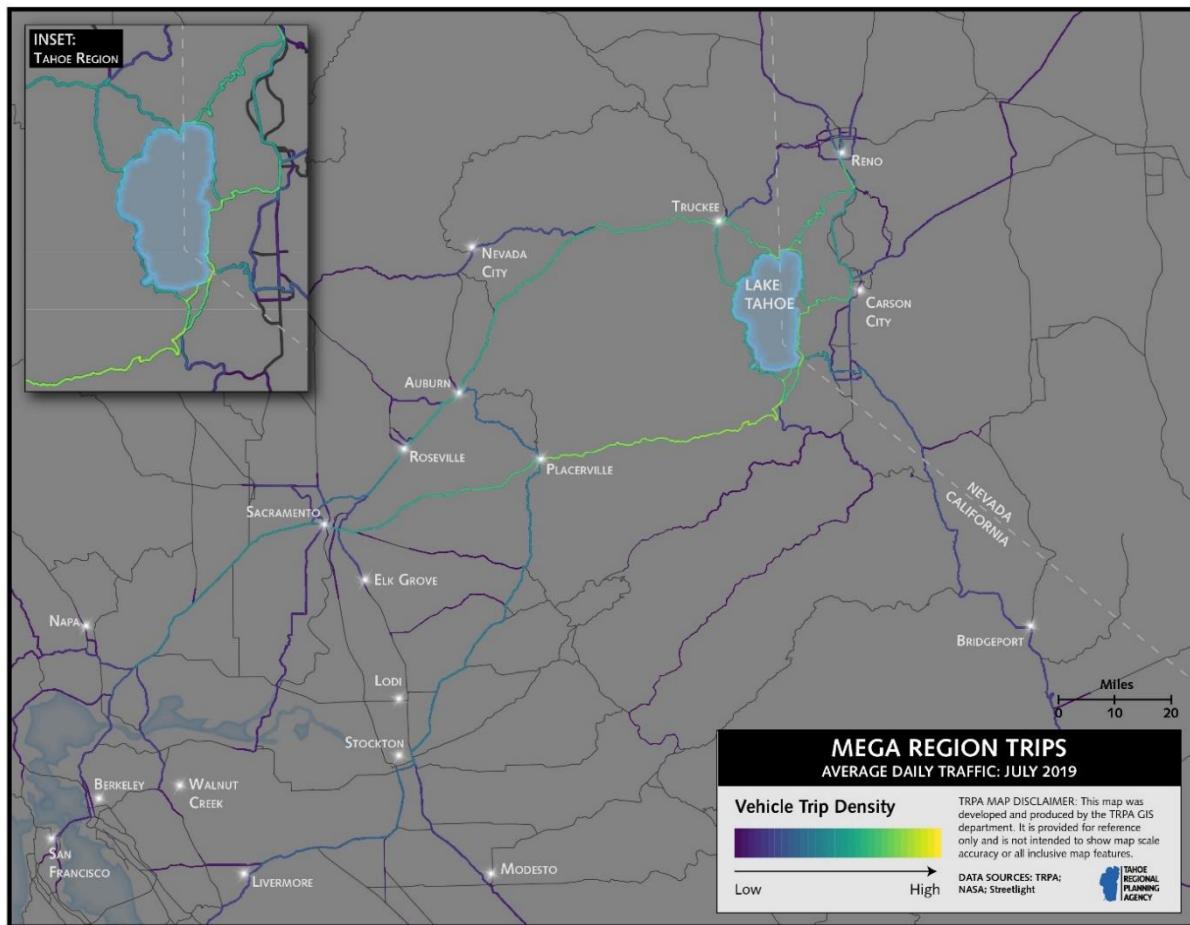


Figure 2: Lake Tahoe Mega-region

Air

These airports provide air connections to cities within the Mega-region that link to Tahoe by shuttle or a one- to five-hour drive: Reno/Tahoe International Airport, Sacramento International Airport, Oakland International Airport, and San Francisco International Airport.



Figure 3: Mega-region Airport Map

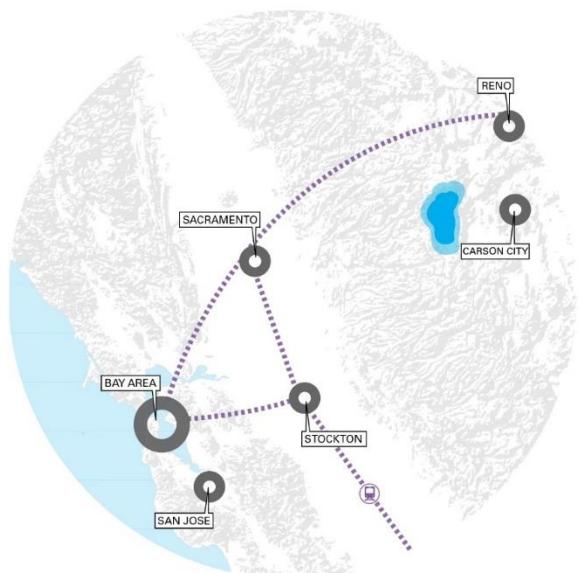


Figure 4: Mega-region Rail Corridors

Auto

Automobile access to Tahoe is possible on interstate and U.S. highways, state routes, and local roads, including Interstate 80, U.S. Highway 50, U.S. Highway 395, Nevada State Route 207, Nevada State Route 431, Nevada and California State Route 28, and California state routes 88, 89, and 267.

Rail

Heavy rail corridor, originally part of the transcontinental railroad, connects the major airports from northern California to Reno, Nevada, with a stop in Truckee, California, just north of the Tahoe Region.

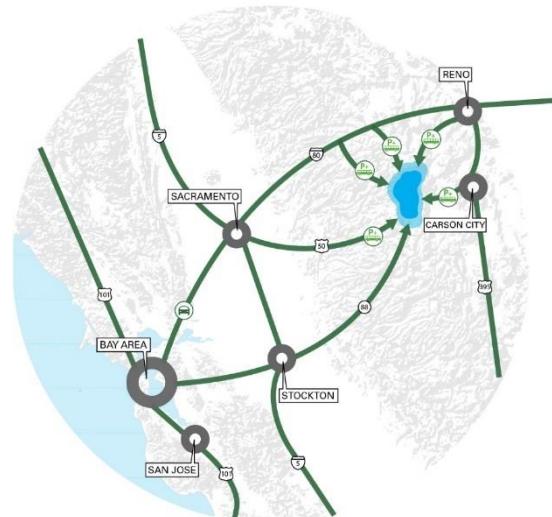


Figure 5: Mega-region Auto Corridor Map

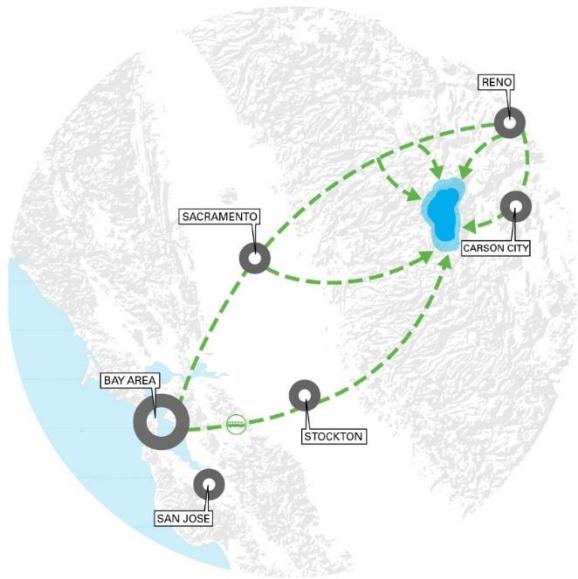


Figure 6: Mega-Region Bus Map

THE ENVISIONED TRANSPORTATION SYSTEM

The experience and perception of traffic congestion is real at Tahoe. During peak travel times in winter and summer, the roads become congested, making the traffic feel like what is more commonly encountered in a big city. Economic downturns can reduce travel temporarily, as happened during the Great Recession, but roadways rebound to pre-recession levels making the once quiet trip seem more congested than before.

The plan's mobility approach to transportation is to build a system that serves a typical travel day in

Bus

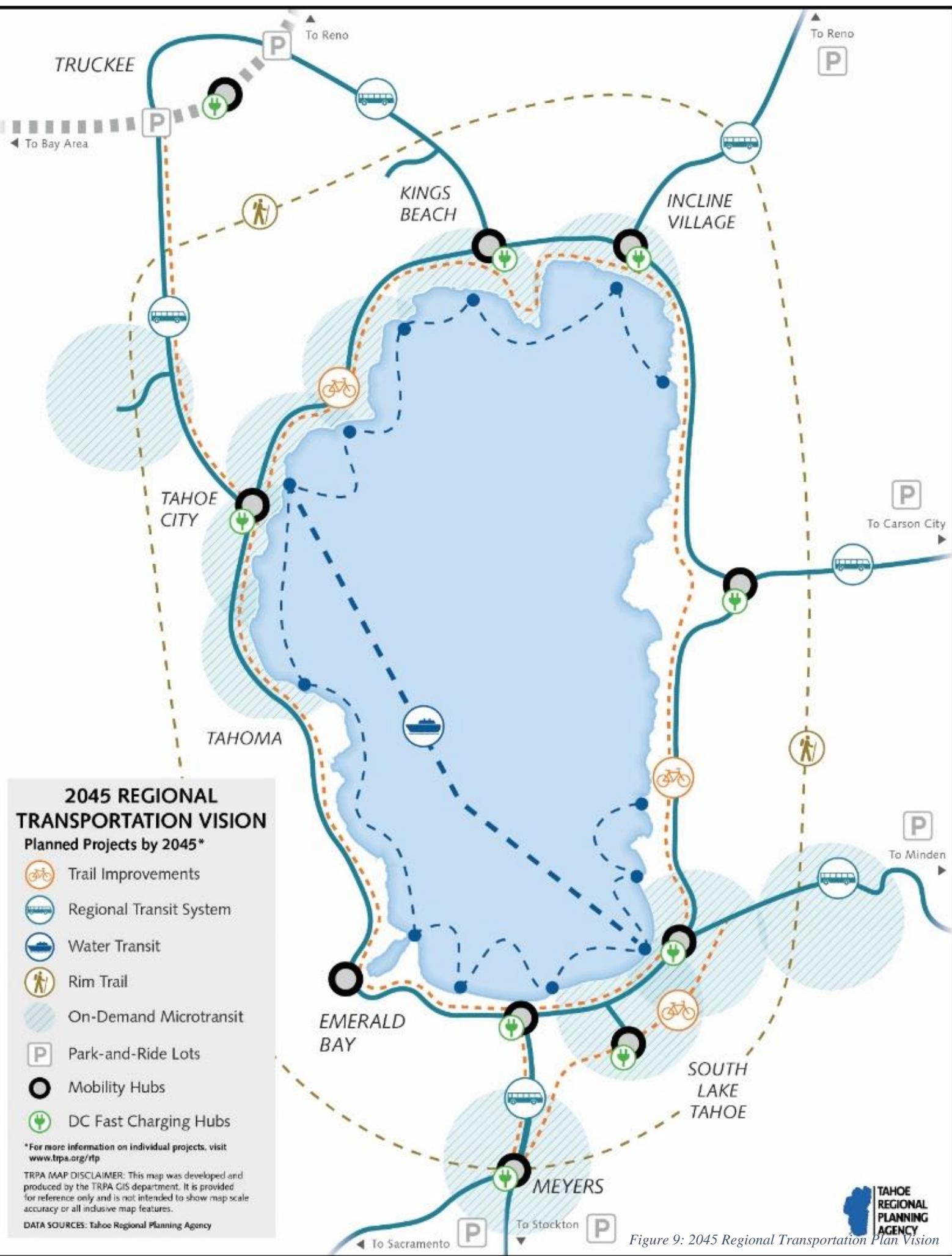
Public and private buses and shuttles provide transit connections to and from Lake Tahoe, major airports, and population centers outside of the Region, e.g., Amtrak, South Tahoe Airporter, North Lake Tahoe Express, and seasonal service by smaller private providers like Tahoe Convoy. Greyhound provides connections to Truckee, north of the Tahoe Region.

Tahoe by using the existing roadway capacity more efficiently and enhancing the entire transportation system. New trails and transit services, traffic signal improvements, adaptive corridor management with transit priority and/or reversible travel lanes, and parking management are possible, proposed in the plan, and being added to the system by partners in order to improve connectivity and mobility.

Building out the roadway system for the peak roadway demand does not make sense for the environment or for those who live, work, or visit here.

Figure 8: New Round-a-Bout at Tahoe City credit: Drone Promotions





REGIONAL GOALS

Regional goals and policies establish the organizing framework for transportation planning at Lake Tahoe. They represent stakeholder feedback and public input, as well as input from previous plans, such as the 2016 Active Transportation Plan, the 2016 Tahoe-Truckee Plug-In Electric Vehicle Readiness Plan, and the 2015 Intelligent Transportation Systems Strategic Plan.

The Regional Plan and the RTP share six major goals for the transportation system. See Appendix A for more information on the Regional Plan and RTP goals and policies.

Look for each goal's icon throughout this document to find where it is demonstrated in the plan



Figure 10: Kings Beach Commercial Core credit: Placer County



Environment

Goal: Protect and enhance the environment, promote energy conservation, and reduce greenhouse gas emissions.

Plan Approach: A transportation system that provides alternatives to driving can help preserve Tahoe's environment by reducing greenhouse gas emissions and roadway runoff into the lake. Assessing projects for vehicle miles traveled (VMT) and mitigating those impacts is part of TRPA's and California jurisdictions' development review.



Connectivity

Goal: Enhance and sustain the connectivity and accessibility of the Tahoe transportation system, across and between modes, communities, and neighboring regions, for people and goods.

Plan Approach: A seamless, efficient, and accessible transportation system is accomplished through the individual elements of transit, trails, and technology while enhancing their integration through a corridor approach.



Safety

Goal: Increase safety and security for all users of Tahoe's transportation system.

Plan Approach: Residents, commuters, and visitors are more likely to bike, walk, and take transit if they feel safe. Addressing high crash rate locations, eliminating gaps in bike and pedestrian paths, improving pedestrian crossings, and lighting transit stops are all proposed safety improvements.



Economic Vitality and Quality of Life

Goal: Support the economic vitality of the Tahoe Region to enable a diverse workforce, sustainable environment, and quality experience for both residents and visitors.

Plan Approach: The Tahoe Region's economy is built on the world-renowned recreational access residents and visitors enjoy. The transportation system supports this by connecting workers to jobs, visitors to recreation hot spots, and residents to attractive town centers and affordable housing.



Operations and Congestion Management

Goal: Provide an efficient transportation network through coordinated operations, system management, technology, monitoring, and targeted investments.

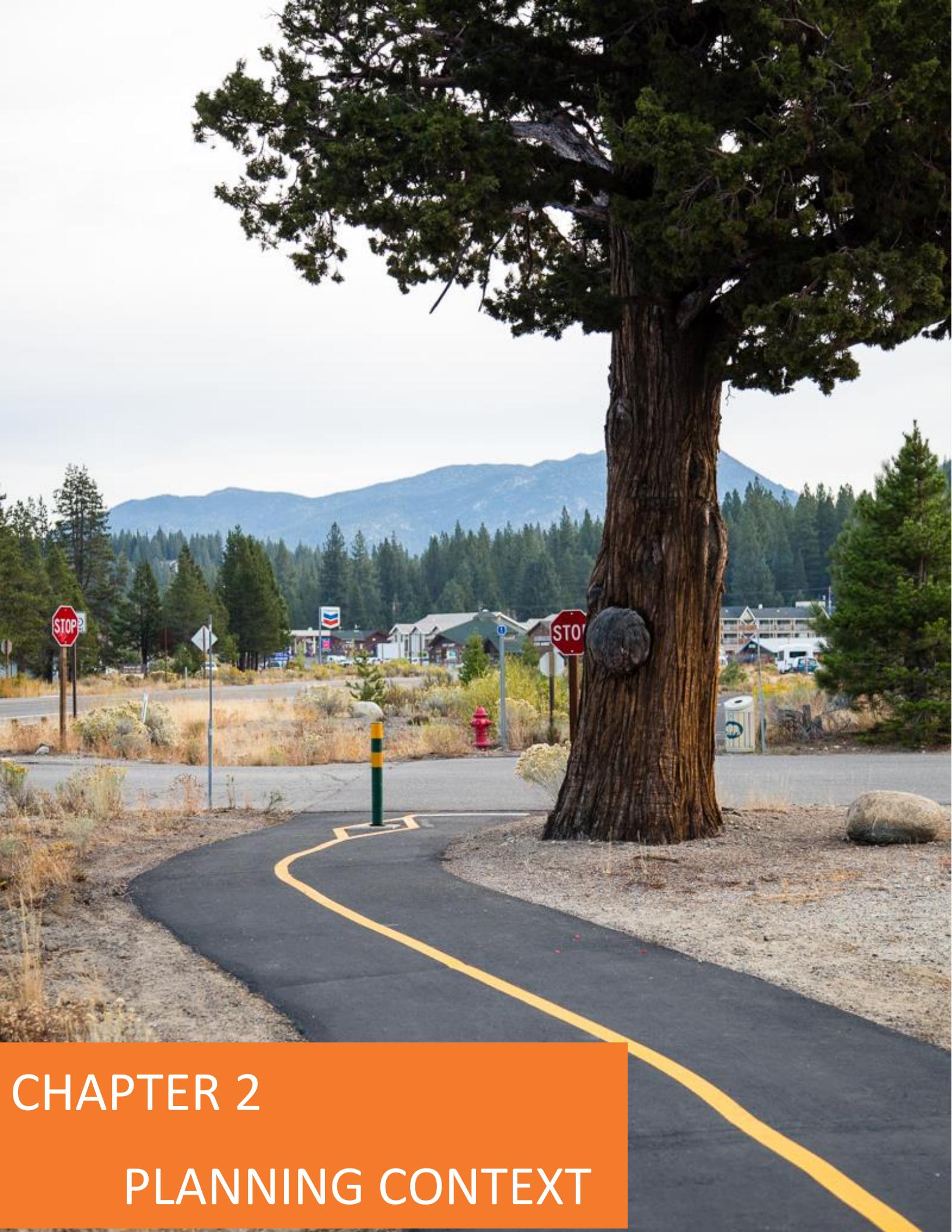
Plan Approach: A well-executed transportation management system incorporates monitoring data, real-time information, and dynamic operations that tracks, shares, and responds to travel needs, including congestion, snowstorms, and special events.



System Preservation

Goal: Provide for the preservation of the existing transportation system through maintenance activities that support climate resiliency, water quality, and safety.

Plan Approach: Maintaining the existing transportation system to operate at its highest level supports safe and efficient movement of people and goods in the Region. Keeping roadway pavement in safe condition, plowing paths for winter use, and planning for climate change resiliency makes initial investments last and reduces large and costly rehabilitation projects.



CHAPTER 2

PLANNING CONTEXT

Planning Context

Lake Tahoe is widely known for its famed water clarity and is designated by the EPA as an Outstanding National Resource Water. The lake's diminishing clarity as a result of rapid development leading up to and following the 1960 winter Olympics at Squaw Valley led California, Nevada, and the federal government to create TRPA in 1969 to manage growth and development throughout the Region and lead the lake's environmental restoration and conservation.

The TRPA Bi-State Compact gives TRPA land use planning authority to achieve environmental goals through the Regional Plan. This authority reaches throughout the Tahoe watershed and allows for regulations that specify where and how development may occur to protect, restore, and sustain the lake and other environmentally sensitive areas such as streams, wetlands, and wildlife habitat.

TRPA also functions as the Tahoe Metropolitan Planning Organization (TMPO), making it the federally designated transportation planning agency for the Tahoe Region. The TMPO provides transportation planning, funding, and technical assistance to realize the RTP's vision.

Most metropolitan planning organizations do not have TRPA's land use planning authorities. As a result of this dual role, the Tahoe Region

has a long history of integrated land use and transportation planning. For example, Heavenly Village, redeveloped and the gondola installed in 2000, is now a bustling commercial and tourist lodging area on the South Shore. The village provides a gathering place and recreation destination and the gondola provides a walkable link to the ski hill for the many nearby hotel and lodging guests. As a result, vehicle trips to the mountain were reduced by over 40%. On the North Shore, the award-winning Kings Beach Commercial Core Improvement Project improved the main intersection in town, calmed traffic, and installed sidewalks and bike lanes to make a friendlier walking and biking community that connected businesses and public facilities, such as the King's Beach State Recreation Area, to homes and nearby tourist lodging.

Connecting land use and transportation planning and development is an important approach of the Regional Plan and the plan. TRPA is committed to continuing this approach by concentrating development and incentivizing affordable and achievable housing in town centers, and connecting centers with bicycling, walking, and transit options.

STATUTORY FRAMEWORK

The regional transportation plan satisfies three distinct transportation planning authorities: the TRPA Bi-State Compact, the federal metropolitan planning organization, and the State of California Regional Transportation Planning Agency.

Bi-State Compact

The regional transportation plan fulfills the Bi-State Compact requirement for TRPA's Regional Plan to have a transportation element that reduces dependency on the automobile and

reduces the environmental impacts of mobile source emissions.

Under direction of the Bi-State Compact, TRPA established environmental threshold carrying capacities (Thresholds) to measure the Region's performance on key environmental quality goals. TRPA is responsible for achieving these thresholds, which include performance indicators for air quality, water quality, soil conservation, vegetation, noise, recreation, scenic resources, fisheries, and wildlife.

Thresholds

The plan, in its implementation, is a threshold attainment program. Specifically, transportation improvements help TRPA achieve and sustain five of the nine adopted threshold categories:

Water Quality: Return the lake to 1960s water clarity and algal levels by reducing nutrient and sediment pollution in surface runoff and groundwater.

Air Quality: Achieve the strictest federal, state, or regional standards for carbon monoxide, ozone, and particulate matter levels; increase visibility; reduce U.S. 50 traffic; and reduce vehicle miles traveled.

Scenic Resources: Maintain or improve 1982 roadway and shoreline scenic travel route ratings; maintain or improve views of individual scenic resources; and maintain or improve the quality of views from public outdoor recreation areas.

Noise: Minimize noise disturbances from single events and minimize background noise disturbances in accordance with land use patterns.

Recreation: Preserve and enhance high quality public recreational experiences.

Preserve undeveloped shorezone areas and other natural areas and maintain a fair share of recreational capacity for the public.

TRPA is presently updating its air quality thresholds, including the VMT threshold. This initiative will align with mobile source GHG emission targets and establish an approach to improve mobility options to reduce reliance on the private automobile and to address roadway congestion. The threshold standard will be developed in consultation with key stakeholders, and use anonymized and aggregated nearly real-time geo-location data from cellular phones and vehicle location and navigation systems to provide more current, accurate, and cost-effective information to calculate the threshold and monitor progress toward achieving it.

Federal

In accordance with Titles 49 and 23 of the Code of Federal Regulations, the TMPO has a continuing, comprehensive, and coordinated transportation planning process — known as a 3C process — that considers all transportation modes, provides a forum for public input, and supports social and economic vitality. The 3C process consolidates TMPO's region-wide and local transportation projects into one regional transportation plan. The Tahoe Region was recently designated a Transportation Management Area administered by TRPA. This designation recognizes the complexity of transportation issues in the Region and the high level of travel demand that the Region's transportation system must accommodate.

TRPA and partners develop the transportation improvement program (TIP) for the Region, fulfilling a requirement for the TMPO and the Transportation Management Area to identify

and prioritize projects for funding and implementation over a four-year period. The Funding the Plan section provides more information about the TIP.

The plan complies with several federal laws:

- Title VI of the Civil Rights Act of 1964, through its RTP Public Participation Plan
- The Americans with Disabilities Act of 1990, through incorporation of ADA into planning processes for this report and the plan's policies and strategies
- Fixing America's Surface Transportation Act (FAST Act), through development of a congestion management plan
- Clean Water Act (Section 303(d)), through implementing roadway maintenance and operations projects that remedy Lake Tahoe's designation as an impaired water body by reducing transportation pollutants entering the lake and achieving the deep-water transparency standard of 97.4 feet. This is completed through the Lake Tahoe Total Maximum Daily Load Program.

Total Maximum Daily Load Program

The Clean Water Act requires states to compile a list of impaired water bodies that do not meet water quality standards and to establish a Total Maximum Daily Load (TMDL) Program to reduce the primary pollutants affecting these waters. Lake Tahoe is designated an impaired water body because of its clarity loss. The primary pollutants causing its water quality degradation are phosphorus, nitrogen, and fine sediment particles. The TMDL for Lake Tahoe, established in 2010, identifies strategies for local, state, and federal jurisdictions around the lake to reduce these pollutant loads so that Tahoe's deep-water transparency can be restored to meet a

standard of 97.4 feet, as measured by a Secchi disk.

The regional transportation plan and federal and state vehicle emissions standards contribute to the Tahoe TMDL program goals to reduce nitrogen loading to the atmosphere from mobile sources.

According to the program, reducing basin-wide atmospheric nitrogen loading by at least 1% by 2025, and 2% by 2075 will be necessary to restore Lake Tahoe's clarity.

Based on the proposed strategies to reduce VMT and the anticipated improvements in vehicle emissions technology documented in California's EMFAC 2014 model (which is used to calculate nitrogen load), TRPA expects nitrogen load reductions by 2025 to be significantly greater than the 1% target.

States

TRPA is the California designated Regional Transportation Planning Agency (RTPA) for the Tahoe Region covering El Dorado and Placer counties. An RTPA is required to complete a regional transportation plan and the plan fulfills that requirement. As the RTPA, TRPA must also complete a Regional Transportation Improvement Program (RTIP), which identifies funding for transportation projects in the California portion of the Region. The Funding the Plan section provides more information about the RTIP.

As a Metropolitan Planning Organization in California, the plan is also the Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) required by California Senate Bill 375 (SB 375). See the Land Use and Transportation Connection for more information on how land development and

transportation improvements will work together to reduce the Region's mobile-source GHG emissions and meet reduction targets in accordance with SB 375.

The California Air Resources Board (CARB) sets GHG reduction targets for the Tahoe Region. More information about these targets can be found in the Measuring Success chapter and Appendix I.

Development projects in the Region undergo TRPA's environmental review process, as required by TRPA Article VII. This process uses TRPA's VMT Threshold, among other criteria, to evaluate a project's impact to the transportation system. TRPA is presently updating the threshold standard and project impact assessment process to incorporate best practices, anticipated to be approved by 2021.

On July 1, 2020, California Senate Bill 743 (SB 743) took effect. SB 743 changes how California jurisdictions evaluate the impact of development projects under state environmental review requirements by replacing level of service standards with VMT and incorporate mitigations for VMT to advance the goals of the plan. This change aligns local and regional processes and will lead to a consistent, streamlined, and easy to use tool for assessing project impacts to transportation at the local and regional level.

Policy Spotlight

Policy 1.3: Develop and implement project impact analysis, mitigation strategies and fee programs to reduce vehicle miles traveled and auto trips.

Department of Transportation

The regional transportation plan is also aligned with both California and Nevada departments of transportation long-range transportation planning documents, complete street plans, and greater transportation system improvements.

SB 743 & PLACER COUNTY

Senate Bill 743 (SB 743) changes the way California measures traffic impacts by replacing Level of Service (LOS) with Vehicle Miles Traveled (VMT).

WHAT DOES SB 743 DO?

SB 743 requires CEDA lead agencies, such as Placer, to change their transportation metric. Presently the industry standard for measuring transportation impacts uses Level of Service (LOS), which looks at the quality of a roadway based on measures like speed, density, congestion, etc. This change is intended to capture the impacts of driving on the environment rather than the impacts of delay on drivers. SB 743 keeps local agencies free from using VMT to analyze VMT to evaluate transportation impacts. It has the following legislative intent:

- Reduce greenhouse gas emissions
- Infill development
- Public health through active transportation

VMT is a measurement of the number of miles traveled over a given time period

WHAT DOES THIS MEAN FOR PROJECTS?

LOS analysis may still occur as part of a project's land use entitlements, and a project may be required to participate in the County's transit fee programs. However, LOS will no longer be allowed as a basis for transportation impacts under CEQA.



SB 743 allows jurisdictions to establish their own thresholds, if supported by substantial evidence

WHAT DOES SB 743 IMPLEMENTATION LOOK LIKE IN PLACER COUNTY?

Placer County is currently working on a SB 743 Implementation Plan. Through that plan, the County will establish a methodology, VMT metric, and thresholds needed to analyze VMT in a CEQA document.

Any discretionary project that will be in a public review process (including those requiring public hearings) after July 1, 2020 will need to assess VMT in their environmental document. The County is being assisted by industry-leading technical experts for this effort.

WHAT ARE POTENTIAL MITIGATION TYPES?

- Community Reduction Strategies
- Provide rideshare programs
- Regional VMT Mitigation Program
- Build low-stress bicycle network improvements
- Diversifying land use
- Improved pedestrian network

Questions?

Project applicants who have questions about VMT should direct questions to Leigh Chaves (leighchaves@placer.ca.gov) (530) 745 5077
Katie Jackson (kjackson@placer.ca.gov) (530) 745 7521



Figure 11: Informational Graphic for SB743

Cross-Cutting Regulation

Protecting Natural Resources

Natural habitat and rare, threatened, or endangered species are protected in the Tahoe Region by the federal Endangered Species Act, the California Endangered Species Act, and the TRPA Code of Ordinances. The TRPA Code of Ordinances also sets rules regarding development within the 100-year flood zone. In accordance with the requirements of SB 375, TRPA identifies protected parkland, open space, natural resource areas, and floodzones.

Protecting the environmental health of Lake Tahoe and the surrounding natural resources includes discouraging development in open space, flood zones, and natural habitats where rare, threatened, or endangered species live. This is a fundamental responsibility for TRPA and many of the Region's other public agencies.

The Tahoe Region is part of the Sierra Nevada Conservation Unit in California's State Wildlife Action Plan which identifies key pressures affecting conservation targets in the Sierra Nevada. These pressures include climate change; fire and fire suppression; housing and urban areas; invasive plants and animals; livestock, farming and ranching; recreational activities; renewable energy; and roads and railroads.

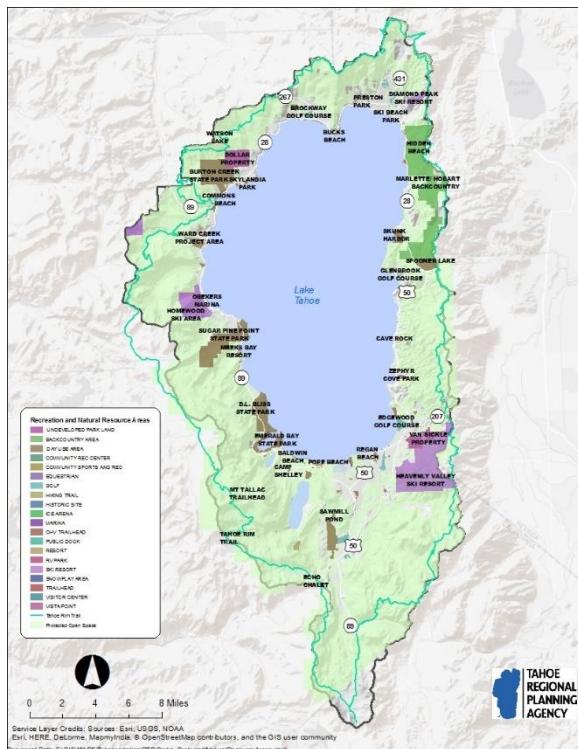


Figure 12: Map of Recreation and Natural Resource Areas

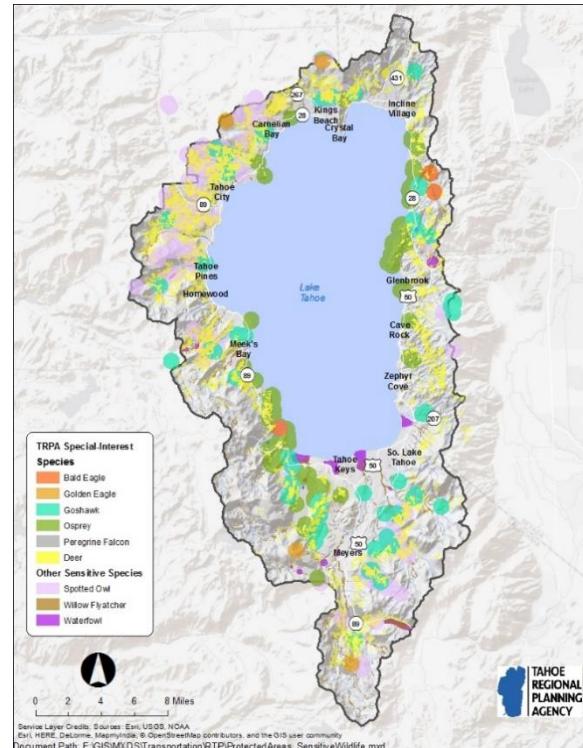


Figure 13: Map of TRPA Special Interest Species

Projects proposed in the plan do not yet have site-specific designs and locations and so their relation to species of concern is not yet known. Agencies permitting individual projects for construction will be required to consult with California Fish and Wildlife to ensure that site designs avoid or mitigate any negative impacts to sensitive species, including those listed in the State Wildlife Action Plan.

The plan's implementation improves environmental conditions in the Tahoe Region and requires all projects to use construction best management practices to manage invasive species. As a result, the plan and the listed projects will not interfere with land conservation strategies in the State Wildlife Action Plan.

Public Participation

The 2019 Public Participation Plan guided public outreach and engagement for the RTP, with

transparency of the planning process and broad support as its goals.

For the plan, TRPA reached the public through a plan webpage (<http://gis.trpa.org/rtp/>), advertisements in traditional and online media outlets, social media, promotional materials, partner and project meetings, webinars, public events, virtual events, surveys, and education and encouragement campaigns. North and South shore social service councils, school districts, and translation and translated materials were used to reach Spanish speaking members of the public and members of disadvantaged communities.

In total, 8,517 people informed the plan: 2,173 through direct engagement such as project and association meetings, and 6,344 through surveys, with 624 Spanish speaking residents engaged through both. Following shelter-in-place orders in response to the Covid-19 pandemic, the public outreach strategy pivoted to online initiatives, successfully reaching more than 2,000 members of the public.

THE LAND USE AND TRANSPORTATION CONNECTION

California's legislature recognized the land use and transportation connection in 2008 when it passed SB 375, the Sustainable Communities and Climate Protection Act. Under SB 375, metropolitan planning organizations develop an RTP/SCS, demonstrating how the proposed regional land use pattern, housing supply, and transportation strategy support each other to meet regional GHG emission targets from cars and light trucks. The RTP, which incorporates the land use and growth management goals of the Regional Plan, constitutes the RTP/SCS for the Tahoe Region.

Land-Use

The Tahoe Region's permanent population is about 50,000 people, and projections show only

More information about the plan's public engagement can be found in Appendix E.



Figure 14: Flyer for RTP Outreach in English and Spanish

a modest increase in year-round residents by 2045. The approach of the Regional Plan and the plan is to concentrate development in town centers and incentivize affordable and achievable housing in those centers. For the RTP/SCS, analysis evaluated existing land use for its ability to house today's residents and new residents that will call Tahoe home over the next 25 years. The following maps show where residences, including densities comparable with the Regional Plan, are anticipated. The analysis found that the Region has areas sufficient to house residents from today to 2045.

Housing Supply

The State of California sets housing targets for individual jurisdictions through its Regional Housing Needs Assessment (RHNA) process. In the Tahoe Region, El Dorado County, Placer County, and the City of South Lake Tahoe are required to show how they will meet these targets through their Housing Elements. The

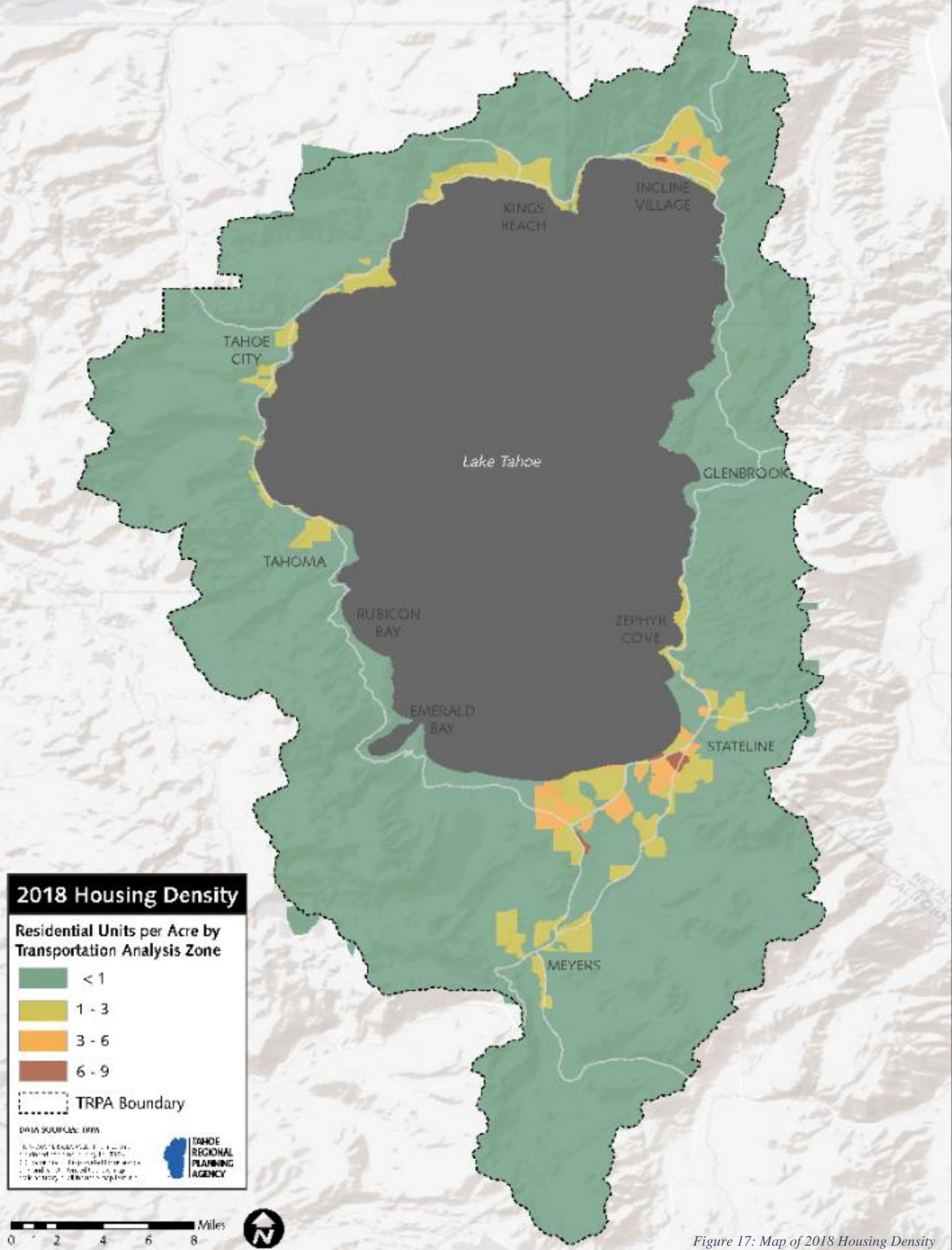
RTP/SCS must also show that it can accommodate the RHNA. The following Table shows the RHNA requirements for 2021-2029. More information about the RHNA, how these requirements compare to TRPA's available development rights, and the plan's land use and transportation connection can be found in the Communities section of The Plan chapter.

Table 1: Regional Housing Needs Assessment (RHNA) Requirements (CA Only)

Jurisdiction	Very Low + Low Income RHNA Requirement	Moderate RHNA Requirement	Above-Moderate RHNA Requirement	Total RHNA Requirement
Placer County (Tahoe portion)	177	77	181	435
El Dorado County (Tahoe portion)	146	63	150	359
City of South Lake Tahoe	120	42	127	289
Total	443	182	458	1083

Figure 16: DOMAS Affordable Housing in Kings Beach credit: Karen Fink





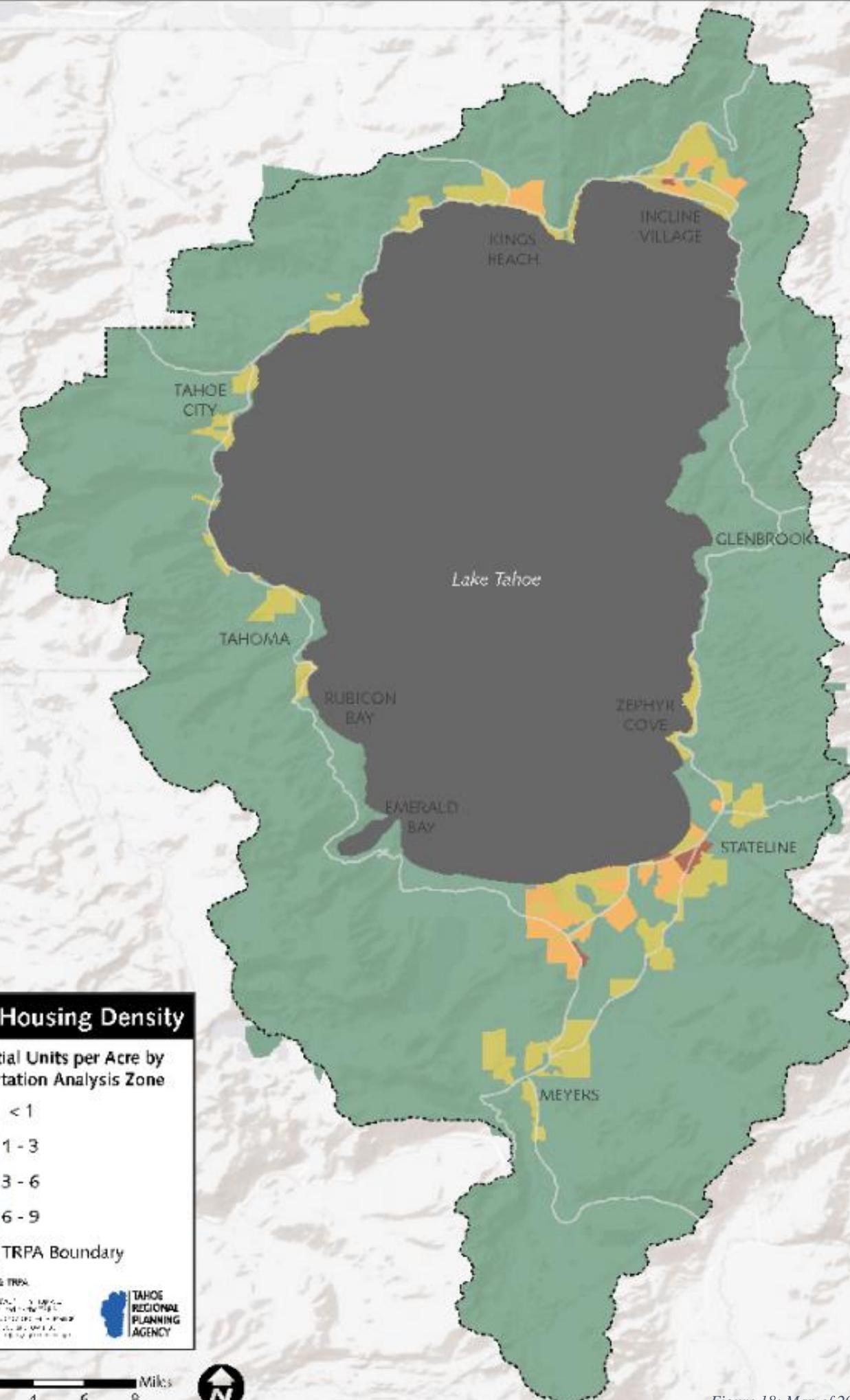


Figure 18: Map of 2035 Housing Density

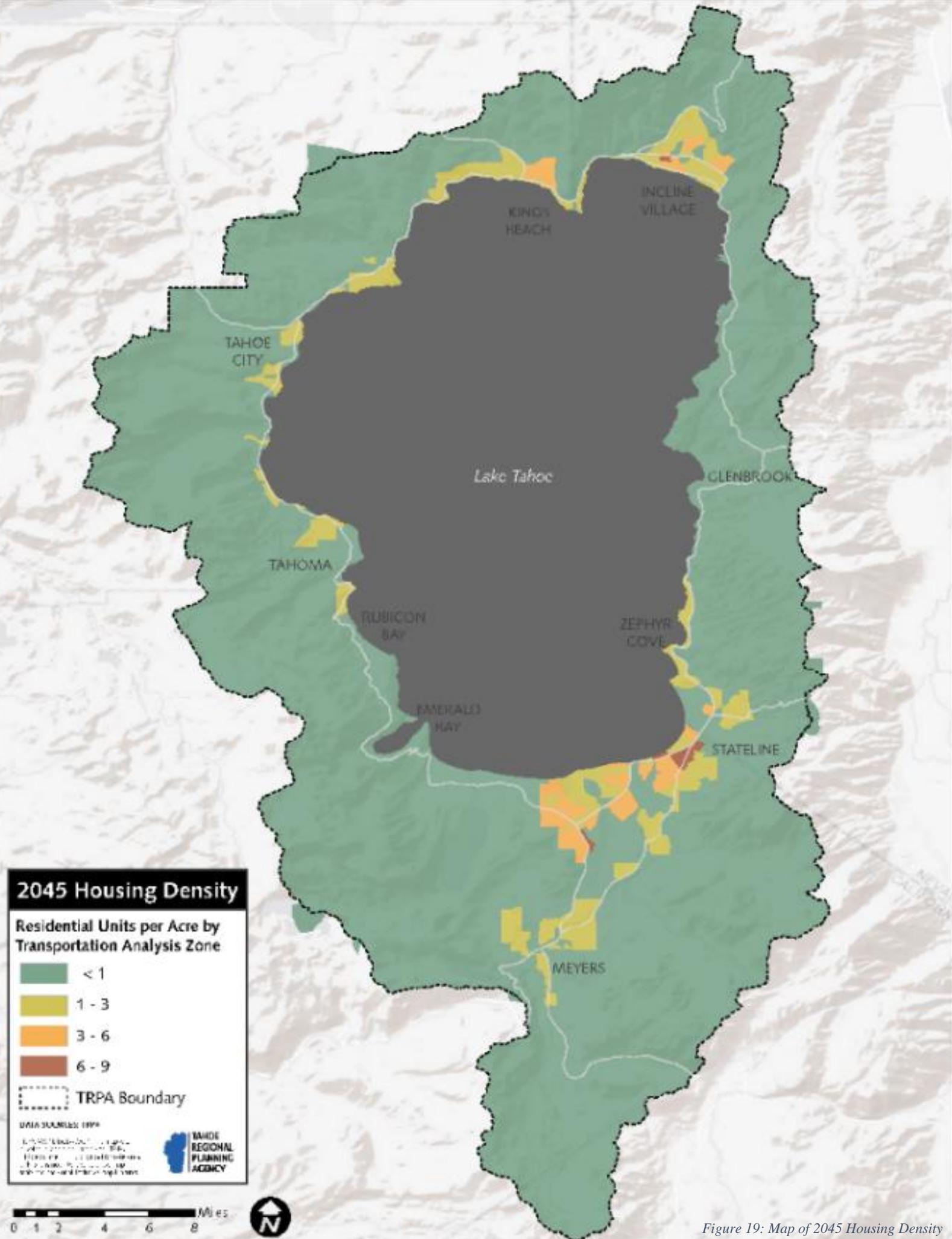


Figure 19: Map of 2045 Housing Density

Greenhouse Gas Emission Reductions

The Tahoe regional transportation demand model estimates that the Region will meet CARB-mandated GHG reduction targets. Appendix G provides more information about the transportation demand model estimates, the assumptions made, and the results of the GHG reduction target analysis completed as part of the plan's expanded environmental checklist. That analysis discusses the differences between the plan and the prior regional transportation plan approved in 2017.

See Appendix I for more information on the RTP/SCS Mobile-Source Greenhouse Gas Emissions for California Portion of Basin analysis.

Advancing Nevada's Climate Goals

Adopted in 2019, Nevada Senate Bill 256 established Nevada's climate goals. These include long-term reductions of GHG emissions to zero or near-zero by the year 2050. Additionally, Governor Steve Sisolak signed Executive Order 2019-22 in 2019. The order recognizes that as of 2015, fossil fuel use in the transportation sector is now the largest GHG and carbon emitting sector in Nevada. Both SB 256 and Executive Order 2019-22 emphasize the importance of reducing emissions from the transportation and land use sectors. The executive order outlines the actions and state priorities needed to reach climate goals, including reducing GHG emissions by at least 26% to 28% below 2005 levels by 2025, and raising Nevada's renewable portfolio standard to 50% by 2030.

As Nevada climate plans and actions are further developed over the next four years, TRPA will continue to leverage the intersection of transportation and land use planning to reduce

GHG emissions and build local climate change resiliency into its infrastructure, environment, and communities.

Climate Resiliency

Climate change and its impacts pose significant and growing risks to the safety, reliability, effectiveness, and sustainability of the Tahoe Basin and its transportation network. Many impacts are already occurring, and Lake Tahoe communities need to adapt to become more resilient to these changes.

Higher temperatures, changes in seasonal precipitation, the intensity of rain events, and extreme weather can degrade roadways, damage culverts, and disrupt traffic. Preparing for climate change and extreme weather events is an important element of protecting the integrity of Tahoe's transportation system, the investment of taxpayer dollars, and the achievement of the plan's goals. Additionally, TRPA recognizes the broader need to address climate change in a holistic manner that connects to environmental justice.



Figure 20: Proterra Electric Bus at Kings Beach Event Center

In 2014, a multi-sector collaborative, led by TRPA and funded by the Strategic Growth Council, created the national award-winning Sustainability Action Plan. The action plan outlines a comprehensive regional approach to reducing GHG emissions and adapting to climate change through mitigation and adaptation. Partners in the Tahoe Basin to date have implemented nearly 76% of the actions identified in the plan. Over the next five years, TRPA will work with partners to develop a cohesive set of bi-state regional strategies that will result in climate mitigation, adaptation, and resiliency for the Region by building on regional climate action to date and best science and planning

The RTP identifies strategies to reduce per capita GHG emissions as part of regulatory requirements from California SB 375 and Nevada SB 256 and to build a resilient transportation system.

Identified Environmental Mitigation

The projects and programs outlined in the plan provide the Region's implementing partners with appropriate mitigations to offset forecasted transportation demand, including the development community who will build better projects that also advance implementation of the plan.

PLANNING APPROACH

Unlike many other areas in Nevada and California, a significant portion of the Tahoe Region's VMT comes from people who travel from outside of the Region to recreate at Tahoe, as well as those who commute into and out of the basin for work or school. Forecasts estimate that more than an additional four million people will be living in Northern California and Northern Nevada by 2045, which would increase the total number of people driving to and from Tahoe, the number of VMT produced by that travel, and associated GHG emissions.

With growth capped and development metered in the Tahoe Region, population growth within the Region is not anticipated to significantly increase its portion of GHG emissions.

The regional transportation plan proposes new trails and transit services, traffic signal improvements, adaptive corridor management with transit priority and/or reversible travel

lanes, and parking management to improve connectivity and mobility within the Tahoe Region and from the broader Northern California and Northern Nevada regions. When implemented, these will reduce VMT and associated GHG emissions by providing more efficient, non-automotive transportation choices that are linked to the destinations people want to visit.

Understanding that transportation planning has equity impacts, that is it provides benefits as well as costs to people's lives, the RTP planning approach engaged disadvantaged communities to develop the plan and for other environmental justice efforts. See appendices E and F for more detail.

Supporting Plans

The policies, focus areas, and projects identified in the RTP are aligned to and consistent with many other existing plans and programs of other jurisdictions. Short- and Long-Range

Transit Plans of the North and South Shore transit operators and the Coordinated Human Services Plan informs the Transit approach. The 2016 Active Transportation Plan and Safe Routes to School planning informs the Transit approach. The 2016 Tahoe-Truckee Plug-In Electric Vehicle Readiness Plan and the 2015 Intelligent Transportation Systems Strategic Plan informs the Technologies

approach. Communities and Corridors are informed by multiple plans: corridor and area plans coalesce regional and local land use and transportation policies and strategies at a community scale, and the Airport Master Plan, the 2018 Shoreline Plan, and the 2019 Lake Tahoe Region Safety Strategy further inform these focus areas.

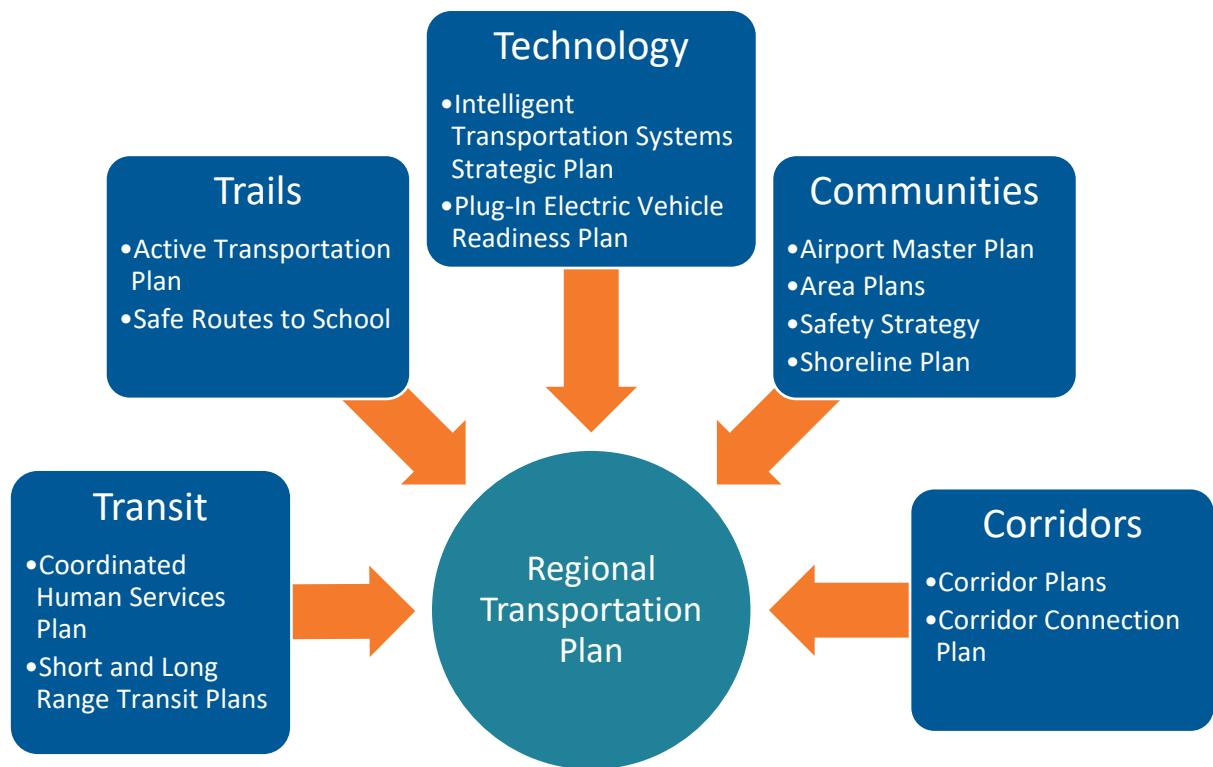


Figure 21: Connections between the Regional Transportation Plan and Other Planning Processes

Corridors

For planning and project implementation purposes, the Tahoe Region is divided into six travel corridors based on unique transportation, recreation, and quality of life needs.

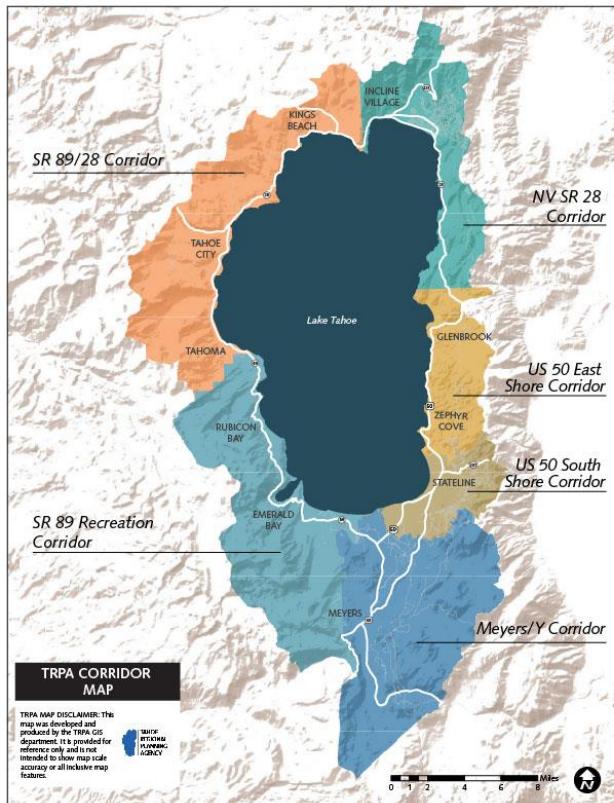


Figure 22: Tahoe Corridors Map

Corridor planning considers and integrates different travel options, solves implementation challenges, incorporates multiple stakeholder perspectives, and aligns related projects to maximize their benefits, effectiveness, and funding opportunities. Corridor plan projects are incorporated into the RTP project list to advance toward implementation; project champions are key to moving corridor plans and projects to construction and to ensuring partners commit to long-term operations and maintenance.

Corridor planning requires multi-agency collaboration, commitments, and resources to address shared issues that often cross jurisdictional boundaries. The Corridor Planning Framework is outlined in the Bi-State Corridor Planning MOU which was adopted through the 2018 Bi-State Consultation on Transportation and signed by 17 agencies committed to the corridor planning framework.

IN WITNESS WHEREOF the Parties hereto have caused this Comprehensive Transportation Coordination and Corridor Planning for the Lake Tahoe Bi-State Region Memorandum of Understanding to be executed by their respective officers duly authorized.

John Laird
Secretary of Natural Resources
State of California

Joanne S. Marchetta, Executive Director,
Tahoe Regional Planning Agency

Jeff Marsolais, Forest Supervisor,
US Forest Service,
Lake Tahoe Basin Management Unit

Amarjeet S. Benipal, Director District 3
California Department of Transportation

Lieutenant Terry Lowther, South Lake Tahoe Office
California Highway Patrol

Todd Leopold, CEO
Placer County

Don Ashton, CAO
El Dorado County

Jennifer Davidson, Interim County Manager
Douglas County

Sean Barclay, General Manager
Tahoe City Public Utility District

Bradley Crowell, Director
Department of Conservation and Natural Resources
State of Nevada

Carl Hasty, District Manager,
Tahoe Transportation District

Brian Annis, Transportation Secretary
California State Transportation Agency

Rudy Malfabon, P.E., Director
Nevada Department of Transportation

Matt Green, Acting Sierra District Superintendent
California Department of Parks and Recreation

Dirk Brazil, Interim City Manager
City of South Lake Tahoe

John Slaughter, County Manager
Washoe County

Brad Johnson, General Manager/CEO
North Tahoe Public Utility District

Lake Tahoe Coordination and Corridor Planning MOU – Final

6

Figure 23: Bi-State Consultation Participants

From Plan to Project Implementation

Strong partner coordination assures that projects are recognized in both the RTP project list and in partner's plans, making them eligible for funding.

Once the project is listed and eligible for funding, the project can move toward construction through completion of a study.

The study is typically completed by state or local jurisdictions or the Tahoe Transportation District (TTD). Data for these studies can include counting how many people are traveling by foot, bike, car, or transit in the project area, conducting a land survey of the roadway to better understand opportunities and constraints for construction, and gathering public input to inform the final project design.

The final step is securing funding and constructing the project, which is typically undertaken by the jurisdiction or organization that is both capable and committed to seeing a project through to completion.

TRPA and partners each monitor the effectiveness of the completed transportation improvements and identify additional needs for future planning, policy updates, and project designs. See Measuring and Managing for Success and Appendix I for more information.

Partnering and Collaborating

Implementing the RTP's vision requires broad collaboration — in Tahoe that can regularly mean at least a dozen or more agencies and partners for any single project.

This collaboration is required to achieve almost

every project and program proposed in the plan: from planning to design, funding to construction, and most importantly, maintaining the system through its lifespan.

For example, the SR 89 Corridor Plan aligned multiple local governments, law enforcement agencies, public and private land managers, and utility and special improvement districts. The collaboration is key to developing the support and allegiance needed to implement the plan over the next several years.

TRPA also participates in planning processes in adjacent regions that directly connect or indirectly serve the Tahoe Region. For example, TRPA and the Washoe Regional Transportation Commission, Carson Area Metropolitan Planning Organization, and Incline Village/Crystal Bay Visitors Bureau are working together to develop transit options between Reno, Carson City, and Tahoe's East Shore recreation corridor. These transit routes will serve work commuters traveling between Reno and the Carson Valley to North Tahoe and day visitors to Tahoe's popular East Shore beaches, including Sand Harbor State Park. These transit services are included in the project list (Appendix B).

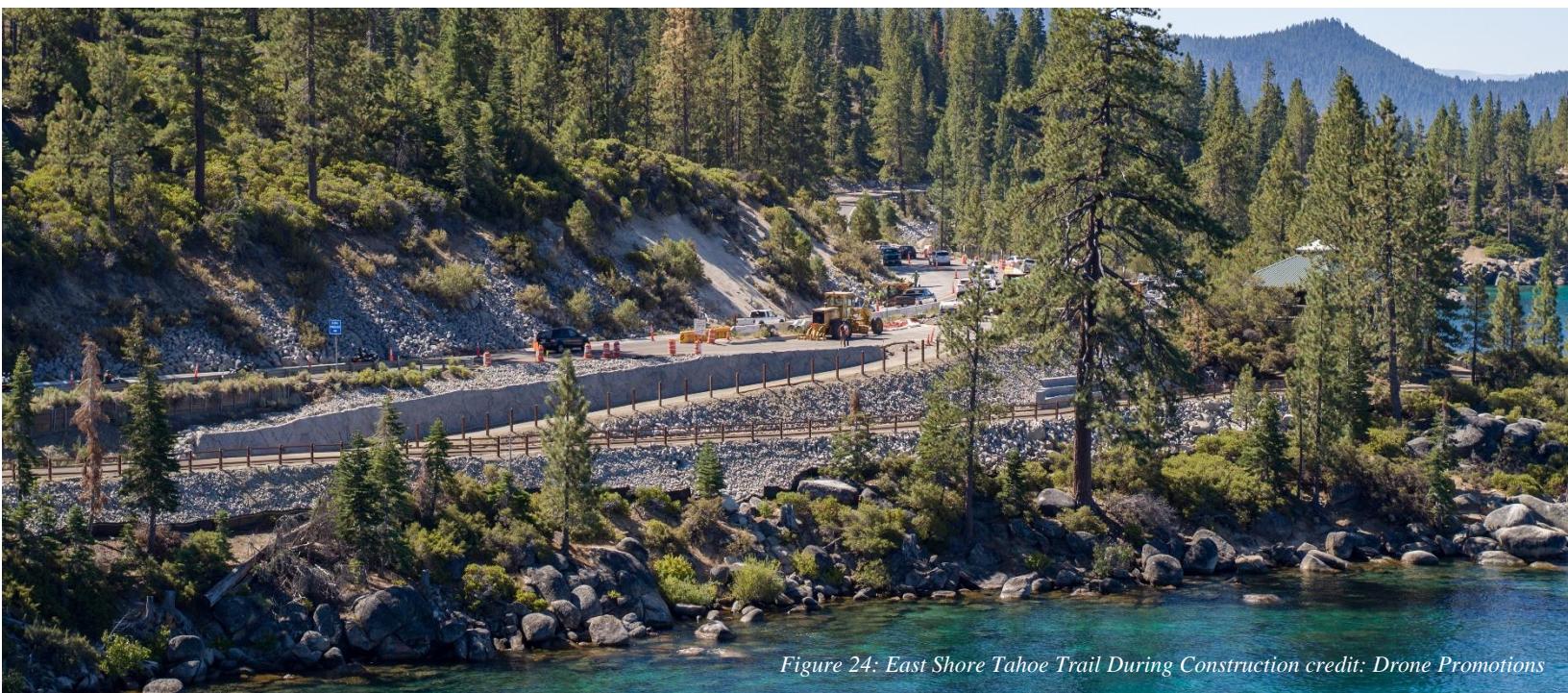


Figure 24: East Shore Tahoe Trail During Construction credit: Drone Promotions

Project Spotlight: Resort Triangle Corridor Plan

Placer County is leading the Resort Triangle Transportation Plan (RTTP) which seeks to improve the transportation system. The Resort Triangle is generally defined as the area shaped by SR 89, SR 267, and SR 28 in eastern Placer County and at the northern side of the Tahoe Basin. When completed, the Resort Triangle will be more adaptable and resilient to serve the influx of visitors throughout the year and to preserve the area's unique characteristics.

The plan will:

- Enhance transit operations on SR 89 and SR 267 corridors by providing a transit-only lane and/or high occupancy vehicle (HOV) lane
- Enhance overall operations of steep grades on SR 267 by providing a climbing lane specifically for trucks and transit vehicles
- Encourage people to take transit, carpool, walk, bike, and/or park one time by implementing a paid parking program in the commercial town centers and recreational destinations and use that revenue to invest in further improvements for walking, biking, and transit
- Enable people to leave their car behind (at their place of lodging) and take transit by implementing an on-demand microtransit program
- Equip employers with resources and support to provide their employees vehicle commute reduction options



Figure 25: Resort Triangle Plan Logo

The plan was developed in collaboration with town, county, regional, and state transportation and utility agencies, as well as representatives from the triangle's resort and ski industry representatives. TRPA participated on the Project Development Team for the RTTP and will continue to collaborate with Placer County on the further development and implementation of projects and programs identified in RTTP.

Partnerships

Strong relationships with the Region's many partners are paramount.

Policy Highlight

Policy 2.3: Collaborate with regional and inter-regional partners to establish efficient transportation connections within the Trans-Sierra Region including to and from Tahoe and surrounding communities.

The RTP encompasses the work of partners and recognizes their contributions to achieving the goals of the plan.

See Appendix E for more information TRPA's many partners.

Project Implementing Partners

Tahoe Transportation Implementation Committee (TTIC)

Local agency partners play an important role in constructing the regional transportation plan's priorities and projects. The TTIC coordinate recommendations for transportation project prioritization and funding for the Regional Grant Program, federal funding programming, project implementation and performance measuring, and provides technical support to develop regional revenue sources for improved transportation infrastructure. The committee provided valuable feedback for the development of the plan and played a large role in development of its final project list (Appendix B) and revenue forecast (Appendix C).

Members include:

- Local Jurisdictions
- Public Utility Districts
- Resource Conservation Districts

- State Departments of Transportation
- Transportation Management Associations
- Tahoe Transportation District
- USDA Forest Service

Tahoe Transportation Advisory Committee (TTAC)

Transportation planning is rapidly evolving and uses complex transportation modeling and technical inputs from increasingly sophisticated data sources. Understanding and guiding complex information, data, and policy decisions benefits from input and guidance from non-governmental organizations, technical experts, community stakeholders, and the development community. The TTAC will provide input at key points for TRPA led initiatives such as the VMT Threshold Standard update and studies to better understand visitation to the Region. The TTAC is an iteration of the successful TRPA Transportation Model Working Group. See Measuring & Managing for Success for more information about the model working group.

Members include:

- Local Jurisdictions
- Regional Government Agencies (California Attorney General)
- State Department of Transportation
- Public Professional - technical user(s)
- Chambers of commerce
- Visitors Authorities
- Non-Profits
- Public – Development community

Private Partners

Private partners play an important role in achieving the transportation vision of the RTP by providing easements, constructing improvements, paying fees, maintaining paths, and offering transportation services for Tahoe

travelers. For example, new development projects are charged mitigation fees based on the calculated impact of the project to Tahoe's transportation system. TRPA uses a competitive grant program to distribute collected fee revenues to projects that advance the vision, programs, and project list of the plan. Successful grant applicants use awarded mitigation monies to leverage larger grant opportunities, meaning mitigation fees can multiply available project funds.

Input from organizations representing public interests, advocacy groups, business associations, and others is essential to project and program development and delivery. For example, TRPA's Commute Tahoe program partners with the Region's employers so they, too, can help manage traffic congestion by encouraging their employees to walk, bike, use transit, carpool, or vanpool to work.



Figure 26: Sawmill to Meyers Bike Path



CHAPTER 3

THE PLAN

The Plan

The regional transportation plan is the building block for transformative change at Lake Tahoe. It grows and enhances the plan's core focus areas of transit, trails, technology, and communities and their emphasis on creating walkable and bikeable town centers, increasing electric vehicle infrastructure and use, and developing greater walking, biking, and transit options that also connect people to popular

recreation destinations in the Region.

Policy Highlight

Policy 4.0: Prioritize regional and local investments that fulfill TRPA objectives in transit, active transportation, transportation demand management, and other programs that support identified TRPA transportation performance outcomes.

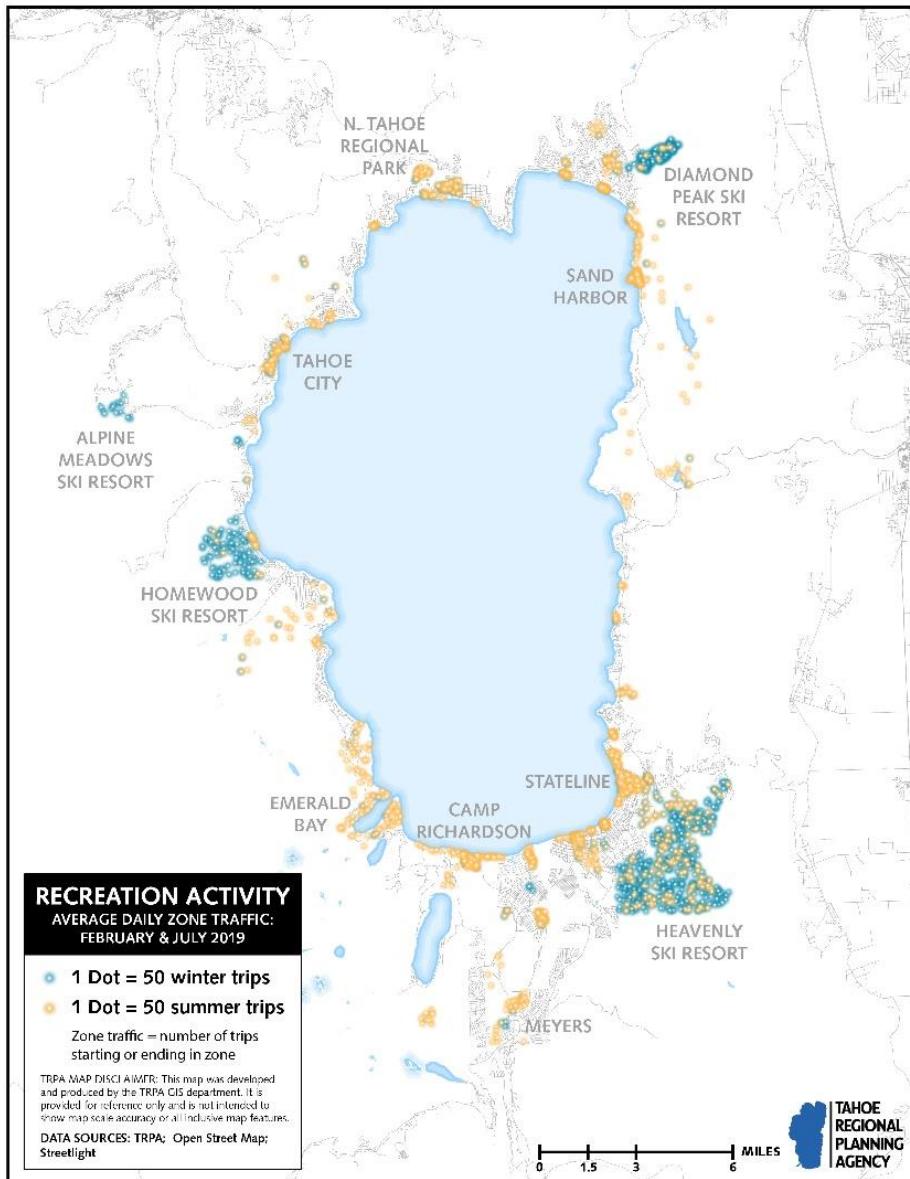


Figure 27: Popular Summer and Winter Recreation Destinations

UNDERSTANDING TRAVEL BEHAVIOR PATTERNS

Lake Tahoe's transportation system must serve everyone—and to do so successfully requires understanding the needs of three distinct groups of users: Residents, commuters, and visitors.

Knowing "who" is using the system, when and how they are traveling, the purpose of their

trip, and where they are traveling to and from, helps TRPA and its partners build a better transportation system, and one that can scale with the seasons.

Three distinct user types form the basis for this understanding.

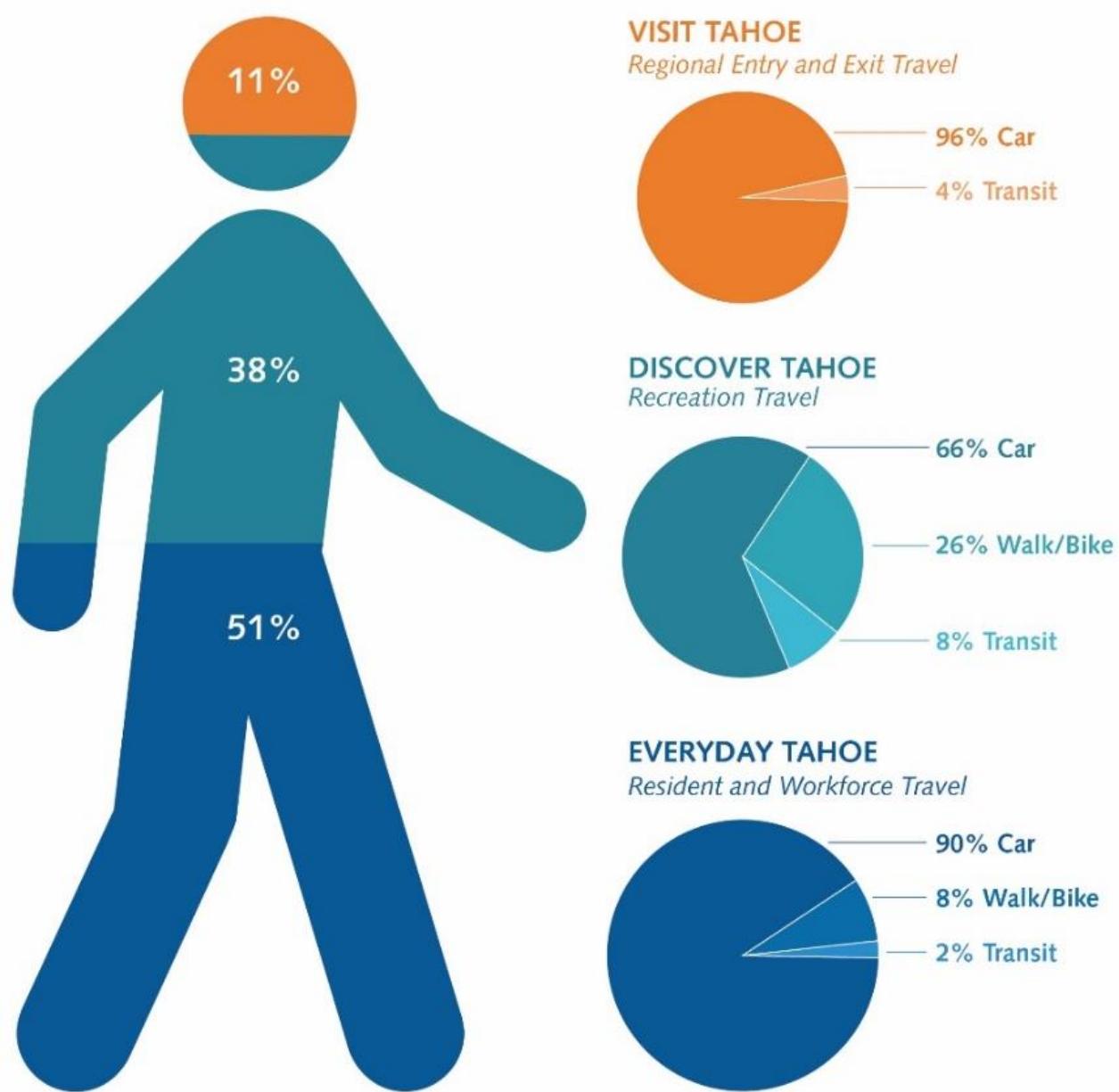


Figure 28: Proportion of Travelers by Behavior and Mode

Everyday Tahoe

Everyday Tahoe trips include commutes to work or school, routine short trips around town that are often less than two miles in length and focus on the most vulnerable who live in identified Community Priority Zones. Everyday Tahoe trips account for 51 percent of all trips made within the Region.

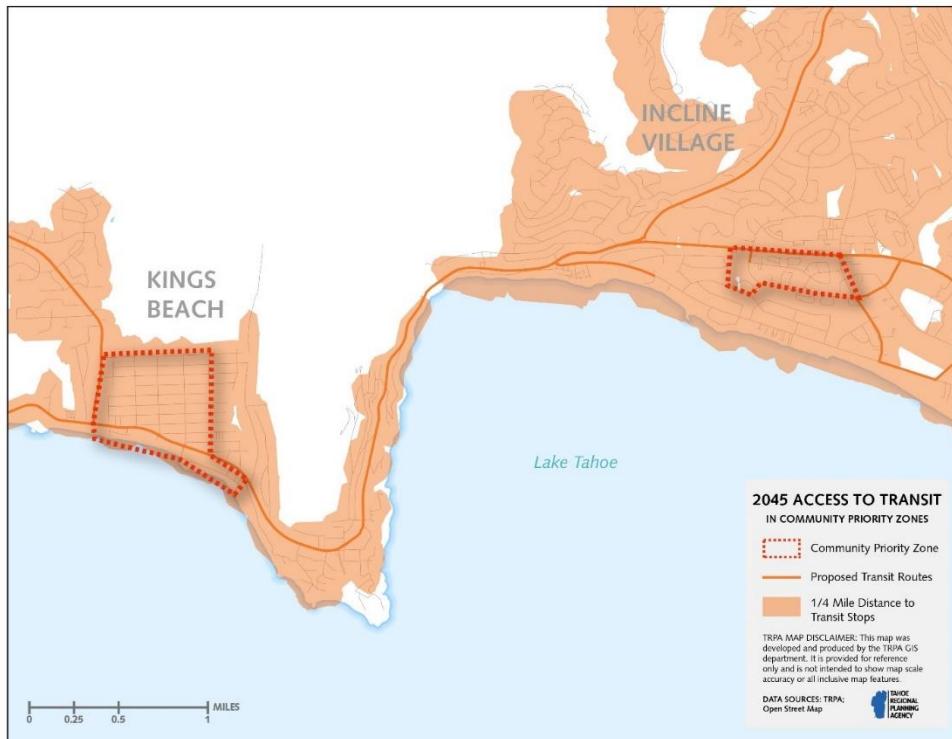


Figure 30: North Shore, Tahoe Community Priority Zones with Proposed Transit in 2045

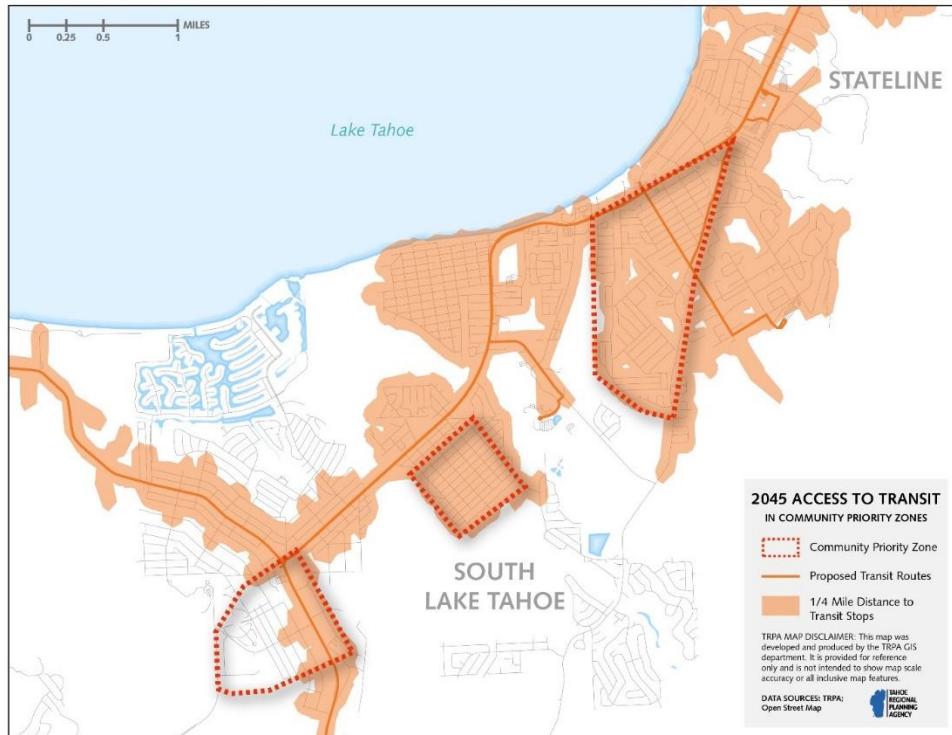


Figure 29: South Shore, Tahoe Community Priority Zones with Proposed Transit in 2045

Discover Tahoe

Discover Tahoe trips include residents and visitors who are making longer distance trips to recreation areas around the Region. Discover Tahoe recreation trips account for 38 percent of all trips made to, through, and within the Region.

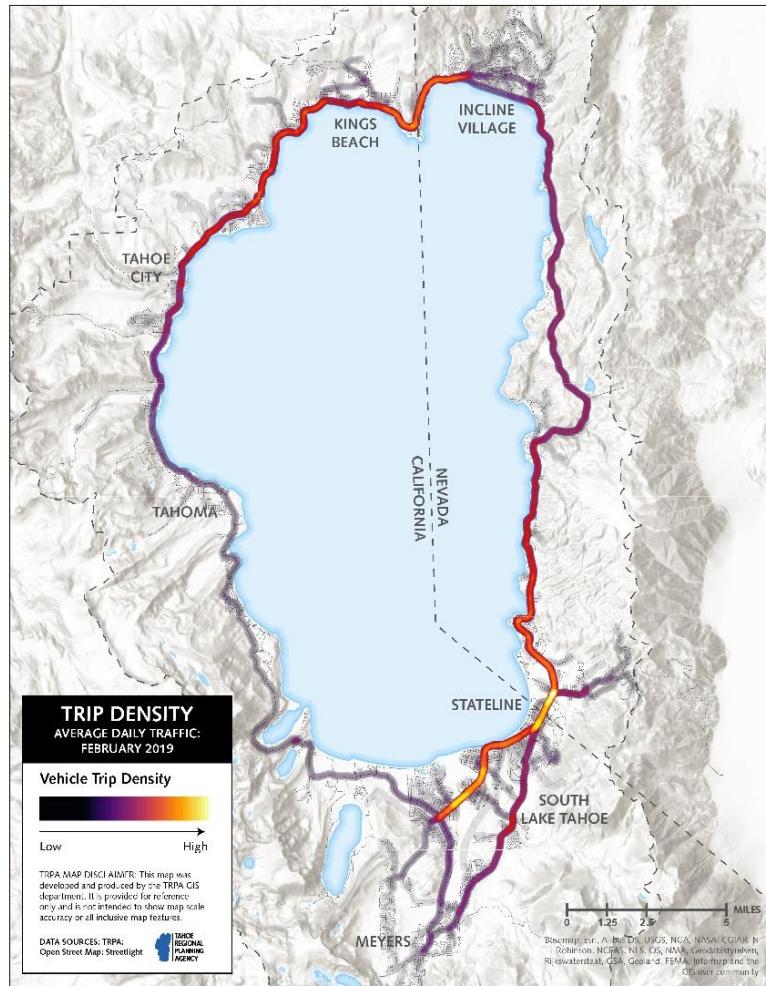


Figure 32: Regional Trip Density February 2019

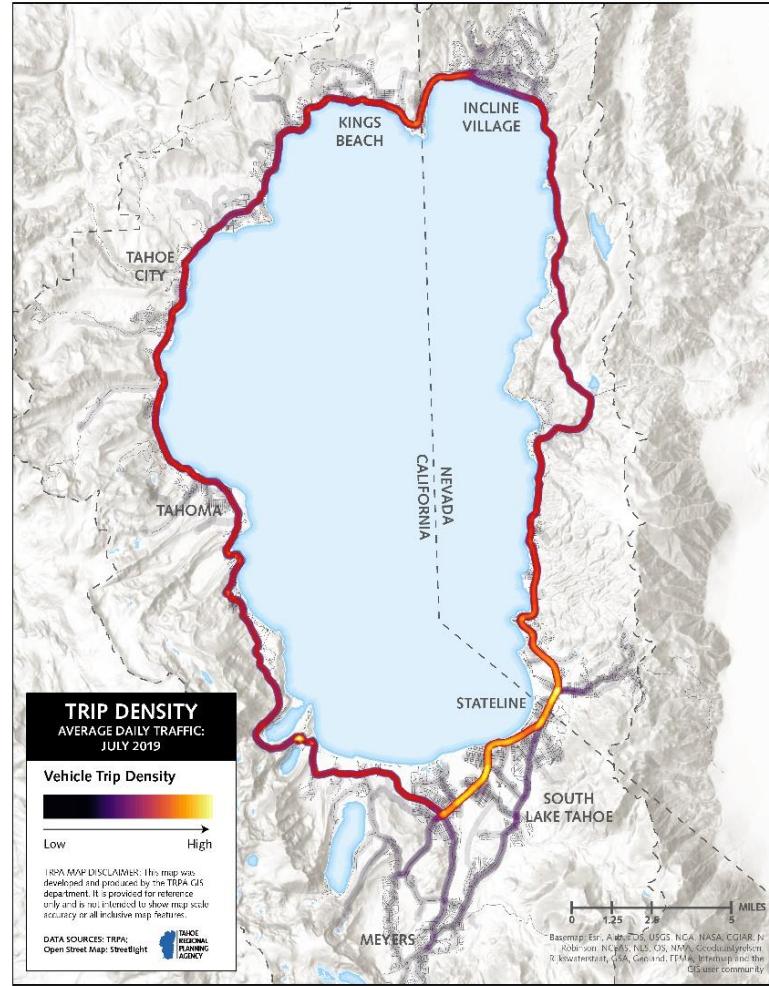


Figure 31: Regional Trip Density July 2019

Visit Tahoe

Visit Tahoe trips are long-distance trips to and from Tahoe from the larger Northern Sierra MegaRegion. Visit Tahoe trips account for 11 percent of all trips made within the Region.

Table 2: Share of Visitation to Tahoe by Entry Point

Basin Entry Point	% of Mega-Region Travel
Hwy 89	10%
Hwy 267	12%
Mt. Rose Hwy	17%
Hwy 50 (Echo Summit)	28%
Hwy 50 (Spooner Summit)	21%
Kingsbury Grade	10%
Luther Pass Rd	2%

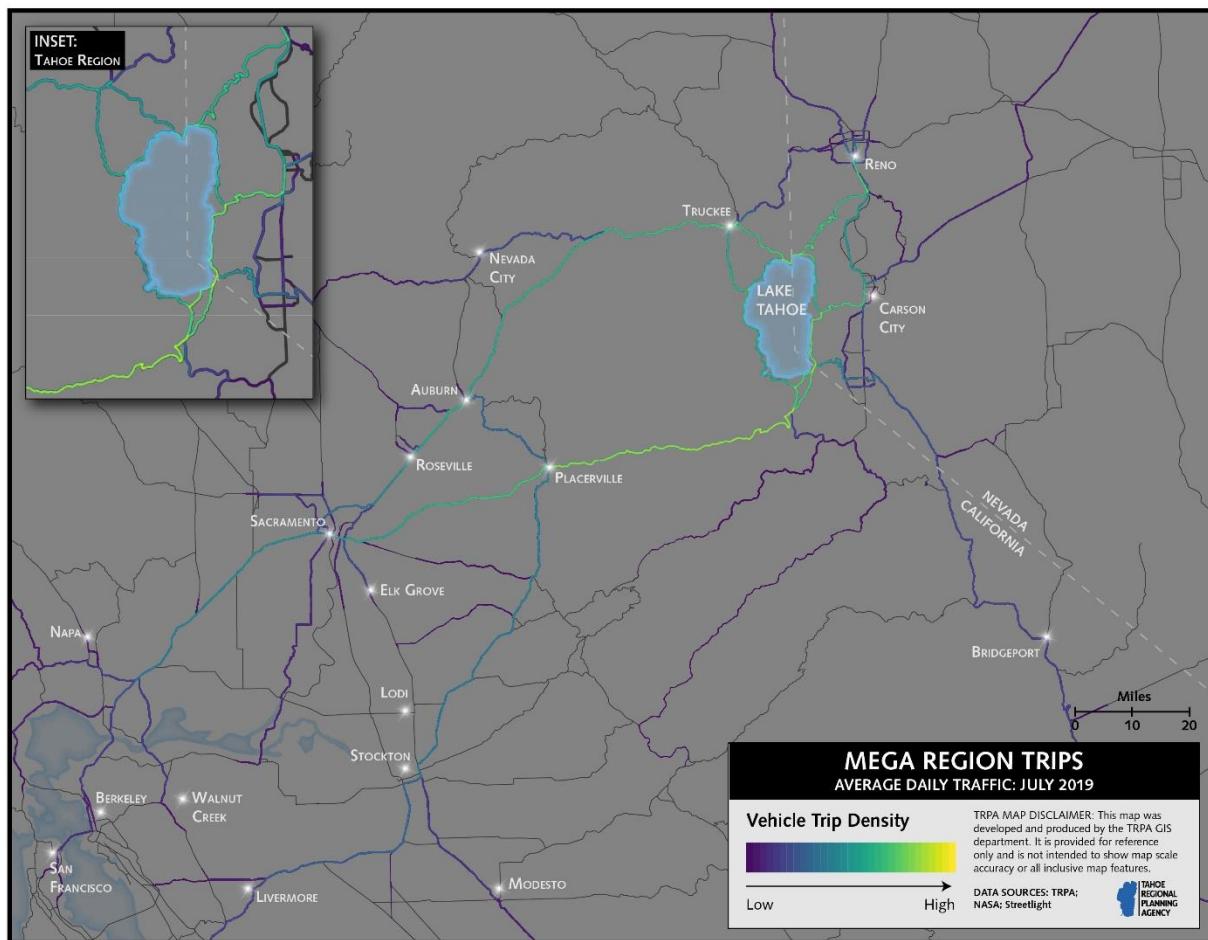


Figure 33: Tahoe Mega-region Map

TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) strategies work to inform travelers about travel options and decisions and provide incentives, particularly during peak roadway congestion, to shift travel patterns from the single occupant automobile to walking, biking, transit, and carpooling, and to visit and recreate in Tahoe during less busy travel times when there is more capacity on roadways and at recreation sites.

Outreach is critical to successfully manage travel demand, including strategies to target the three travel groups differently:

Everyday Tahoe – Residential and Workforce Travel: Because Everyday Tahoe trips follow a similar pattern every day, they are the easiest trips to make using transit, biking, or walking. TDM Strategies for Everyday Tahoe travelers include employer trip reduction programs; enhanced transit access to residential neighborhoods, school and work locations; and education and encouragement programs such as the Lake Tahoe Bike Challenge and Bike to School week.

Discover Tahoe – Recreation Travel: Access to popular recreation sites and points of interest is often limited by parking availability and inadequate transit services, which combine to create roadway congestion, and safety concerns and environmental degradation caused by people seeking parking further from their destination. TDM strategies for Discover Tahoe travelers include marketing travel options and incentivizing the use of transit and zero-emission vehicles with projects and programs that provide real-time travel

and parking information online, parking management systems, convenient and easy transit, and charging infrastructure and parking incentives for electric vehicles.

Visit Tahoe – Regional Entry and Exit

Travel: Peaks in visitor travel to and from Tahoe typically occur over holiday weekends, for special events, and on high snowfall days. TDM strategies targeting the millions of people who visit the Tahoe Region each year encourage them to travel to and from Tahoe during non-peak times, or to leave the car at home and arrive by public or private transit service that provides recreational amenities like carrying gear — knowing that they will be able to access all the Region offers on foot, bike, or transit once here.

In Tahoe, if strategies work for visitors, they become assets for the community, too. As a result, every traveler has a more efficient, safe, and connected transportation system with improved access to Lake Tahoe's world-renowned recreation, reduced daily commute times, improved emergency response times and environmental impacts and enhances security and.

Marketing and Information

Tahoe residents and travelers will use more environmentally friendly travel modes when provided with information and options, and TRPA's "Linking Tahoe" website is the source for both. The site includes information on seasonal travel options, including transit and shuttle routes, walking and biking paths, bike and scooter rentals/share programs, and links to current roadway conditions.

Policy Highlight

Policy 4.3: Promote awareness of travel options through outreach, education, and advertising, particularly in local schools.

The website's "Commute Tahoe" employer portal also provides resources for employee trip reduction programs, including a step-by-step guide to developing a program suited to the specific workplace. Commute Tahoe seeks to reduce vehicle trips and traffic congestion by encouraging employees to walk, bike, use transit, carpool, vanpool, or drive at non-peak times. The program will be widely launched throughout the Region in 2021 and monitored annually by TRPA.



Figure 34: Linking Tahoe Brochures

Since 2017, more than 15,000 "Linking Tahoe" brochures have been distributed to hotels, recreation sites, and retail stores around Tahoe and Truckee to raise awareness and encourage use of non-automotive travel options to, from, and around Tahoe that also benefit the Region's environment and communities.

Creating More Attractive Options

These TDM programs enhance travel options for all types of travelers and incentivizes them

to forgo their personal vehicles in favor of walking, biking, or riding transit.

Policy Highlight

Policy 1.5: Collaborate with all jurisdictions and employers in the basin to develop, maintain, and implement programs to reduce employee vehicle trips.

Real-Time Transit Information

People are more willing to ride the bus if they know when it will arrive. The Region's two public transit operators, TART and TTD, have automatic vehicle location systems so riders know the exact location and real-time arrival for every bus. Real-time information also helps TART and TTD monitor and improve transit on-time performance by identifying and addressing inefficiencies in routes, schedules, and maintenance.

Free-to-the-User Transit

Free transit increases ridership. Piloted for several years, TTD's "Spare the Air Days" provided free transit on specific peak visitation days at Tahoe and demonstrated dramatic ridership increases. TART implemented free fares on all routes in December 2019 and saw a nearly 25 percent increase in ridership (prior to the Covid-19 pandemic). TTD also began offering free fares in April 2020 and expects to see ridership increase long-term.

Parking Management

The availability of parking significantly shapes people's travel decisions and paid parking is a powerful disincentive to driving. Where parking is free, disorganized, or not enforced, as it is at many of Tahoe's popular recreation sites, people are less likely to use transit, roadsides become crowded and unsafe with parked cars

and people walking in the street, and the environment is damaged from roadside erosion.

Parking management strategies are dependent on the location and use of an area. For recreational areas, strategies include combinations of higher priced parking lots with no time limit, medium priced time limited roadway parking, and free shuttle service. In developed areas, local jurisdictions develop area plans with parking management strategies designed for the communities' needs. For example, Placer County's Tahoe Basin Area Plan envisions shared public-private partnership parking lots in town centers to better manage limited parking supply during high demand. Jurisdictions may also reduce parking requirements for mixed-use development in town centers where people are more likely to

be able to walk, bike, or take transit from their hotel or home to retail locations, restaurants, and other destinations; and dynamic pricing structures with enforced time limits to encourage the use of transit and active transportation.

Transit Priority Access

Making transit faster and more convenient is key to increasing ridership and reducing VMT and associated GHG emissions. One approach is to only allow transit, bike, emergency vehicle, and local traffic in targeted locations during peak periods. Transit signal priority allows buses to move through signalized intersections before cars and keeps transit running on-time. Transit only lanes can make transit a more convenient, reliable, and attractive travel option.

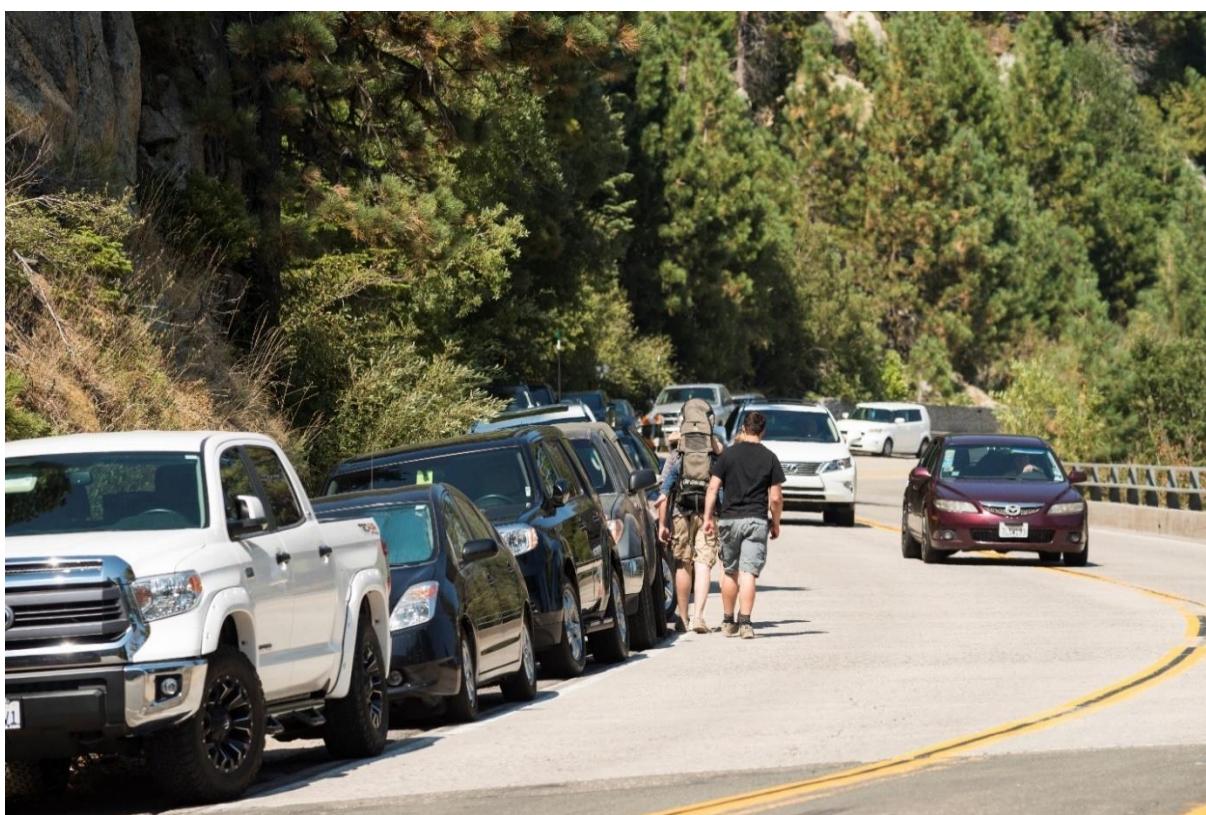


Figure 35: State Route 89 at Emerald Bay on a Typical Summer Day

TRANSPORTATION SYSTEM MANAGEMENT

Transportation system management uses infrastructure projects, transportation services, and system operations to enhance traveler safety, improve traffic flow, and provide more travel options. Coupling these projects with TDM strategies will more efficiently use the existing system and manage roadway congestion.

The transportation system management projects were identified through coordination with implementing partners and a thorough analysis of the existing transportation system.

A Layered Approach

The Regional Transportation Plan will build a transportation system that meets not only the needs of Tahoe's residents and commuters, especially our most vulnerable who live in identified Community Priority Zones, but also the growing numbers of recreation visitors.

As a result, every traveler will be able to leave their car parked as they move about and explore the Region. TRPA and its regional and mega-regional partners will continue to work to create more travel options to Tahoe from neighboring metropolitan areas.

The plan, however, must be implemented in phases for the system to function as intended and because there is not currently adequate funding available to pay for everything to be implemented today.

The plan and its phases are built to flex and adapt, such as for the accelerated implementation envisioned in the Bi-State Consultation or to accommodate pilot projects that advance the plan to its goals. For example, the plan envisions inter-regional transit service between nearby cities and Tahoe be fully in place by 2045. However, inter-regional partnerships between TRPA and the Regional Transportation Commission of Washoe County, Nevada will pilot transit service between Reno and Sparks to Incline Village and Sand Harbor State Park, anticipated to start in summer 2021, implementing the first step towards the plan's larger transit vision.

Policy Highlight

Policy 5.2: Ensure access to public transit in identified Community Priority Zones

*Figure 36: Tahoe Transportation District Bus in South Shore
Credit: Tahoe Transportation District*



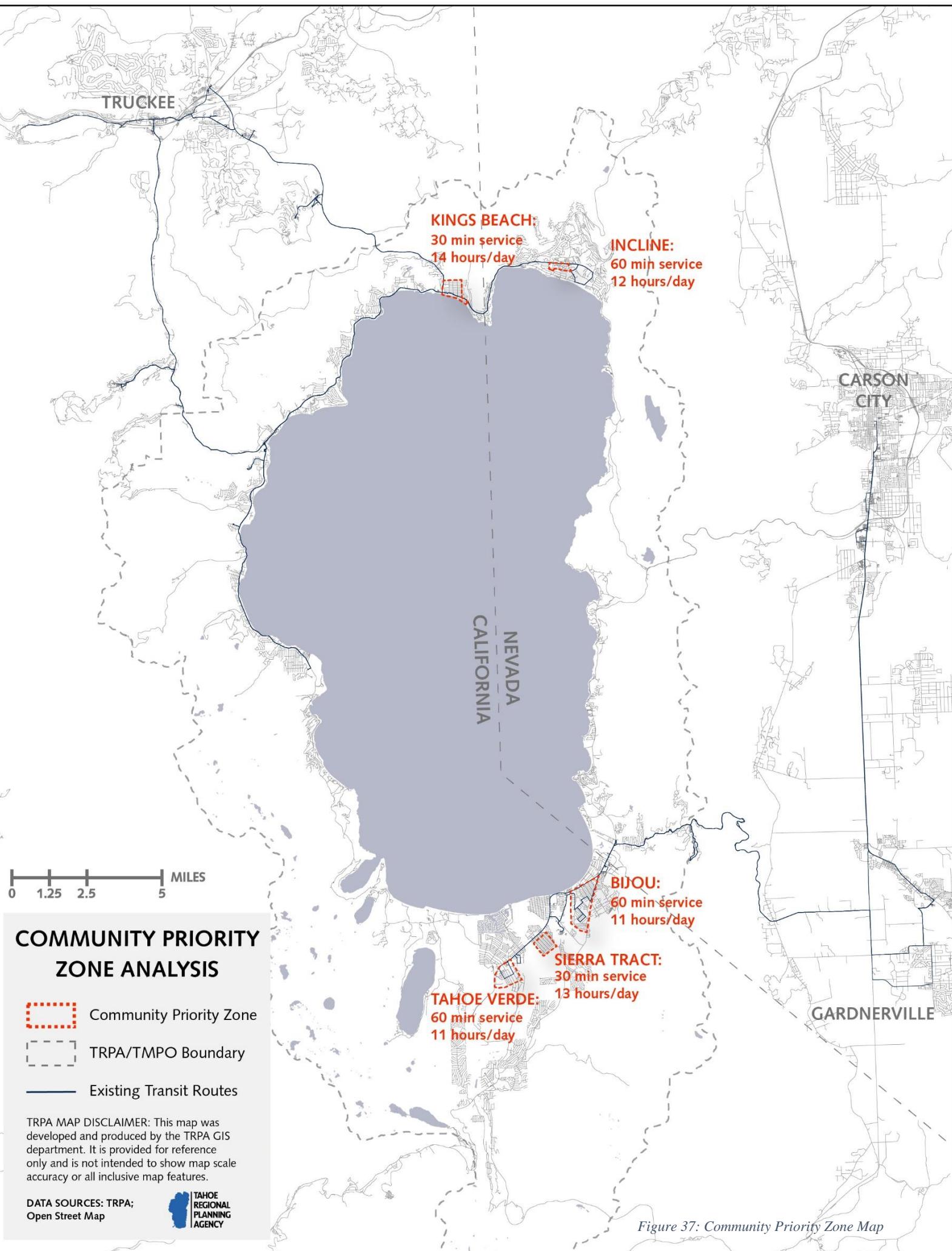


Figure 37: Community Priority Zone Map

TRANSIT

Transit in Tahoe will be frequent and coordinated, and serve at the local, community, and regional. Public-private partnerships and advancements in technology will help buses run on time and serve more people.

Policy Highlight

Policy 2.11: Coordinate public and private transit service, where feasible, to reduce costs of service and avoid service duplication.

Frequent services will connect town centers and major recreation destinations with 15-minute fixed route. Local services arrive every 30 to 60-minutes in some neighborhoods and connect to frequent routes. Community service will provide on-demand service within neighborhoods and town centers, link to frequent routes, and provide service to some recreation destinations. Regional service will provide routes to Tahoe for commuters and visitors from neighboring regions such as Stockton, Sacramento, Reno, and Carson City. A ferry service will provide a critical link between the North and South shores, and water taxis will ferry passengers between popular beaches and marinas during the peak summer months. A series of mobility hubs built at major intersections and town centers will provide electric vehicle charging for an electric transit fleet and connect passengers with first and last mile trip options like shared mobility services and park-and-ride lots.

To achieve this vision, transit services will be added incrementally over the next 25 years, with frequent, local, and community routes implemented in the short-term to provide the foundational service every traveler in Tahoe

needs, especially those living in identified Community Priority Zones. Recreation and seasonal services are prioritized next to provide more travel options for everyone, including travelers who choose not to use their cars. Achieving the long-term vision of public and private water transit and regional and inter-regional transit services will be fully achieved incremental implementation as partnerships and funding opportunities arise, providing options for commuters and visitors to leave their cars behind.

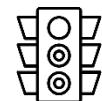
Transit Goals and Policies

Goals

A transit system that is modern and renewable energy fueled that connects visitors and residents to town centers, jobs, recreation sites, neighborhoods, and surrounding areas. As a result, visitors and residents will choose the fast, frequent, and fun transit system over their personal vehicles, reducing congestion on local roadways and environmental impacts through lower GHG emissions.

Policies

Targeted transit policies focus on regional connectivity, operations and congestion management, and economic vitality and quality of life.



Policies will guide the existing transit system towards greater frequency, efficiency, and regional and mega-regional coordination by clarifying public and private operator roles, reaffirming seasonal service needs to recreation areas and neighboring regions, recognizing new and updated transit plans and technologies, such as microtransit, and ensure that increased

transit service and asset management is a regional priority over the life of the plan.

Policy Highlight

Policy 6.2: Improve winter transit access by providing shelters, cleared sidewalks and paths around stops, winter accessible bike racks, and warm shelters at mobility hubs and major transit stops.

Supporting Plans

Transit is shaped by projects identified in Short- and Long-Range Transit Plans for the Region's transit operators, which identify service and capital needs to expand service, add new routes and service types, and purchasing replacement buses and upgrades to maintenance facilities.

Transit for the most vulnerable transit users is informed by the 2019 Coordinated Human Services Plan, which focuses on projects and transportation services that enhance mobility for seniors and individuals with disabilities traveling within Lake Tahoe.

Existing Transit System

Two operators provide local and regional public transit service in the Tahoe Region. The Tahoe Transportation District (TTD) operates on the South and East shores. Tahoe Truckee Regional Transit (TART), jointly operated by Placer County and the Town of Truckee, provides services on the North and West shores. Service tiers are defined as:

Frequent Service are fixed routes that operate on the main thoroughfare through

urban cores and provide high-frequency service at 20 minutes or less.

Local Service are fixed routes that provide service to and through some neighborhoods and to the urban cores within the basin. Service is typically offered every 30 to 60 minutes.

Community Service are either fixed route or circulator services that operate within a small zone and provide on-demand **microtransit** service to recreation hot spots and urban centers. Headways vary from 5 to 30 minutes depending on the level of demand.

Microtransit is defined as on-demand, IT-enabled, multi-passenger transportation service that serve passengers using dynamically generated routes. Vehicles can range from large SUVs to vans to shuttles.¹

Regional Service are fixed route express or commuter routes that provide service from neighboring cities to Tahoe. Regional service typically operates every 60 minutes throughout the day or during peak commute times.

Frequent and Local Services

On the South Shore, TTD operates 30-minute service along Highway 50 from 6:30 a.m. to 8:30 p.m. Another fixed route runs hourly along Highway 50 and into some neighborhoods from 6 a.m. to 7 p.m. TTD also operates hourly local service between Stateline and Daggett Summit along Kingsbury Grade. Complementary

¹Federal Transit Administration shared mobility definitions: <https://www.transit.dot.gov/regulations-and-guidance/shared-mobility-definitions>

paratransit services are provided within one mile of these routes and to Meyers.

On the North Shore, TART operates 30-minute service along SR-28 between Tahoma and Incline Village. TART also provides hourly service along SR-89 and SR-267 between North Lake Tahoe and Truckee with connections to Squaw Valley and Northstar Village. All local service operates between 7 a.m. and 7 p.m. and separate night service runs from 7 p.m. to 2 a.m. along SR-28 and to Squaw Valley and Northstar Village.

Community Services

Existing community services are operated by private transit providers on both the North Shore and South Shore. On the North Shore, microtransit company Downtowner operates free microtransit within Squaw Valley with coordinated connections to local TART service along SR-89. Although outside the Tahoe Region boundary, the success of this service serves as a model for the Region. On the South Shore, Heavenly Mountain Resort provides free, frequent, and public winter shuttle service between several of its base lodges.

Regional Services

TTD currently provides regional commuter service between South Lake Tahoe and Minden/Gardnerville and Carson City. The hourly service operates during peak commute hours in the mornings and evenings.

Policy Highlight

Policy 2.3: Collaborate with regional and inter-regional partnerships to establish efficient transportation connections within the Trans-Sierra Region including to and from Tahoe and surrounding metropolitan areas.

Amtrak and Greyhound provide connections to Lake Tahoe from surrounding areas of California and Nevada, including Sacramento, San Francisco, Sparks, and Reno. These services run between the Bay Area and Sacramento and the Town of Truckee three times daily, and South Lake Tahoe one time daily. Trips may require transfers to regional rail or bus service to reach the final destination.

Private operators, such as Tahoe Convoy, provide regional service on weekends during summer and winter peak seasons from the San Francisco Bay Area and the Central Valley to North Lake Tahoe, Truckee, and Squaw Valley.

Shuttles to the Reno/Tahoe airport from both the North and South Shores are provided by public-private partnership between the Region's transit operators and private shuttle operators. The North Lake Tahoe Express is managed by the Truckee North Tahoe Transportation Management Association (TNT/TMA) and the South Tahoe Airporter is a public/private partnership between the South Tahoe Alliance of Resorts and Amador Stage Lines.

Policy Highlight

Policy 2.7: Provide specialized and subsidized public transportation services and programs for individuals with disabilities that is consistent with Coordinated Human Services Transportation plans.

Specialized and ADA Services

Meeting the needs of the most vulnerable transportation users is where transit access begins. Community Priority Zones are neighborhoods where connecting residents and transit-dependent users to their jobs and

shopping centers are essential, based on analysis that included visualizing population centers and employment density.

Under the Americans with Disabilities Act (ADA), TTD and TART must provide on-demand paratransit services to eligible riders over 65 years of age, veterans with a service-connected disability, and persons with disabilities who meet Act established eligibility criteria.

TTD operates an extensive paratransit program in South Lake Tahoe which provides shared, origin to destination, curb-to-curb transportation service to eligible riders. TTD's paratransit service is split into two zones.

Baseline Zone: Baseline paratransit services are available at no cost to eligible ADA riders within a one-mile radius of existing fixed routes.

Extended Zone: Extended paratransit services are available to eligible ADA riders beyond a one-mile radius of existing fixed routes.

TART provides on-demand paratransit services within three-quarters of a mile from existing fixed routes. Placer County also partners with the Town of Truckee to provide daily trips between North Lake Tahoe and the Choices for Children center in Truckee for Choices' program participants.

Figure 38: Tahoe-Truckee Area Regional Transit
Credit: Novus Select/Rachid Dahoun



Proposed Transit Services

Proposed transit services build on existing routes operated by TTD and TART and improve frequency, the duration of service, and provide more and more types of service to recreation hot spots. TART and TTD will continue to provide free-to-the-user service for in-Region public transit through 2045. Private transit providers will help fill gaps in local service to recreation sites and neighborhoods and offer regional services. Public and private partners will implement the proposed transit services using the following framework:

Foundation Riders (Everyday Tahoe)

Frequent, local, and community routes will be prioritized in the short-term and provide necessary services for everyone, and especially for transit-dependent populations.

Persons without Private Transportation

(Zero Vehicle Households): Lack of a personal vehicle is a significant factor for transit need. In 2018, 72 percent of TART riders and 61 percent of TTD riders did not have access to a personal vehicle.²

Elderly (individuals 65 years and older):

Elderly individuals may choose not to drive or can no longer drive due to age.

Persons Below Poverty or Median Income

Levels: Purchasing and maintaining a personal vehicle might be difficult for households with lower income.

Individuals with a Disability: Disability

status may impact an individual's ability to

live independently, including driving a personal vehicle.

Minorities (Latinx/Hispanic, Black, Asian, American Indian, Pacific Islander, Other, Two or More Races): Minority groups are more likely to live in densely populated areas, are less likely to have access to a car, and are more likely to use public transportation to commute to work.³

Choice Riders (Discover Tahoe)

Choice riders might have access to a car or other means of personal transportation but choose to take transit if it is a better and more convenient option than driving. Frequent transit service to seasonal recreation hot spots, such as beaches, trailheads, and ski resorts, will help residents and visitors recreate without driving, and will attract choice riders, particularly where parking options are limited or costly.

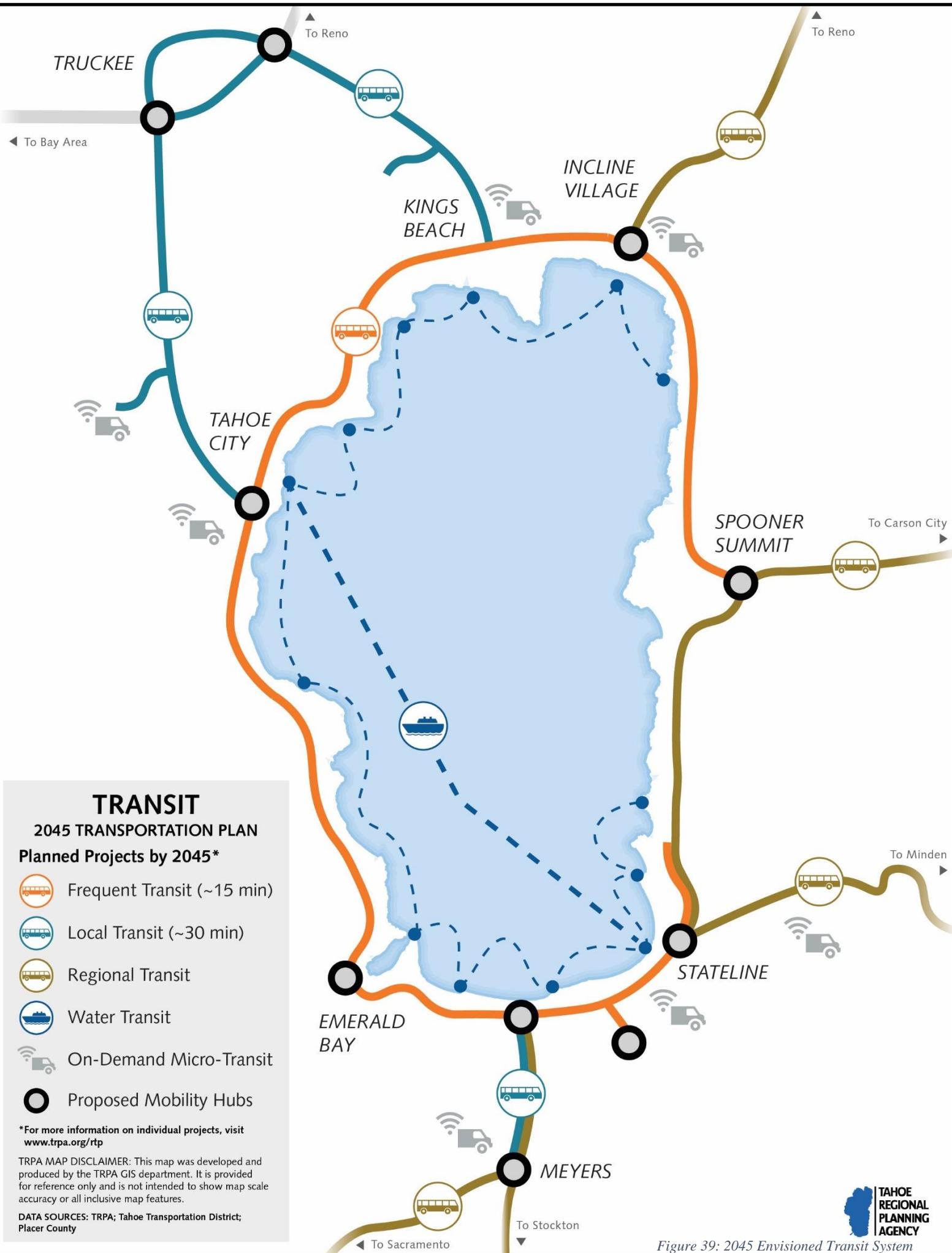
Regional Riders (Visit Tahoe)

Regional riders are primarily visitors traveling to Tahoe from outside the Region. Frequent transit options to and from neighboring cities like Sacramento, Stockton, Reno, and Carson City, combined with park-and-ride and intercept lots, combined with existing water transit and regional services will provide more options for commuters and visitors to travel to Tahoe and leave their cars behind.

² 2018 passenger survey report:
<https://monitoring.laketahoeinfo.org/FileResource/DisplayResource/137d250d-1271-4071-b47c-349b84d92f65>

splayResource/137d250d-1271-4071-b47c-

³ dependent



Frequent and Local Services

By 2025, TTD will increase frequency on Highway 50 routes to every 30 minutes and extend hours to serve late-night riders. Private transit operators will provide service every 20-30 minutes along the SR-89 recreation corridor between Pope Beach and Emerald Bay for South Shore Riders. TART will continue increasing frequency to 30-minute headways on all core routes along SR-89, SR-267, and SR-28 for North Shore Riders.

By 2035, core service on Highway 50 on the South Shore and SR-28 on the North Shore will be provided every 15 minutes and 20 minutes, respectively. Existing seasonal service to popular recreation sites, like Emerald Bay and Sand Harbor, will become more frequent, and

additional transit will be added to ski resorts, Spooner Summit, and Zephyr Cove Resort.

Express bus routes and water taxis will provide additional travel options to Emerald Bay from Tahoe City on the North Shore and Stateline, Nevada on the South Shore, and local service will expand to Meyers.

By 2045, the envisioned transit system will be entirely built with frequent service operating every 15-minutes and local service in place to major hubs and town centers. On the North Shore, service between North Tahoe and Truckee along SR-89 and SR-267 will be offered every 30 minutes or less. On the South Shore, service to Meyers and the top of Kingsbury Grade will be offered every 30 minutes.



Figure 40: Multi-Modal Transit credit: Novus Select/Rachid Dahoun

Community Services

In 2020, the TRPA Governing Board approved plans for the 6,000-person Tahoe South Events Center in the core of Stateline, Nevada.

Beginning in summer 2021, the event center will provide a combination of free fixed route and on-demand microtransit service to the center from Round Hill in Nevada to the Bijou neighborhood in South Lake Tahoe. The service will expand from seasonal to year-round service over a six-year period. Add on areas could further expand service to South Lake Tahoe's Sierra Tract Neighborhood.

By 2025, evening microtransit service will operate on the North Shore throughout Incline Village and Crystal Bay, filling a critical transit gap to the area.

Policy Highlight

Policy 2.14: Support, where feasible, the implementation of on-demand, dynamically routed transit shuttles.

By 2035, free-to-the-user microtransit pilots will expand to Tahoe City and to the West Shore, Kings Beach, Tramway and Upper Kingsbury, and Meyers.

By 2045, every microtransit pilot in Tahoe will become permanent, year-round, and free.

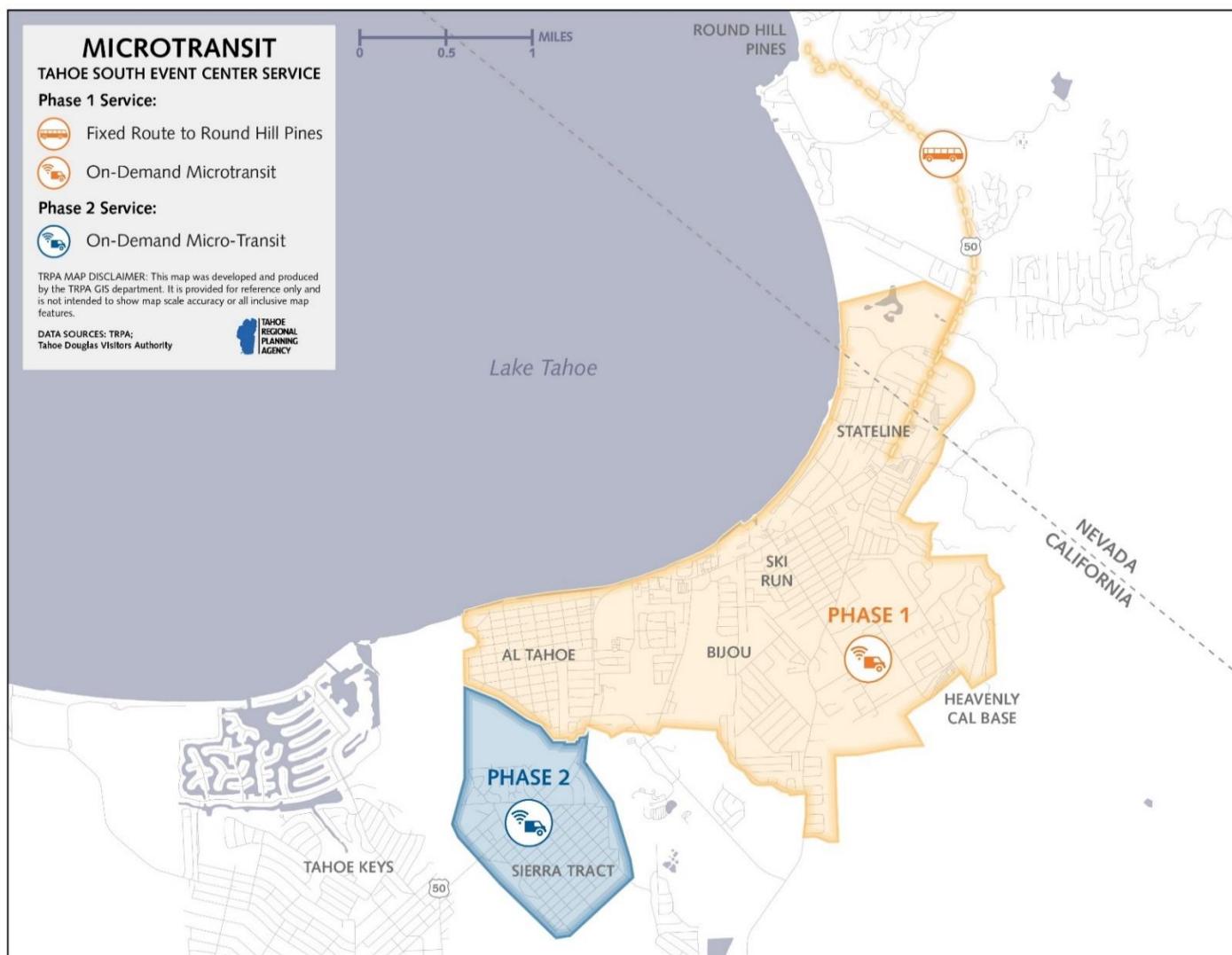


Figure 41: Map of South Tahoe Events Center Microtransit

Inter-Regional Services

By 2025, 24-hour in advance reservable transit service between Reno/Sparks and Tahoe's East Shore will be in place, adding to existing mega-regional routes.

By 2035, TTD will revive Route 21x, via Highway 50, and improve the 19x route, via Kingsbury Grade, to Carson City, and improve route 22 to Minden/Gardnerville, via Kingsbury Grade to serve commuters and day-visitors to Tahoe.

By 2045, hourly transit service from Sacramento, Stockton, Reno, and Carson City, will be in place to meet the travel needs of recreationists who visit Tahoe for the day, and visitors to the Region from the larger cities and connecting airports for a modest fare. These services will be coupled with park-and-ride and intercept lots.

Specialized and ADA Services

By 2025, TTD and TART will ramp up paratransit services to meet increased rider demand from free fares and specialized medical transit services will return from both the North and South shores to California medical centers.

Making Transit a More Attractive Option

Incentive strategies, such as real-time transit information, transit schedule coordination, free-to-the-user transit, and transit signal priority, combined, with improved transit service, will shift Tahoe's culture from car-centric to pro-transit over the next 25 years.

As a result, more travelers in Tahoe will opt in for transit and out of driving.

By 2025, parking management strategies and transit enhancements will be implemented simultaneously to encourage transit use. For example, the Tahoe South Events Center microtransit service will operate in tandem with a new parking management program that includes paid parking.

By 2035, SR-89 and SR-267 on the North Shore will have modified lane configurations that allow for bus only lanes during peak congestion periods to improve transit reliability and boost its competitiveness with the personal automobile.

By 2045, signals on Highway 50 on the South Shore will have technology that prioritizes buses to let them pass through before vehicles, ensuring transit is on-time more often and competitive to the personal automobile.

Tracking Transit Efficiency and Effectiveness

In 2018, TRPA adopted the Lake Tahoe Region Transit Monitoring Protocol to establish methods for collecting and analyzing public transit data. Data analysis helps inform transit planning and ensures the transit system is effective and operating efficiently.

See the Measuring & Managing for Success chapter and Appendix I for more information on the Transit Monitoring Protocol.

TRAILS

With limited capacity on roadways, transportation by foot and bike is essential for travel in Tahoe because some users may not have a car while others prefer walking or biking to enjoy the Tahoe landscape and trails access to beaches and other popular recreation destinations.

Tahoe's active transportation network is a robust system of shared-use paths, sidewalks, bicycle lanes, pedestrian crossings, and ADA facilities that accommodates newer modes of active transport, such as e-scooters and e-bikes.

The network links people to critical community resources and recreation and so must be accessible and serve the needs of all users and their varying levels of comfort traveling by foot

or bike, including the Region's Priority Communities comprised of the elderly, individuals with a disability, and those without access to a car

Tahoe has excelled for several decades at building new bike paths, sidewalks, and bike lanes. Local jurisdictions have invested in year-round maintenance by sweeping paths in summer and plowing them in the winters to ensure safe, year-round use.

Between 2018 and 2019, bike paths and sidewalks at Tahoe that have monitoring stations recorded a 15 percent increase in summertime use. This increase speaks to the importance of constructing and maintaining paths and to continued investments in Tahoe's active transportation network.

Bicycle and Pedestrian Counts (2018 and 2019)

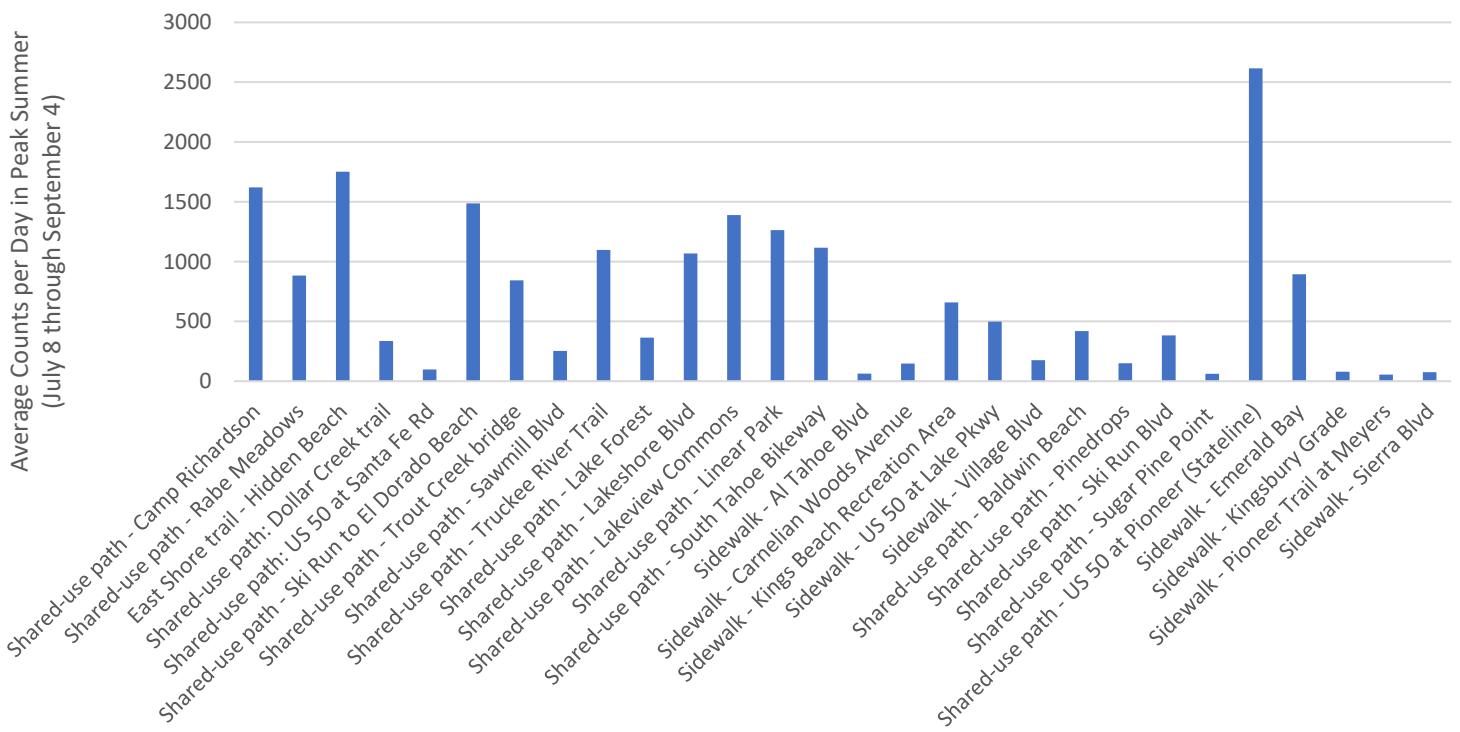


Figure 42: Bicycle and Pedestrian Counts by Location (2018 and 2019)

Trails Goals and Policies

Goals

A well-connected active transportation network of shared-use paths, sidewalks, bike lanes, complete streets, pedestrian crossings, and other facilities that conveniently and safely connect all travelers to work, home, school, town centers, and recreation sites by foot or bike year-round. When implemented, bicycling and walking will help protect Lake Tahoe's environment.

Policies

Policies ensure active transportation priorities are regularly updated and projects are included in regional plans, including the 2016 Active Transportation Plan and Regional Transportation Plan, emphasize safety planning for intersections and high conflict points, give priority to Safe Routes to School improvements and year-round maintenance, and support newer active transportation modes, such as low speed electric scooters and bikes.

Policy Highlight

Policy 2.12: Develop and maintain an Active Transportation Plan as part of the regional transportation plan. Include policies, a project list of existing and proposed bicycle and pedestrian facilities, strategies, and programs for implementation of the Active Transportation Plan.

Bike and scooter-share companies, such as Lime, have expanded operations to cities across the world and over the last four years operated in South Lake Tahoe. Since launching in 2017, Lime bikes and scooters have been used to make over 430,000 trips in South Lake Tahoe. Ensuring the active transportation network is suitable for emerging modes is a key objective of the plan.

Supporting Plans

Trails is shaped by projects and programs identified in supporting plans, including Safe Routes to School plans adopted by school districts in Tahoe and the 2016 Active Transportation Plan, which plans for a network of sidewalks, bike lanes, shared-use paths, pedestrian crossings, and traffic calming (such as roundabouts) to provide connectivity, improve safety, and advance project implementation.

Existing Trails Network

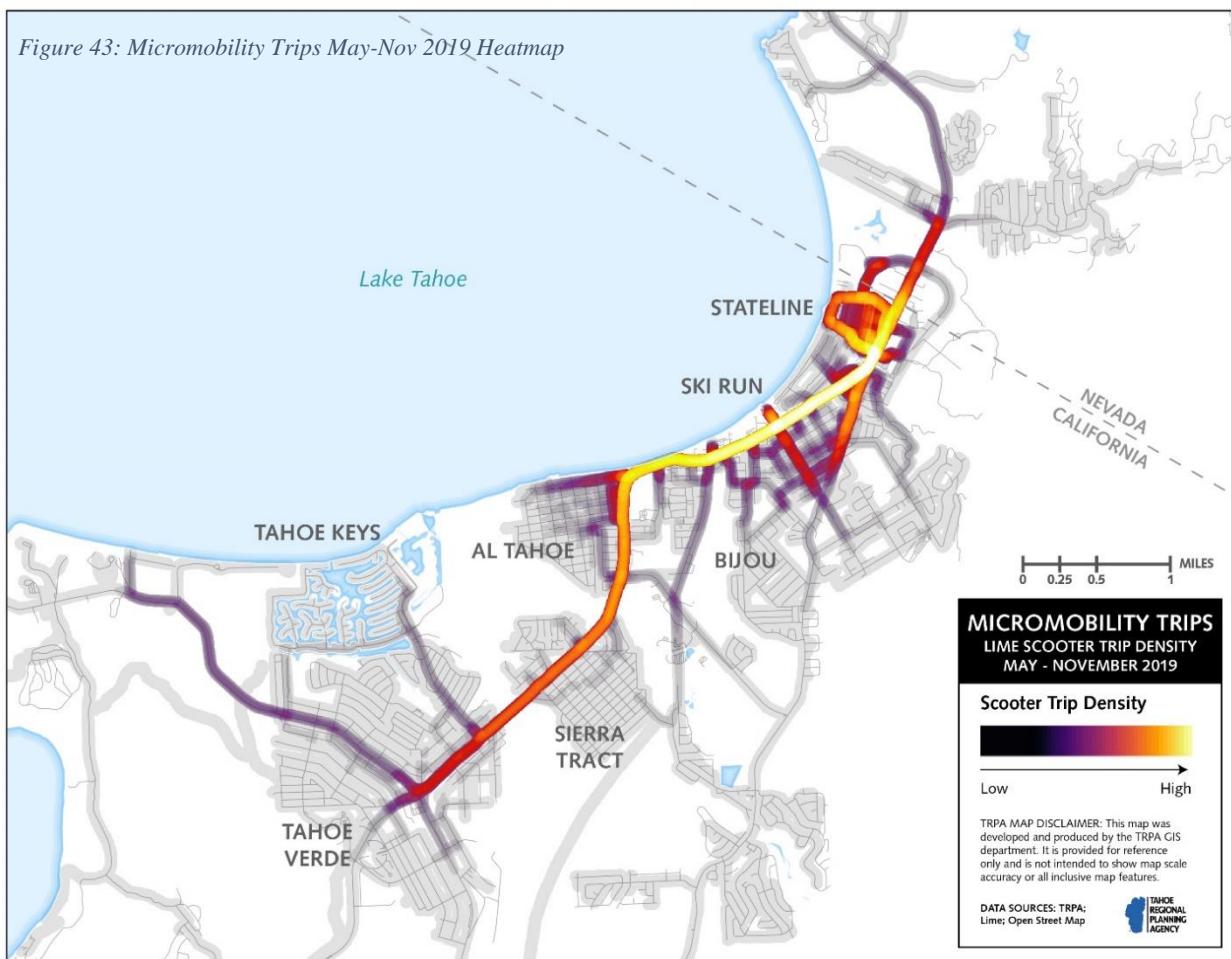
State, local, and regional agencies, such as departments of transportation, local jurisdictions, public utility districts, school districts, and transportation districts, build and maintain the active transportation network of roughly 60 miles of shared-use paths, 46 miles of bicycle lanes, 10 miles of bicycle routes, 25 miles of sidewalks, and 17 enhanced pedestrian crossings. Partners work together to ensure consistency in design standards, and to coordinate maintenance, such as snow removal procedures.

PATHWAY PARTNERSHIP

The Pathway Partnership is a dedicated group of government agencies, nonprofits, and

advocacy representatives who work together to build partnerships, leverage funding opportunities, align messaging and policies, and share best practices to achieve regional transportation goals. The Pathway Partnership is working to develop education messaging for the Region with a focus on path etiquette and e-bike usage. As e-bikes and e-scooters grow in popularity, the Pathway Partnership seeks to provide guidance toward developing a unified Regional policy on e-bike and e-scooter usage on paths.

Local jurisdictions remove snow on 32 miles of shared-use paths throughout the winter. These paths see an average of 55,160 users per month when there is snow on the ground, demonstrating the importance of year-round maintenance to keep paths cleared for use



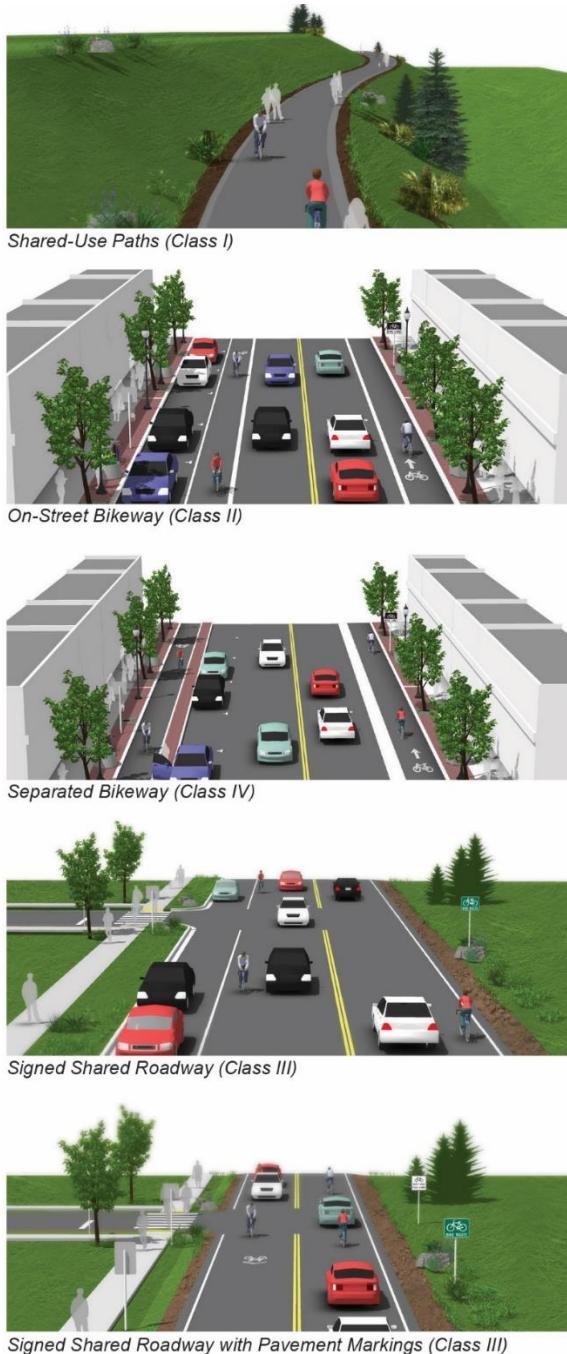


Figure 44: Types of Pedestrian and Bicycle Facilities

Off-Street Infrastructure: Separated Paths and Sidewalks

Separated bike paths and sidewalks provide safe, off-street infrastructure for pedestrians and bicyclists to travel. There are presently 60 miles of separated (Class I) shared-use paths in the Lake Tahoe Region and 25 miles of sidewalks.

In the last four years partners have planned, designed, and constructed critical paths and sidewalks providing safer and essential travel options, including along U.S. 50 in South Lake Tahoe, one of the most traveled corridors in the Region. Four major sections of the Tahoe Trail around the lake have been constructed including the El Dorado Beach to Ski Run Boulevard segment, the Dollar Creek segment, the Tahoma to Meeks Bay segment, and the Incline to Sand Harbor segment. Other sections of the Tahoe Trail are undergoing planning and design. These include the Sand Harbor to Spooner Summit segment, the North Tahoe Regional Trail, and the proposed path around Emerald Bay.

On-Street Infrastructure: Bike Lanes and Bike Routes

Bicyclists who are comfortable sharing the roadway with vehicles often take the most direct route by using on-street bike lanes and bike routes. The state highway system in Tahoe has dedicated bike lanes, where space allows. In some locations, such as the ascent to Emerald Bay or along the East Shore of U.S. Highway 50, bicyclists may need to use the full vehicle lane for safety because shoulder space and bike lanes are non-existent. On local, low-volume and low-speed roads, bike routes help keep the on- and off-street systems connected. Examples include Eloise Avenue in the City of South Lake

Policy Highlight

Policy 6.1: Preserve the condition of sidewalks and bicycle facilities and maintain for year-round use, ensuring bike and walking paths are consistently plowed and safe.

Tahoe and Sequoia Avenue in Sunnyside on the West Shore.

In 2019, the City of South Lake Tahoe created a new bicycle route along Venice Dr. and added bike lanes to Sierra Blvd as part of the complete streets project. Each of these additions help direct and connect bicyclists to the network of separated paths.

Connecting Off-Street to On-Street: Intersection Improvements

Accessing destinations on foot or bike can be severely hindered by the inability to safely cross the street. Enhancing safety at intersections and bike crossings is a top priority for the Region with partners installing safer crossings at several intersections over the last four years.

In 2019, Lodi Avenue at Highway 50 in South Lake Tahoe was upgraded with a signal and four-way pedestrian crossings. On the North Shore, the U.S. Federal Highways Administrations, Placer County, and the Tahoe Transportation District completed work on the Tahoe City Community Revitalization Project which installed three roundabouts at intersections around the Tahoe City Wye to improve connectivity, traffic flow, and pedestrian safety through the area.



Figure 45: Tahoe City Roundabout credit: Tahoe Daily Tribune

Proposed Trails Network

The regional transportation plan projects will close connectivity gaps and increase safety on the existing active transportation network and provide all users more of the facilities they need to recreate and travel to their destinations.

Off-Street Infrastructure: Separated Paths and Sidewalks

The plan proposes 83 additional miles of Class I bike paths plus bike routes and additional sidewalk through “Safe Routes to Schools” improvements near each of the Region’s public schools and complete streets projects in local neighborhoods.

By 2025, two sections of the South Tahoe Greenway will be completed to connect two neighborhoods, Sierra Tract and Bijou, through Bijou Meadow; the next eight-miles of the East Shore Tahoe Trail, from Sand Harbor State Park to Spooner Summit, will be constructed; and the second major segment of the Tahoe Trail on the North Shore will connect the Dollar Creek path to the North Tahoe Regional Park, closing a four-mile gap near Kings Beach and Tahoe Vista.

By 2035, the final section of the West Shore Tahoe Trail will be constructed around Emerald Bay, closing a considerable gap between Spring Creek Rd and Meeks Bay; the preferred Class I path alignment from the SR 89 Trail Feasibility study will be advanced to construction; and several more bike paths and sidewalks will be constructed around the Region, including the final sections of the South Tahoe Greenway, connecting Meyers to Van Sickle Bi-State Park.

By 2045, the Tahoe Trail will be completed, providing a safe, separated, and fully connected bicycle and pedestrian route around the Lake, marking a significant milestone for regional partners.

On-Street Infrastructure: Bike Lanes and Bike Routes

Regional partners are working to add bike lanes and bicycle routes around the Region on residential streets and highways through roadway reconstruction and off-street path construction projects which will provide better connections for bicyclists traveling between shared-use paths.

By 2025, El Dorado County will add new bicycle routes on East and West San Bernardino Avenue to connect to the Upper Truckee River path in Meyers to designated bicycle routes between North Upper Truckee and the Lake Tahoe Environmental Magnet School in Meyers.

By 2035, bike lanes will be in place along the new Main Street in the South Lake Tahoe - Stateline corridor and Washoe County will significantly expand their on-street bike infrastructure with new bike lanes and bike routes in Incline Village.

By 2045, bike lanes and routes will connect many neighborhoods to the Tahoe Trail around the lake, to schools, and to commercial centers.

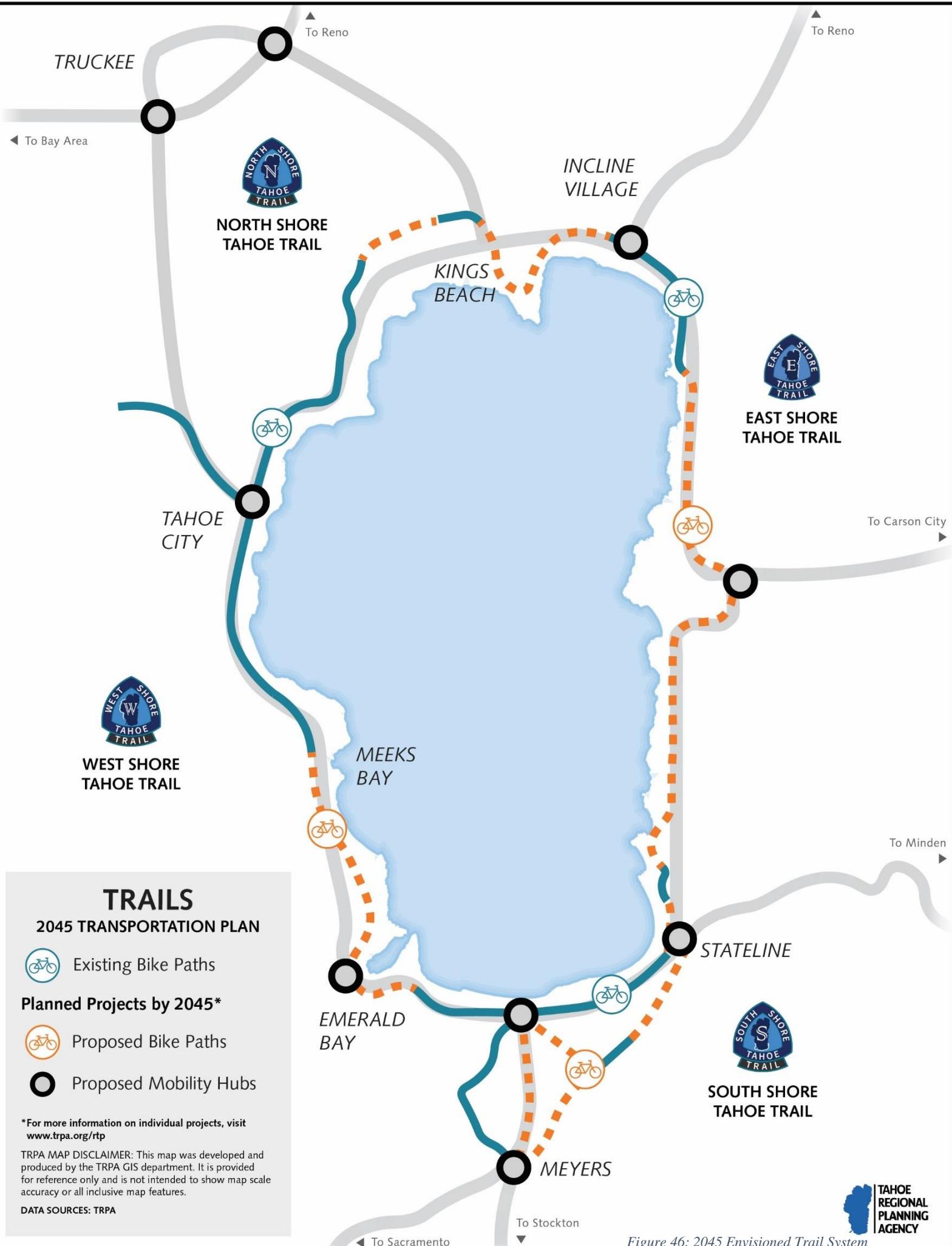


Figure 46: 2045 Envisioned Trail System

Connecting Off-Street to On-Street: Intersection Improvements

In February 2019, TRPA adopted the Lake Tahoe Region Safety Strategy to identify opportunities to reduce the likelihood and risk of crashes on Tahoe roads. Adopted strategies include high visibility markings, pedestrian refuge islands, pedestrian signals, pedestrian scale lighting, vehicle speed feedback signs, and enhanced marked crosswalks at identified intersections in the Region. These projects are included in the plan's project list (Appendix B).

Policy Highlight

Policy 3.5: Design projects to maximize visibility at vehicular, bicycle, and pedestrian conflict points. Consider increased safety signage, site distance, and other design features, as appropriate.

By 2025, two new roundabouts at SR 28 and SR 267 in Kings Beach, and at Pioneer Trail and Highway 50 in Meyers; a new traffic signal at Highway 50 and Warrior Way in Zephyr Cove; and intersection enhancements at Kahle Drive and Highway 50 in Stateline will provide much needed intersection safety improvements.

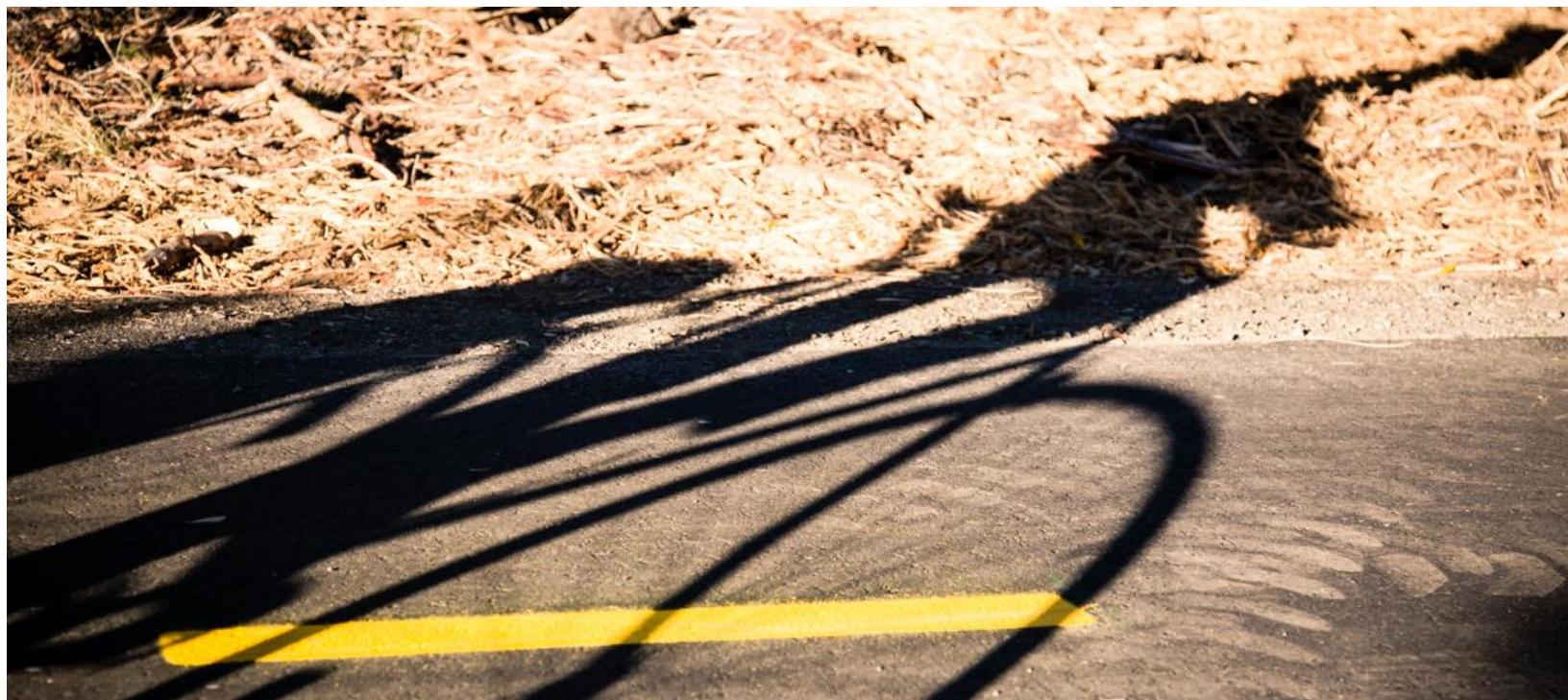
By 2045, several more intersections will be enhanced or reconstructed to improve safety for bicyclists, pedestrians, and vehicles.

Making Trails a More Attractive Option

In addition to infrastructure improvements, incentive strategies will encourage more travelers to bike and walk. Commute Tahoe and the Lake Tahoe Bike Challenge motivate Everyday Tahoe travelers to bike and walk more often by working with employers to install end-of-trip facilities for bike commuters, offering incentives for participants, and celebrating those who do switch some of their trips.

Transit and parking management strategies also incentivize people to bike and walk more often. When buses have bike racks riders can make longer trips by combining the two. Paid car parking and safe bike parking at recreation sites and commercial centers provide economic and convenience incentives to walk or bike rather than drive. The Lake Tahoe Bicycle Coalition has worked with local businesses and employers over the last few years to install hundreds of bike racks in town centers, at recreation sites, near schools, and at local businesses to provide safe parking for bicyclists.

Figure 47: Lake Tahoe Boulevard to Sawmill Bike Path



Tracking Trails Efficiency and Effectiveness

In 2015, TRPA adopted the Lake Tahoe Region Bicycle and Pedestrian Monitoring Protocol to consistently track changes in bicycle and pedestrian volumes through the Region's 10 permanent and 36 temporary bicycle and pedestrian counters on bike paths and sidewalks around the Region.

Count data is collected monthly and uploaded to www.monitoring.laketahoeinfo.org/BikePed.

See the Measuring & Managing for Success chapter and Appendix I for more information about the Bicycle and Pedestrian Monitoring Protocol.

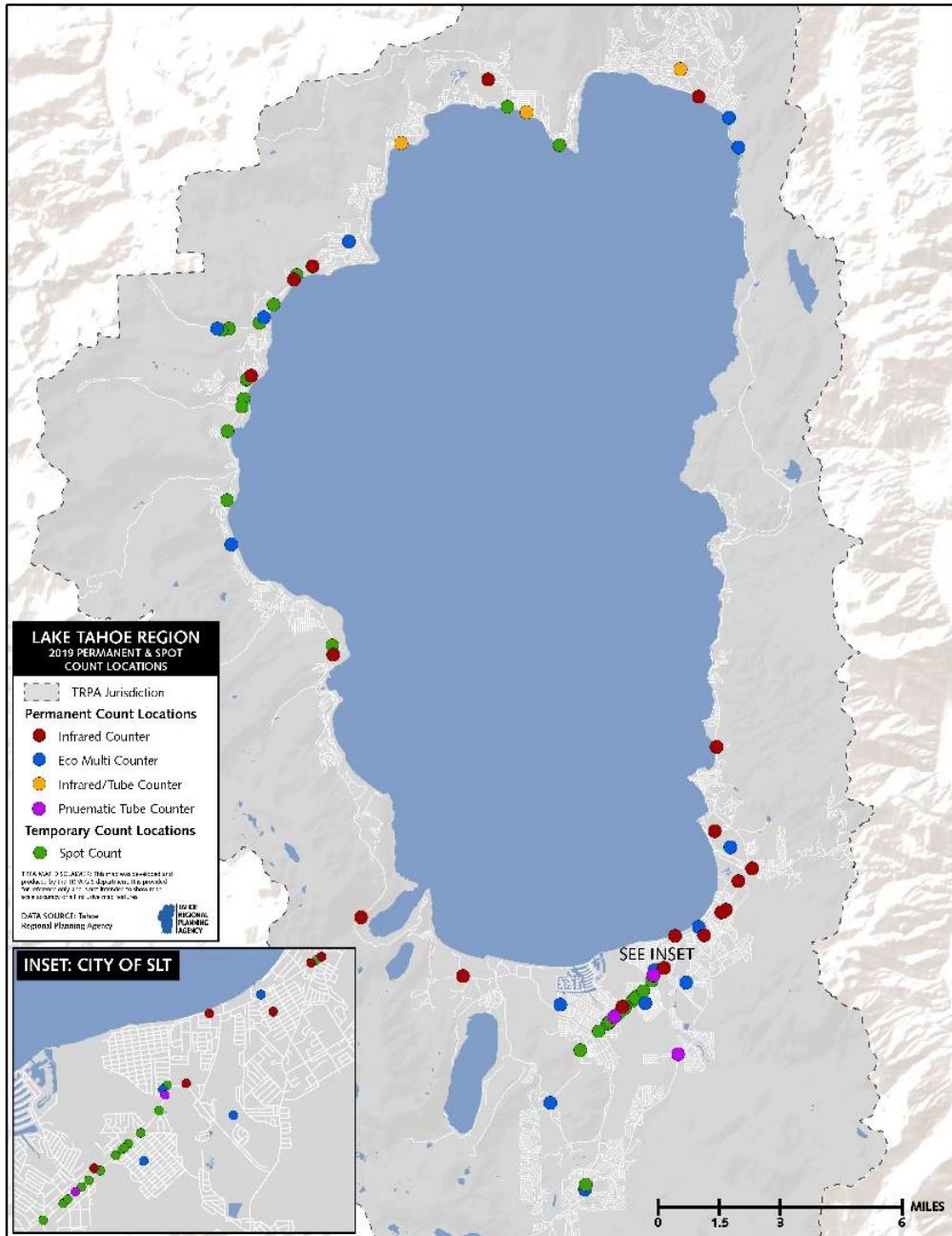


Figure 48: Map of Bicycle and Pedestrian Counters

TECHNOLOGY

Transportation technologies are rapidly advancing and the plan leverages these changes to better connect people with information about the many ways to travel around Tahoe, to provide planners with new insights into the number of people visiting the Region, to ensure electric vehicle charging facilities and infrastructure are widespread, and that the needed fiber optic infrastructure is in place to support these advances.

Technology Goals and Policies

Goals

Technology will catalyze achievement of Tahoe's mobility and environmental goals by connecting people to real-time travel information, transportation options, and alternative fueling stations, self-driving cars, and other advances in transportation.

Policies

Existing and revised technology policies facilitate improvements in communications systems, intersection functionality, electric vehicle use, and emerging mobility services.

Policy Highlight

Policy 1.4: Facilitate and promote the use of zero emission vehicle (ZEV) transit, fleet, and passenger vehicles through implementation of the Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan, education, incentives, funding, and permit streamlining.

Policies support data collection and analysis and data sharing between public jurisdictions and private transportation operators to support collaboration and to promote innovation.

Supporting Plans

Technology is informed by the 2015 Tahoe Basin Intelligent Transportation Systems Strategic Plan, which advances implementation of transportation technology to address the needs and challenges around tourism, adverse weather and road conditions, safety, and environmental concerns, and the 2017 Tahoe Truckee Plug-In Electric Vehicle Readiness Plan (Tahoe-Truckee PEV Plan), which outlines infrastructure, programs and incentives that support widespread adoption and use of zero-emission electric vehicles, consistent with the State of California's goals.

Existing Technology Systems

The Tahoe Region implements technology improvements to benefit all users and to help facilitate the mission of public agencies in three ways: the user experience, transportation infrastructure, and coordination and communication.

Technology for the User

Real-time transit information allows riders to use a smartphone to check when a bus is arriving, see its location on a map, and receive convenient notifications when it is time to leave home to catch the bus.

Policy Highlight

Policy 4.2: Enable growth of shared and on-demand shared ride mobility services (i.e., ride-, car-, and bike-sharing, e-hailing).

California and Nevada departments of transportation provide live video feeds of major roadways in and to Tahoe so that drivers have

all of the information they need to plan ahead to avoid construction delays or winter snow conditions.

New mobility services, such as e-scooters and microtransit, are reservable through app-based technology and use vehicle and smart phone geo-location to link users to the scooter or shuttle.

Technology for Infrastructure

Recent improvements in infrastructure technology at Tahoe include automatic vehicle location technology for transit buses, changeable message signs along highways, and the installation of electric vehicle charging stations around the lake. Better transit scheduling and coordination is now possible with new software systems that provide transit operators information on bus operations to deliver services more efficiently.



Figure 49: Real-Time Changeable Message Sign

Real-time changeable message signs along key travel corridors in the Region, such as U.S. 50 in South Lake Tahoe, relay road condition and travel time information to help drivers make more informed decisions and keep the system moving safely and efficiently.

The Region is rapidly deploying public charging infrastructure and converting public transportation fleets to zero-emission vehicles. Since development of the Tahoe-Truckee PEV

Plan, over 65 public charging stations have been installed. The North Shore and South Shore transit operators, TTD and TART, have purchased electric buses and are adding charging stations at mobility hubs around the Region. Lake Tahoe Unified School District was also awarded grant funding to begin converting its school bus fleet to electric buses.

In 2018 the Tahoe Prosperity Center, with funding from the U.S. Economic Development Administration, completed a broadband feasibility study. The study noted how important improvements in broadband services are for the environment (telecommuting reduces VMT and GHG emissions) and public safety (first responders can coordinate faster during catastrophic events). Broadband also supports real-time transit, travel time, and parking availability information sharing. The study promotes Dig Once Policies (DOPs) to lower the cost of Broadband deployment by providing internet providers access to public right of way. The Region furthers this by the mandatory installation of conduit for fiber-optic cable during road construction (or similar excavation projects), and by allowing broadband deployments to be installed during construction projects.

Policy Highlight

Policy 6.4 Make “dig once” the basin-wide standard, requiring public and private roadway projects to accommodate the installation of conduit to support community needs. (e.g.: broadband fiber optic

This infrastructure helps to prepare for emerging technologies, such as autonomous vehicles. Autonomous vehicles (AVs) use information from radar, laser, Global

Positioning Systems, odometry, and computer vision to detect their surroundings. One of the big challenges to AV use in Tahoe is how they perform in inclement weather, such as rain and snow. While AVs have not been tested in Tahoe yet, Nevada has adopted policies and focused economic development towards the advancement of AVs in the state. States oversee testing and each have different approaches, and so TRPA will need to coordinate with each to advance AVs in the Region.

See Appendix D for more information and recommendations on autonomous transit.

Technology for Coordination and Communication

Data sourced from smart phones and vehicle navigation devices provide TRPA new data sources to analyze and forecast travel. This data helps improve and validate the forecasts of the

TRPA Travel Demand Model, and provides a better understanding of Everyday, Discover, and Visit Tahoe travel patterns.

Technology plays an important role in tracking and sharing emergency management information to the Region's partners and public. The Department of Homeland Security, and state and local emergency response convened to study the need for and the feasibility of a coordinated dispatch system for Tahoe. Today, the group is assessing possible locations to house this system. In addition to providing an important safety benefit to the Region, this system will also create a coordinated transportation management center that will support congestion management of the Region's roadways.



Figure 50: Electric Vehicle Charging Station

Proposed Technology Improvements

Technology projects proposed in the plan will improve real-time travel information, optimize traffic signals, increase data collection and transparency, support expansion of electric vehicles in public and private fleets, and optimize transit services. Additional technological improvements, such as message feedback signs, a region-wide transportation trip planning tool, and informational kiosks at activity centers will be possible only with new sources of funding. See appendices B and C for more information.

Policy Highlight

Policy 4.11: Establish a uniform method of data collection and forecasting for resident and visitor travel behavior and demographics.

Technology for the User

By 2025, partners will invest in a regional trip planning tool that promotes transit, biking, and walking and helps manage visitation to major recreation destinations. The trip planning tool will be incorporated into TRPA's Linking Tahoe webpage to provide one site for trip planning information, including managed parking at the East Shore Trail.

By 2035, more highway message signs will be in place on major roadways in and to Tahoe, providing real time information on travel time and road conditions.

By 2045, app-based on-demand microtransit services will fill gaps in the transit system, connecting more riders to more frequent transit services directly from their front doors.

Technology for Infrastructure

As zero-emission vehicle technologies advance, local partners and private businesses will continue to expand the availability of charging and fueling infrastructure. Tahoe will also serve as a testing ground for emerging electric and hydrogen powered watercraft technology.

By 2025, Liberty Utilities will install up to nine DCFC Direct Current Fast Charge locations across the Region, and electric bicycles and scooter charging stations will be in place to better support these rapidly growing modes.

By 2035, public transit vehicles throughout the Region will have automatic passenger counters to capture the number of people getting on and off the bus by stop, to improve analysis of ridership trends and to measure transit success.

By 2045, with additional funding the planned cross-lake Ferry will be operating, possibly on hydrogen fuel.



Figure 51: Technology Transpiration System in 2045

Technology Coordination

By 2025, the Caltrans will coordinate traffic signals along U.S. 50 in South Lake Tahoe and incorporate transit, pedestrian, and bicycle detection and prioritization which will prioritize the most vulnerable roadway users, keep buses running on time, improve safety for all travelers, and aid in congestion management.

By 2035, Placer County, California will implement transit signal prioritization at intersections along State routes 89 and 267 in the Resort Triangle to provide better travel options during congested travel times and the Nevada Department of Transportation will invest in AV and vehicle to everything communication infrastructure along its state routes in the Region.

By 2045, the Department of Homeland Security, the states, and local jurisdictions will fund and collaboratively operate an Intelligent Mobile Observation System. The system will remotely monitor roadway conditions, work zone activities, and operate integrated dynamic messaging signs, Highway Advisory Radio (HAR) messages, and roadway gates and barriers using wireless communications.



Figure 52: Nevada Smart & Connected Initiative

Making Travel Options More Attractive with Technology

Transportation technology allows for everyone traveling — whether for a day visit, the weekend, or simply trying to get to work or home — to access real-time information that can make travel safer and more efficient. Providing information about the availability of parking and the many travel options to popular town centers and recreation hot spots help people make better choices that also reduce congestion on the roadways and are better for the environment.

Policy Highlight

Policy 4.13: Establish regional and inter-regional cooperation and cost-sharing to obtain a uniform method of transportation data collection and sharing.

Tracking Technology Efficiency and Efficacy

To ensure Technology implementation is effective, TRPA will track the number of EV charging stations, number of parking lots with real-time capacity and pricing information, changeable message signs, and commitments to dig once policies.

COMMUNITIES

Communities is where elements of transit, trails, and technology come together to provide safe, secure, and efficient transportation and more vibrant communities.

Creating vibrant communities requires collaboration with local, state, and federal jurisdictions, the Washoe Tribe, transit providers, and sometimes with partners outside of the basin, such as neighboring metropolitan planning organizations.

Through corridor planning, land use and transportation are closely linked, and the Region's economic vitality and environmental sustainability are supported by better connecting people to their travel destinations. The connections link workers to homes and jobs, freight and customers to businesses, and people — residents and visitors alike — to recreation sites and town centers.

Policy Highlight

Policy 1.1: Support mixed-use, transit-oriented development and community revitalization projects that encourages walking, bicycling, and easy access to existing and planned transit stops.

Communities ensures affordable and achievable housing connects residents to where they need and want to go through a connected transportation system that is well-maintained and operated, and helps communities become more resilient in the face of climate change. This approach elevates the transportation needs of Priority Communities, including those living below the federal poverty line.



Figure 53: DOMUS Affordable Housing in Kings Beach

Policy Highlight

Policy 2.8: Ensure all transportation projects, programs, and policies meet the transportation needs and minimize negative impacts for disadvantaged communities and people with special needs

Communities Goals & Policies

Goals

A seamless transportation system that provides dynamic and safe travel to all users, agency operators, freight delivery (truck and plane), and emergency response.

Policies

Vibrant, healthy communities are achieved through multiple policies. Some policies focus on creating or strengthening the links between land use and transportation through mixed-use, transit-oriented development, as well as empowering developers to mitigate project impacts to the transportation system and advancing strategies to manage parking.

Policy Highlight

Policy 1.3: Develop and implement project impact analysis, mitigation strategies and fee programs to reduce Vehicle Miles Travelled and auto trips.

Other policies seek to address traffic congestion through travel demand management programs that encourage more people to walk, bike, or use transit. Additional policies ensure that roadway and transit projects in the Region are built for all travel modes, and not designed to meet highway standards which balances road and intersection performance with safety benefits for pedestrians and bicyclists.

To improve safety and security, policies call for traffic calming and safety considerations in project designs, safety awareness campaigns, wayfinding measures so travelers can move around confidently, and ensuring that emergency response measures are in place and public safety and transportation agencies are coordinating.

Policy Highlight

Policy 4.8: Invest resources in marketing and outreach campaigns to promote the use of non-auto travel options.

Policies seek to ensure that transportation projects and programs benefit the most vulnerable people in our communities, benefit the environment by helping achieve and maintain the Region's environmental thresholds, preserve and maintain roadway pavement conditions, and accelerate transportation and community improvements through collaboration and the development of a regional revenue source.

Policy Highlight

Policy 6.2: Maintain and preserve pavement condition to a level that supports the safety of the traveling public and protects water quality.

Supporting Plans

The Communities focus area is supported by multiple plans that coalesce regional and local land use and transportation policies and strategies at a community scale, including area plans (2018 Meyers Area Plan, 2017 Placer County Tahoe Basin Area Plan, 2015 Tahoe Valley Area Plan, 2013 Tourist Core Area Plan, and the 2013 South Shore Area Plan) and plans that provide broad community benefits, such as the 2017 Lake Tahoe Airport Master Plan, 2019 Lake Tahoe Region Safety Strategy, and 2019 Kahle Community Vision Plan.

Existing Communities Approach

Sustainable re-development projects help transform and connect local communities. TRPA and local jurisdictions review proposed projects and their impacts to the transportation system to determine if they will significantly impact the Region's VMT threshold. Projects with a significant impact must include design and transportation improvements to offset the impacts. All projects, large and small, mitigate

their impacts to air quality through the air quality mitigation fee. The North and South shore transportation management associations connect transportation and transit service providers with the business community in a collaborative, solution-oriented forum. This helps forge public-private solutions to the Region's transportation challenges. TRPA advances land use and transportation connections through regional housing plans and with incentivizes for affordable and achievable housing in town centers. Corridor planning connects transportation and land use through collaborations that accelerate implementation of transportation, infrastructure, and recreation projects.

Serving Everyone

TRPA seeks out and considers the needs of Priority Communities, such as low-income, disadvantaged, and minority households.

The plan works to address the challenges they face, including accessing affordable housing, education, employment, services, and recreation access. Transportation is critical to economic vitality and quality of life for individuals and families in Indigenous communities as well. Tribal communities face similar deficiencies in the quality of transportation infrastructure and similar barriers to accessing reliable and affordable transportation as those in Priority Communities. The Washoe Tribe of Nevada and California provides input on transportation related plans at Tahoe.

Appendices E and F provide more information on how the plan reached these communities, as well as next steps for addressing environmental justice in the Region.

Land Use and Transportation

Integrating land use and transportation planning is powerful. It can reduce traffic congestion on the roads, reduce transportation's impacts to the environment, and maintain the quality of life for communities. The TRPA is unique among the nation's metropolitan planning organizations with its direct authority over land use regulations through the Lake Tahoe Bi-State Compact. This connection is forged through the Regional Plan, which prioritizes compact mixed-use development in town centers that are connected to the transportation system.

To incentivize town center development, the Regional Plan provides up to six units of development for every one transferred from environmentally sensitive and remote areas not served by transportation to town centers. These incentives are intended to gradually change the development footprint in the Region to reduce impacts to the environment and the transportation system.

The Regional Plan also identifies the need to prioritize transit-oriented housing developments across the Region.

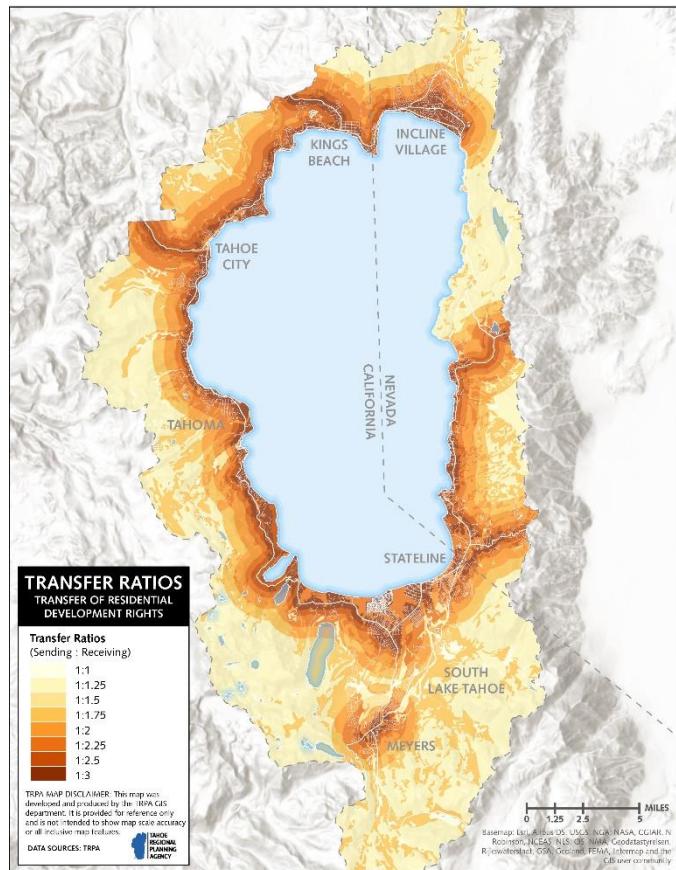


Figure 54: Transfer of Development Rights Transfer Ratio Map

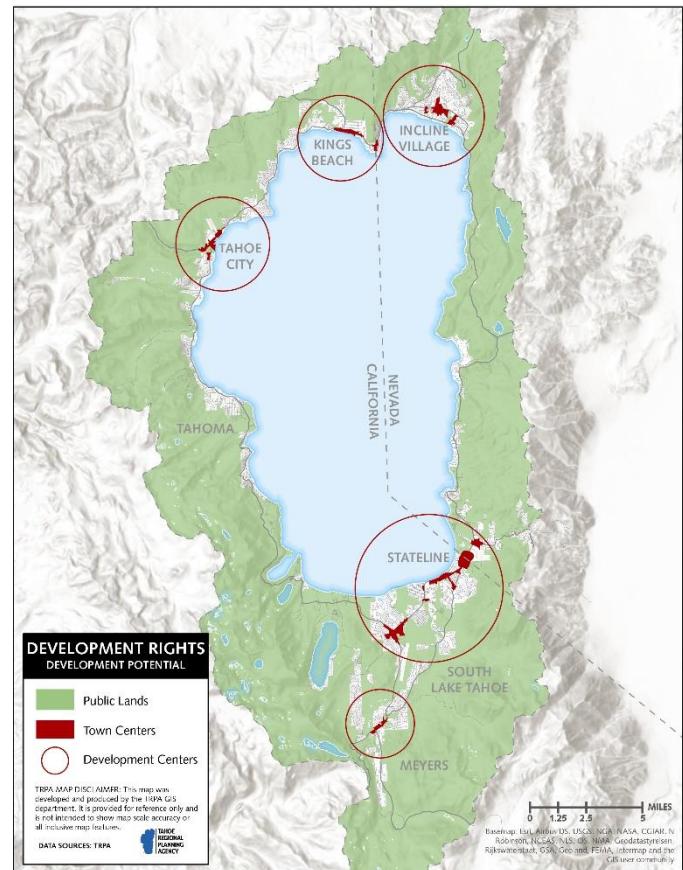


Figure 55: Regional Development Potential Map

A Community System

Safety & Aviation

The 2019 Lake Tahoe Region Safety Strategy was developed in collaboration with transportation partner agencies and stakeholder organizations to collectively reduce crashes on Tahoe roadways. The report analyzed data and made recommendations to change how transportation projects are developed. The recommendations are incorporated into the plan.

Policy 3.4: Support emergency preparedness and response planning, including the development of regional evacuation plans.

Multiple agencies provide broad emergency response services in the Tahoe Region. The South Lake Tahoe Airport is a vital transportation resource for public safety agencies, providing support for air ambulance and firefighting operations. The City of South Lake Tahoe, counties, state departments of transportation, public safety agencies, and local organizations such as the Lake Tahoe Community College, all have incident command systems in place for rapid law enforcement and safety response.

At the state level, California has developed the Standardized Emergency Management System as the framework for procedures to be used in response to disasters by the state and all levels of government. Nevada has the Division of Emergency Management (DEM) to assist and coordinate during large-scale emergency events. Each county and the City of South Lake Tahoe have an Operational Area Emergency Operations Plan.

Passenger air service to the Tahoe Region comes primarily from the Reno-Tahoe International Airport in Reno, followed by Sacramento International Airport. The South Lake Tahoe Airport serves general aviation activities including emergency services, private flights, and air taxi operations. Based on marketing efforts of the South Lake Tahoe community and the forecasted growth of the aviation industry, general aviation operations at the Lake Tahoe Airport are projected to increase by 17.9 percent through 2023. The Tahoe-Truckee Airport is located just North of the Tahoe Basin and serves a high volume of private and charter jets in addition to general aviation activity. Part of the Tahoe-Truckee Airport service area extends into the Tahoe Basin including Kings Beach.

The plan continues to recognize the importance of the airport's role in providing critical emergency services in the Region. TRPA will coordinate with the City of South Lake Tahoe to update its airport master plan.

Policy 1.7: Coordinate with the City of South Lake Tahoe to update and maintain an Airport Master Plan and limit aviation facilities within the Tahoe Region to existing facilities.

Asset Management and System Preservation

There are 110 miles of state and federal highways in the Tahoe Region. They form the backbone of the Region's transportation system by connecting town centers, serving as main streets in some communities, and serving as entry and exit corridors for surrounding regions. These routes are managed by the state departments of transportation. Intersecting and expanding these regional roadways are 619 miles of local streets. Local streets vary in type,

from urban arterials to rural county roads. Local jurisdictions are responsible for maintaining these streets.

Asset management is a critical part of maintaining and operating all roadways in a good and safe condition. Local jurisdictions and implementing agencies in the Region spend over 25 percent of their transportation funding on maintaining the local roadways.

Maintenance includes striping, repaving, snow removal, street sweeping, and more. Placer County has been successful in implementing a benefit assessment district in Kings Beach to fund local roadway maintenance. The model may be expanded to other parts of the County and holds promise for the broader Region. Ongoing maintenance of local roads is critical to reducing the amount of fine sediment and other pollutants that flow into Lake Tahoe via stormwater runoff.

[Movement of Freight and Goods](#)

The Tahoe Region is considered a final destination for goods. Most arrive by trucks on federal and state highways. The closest freight rail depot is in Truckee and is served by the Burlington Northern and Santa Fe Railway. Due to relatively low goods movement volume on the Region's roadways, there are no projects planned to specifically address freight and goods movement in the plan. The current approach to freight planning recognizes that because most of the Region's goods are delivered by truck. Projects that improve roadway access and mobility will also benefit trucks moving goods. For example, the complete streets approach to project design outlined in the plan includes accommodations for large vehicles to provide for the needs of transit, freight, and public safety vehicles.

New data from cell phones and geo-location navigation devices and forecasts from the updated TRPA travel demand model promise to provide improved understanding of freight and goods movement. That analysis will inform future transportation plans.

As the country's freight fleet is converted to zero emission vehicle (ZEV) and alternative fuels, TRPA will continue to monitor the need for local alternative fueling infrastructure specifically for freight.

[State & Local, Conservation and Historic Resources Consultation](#)

TRPA analyzed the effects of the RTP/SCS on natural, cultural and historic resources as required by the California Environmental Quality Act and TRPA. The Initial Study/Initial Environmental Checklist determined that there would be no significant impact to these resources provided mitigation measures are in place. TRPA notified the California Department of Fish and Wildlife and the Nevada Division of Environmental Protection to ensure measures to protect fish and wildlife species are adequate. For cultural resource protection, the California and Nevada state offices of Historic Preservation and the Washoe Tribe were consulted.

[Interregional/Mega-Regional Planning](#)

To realize the long-term vision of the plan, regional and mega-regional partnerships and collaboration are being developed to establish more and better travel options for every user. TRPA is working with these partners on strategies to expand passenger rail service to Truckee, expand and enhance park-and-ride and intercept lots located outside of the Tahoe Region, and plan for inter-regional transit service.

Proposed Communities Approach

Six components make up the Communities planning approach to transportation at Tahoe: dense mixed-use land use, complete streets, mobility hubs, operations and maintenance, meeting housing needs, and corridor planning.

Dense Mixed-Use Land Use

The Regional Plan prioritizes compact mixed-use development in town centers that are connected by the regional transportation plan's envisioned transportation system. Incentives are in place to shift development from environmentally sensitive and remote areas in Tahoe to town centers that will be connected by the transit and trails projects discussed in those sections of the plan. The powerful combination of land-use and transportation will gradually change the Region to reduce impacts development and transportation has to the environment.

Complete Streets

Streets make up more than 80 percent of all public space in cities and have the potential to foster business activity, serve as a front yard for residents, and provide a safe place for people to travel, whether on foot, bicycle, car, or transit.

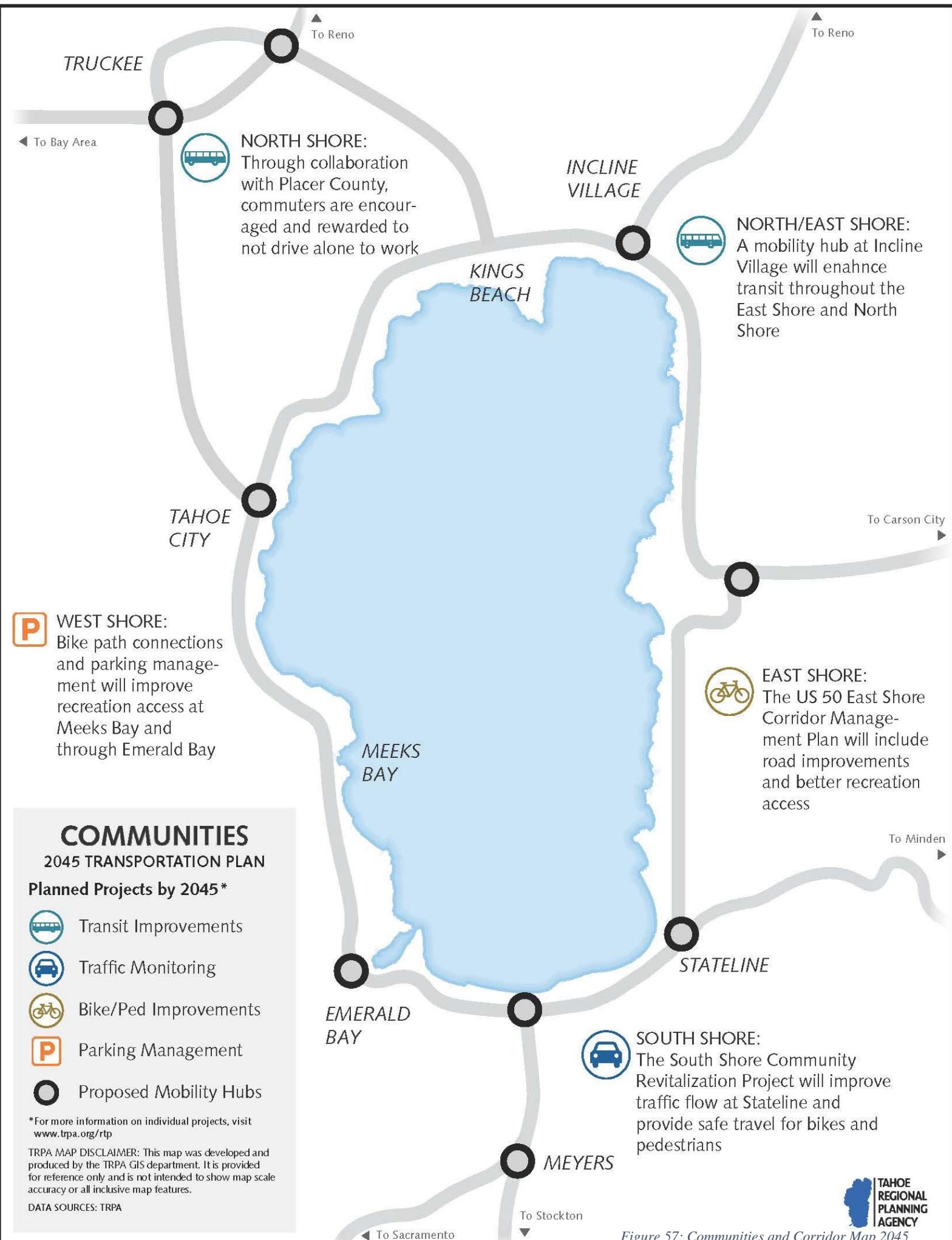
Complete streets are streets designed to serve all travelers by extending planning and infrastructure beyond the roadway to include things such as sidewalks, bike lanes, shared-use paths, and biking and walking amenities along the route, including landscaping, benches, and lighting. When incorporated comprehensively, complete streets encourage travel by foot, bike, and transit.

Recent complete street projects in Kings Beach and South Lake Tahoe have transformed the adjacent communities, increased the number of people biking and walking, reduced vehicle speeds, and increased safety.

Complete streets projects proposed in the plan include the Main Street Management Plan in South Lake Tahoe, which will add pedestrian, bicycle, and transit improvements to a busy commercial and residential travel corridor, and the Tahoe City Downtown Access Improvement Project on the North Shore, which will incorporate traffic calming, pedestrian amenities, and bicycle facilities.

Figure 56: Rendering of Sierra Blvd Complete Streets Project





Mobility Hubs

Mobility Hubs are multi-faceted. They serve the Region as transit centers, park and ride locations, active transportation connections, and electric vehicle charging facilities. Installing and linking these hubs by transit and trails creates the seamless transportation system the plan envisions.

Mobility hubs function best when they are built to provide travel options for working, living, shopping, and playing. Over the next 25 years, partners will construct 17 mobility hubs and transit centers in various locations around the Tahoe Region and in neighboring regions.

Each hub will have park and ride with parking spaces people can reserve online. Frequent transit routes with buses equipped with storage and rack space will serve mobility hubs, allowing people to bring along their recreation equipment and luggage. Mobility hubs will be sized appropriately for their locations. Larger hubs will be developed in town centers and smaller hubs at recreation facilities and other dispersed areas.

The plan proposes a series of mobility hubs around the Region, including in Incline Village on the North Shore and at the southern and northern gateways to Tahoe's West Shore

Mobility hubs will provide transit service, pedestrian and bicycle path connections, charging facilities for electric vehicles and bikes, and park and ride facilities. TRPA is working with the Carson Area MPO to plan for future park-and-ride and intercept lots, and transit connections, which, over time, could evolve into full mobility hubs for the Region's commuters and day visitors.

The Region's newest mobility hub is located at the Lake Tahoe Community College in South Lake Tahoe. This mobility hub highlights the future of transportation electrification with overhead induction chargers for transit busses, DC and Level 2 chargers for light-duty vehicles and charging for electric bikes and scooters.



Figure 58: Tahoe City Mobility Hub

Operations and Maintenance

Operations and maintenance is about coordination around common goals. Agencies throughout the Region work together to ensure that all types of travel are connected, flow safely, accommodate goods movement (including through the Region's airport), and supports Tahoe's economic vitality, quality of life, and environment.

TRPA continues to prioritize funding for operations and maintenance with local jurisdictions and state partners, though needs continue to outstrip available funding.

Policy Highlight

Policy 6.2: Maintain and preserve pavement condition to a level that supports the safety of the traveling public and protects water quality.

Over the next few years, Nevada Department of Transportation and Caltrans will repave critical state routes including SR-28 from Tahoe City to Incline Village, and U.S. 50 on the East Shore.

El Dorado is now on its third phase of improving Lake Tahoe pavement conditions to provide water quality benefits. Roads in poor condition can lead to more hazardous conditions for drivers and cyclists. Fine sediment from roadway runoff and increased wear and tear impacts lake clarity. El Dorado County is seeking funds to implement the Enhanced Stormwater Resource Plan with multi-benefit stormwater projects.



Figure 5: Elk's Club Drive prior to repaving. (R Wigert)



Figure 6: Elk's Club Drive after repaving. (A Buxton)

Implementation

By 2025, Commuters will be encouraged and rewarded for not driving alone to and from work, every corridor in Tahoe will have a plan for providing more and safer transportation choices, and students can confidently and safely walk, bike, or ride transit to and from school.

By 2035, Main Street improvements on the South Shore will be completed, providing better walking, biking, and transit service in one of the most heavily-visited areas at Tahoe; more people park their cars once and travel around the Region by transit, walking, or biking; and recreation access will be improved with new paths and parking management strategies at Meeks Bay.

By 2045, roads will be paved, potholes filled, and regular maintenance completed on all local roads at Tahoe, and U.S. 50 will be rerouted around popular gathering and recreation areas on the South Shore, and a new main street is built with improved transit service and infrastructure for pedestrians and bicyclists.

Meeting Housing Needs

The Tahoe Region faces a serious shortage of workforce housing. Tahoe's vast protected open space, growth caps and limited development capacity has led to competition for Tahoe's scant housing stock. Rental and home prices climb while local residents that rely on seasonal and minimum wage salaries are priced out of the market. Between 2010 and 2018, the proportion of housing units occupied by local residents in the Tahoe Region has dropped from 46 percent to 42 percent. Recent home sales from both the North and South shores show that the vast majority of homes sold in recent years have been to second-home owners, meaning this percentage has likely dropped further over the last two years. Housing shortages, both regionally and at the state level,

have led to several efforts to quantify and set goals for achieving housing needs.

The State of California sets housing targets for individual jurisdictions through its Regional Housing Needs Assessment (RHNA) process. El Dorado County, Placer County, and the City of South Lake Tahoe are required to show how they will meet these targets through their Housing Elements under RHNA. As the MPO for the Region, TRPA is also required to show in the RTP that it can accommodate the RHNA.

While TRPA can show that it has sufficient development rights to meet the RHNA, studies indicate that significant barriers remain to constructing workforce and affordable housing in the Region.

At the regional level, the Tahoe Prosperity Center on the South Shore and the Tahoe Truckee Community Foundation in the North Tahoe-Truckee area, as well as Placer County, have conducted workforce housing needs assessments⁴ that, combined, cover most of the Tahoe Region, with the exception of Washoe County. Taken together, these assessments identify an affordable-achievable housing need of approximately 3,700 homes on the South Shore and in the Tahoe portion of Placer County.

TRPA is committed to working with local governments, agencies, and nonprofits to address Tahoe's housing needs. TRPA is also analyzing and updating its land use planning system to address items that prevent construction of affordable-achievable housing. Two initiatives are key to progress in this area, one which was completed in 2018, the Development Rights Strategic Initiative, and one

which was launched in July 2020, the Tahoe Living: Housing and Community Revitalization Initiative.

[Development Rights Strategic Initiative](#)

The Development Rights Strategic Initiative made two key changes to the development rights system at Tahoe to better incentivize development of more affordable, moderate, and achievable housing. One change allows conversion of development rights among different types of development. A second change expands the availability of bonus units for affordable, moderate, and achievable housing when projects are sited within ½ mile of transit. These incentives provide development rights at little to no cost, reducing the overall cost of development. Increased options for housing developers to obtain development rights allows development rights to flow to the appropriate need as market demands shift. Regional partners are actively working to reduce other development related costs, such as sewer hook-up fees.

[Tahoe Living: Housing and Community Revitalization Initiative](#)

The Tahoe Living initiative aims to achieve RHNA and local housing goals through collaboration with partners. This approach would use TRPA incentives and requirements to complement local jurisdiction strategies to meet the overall housing need. Coordinated efforts could include creating common deed restrictions, aligning TRPA policy with state legislation, simplifying code, and other strategies yet to be identified by the working group.

⁴ The Tahoe-Truckee Workforce Housing Needs Assessment (2016) and the South Shore Housing

Needs Assessment (2019). Placer County produced estimates of housing (2019).

Corridor Planning

Corridor planning is the bridge between the plan's goals and policies, the implementation and long-term operation of multi-benefit projects, and the Region's approach to comprehensively addressing its largest challenges. The Corridor Planning Framework was developed to increase collaboration and accelerate transportation improvements that often cross jurisdictional boundaries.

The Tahoe Region is divided into six corridors based on the unique transportation, recreation, and quality of life needs of each. Corridor planning allows TRPA to leverage its transportation and land use policies to create

synergies and maximize the cost efficiencies and benefits of projects.

The approach to each corridor is adaptive to recognize and respond to localized needs, but planning always includes active transportation, sustainable recreation, housing, and transit-oriented development within town centers.

Corridor Plans

The Corridors approach to the plan is informed by the 2017 Linking Tahoe: Corridor Connection Plan, and completed or draft plans for the corridors in the Tahoe Region, including the 2020 DRAFT SR 89 Recreation Corridor Management Plan, the 2020 DRAFT Main Street Management Plan, and the completed 2014 Nevada State Route 28 Scenic Byway Corridor Plan

Table 3: Housing, Recreation, and Land Use Patterns by Corridor

<i>Housing, Recreation, and Land Use Patterns by Corridor</i>						
	SR 89/28	NV SR 28	US 50 East	US 50 South	Meyers/Y	SR 89 Rec
# Residential Units	11,264	7,375	2,088	11,272	9,921	2,562
% Single Family Units	84.8%	91.7%	93.4%	60.3%	78.4%	94.2%
% Multi-Family less than 20 du/bldg.	13.8%	6.9%	6.6%	31.2%	8.3%	5.8%
% Multi-Family 20+ du/bldg.	1.4%	1.4%	0%	8.5%	13.3%	0%
# Tourist Accommodation Units (TAUs)	1,217	817	110	7,916	494	113
% Backcountry, Wilderness, Conservation & Recreation Acres	87.8%	85.0%	91.^%	59.4%	86.8%	96.5%

Nevada SR 28 National Scenic Byway Summary

This is the Lake Tahoe Region's first corridor plan, developed in 2014 to comprehensively address safety, environmental, and recreation access concerns on the East Shore. The corridor extends from Incline Village south to Sand Harbor and Spooner Lake state parks, passing through Tahoe's longest stretch of undeveloped shoreline--eleven miles from Lakeshore Drive in Incline Village to U.S. 50.

The Tahoe Transportation District and many partners created this corridor plan, as well as a framework for corridor planning throughout the Region. Implementation has exceeded expectations.

Challenges

Recreation demand was double existing parking capacity. This resulted in in a multitude of challenges. Perhaps the biggest is "shoulder-parking." The areas are narrow, often at the edge of steep inclines with limited sight distance.

Safety and erosion are important concerns. The number of vehicles parked along the shoulder has grown every year – almost 170% between 2000 and 2011 – and is projected to double by 2038. Safety is critical as the fatality trend increased from 2006-2013 in contrast to the statewide average that decreased about 50% per NDOT. Traffic slows and becomes congested as vehicles, trying to enter Sand Harbor's typically full lot, back up for almost a mile.

Vision

Create a platform for effective collaboration to protect and enhance this section of "America's Most Beautiful Drive."

Measuring Success

Many partners are working to improve travel options and parking and protect water quality and natural resources throughout this environmentally sensitive corridor. Partners recently completed a world-class, three-mile stretch of shared-use path paralleling Nevada State Route 28 from Incline Village to Sand Harbor State Park, coupled with parking and water quality improvements, and are now working to extend the path south to Spooner Summit and U.S. Highway 50.

Future Focus

- Sand Harbor to Spooner Path
- Paid Parking
- Parking Management System and reservation

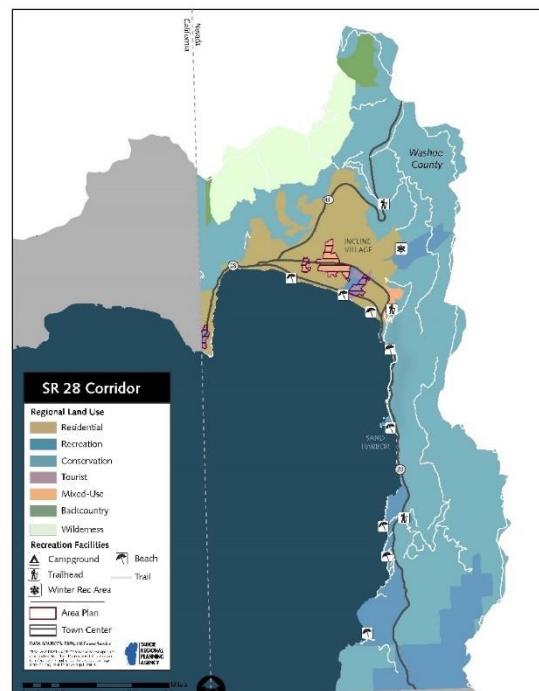


Figure 59: Nevada SR 28 Corridor

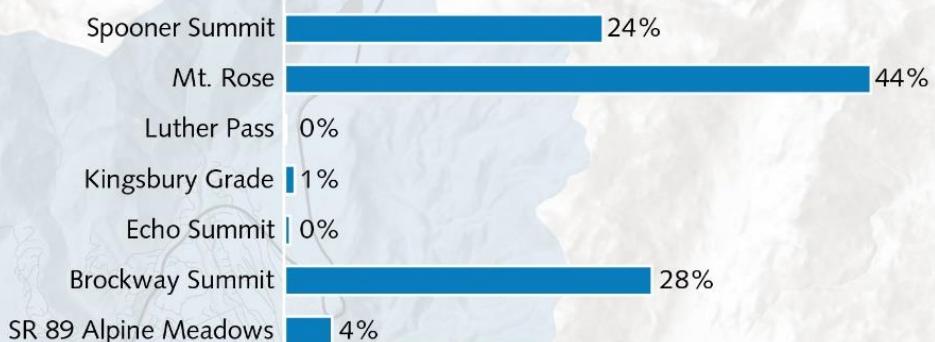
CORRIDOR PROFILE: NEVADA SR 28 SCENIC BYWAY

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



Within Corridor = trips that begin and end within the corridor

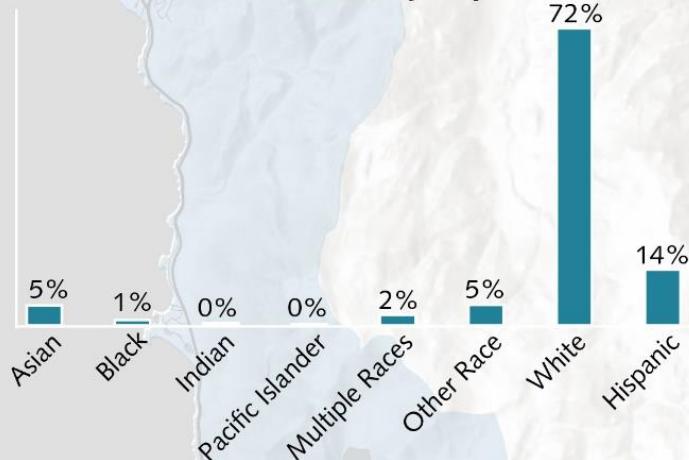
Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin

Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

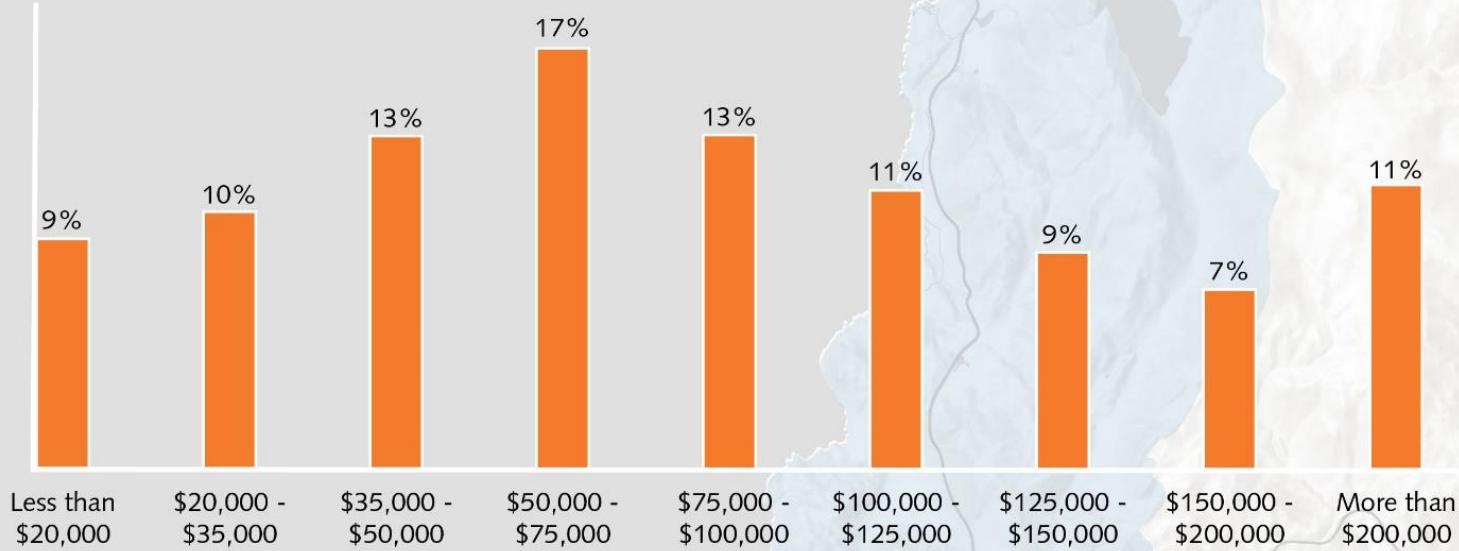
Education Level:

- 17%** No High School Diploma
- 17%** High School Diploma
- 29%** Some College
- 25%** Bachelor's Degree
- 18%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



California SR 89 Recreation Corridor

Summary

State Route Highway 89 Recreation Corridor (SR 89 Recreation Corridor) is a two-lane mountain roadway running from Meyers, California north along the West Shore of Lake Tahoe to the Placer County border. The SR 89 corridor includes 17.5 miles of highway with adjacent recreation uses, extending from West Way in El Dorado County north to the El Dorado/Placer county line at Sugar Pine Point State Park.

The area features some of Lake Tahoe's most popular recreation sites, including beaches, the iconic Emerald Bay, and access to Fallen Leaf Lake and the Desolation Wilderness Area. The roadway serves almost 1.8 million visitors each year, which creates numerous transportation, access, and natural resources challenges.

Led by TRPA, the Tahoe Transportation District, and the U.S. Forest Service Lake Tahoe Basin Management Unit (LTBMU), planning for the State Route 89 Recreation Corridor Management Plan brought together 17 public agencies and stakeholder organizations to develop travel options and visitation management strategies that address challenges related to the corridor's extensive roadway and recreation demand.

Challenges

Demand for recreation in this corridor exceeds the available roadway capacity and recreation infrastructure during peak times of visitation to the Region. This has caused impacts to the environment, heavy traffic congestion, and negative visitor and resident experiences.

Vision

Provide a safe and seamless travel experience that inspires every visitor and resident to walk, bike, or use transit to access the corridor's diverse recreation offerings to better manage

congestion, enhance environmental resiliency, and allow people to focus on enjoying the special nature of Lake Tahoe's southwest shoreline.

Measuring Success

- Reduction of vehicles
- Transit mode share goals
- Improvement in natural resource conditions

Future Focus

- Construction of Tahoe Trail
- Parking management system
- Development of corridor implementation team

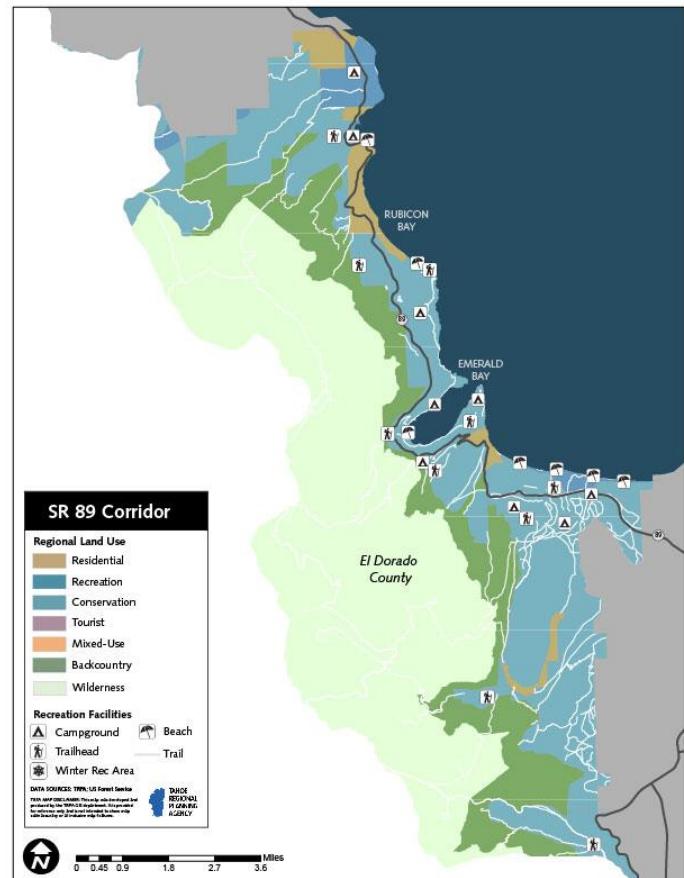


Figure 60: California SR 89 Recreation Corridor

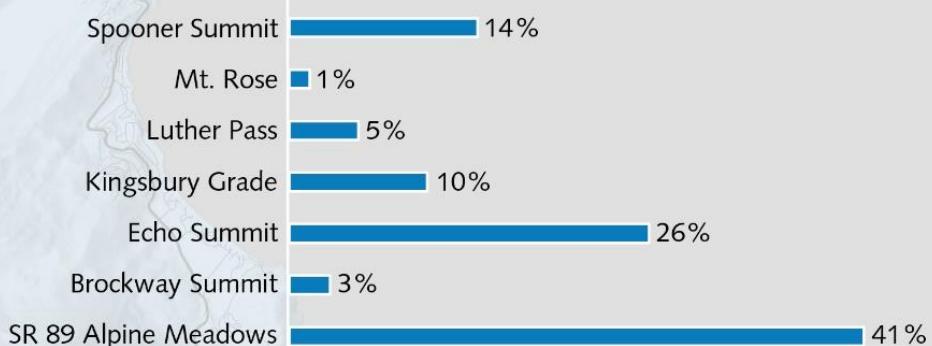
CORRIDOR PROFILE: SR 89 RECREATION

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



Within Corridor = trips that begin and end within the corridor

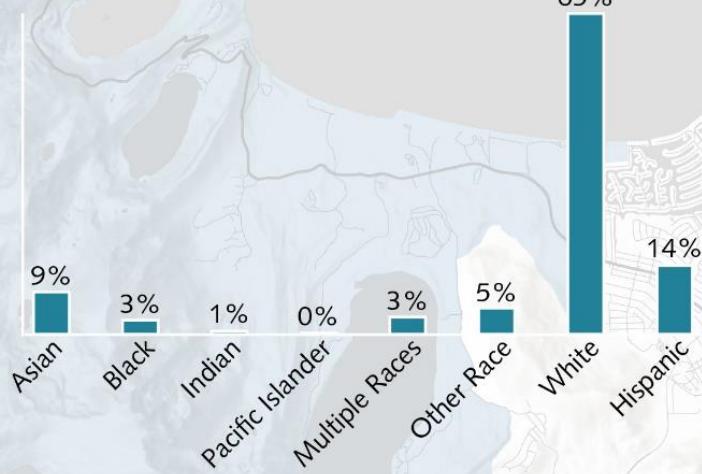
Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin

Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

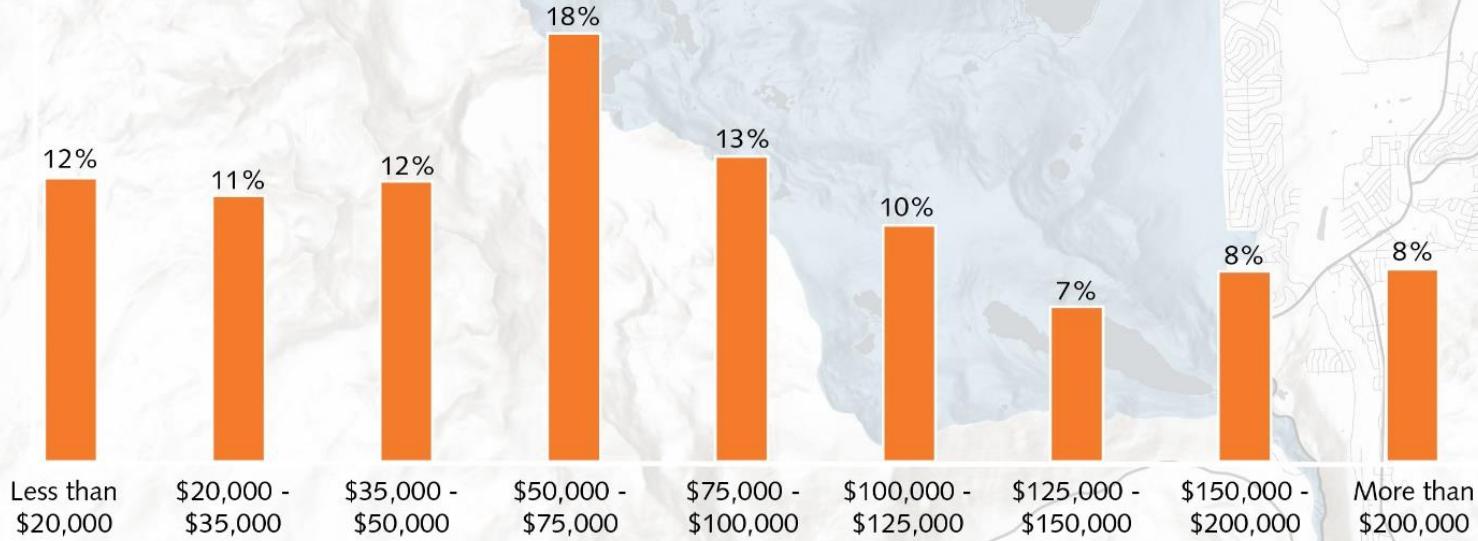
Education Level:

- 10%** No High School Diploma
- 21%** High School Diploma
- 31%** Some College
- 24%** Bachelor's Degree
- 14%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



California SR 89/28

Summary

The corridor includes the residential areas of Tahoma, Homewood, Tahoe City, Dollar Point, Cornelian Bay, Tahoe Vista, and Kings Beach. Recreational attractions are available year-round, skiing, hiking, biking, boating, off-roading, and more.

The corridor begins at Sugar Pine Point State Park and extends north and east to the California/Nevada state line in Crystal Bay, extending through both El Dorado and Placer counties and encompassing two town centers, Tahoe City and Kings Beach, and 11 miles of shoreline.

The Corridor also includes the Tahoe Basin of the Resort Triangle that connects SR89, SR28, and SR267 between Tahoe City, Kings Beach, and Truckee.

Challenges

Public parking is limited, which results in unsafe parking near popular recreation destinations. Transit service is free and becoming more frequent from Kings Beach to Tahoe City, but is less available and less frequent farther east to the Nevada state line and along the West Shore to Sunnyside, Homewood, and Tahoma. Residents and commuters can find it difficult to travel without the need for a personal vehicle.

Vision

The Resort Triangle Transportation Plan presents projects and programs that will provide more reliable and enjoyable ways to travel within the Resort Triangle improving the experience of recreating, shopping, dining, working, and living in North Lake Tahoe. The plans mission is to Create a transportation system for tomorrow which will make more

efficient use of existing infrastructure, focus on improving mobility for all, reduce transportation impacts on the environment, improve congestion and travel delay, promote and enhance transit services, and provide linkage for non-motorized travel choices

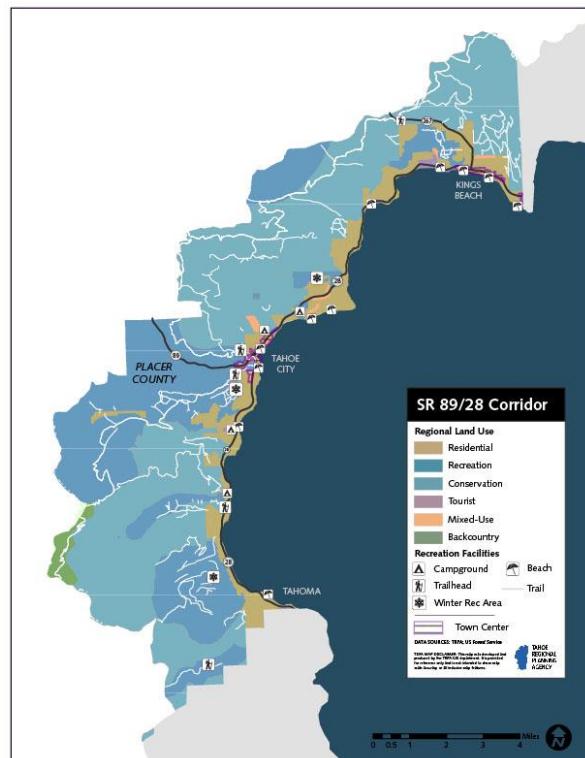


Figure 61: California SR 89/28 Corridor

Measuring Success

- Tahoe Trail: West Shore
- Transit Ridership
- Travel Demand Management

Future Focus

- Pedestrian Crossing Enhancements: Tahoe City
- Fanny Bridge Revitalization Project
- Kings Beach Western Approach

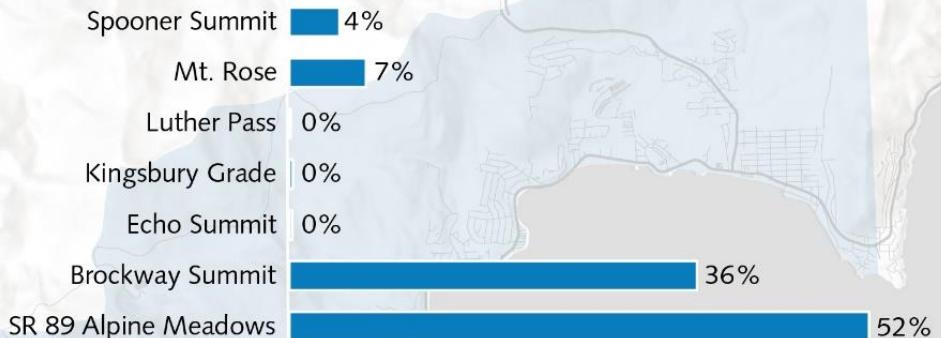
CORRIDOR PROFILE: CALIFORNIA SR 28/89

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



Within Corridor = trips that begin and end within the corridor

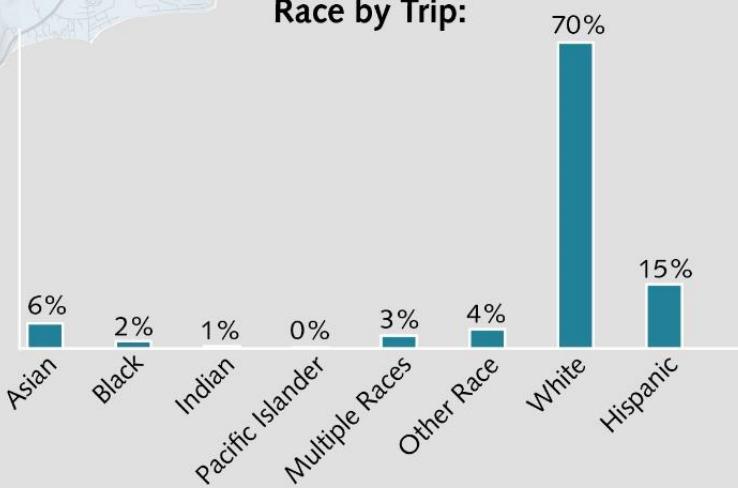
Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin

Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

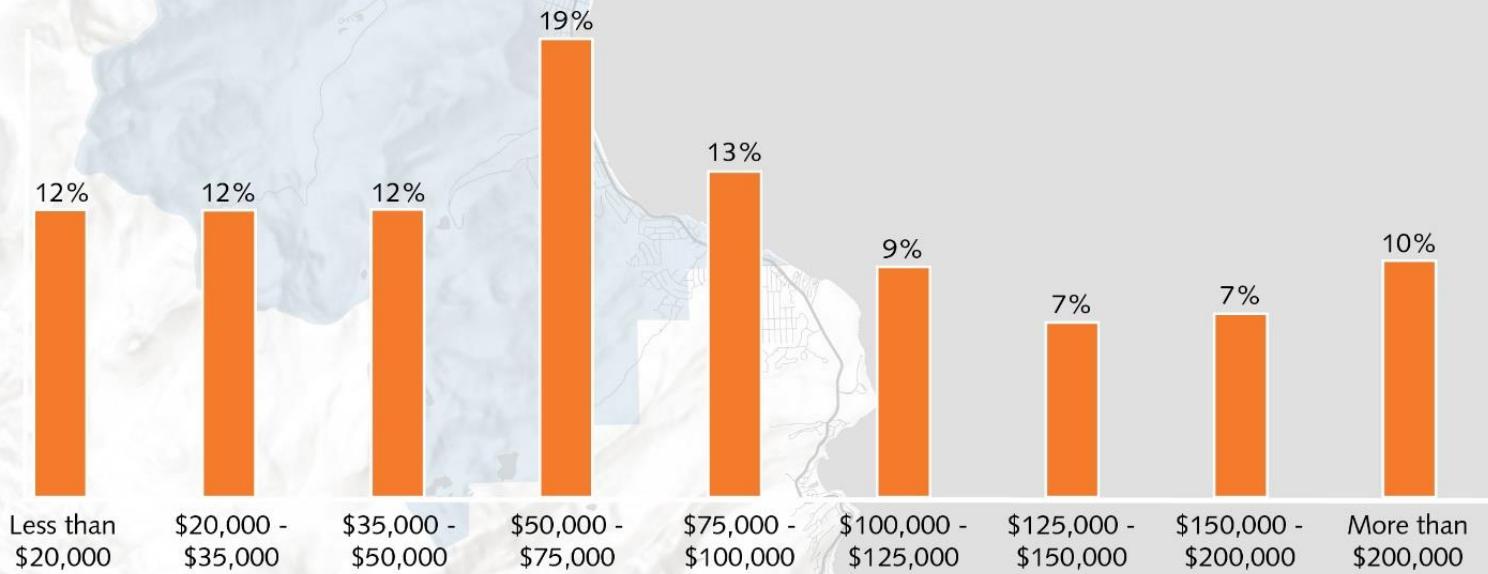
Education Level:

- 12%** No High School Diploma
- 17%** High School Diploma
- 29%** Some College
- 28%** Bachelor's Degree
- 14%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



California/Nevada US 50 South Shore

Summary

The U.S. 50 South Shore Corridor begins at Elks Point Road at Roundhill in the north and continues south to Trout Creek near Al Tahoe Boulevard, extending through Douglas County on the Nevada side and El Dorado County and the City of South Lake Tahoe on the California side. The Main Street Management Plan area extends from Lake Parkway in Stateline, Nevada to the U.S. 50 intersection with Pioneer Trail in South Lake Tahoe, California.

Challenges

The corridor spans two local jurisdictions as well as California and Nevada, requiring continuous coordination, engagement, and support among stakeholders, property owners, and community members. The densely developed nature of some areas of the corridor constrain design possibilities which must serve large volumes of people and varieties of user demands.

Main Street Management Plan

Within this corridor, relocation U.S. Highway 50 around Stateline and the Casino Core through the U.S. 50/South Shore Community

Revitalization Project presents a once in a generation opportunity one of the South Shore's most dense commercial areas.

The Main Street Management Plan lays the framework for a world-class space where people can gather and easily travel among the corridor's tourist lodging, shopping, dining, casinos, and adjoining neighborhoods, as well as to nearby recreation sites. Implementing the plan and project for one of Tahoe's most visited areas will enhance resident and tourist experiences and create new business opportunities through mixed-use

redevelopment, with parking management, wayfinding, transit services, amenities for biking and walking, and streetscape improvements.

Vision

Create a world-class space for people, enhance the environment for those visiting surrounding properties, and provide for an experience that matches the unique natural environment at Lake Tahoe.

Measuring Success

- Reducing vehicles along the Main Street corridor
- Increasing safety for pedestrians and bicyclists
- Addition of sustainable and green water quality infrastructure
- Enhance street activation and business vitality with space designed for special events, street closures, and pop-up business.

Future Focus

- Implementing a corridor parking management and wayfinding system
- Constructing multi-use path in the corridor
- Developing an operations, management, and funding plan

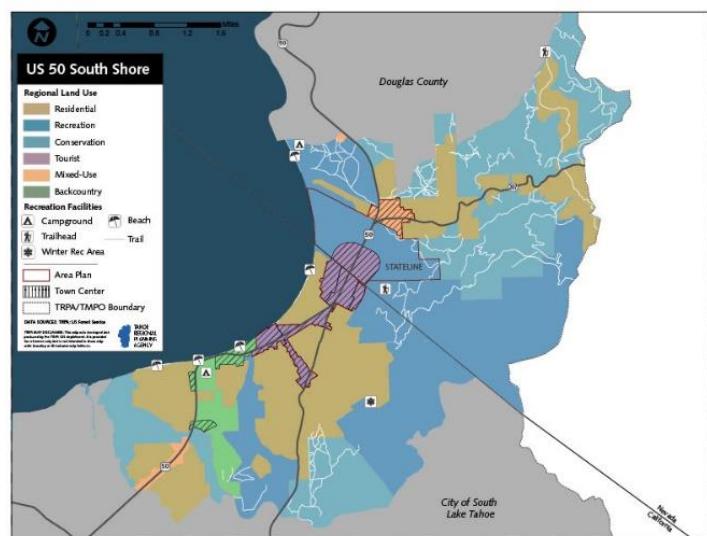
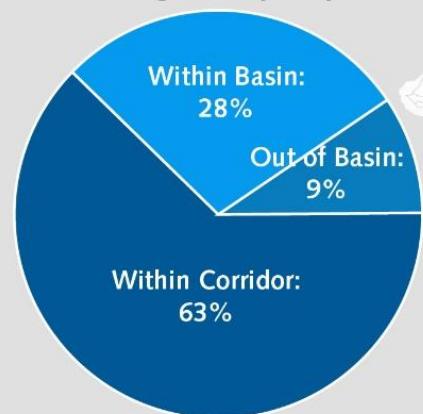


Figure 62: U.S. 50 South Shore Corridor

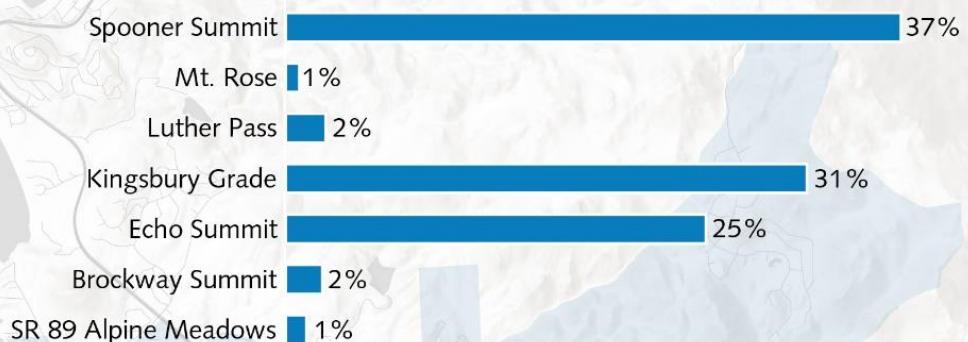
CORRIDOR PROFILE: US 50 SOUTH SHORE

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



Within Corridor = trips that begin and end within the corridor

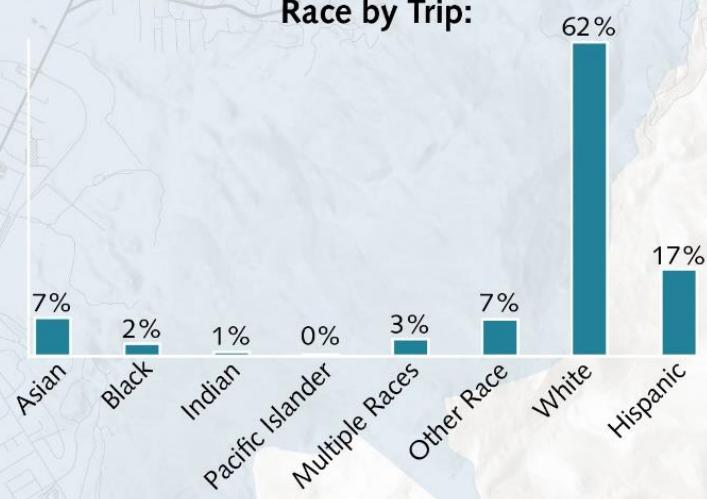
Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin

Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

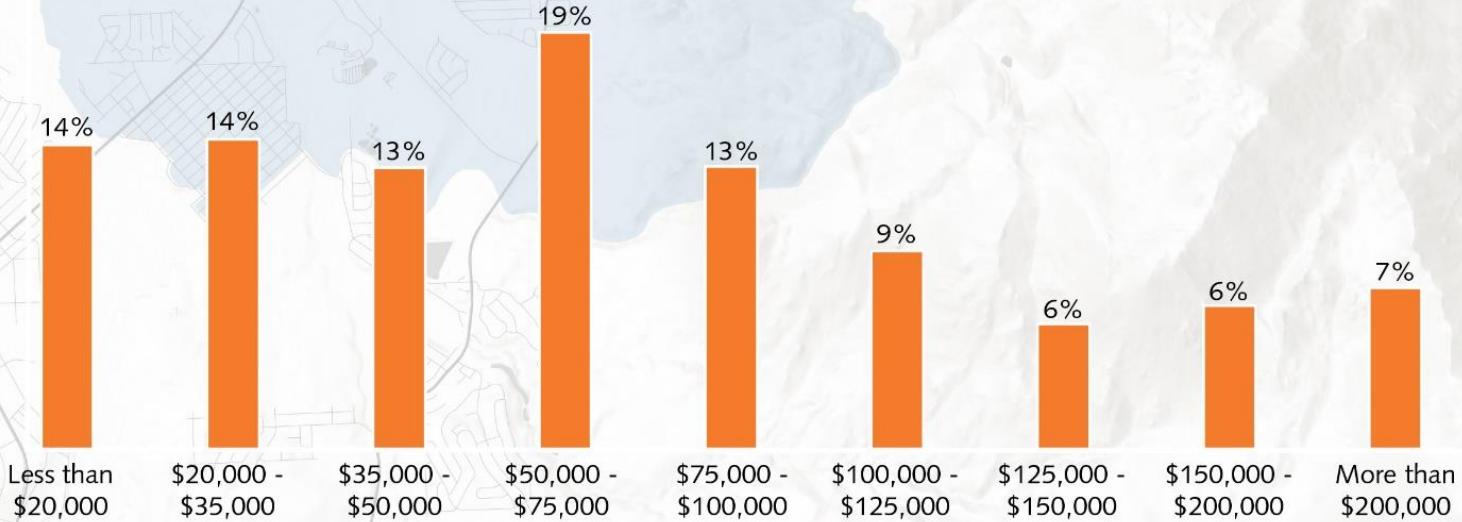
Education Level:

- 13%** No High School Diploma
- 22%** High School Diploma
- 33%** Some College
- 21%** Bachelor's Degree
- 11%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



Nevada US 50 East Shore

Summary

The U.S. 50 East Shore corridor in Nevada begins at the crest of the Carson Range at Spooner Summit and continues south and west to Stateline Avenue, extending through Douglas County. The corridor includes the unincorporated communities of Stateline, Zephyr Cove, Round Hill Village, Glenbrook, Skyland, and Lakeridge along the eastern shore and connects to South Lake Tahoe, California.

The corridor functions as both a rural transportation system and a busy entry route for visitors, recreation travelers, commuters, and through traffic. The corridor is comprised mostly of public lands. Where development has occurred, it has been for residential and recreation uses. Significant recreation areas within the corridor include Spooner Summit, with public access to the Tahoe Rim Trail and Spooner Summit State Park, Zephyr Cove Resort, Round Hill Pines Beach Resort, Nevada Beach, and sections of the Tahoe trail.

Challenges

Public transit service does not currently exist within the corridor. Pedestrian and bicycle facilities and crossings are limited in the corridor, which isolates neighborhoods from local retail and recreation opportunities. Parking on road shoulders is common at popular recreation sites causing safety issues as vehicles and passengers encroach into travel lanes. The roadway has safety issues, including at the intersection of SR 28 and U.S. 50 at Spooner Summit, as well as at residential, commercial, and recreation access points, which often lack turn pockets.

Vision

The U.S. 50 East Shore Corridor provides safe on- and off-street transportation with connected pedestrian and bicycle paths, transit service, sustainable recreation access, and connectivity to the many neighborhoods and businesses from within the Region and from neighboring regions.

Measuring Success

- Tahoe Trail
- Transit Service
- Rate of Serious Injuries per 100 million VMT

Future Focus

- Round Hill Pines intersection improvements
- Complete the U.S. 50 East Shore Corridor Management Plan
- NDOT Repaving - Broadband

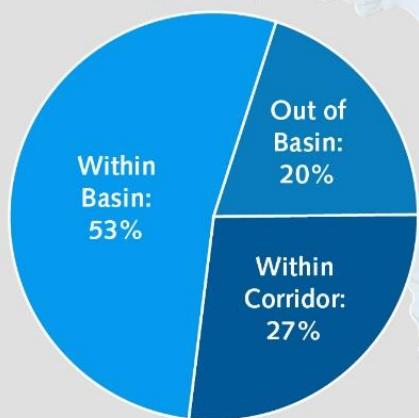


Figure 63: Nevada US 50 East Shore Corridor

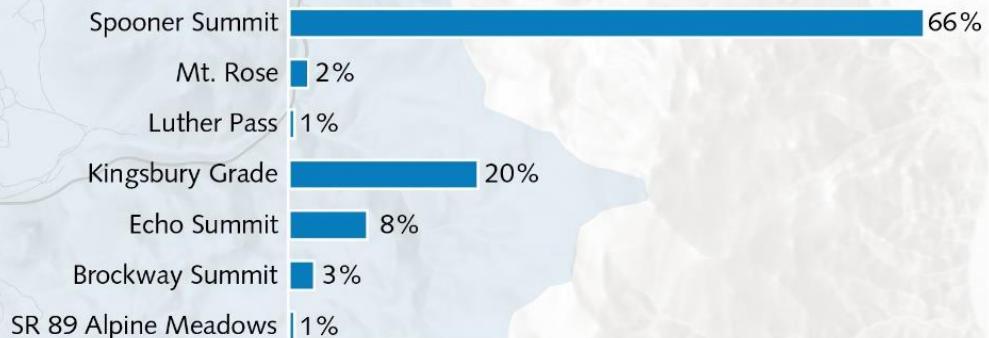
CORRIDOR PROFILE: US 50 EAST

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



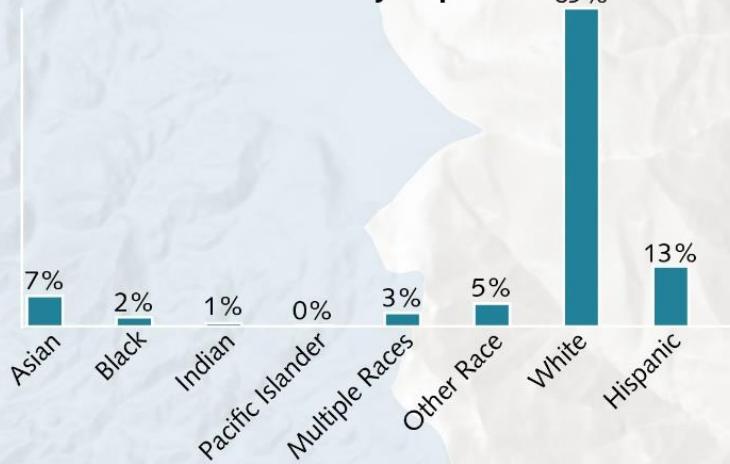
Within Corridor = trips that begin and end within the corridor

Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin
Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

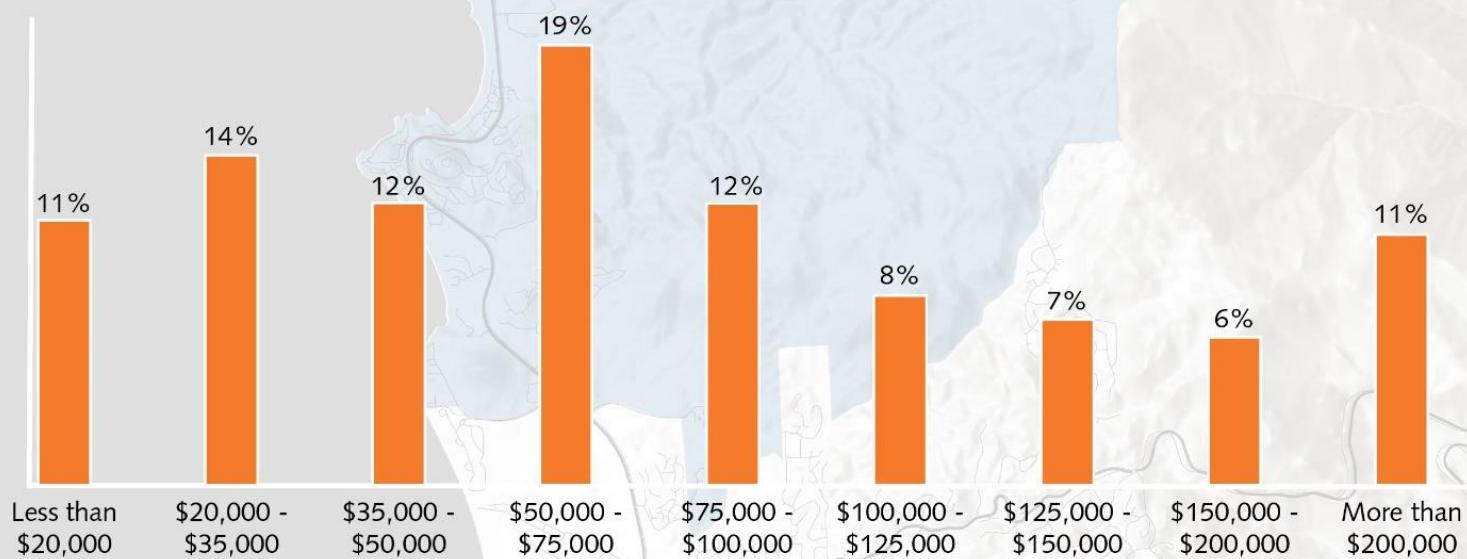
Education Level:

- 9%** No High School Diploma
- 20%** High School Diploma
- 32%** Some College
- 23%** Bachelor's Degree
- 16%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



Meyers/Y Corridor

Summary

The Meyers/Y Corridor stretches along U.S. 50 from Trout Creek to the western edge of South Lake Tahoe at SR 89, as well as almost six miles of U.S. 50 south of the "Y" intersection at U.S. 50 and SR 89. It also includes 5.3 miles of Pioneer Trail.

The Meyers/Y Corridor connects the communities of Meyers and South Lake Tahoe, an area that houses one-quarter of all year-round residents in the Tahoe Region. The corridor has over 20 miles of shared-use path and three miles of sidewalk. It provides access to year-round recreation including hiking and mountain biking trails, golf, and extensive public lands.

Challenges

The corridor also functions as an entry/exit route for Discover and Visit Tahoe users from Sacramento and the San Francisco Bay Area. It holds Tahoe's busiest roads and experiences heavy traffic congestion and long travel delays during peak times of visitation, a situation sometimes compounded by local and visitor traffic as well as severe mountain weather, traffic accidents, and avalanche controls.

Existing transit services do not provide a competitive alternative to the car due to limited coverage and frequency. Many people working in South Lake Tahoe and Stateline live in the Meyers/Y corridor. Home to work car trips by these workers are sometimes impacted by entry/exit travel to the Region, compounding congestion. The Meyers/Y intersection is the busiest in the Tahoe Basin with average annual daily traffic of 47,000 vehicles per day (vpd) and average daily traffic in July exceeding 57,000 vehicles per day.

Vision

A comprehensive pedestrian and bicycle network with convenient transit to effectively connect residents and visitors to the many nearby recreational, residential, and commercial areas. Reliable transit connects the many workers living in Meyers with jobs in South Lake Tahoe, the larger Region, and beyond. Traffic on the roadways traversing the community now moves more smoothly, with intersection improvements and new technologies that improve safety and efficiency.

Measuring Success

- Trails
- Transit
- Travel Demand Management (TDM)

Future Focus

- Complete the Meyers/Y Corridor Plan
- South Tahoe Micro Transit Service

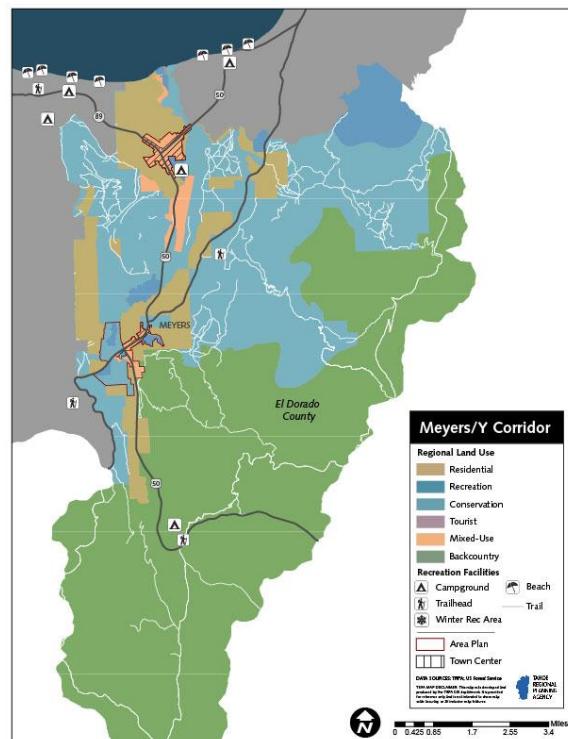
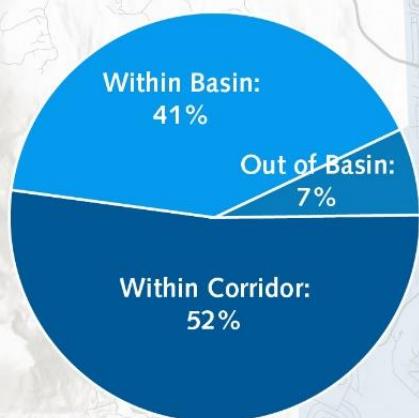


Figure 64: Meyers/Y Corridor

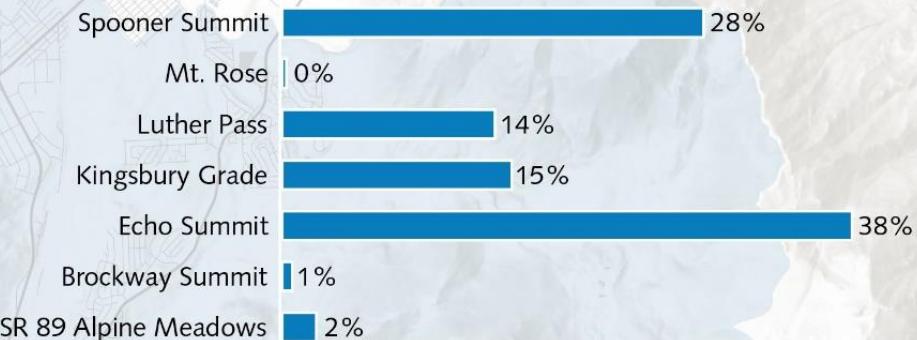
CORRIDOR PROFILE: MEYERS Y

Source: StreetLight Data

Average Daily Trips:



Trips by Entry Corridor (Out of Basin):



Within Corridor = trips that begin and end within the corridor

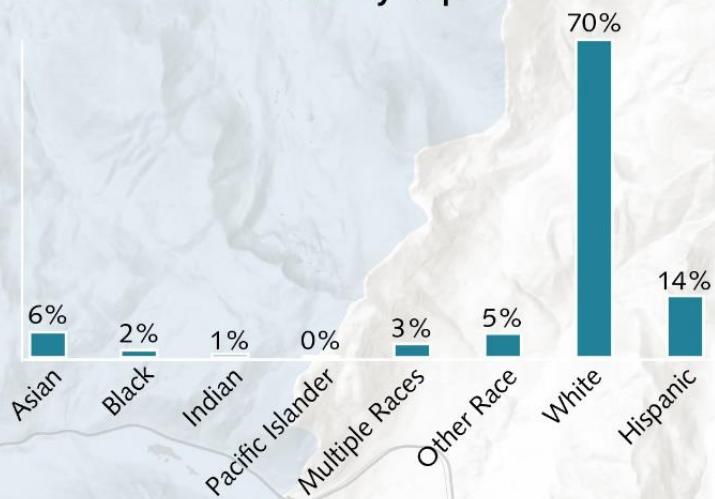
Within Basin = trips to or from the corridor that begin or end outside the corridor, but within the Tahoe Basin

Out of Basin = trips to or from the corridor that begin or end outside the Tahoe Basin

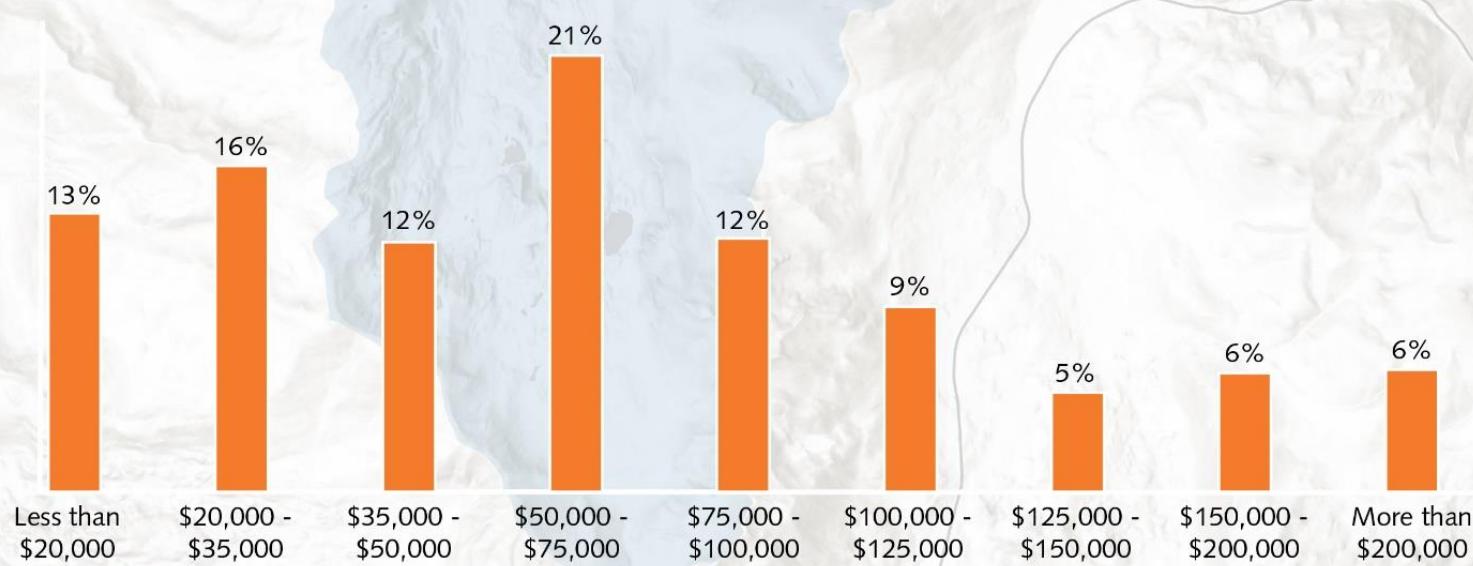
Education Level:

- 10%** No High School Diploma
- 23%** High School Diploma
- 35%** Some College
- 22%** Bachelor's Degree
- 10%** Graduate Degree

Race by Trip:



Trips by Annual Household Income:



Tracking Efficiency and Effectiveness of the Communities Approach

TRPA's approach to focusing and incentivizing development in town centers and connecting those centers and popular recreation destinations through the RTP/SCS supports the environmental goal of reducing GHG emissions. Progress is tracked using two performance measures: Daily VMT traveled and VMT per capita. These performance measures reflect the extent to which people are driving to destinations such as work, home, and recreation.

The Communities' focus on building mobility hubs in the Region and in neighboring regions, and the Bi-State Consultation's recommitment to the Corridor Planning Framework, support the Regional Plan and RTP goals for connectivity and economic vitality and quality of life by creating a seamless, efficient, and accessible

multi-modal transportation system that operates at the highest possible level and supports the safe and efficient movement of people and goods in the Region. Two key performance measures track progress toward these goals: the percentage of identified Priority Communities with access to transit services (within $\frac{1}{4}$ mile), bicycle paths (within $\frac{1}{4}$ mile), and pedestrian paths (within $\frac{1}{4}$ mile); and the percentage of overnight lodging and recreation areas with access to transit services (within $\frac{1}{4}$ mile), bicycle paths (within $\frac{1}{2}$ mile), and pedestrian paths (within $\frac{1}{4}$ mile).

Safety metrics meet federal requirements and TRPA's Regional Plan and RTP goals for safety, systems preservation, and operations and congestion management through the measurement of crash rates, including serious injury crashes per 100 million vehicle miles travelled, as well as pavement and bridge conditions.

Adaptive Management

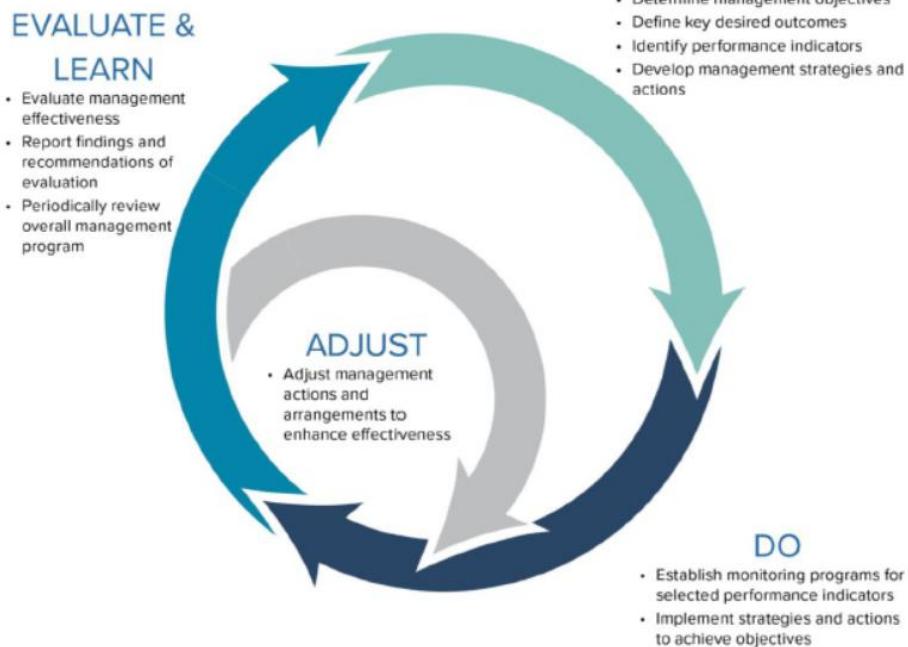
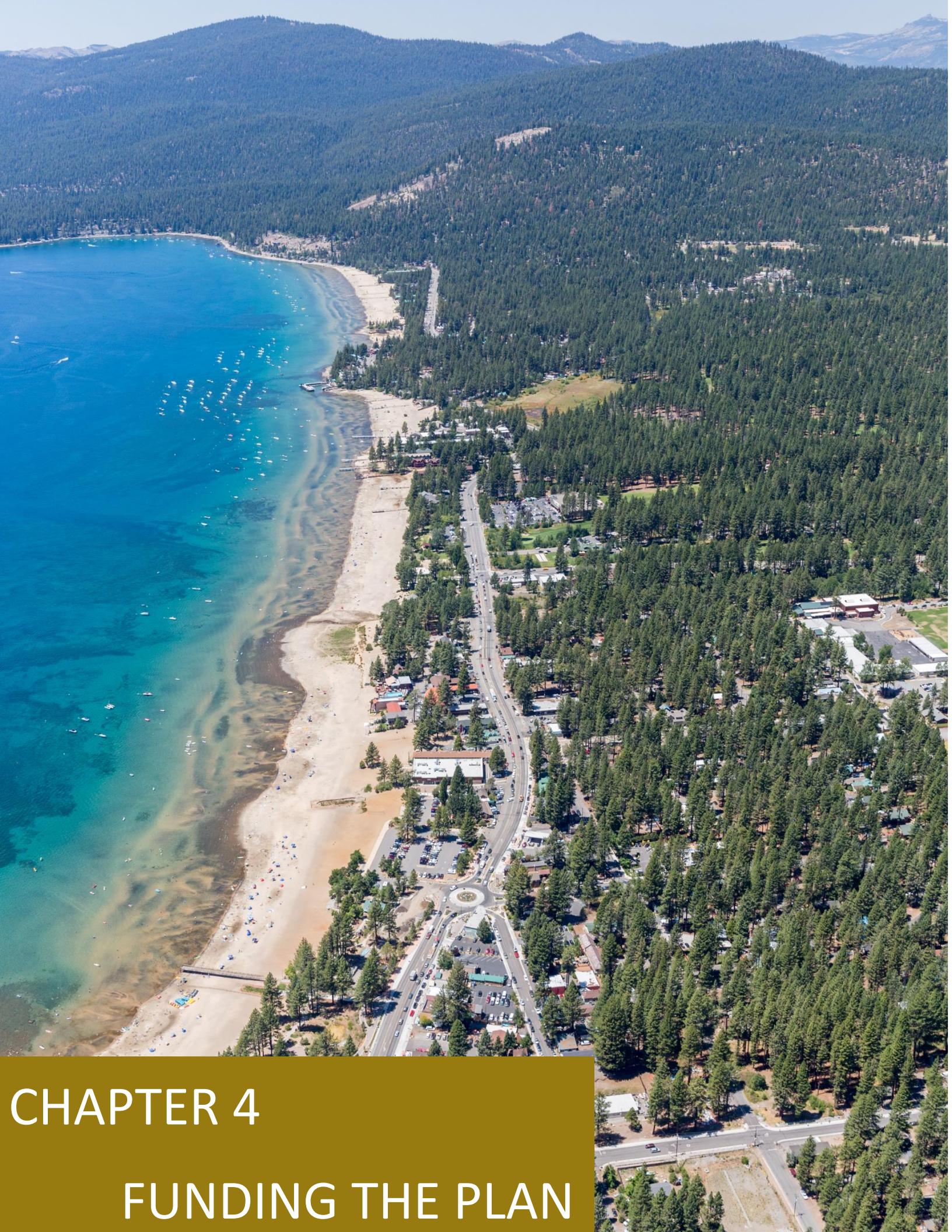


Figure 65: Adaptive Management Process in Monitoring Corridor Performance



CHAPTER 4

FUNDING THE PLAN

Funding the Plan

Tahoe's transportation system is financially supported by federal and state governments providing planning and construction funding through formulas that are calculated based on residential populations, and through competitive grant programs. Local agencies and jurisdictions also support the system through their contributions to transit and/or by participating in public/private partnerships.

Policy Highlight

Policy 5.3: Collaborate with local, state, regional, federal, and private partners to develop a regional revenue source to fund Lake Tahoe transportation and water quality projects.

Federal law requires the planned transportation in the RTP be "financially constrained," or based on a reasonably foreseeable forecast of future revenues. TRPA forecasted projected revenues needed to fund the plan's projects and programs over the next 25 years and found insufficient reasonably foreseeable revenues to implement the plan's projects by 2045.

The Bi-State Consultation on Transportation,

TRPA, and its regional partners have agreed to collaborate to identify dedicated regional revenue sources to fill the funding gap.



Figure 66: TTD Bus, Bike Lane, and Shared-Use Path

The TTD is advancing regional revenue through the One Tahoe initiative, which will require bi-state legislative changes. That work has been integrated into the Bi-State Consultation funding discussion.

FUNDING THE VISION

Lake Tahoe saw federal and state funding increases with the December 2015 passage of the Fixing America's Surface Transportation Act, which recognized the Region functions as an urbanized area with an effective population base of 210,000. The changed population assumption increased overall federal and state transportation funding for the Region to approximately \$7 million per year, from \$3.4 million. The funding increase made it possible to deliver improved transit services, continue to close gaps in the active transportation network, and improve corridors. Tahoe continues to

receive transportation funding from local, private, and regional sources.

However, even the combination of these funds is not sufficient. Resort destinations like Lake Tahoe, which see high visitation and seasonal travel demand, require funding sources for transportation services that reach beyond the basic needs of residents and nearby commuters.

The revenue forecasted in the plan is a reasonable estimate of what the Region is likely to receive from anticipated funding sources

during the life of the plan (Appendix C). The forecast reflects historically available funding levels, including the variability in federal, state, private, and local funding priorities. The average rate of inflation used for the revenue forecast is 2 percent. This is based on the last 20 years of data from the U.S. Bureau of Labor Statistics inflation calculator website.

An estimated \$2.2 billion in revenue is anticipated to be available over the 25-year planning period. TRPA forecasts needed investments totaling nearly \$3.2 billion to implement the plan's project list (Appendix B). With this funding shortfall, the Region cannot afford to build and maintain all the transportation infrastructure and services that it needs and will be strategic in how and when it chooses to invest in the transportation system.

FUNDING PROJECT IMPLEMENTATION

Once projects are identified in the RTP the next step is to secure funding. Projects are typically implemented by state departments of transportation, transit districts, and/or local agencies, but funded by incremental contributions from multiple agencies and nonprofit partners.

Project implementation partners may receive funds through a local program, a statewide formula or competitive process, a federal competitive process, or through the MPO Regional Grant Program that TRPA administers. The Regional Grant Program scores projects based on how well it achieves the goals of the RTP. Adequate funding sources are not always available, so projects often seek to implement and fund in phases.

After funding is secured, funds are programmed in the Transportation Improvement Program (TIP). Federal legislation requires projects to be in the RTP to be included in the TIP and for the first 4 years of the plan's fund estimate to be consistent with the 4-year TIP fund estimate.

TRPA, in its role as the Tahoe MPO, prepares and adopts a TIP at least every four years, and bi-annually prepares both a California TIP (including all projects) and a Nevada TIP (including only projects in that state).

THE FULLY FUNDED VISION

The RTP is financially constrained, meaning the amount of funding programmed in the plan does not exceed the amount of funding that is forecasted to be available within the next 25 years.

Policy Highlight

Policy 2.2: Provide frequent transit service to recreational areas, including trailheads and shoreline access points.

The constrained projects in the plan will result in nearly 80 new miles of sidewalks and shared-use paths, including complete street projects in high use areas, public-private partnerships that expand local transit services and connections to recreation, free-to-the-user transit, and electric buses and charging stations. These projects and programs are funded with the reasonably foreseeable sources listed below.

Receiving these funds is discretionary, and project delivery requires a concerted and vigilant commitment by agency partners, ongoing communication with the public, an active pursuit of grant funding, and political leadership to move voter-approved initiatives onto the ballot.

Foreseeable Revenue Sources

The funding sources that support the plan's constrained project list come from federal, state, local, and public/private partnerships. A brief description of each funding category is included below.

Federal

The plan accounts for just over \$618 million in federal funds that are expected to be available over the next 25 years.

Federal funding sources include the Surface Transportation Block Grant Program, Congestion Mitigation & Air Quality Program, the Federal Lands Access Program, and Federal Transit Administration grants.

Many of these funds are formula based. Competitive federal grant programs are also available.

State

Approximately \$428 million in funding are projected from California and Nevada over the next 25 years.

State funding includes, among other sources, Transportation Development Act (TDA), California State Highway Operation and Protection Program (SHOPP), the California State Transportation Improvement Program (STIP), California SB1 Programs, the California Active Transportation Program, and Nevada State funds.

2020 RTP REVENUE SHARES

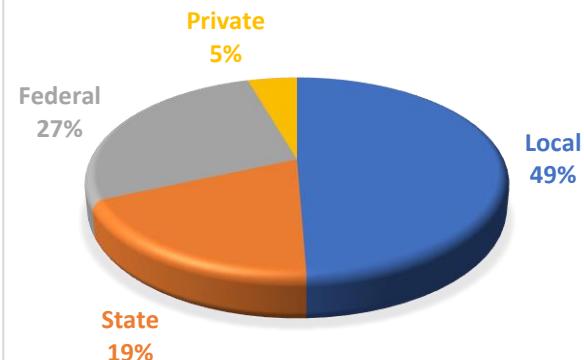


Figure 67: Constrained Revenue by Source

Many of these revenues are linked to gasoline taxes. The power of gasoline taxes has been undercut by inflation, improved vehicle fuel economy, and reduced gas purchases caused by the COVID-19 pandemic and stay-home orders.

These state tax revenue reductions will have impacts on near- and long-term funding.

Local

Forecasted local funding is estimated to provide just over \$1.1 billion in revenue to support transportation improvements and operation and maintenance over the next 25 years.

Local revenue sources include transit farebox revenues, Placer County transient occupancy taxes (TOT), air quality and rental car mitigation fees, operation and maintenance funds, a parcel tax for dedicated maintenance of bicycle and pedestrian facilities (South Lake Tahoe and El Dorado County voter approved); a five-cent increase to the gasoline tax (Douglas County Commissioners); and an annual sales tax allocation dedicated to TART operations (Washoe RTC). Parking revenues are another potential source of funding.

Keeping parking revenues at the source can help pay for parking lot maintenance as well as pay for transit services such as those serving park and ride lots.

Private Sector

Private funding accounts for over \$101 million in revenue and pay for transit investments over the course of the plan. These private funds will be generated from ski shuttles, water taxis, inter-regional transit, and microtransit services.

Private funding is being added to the plan's revenue forecast to reflect how privately run transportation is providing more travel options at Tahoe, for example North Shore microtransit service and the Heavenly ski shuttles serving the core of the South Shore.

The Tahoe South Event Center, currently under construction in Stateline on the South Shore, will provide a combination of fixed route, zone-based, and on-demand transit service that is free to the user with a goal of 15-minute headways to mitigate the projected increases in VMT and vehicle trips.



Figure 68: South Tahoe Events Center with Transit

UNFUNDED PARTS OF THE VISION

The combination of the constrained and unconstrained project lists represents the complete vision of the Regional Transportation Plan. All projects must be identified in the plan's project list so that they are ready to move forward if additional funds are identified in the future, such as through a new regional revenue source, grant funds, or transportation stimulus funding programs.

The approximate \$1 billion revenue forecast shortfall is needed to fund the unconstrained project list.

By 2025, \$97 million is needed, \$3 million for active transportation projects and \$94 million for deferred operations and maintenance is needed.

By 2035, \$240 million is needed to address shortfalls of \$22 million for transit and \$218 million for deferred operations and

maintenance

By 2045, \$674 million is needed, \$9 million for technology improvements, \$266 million for deferred operations and maintenance, and \$399 million for transit.

Additional unconstrained project funding will result in mobility hubs and transit centers coupled with park and ride and intercept lots at key locations to serve the Region and neighboring areas; local, regional, and inter-regional transit vehicles would be prioritized through adaptive corridor management that includes transit only travel lanes and traffic signal prioritization; a cross-lake passenger ferry would carry all users between Tahoe City and South Lake Tahoe; and smaller water taxis would connect users to trails and land based transit.

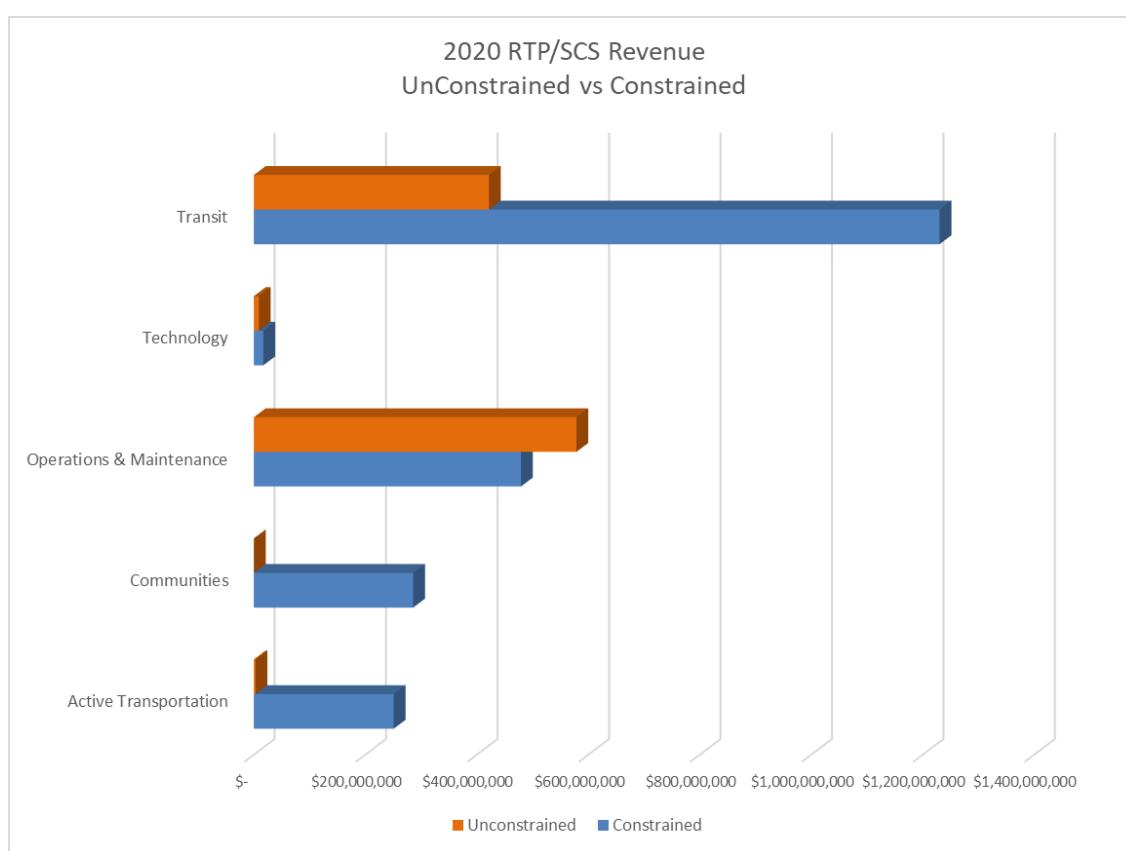


Figure 69: Constrained and Unconstrained Revenue

Potential Revenues

The transportation system transformation that Lake Tahoe's environment deserves and communities around the lake demand will require dedication, collaboration, and difficult political decisions – creating new sustainable funding sources to help pay for high-priority projects, services, and programs is vital.

State and federal transportation funding sources can vary dramatically from year to year based on the economy, budget decisions, and political priorities.

Regional Funding

Reliable funding is needed to accelerate the implementation of the unfunded vision of the plan. Lake Tahoe partners are exploring,

through the leadership of the Bi-State Consultation, new regional sources of locally and regionally generated funding.

Dynamic Pricing

Dynamic pricing strategies generate revenue to fund transportation improvements, shift users to travel at non-peak times or to different travel modes, reduce impacts to the environment, and improves resident and visitor quality of life. For example, dynamic parking pricing charges a higher rate to park at popular locations during busier times, such as 10 a.m. on a Saturday in July, versus a less busy times, such as 10 a.m. on a Thursday in July. These costs incentivize travelers to walk, bike, or take transit instead, which are funded by dynamic parking revenue.

Self-Help Funding (Transit Occupancy Tax TOT, Tourism Business Improvement District TBID)

As federal and state transportation funding continues to decline, many communities across the country are making the necessary choices to become self-help jurisdictions through various local ballot measures that are tied to a supported multi-year transportation investment program.

North Shore TOT has supported transportation investments over the most recent regional transportation planning cycle and those funds will continue through the RTP. The TOT funding most recently allowed the local transit agency to transition to free fares for riders.

TBID initiatives are underway on the North and South shore but have had to pause due to the Covid-19 pandemic.



CHAPTER 5

MEASURING AND MANAGING FOR SUCCESS

Measuring and Managing for Success

Tahoe is unique not only in its natural beauty and quality of life, but in its transportation needs. Unlike most places, where morning and evening commutes define transportation priorities, travelling in Tahoe is much more variable — defined by the seasons, recreation activities, and even weather.

Knowing what is happening on Tahoe's roads, paths, and bus routes is important — and why TRPA monitors the transportation system. That information is used to adapt planning approaches, respond to issues, and evolve

projects and programs for better outcomes, and is how TRPA manages for success.

This chapter provides an overview of TRPA's performance measurement framework. It discusses how the transportation system is monitored using collected data, specified measures, and regional tools. It reviews key measures for the transportation system and links the information back to the planning that results in the regional transportation plan and future updates to it. Additional information on performance measurement can be found in Appendix I.

PERFORMANCE MEASUREMENT FRAMEWORK

Based on best available science and a recommendation from the Tahoe Science Advisory Council, TRPA recently adopted a system of best practices for measuring and evaluating Tahoe's systems. As with other programs, TRPA's performance measurement framework for transportation is results-chain based.

Policy Highlight

Policy 4.12: Maintain monitoring programs for all modes that assess the effectiveness of the long-term implementation of local and regional mobility strategies on a publicly accessible reporting platform.

Results chains link management actions to desired outcomes or goals. The results chain that TRPA uses to gather, structure, and adaptively manage planning include three different types of information: inputs, outputs, and outcomes. Inputs identify what was done,

for example the miles of paths that were plowed in the winter.

This type of information is necessary to demonstrate what actions are being taken.

Outputs are measures of the effectiveness of the inputs, for example, how many people rode the paths that were plowed in winter.

Finally, outcomes are the desired goals, for example, reduced reliance on the automobile. Sometimes outcomes are represented by a threshold, such as targets for Total Vehicle Miles Traveled, and sometimes by a supporting performance metric, such as goals for Non-Auto Mode Share (the percentage of trips taken not in a personal automobile).

The framework ensures that needed information is collected at each level so program managers can successfully evaluate

the effectiveness of implemented programs and projects, reliably identify strategies that work, and change strategies that do not.

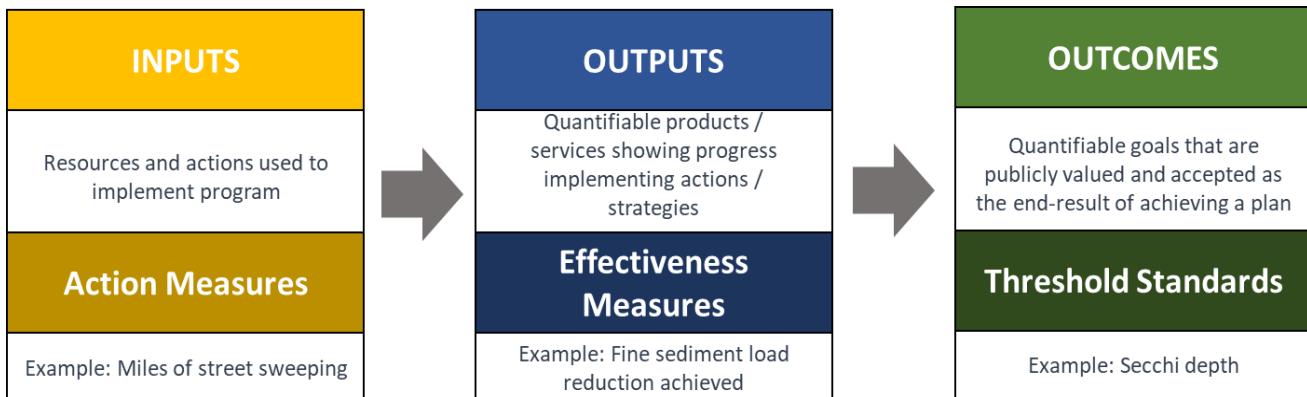


Figure 70: Performance Measure Framework

The example below illustrates the framework and how it is used to continuously monitor progress toward achieving transportation goals:

TRPA identifies shared-use paths as an important approach to achieving the Bi-State Compact mandate to reduce reliance on the personal automobile.

TRAILS RESULTS CHAIN

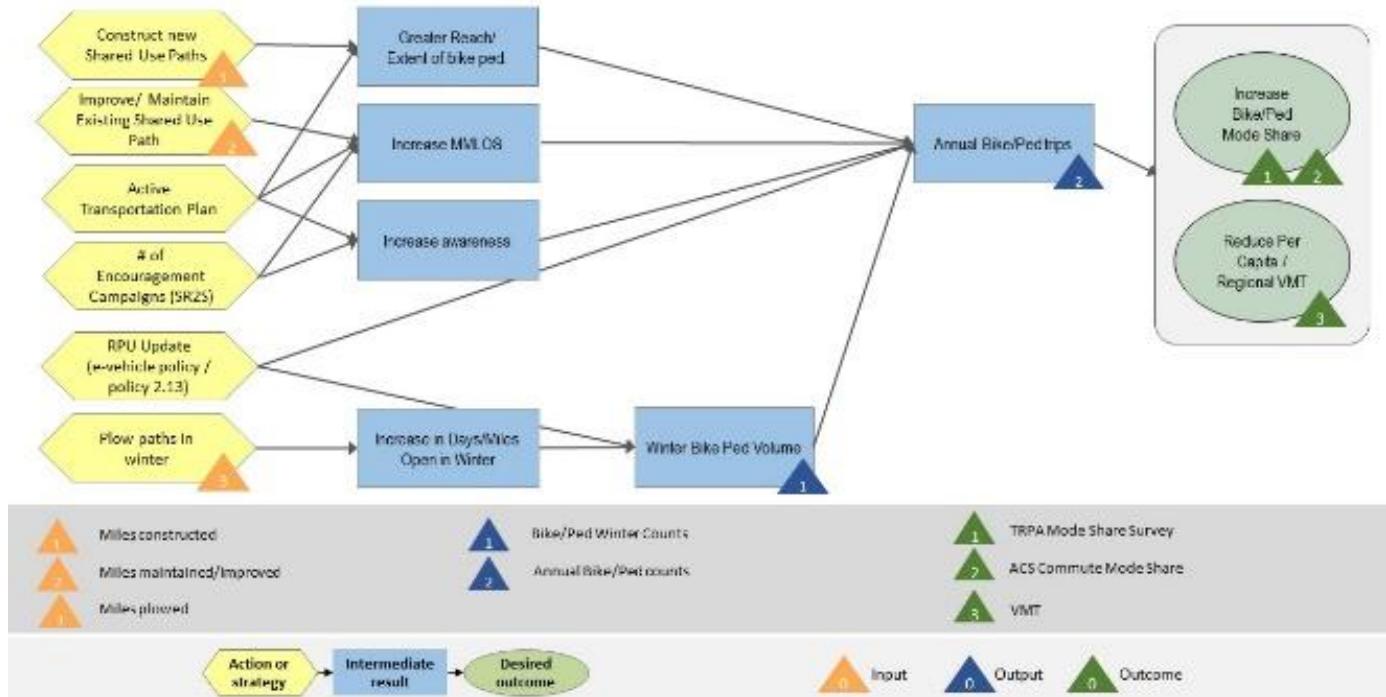


Figure 71: Trails Results Chain Demonstrating the Performance Measurement Framework

That importance is reflected in the plan's goal of building seven new miles of paths by 2025, 47 new miles of paths by 2035, and 110 new miles of path by 2045.

Establishing those goals in the regional transportation plan results in projects that build shared-use paths being prioritized for funding, as well as programs that educate and encourage travelers to use the paths.

Every two years, TRPA measures the plan's progress by calculating how many miles of paths and trails have been built — and this data is publicly reported to everyone at LakeTahoeInfo.org, the online information exchange for the Lake Tahoe Region.

The reason for building those shared-use paths, however, was to reduce reliance on the personal automobile. Progress toward that goal is also measured every two years through TRPA's travel survey and the Bicycle and Pedestrian Monitoring Protocol, each of which calculates the number of trips in Tahoe that are made by people walking and biking versus driving in a car.

This information, combined with data on the number of people riding transit buses, represents all travelers in Tahoe that use what is called a non-auto mode share, a performance measure discussed later in this section.

See Appendix I for more information on this framework and monitoring protocols.

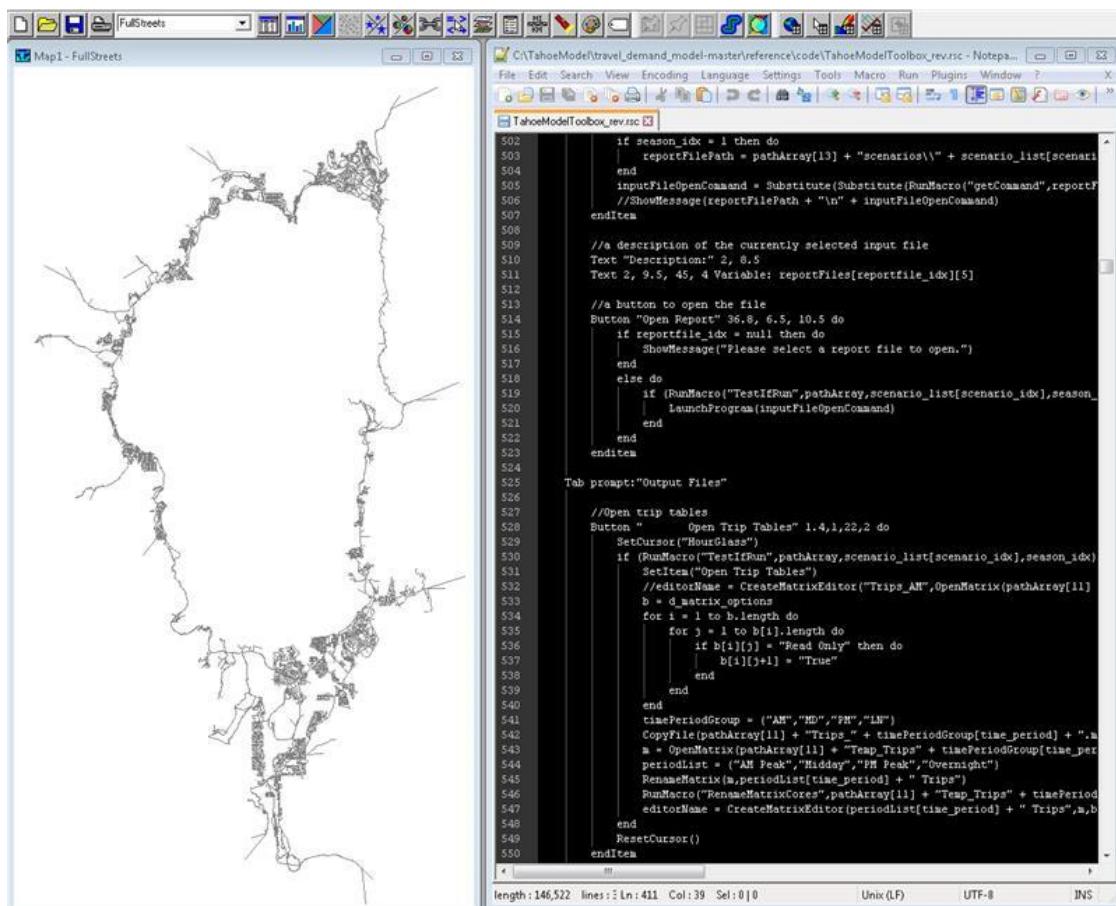


Figure 72: Transportation Model for Lake Tahoe

MONITORING THE SYSTEM

Tracking the performance of the roads, paths, and transit services in Tahoe happens in many ways. Transit surveys provide first-person information about people riding the bus — why they are riding, when, how often, and what would help their trips be even better. People biking and walking the many trails and paths in Tahoe are counted using infrared detection in many cases. Big data for traffic analysis provides real time congestion information for roads in the Region.

Roadways are monitored and measured for congestion, but congestion-free roadways are not the goal of the regional transportation plan. Instead, the Congestion Management Process (Appendix H) is used. It emphasizes using existing roadways in the Region more efficiently and enhancing the entire transportation system through more travel options.

Policy Highlight

Policy 4.11: Establish a uniform method of data collection and forecasting for resident and visitor travel behavior and demographics

The interrelationships between the performance measurement framework, data collection, and analysis tools are discussed in the following sections.

Data Collection

TRPA collects data from a variety of sources. Since 2006, TRPA has conducted basin-wide travel surveys every two years to better understand basic travel characteristics of both residents and visitors. The data collected — which includes how people are traveling, where they are travelling from and to, and why — is

used for evaluating regional performance metrics, project planning, and travel demand modeling.



Figure 73: Trail Counter along the East Shore Tahoe Trail

Demographic and socioeconomic data is gathered from the U.S. Census, counties, states, and/or other organizations, such as the Nevada Gaming Control Board. These data provide more information about residents and employees in Tahoe, helping to ensure projects and programs best serve their needs.

Roadway congestion is analyzed using traffic analysis data from industry leader, [Inrix](#). Intersection performance is evaluated every four years with the update to the regional transportation plan. Big data from cellular phone service providers and vehicle location and navigation systems also creates new opportunities to better understand and evaluate roadway congestion and travel patterns in the Region, for planning transit services, and more sustainable recreation travel options.

Partners

Data collected by partners in the Region also informs transportation analysis. For example, Placer County, California collected vehicle trip

generation (VTG) rates and parking inventories as part of its Resort Triangle Transportation Plan planning process. These Tahoe specific data are valuable for planning and implementing projects and programs that reduce automobile trips. Tahoe transit providers, TTD and TART, each survey riders which informs transit service planning. TRPA and its local partners developed the Bicycle and Pedestrian Monitoring Protocol and the Transit Monitoring Protocol to gather more detailed and more consistent information. See the Transportation System Management Section and Appendix I for more information on the protocols.

Tools

TRPA utilizes multiple tools to advance the performance measurement framework, each with distinct strengths that provide invaluable information for the plan.

Travel Demand Model

TRPA utilizes the Tahoe Travel Demand Model (Tahoe Model) to analyze travel behavior, estimate daily regional VMT and GHG emissions for a base year and future forecast periods. The model is activity-based, which means it estimates and forecasts travel behavior on the transportation system to provide a better understanding of travel behavior into and around Tahoe and roadway congestion in the Region. It also provides the best available data and methods to determine compliance with required standards, including the regional VMT threshold standard, and GHG reduction targets set in California by CARB.

The Tahoe Model is designed to estimate VMT by various traveler types (residents, day and overnight visitors, external workers, etc.) and represent travel on a typical early or late

summer weekday. The Tahoe Model is an aggregate of three separate models: A Resident Model, a Visitor Model, and an External Worker model. Each model has slightly different activity and destination category options: Residents make work, school, and discretionary (eating, shopping, and recreation) trips; visitors, second-home owners, and guests make recreation, shopping, and other trips; and external workers make work commute trips. The model estimates the expected travel mode, e.g., auto, transit, walk, or bike, for each type of user and produces traffic projections for intersections and roadways on the model day and for peak periods during that day. Since these estimates are based on regional data, they are useful for understanding region-wide impacts.

The recently completed model update is the foundation for updating TRPA's project-level impact assessment to create consistency between redevelopment projects and regional transportation plan implementation through project level mitigations. This update also supports SB 743 requirements for the Region's California jurisdictions. See Appendix G for more information on the model.

Transportation Model Update

To help guide future investments in the model, TRPA convened the Tahoe Model Working Group in 2019. The group included representatives from neighboring metropolitan planning organizations, non-governmental organizations, technical experts, and community stakeholders. The process was essential for more comprehensive analysis of project impacts, including accounting for VMT both in and outside the Region, and realizing the suite of complementary GHG reduction targets established by each state (AB32, SB475, SB391, SB275) and associated executive orders (OPR 2018). The working group also coordinated investments in data collection and modeling tools.

The group prioritized several improvements to the Tahoe Model to support plan forecasting.

Highlights include:

1. Incorporation of External Trip Lengths: The Tahoe Model is designed to focus on trips and trip distances that occur within TRPA's jurisdictional boundary. It accounts for all vehicle trips that enter and exit the basin and has basic capability to account for trip lengths coming from outside the Region. To update the model for more robust assessment of VMT resulting from inter-regional travel and SB 743 analysis, traffic analysis zones (TAZs) outside the Region are being added to capture the full distances of travelers to and from Lake Tahoe.
2. Updated Entry/Exit Traffic Volume Composition: New external station count data was analyzed using Streetlight Data (smart phone and navigation based data) to inform several key model parameters, including the percentage of through travel (passenger and truck), external worker, resident, visitor, and truck volumes that make up the daily external station traffic volumes.
3. Updated Visitor Travel Patterns: The visitor sub-model sample records were updated based on the 2018 Summer Travel Survey. The updates better represent recent changes in visitor composition and behavior. The frequency distributions of the patterns observed in the 2018 Summer Travel Survey were tabulated and compared with the calibrated patterns of the prior 2014 base year model run.
4. Updated External Worker Travel: The 2012-2016 five-year ACS Data and LEHD Origin-Destination Employment Statistics Data was used to update the travel patterns of external workers (in-commuters) and residents who work outside the Region. StreetLight data was used to further refine worker flow patterns. The work included an update to the origin-destination matrix, and recalibration of the external worker sub-model.
5. Updated Recreation Travel Patterns: The model uses a "relative attractiveness score" for visitation location attractiveness to estimate how likely travelers are to visit a specific destination. Recreation travel is another area where TRPA has explored the use of big data sources, such as StreetLight, in conjunction with traditional parameters (e.g. venue capacity, parking availability, cost) to better represent visitor behavior. The visitor destination choice sub-model was calibrated using the newly collected data.

Interactive Tools

TRPA has developed multiple online and interactive tools to make it easier for anyone to find, download, and analyze Tahoe transportation information. These tools include:

LakeTahoeInfo.org: Provides details about all Environmental Improvement Program (EIP) projects, including plan projects.

LinkingTahoe.com: Provides links to regional transportation plans and transportation projects.

TRPA.org/rtp: Interactive website for the plan.

Project Impact Assessment Tool

In the Tahoe Region, traffic congestion and parking shortages can be addressed by reducing the number of trips that are made by car and improving and incentivizing the use of other types of travel such as carpooling, transit, walking, and biking. To attribute impacts and mitigation requirements fairly and consistently to development and redevelopment projects, a state-of-the-art project level analysis tool is being developed to quantify the VMT generated by a project and the mitigations needed to offset its impact to the transportation system. These mitigations are the projects and strategies featured in the plan. As a result, private development helps to improve mobility in Tahoe and attain and maintain the VMT threshold standard. The project level analysis tool will coordinate with local governments to uniformly seamlessly assess and mitigate new development and redevelopment project impacts to VMT.

VMT Threshold Update

The VMT Threshold standard, which was established through the Bi-State Compact in 1982, is being updated. The threshold has been used to improve water quality by reducing NOx emissions from cars and trucks in the Region, but those emissions have declined by more than 66% since the threshold was created and it no longer serves the purpose for which it was created.

However, reducing VMT per capita in Tahoe has benefits, such as reducing mobile source GHG emissions, reducing dependency on the personal automobile, and creating more sustainable communities.

Work is underway to establish a VMT threshold standard that shifts away from the old-NOx based threshold standard, promotes attainment of both California and Nevada GHG reduction goals, and furthers the desired future development vision of the Regional Plan by concentrating mixed-use development in town centers and connecting those town centers and recreation sites with biking, walking, and transit options.

The VMT Threshold standard update is anticipated to be completed by the end of 2020.

Mitigation Fee

Most development projects pay an air quality mitigation fee, which is being updated to a mobility mitigation fee to align with the project impact assessment tool and project and funding needs outlined in the plan. The fee will ensure that new development projects contribute their fair share of funding to promote regional mobility and implement the plan.

TRACKING GOALS THROUGH PERFORMANCE

Performance measures ensure the plan's goals and policies are advanced through its projects and programs. The plan identifies several measures for monitoring progress, including goals for how many people are walking, biking, and using transit. Federal and state performance measures require tracking of key safety measures, such as the number and severity of crashes, and roadway infrastructure, including pavement and bridge condition, to make sure routine maintenance is completed. These measures are collected and evaluated every one to four years, depending on the measure.

Leading performance measures are reviewed in this chapter. Additional supporting performance measures and analysis are discussed in Appendix I.

Threshold (Regional)

In 1982, TRPA adopted threshold standards in nine environmental threshold categories. These environmental standards indirectly define the capacity of the Tahoe Region to accommodate additional land development.

Two performance measures relate to transportation goals: Daily Vehicle Miles Traveled (VMT) and VMT per capita. See Appendix I for more performance measure information on VMT per capita.

Daily VMT Traveled



Originally adopted as a TRPA air quality threshold, Daily VMT Traveled measures the

distance of all trips on a typical summer day in Tahoe. This measure reflects a complex set of factors at play within the Region: gasoline prices, employment rates, housing costs, demand for and accessibility of recreational opportunities in the Region, access to alternative forms of transportation, and second-home ownership.

DAILY VMT TRAVELED

TARGET: 10% Reduction from 1981

PERFORMANCE: NOT ON TARGET

1981 Daily VMT: 1,298,987

2018 Daily VMT: 1,398,994



Figure 74: Daily VMT Traveled

The measure can also be used to evaluate the effectiveness of land use and transportation policy decisions, such as the location of affordable and achievable housing; the effectiveness of travel demand management strategies that encourage employees to bike, walk, or carpool to work; the effectiveness of inter-regional transit services, such as the proposed Reno-Carson-Tahoe inter-regional transit service; and the value of sustainable recreation solutions, such as transit service to Emerald Bay and other popular recreation destinations.

This threshold measure is calculated using the Tahoe Travel Demand Model. For more information on the Tahoe Model, see Appendix G.

Transit, Trails, and Communities

Multiple measures report progress toward meeting the goals of key focus areas in the plan: Transit, Trails, and Communities. Some of these measures reflect goals that are specific to this Region, while others are federal or state requirements. Collectively, these measures provide reliable information needed to track progress, adapt planning approaches, and improve outcomes.

Non-Auto Mode Share



Mode share refers to the percentage of all trips made by everyone traveling on a typical summer day in Tahoe by each type of transportation: walking, biking, using transit, or driving a personal automobile. The plan tracks non-auto mode share, which is the proportion of all trips that are made by foot, bike, scooter, and transit. Tracking this performance measure guides planning and the implementation of trail and transit projects and travel demand management programs.

Policy Highlight

Policy 2.18: In roadway improvements, construct, upgrade, and maintain active transportation and transit facilities along major travel routes. In constrained locations, all design options should be considered, including but not limited to restriping, roadway realignment, signalization, and purchase of right of way

This performance measure is calculated using the average of the prior two TRPA travel surveys.

Non-Auto Mode Share Target

Improve average non-auto mode share.

Table 4 Non-Auto Mode Share Performance Measure

NON-AUTO MODE SHARE

TARGET: Improve average non-auto mode share calculated from the two most recent TRPA travel survey results.

PERFORMANCE: ON TARGET



Figure 75: Non-Auto Mode Share

Note: TRPA will be reviewing its travel survey methodology to consider improvements to measuring non-auto mode share, including the potential for using real-time data to allow more frequent and more accurate measuring.

Safety



Maintaining a transportation system that is safe for everyone is one of the most important goals of the plan. Addressing transportation safety in Tahoe relies on collaboration among numerous partners; regular and consistent data collection, analysis, and reporting on key safety measures; and responding to identified safety needs in plans and project designs.

Policy 3.1: Coordinate the collection and analysis of safety data, identify areas of concern, and propose safety-related improvements and user awareness that support state and federal safety programs and performance measures.

Rate of Serious Injuries per 100 million VMT

This performance measure is one of several national standards for tracking the safety of a region's roadways. See Appendix I for additional roadway safety measures.

TRPA and its partners collect and report on multiple additional crash performance metrics (Appendix I). This measure is tracked using the Tahoe Model and crash data provided by the California and Nevada departments of transportation and local jurisdictions.

Rate of Serious Injuries per 100 Million VMT Target

Reduce by 1.5% in California and .05% in Nevada the respective state targets, based on a five-year rolling average.

2020 Rate of Serious Injuries Per 100 Million VMT Performance

Auto rate is a 5-Yr. Rolling Average CA, 2011-2015 NV, 2012-2016

RATE OF SERIOUS INJURIES PER 100 MILLION VEHICLE MILES TRAVELED (VMT)

TARGET: Reduce serious injury crashes by 1.5% in California and 0.5% in Nevada (based on a five-year rolling average).

PERFORMANCE: NOT ON TARGET

California: Nevada:

Goal:	3.336	4.9
Actual:	3.136	4.9



*Figure 76: Rate of Serious Injuries
Economic Vitality and Quality of Life*



TRPA monitors a variety of performance measures to gauge how well the transportation system supports the Region's residents, their economic vitality, and quality of life. See Appendix I for additional quality of life measures and Appendix F for more information on Environmental Justice.

This measure assesses how well the most vulnerable in Tahoe, including people living below the federal poverty line or that are disabled, are able to connect to needed services, such as health care and grocery stores, and to community resources such as schools, colleges, and employment centers.

See Appendix F for more information on Environmental Justice. This measure is tracked using census data and land use and transportation geospatial map-based analysis.

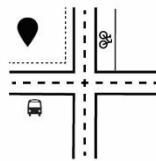
Priority Communities' Transportation Access TO Transit SERVICE (1/4 mile) AND Bicycle (1/2 mile), AND PEDESTRIAN (1/4-mile, Class I) INFRASTRUCTURE

Increase the proportion of access to each mode for each identified Priority Community in the Region, with the goal of providing 100% access for each mode by 2045.

Priority Communities' Transportation Access in 2020 and in 2045 with implementation of the plan:

Note: Priority Communities are those that have three or more environmental justice criteria: low-income, minority, disabled, zero vehicle household, senior household. This is a new Performance Measure and so cannot be compared to prior measures.

TRANSPORTATION ACCESS IN PRIORITY COMMUNITIES:



- 1/4 mile to transit stops
- 1/2 mile to bike paths
- 1/4 mile to pedestrian facilities

NEW TARGET: Increase access to each mode from Priority Communities to 100% by 2045.

PERFORMANCE: ON TARGET



Figure 77: Transportation Access in Priority Communities

Pavement Condition



Maintaining roadway pavement condition in a good condition is key to providing safe travel for people driving and bicycling on-street, ensuring the efficient movement of people and goods, and efficiently using public funds, because as roadways degrade they become more costly to maintain.

The pavement condition performance measure provides key information about maintenance efforts and needs in the Region and helps direct operations and maintenance plans and funding.

This measure is tracked using data from state departments of transportation and local jurisdictions.

PAVEMENT CONDITION

TARGET: Maintain levels for "Good" and "Poor" pavement conditions.

California: Nevada:

Good: $\geq 29.9\%$ $\geq 55.8\%$

Poor: $< 7.2\%$ $< 6.5\%$

PERFORMANCE:

California: **NOT ON TARGET**

Nevada: **ON TARGET**



California: Nevada:

Good: **30.7%** **79.4%**

Poor: **33.6%** **4.7%**

Figure 78: Pavement Condition

MANAGING FOR SUCCESS

Transportation planning is a cyclical process, with lessons learned from performance monitoring informing future planning and funding. Adaptive management ensures that future transportation planning in Tahoe is responsive and evolves with changing transportation needs in the Region.



Figure 79: Plan-Fund-Measure Diagram

Transit Monitoring

TRPA distributes California Transportation Development Act (TDA) and Federal Transit Authority (FTA) funds and lends planning support and technical assistance to the Region's public transit providers, TTD and TART. Per TDA Public Utilities Code (PUC) Section 99244, TRPA is required to "annually identify, analyze, and recommend potential productivity improvements, which could lower the operating costs of those operators who operate at least 50 percent of their vehicle service miles, as defined by subdivision (i) of PUC Section 99247, within the area under its jurisdiction."⁵

To fulfill the requirement, the transit productivity improvement program and the Lake Tahoe Region Transit Monitoring Protocol are part of the plan's implementation. The protocol identifies transit performance measures, establishes targets, and outlines data collection methods for each transit operator.

Funding allocations depend upon the operator implementing recommended improvements and meeting established performance measure targets. See Appendix I for more information about the transit monitoring protocol performance measures.

Bicycle and Pedestrian Monitoring

Since 2015, the Lake Tahoe Region Bicycle and Pedestrian Monitoring Protocol has been part of the plan's approach to managing for success.

The protocol established a system for the collection of year-round active transportation data that includes permanent counting stations, biennial count locations, and spot count locations, depending on need.

Partners across the Region assist in monitoring bicycle and pedestrian activity throughout the Region to understand high use areas, mode-split, and support grant applications and reporting. A monitoring report that analyzes historical trends, provides detailed information by location, and compares use at similar sites supplements the regional transportation monitoring report and supports the plan. For more information on the Bicycle and Pedestrian Monitoring Protocol see Appendix I.

Congestion Management Monitoring

A Congestion Management Process (CMP) is required by the FHWA for data collection and analysis once RTP projects and programs are implemented. The CMP guides evaluation and monitoring of the effectiveness of each RTP strategy. For more information on the CMP see Appendix H

⁵ CA TDA PUC Section 99244



CHAPTER 6

MOVING FORWARD

Moving Forward

The regional transportation plan moves transportation in the Region forward by addressing demand for travel and by building a transportation system with greater travel options that provide equitable access to everyone, including the most vulnerable in Tahoe's communities, reduces transportation's harmful impacts to the environment, strengthens community revitalization and housing initiatives, and improves overall mobility.

Addressing demand for travel begins at the project level with private development helping to improve mobility in Tahoe, reduce regional VMT to attain and maintain TRPA's VMT threshold, reduce mobile source GHG emissions, and reduce roadway congestion. TRPA and its many partners will further reduce demand on Tahoe's roadways by creating travel

options that are more attractive than the personal automobile, such as making transit free and easy to use and making the passage of transit vehicles a priority on roadways by letting buses through first at traffic signals and dedicating bus-only lanes on busy travel corridors.

Ensuring real and equitable access is achieved by delivering the most impactful projects and programs in the most efficient manner, including expanded transit service, completing the Tahoe Trail, and implementing improvements identified in corridor plans. This builds on the momentum created by the Bi-State Consultation.

With continued innovation and broader partnerships, solutions needed to move the Lake Tahoe Region forward are within reach.

IMPLEMENTING THE PLAN

Implementing the plan will be further advanced by the following concurrent planning efforts:

Better Understanding Tahoe Travel

Working with the Bi-State Tahoe Science Advisory Council, the University of California-Davis Institute of Transportation Studies, and a transportation geographer at the University of Nevada-Reno, TRPA will establish methods for understanding and reporting on Everyday, Discover, and Visit Tahoe travelers to better understand each user, their travel needs, and how much VMT each produces. This work will be based on best practices using "Big Data," as well as traditional sources of data, such as the Tahoe Model and traffic counts.

This work will establish new performance measures that provide meaningful ways of counting, tracking, and reporting on visitation and environmental, economic, and demographic metrics for the Lake Tahoe Region.

Addressing Congestion Through Mobility

When viewed in its entirety, the Tahoe Region's transportation system has potential to address traffic congestion, though not by building new roads or additional travel lanes. Instead, strategies rely on reducing congestion by providing ready access to alternative modes of travel on new trails and expanded, free to-the-user transit services, improving traffic signals to prioritize non-auto modes, parking management at popular destinations, real-time

travel information, and implementing adaptive corridor management with transit priority and/or reversible travel lanes.

Efficient and Accelerated Implementation

Transportation corridor planning formalizes coordination across jurisdictions and adds efficiency to transportation project implementation by combining related actions and stretching limited transportation funding further. Seventeen agencies committed to the corridor planning framework through the 2019 Bi-State Consultation on Transportation, ensuring that a collaborative approach to transportation planning will continue and funding corridor improvements remains a regional priority.

Transportation Demand Management

Travel demand management (TDM) strategies shift travel patterns from the single occupancy

automobile to walking, biking, transit, and carpool. They also shift car travel to less busy travel times when there is more capacity on roadways and at recreation sites.

The plan's TDM approach strategies target each transportation system user group differently, providing appropriate travel options and programs for Everyday, Discover, and Visit Tahoe travelers.

Both the North and South Shore transportation management associations are key partners in developing and implementing the right mix of transportation demand management strategies for Tahoe, and Placer County, California offers opportunity to align TDM approaches at the local and regional level.

CONCLUSION

Achieving a Tahoe transportation system that is interconnected, inter-regional, and sustainable that connects people and places in ways that reduce reliance on the private automobile will require collaboration within and across regions, dedication to the strategies and phases identified in the plan, and smart investment that include added regional revenue sources to better fund the Region's transportation projects and programs.

The regional transportation plan is the blueprint and framework for the Tahoe Region to deliver that vision over the next 25 years. Once complete, Tahoe will truly be a sustainable destination for year-round outdoor recreation with a world-class transportation system that complements local communities and helps preserve the Region's unique natural environment.



Statements, Resource List,

Glossary, and Appendices

Statements

Federal Highway Administration
Credit/Disclaimer

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Department of Transportation. The views and opinions of TRPA expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.

TITLE VI PROGRAM

TRPA/TMPO, as a federal grant recipient, is required by the Federal Highway Administration (FHWA) to conform to Title VI of the Civil Rights Act of 1964 and its amendments. TRPA/TMPO's sub-recipients and contractors are required to prevent discrimination and ensure non-discrimination in all of their programs, activities and services.

The TRPA/TMPO Title VI Program is embedded in all aspects of the programs and planning activities carried out by TRPA/TMPO. This

includes contractors and sub-recipients that provide services for TRPA/TMPO. Other documents that speak to Title VI include the Public Participation Plan, Regional Transportation Plan, Federal Transportation Improvement Program, and TRPA Contracting Procedures.

TRPA meets all Federal Highway Administration (FHWA) Title VI requirements. For more information on Title VI compliance please visit www.trpa.org/document/title-vi-program/

METROPOLITAN PLANNING ORGANIZATION PROFILE

The Tahoe Regional Planning Agency is the federally designated Metropolitan Planning Organization (MPO) for the Lake Tahoe Region which plans and funds transportation and transit improvements to support attainment of regional environmental thresholds. The MPO planning process is carried out by the

transportation staff at TRPA and actions are taken by MPO Board, which consist of the full TRPA Governing Board plus an additional representative from the U.S. Forest Service.

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Glossary: Acronyms and Definitions

Term	Definition
<i>100-year flood zone</i>	An area within which a flood can be expected to occur every 100 years on average
<i>AADT</i>	Annual Average Daily Traffic
<i>ABAG</i>	Association of Bay Area Governments
<i>Active Transportation</i>	Transportation 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.
<i>ADA</i>	Americans with Disabilities Act
<i>ADS</i>	Automated Driving System, fully automated cars, and trucks.
<i>ATP</i>	Active Transportation Plan
<i>ACS</i>	American Community Survey
<i>AMI</i>	Area Median Income
<i>ARB</i>	California Air Resources Board
<i>ATTRI</i>	Accessible Transportation Technology Research Initiative, USDOT, FHWA, AND FTA LED efforts to develop and implement transformative applications to improve mobility options for all travelers, particularly those with disabilities.
<i>AV</i>	Autonomous Vehicles or self-driving car.
<i>BID Business Improvement Districts</i>	Local funding mechanism for economic development and improvement via self-assessment by businesses
<i>BID Business Improvement Districts</i>	Local funding mechanism for economic development and improvement via self-assessment by businesses

<i>Caltrans</i>	California Department of Transportation
<i>CAMPO</i>	Carson Area Metropolitan Planning Organization
<i>CCTV</i>	Closed circuit television
<i>CEQA</i>	California Environmental Quality Act
<i>CFA</i>	Commercial Floor Area
<i>CFR</i>	Code of Federal Regulation
<i>CIP</i>	Capital Improvement Program
<i>Class I</i>	Shared-use paths
<i>Class II</i>	On-street bike lanes
<i>Class III</i>	On-street bike routes
<i>CMAQ</i>	Congestion Mitigation & Air Quality
<i>CMP</i>	Congestion Management Process
<i>CO</i>	Carbon Monoxide
<i>CO2</i>	Carbon Dioxide
<i>COVID-19</i>	COVID-19 is a disease caused by a new strain of coronavirus that is spread from person to person. In response to the disease, restrictions on business and travel were put in place in 2020 impacting the local, regional, states, and national economies.
<i>Clean Water Act Section 303(d)</i>	Authorizes EPA to assist states, territories and authorized tribes in listing impaired waters and developing Total Maximum Daily Loads (TMDLs) for these waterbodies.
<i>Complete Streets</i>	Streets built and managed to be comfortable and safe for all users and modes
<i>CTC</i>	California Tahoe Conservancy
<i>DCFC</i>	Direct Current Fast Charger A type of electric vehicle supply equipment (PEV charger) that requires a dedicated circuit of 20-100 amperage, with a 480-volt

	service connection that allows for rapid charging of plug-in electric vehicles. The time to charge ranges from 50 to 70 miles of range per 20 minutes of charging. This is the fastest type of plug-in electric vehicle charger (examples: CHAdeMO, SAE Combo, and Tesla Super-Chargers), only compatible to battery electric vehicles. This charger requires special infrastructure and safety features and is more expensive to build than the Level 1 and 2 PEV chargers.
<i>DEM</i>	Nevada Division of Emergency Management
<i>DOT</i>	U.S. Department of Transportation
<i>DOP</i>	Requires public and private excavators to coordinate with local government on the installation of extra fiber or conduit whenever ground will be broken in the public right-of-way.
<i>DUE</i>	Dwelling Unit Equivalent
<i>EDCTC</i>	El Dorado County Transportation Planning Commission
<i>EIP</i>	Environmental Improvement Program
<i>EIPPOC</i>	Environmental Improvement & Public Outreach Committee
<i>EJ</i>	Environmental Justice, fair treatment, and meaningful involvement of all people, regardless of race, ethnicity, income, national origin, or educational level with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.
<i>EMCC</i>	Emergency Management Community Council
<i>EMFAC2014 model</i>	Emissions estimation model used by the California Air Resources Board
<i>EVSE</i>	Electric Vehicle Supply Equipment The charging equipment for plug-in electric vehicles. EVSE is typically differentiated by the maximum amount of power that can be delivered to the plug-in electric vehicle's battery.
<i>FAST Act</i>	Fixing America's Surface Transportation Act, the latest federal transportation bill, approved December 4, 2015.
<i>FAA</i>	Federal Aviation Administration

<i>Financial Constraint</i>	A demonstration that the amount of dollars planned must not exceed the amount of funding estimated to be reasonably available throughout the planning period.
<i>FHWA</i>	Federal Highway Administration
<i>FTA</i>	Federal Transit Administration
<i>FTA 5307 (CARES Act)</i>	Provides funds to prevent, prepare for, and respond to COVID-19.
<i>FTA 5311</i>	Nevada CARES Act competitive provides funds to prevent, prepare for, and respond to COVID-19. Provides funds to prevent, prepare for, and respond to COVID-19. Provides funds to prevent, prepare for, and respond to COVID-19. Federal Transit Authority
<i>FTIP</i>	Federal Transportation Improvement Program
<i>GHG</i>	Greenhouse Gas
<i>HAR Highway Advisory Radio</i>	Provides real time highway information to travelers
<i>HBR</i>	Harvard Business Review
<i>HIP</i>	Highway Infrastructure Program, provides flexible highway funds for projects located on the Federal-Aid System
<i>HOV</i>	High Occupancy Vehicle, typically referencing automobile travel lanes open only to vehicles carrying a defined number of riders.
<i>ITE</i>	Institute of Transportation Engineers
<i>ITS</i>	Intelligent Transportation Systems
<i>L1 Level 1 alternating current</i>	A type of electric vehicle supply equipment (PEV charger) that uses a standard plug with 120 volt and a three-prong electrical outlet at 15-20 amperage. The time to charge ranges from two to five miles of range per one hour of charging. This typically provides residential or workplace charging and is the least expensive and slowest type of charger for plug-in electric vehicles due to low power delivery.

<i>L2 Level 2 alternating current</i>	A type of electric vehicle supply equipment (PEV charger) with 240 volt and alternating current split phase service that is less than or equal to 80 amperage. The time to charge ranges from 10 - 25 miles per one hour of charging. This typically provides residential, workplace, or opportunity electric vehicle charging and provides a faster charge than L1 electric vehicle supply equipment.
<i>LOS Level of Service</i>	A measure of the quality of vehicle traffic flow at an intersection or on a road segment
<i>LTBMU</i>	Lake Tahoe Basin Management Unit, United States Forest Service
<i>Maa</i>	Mobility as a Service, integration of various forms of transport services into a single mobility service accessible on demand.
<i>Micromobility</i>	Small, single-user mobility devices that offer both flexible scheduling and flexible pickup and drop-off sites.
<i>Microtransit</i>	IT-enabled multi-passenger transportation services that typically use smaller transit vehicles, such as vans
<i>MOD</i>	Mobility on Demand, fully accessible end-to-end journeys that improve mobility options for all travelers and seamless delivery of goods and services on demand
<i>MPO</i>	Metropolitan Planning Organization
<i>MMLOS</i>	Multi-Modal Level of Service
<i>NACTO</i>	National Association of City Transportation Officials
<i>NCHRP</i>	National Cooperative Highway Research Program, provides guidance to support greater quality and consistency of roadway infrastructure for AV deployment.
<i>NDOT</i>	Nevada Department of Transportation
<i>OES</i>	Office of Emergency Services
<i>PADMA</i>	Park Avenue Development Management Association
<i>PBD</i>	Parking Benefit District: funding mechanism for local streetscape and transportation improvements from revenues generated by parking management strategies

<i>PDT</i>	Project Development Team
<i>PCTPA</i>	Placer County Transportation Planning Agency
<i>PEV Plug-In Electric Vehicles</i>	Vehicles, including plug-in hybrid electric vehicles and battery electric vehicles, designed to plug into the electric grid to be powered by energy which charges a rechargeable lithium-ion battery. Electricity is used as transportation fuel for PEVs.
<i>PHEV Plug-In Hybrid Electric Vehicle</i>	A type of plug-in electric vehicle that is powered by an internal combustion engine and an electric motor. PHEVs can use Level 1 Chargers and Level 2 Chargers though different models require plug adapters to gain compatibility with different chargers. The electric mile range is typically lower than the electric range in BEVs. Example PHEV models include Chevy Volt, Honda Accord, Hyundai Sonata, Volvo XC90, and Mercedes C350.
<i>PPP</i>	Public Participation Plan
<i>PUC</i>	Public Utilities Code
<i>RHNA</i>	Regional Housing Needs Assessment
<i>RSA</i>	road safety audits, studies that identify safety concerns within roadway corridors.
<i>RTAC</i>	Regional Targets Advisory Committee
<i>RTIA</i>	Reno/Tahoe International Airport
<i>RTP/SCS</i>	Regional Transportation Plan/Sustainable Communities Strategy
<i>RTPA</i>	Regional Transportation Planning Agency
<i>RUU</i>	Residential units of use combining a potential residential unit of use (PRU) and a residential allocation
<i>SACOG</i>	Sacramento Area Council of Governments
<i>SAFETEA-LU Safe Accountable, Flexible, Efficient,</i>	2005 Federal Transportation Investment bill

<i>Transportation Equity Act</i>	
<i>SB 375 California Senate Bill 375</i>	Requires MPOs to develop a Sustainable Communities Strategy to focus regional land use and transportation policies to reduce GHGs from cars and light trucks 2005 Federal Transportation Investment bill 2005 Federal Transportation Investment bill
<i>SCS Sustainable Communities Strategy</i>	Required by California's SB 375, a plan for integrating transportation investments with land use plans to help a region meet targets for reducing greenhouse gas emissions
<i>Secchi depth</i>	Depth at which the pattern on a circular disk lowered into a body of water is no longer visible; used to measure water clarity
<i>SEMS</i>	Standardized Emergency Management System
<i>SHOPP</i>	California State Highway Operation and Protection Program
<i>SLT</i>	South Lake Tahoe
<i>SNPLMA</i>	Southern Nevada Public Lands Management Act
<i>SRTS</i>	Safe Routes to School
<i>SSTAC</i>	Social Services Transportation Advisory Council, advisory body to TRPA on the transit needs of transit dependent and transit disadvantaged persons.
<i>STA</i>	State of Good Repair Program provides formula funding from sales taxes on fuel for transit investments.
<i>STAR</i>	Strategic Transit Automation Research, FTA research agenda for transit bus automation over five years.
<i>STBG</i>	Surface Transportation Block Grant Program provides flexible formula funding to address state and local transportation needs.
<i>STIP</i>	State Transportation Improvement Program
<i>STRSTIP</i>	Short Term Rentals State Transportation Improvement Program

<i>TAC</i>	Technical Advisory Committee: convened to review and provide input on the RTP
<i>TART</i>	Tahoe Truckee Area Regional Transit
<i>TAZ</i>	Traffic analysis zone, usually consists of one or more census blocks, block groups, or census tracts.
<i>TAU</i>	Tourist Accommodation Unit
<i>TBID</i>	Tourism Business Improvement District, type of business improvement district aimed at increasing the number of overnight visitors using businesses and services in a specific area.
<i>TCPUD</i>	Tahoe City Public Utility District
<i>TDA</i>	California Transportation Development Act provides funding to be allocated to transit and non-transit related purposes that comply with regional transportation plans.
<i>TDM</i>	Transportation Demand Management
<i>TDTD</i>	Tahoe Douglas Transportation District
<i>TERM</i>	Transit Economic Requirements Model assesses the current physical condition and future investment needs of the nation's transit assets / operators.
<i>Threshold</i>	TRPA Environmental Threshold Carrying Capacities which set environmental standards for the Lake Tahoe basin and indirectly define the capacity of the Region to accommodate additional land development.
<i>TIP</i>	Transportation Improvement
<i>TMA</i>	Transportation Management Association
<i>TMDL Total Maximum Daily Load</i>	Federally legislated maximum amount of certain pollutants in a body of water
<i>TMPO</i>	Tahoe Metropolitan Planning Organization
<i>TNT/TMA</i>	Truckee North Tahoe Transportation Management Association

<i>TNC</i>	Transportation Network Company
<i>TOT</i>	Transient Occupancy Tax
<i>TRIA</i>	Trip Reduction Impact Analysis spreadsheet tool to evaluate the trip and VMT reduction impacts of various transportation policies and programs in the RTP/SCS.
<i>TRPA</i>	Tahoe Regional Planning Agency
<i>TSM Transportation System Management</i>	Measures such as dedicated turn lanes, signal synchronization, bicycle-activated signals, roundabouts
<i>TTAC</i>	Transportation Technical Advisory Committee guides complex information, data, and policy decisions requires input and guidance from non-governmental organizations, technical experts, community stakeholders, and the development community.
<i>TTIC</i>	Transportation Technical Implementation Committee, coordinates recommendations for transportation project prioritization and funding, and provides technical support to develop regional revenue sources.
<i>TTC</i>	Tahoe Transportation Commission
<i>TTD</i>	Tahoe Transportation District
<i>U.S.</i>	United States
<i>USFS</i>	United States Forest Service
<i>VMT</i>	Vehicle Miles Traveled
<i>VTG</i>	Vehicle Trip Generation
<i>ZEV – Zero Emission Vehicle</i>	Broad term to identify all vehicles that use renewable sources of energy such as electricity or hydrogen Vehicle Trip Generation
<i>VPD</i>	Vehicles per Day, the number of vehicles traveling on the roadway in one day.
<i>Washoe RTC</i>	Transportation Commission of Washoe County, Nevada.

Appendices

Appendix A: Goals and Policies

Appendix B: Project List

Appendix C: Revenue Narrative

Appendix D (New): Innovation in Transportation

Appendix E: Public Participation, Consultation, and Cooperation

Appendix F (New): Environmental Justice

Appendix G: Data and Forecasting

Appendix H (New): Congestion Management Process

Appendix I: Performance Measures

Appendix J: Regional Transportation Plan and Sustainable Communities Strategy Checklist

APPENDIX A: GOALS AND POLICIES

Goals

The Regional Plan and this Regional Transportation Plan share six goals.

Goal 1: Environment

Protect and enhance the environment, promote energy conservation, and reduce greenhouse gas emissions.

Goal 2: Connectivity

Enhance and sustain the connectivity and accessibility of the Tahoe transportation system, across and between modes, communities, and neighboring regions, for people and goods.

Goal 3: Safety

Increase safety and security for all users of Tahoe's transportation system.

Policies

The RTP has sixty-nine policies to achieve and support the Regional Plan and Regional Transportation Plan goals. The list below links each policy to the corresponding goal as well as the plan's focus areas where specific strategies that advance each policy are found.

Goal 4: Operations and Congestion Management

Provide an efficient transportation network through coordinated operations, system management, technology, monitoring, and targeted investments.

Goal 5: Economic Vitality & Quality of Life

Support the economic vitality of the Tahoe Region to enable a diverse workforce, sustainable environment, and quality experience for both residents and visitors.

Goal 6: System Preservation

Provide for the preservation of the existing transportation system through maintenance activities that support climate resiliency, water quality, and safety.

Table 5: Regional Transportation Plan Policies

Goal	Policy Number	Policy Text	Focus Area
<i>Environment</i>	Policy 1.1	Support mixed-use, transit-oriented development, and community revitalization projects that encourages walking, bicycling, and easy access to existing and planned transit stops.	Community
<i>Environment</i>	Policy 1.2	Leverage transportation projects to achieve and maintain environmental thresholds through integration with the Environmental Improvement Program.	Community
<i>Environment</i>	Policy 1.3	Implement greenhouse gas reduction strategies in alignment with federal, state, and regional requirements and goals.	Community
<i>Environment</i>	Policy 1.4	Develop and implement project impact analysis, mitigation strategies and fee programs to reduce Vehicle Miles Travelled and auto trips.	Community
<i>Environment</i>	Policy 1.5	Prioritize projects and programs that enhance non-automobile travel modes.	Community
<i>Environment</i>	Policy 1.6	Facilitate and promote the use of zero emission vehicle (ZEV) transit, fleet, and passenger vehicles through implementation of the Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan, education, incentives, funding, and permit streamlining.	Technology
<i>Environment</i>	Policy 1.7	Collaborate with all jurisdictions and employers in the basin to develop, maintain, and implement programs to reduce employee vehicle trips.	Community

<i>Environment</i>	Policy 1.8	Coordinate with the City of South Lake Tahoe to update and maintain an Airport Master Plan and limit aviation facilities within the Tahoe Region to existing facilities.	Transit
<i>Environment</i>	Policy 1.9	Traffic calming and noise reduction strategies, to achieve noise standards and Community Noise Equivalent Levels, should be included when planning transportation improvements.	Community
<i>Environment</i>	Policy 1.1	Develop and implement a cooperative continuous, and comprehensive Congestion Management Process to adaptively manage congestion within the Region's multi-modal transportation system, with a focus on peak traffic period and Basin entry/exit routes.	Technology
<i>Connectivity</i>	Policy 2.1	Coordinate with Federal, state, and local governments, transportation management associations, and private sector partners to fund and operate reliable transportation alternatives.	Transit
<i>Connectivity</i>	Policy 2.2	Provide frequent transit service to recreational areas, including trailheads and shoreline access points.	Transit
<i>Connectivity</i>	Policy 2.3	Collaborate with regional and inter-regional partners to establish efficient transportation connections within the Trans-Sierra Region including to and from Tahoe and surrounding communities.	Transit
<i>Connectivity</i>	Policy 2.4	Collaborate with nearby communities that share transportation to and from the Tahoe Basin, including but not limited to; the Town of Truckee,	Community

		the Placer County Resort Triangle, Sacramento, Bay Area, Reno, and the Carson/Minden valley.	
Connectivity	Policy 2.5	Improve the existing transit system for the user making it frequent, fun, and free in targeted locations.	Transit
Connectivity	Policy 2.6	Use the best available technology to implement waterborne transportation systems that coordinates with other travel options consistent with the Shoreline Plan Greenhouse Gas Reduction Strategy.	Transit
Connectivity	Policy 2.7	Provide specialized and subsidized public transportation services and programs for individuals with disabilities that is consistent with Coordinated Human Services Transportation plans.	Transit
Connectivity	Policy 2.8	Ensure all transportation projects, programs, and policies meet the transportation needs and minimize negative impacts for disadvantaged communities and people with special needs	Community
Connectivity	Policy 2.9	Ensure that pedestrian and bicycle facilities are Americans With Disabilities Act (ADA) compliant and Universally Accessible.	Community
Connectivity	Policy 2.1	Ensure all transit is Americans with Disabilities Act (ADA) compliant, Universally Accessible, and consistent with Coordinated Human Services Transportation Plans.	Community
Connectivity	Policy 2.11	Develop standards and guidelines for incorporating multimodal amenities in new development or redevelopment as part in local area plans	Transit

<i>Connectivity</i>	Policy 2.12	Implement the Safe Routes to School program.	Trails
<i>Connectivity</i>	Policy 2.13	Coordinate public and private transit service, where feasible, to reduce costs of service and avoid service duplication.	Transit
<i>Connectivity</i>	Policy 2.14	Support, where feasible, the implementation of on-demand, dynamically routed transit shuttles.	Transit
<i>Connectivity</i>	Policy 2.15	Develop and maintain an Active Transportation Plan as part of the regional transportation plan. Include policies, a project list of existing and proposed bicycle and pedestrian facilities, strategies, and programs for implementation of the Active Transportation Plan.	Trails
<i>Connectivity</i>	Policy 2.16	Incorporate programs and policies of the Active Transportation Plan into regional and local land use plans and regulatory processes.	Trails
<i>Connectivity</i>	Policy 2.17	Construct, upgrade, and maintain pedestrian and bicycle facilities consistent with the Active Transportation Plan.	Trails
<i>Connectivity</i>	Policy 2.18	Accommodate the needs of all categories of travelers by designing and operating roads for 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.	Community
<i>Connectivity</i>	Policy 2.19	Support parking management programs that incentivize non-auto modes and discourage private auto-mobile use at peak times in peak locations, alleviate circulating vehicle trips associated with parking availability.	Community

<i>Connectivity</i>	Policy 2.2	Coordinate and maintain parking maximums and shared parking standards that support goals and policies of the Regional Plan.	Community
<i>Connectivity</i>	Policy 2.21	Paid parking revenues should benefit infrastructure and services for transit, pedestrians, and bicyclists within the areas that funds are generated.	Community
<i>Connectivity</i>	Policy 2.22	Coordinate and include in area plans intermodal transportation facilities (“Mobility Hubs”) that serve major activity centers and connect transit, pedestrian, bicycle facilities, and car/ride share, and provide park and ride facilities, where appropriate.	Community
<i>Connectivity</i>	Policy 2.23	In roadway improvements, construct, upgrade, and maintain active transportation and transit facilities along major travel routes. In constrained locations, all design options should be considered, including but not limited to restriping, roadway realignment, signalization, and purchase of right of way	Community
<i>Connectivity</i>	Policy 2.24	Encourage partners to develop and implement plans coordinating wayfinding and signage to build awareness of alternative transportation opportunities including transit, pedestrian, and bicycle facilities.	Community
<i>Safety</i>	Policy 3.1	Coordinate the collection and analysis of safety data, identify areas of concern, and propose safety-related improvements and user awareness that support state and federal safety programs and performance measures.	Technology

<i>Safety</i>	Policy 3.2	Use proven safety design countermeasures for safety hotspots when designing new or modifying existing travel corridors consistent with the Lake Tahoe Region Safety Strategy.	Community
<i>Safety</i>	Policy 3.3	Coordinate safety awareness programs.	Community
<i>Safety</i>	Policy 3.4	Support emergency preparedness and response planning, including the development of regional evacuation plans.	Community
<i>Safety</i>	Policy 3.5	Encourage appropriate agencies to use traffic incident management performance measures.	Community
<i>Safety</i>	Policy 3.6	Design projects to maximize visibility at vehicular, bicycle, and pedestrian conflict points. Consider increased safety signage, site distance, and other design features, as appropriate.	Trails
<i>Operations & Congestion Management</i>	Policy 4.1	Prioritize regional and local investments that fulfill TRPA objectives in transit, active transportation, transportation demand management, and other programs which support identified TRPA transportation performance outcomes.	Community
<i>Operations & Congestion Management</i>	Policy 4.2	Enable growth of shared and on-demand shared ride mobility services (i.e., ride-, car-, and bike-sharing, e-hailing, etc.).	Community

<i>Operations & Congestion Management</i>	Policy 4.3	Work to ensure that new transportation services and technologies utilize electric vehicles as feasible.	Community
<i>Operations & Congestion Management</i>	Policy 4.4	Coordinate policies across multiple partners that support the use of electric assisted, low-speed devices on paths and trails to serve travel needs in Tahoe	Trails
<i>Operations & Congestion Management</i>	Policy 4.5	Identify opportunities to implement comprehensive transportation solutions that include technology, safety, and other supporting elements when developing infrastructure projects.	Technology
<i>Operations & Congestion Management</i>	Policy 4.6	Collaborate with jurisdictions and state departments of transportation to adaptively manage roadways for peak travel periods.	Technology
<i>Operations & Congestion Management</i>	Policy 4.7	Promote awareness of travel options through outreach, education, and advertising, particularly in local schools.	Community
<i>Operations & Congestion Management</i>	Policy 4.8	Invest resources in marketing and outreach campaigns to promote the use of non-auto travel options.	Transit
<i>Operations & Congestion Management</i>	Policy 4.9	Implement programs and policies of the Tahoe Basin Intelligent Transportation Systems Strategic Plan to support needed infrastructure to achieve regional transportation goals.	Technology

<i>Operations & Congestion Management</i>	Policy 4.1	Track and prepare for emerging transportation technologies.	Technology
<i>Operations & Congestion Management</i>	Policy 4.11	Level of service (LOS) criteria for the Region's highway system and signalized intersections during peak periods shall be: "C" on rural recreational/scenic roads; "D" on rural developed area roads; "D" on urban developed area roads; "D" for signalized intersections. Level of Service "E" may be acceptable during peak periods in urban areas, but not to exceed four hours per day. These vehicle LOS standards may be exceeded when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways.	Community
<i>Operations & Congestion Management</i>	Policy 4.12	Prohibit the construction of roadways to freeway design standards in the Tahoe Region. Establish Tahoe specific traffic design volume for project development and analysis.	Community
<i>Operations & Congestion Management</i>	Policy 4.13	Require the development of traffic management plans for major temporary seasonal activities, including streetscape flexibility within urban centers, and the coordination of simultaneously occurring events	Community
<i>Operations & Congestion Management</i>	Policy 4.14	Expand and build capacity in Transportation Management Associations (TMAs) in the Tahoe Region to develop public-private partnerships that support transportation.	Community

<i>Operations & Congestion Management</i>	Policy 4.15	Establish a uniform method of data collection and forecasting for resident and visitor travel behavior and demographics	
<i>Operations & Congestion Management</i>	Policy 4.16	Maintain monitoring programs for all modes to assess the effectiveness of the long-term implementation of local and regional mobility strategies on a publicly accessible reporting platform (e.g. www.laketahoeinfo.org website).	Technology
<i>Operations & Congestion Management</i>	Policy 4.17	Establish regional and inter-regional cooperation and cost-sharing to obtain a uniform method of transportation data collection and sharing.	Technology
<i>Operations & Congestion Management</i>	Policy 4.18	Design roadway corridors, including driveways, intersections, and scenic turnouts, to minimize impacts to regional traffic flow, transit, and bicycle and pedestrian facilities by using shared access points where feasible	Community
<i>Economic Vitality & Quality of Life</i>	Policy 5.1	Encourage community revitalization and transit-oriented development projects that comprehensively support regional and local transportation, housing, land use, environment, and other goals.	Community
<i>Economic Vitality & Quality of Life</i>	Policy 5.2	Ensure access to public transit in identified Priority Communities.	Transit

<i>Economic Vitality & Quality of Life</i>	Policy 5.3	Encourage collaboration between public lands managers, departments of transportation, transit providers, and other regional partners to support sustainable recreation and multi-modal access to recreation sites.	Community
	Policy 5.4	Collaborate with local, state, regional, federal, and private partners to develop a regional revenue source to fund Lake Tahoe transportation investments.	Community
	Policy 5.5	Collaborate with bi-state partners to establish efficient rail, air, and bus transportation connections to Tahoe within the Trans-Sierra Region, including to and from Tahoe and surrounding metropolitan areas.	Transit
<i>System Preservation</i>	Policy 6.1	Preserve the condition of sidewalks and bicycle facilities and maintain, where feasible, for year-round use.	Trails
	Policy 6.2	Improve winter transit access by providing shelters, cleared sidewalks and paths around stops, winter accessible bike racks, and warm shelters at mobility hubs and major transit stops.	Transit
	Policy 6.3	Maintain and preserve pavement condition to a level that supports the safety of the traveling public and protects water quality	Community

<i>System Preservation</i>	Policy 6.4	Make “dig once” the basin-wide standard, requiring public and private roadway projects to accommodate the installation of conduit to support community needs. (e.g.: broadband fiber optic)	Technology
<i>System Preservation</i>	Policy 6.5	Consider the increased vulnerability and risk to transportation infrastructure from climate change, such as increased flooding, drought, and wildfire risk, when designing new infrastructure and repairing or maintaining existing infrastructure.	Community
<i>System Preservation</i>	Policy 6.6	Advance transportation planning through public participation and collaboration.	Community

APPENDIX B: PROJECT LIST

Summary of all Projects by Strategy:

DRAFT CONSTRAINED	2025	2035	2045	Total
<i>Active Transportation</i>	\$51,498,610	\$58,085,129	\$141,234,230	\$250,817,969
	\$279,359,209	\$6,437,713	\$-	\$285,796,922
	\$90,649,520	\$224,150,078	\$164,425,382	\$479,224,980
	\$15,433,642	\$-	\$1,598,650	\$17,032,292
	\$136,277,590	\$432,834,322	\$661,090,603	\$1,230,202,515
	Total	\$721,507,242	\$968,348,865	\$2,263,074,678
DRAFT UNCONSTRAINED	2025	2035	2045	Total
<i>Active Transportation</i>	\$3,020,869	\$-	\$-	\$3,020,869
	\$-	\$-	\$-	\$0
	\$94,033,363	\$218,446,575	\$266,285,157	\$578,765,095
	\$-	\$-	\$8,912,475	\$8,912,475
	\$-	\$22,179,407	\$399,572,595	\$421,752,002
	Total	\$240,625,982	\$674,770,226	\$1,012,450,440
TOTAL PLAN	\$670,272,803	\$962,133,224	\$1,643,119,091	\$3,275,525,118

2020 RTP/SCS Project List

	Project #	Title	Project Description / Notes	Lead Implementer	County	Completion Timing	Estimated Annual Cost (Capital)	Year of Expenditure Dollars	Est. Annual Operating Cost (Transit & O&M)	Total (remaining) Operating Cost for life of project	Constrained 2025, 2035, 2045	UnConstrained 2025, 2035, 2045
Active Transportation (Trails)	03.01.02.0005	Al Tahoe Safety and Mobility Enhancement Project	Class 1 Bike Trail on Al Tahoe adjacent to middle school, from US 50 to Johnson, Bike Lanes on both sides Al Tahoe	City of South Lake	El Dorado	2020	\$ 3,004,000	\$ 3,004,000			2025	
	03.01.01.0010	Nevada Stateline to Stateline Bikeway Laura Drive to Stateline (Phase 1a)	Phase 1A of the Nevada Stateline to Stateline Bikeway, South Demonstration Project, is a 1 mile segment extending the Laura Continue pedestrian sidewalks, lighting, transit stops, and class II bike lanes from the limits of the completed Phase 1 project (Larch	Tahoe Transportation District	Douglas	2021-2025	\$ 3,000,000	\$ 3,151,875			2025	
	03.01.01.0019	Pioneer Trail Pedestrian Project - Phase II	0.5 miles of Class I bike trail from Fanny Bridge/Dam through central Tahoe City	City of South Lake	El Dorado	2021-2025	\$ 2,474,415	\$ 2,536,275			2025	
	04.01.02.0059	Tahoe City Lakeside Trail Missing Link	Class I Bike Path: East San Bernardino - West San Bernardino	Placer County	Placer	2021-2025	\$ 1,000,000	\$ 1,050,625			2025	
	03.01.02.0040	Class I Bike Trail - Pine Blvd to end of Linear Park Path (Mountain to Beach Loop Park Ave West)	Approximately 0.37 miles of Class I bike path between West San Bernardino Ave and East San Bernardino Ave.	El Dorado County	El Dorado	2021-2025	\$ 2,518,504	\$ 2,646,003			2025	
	03.01.02.0066	US Highway 50 Sidewalk Construction - Kingsbury Grade to Lake Parkway	Class I trail from the end of the Linear Park Path to Pine Boulevard west of Park Avenue in the City of South Lake Tahoe.	City of South Lake	El Dorado	2026	\$ 120,000	\$ 135,769			2025	
	03.01.02.0053	Class I Bike Trail along State Route 28 from Preston Field to Northwood Blvd.	Sidewalk on southside of US50 connecting Lake Parkway to Kingsbury	Douglas County	Douglas	2021-2025	\$ 590,000	\$ 590,000			2025	
	03.01.02.0083	Alta Mira Public Access Improvements	Class I bike trail along the north side of SR 28 (Tahoe Boulevard) in Incline Village Preston Field to Northwood Blvd.	Placer County	Placer	2021-2025	\$ 600,000	\$ 662,288			2025	
	04.01.01.0010	South Tahoe Greenway Shared Use Trail Phases 1b & 2	Lakeside Bike Trail Phase 2C - Mackinaw to Commons Beach	California Tahoe Conservancy	El Dorado	2021-2025	\$ 8,000,000	\$ 8,830,503			2025	
	03.01.02.0087	Lake Tahoe Boulevard Class 1 Bicycle Trail (Viking Way to South Wye)	0.95 mi. trail Glenwood Way to Sierra Boulevard, including 0.77 miles of 10' asphalt trail and 0.18 miles of elevated	El Dorado County	El Dorado	2021-2025	\$ 5,899,000	\$ 5,899,000			2025	
	03.01.02.0094	Middle School SR2S Project - Rufus Allen Connector	Class 1 bike trail, ADA compliant ramps, and pathway lighting along the 0.6 mile section of Lake Tahoe Blvd Viking Way (D-Street) to SR	City of South Lake	El Dorado	2021-2025	\$ 3,905,286	\$ 3,905,286			2025	
	03.01.02.0110	Fallen Leaf Road Pavement Rehabilitation and Recreational Access Project	Class 1 Bike and Ped trail along Rufus Allen Boulevard providing safe routes to school with access to the Al	City of South Lake	El Dorado	2021-2025	\$ 750,000	\$ 768,750			2025	
	03.01.02.0141	South Tahoe Greenway - Upper Truckee Bridge at Johnson Meadow	Fallen Leaf Road 4.94 mi. from SR89 to the southern end of Fallen Leaf Lake at Stanford Sierra Camp . The	El Dorado County	El Dorado	2021-2025	\$ 3,500,000	\$ 3,769,117			2025	
	03.01.02.0142	Kahle Drive Complete Street	Johnson Meadow connector / future bridge connecting the Sierra Tract neighborhood to Barton/4th Street	El Dorado County	El Dorado	2021-2025	\$ 300,000	\$ 331,144			2025	
	03.01.02.0143	Camp Richardson Resort & Campground BMPs & Retrofit	Complete street improving drainage, adding sidewalks, bike lanes, crosswalks, a safe intersection	Nevada Tahoe Resource Conservation	Douglas	2021-2025	\$ 2,150,000	\$ 2,203,750			2025	
	04.01.03.0112	Class I Bike Trail: Third Street/Tahoe Valley Elementary	Retrofit and/or provide water quality BMP-compliant day use parking for resort guests and employees	U.S. Forest Service - Lake Tahoe	El Dorado	2021-2025	\$ 6,500,000	\$ 7,538,007			2025	
	03.01.02.0006	NOT IN TRACKER Greenway to Bijou Bike Park connector	Construct Class 1 bike trail between US Highway 50 and Tahoe Valley Elementary School to provide a safe route for students and	City of South Lake	El Dorado	2021-2025	\$ 700,000	\$ 753,823			2025	
	04.01.02.0060	See project 03.01.02.0087 - this project closes a gap in the Greenway	2018 Safety Plan identified priority intersections for safety improvements	City of South Lake	El Dorado	2021-2025	\$ 1,100,000	\$ 1,214,194			2025	
	01.01.01.0012	NOT IN TRACKER Priority Intersection Safety Projects	SR 89 - West Shore Tahoe Trail Feasibility Study Meeks Bay to Spring Creek Road	Various	Various	2021-2035	\$ 4,300,000	\$ 4,865,055			2025	2035
	03.01.02.0045	Tahoe Valley Greenbelt	Greenbelt multi-benefit project/stormwater, SEZ, bicycle and pedestrian improvements and recreational amenities Water quality	Tahoe Regional Planning Agency	El Dorado	2021-2025	\$ 674,008	\$ 708,130			2025	
	03.01.02.0064	Pope Beach Bike Path	Provide non-motorized path to beach amenities. Meeting with Mike (5/28): no funding. Is deferred but anticipate being completed by	City of South Lake	El Dorado	2026-2035	\$ 8,550,000	\$ 9,207,415			2035	
	03.01.02.0084	Nevada Stateline to Stateline Bikeway - Crystal Bay to Incline	Construct a portion of the Nevada Stateline to Stateline Bikeway from Crystal Bay to Incline Village.	U.S. Forest Service - Lake Tahoe	El Dorado	2026-2035	\$ 500,000	\$ 500,000			2035	
	03.01.02.0084	Brockway Vista Multi-Use Trail	Construct a portion of the Nevada Stateline to Stateline Bikeway from Crystal Bay to Incline Village.	Tahoe Transportation District	Washoe	2026-2035	\$ 20,000,000	\$ 22,628,164			2035	
	03.01.02.0093	NOT IN TRACKER Active Transportation Plan 2026-2035	Brockway Vista Multi-Use Trail	Placer County	Placer	2026-2035	\$ 3,000,000	\$ 4,238,921			2035	
	04.01.03.0167	Trail and Intersection Improvements - Recreation and Swim Center Renovation/Replacement	Regional Bicycle and Pedestrian Improvements from the Active Transportation Plan 2026-2035	Various	Regional	2026-2035	\$ 20,311,180	\$ 28,699,166			2035	2035
	03.01.02.0011	North Tahoe Regional Bike Trail	Additional trail connections and addition of 4th leg at Tallac and US50	City of South Lake	El Dorado	2036-2045	\$ 5,700,000	\$ 5,842,500			2045	
	03.01.02.0041	State Route 89 Class I Bike Trail- Highway 50 to Portal Road	7 miles of Class 1 bike trail that will link the Dollar Hill Multi-use Trail with the North Tahoe Regional Park	Placer County	Placer	2036-2045	\$ 12,000,000	\$ 12,922,688			2045	
	03.01.02.0067	Class I Bike Trail Along US Highway 50 from City Limits to Sawmill Road	Class I bikeway along SR 89 from Portal Road to US Highway 50 in Christmas Valley	El Dorado County	El Dorado	2036-2045	\$ 3,000,000	\$ 2,855,443			2045	
	03.01.02.0067	South Tahoe Greenway Shared Use Trail Planning and Future Phases	Construct a Class I bike trail along US Highway 50 from the limits of the City of South Lake Tahoe to Sawmill Road.	El Dorado County	El Dorado	2036-2045	\$ 2,900,000	\$ 3,281,084			2045	
	03.01.02.0088	Nevada Stateline to Stateline Corridor Improvements - Glenbrook Entrance to Round Hill	South Tahoe Greenway Shared-Use Trail will connect Sierra Tract and Van Sickle Bi-State Park in the core of South Lake Tahoe, This project includes segments D, E, and F, identified in the Nevada Stateline-to-Stateline Bikeway Project Feasibility Study Report,	California Tahoe Conservancy	El Dorado/Douglas	2036-2045	\$ 7,844,000	\$ 10,040,983			2045	
	03.01.02.0093	Regional Bicycle and Pedestrian Improvements from the Active Transportation Plan 2036-2045	Regional Bicycle and Pedestrian Improvements from the Active Transportation Plan 2036-2045	Tahoe Transportation District	Douglas	2036-2045	\$ 32,000,000	\$ 43,036,442			2045	
	03.01.02.0068	Upper Truckee River Class I Trail Widening - Tahoe City to Squaw Valley	This project includes segments D, E, and F, identified in the Nevada Stateline-to-Stateline Bikeway Project Feasibility Study Report,	Tahoe City Public Utility District	Placer	2021-2025	\$ 1,875,000	\$ 2,069,649			2025	
	03.01.02.0069	Class I Bike Trail from Sunnyside to the Intersection of Lower Sequoia & SR 28	Construct a Class I Bike Trail from Sunnyside to the Intersection of Lower Sequoia & State Route 28	Tahoe City Public Utility District	Placer	2021-2025	\$ 975,000	\$ 951,220			2025	

\$ 199,041,608 \$ 253,838,838 \$ - \$ - \$ -

	Project #	Title	Project Description / Notes	Lead Implementer	County	Completion Timing	Estimated Annual Cost (Capital)	Year of Expenditure Dollars	Est. Annual Operating Cost (Transit & O&M)	Total (remaining) Operating Cost for life of project	Constrained 2025, 2035, 2045	UnConstrained 2025, 2035, 2045
Corridors	03.01.02.0049	SR 28 Central Corridor Improvements – Sand Harbor to Spooner State Park	Central Corridor improvements include 8 mile segment of the NV Stateline to Stateline Bikeway connecting Sand Harbor to Spooner State Route (SR) 267 and SR 28 in Kings Beach conversation of signal to roundabout	Tahoe Transportation District	Carson/Washoe	2021-2025	\$ 68,207,000	\$ 69,912,175			2025	
	03.01.01.0015	Kings Beach Western Approach	Complete streets enhancements of intersections, adding lighting, signage, landscaping	Placer County	Placer	2021-2025	\$ 5,750,000	\$ 5,893,750			2025	
	03.01.02.0074	Meyers Corridor Operational Improvement Project	Realignment of US 50, South Lake Tahoe, CA and Stateline, NV creating Complete Street for core	El Dorado County	El Dorado	2021-2025	\$ 8,389,355	\$ 10,477,155			2025	
	03.01.02.0024	U.S. 50 South Shore Community Revitalization Project	Pushed out to start 2026, unfunded - This project implements Tahoe City RSA improvement recommendations including Grove Street	Tahoe Transportation District	El Dorado/Douglas	2021-2025	\$ 100,000,000	\$ 113,140,821			2025	
	03.01.02.0072	Tahoe City Complete Streets Highway Improvements	Corridor Plan for the Resort Triangle, includes parking management, TDM, shuttles SR89, SR267, SR28	Placer County	Placer	2021-2025	\$ 800,000	\$ 927,755			2025	
	03.01.02.0023	SR 89/Fanny Bridge Community Revitalization Project Phase 2	Grove Street Parking Project: Implementing some of Tahoe City Mobility Study Recommendations, Parking expansion and	Placer County	Placer	2021-2025	\$ 10,000,000	\$ 11,038,129			2025	
	03.01.02.0118	Tahoe City Downtown Access Improvements	Sustainable mobility improvements Apache Avenue US 50/ SR 89 to Environmental Science Magnet School	El Dorado County	El Dorado	2021-2025	\$ 2,332,780	\$ 2,574,953			2025	
	03.01.01.0004	NDOT Complete Streets Project	Corridor Management Plan traffic flow and parking improvements promoting safety and active transportation	Nevada Dpt of Transportation	Douglas	2021-2025	\$ 19,500,000	\$ 20,487,188			2025	
	03.01.02.0073	US 50 Safety Roadway Improvements	Pavement rehabilitation	Nevada Dpt of Transportation	Douglas	2021-2025	\$ 1,800,000	\$ 1,845,000			2025	
	03.01.02.0108	Meeks Bay Highway Corridor Improvements	Formalized and upgraded parking access to the wilderness at Meeks Bay trailhead, constructing new multi-use path and bridge and other	U.S. Forest Service - Lake Tahoe	El Dorado	2021-2025	\$ 1,500,000	\$ 1,575,938			2025	
	01.01.04.0014	Tallac Historic Site, Valhalla, and the Visitor Center Improvements	Transportation improvements include interior connected loop road / multimodal connections / bike paths & signage	U.S. Forest Service - Lake Tahoe	El Dorado	2021-2025	\$ 11,100,000	\$ 12,872,597			2025	
	01.01.03.0036	State Route 89 Recreation Corridor Improvements	The project will produce a SR 89 Recreation Corridor Management Plan and will implement the plan's recommendations. Expected	TRPA/U.S. Forest Service - Lake Tahoe	El Dorado	2021-2025	\$ 20,000,000	\$ 21,012,500			2025	
	04.01.03.0137	Round Hill Pines Resort Highway Intersection Improvements	Reconfigure resort entry/intersection with Highway 50 to eliminate existing safety concerns and improve access to the recreation	USFS/CFL	Douglas	2021-2025	\$ 3,000,000	\$ 3,000,000			2025	
		Transportation Demand Management Programs (Commute Tahoe)	Focused trip reduction program for employers, residents and visitors	Tahoe Regional Planning Agency	Regional	2021-2045	\$ -	\$ -	\$ 100,000	\$ 2,500,000	2025	
	4216	Caltrans Tahoe City Maintenance Station (SHOPP)	SR 89 near Tahoe City, at the Caltrans Tahoe City Maintenance Station new dormitory building. EA 4H980	California Dpt of Transportation	Placer	2026-2035	\$ 5,690,000	\$ 6,437,713			2035	

\$ 260,069,135 \$ 283,296,922 \$ 100,000 \$ 2,500,000

Operations and Maintenance	01.01.02.0030	Highway 50 Echo Summit Bridge Rehabilitation	On US 50 at Echo Summit Sidehill Viaduct Bridge (#25-0044). Bridge replacement. EA 3F530	California Dpt of Transportation	El Dorado	2021-2025	\$ 12,038,000	\$ 12,038,000			2025	
	06.01.03.0041	Pavement Perseveration - SR28/SR89 Junction to Nevada State Line (SHOPP)	On SR 28 in Placer County from SR 28/SR 89 Junction to Nevada State line. Grind and replace existing pavement, rehabilitate or	California Dpt of Transportation	Placer	2021-2035	\$ 24,150,000	\$ 27,323,508			2035	
	06.01.03.0005	Pavement Resurfacing on US 50 from "Y" Junction to CA/NV State Line (SHOPP)	On US 50 in South Lake Tahoe from SR 89/US 50 "Y" junction to CA/NV State line (PM 75.4/80.44). Pavement resurfacing (CAPM).	California Dpt of Transportation	El Dorado	2026-2035	\$ 24,150,000	\$ 28,006,596			2035	
	06.01.03.0034	Emergency Roadway Repair Program - NDOT	Emergency Roadway Repair Program – NDOT	Nevada Dpt of Transportation	Douglas/Carson/ Washoe	2021-2045			\$ 100,000	\$ 3,601,171	2045	
	06.01.03.0035	Emergency Roadway Repair Program – Caltrans	Emergency Roadway Repair Program – Caltrans	California Dpt of Transportation	El Dorado/Placer	2021-2045			\$ 100,000	\$ 3,601,171	2045	
	06.01.03.0009	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	City of South Lake	El Dorado	2021-2045			\$ 39,000	\$ 1,404,457	2025,2035,2045	
	06.01.03.0008	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	El Dorado County	El Dorado	2021-2045			\$ 48,468	\$ 1,745,415	2025,2035,2045	
	06.01.03.0007	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	Tahoe City Public Utility District	Placer	2021-2045			\$ 311,098	\$ 11,203,170	2025,2035,2045	
	06.01.03.0015	Streets and Roads Operations and Maintenance	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	El Dorado County	El Dorado	2021-2045			\$ 728,000	\$ 26,216,523	2025,2035,2045	
	06.01.03.0014	Streets and Roads Operations and Maintenance	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	Placer County	Placer	2021-2045			\$ 400,000	\$ 14,404,683	2025,2035,2045	
	06.01.03.0016	Streets and Roads Operations and Maintenance	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	City of South Lake	El Dorado	2021-2045			\$ 2,600,000	\$ 93,630,441	2025,2035,2045	
	06.01.03.0017	Streets and Roads Operations and Maintenance	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	Douglas County	Douglas	2021-2045			\$ 60,000	\$ 2,160,702	2025,2035,2045	
	06.01.03.0006	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	Placer County	Placer	2021-2045			\$ 60,000	\$ 2,160,702	2025,2035,2045	
	06.01.03.0010	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	Douglas County	Douglas	2021-2045			\$ 22,500	\$ 810,263	2025,2035,2045	
	06.01.03.0011	Bike and Pedestrian Facilities Operations and Maintenance	This is the annual cost to operate and maintain bicycle and pedestrian facilities	Washoe County	Washoe	2021-2045			\$ 15,000	\$ 540,176	2025,2035,2045	
	06.01.03.0019	Streets and Roads Operations and Maintenance - NDOT	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	Nevada Dpt of Transportation	Douglas/Carson/ Washoe	2021-2045			\$ 1,300,000	\$ 46,815,220	2025,2035,2045	
	06.01.03.0020	Streets and Roads Operations and Maintenance - Caltrans	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	California Dpt of Transportation	El Dorado/Placer	2021-2045			\$ 5,180,651	\$ 186,564,091	2025,2035,2045	
	06.01.03.0018	Streets and Roads Operations and Maintenance	Annual Streets and Roads Operations and Maintenance (existing, does not reflect future TMDL implementation)	Washoe County	Washoe	2021-2045			\$ 150,000	\$ 5,401,756	2025,2035,2045	
	01.01.03.0023	Road BMP Inspection, Maintenance, Upgrades and Decommissioning	Road BMP Inspection, Maintenance, Upgrades and Decommissioning	U.S. Forest Service - Lake Tahoe	Regional	2021-2035	\$ 10,000,000	\$ 11,596,934			2025, 2035	
		Regional Operations and Maintenance Shortfall	Regional deferred Operations and Maintenance	Nevada Dpt of Transportation	Regional	2021-2045			\$ 578,765,095		2045	

\$ 70,338,000 \$ 78,965,039 \$ 11,114,717 \$ 979,025,036

	Project #	Title	Project Description / Notes	Lead Implementer	County	Completion Timing	Estimated Annual Cost (Capital)	Year of Expenditure Dollars	Est. Annual Operating Cost (Transit & O&M)	Total (remaining) Operating Cost for life of project	Constrained 2025, 2035, 2045	UnConstrained 2025, 2035, 2045		
Technology	03.01.01.0016	SR 28 Parking Lot Information and Guidance System Integration/Parking Lot Detection System	Real-time parking availability information via roadside dynamic message signs, internet applications, and mobile devices	Tahoe Transportation District	Washoe	2021-2025	\$ 600,000	\$ 600,000			2025			
	03.01.02.0075	Changeable Message Signs in Nevada	ITS Improvements w/ SR28/431 - Mt Rose 3R Project Coordination RWIS information to regulate variable speed signs - requiring reduced speeds in an effort to improve safety	Nevada Dpt of Transportation	Douglas/Carson/Washoe	2021-2025	\$ 500,000	\$ 512,500			2025			
	03.01.02.0096	Variable Speed Signs for Weather Conditions	Updating monitoring equipment, CMS signs, camera (CCTV), HARS on US 50	Nevada Dpt of Transportation	Douglas/Carson/Washoe	2021-2025	\$ 1,200,000	\$ 1,230,000			2025			
	03.01.02.0076	Sierra Nevada Operation System	ITS Improvements Stateline to Ponderosa Coordination w/ 3R Project	California Dpt of Transportation	El Dorado	2021-2025	\$ 200,000	\$ 215,378			2025			
	03.01.02.0077	Traffic Monitoring Stations in Nevada	Adaptive Traffic Management on SR 89 and SR 267 Phase 1A and 1B	Caltrans, and the Town of Truckee to adaptively manage basin entry roads of SR 89 and SR 267	Nevada Dpt of Transportation	El Dorado	2021-2025	\$ 200,000	\$ 205,000		2025			
	03.01.02.0100	Tahoe Basin Transportation Smartphone Application Pilot	Develop smartphone applications to enhance traveler information dissemination	Placer County	Placer	2021-2025	\$ 10,000,000	\$ 10,000,000			2025			
	03.01.02.0102	Improved Parking Management and Wayfinding in Tahoe City	Tahoe City Downtown Access improvements - mobility infrastructure/ wayfinding signage	Placer County	Placer	2021-2025	\$ 350,000	\$ 386,335			2025			
	06.01.03.0036	Pioneer Trail Safety Improvement Project (signing, lighting, striping)	Dynamic speed feedback signs, striping and lighting improvements on approaches & at intersections	City of South Lake	El Dorado	2021-2025	\$ 170,100	\$ 183,179			2025			
	4165	California Multi-Modal Signal Control Optimization	Planning for upgrades to multi-modal signal infrastructure, upgrading to cameras, coordinating signal timing	California Dpt of Transportation	El Dorado	2036-2045	\$ 1,000,000	\$ 1,598,650			2045			
	03.01.02.0078	Intelligent Mobile Observation (Highway)	Caltrans, and the Town of Truckee-adaptively manage basin entry roads of SR 89 and SR 267	Placer County	Placer	2036-2045	\$ 100,000	\$ 159,865			2045			
	03.01.02.0095	Transit Signal Priority Along South Shore	"	California Dpt of Transportation	El Dorado	2036-2045	\$ 475,000	\$ 759,359			2045			
	03.01.02.0133	Adaptive Traffic Management on US 50	Adaptively manage Hwy 50 basin entry i.e. bus only lanes or modified lanes environment	California Dpt of Transportation	El Dorado	2036-2045	\$ 5,000,000	\$ 7,993,251			2045			
												\$ 21,795,100	\$ 25,944,767	\$ -
Transit	03.01.02.0054	TTD Transit Operations - Phase 2025	Funds for TTD's transit planning, operations, maintenance, and administration	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2021-2025				\$ 8,926,560	\$ 44,632,800	2025		
	03.01.02.0115	TTD Phase 2025 Transit Capital Enhancements and Fleet Replacement	Funds for TTD's transit capital enhancements and fleet replacement	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2021-2025	\$ 10,385,625	\$ 11,463,787			2025			
	03.01.02.0056	TART Transit Operations - Phase 2025	Funds for TART's transit planning, operations, maintenance, and administration	Placer County	Placer/Washoe	2021-2025		\$ -	\$ 7,331,800	\$ 36,659,000	2025			
	03.01.02.0055	TART Phase 2025 Transit Capital Enhancements and Fleet Replacement	Funds for TART's transit capital enhancements and fleet replacement	Placer County	Placer/Washoe	2021-2025	\$ 5,360,625	\$ 5,917,127			2025			
	NEW	Supplemental Transit Services 2025	Includes publicly available micro shuttles, on demand shuttles, regional services - privately or publicly operated	PRIVATE	Regional	2021-2025	\$ 1,050,000	\$ 1,159,004	\$ 1,673,875	\$ 8,369,377	2025	2025		
	03.01.02.0038	TTD Maintenance & Administration Facility	Preventive maintenance; fleet & facilities improvements; safety & security enhancements - fleet and facilities	Tahoe Transportation District	Douglas	2026-2035	\$ 68,000,000	\$ 96,082,220			2035			
	NEW	TART Phase 2035 Transit Capital Enhancements and Fleet Replacement	Funds for TART's transit capital enhancements and fleet replacement	Placer County	Placer/Washoe	2026-2035	\$ 2,420,000	\$ 3,419,397			2035			
	NEW	TART Transit Operations - Phase 2035	Funds for TART's transit planning, operations, maintenance, and administration	Placer County	Placer/Washoe	2026-2035			\$ 9,687,020	\$ 96,870,200	2035	2035		
	03.01.02.0136	TTD Phase 2035 Transit Capital Enhancements and Fleet Replacement	Funds for TTD's transit capital enhancements and fleet replacement	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2026-2035	\$ 20,000,000	\$ 28,259,476			2035			
	03.01.02.0128	TTD Transit Operations - Phase 2035	Funds for TTD's transit planning, operations, maintenance, and administration	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2026-2035			\$ 14,887,200	\$ 148,872,000	2035			
	NEW	Supplemental Transit Services 2035	Includes publicly available micro shuttles, on demand shuttles, regional services - privately or publicly operated	PRIVATE	Various	2026-2035	\$ 5,000,000	\$ 7,064,869	\$ 7,084,300	\$ 70,843,000	2035	2035		
	03.01.02.0126	TART Phase 2045 Transit Capital Enhancements and Fleet Replacement	Funds for TART's transit capital enhancements and fleet replacement	Placer County	Placer/Washoe	2036-2045	\$ 920,000	\$ 1,664,028			2045			
	NEW	TART Transit Operations - Phase 2045	Funds for TART's transit planning, operations, maintenance, and administration	Placer County	Placer/Washoe	2036-2045			\$ 13,768,060	\$ 137,680,600	2045			
	03.01.02.0117	TTD Phase 2045 Transit Capital Enhancements and Fleet Replacement	Funds for TTD's transit capital enhancements and fleet replacement	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2026-2045	\$ 37,950,000	\$ 68,641,150			2045			
	03.01.02.0144	TTD Transit Operations - Phase 2045	Funds for TTD's transit planning, operations, maintenance, and administration	Tahoe Transportation District	El Dorado/Douglas Carson/Washoe	2036-2045			\$ 19,208,800	\$ 192,088,000	2045			
	NEW	Supplemental Transit Services 2045	Includes publicly available micro shuttles, on demand shuttles, regional services - privately or publicly operated	PRIVATE	Various	2036-2045	\$ 12,000,000	\$ 21,704,711	\$ 13,000,000	\$ 130,000,000	2045	2045		
	NEW	North Shore Water Taxi Project Phase 2035	A public-private partnership similar to existing South Shore water taxi providing companion service to Crosslake Ferry	PRIVATE	Placer	2026-2045			\$ 594,650	\$ 5,946,500	2045			
	03.01.01.0020	South Lake Tahoe Airport Improvement Project	Remaining projects from the Airport Capital Improvement Program and ongoing O&M	City of South Lake	El Dorado	2021-2035	\$ 5,540,185	\$ 6,268,211			2025, 2035			
	03.01.02.0121	South Shore Water Taxi Project - All Phases	A public-private partnership with the existing South Shore water taxi providing companion service to Crosslake Ferry	PRIVATE	El Dorado/Douglas	2021-2045			\$ 524,400	\$ 7,866,000	2025, 2035, 2045			
	03.01.02.0120	Mobility Hub and Transit Center Operations	Incline, Truckee, South Y, Em Bay, Meyers, Squaw, Homewood, Mt Rose, Spooner, Sierra, Zephyr, Stateline, Cal Base	TRPA	Regional	2021-2045			\$ 3,125,000	\$ 47,594,751	2025, 2045			
	03.01.02.0123	Mobility Hub and Transit Center Capital	Incline, Truckee, South Y, Em Bay, Meyers, Squaw, Homewood, Mt Rose, Spooner, Sierra, Zephyr, Stateline, Cal Base	TRPA	Regional	2021-2045	\$ 33,545,000	\$ 60,654,633			2025, 2045			
	03.01.02.0127	Regional Water Taxi Service Capital - Phase 2035	Capital enhancements for public-private partnership with the existing South and North Shore water taxis	PRIVATE	Regional	2026-2045	\$ 7,000,000	\$ 12,661,082			2035, 2045			
	03.01.02.0021	Lake Tahoe Waterborne Ferry Project	Development of a north/south transit connection for Lake Tahoe with passenger Ferry service. This initial capital Project includes	PRIVATE	Regional	2036-2045	\$ 100,000,000	\$ 180,872,595				2045		
	03.01.02.0052	Lake Tahoe Waterborne Ferry Operations	Lake Tahoe Waterborne Ferry Project operations	PRIVATE	Regional	2036-2045			\$ 17,520,000	\$ 218,700,000		2045		
												\$ 309,171,435	\$ 505,832,289	\$ 117,331,665

APPENDIX C: REVENUE NARRATIVE

Revenues and Assumptions

The regional transportation plan revenue forecast is a reasonable estimate based on historical apportionments, competitive awards, and foreseeable funding sources. These revenues support the constrained transportation investments and programs included in the plan. Funding comes from a variety of federal, state, local, and private funding sources.

Transportation dollars are shown in current year dollars and in year of expenditure.

Overall, TRPA has forecasted \$2.2 billion in revenues over the course of the 25-year plan. The total transportation project costs included are estimated at \$3.2 billion leaving an approximate funding gap of \$1 billion.

Federal statutes require the plan to illustrate all cost estimates in year of expenditure to show a realistic estimate of future construction cost. TRPA has estimated an average inflation rate of 2 percent for revenues based on the average rate of inflation from the last 20 years of data on the US Inflation Calculator and an average rate of inflation of 2.5 percent for transportation investments.

For revenue forecasting, the rate of growth per funding source is determined by using the current year dollars and extrapolating it out over the number of years in the plan using the 2 percent inflation factor. All dollars have a base year of 2020.

The project cost estimates in year of expenditures are determined by taking the current cost of a project and using the inflation rate of 2.5 percent per year from implementation year to completion year.

The RTP must be financially constrained showing the amount of dollars planned must not exceed the amount of funding estimated to be reasonably available throughout the planning period. To meet this requirement, the revenue assumptions in the plan are based on existing federal, state, and local source allocations and future private sources that have been vetted through the public private sector. In developing the plan, TRPA considered the cost of implementing the projects, services, and programs in the plan relevant to forecasting the revenues needed to maintain the transportation system over the planning horizon.

Federal Funding

Federal funding is provided through the federal government to California and Nevada for the Tahoe Region. Funding apportionments are derived on population and program regulations set by the federal transportation bill Fixing America's Surface Transportation Act (FAST Act). TRPA receives funding from the Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) programs listed below. The federal funding assumptions are based on the annual historic apportionments. The federal competitive programs solicit candidates and projects are selected for funding based on applications received. Each program has its own eligibility and selection criteria. Assumptions are based on awards received and future funding needs.

Federal Highway Administration Programs

- Surface Transportation Block Grant Programs
- Congestion Mitigation and Air Quality Improvement Program

- Active Transportation Program (federal and state)
 - Highway Infrastructure Program
 - Other FHWA Discretionary Programs
 - FTA 5310 Enhancement Mobility of Seniors and Individuals with Disabilities
 - FTA 5311 Rural Area Formula Grants
 - FTA 5339 Bus and Bus Facilities
 - Other FTA Discretionary Programs
- Federal Transit Administration Programs**
- FTA 5307 Urbanized Area Formula Program

Table 6: Federal Funding Sources

Federal Source	Base Year 2020. Annual Growth 2%.
<i>Surface Transportation Block Grant Program (STBG)</i>	<p>Program provides flexible formula funding to address state and local transportation needs.</p> <p>Assumption: TRPA will continue to receive funds based on historical apportionments.</p>
<i>Surface Transportation Block Grant Program Set-Aside</i>	<p>Nevada Program provides funds for active transportation investments.</p> <p>Assumption: TRPA will continue to receive funding based on historical apportionments.</p>
<i>Congestion Mitigation and Air Quality Improvement Program (CMAQ)</i>	<p>Program provides formula funding for projects to reduce congestion and improve air quality.</p> <p>Assumption: TRPA will continue to receive funding based on historical apportionments.</p>
<i>Active Transportation Program (ATP) MPO & Competitive</i>	<p>California program provides both MPO component and competitive funding promoting active modes of transportation. Allocation can be either federal or state funds.</p> <p>Assumption: TRPA will continue to receive funding based on historical apportionments and competitive awards received. Competitive award \$1 million every 4 years or amount based on project need.</p>

Federal Source	Base Year 2020. Annual Growth 2%.
<i>Highway Infrastructure Program (HIP)</i>	<p>Provides flexible highway funds for projects located on the Federal-Aid System.</p> <p>Assumption: TRPA will continue to receive funds based on historical apportionments.</p>
<i>Federal Lands Transportation Program (FLTP)</i>	<p>Competitive program administered through the United States Forest Service (USFS). Solicits for candidates and selects project for funding based on applications received.</p> <p>Assumption: TRPA will continue to receive funding based on historical competitive awards received.</p>
<i>Federal Lands Access Program (FLAP)</i>	<p>Competitive program provides funding for projects for Federal Lands Access Transportation Facilities with access on federal lands. Solicits for candidates and selects project for funding based on applications received.</p> <p>Assumption: TRPA will continue to receive funds based on historical competitive awards received and future project needs.</p>
<i>Highway Safety Improvement Program (HSIP)</i>	<p>Competitive program provides funds for transportation projects that strive to reduce traffic fatalities and injuries on all public roads. Solicits for candidates and selects project for funding based on applications received.</p> <p>Assumption: TRPA will continue to receive funds based on historical competitive awards received. Competitive award \$2 million every 4 years.</p>
<i>FTA 5307 Urbanized Area Formula Program</i>	<p>FTA formula-based program provides funding to states to support public transportation in urban areas.</p> <p>Assumption: TRPA will continue to receive funds based on historical apportionments.</p>
<i>FTA 5310 Enhancement Mobility of Seniors and Individuals with Disabilities</i>	<p>FTA Formula-based and competitive program intended to enhance mobility services for seniors and individuals with disabilities.</p> <p>Assumption: TRPA will continue to receive funds based on historical apportionments and competitive awards received.</p>

Federal Source	Base Year 2020. Annual Growth 2%.
<i>FTA 5311 Rural Area Formula Grants</i>	<p>FTA competitive program administered by the state DOTs that provides transit capital, planning, and operating assistance for rural areas.</p> <p>Assumption: TRPA will continue to receive funds based annual on historical awards received.</p>
<i>FTA 5339 Bus and Bus Facilities</i>	<p>FTA Formula-based and competitive program that provides funding for buses and related equipment and facilities.</p> <p>Assumption: TRPA will continue to receive funds based on historical apportionments and competitive awards received and future project needs.</p>
<i>FTA 5307 (CARES Act)</i>	<p>CARES Act provides funds to prevent, prepare for, and respond to COVID-19.</p> <p>Assumption: TRPA will receive one-time award.</p>
<i>FTA 5311 (CARES Act)</i>	<p>Nevada CARES Act competitive provides funds to prevent, prepare for, and respond to COVID-19.</p> <p>Assumption: TRPA will receive one-time award.</p>
<i>Other FHWA/FTA Discretionary Programs</i>	<p>Competitive programs where FHWA/FTA solicit for candidates and selects projects for funding based on applications received.</p> <p>Assumption: TRPA will compete well based on prior competitive awards received and future project needs.</p>

State Funding

State revenues are funneled down to regions through a variety of programs through apportioned formulas and competitive awards. California state funding is primarily derived from sales tax and fuel tax. Nevada state funds are derived from the gasoline tax. TRPA's state funding assumption is funds will continue to be allocated annually based on historic funding levels.

- SB1 Funding Programs

- Transportation Development Act
- Statewide/Regional Transportation Improvement Program
- State Cap and Trade Programs
- California State Highway Operation and Protection Program
- California State Funds

- Nevada State Funds
- Other State Discretionary Programs

Table 7: State Funding Sources

State Source	Base Year 2020. Annual Growth 2%.
<i>SB1 Funding Programs</i>	Senate Bill 1 provides formula and competitive funding for local streets and roads, transit and Intercity rail capital through increased transportation taxes and fees.
<i>State of Good Repair (STA fund)</i>	Assumption: TRPA will continue to receive funding based on historical apportionments and competitive awards received.
<i>Transportation Development Act (TDA)</i>	Program provides formula funding from sales taxes on fuel for transit investments. Assumption: TRPA will continue to receive funds based on historical apportionments.
<i>Statewide/Regional Transportation Improvement Program (STIP/RTIP)</i>	Program provides formula funding from the Local Transportation Fund and State Transit Assistance fund for transit investments. Assumption: TRPA will continue to receive funds based on historical apportionments.
<i>Low Carbon Transit Operations Program</i>	Bi-annual capital improvement program provides transportation funding for projects on and off the State Highway System. Assumption: TRPA will continue to receive fund share based on historical distributions.
<i>Affordable Housing Sustainable Communities</i>	State Cap and Trade program provides operating and capital assistance for transit agencies. Assumption: TRPA will continue to receive funds based on historical apportionments.
<i>California State Highway Operation and Protection Program (SHOPP)</i>	State Cape and Trade program provides funds for land-use, housing, transportation, and land preservations projects. Assumption: Tahoe Region expects to be competitive for one grant over the RTP planning horizon.
	Program provides state funding from the State Highway Account, Federal Trust Fund, and new excise tax on gasoline to maintain state roadway operational improvements.

State Source	Base Year 2020. Annual Growth 2%.
<i>California State Funds</i>	Assumption: TRPA will continue to receive funding based on historical distributions.
	State funding provides revenue derived from measures, bonds, and excise tax for transportation investments.
	Assumption: TRPA will continue to receive funding based on historical distributions.
<i>Nevada State Funds</i>	State funding provides revenue derived from Gas Tax, Tahoe Bond, and Nevada state parks for transportation investments.
	Assumption: TRPA will continue to receive funding based on historical distributions.
<i>Other State Discretionary Programs</i>	Competitive programs where the state solicits candidates and selects projects for funding based on applications received.
	Assumption: TRPA will compete well based on prior grant awards received.

Local Funding

Local revenue dollars are based on the historical level of funds provided by the City, Counties, mitigation fees and other local sources. Local funds provide the majority of non-federal match for transportation investments.

- Farebox Bus Revenues

- Air Quality Mitigation Fund
- Rental Car Mitigation Fund
- Local Government Agency Transit Funds
- Other Local Funding

Table 8: Local Funding Sources

Local Source	Base Year 2020. Annual Growth 2%.
<i>Farebox Bus Revenues</i>	Farebox revenues collected by transit operators from passenger fees. Inter-regional service and ferry service is assumed to generate Farebox revenue.
	Assumption: The Region will receive revenues from regional and ferry farebox generated fees.
<i>Air Quality Mitigation Fund</i>	Fee offset impacts from projects related to air quality: mobility, mobile source greenhouse gas emissions, and other identified travel concerns.

Local Source	Base Year 2020. Annual Growth 2%.
<i>Rental Car Mitigation Fund</i>	Assumption: TRPA will continue to receive funds in the method consistent with historical fees generated. Car rentals are assessed a mitigation fee of \$5.50 per day.
<i>Local Government Agency Transit Funds</i>	Assumption: Transit will continue to receive funds in the method consistent with historical fees generated. Local funds that help support transit infrastructure, service, and programs.
<i>Other Local Funding</i>	Assumption: Transit will continue to receive funds in the method consistent with historical distributions. Other Local funding is used for transportation infrastructure and programs. Assumption: Funding streams will continue to be maintained and support transportation infrastructure in the manner consistent with historical revenue distributions.

Private Funding

Private funding dollars will be generated from private operators collecting fares on water taxi and inter-regional transit services, and private contributions for ski shuttle and micro-transit services.

- North and South Ski Shuttle Private Partner

- North and South Tahoe Water Taxi Private Partner
- Inter-Regional Transit Private Partner
- North and South Shuttle (Micro-Transit) Private Partner

Table 9: Private Funding Sources

Private Source	Base Year 2020. Annual Growth 2%.
<i>North and South Ski Shuttle Private Partner</i>	Private Contribution for North and South Ski Shuttle. Assumption: Revenue estimate based on private transit cost.
<i>North and South Tahoe Water Taxi Private Partner</i>	Water ferry service in 2026. Assumption: Revenue estimate based on private transit cost.

<i>Inter-Regional Transit Private Partner</i>	Services coming to Tahoe in 2036. Assumption: Revenue estimate based on private transit cost.
<i>North and South Shuttle (Micro-Transit) Private Partner</i>	Micro-Transit Tahoe South Event Center service in 2022 and Incline Visitor Authority in 2026. Assumption: Revenue estimate based on private transit cost.

Tahoe Region Transportation Revenue Forecast 2021-2045

Table 10: Tahoe Region Transportation Revenue Forecast 2021-2045

<u>LOCAL SOURCES</u>	<u>2021-2025</u>	<u>2026-2035</u>	<u>2036-2045</u>	<u>Total</u>
<i>Farebox Bus Revenue</i>	\$1,863,916	\$5,985,310	\$95,583,109	\$103,432,335
<i>Air Quality Mitigation Fund</i>	\$1,539,355	\$3,576,038	\$4,359,170	\$9,474,563
<i>Rental Car Mitigation Fund</i>	\$619,304	\$1,438,689	\$1,753,754	\$3,811,747
<i>Local Government Agency Transit Funds</i>	\$15,704,189	\$33,213,010	\$34,510,907	\$83,428,106
<i>Other Local Funds</i>	\$20,345,587	\$22,196,096	\$27,056,917	\$69,598,599
<i>Regional Revenue</i>	\$0	\$218,994,420	\$266,952,976	\$485,947,396
<i>Operations and Maintenance</i>	\$57,936,638	\$134,591,169	\$164,065,883	\$356,593,690
<i>Prior Local Funds</i>	<u>\$2,355,695</u>	<u>\$0</u>	<u>\$0</u>	<u>\$2,355,695</u>
<i>Total Local</i>	\$100,364,684	\$419,994,731	\$594,282,716	\$1,114,642,131
<u>PRIVATE SOURCES</u>				
<i>Ski Shuttle Private Partner</i>	\$5,998,177	\$13,934,216	\$16,985,731	\$36,918,123
<i>Water Taxi Private Partner</i>	\$787,500	\$2,667,000	\$3,395,000	\$6,849,500

	<u>LOCAL SOURCES</u>	<u>2021-2025</u>	<u>2026-2035</u>	<u>2036-2045</u>	<u>Total</u>
<i>Inter-Regional Transit Private Partner</i>	\$0	\$0	\$21,899,442	\$21,899,442	
<i>Micro-Transit Shuttle Private Partner</i>	<u>\$2,656,227</u>	<u>\$16,302,397</u>	<u>\$17,151,879</u>	<u>\$36,110,502</u>	
<i>Total Private</i>	<u>\$9,441,903</u>	<u>\$32,903,612</u>	<u>\$59,432,052</u>	<u>\$101,777,567</u>	
<u>STATE SOURCES</u>					
<i>SB1 Funding Programs</i>	\$11,367,385	\$26,552,550	\$36,747,299	\$74,667,235	
<i>Transportation Development Act</i>	\$11,760,025	\$29,915,674	\$36,467,040	\$78,142,738	
<i>Regional Improvement Program (STIP/RTIP)</i>	\$2,040,000	\$10,828,567	\$14,393,602	\$27,262,168	
<i>Low Carbon Transit Operations</i>	\$1,162,478	\$2,700,525	\$3,291,925	\$7,154,928	
<i>Affordable Housing Sustainable Communities</i>	\$25,000,000	\$0	\$0	\$25,000,000	
<i>Safety Highway Operation and Protection Program (SHOPP)</i>	\$64,932,000	\$8,114,872	\$1,361,460	\$74,408,332	
<i>Other State Funds</i>	\$29,411,737	\$23,028,520	\$28,071,637	\$80,511,894	
<i>Prior State Funds</i>	<u>\$60,869,854</u>	<u>\$0</u>	<u>\$0</u>	<u>\$60,869,854</u>	
<i>Total State</i>	<u>\$206,543,480</u>	<u>\$101,140,707</u>	<u>\$120,332,962</u>	<u>\$428,017,149</u>	

	<u>LOCAL SOURCES</u>	<u>2021-2025</u>	<u>2026-2035</u>	<u>2036-2045</u>	<u>Total</u>
<u>FEDERAL SOURCES</u>					
<i>Surface Transportation Block Grant</i>	\$17,311,035	\$40,060,876	\$48,833,984	\$106,205,895	
<i>Congestion Mitigation & Air Quality Improvement Program</i>	\$7,518,521	\$17,399,221	\$21,209,553	\$46,127,294	
<i>Active Transportation Program</i>	\$3,069,743	\$8,265,832	\$10,750,110	\$22,085,685	
<i>Federal Lands Transportation Program</i>	\$15,789,528	\$7,000,000	\$0	\$22,789,528	
<i>Federal Lands Access Program</i>	\$40,600,000	\$0	\$0	\$40,600,000	
<i>National Highway Performance Program</i>	\$796,218	\$1,849,675	\$2,254,743	\$4,900,636	
<i>Highway Infrastructure Program</i>	\$3,391,889	\$7,879,614	\$9,605,205	\$20,876,709	
<i>Highway Safety Improvement Program</i>	\$8,215,400	\$10,000,000	\$10,000,000	\$28,215,400	
<i>FTA 5307 Urbanized Area Formula Program</i>	\$15,734,704	\$36,552,900	\$44,557,782	\$96,845,386	
<i>FTA 5310 Mobility of Seniors and individuals with Disabilities</i>	\$265,847	\$617,582	\$752,829	\$1,636,257	
<i>FTA 5311 Rural Area Grants</i>	\$11,147,054	\$25,895,445	\$31,566,403	\$68,608,902	

<u>LOCAL SOURCES</u>	<u>2021-2025</u>	<u>2026-2035</u>	<u>2036-2045</u>	<u>Total</u>
<i>FTA 5339 Bus and Bus Facilities</i>	\$21,594,201	\$11,224,823	\$14,770,525	\$47,589,549
<i>U.S. Forest Service</i>	\$24,900,000	\$0	\$0	\$24,900,000
<i>BUILD Grant</i>	\$50,000,000	\$0	\$0	\$50,000,000
<i>FTA 5307 (CARES Act)</i>	\$8,664,857	\$0	\$0	\$8,664,857
<i>FTA 5311 (CARES Act)</i>	\$2,100,000	\$0	\$0	\$2,100,000
<i>FAA Airport Improvement Program</i>	\$4,817,962	\$722,223	\$0	\$5,540,185
<i>Prior Federal Funds</i>	<u>\$20,951,547</u>	<u>\$0</u>	<u>\$0</u>	<u>\$20,951,547</u>
<i>Total Federal</i>	\$256,868,505	\$167,468,191	\$194,301,134	\$618,637,830
<i>Total Local/Private/State/Federal</i>	\$573,218,571	\$721,507,241	\$968,348,864	\$2,263,074,677
TOTAL	\$2,263,074,677			

APPENDIX D (NEW): INNOVATION IN TRANSPORTATION

Study Purpose and Need

Shared mobility and emerging technologies are changing perceptions of transportation, spawning new business models, and influencing individual transportation choices and behavior. These changes offer the potential to increase safety, multimodal connectivity and use of shared travel modes, while decreasing mobile source emissions and roadway congestion. Technology has been a key enabler of these innovations.

The Lake Tahoe Region's renowned natural beauty and wealth of seasonal recreation options drive both its economy and travel patterns. While recreational visitors arriving by car from surrounding metros like the San Francisco Bay Area and nearby Reno stimulate Tahoe's tourism-based economy, the demand these travelers place on local and regional roadway networks far outstrips supply. As surrounding regions continue to grow, travel times from Tahoe to the San Francisco Bay Area during periods of peak demand may take as long as 12 hours. However, because the Tahoe Region is committed to minimizing its impact on the natural environment and its overall environmental footprint, expanding highway capacity to accommodate this additional demand is not feasible. Likewise, fiscal and geographic constraints in the Tahoe Region along with limited ability to influence mode choice for trips originating in surrounding metros diminishes the ability of transit to alleviate seasonally peaked congestion within the Tahoe area.

As the Metropolitan Planning Organization (MPO) for the Lake Tahoe Region, Tahoe Regional Planning Agency (TRPA) recognizes a need to promote multimodal travel options and

Key Mobility Challenges in the Tahoe Region

- Severe congestion-related delays during peak seasonal and weekly travel demand periods
- Regional geography impedes connectivity
- Limited transit service
- Fixed road capacity
- Limited ability to influence mode choice for trips originating in nearby metros
- Telecommunications network gaps

explore next generation mobility options to help alleviate the Region's key mobility challenges while protecting Tahoe's natural environment. TRPA's commitment to "Transit, Trails and Technology" solutions is documented in its 2017 Linking Tahoe Regional Transportation Plan (RTP). Yet, the dynamic nature and rapidly changing pace of next generation mobility technologies demands special consideration, especially given Tahoe's unique geography.

With these considerations in mind, TRPA commissioned a study in the spring of 2019 to explore the ability of emerging transportation technologies to address longstanding mobility challenges in the Region. Further, the study sought to identify innovative approaches being used by peer regions to manage travel demand and encourage sustainable travel choices. This document synthesizes findings from this study by topic area, including:

- A brief explanation of the emerging technology or innovation including potential benefits and drawbacks as well as uses of the strategy in other resort and mountain towns

- Past applications of the strategy at Tahoe (as applicable) and potential opportunities
- Policy recommendations for the Tahoe Region based on the above considerations

Finally, this report provides suggestions to improve readiness to implement emerging and innovative transportation solutions at Tahoe from a planning perspective.

[Study Approach](#)

The project consisted of a stepwise approach where the consultant team: 1) determined research topics with promising applications at Tahoe in consultation with TRPA staff; 2) presented findings on those topics to TRPA staff in a series of knowledge transfer webinars; 3) presented key findings from this research to the Tahoe business community and other stakeholders at an interactive workshop; and 4) synthesized findings from steps 1 - 3 and provided recommendations in this report. Each step is explained in greater detail below.

Emerging transportation modes and innovative approaches for study were selected in close consultation with TRPA staff based on past the agency's experience with similar initiatives and perceived potential to address the Region's goals. The research sought to identify how peer agencies in rural or mountain resort towns have approached similar transportation challenges with these emerging and innovative transportation solutions, and included the following topics:

- Micromobility
- Microtransit

- Shuttles
- Automated Shuttles
- Incentives and Marketing
- Transportation Management Associations

Additionally, research was conducted on cross-cutting topics, including: 1) emerging approaches to mobility integration that seek to seamlessly match supply and demand across different modes and steps in a trip chain; and 2) analyzing infrastructure impacts and needs related to emerging technologies such as connected and automated vehicles. Research findings on these topics were presented to TRPA in a series of three webinars held in fall 2019.

On December 4, 2019, the consultant team presented key findings from this research at a workshop hosted at Lake Tahoe Community College⁶. The workshop was cosponsored by the Truckee North Tahoe Transportation Management Association (TNT/TMA) and the South Shore Transportation Management Association (SS/TMA) and focused on planned work to relieve traffic congestion, innovative and emerging transportation solutions for Tahoe, and the future of travel options at Lake Tahoe. Invitees to the workshop included a cross section of planning and business community stakeholders from around the Lake Tahoe Region. The figures below document workshop attendees' workplace locations and their industry representation.

⁶ The workshop presentation slide deck is available at:
<https://www.trpa.org/wp-content/uploads/1.-Emerging-Mobility-Overview-ICF.pdf>

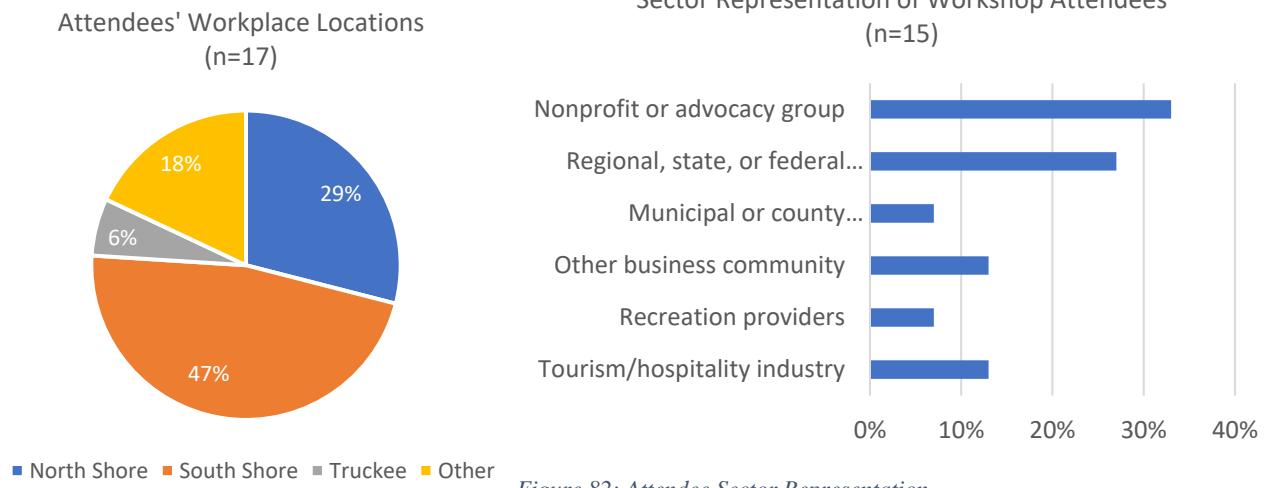


Figure 81: Attendee Workplace Breakdown

Live polling software was used throughout the presentation of key research findings to determine attendees' support for implementing the solution under review. In the case of micromobility, which has already been implemented at Tahoe, respondents were also asked to indicate how well they believed it was working at Tahoe.



Figure 80: Workshop Attendees in Facilitation Activity

Following the research takeaways presentation, attendees were asked to use the live polling software to tag locations on a map of Lake Tahoe that they believed represented the greatest areas of opportunity for applying the emerging and innovative transportation solutions

presented in the preceding part of the workshop. Next, attendees were asked to divide into North Shore and South Shore groups based on their respective affiliations. Once separated into groups, respondents were asked to participate in a visioning exercise that included development of responses to the following questions: 1) What solutions would they apply to improve congestion and lack of transportation options in their assigned areas during peak seasonal travel time in a fiscally unconstrained scenario? 2) How would they market the options developed in Step 1 to travelers?

The information and opinions collected during the workshop were then used to further refine and inform the synthesis of study findings and recommendations presented in the following section of this document. These findings and recommendations are presented by topic area, including a topic overview, potential benefits, and drawbacks, and uses of the solution in planning contexts like Tahoe's. Each topic also includes considerations of suitability and opportunity for the Tahoe Region. Where applicable past, present, and planned future applications of the solution at Tahoe are also discussed. Results of the workshop polls are also

presented in a callout box titled “TRPA Stakeholder Support” where available.

Findings and Recommendations

Micromobility

Lightweight low-speed vehicles that are often shared and electric.

Micromobility encompasses a variety of low-speed modes that typically serve one or two passengers and are booked and paid for through a mobile application. Dockless bikeshare and shared e-scooters are the two most common types of micromobility. The micromobility industry has grown rapidly since the arrival of dockless bicycles in the United States in 2017, with e-scooters since taking a dominant place in the industry with dockless bicycles largely retired. The exception to this trend has been pedal assist e-bikes, which have been successfully launched by private mobility service providers in several metropolitan areas. Rapid expansion of the micromobility sector, fueled in part by huge influxes of investment capital and acquisitions from large transportation network companies like Uber and Lyft, have been followed by recent contractions in lower-density markets. However, the shared electric moped sector has recently expanded its footprint while established modes like e-scooters have undergone recent vehicle form factor changes in certain markets (e.g., the addition of seats and larger wheels and tires).

Micromobility has been used to:

- Increased access to opportunities, goods, and services for short-distance trips
- Provide transit connections
- Provide active and non-polluting alternatives to short driving trips

- Provide recreational options for residents and visitors
- Encourage alternatives to driving alone and ride sourcing trips for residents and visitors

TRPA Stakeholder Support

Existing Micromobility

- Working Well: 39%
- Neutral: 33%
- Not working well: 17%
- Unsure: 11%

New Micromobility Options

- Very supportive: 76%
- Somewhat supportive: 12%
- Neither supportive nor unsupportive: 12%

Potential benefits and uses of micromobility in resort and mountain towns are numerous. However, several concerns have been raised. With respect to sustainability, studies have determined that e-scooters may only provide a net sustainability benefit when most trips are shifted from cars. Questions have also been raised about whether the lifespan of the e-scooter vehicles are sufficiently long and whether current micromobility business models adopted by private operators are financially sustainable. Additional considerations include access for unbanked users and those without smartphones who cannot book or pay for trips via the private service providers’ apps. Additionally, affordability and access to vehicles for low-income users and accessible design for persons with disability present further issues for consideration. Micromobility vehicle obstructions in public rights-of-way such as sidewalks may present further accessibility issues. Finally, e-scooter safety issues have been especially concerning with a number of

jurisdictions restricting operating times or banning their operations outright in response to such concerns.

At present, lack of open data limits and proprietary business information make some of these issues opaque (e.g., average lifespan for e-scooters). However, private service providers are taking steps to address some of the issues addressed above through steps like providing more accessible and durable vehicles, designating parking areas that avoid sidewalk clutter and obstructions, and providing payment alternatives and discounted programs for unbanked and low-income customers. Jurisdictions can encourage these steps by aligning regional goals with requirements and incentives in their permitting processes and performance reviews of permitted vendors.

Micromobility at Tahoe

Tahoe was an early adopter of micromobility. The micromobility company Lime debuted dockless bikeshare in South Lake Tahoe in 2017 and launched an e-scooter fleet in the same area

the following year. Analysis conducted with data on Lime's Tahoe operations in summer 2018 found that trips peaked in July and August, on the weekends, and at midday. Origins and destinations of Lime trips were concentrated on the US50 corridor near the border with Stateline. However, the exact nature of these trips – e.g., commute, recreation, etc. – is unclear. Following industry trends, Lime has subsequently decommissioned its bikeshare fleet in Tahoe and focused on its e-scooter operations. Although e-scooters have been heavily utilized throughout South Lake Tahoe, laws allowing the devices vary between jurisdictions. The Pathway Partnership, a local partnership of government agencies, nonprofits, and advocacy representatives, is actively working on an education campaign to clarify the various laws.

Recommendations

- Continue increasing extent and connectivity of bicycle and pedestrian infrastructure
- Continue evolving Complete Streets policies that support mode separation and high-quality active transportation infrastructure
- Continue work through the Pathway Partnership to clarify e-mobility regulations
- Consider implementation of “rolling lanes” that accommodate powered micromobility vehicles that operate at higher speeds than traditional active travel modes
- Encourage the use of safety, accessibility, and equity considerations in micromobility vehicle permitting processes and vendor reporting requirements
- Pursue public-private partnerships to increase shared micromobility options for visitors and commuters (e.g., e-bikes)
 - Ensure public-private agreements include data sharing requirements that support the region’s ability to measure performance relative to goals
- Monitor deployment of new micromobility options and consider potential of these options to serve travel needs in Tahoe

Microtransit

On-demand, dynamically routed transit systems.

Microtransit uses technology to provide on-demand, dynamically routed trips to multiple passengers using mid-sized vehicles like passenger vans and minibuses. Microtransit services may provide door-to-door service for customers or require them to make their way to common pick-up and drop-off points. Trip booking is typically available through an app or in some cases may also be available by phone.

In resort and mountain towns, microtransit has been used to:

- Improve congestion and parking conditions in dense or popular areas such as retail and entertainment districts, resorts, and popular recreation destinations such as beaches
- Provide transportation services to low-density areas
- Provide alternative transportation options to ride sourcing trips (Uber and Lyft)
- Connect to or replace fixed-route transit

The technology powering microtransit services can be outfitted for existing vehicle fleets, either privately or publicly owned. However, both options may represent a significant cost for agencies.

Microtransit at Tahoe

In 2018, South Lake Tahoe launched a microtransit pilot with the operator, Chariot. The pilot provided fixed-route service between South Lake Tahoe and Stateline that riders could book through a mobile application. The technology was capable of dynamic routing, but this feature was not used during the pilot period. The Chariot pilot provided important takeaways to inform

TRPA Stakeholder Support

New Microtransit:

- Very supportive: 83%
- Somewhat supportive: 17%

future microtransit programs in South Lake Tahoe, such as:

- Partnerships between local business owners and decisionmakers were important for the implementation and support of the pilot
- Interstate operation in California and Nevada was successful and established a precedent for handling multijurisdictional regulatory barriers
- Chariot was able to successfully hire local drivers in a short time-period, which is often an obstacle for successful microtransit operations
- The pilot provided valuable data regarding travel needs and behavior
- Connectivity with existing fixed-route transit is most successful when these services have frequent headways
- Public outreach may be needed to educate and inform the community regarding new transportation technologies and mobile applications
- Telecommunication network improvements are needed to provide reliable service outside core areas

Mountaineer has operated a microtransit service in the Squaw Valley and Alpine Meadows resort areas in North Lake Tahoe since 2018. The service, funded by a 1% assessment of lift tickets and lodging and vacation rentals at the two resorts, provides free rides to resort village residents, employees, and visitors seven days a week during the winter ski season. Mountaineer

is the locally branded service, but is powered by technology from the company Downtowner, which operates microtransit shuttles in resort and mountain communities in Colorado.

Mountaineer has expanded to operate other village shuttles in the area and will begin to operate the Olympic Village Inn shuttle in the 2019-2020 winter ski season. Further, Downtowner has plans to outfit the existing bus fleet with microtransit technology.

TRPA could encourage other resort shuttle services to adopt microtransit technologies such as those used by Mountaineer to provide a more cohesive transportation experience for their residents, employees, and visitors. Tahoe Transportation District fleet vehicles could also provide additional microtransit service during off hours such as weekend evenings if they were outfitted with the appropriate technologies.

Recommendations

- Pursue on-demand, dynamically routed microtransit operations to provide curb-to-curb service to travelers
 - Design contracts to allow operations to scale up or down in response to demand
- Expand microtransit partnership regionally; pursue similar partnerships with other resorts and other hospitality providers to provide seamless experience for residents and visitors throughout the region
- Consider possibilities to outfit existing midsized transit vehicles with microtransit technology (TransLoc, Etc.) to provide service during off hours in targeted areas, such as the US50 corridor on peak season weekend evenings

Shuttles

Traditional, on-demand or fixed-route transit system.

Shuttles provide regular transportation service between two locations or within a specified service area. In practice, shuttles may provide on-demand service, such as a resort providing a shuttle to transport a guest to a destination of their request, or they may provide more traditional, fixed-route transit, such as a shuttle between a designated pickup spot to a popular hiking trail or beach, with minimal stops at other designated pickup spots en route. Traditional shuttle buses are typically used but larger vehicles such as off duty school or transit buses or contracted coach buses may also be used for routes with higher demand. Shuttle passengers may be able to book rides beforehand by speaking to front desk services at a resort or visitors center or by calling a phone number. Notably the technology that allows microtransit to provide dynamic routing is being adopted by some traditional shuttle operations, in which case riders can book a ride through a mobile application.

- Shuttles have been used in resort and mountain towns to:
- Improve congestion and parking conditions in dense or popular areas by providing rides from resorts, central areas, and park and ride lots
- Provide transportation services to low-density areas or areas where transit does not operate (or operates during specific, restricted time frames)
- Provide alternative transportation options to ride sourcing trips (Uber and Lyft)
- Provide transportation to particular groups, such as resort guests, resort

employees, visitors or locals traveling to or from the airport or major transportation hub

TRPA Stakeholder Support

New shuttle(s):

- Very supportive: 94%
- Somewhat supportive: 6%

By providing a shared alternative, shuttles can help reduce parking demand and congestion. However, availability of these services may be limited to patrons or employees of the shuttle service sponsor. In cases such as these, marketing of alternative services such as bus routes, pooled ride sourcing trips, or other potential solutions discussed in this report may help alleviate the proprietary shuttle service challenges. Public-private partnerships could also be explored to broaden customer bases of these services to include the general public.

Shuttles at Tahoe

The Tahoe Region has benefited from a variety of shuttles that have been implemented by both public transportation agencies and private resorts, most of which are free to riders. There are also private companies that provide shuttle services to riders for a fee. Many resorts on the north and south shores have shuttles between the resorts, ski areas, and nearby towns, including stops at transit centers. North Tahoe operates the North Lake Tahoe Express between the Reno-Tahoe International Airport and North Tahoe/Truckee attractions and ski resorts. South Tahoe is served by the South Tahoe Airporter. The Tahoe Transportation District also operates seasonal shuttles to recreation destinations with limited parking, such as the East Shore Express to access Sand Harbor, which has seen dramatic increases in ridership over the past four years. However, financial constraints to local public

transportation ended service between South Lake Tahoe and Emerald Bay, one of the most heavily visited spots at Tahoe.

The North Shore has experimented with allowing hard shoulder running for transit vehicles to avoid delays and congestion when regular traffic on the two-lane highways has fallen below a certain speed. Developing policies and regulations that allow shuttles to travel on the shoulders throughout the Region when travel speeds fall below a certain threshold would further incentivize travelers to choose shuttles as a faster option to reach their destination and might encourage the expansion of shuttle services to recreation destinations.

The Tahoe Region has many opportunities to expand partnerships with resorts to provide more shuttle services to residents and visitors, including on-demand shuttles equipped with technology for dynamic routing, like the Mountaineer service already in operation in North Tahoe. Additionally, service of existing airport shuttles could also be improved to encourage more ridership through

improvements such as more frequent service. Such improvements should also be accompanied by marketing efforts to inform travelers of their options for travel to and from the Reno airport. Marketing improvements might lead to increased ridership and help offset additional service and marketing costs. The Tahoe Region might consider developing remote park and ride lots on busy roads into Tahoe to encourage drivers to avoid congestion by parking their vehicles at no cost and taking complimentary shuttles to their destinations in more congested town centers and resort areas.

Recommendations

- Expand seasonal shuttle operations to recreation destinations and equip shuttles to carry gear (e.g. mountain bikes, skis, and snowboards)
- Provide shuttle services from remote park and ride lots to resort and other hospitality providers at no cost to user
- Encourage shuttle services to consider integrating on-demand, dynamic routing technology, such as that used by Mountaineer
- Permit authorized shuttle services to run on hard shoulders during periods of congestion
- Improve existing airport shuttle service between Reno-Tahoe International Airport and both North and South Shores with reduced headways and more service to resort and hospitality providers
 - Begin conversations with South Lake Tahoe resorts and other hospitality providers about potential partnership to increase marketing of South Shore Airporter, possibly through South Shore TMA, similar to Truckee North Shore TMA shuttle marketing

Automated Shuttles

Low-speed driverless vehicles operating on fixed or dynamic routes.

Automated shuttles are a rapidly developing technology. Current deployments operate at cruising speeds of 10 - 12 miles per hour and can typically carry 10-15 passengers, with seating for 4-8 riders. They can travel 30 - 60 miles or 5-10 hours on a single charge, but extreme weather conditions (both hot and cold) may reduce this range. Current deployments are fully automated, yet they are only able to operate in limited conditions and they will not operate unless all those conditions are met. Therefore, they typically operate in highly controlled environments such as campuses or business parks.

Automated shuttles have not yet been used in mountain and resort towns. However, there is research and development underway to advance automated shuttle technology for winter conditions to improve operations in snowy and icy conditions. Benefits of automated shuttles include potential efficiency improvements and high frequency service with lower operational costs than traditional alternatives. However, at present the vehicles are costly and requirements

that mandate an on-board safety technician may offset these potential cost and efficiency gains.

TRPA Stakeholder Support

New automated shuttle(s):

- Very supportive: 42%
- Somewhat supportive: 32%
- Somewhat unsupportive: 16%
- Very unsupportive: 11%

Automated Shuttles at Tahoe

Automated shuttles could provide circulator-type service for short trips in areas of high demand. They can be equipped with technology to provide dynamic routing service once the technology advances to the point that the automated shuttles could operate in a wider array of environmental conditions. At this point, with the expense of implementing automated shuttles and the current state of technological maturity, they are not advisable for implementation in Tahoe. However, the Region should continue to monitor deployments of automated shuttles in regions with similar planning contexts and consider potential opportunities as the technology matures and costs decrease.

Recommendations

- Monitor adoption of automated shuttles in resort and mountain towns and in areas with harsh winter weather conditions.
 - Consult with peer regions who have adopted automated shuttles regarding cost, procurement, planning, and operational considerations
 - Consider sustainability of business and operational models when consulting with peer regions
- Consider potential for efficiency gains alongside labor and workforce implications
 - Requirement for vehicle attendant may negate efficiency gains when compared to shuttle/microtransit options that require a driver
- Consider whether fixed or dynamic routing best serves travelers
 - Dynamic routing requires an effective platform for trip planning and payment

Incentives and Marketing

Providing information to travelers about sustainable transportation options and encouraging travelers to choose more sustainable transportation modes.

Transportation demand management (TDM) programs focus on understanding how and why people make transportation decisions in order to help them use the infrastructure that is already in place for transit, ridesharing, walking, biking, and driving, rather than relying on new, often more expensive, infrastructure to solve congestion. Incentives and marketing are two common strategies of TDM programs, which are often managed by locally or regionally oriented public organizations to inform people about and encourage them to use all of their transportation options in order to optimize the entire transportation system for all users. Incentives might include free or discounted transit, employer or hospitality subsidies, reimbursements, pre-tax payroll reductions. These programs may also include disincentives such as parking management programs and congestion pricing. Marketing of commuter options and incentives may include print and digital media as well as programs aimed at specific stakeholder groups such as employers.

TDM incentives and marketing strategies have been used in resort and mountain towns to:

- Improve congestion and parking conditions in dense areas or during peak times
- Provide traveler information about existing, new, or altered transportation options
- Encourage travelers to choose sustainable transportation modes when possible

- Support local business through partnerships and rewards that drive business to local products and services

TRPA Stakeholder Support

New marketing and incentives:

- Very supportive: 88%
- Somewhat supportive: 6%
- Neither supportive nor unsupportive: 6%

Marketing and incentives programs for resort and mountain towns must consider the targeted audience and whether certain programs aim to influence the behavior of commuters, visitors, or both. While marketing and incentives programs may offer benefits like those listed above, some strategies may be expensive to implement, while others may be unpopular if the benefits are not clear. To alleviate public discomfort with new programs, trial periods that demonstrate the effectiveness of proposed solutions can help allay some of these concerns.

Incentives and Marketing at Tahoe Opportunities

TRPA's [Linking Tahoe website](#) is an important marketing tool for the Tahoe Region. The website is a one-stop-shop for travel options throughout the Lake Tahoe Basin, providing links to transportation services and ways to travel to and from the Tahoe Basin. The program is a strong start to increase public awareness of travel options for people to get to, from, and around the Tahoe Basin and encourage more people to walk, bike, use transit, take water shuttles, and choose off-peak times to drive to better manage congestion on the Region's roads. Linking Tahoe's [Commute Tahoe Program Guide](#) identifies many strategies for employers to establish a commute program and encourage employee participation in sustainable transportation modes of travel.

TRPA should continue to develop Linking Tahoe materials and advertise the Linking Tahoe website and Commute Tahoe programs through hospitality providers and other employers, as well as through print and digital media targeting residents, employees, and guests. TRPA can develop a “toolbox” of marketing materials with sample social media and website text and images and update content on a regular basis or in the case of planned special events so that hospitality providers and other employers and other partner organizations throughout the Region can support the goals of Linking Tahoe. The Tahoe Region could also consider developing a comprehensive parking management program

for everyday parking, seasonal parking during peak periods, and parking for special events. The program might consider park and ride facilities, priced parking in congested corridors, and policies to protect residential parking, such as through a permitting process.

Transportation Management Associations (TMAs) are valuable partners when developing, marketing, and launching incentives and marketing strategies. TRPA should utilize the resources of the Truckee North Tahoe TMA and South Shore TMA to expand the reach and influence of Linking Tahoe materials.

Recommendations

- Continue to develop and update Linking Tahoe outreach materials to provide holistic travel resources for residents and visitors
 - Partnership with TMAs to disseminate Linking Tahoe materials to hospitality providers and other employers
 - Provide a “toolbox” of marketing materials for hospitality providers and other employers to present available travel options
- Develop partnerships with visitors’ authorities at the local or state level to coordinate on marketing campaigns and to elevate Linking Tahoe resources
- Consider policies for hospitality providers and other employers to provide bus schedules and alternative transportation options and display Linking Tahoe materials on website and physical copies on location
- Consider providing information about Linking Tahoe and promoting benefits of shared and sustainable travel options on dynamic message signs during peak seasons and special events
- Promote the development of a parking management program
 - Include permanent or temporary park and ride lots for peak season travel and special events with supportive shuttle services
 - Develop parking management plans that include provisions for special events such as Fourth of July, New Year’s Eve, or recurring events such as golf tournaments or winter sport competitions
 - Consider trial period for policies such as on-street parking price increases, residential parking permit programs, free off-street parking, and park and ride programs that can demonstrate the effectiveness of these solutions without requiring a permanent or lasting commitment

Transportation Management Associations

Organizations that provide employers and travelers within a specific area with options and information that advocate for sustainable transportation decisions.

The structure of Transportation Management Associations (TMAs) is largely dependent on the context of the areas that these organizations serve and factors such as funding. TMAs are focused on a specific geographic area, which might be as small as a business park or as large a multi-county region. They are usually supported by local government and businesses. The work of TMAs varies widely, but TMAs in other resort and mountain towns have focused on the following:

- Advocating for transportation modes that reduce traffic, such as transit, carpool, bike, and walk options, through incentive programs targeted at employers and commuters
- Hosting and supporting community events that encourage sustainable transportation
- Managing websites and mobile applications for trip planning and reward programs

TMAs might support local or regional implementation of some of the pilot strategies discussed in this report, such as marketing campaigns and incentives programs, coordinating partnerships to expand or implement shared transportation options such as microtransit or shuttle services, or undertake education and advocacy campaigns to promote these options. While TMAs offer benefits such as those outlined above, they are often reliant on local funding resources, which can be

significantly constrained in less populous regions.

TMAs at Tahoe

The Tahoe Region is home to two TMAs: Truckee-North Tahoe TMA (TNT/TMA) and South Shore TMA (SS/TMA). SS/TMA is currently undergoing a board restructuring process to better serve the South Shore. TNT/TMA promotes and advocates for innovative transportation solutions and is focused on fostering public-private partnerships and other resources to support these solutions. TNT/TMA organizes stakeholder meetings to convene public and private interests around transportation options, contracts the management of the North Lake Tahoe Express shuttle between the North Shore Resort Triangle area and the Reno-Tahoe International Airport, and coordinates shuttle/transportation marketing sponsorship opportunities.

A strong partnership between the North Shore and South Shore TMAs could develop greater regional cohesion around transportation options and marketing to visitors, residents, and employees. TNT/TMA has successfully leveraged community resources to support marketing of the North Lake Tahoe Express airport shuttle. Increased collaboration between the two TMAs could possibly help SS/TMA implement similar marketing initiatives with material support from South Shore resorts and other hospitality providers.

The focus and work of TMAs can be restricted due to funding constraints and the local transportation environment. Federal Congestion Mitigation and Air Quality (CMAQ) program funds that can be granted by TRPA to SS/TMA are limited. However, TRPA can support growth of TMAs by using their position as a convening body and encouraging the North and South

Shore TMAs to advance their role as providers of transportation options to travelers at Lake Tahoe and partners with hospitality providers and other employers.

Recommendations

- Expand and build capacity in TMAs to develop public-private partnerships that support new transportation initiatives such as micromobility, microtransit, shuttles, and incentives/marketing
- Develop strong partnership between North Shore and South Shore TMAs through jointly coordinated, regular meetings of regional transportation stakeholders
- Manage partner list of transportation stakeholders including hospitality providers and other employers to designate marketing duties
 - Disseminate Linking Tahoe marketing “toolbox”
 - Disseminate information about special events regarding transportation services such as event or recreation-specific shuttles, microtransit, parking restrictions, park and ride services and complimentary shuttles
- Explore funding resources for TMAs (especially SS/TMA)
 - TRPA can consider providing a marketing budget to TMAs to further these organizations' marketing strategies

Planning Considerations

This section of the report examines cross-cutting considerations for emerging and innovative transportation in Tahoe from a planning and implementation perspective. In doing so, this section seeks to support a strategic approach to capital investments, funding, and partnership building as well as institutional preparedness to implement existing solutions and future ones.

Mobility Integration

Mobility integration is a rapidly emerging concept that seeks to match supply and demand for public and private transportation services in each environment to provide holistic end-to-end journeys on a single charge. Mobility integration is accomplished by stacking technologies such as journey planning, real-time information, and mobile ticketing with on-demand mobility options including those offered by public and private service providers.

In Europe, mobility integration is often referred to as Mobility as a Service (MaaS) and may include payment models that bundle services to offer consumers a range of alternative mobility options on a subscription basis. For example, consumers may be given unlimited access to transit, bike sharing, and pooled ridesharing trips for \$500/month. However, some MaaS implementations have followed a “pay as you go” model that allow consumers to select and pay for the combination of modes in their journey as needed.

The term Mobility on Demand (MOD) is used by the US Department of Transportation (USDOT) to represent its vision for future mobility. MOD envisions fully accessible end-to-end journeys that improve mobility options for all travelers

and seamless delivery of goods and services on demand. MOD leverages innovative technologies such as mobility integration technology stacks and facilitates public-private partnerships to achieve this vision. USDOT’s MOD program has offered several funding opportunities to advance this vision including the [Mobility on Demand Sandbox Program](#), which awarded \$8 million in funding to 11 sites across the nation for eligible activities “[including] all activities leading to the demonstration of the innovative MOD and transit integration concept, such as planning and developing business models, obtaining equipment and service, acquiring/developing software and hardware interfaces to implement the project, and operating the demonstration⁷. In 2019, USDOT announced the availability of \$15 million in [Integrated Mobility Innovation \(IMI\) Program funds](#) that sought to further advance MOD, transit automation, and mobility payment integration. USDOT’s MOD program and related initiatives such as its [Accessible Transportation Technology Research Initiative \(ATTRI\)](#) and [Strategic Transit Automation Research \(STAR\)](#) programs represent important funding opportunities for regions such as Tahoe to further advance emerging concepts like mobility integration.

At present, mobility integration in the United States is limited to developing platforms like those offered by [Transit App](#) and proprietary journey planning and mobile ticketing platforms like those offered by Uber and Lyft that promote the companies’ respective bundles of mobility services to users. As the technology stacks facilitating mobility integration mature and the benefits are embraced by greater numbers of consumers, Tahoe should begin to consider how it can align the benefits of this concept with the

⁷ <https://www.transit.dot.gov/research-innovation/mobility-demand-mod-sandbox-program>

Region's policy objectives. Important considerations include access to digital platforms for those without smartphones and payment issues for those who are unbanked. Additionally, special consideration should be given to making these platforms easy to use for Tahoe's visitors and integrating them with the Region's overall TDM efforts. Further, gaps in Tahoe's telecommunications networks should be addressed to facilitate mobility integration and use of other app-based mobility services.

Infrastructure

Long-range planning for capital investments like highway and multimodal infrastructure often looks decades into the future. However, recent disruptions in the transportation sector have challenged assumptions about mode split and travel behavior underlying these activities. Accordingly, many states and regions have been challenged to understand future transportation networks needs in this climate of rapid change.

From an infrastructure planning and operations perspective, several key considerations have emerged. First, growth in e-commerce and ride sourcing trips have increased demand for curb space. Second, the introduction and rapid growth of e-scooters and other types of micromobility have introduced a new set of vulnerable road users to the nation's roadways. Finally, these new set of vulnerable road users and the emergence of automated and connected vehicles are resulting in new road user classes with unique needs. Planning for this diverse and rapidly shifting set of circumstances is challenging. However, by pursuing "no risk" strategies for infrastructure that will benefit all users regardless of the path and pace of change, agencies can help prepare for the future while supporting safe and efficient travel for today's road users.

Effective plans and strategies for managing curbside demand, including steps such as designating fixed or flexible loading and pick-up/drop-off zones, can help alleviate congestion and avoid fragmentation of bicycle and pedestrian networks. Curbside management resources are available from organizations like Institute of Transportation Engineers (ITE) and National Association of City Transportation Officials (NACTO) to help inform these approaches.

To support safe and efficient travel by active travel modes like micromobility, Tahoe can continue to build on its trail network and provide high-quality, low-stress facilities that are protected and segregated by use. For example, new classes of high-speed micromobility vehicles may require dedicated lanes to avoid conflicts with human-powered active travel modes like traditional bicycles. Tahoe can also adopt policies such as Complete Streets and Vision Zero, which support safe, comfortable, and convenient travel for all users regardless of their mode. Some jurisdictions have leveraged such policies to mandate the construction of facilities that align with these principles when roads are improved.

Mode separation will also help advance operations of automated vehicles (AVs). Research has demonstrated that automated driving systems (ADS) are especially challenged by dynamic transportation environments that include vulnerable road users like pedestrians and bicyclists (the latter has proved to be especially challenging for these systems). By providing clearly demarcated and well-maintained facilities for active travel, Tahoe can support both current and future travel by vulnerable road users such as bicyclists and help to minimize ADS disengagements. In a similar vein, research has shown that AV operations are

supported by a state of highway good repair that can help minimize damage to expensive sensor suites that constitute the ADS. Research has also shown that AV operations are improved with quality and consistency of traffic control devices such as signage and lane markings. The Federal Highway Administration (FHWA) and other research and advisory bodies such as the National Cooperative Highway Research Program (NCHRP) are working to provide guidance to infrastructure owner operators to support greater quality and consistency of roadway infrastructure as well as other infrastructure considerations for AV deployment. In the meantime, Tahoe can adopt “no risk” strategies like those that promote mode separation and state of good repair that will benefit all road users regardless of which path unfolds.

Partnerships

Public-private partnerships and interagency partnerships are crucial to advancing emerging and innovative transportation in Tahoe. The role of Tahoe’s TMAs in fostering partnerships with the private sector and the role of TRPA as a convening body to foster interagency partnerships were discussed earlier in this report. Some additional opportunities are discussed below.

To support Mountaineer microtransit operations at the North Shore, representatives from Squaw Valley and Alpine Meadows established a Tourism Business Improvement District (TBID) to manage the contract with Downtowner for the technology. If Tahoe seeks to expand a service like Mountaineer regionwide it may wish to consider steps to encourage established TBIDs to pursue similar projects or to facilitate the formation of new TBIDs where a need for these services exist, but a convening body is lacking. Alternately, the TMAs could assume

responsibility for a regionwide role in contracting for these services.

A strong partnership with Tahoe Transportation District (TTD) and Truckee Area Regional Transit (TART) will be important for the success of any new transportation options because fixed-route transit remains the most successful and efficient way for agencies to provide transportation services. Many of the strategies outlined in this document highlight fixed-route transit options and the ability for micromobility, microtransit, and shuttles to connect to transit strengthens the entire transportation system.

Stakeholders in Tahoe demonstrated strong support for additional micromobility options at the December 4th, 2019 workshop. However, because the Tahoe Region’s population is small, travel demand is seasonal in nature, and connectivity is impeded by the area’s geography, there may be a limited business case for deployment of additional options. Public-private partnerships such as the one that brought Pace bikeshare to the North Shore may be a feasible option to provide modes like shared pedal assist e-bikes to Tahoe, which may be better suited to the topography and climate of Tahoe than traditional bikes and e-scooters. Partnerships with resorts and other hospitality providers who may benefit from increasing commute options for employers and visitors are one potential avenue for exploration.

Planning for Innovation

Innovation comes with inherent cost and risk. Accordingly, public agencies that wish to reap the benefits of emerging and innovative transportation solutions must be willing to use pilots, demonstrations, and trial periods to test these new approaches with the understanding that some may fail or require further refinement and iteration. Including dedicated funds for

pilots and demonstrations in TRPA's long-range plans and programs can help support this approach. Similarly, trial periods can demonstrate potential value of innovations with minimal risk.

Next Steps

The findings and recommendations in this document are presented for the Region's consideration as it begins to develop the 2020 RTP. However, the financial and operational feasibility of each recommendation merits further study and consideration by local stakeholders. TRPA can build on the visioning exercise conducted at the December 4th, 2019 workshop by conducting a multi-day charrette including a representative group of regional stakeholders and subject matter experts. The figure below, which represents areas in the Tahoe Region that workshop participants believed to be most promising for emerging and innovative transportation solutions, as well as other feedback gathered from that workshop can provide jumping off points for that exercise.

Additionally, TRPA may wish to conduct visitor surveys to better understand this group's willingness to use and pay for proposed solutions. New platforms like those offered by the mobile survey company MFour allow survey administrators to set geofences around select areas and to push mobile surveys to users who enter those geofenced areas. These platforms may be a good supplement or alternative to traditional mail or intercept surveys and provide valuable insights about which strategies may produce the greatest return on investment for TRPA, its partners, and the Region.



Figure 83: Map of emerging and innovative transportation "opportunity areas" from the stakeholder workshop.

APPENDIX E: PUBLIC PARTICIPATION, CONSULTATION, AND COOPERATION

Public Participation Overview

Public participation includes gathering input from the public, including the Region's residents, visitors, and employees, as well as from stakeholders and partner agencies. A variety of outreach strategies and tactics are utilized by TRPA to ensure all relevant stakeholders are provided an opportunity to help shape the transportation system. The input received through the planning process for the plan and the multiple supporting plans informed this regional transportation plan.

Considering the Needs of All Transportation System Users

The investments proposed in the plan aim to better connect jobs, services, and recreational opportunities for all residents, workers, and visitors regardless of age, race, income, national origin, or physical ability.

To ensure input from a large and broad range of residents and visitors, TRPA followed the guidelines of the 2019 Lake Tahoe Public Participation Plan, developed in accordance with federal and state requirements.

Title VI of the Civil Rights Act states that "no person in the United States, shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance." In 1994, this requirement was expanded to include low-income populations.

Both federal and state laws have continued to advance the cause of social equity, also known as environmental justice, through numerous guidelines and orders. Environmental Justice as defined by FHWA means "identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority and low-income populations to achieve an equitable distribution of benefits and burdens. This includes the full and fair participation by all potentially affected communities in the transportation decision-making process."⁸

The proposals in the plan support social and environmental justice and TRPA's Title VI Plan adopted in September 2018.

TRPA has worked to increase outreach to and communication with traditionally underrepresented and underserved populations to understand their needs of the transportation system. For example, with the Region home to one Tribal Government, the Washoe Tribe of California and Nevada, staff conducted one-on-one consultation with the Washoe Tribe for the plan, as well as for supporting plans and projects. The Tahoe Region also has a large Hispanic and non-white population that is traditionally missed by standard outreach practices. TRPA has worked to increase the number of outreach materials available in Spanish and staff make direct effort to meet underserved communities where they are at, including attending Cafecitos meetings (Hispanic PTA), the Family Resource Center in the South Shore and the Community

⁸ California Transportation Commission, 2017.

Collaborative in the North Shore, and local Boys and Girls Clubs.



Figure 84: Outreach flyer in English and Spanish

As the RTP moves from policy to development and implementation, additional engagement with the public and stakeholders will occur. Adverse environmental and health impacts on

Table 11: Community Meetings

Occurrence	Organization	Audience Type
Weekly	Bonanza Community Roundtable	Residents/Media
Ad Hoc	Cafecitos South Lake Tahoe	Spanish Language Parent-Teacher Group
Monthly	California Tahoe Emergency Services Operations Authority	South Tahoe Emergency Services
Monthly	Community Health Advisory Committee	Community/Advocacy
Monthly	Community Mobility Group Meeting	South Tahoe Community/Advocacy
Monthly	Incline Village Crystal Bay Visitors Bureau	Business and Tourism Community

the communities of the Region, including underrepresented and underserved, will continue to be considered and analyzed.

Outreach Activities

Outreach to the community and partners is an ongoing process that uses a variety of activities. The outreach activities described below were used for the plan and reflect public and partner preferences identified through prior outreach.

The COVID-19 pandemic and related restrictions made many traditional outreach channels, such as booths at events, not feasible for much of the RTP update process. Staff was able to engage with the public and stakeholders in person in late 2019 and early 2020. To ensure outreach and public participation was not compromised during COVID-19, digital and alternative outreach methods were implemented post-shelter-in-place orders.

Proactive Outreach: Staff attends and presents at monthly, quarterly, and ad hoc community and association meetings, and participates in public events. However, because of Covid-19, public events were cancelled in 2020.

<i>Ad Hoc</i>	Lake Tahoe Bicycle Coalition	Community / Advocacy
<i>Ad Hoc</i>	Lake Tahoe Collaborative	South Tahoe Community/Advocacy (families and children)
<i>Monthly</i>	Lake Tahoe South Shore Tahoe Chamber of Commerce	Business Community
<i>Ad Hoc</i>	Lake Tahoe Unified School District	Community/School Board
<i>Monthly</i>	Lake Tahoe Visitors Authority	South Tahoe Community (business)
<i>Ad Hoc</i>	Meeks Bay Vista Property Owners Association	Community/HOA
<i>Monthly</i>	North Lake Tahoe Resort Association	Business Community
<i>Ad Hoc</i>	North Shore Breakfast Club	Business Community
<i>Monthly</i>	North Shore Social Services Transportation Advisory Council	North Tahoe Community (disadvantaged community members)
<i>Monthly</i>	Pathway Partnership	Advocacy
<i>Ad Hoc</i>	Plan / Study Community Meetings	Regional Community
<i>Ad Hoc</i>	Resort Triangle Transportation Vision Coalition	Business Community
<i>Ad Hoc</i>	Soroptimist International of Tahoe Sierra	South Tahoe Community
<i>Ad Hoc</i>	South Shore Rotary	Service Club
<i>Monthly</i>	South Shore Social Services Transportation Advisory Council	South Tahoe Community (disadvantaged community members)
<i>Monthly</i>	South Shore Transportation Management Association	South Tahoe Advocacy
<i>Ad Hoc</i>	South Tahoe High Climate Crew	South Tahoe Community (students)
<i>Monthly</i>	Truckee North Tahoe Transportation Management Association	North Tahoe Advocacy
<i>Weekly</i>	Bonanza Community Roundtable	Residents/Media
<i>Monthly</i>	California Tahoe Emergency Services Operations Authority	South Tahoe Emergency Services

Education & Encouragement Programs:

Community members and visitors stay involved, are better informed, provide important

feedback, benefit from the plan's programs, and confidently make transportation choices when they are given the information and

encouragement they need to do so. Education and encouragement programs are offered through partnerships with state departments of transportation, local jurisdictions, law enforcement, advocacy groups, and local organizations. For example, the Lake Tahoe Bicycle Coalition works with TRPA and other local and regional partners to host the June Lake Tahoe Bike Challenge. The Bike Challenge encourages and rewards people in the Region when they bike for daily travel instead of driving. In response to Covid-19, the 2020 Bike Challenge was held for the entire month of June and recognized and rewarded riders for distance, encouragement of others to ride, as well as for riding with kids. Over 300 participants logged 45,442 miles on bikes keeping 1,854 pounds of Carbon Dioxide out of the environment.

Promotional Materials: TRPA uses promotional materials, such as brochures, magnets, stickers, flyers, and fact sheets, to reach those who might not be online or prefer printed materials. These materials are passed out during workshops, at association meetings, events, at local businesses, and sent through mail.

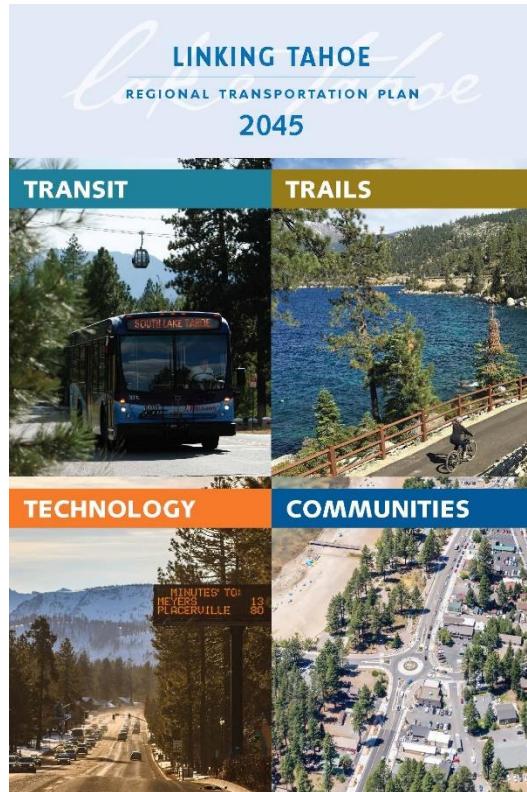


Figure 85: RTP Promotional Card

Translation Services: The second most common language spoken in the Region is Spanish. To ensure the plan reached Spanish speaking members of the community, public outreach materials, fact sheets, and executive summaries were translated into Spanish and project and planning meetings had a Spanish language translator in attendance.

Outreach Techniques

Effective engagement of the community and TRPA partners is accomplished through a variety of approaches. Some outreach may require a combination of approaches. These techniques were used for the plan's public participation efforts.

Charrettes: Charettes typically focus on design and corridor improvements by asking stakeholders to brainstorm ideas and draw on maps to generate and develop project designs.

This tool is powerful for generating enthusiasm and building consensus because the public makes a direct mark on projects.

Field Audits: Road Safety Assessments or “walkabouts” bring the public onto the transportation system to encounter the challenges that need solutions. This first-hand experience leads to brainstorming solutions, which is particularly successful when used in conjunction with charrettes or for more controversial projects where solutions and consensus may take more time and innovation.

Monthly Newsletter: The monthly newsletter is one of the primary ways that TRPA provides updates to the public with news, events, and ways to provide input. In 2020, the newsletter had over 1,600 subscribers.

Open Houses: This format is the most used outreach technique. Open houses are held at a place and time that is comfortable and convenient for the public to attend and interact with the variety of information they need to learn and provide input on a plan, project, or program. Open houses can include interactive activities, such as voting on preferred project alternatives. Just before the COVID-19 shelter-in-



place orders, TRPA conducted two open houses (North and South Shore) for the SR-89 Corridor Plan with over 90 total people attending.

Pop-Up Booths: Pop-up booths are placed at well-traveled community locations such as grocery stores, coffee shops, and schools and are timed to catch the public as they go about their daily activities. These provide those who would not typically attend an open house the opportunity to learn and provide input in a quick and convenient way. TRPA participated in a pop-up booth event to do outreach to the Rock Point Neighborhood (low income and mainly Hispanic) for the Main Street Management Plan. To reach

Figure 86: Participants at SR-89 Open House

more people, flyers in English and Spanish were handed out door to door. Free pizza and drinks were also provided to incentivize attendance.

Public Meetings and Workshops: Public meeting and workshops are the most traditional outreach method. These use interactive activities and provide various locations and times. Federal regulation (CFR 450.316(1)) requires these to include the use of visualization techniques such as renderings, computer simulation, and real-time voting.

Quantitative Outreach/Surveys: Surveys ensure all travelers in Tahoe are reached, including visitors, residents, commuters, second homeowners, and underrepresented community members. Surveys may be online or printed. Depending on the type, surveys may be mailed, provided at events and meetings, or hosted online. In-person intercept surveys are used to gather information from people as they are walking, biking, and riding transit. These surveys capture the various types of travelers at diverse locations, for example near businesses and at popular recreation sites, and from multiple locations throughout the region, for example on the North, South, East, and West shores. Surveys help to understand the travel behavior and decision-making process of transportation users throughout the Region.

Websites and Interactive Tools: Various websites and interactive tools make it easier for the public to find transportation information:

www.linkingtahoe.com is a partnership between TRPA and TTD to provide links to regional-level transportation plans and projects, all of which are considered part of the RTP. This website also provides information on public input opportunities and a sign-up option for the monthly newsletter.

<http://www.trpa.org/rtp> is an interactive website specifically developed for the plan. A similar format site was developed for the 2017 RTP at <https://www.trpa.org/regional-plan/regional-transportation-plan/>. These sites are highly visual and a user-friendly resource for learning and providing key information.

www.Laketahoeinfo.org is an interactive site that provides information via dashboards, detailed demographic data sets, monitoring and performance data, and the regional Environmental Improvement Program Project Tracker, which includes all transportation projects on the constrained and unconstrained list.

Site Walks and Tours: Seeing is believing. TRPA staff works with a variety of partners to conduct site walks and tours during project planning. Each site walk is unique so that focus is on the specific strengths, needs, and opportunities of each project area.

Social Media: TRPA uses social media tools, like Facebook, Twitter, and other platforms, to provide information to the public, conduct education campaigns, and seek their inputs and

ideas for meaningful decision making in transportation planning and projects.

Webinars: Webinars are an effective way to reach the broadest audience possible—in Tahoe that means year-round and seasonal residents as well as those who visit for recreation and vacation. Since the Covid-19 pandemic, TRPA has successfully used webinars to inform and engage the public for transportation and corridor planning processes, gaining over one hundred participants for each webinar.

Public Participation Plan

In accordance with federal and state requirements, TRPA maintains and regularly updates its public participation plan which outlines the process for providing citizens, affected public agencies, advocacy organizations, and all other stakeholders with reasonable opportunities to be involved in the transportation planning process, including the plan's Sustainable Communities Strategy.

The 2019 Public Participation Plan outlines standard activities and specific outreach tools that can be utilized based on project and target group type for both the RTP and its Sustainable Communities Strategy. TRPA tracks the effectiveness of outreach strategies to ensure outreach is effective and that the agency continues to innovatively engage with the public in their preferred way.

The 2019 Public Participation Plan also developed an outreach protocol for the RTP. The protocol explicitly describes the procedures, strategies, and desired outcomes of public participation for the plan.

Table 12: RTP Outreach Protocol

Activity Type	Public Meetings	Draft Document Public Review	Public Comment Incorporation
<i>Time Required</i>	Two	30-day comment period and circulated not less than 55 days before adoption of a final	60-day incorporation period
<i>Locations</i>	North & South Shore, with notification to all five counties	E-mail, written mail, and fax	In document alterations & comment/response posted on TMPO website
<i>General Details</i>	Central locations, ADA accessible, Public Transit accessible, information available online	Two public hearings in different parts of the Region	Comments and response will be summarized presented to TMPO Board for approval
<i>Additional Services</i>	Targeted workshops for Spanish speaking community & visualization techniques	If final RTP differs significantly from the draft, an additional 10-day public comment period added	Comments and response will be summarized presented to TMPO Board for approval
AMENDMENTS			
Activity Type	Public Meetings	Draft Document Public Review	Public Comment Incorporation
<i>Administrative</i>	None	7-day public review period	In document alterations & comment/ response posted on TMPO website

<i>Formal (conformity analysis triggered)</i>	Monthly TTC meeting and advertised on TMPO website	30-day public review period	Comments and response will be summarized presented to TMPO Board for final adoption
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The most significant shift in TRPA transportation outreach is a focus on attending regularly scheduled meetings and events for traditionally underserved and underrepresented communities. This helped to begin to build long lasting relationships, increase the number of well-informed constituents, and better reach historically underserved populations.

To ensure continuous improvement, public participation performance measures were established so that outreach efforts can be evaluated for effectiveness and inform on how to better reach and interact with those traveling in our Region.

Partners

The scale of outreach needed to create the plan is only possible through a team effort, including internal staff and external partners. To effectively reach the Region's communities and TRPA's many partners requires strong relationships – with local, state, and federal government agencies, advocacy groups, and advisory committees. The following organizations and agencies participate in transportation planning and projects in the Region.

Conservation Districts: Conservation districts were formed across the country to help people protect land, water, forests, wildlife, and related natural resources. There are two conservation districts in the Tahoe Region: The Tahoe

Resource Conservation District and the Nevada Tahoe Conservation District. These districts work with many partners in Tahoe and obtain funding to implement projects that provide sustainable recreation, water quality, and community enhancement benefits, such as the Expanded Khale Vision, which seeks to provide pedestrian, bicycle, and water quality improvements at US 50 and Khale Drive in Stateline, NV.

Emergency Services (Local): The Emergency Management Community Council (EMCC) consists of numerous emergency responders, including El Dorado, Douglas, and Alpine counties. The Office of Emergency Services (OES) provides emergency management services to Placer County, in cooperation with local cities and special districts, such as fire and law enforcement agencies. During an active incident, such as a fire or flood requiring emergency sheltering, OES helps to facilitate the resources necessary for first responders to protect the community. Washoe County Emergency Management Program assists local agencies and communities in preparing for emergencies through training, development of plans and procedures, addition of equipment, and other measures which may reasonably be taken to enhance emergency preparedness.

Federal Partners: The U.S. Forest Service Lake Tahoe Basin Management Unit (LTBMU) works in the region to balance short- and long-term needs of people and nature by collaborating with

communities and regional partners to provide economic, ecological, and social vitality by connecting people to the land through delivery of science, technology, and land management. Due to the large amount of public lands under federal management in the Region, the USFS is a key partner in the Tahoe Basin. The U.S. Federal Highway Administration (FHWA) provides funding to TRPA to carry out the transportation planning process, environmental review, and preliminary engineering and design to complete environmental documentation for transportation projects. As a partner delivering transportation improvements, the Central Federal Lands Highway Division of FHWA maintains oversight of the funds, and coordinates closely with TRPA on project progress. The US Federal Transit Administration (FTA) is an active partner in providing transit capital and operating assistance to the Tahoe Region. Region IX of FTA, located in San Francisco, provides planning assistance and guidance on various transit projects in the Region.

Incline Village Crystal Bay Visitors Bureau: The Bureau is a public organization responsible for destination marketing for the North Shore (Nevada). In addition to conducting advertising, producing special events, and providing visitor services and information, the Bureau also participates in activities to improve active and public transportation to Incline Village.

Lake Tahoe Bicycle Coalition: The Lake Tahoe Bicycle Coalition is an advocacy organization dedicated to promoting bicycling, bike events, and new bicycle infrastructure throughout the Tahoe Region. The Bicycle Coalition also leads several programs that encourage bicycling as a mode of transport including the Bike Racks for Tahoe program, which installs bike racks around the lake, and the Coalition's bike valet program, which provides staffed bicycle valets at special

events during the summers. The Bike Coalition partners with TRPA to host the annual Tahoe Bike Challenge and works closely with TRPA staff to provide input on the Active Transportation Plan and Regional Transportation Plan.

Lake Tahoe Visitors Authority: The Authority markets the South Shore as a unique, world-class, year-round destination to the regional, national, and international marketplace, and to favorably impact the South Shore economy through overnight stays and tourism spending. In addition to these activities, the Authority also supports improvements to transportation projects and programs that serve the South Shore.

Local Governments: The plan reflects collaboration with Washoe, Douglas, Placer, and El Dorado counties, and Carson City, and the City of South Lake Tahoe to align transportation policies and deliver capital improvement programs. Additionally, Placer County, the Town of Truckee and the Washoe Regional Transportation Commission jointly fund Tahoe Truckee Area Regional Transit on the north shore. That contribution, as well as future planned services and funding mechanisms, are included on the project lists (Appendix B) and within the constrained revenue discussion (Funding the Plan and Appendix C). As regional partners continue to broaden their work beyond traditional boundaries, coordination with the Town of Truckee is vital.

Neighboring Transportation Agencies: Carson Area Metropolitan Planning Organization (CAMPO) designated as the metropolitan planning organization for the Carson Urbanized Area, provides inter-regional input on transportation issues. Placer County Transportation Planning Agency (PCTPA) works in conjunction with TRPA to coordinate unmet

transit needs, transportation planning over the I-80 corridor, and coordinates transit service to Squaw Valley and Alpine Meadows along SR 89 between Tahoe City and the Town of Truckee. The PCTPA is the sister RTPA in Placer County. El Dorado County Transportation Planning Commission (EDCTC) is the regional transportation planning agency for most of El Dorado county which is outside of the TRPA boundary. TRPA works very closely with EDCTC on joint planning initiatives involving the US 50 corridor and traveler information technology deployment, among other activities. Tahoe Douglas Transportation District (TDTD) coordinates development of the Douglas County five-year Transportation Improvement Plan and approves expenditures of county Transient Occupancy Tax (hotel tax) which supplies revenues for transportation at Lake Tahoe. Washoe County Regional Transportation Commission (Washoe RTC) contracts with Placer County to fund Tahoe Truckee Area Regional Transit (TART) operations in Incline Village and Crystal Bay and provides inter-regional input on transportation issues.

North Lake Tahoe Resort Association: The Association serves as a forum for local input and recommendations on the planning and development of tourism and community related infrastructure and transportation projects, including transit services, for which the association is a funding partner. The source of NLTRA funding is a percentage of the Transient Occupancy Tax (TOT) funds generated in the north shore in eastern Placer County. The Placer County Board of Supervisors grants these funds to the NLTRA on an annual basis.

Pathway Partnership: A committee of local and state implementing agencies and community advocacy groups that meets quarterly to provide project updates, identify opportunities to work

together, and discuss pressing issues related to active transportation that would benefit from multi-jurisdictional input.

Social Services Transportation Advisory Council (SSTAC): The SSTAC serves as an advisory body to TRPA on the transit needs of transit dependent and transit disadvantaged persons in the Region, including the elderly, handicapped, and persons of limited means. Members broadly represent the community, transit disadvantaged communities, and transit service providers. SSTAC also works with TRPA to ensure citizen participation throughout the Region, and to solicit, as much as possible, input from transit dependent populations. To accurately meet the needs of communities throughout the Region, SSTAC is split into two councils, one for the North Shore and the other for the South Shore.

State Partners: State highways act as the Region's main streets and major arterial roadways. Caltrans and NDOT, the departments of transportation for California and Nevada respectively, maintain and improve these roadways to provide efficient movement of goods, safe travel for all roadway users, and water quality projects to reduce runoff into Lake Tahoe. Each state department of transportation is actively involved at Lake Tahoe through project implementation, participation on the TTC, and various other project development teams, such as the US 50 East Shore Corridor Plan. NV DCNR and Calfire provide emergency services for each state.

Tahoe Transportation Commission (TTC): TTC serves as the formal advisory body to the TRPA Governing Board in its capacity as the metropolitan planning organization. TRPA established the TTC to vet transportation plans, programs, and projects prior to making recommendations to the Governing Board. The

commission provides an opportunity for coordinated technical review and public involvement on transportation-related issues and its members have had direct and ongoing input in the development of the plan.

Tahoe Transportation District (TTD): TTD was created under the same Compact that created TRPA to implement and deliver transit, and projects and programs that span multiple jurisdictions and include active transportation, transit, and roadway facilities. TTD and TRPA work closely to coordinate investments in transportation infrastructure and transit services.

Transportation Management Association (TMA): The Tahoe Region has two transportation management associations: the Truckee-North Tahoe Transportation Management Association TNT-TMA) serves the North Lake Tahoe-Truckee Resort Triangle, and the South Shore TMA, serves the greater South Shore area. TMAs are community-based, nonprofit organizations designed to foster public outreach, receive community input on transportation issues, and encourage and facilitate the public-private partnerships necessary to implement transportation projects. The TNT-TMA administers the North Lake Tahoe Express, which provides affordable airport shuttle service from Reno/Tahoe International Airport to the North Lake Tahoe and Truckee region.

Utility & General Improvement Districts: There are many Utility and General Improvement Districts in Tahoe, each chartered to provide specific services, from water and trash service to sustainable recreation and transportation improvements. Several of these districts are active partners in achieving the plan's vision: Incline Village General Improvement District, North Tahoe Public Utility District, Tahoe City

Public Utility District, and the South Tahoe Public Utility District.

Washoe Tribe of Nevada and California: The Washoe Tribe of Nevada and California is an important partner as Lake Tahoe is the traditional center of the Washoe world. The Washoe are the original inhabitants of the Lake Tahoe Region. The tribe owns and manages land in the Region, such as Meeks Bay Resort and Marina and Cave Rock on the East Shore of the lake, which serves as a transportation gateway. Transportation planning staff meet one-on-one with the Washoe Tribe to share information and updates on transportation projects and issues. The Tribe is a voting member of the TTC and the APC, which are the advisory bodies to TRPA/TMPO.

Technical Advisory Committee (TAC)

The TRPA Environmental Improvement & Public Outreach Committee (EIPPOC) is the technical advisory committee (TAC) for the plan. The EIPPOC provided input on the proposed goals, policies, and projects. Their feedback, along with public and stakeholder input, helped shape this final document.

Members of the EIPPOC:

- Timothy Cashman, Nevada At-Large Member
- Belinda Faustinos, California Assembly Speaker Appointee
- Marsha Berkbigler, Washoe County Commissioner, District 1
- Casey Beyer, Governor of California Appointee
- Sue Novasel, El Dorado County Supervisor, District 5

- Cindy Gustafson, Placer County Representative
- James Lawrence, Nevada Department of Conservation and Natural Resource Representative

Plans Reviewed for Consistency

Consultation procedure documents are denoted with an asterisk*.

Project level analysis is completed at the time of project application and development to ensure consistency with the RTP and these plans.

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Public Participation Performance Measures

Four performance measures were created through the 2019 Public Participation Plan to evaluate the success of engagement and participation in the RTP planning process:

1. Total number of public participants reached through proactive outreach (such as events, open houses, workshops, etc.).
 - a. Target: Increase by 5% since last RTP
2. Total number of public participants reached through quantitative methods (i.e., surveys).
 - a. Target: Increase by 5% since last RTP
3. Percentage of survey respondents who are full time residents, seasonal residents, visitors, and commuters.
 - a. Target: By 2023, reach 60% in-basin residents (full-time) and 40% out-of-basin residents (seasonal and visitors)
4. Total number of primarily Spanish speaking residents reached.
 - a. Target: Increase by 10% since last RTP

Tracking Performance

The last RTP was adopted in April 2017. Soon after, engagement for the RTP began through specific project and study outreach, transit and bicycle and pedestrian surveys, TRPA hosted events, and regularly scheduled partner meetings. The feedback received through these early outreach efforts informed engagement for the plan, which began in 2019 and continued into 2020.

The public participation performance measures' targets were tracked to gauge the plan's success.

Table 13: Total Participations (Proactive)

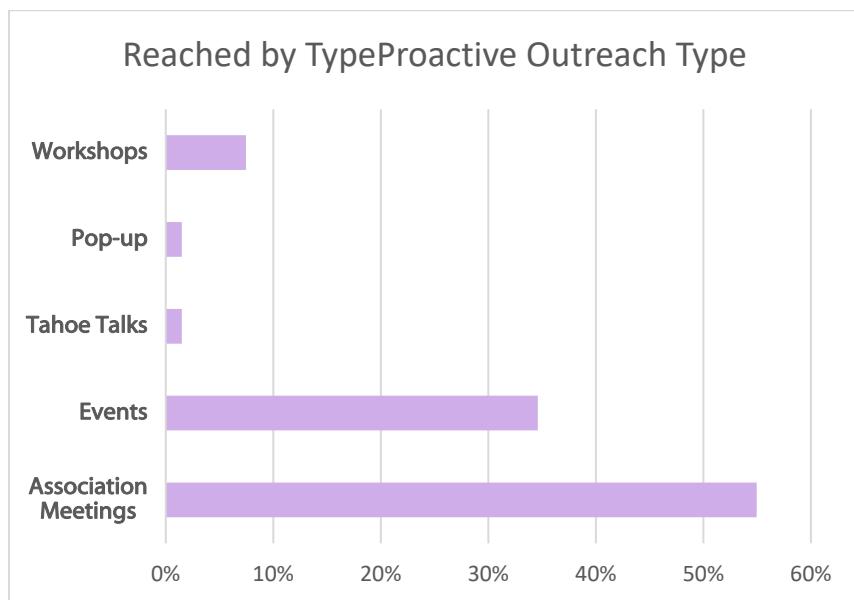


Table 14: Total Participations (Quantitative)

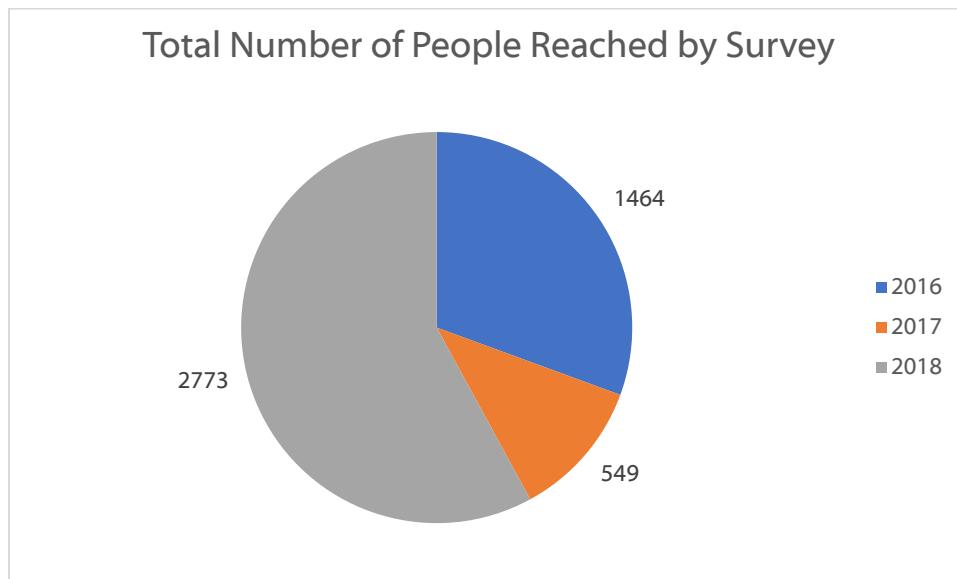


Table 15: Survey Respondents by Resident, Visitor and Commuter

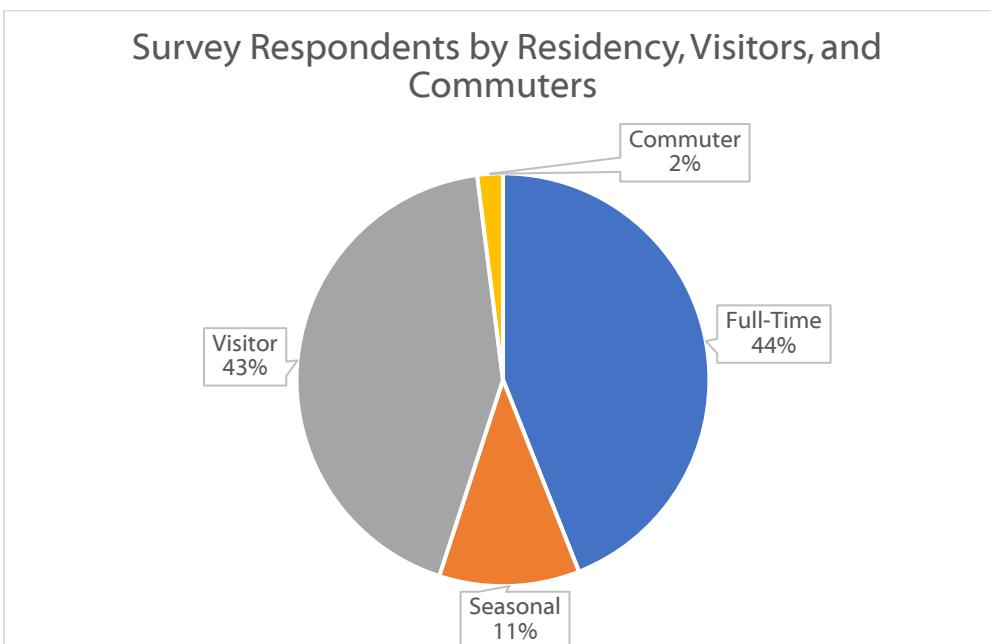


Table 16: Spanish Speaking Residents

Number of Spanish Speaking Residents

<i>Outreach Type</i>	2016	2017	2018	Total
<i>Association Meetings</i>	11	0	6	17
<i>Surveys</i>	100	0	461	561
<i>Total</i>	111	0	467	578

Summary

All targets were met except for the third performance measures, percentage of survey respondents who are full-time residents and who are non-full-time residents, because this measure was not evaluated for the 2017 RTP.

Table 17: RTP Outreach Performance Metrics

Number	Performance Measure	Target	2017	2020	Achieved Target? (Y/N)
1	Total Participations (Proactive)	Increase 5%	485	5,053	Y
2	Total Participations (Quantitative)	Increase 5%	327	5,296	Y
3	Survey Respondents by Resident, Visitor and Commuter	60% In-Basin 40% Out-of-Basin	n/a	77.0% Resident; 23.1% Non-Resident	Not tracked in 2017
4	Primary Spanish Speaking Residents	Increase 10%	111	626	Y

Public Participation Summary

For the RTP, TRPA developed a comprehensive outreach strategy that complied with California SB 375. SB 375 requires public participation include outreach to a broad range of stakeholder groups in the planning process, including but not limited to affordable housing advocates, transportation advocates, neighborhood and community groups, environmental advocates, home builder representatives, broad-based business organizations, landowners, commercial property interests, homeowner associations,

congestion management agencies, transportation agencies, and transportation commissions.

The following section summarizes the outreach conducted to meet the plan's goals and SB 375 requirements.

Agency and Inter-Governmental Coordination

In developing transportation and land use plans, TRPA collaborates closely with multiple public agencies, a tribal government, and a cross

section of private stakeholders (see the Partner section of this appendix for more information). Consultation occurred through one-on-one and association/organization meetings.

Through 2019 and 2020, TRPA met with the Tahoe Transportation Implementation Committee several times to discuss updates to the RTP, including the updated project list and revised policies. The Tahoe Transportation Implementation Committee meets regularly to provide updates on capital projects and funding opportunities. The committee is comprised of local jurisdictions, the California and Nevada state DOTs, two resource conservation districts, and the Tahoe Transportation District. TRPA met individually with all implementing partners to review the project list and identify new projects within the 25-year horizon of the plan.

In 2019, the Bi-State Consultation on Transportation reconvened to review priority transportation projects and explore funding opportunities. The Bi-State Consultation is headed by the Nevada Department of Conservation and the California Natural Resource Agency with additional public and private representatives from around the Basin. The group helped shape the plan project list and revenue forecast.

Association Meetings

TRPA attends and presents at multiple association meetings around the Region to gain greater insight on issues facing Lake Tahoe, particularly those of traditionally underserved or hard-to-reach residents, and to develop solutions to them.

Table 18: Outreach Summary Tracking

Date	Group Name	Group Type	Topic(s)	Attendees
9.27.18	NDOT Bike/ Ped Advisory Board	Agency and Advocacy	Safety Plan	21
9.25.18	Community Mobility Group	Advocacy	ATP Amendment	4
9.14.18	Bikeway Partnership	Agency and Advocacy	ATP Amendment	13
9.13.19	Meek Bay POA - Fall Meeting	HOA	RTP/SR 89	35
8.29.19	Park Avenue Development Management Association (PADMA)	Development	MSMP/RTP	15
8.2.18	Truckee North Tahoe TMA	Agency and Private	Linkingtahoe.com	17
8.12.19	Lake Tahoe Collaborative	Social Services Community	MSMP/RTP	22
6.26.18	Community Mobility Group	Advocacy	Linkingtahoe.com	5
6.20.18	Incline Village Crystal Bay Visitors Bureau	Business Owners	Transit Funding	14

Date	Group Name	Group Type	Topic(s)	Attendees
6.15.18	SS/TMA	Agency and Private	Linkingtahoe.com	9
6.15.18	South Shore Transportation Management Association	Agency and Advocacy	Linkingtahoe.com	6
6.14.18	Lodging Association	Private Business	Linkingtahoe.com	35
6.14.18	Guestology Workshop Attendees	Agency, Rec Providers, Tahoe Fund	Linkingtahoe.com	15
6.05.18	North Shore SSTAC/Resort Triangle Transportation Discussion	Social Services Community	Elimination of NTTT Senior Shuttle	17
5.09.18	STMS Staff	School Staff	SRTS	51

Date	Group Name	Group Type	Topic(s)	Attendees
5.02.18	Kiwanis	Community Organization	SRTS	26
4.23.18	South Shore SSTAC/TACCD Meeting	Social Services Community	TTD Proposed Transit Changes	16
4.2.19	North Tahoe SSTAC	Social Services Community	CHSTP/RTP	15
4.12.18	Lake Tahoe Beach Resort	Private Hotel	Micro Transit / TDM	2
3.6.18	North Shore SSTAC/Resort Triangle Transportation Discussion	Social Services Community	Specialized Transportation Needs	21
3.06.20	Pathway Partnership	Agency	SR89	12
3.05.20	TNT TMA	Agency	SR89	19
2.25.19	South Tahoe SSTAC	Social Services Community	CHSTP	8
2.18.20	Future Focused Leaders	Community	RTP	23
12.6.19	Pathway Partnership	Agency Collaborative	RTP	15

Date	Group Name	Group Type	Topic(s)	Attendees
12.4.19	Community	Agency and Private Stakeholders	Emerging Mobility	34
12.19.19	South Shore Chamber of Commerce	Presentation	MSMP/RTP	25
12.11.19	Soroptimist	Presentation	MSMP/RTP	40
12.03.19	North Shore Breakfast Club	Presentation	RTP	65
11.7.19	TNT/TMA	Agency and Public	Commute Tahoe Program	18
11.26.19	Sustainable Recreation Working Group	Agency	RTP	12
11.22.19	SS TMA	Presentation	MSMP/RTP	20
11.08.19	Washoe Tribe	Agency	SR 89 CMP/RTP	6
10.3.19	TNT/TMA	Agency and Public	Unmet Transit Needs/RTP	25
10.24.18	Lake Tahoe Bike Coalition	Advocacy	SRTS	6

Date	Group Name	Group Type	Topic(s)	Attendees
10.2.18	North Shore SSTAC/Resort Triangle Transportation Discussion	Social Services Community	Unmet Transit Needs	18
10.18.19	SSTMA	Presentation	RTP	20
10.11.18	Truckee North Tahoe TMA	Agency and Private	Unmet Transit Needs	25
10.10.19	Sierra Tahoe Soroptimists	Community	RTP	35
10.1.19	North Tahoe SSTAC	Social Services Community	Unmet Transit Needs/RTP	13
1.7.20	North Tahoe SSTAC	Community	RTP	13
1.24.20	Bonanza Community Round Table	Community	RTP	37
1.22.19	Lake Tahoe Bicycle Coalition	Advocacy	Commute Tahoe Program/RTP	7
1.13.20	Lake Tahoe Collaborative	Community	RTP	15

Date	Group Name	Group Type	Topic(s)	Attendees
1.11.18	Lodging Association	Hotels, and Public	TDM	20
05.18.20	RTP Innovation Webinar	Public	RTP	79
05.18.20	RTP Innovation Webinar Video	Public	RTP	1200
05.11.20	RTP Communities Webinar	Public	RTP	53
05.11.20	RTP Communities Webinar Video	Public	RTP	185
05.04.20	RTP Technology Webinar	Public	RTP	48
05.04.20	RTP Technology Webinar Video	Public	RTP	231
04.27.20	RTP Transit Webinar	Public	RTP	84
04.27.20	RTP Transit Webinar Video	Public	RTP	391
04.20.20	RTP Trails Webinar	Public	RTP	219
04.20.20	RTP Trails Webinar Video	Public	RTP	376
04.02.20	SR89 Webinar	Public	SR89	204
03.11.20	SR89 open house North Shore	Public	SR89	38
03.10.20	SR89 open house South Shore	Public	SR89	43
01.15.20	South Tahoe Rotary	Community	RTP	25
01.07.20	Washoe Tribe	Tribal	General	20

Date	Group Name	Group Type	Topic(s)	Attendees
1/1/2018	Business owners through - NLTRA	Private businesses	Bicycle Racks	13

Community Open Houses

Open houses provide the public with an opportunity to learn about projects, programs, and plans and provide feedback to staff.

Table 19: Open Houses

Date	Topic	Number of Participants
03.10.20	SR89 open house South Shore	43
03.11.20	SR89 open house North Shore	38

Informational Meetings

At the state level, California SB 375 specifies that metropolitan planning organizations must conduct informational meetings for members of each county board of supervisors and city councils as part of the outreach for the

sustainable communities strategy. The purpose of these meetings is to discuss the strategy, including key land use and planning assumptions, and to solicit and integrate input and recommendations, where feasible.

Table 20: Informational Meetings

Date	Group Name	Group Type	Topic	Number of Participants
09.30.20	TRPA Governing Board	Agency and Public	RTP	TBD
10.09.20	TTD/Tahoe Transportation Commission	Agency and Public	RTP	TBD
10.28.20	Regional Plan Implementing Committee	Agency and Public	RTP	TBD
11.03.20	TTD/Tahoe Transportation Commission	Agency and Public	RTP	TBD
11.18.20	TRPA Governing Board	Agency and Public	RTP	TBD
9.25.19	TRPA Governing Board	Agency and Public	PPP and RTP	40

8.9.19	Tahoe Transportation Commission	Agency and Public	Public Participation Plan	26
4.12.19	Tahoe Transportation Commission	Agency and Public	CHSTP	16
3.7.19	TIE Steering Committee	Agency and Public	Pathway Partnership	15
5.3.18	TIE Steering Committee	Agency and Public	Bikeway Partnership	29
12.14.18	Tahoe Transportation Commission	Agency and Community	Unmet Transit Needs	30

Public Hearings

California SB 375 requires that multi-county metropolitan planning organizations, such as TRPA, hold at least three public hearings in different parts of the Region for the sustainable community's strategy to maximize the opportunity for participation by members of the public throughout the Region.

The RTP/SCS was brought to the TRPA Governing Board on September 30 and November 18, the Governing Board's Regional Plan Implementation Committee on October 28, and the Tahoe Transportation Committee on October 9 and November 12.

Table 21: Public Hearings

Public Hearing Date	Board/Committee
09.30.20	TRPA Governing Board
10.09.20	Tahoe Transportation Committee
10.28.20	Regional Plan Implementation Committee
11.12.20	Tahoe Transportation Committee
11.18.20	TRPA Governing Board

Public outreach requirements of SB 375 were met through the following TRPA's activities.

Table 22: SB 375 Outreach

SB 375 Requirement	Outreach Activity	Date
<p><i>(2D) The metropolitan planning organization shall conduct at least two informational meetings in each county within the region for members of the board of supervisors and city councils on the sustainable communities strategy and alternative planning strategy, if any. The metropolitan planning organization may conduct only one informational meeting if it is attended by representatives of the county board of supervisors and city council members representing a majority of the cities representing a majority of the population in the incorporated areas of that county.</i></p>	TRPA Governing Board (Stateline, NV)	9.25.19
<p><i>(2E) Each metropolitan planning organization shall adopt a public participation plan, for development of the sustainable communities strategy and an alternative planning strategy</i></p>	TTD/ Tahoe Transportation Commission (Incline Village, NV)	08.09.19
<p><i>(2Ei) Outreach efforts to encourage the active participation of a broad range of stakeholder groups in the planning process, consistent with the agency's adopted Federal Public Participation Plan, including, but not limited to, affordable housing advocates, transportation advocates, neighborhood and community groups, environmental advocates, home builder representatives, broad-based business organizations, tourism organizations, landowners, commercial property interests, and homeowner associations.</i></p>	Public workshops, online webinars, association meetings, and public events.	May 2017 - September 2020
<p><i>(2Eii) Consultation with congestion management agencies, transportation agencies, agencies</i></p>	Truckee North Tahoe Transportation Management Association	May 2017 – August 2020

SB 375 Requirement	Outreach Activity	Date
<i>responsible for reducing the risk of natural disasters, and transportation commissions.</i>	South Shore Transportation Management Association	May 2017 – August 2020
<i>(2Eiii) Two workshops throughout the Region to provide the public with the information and tools necessary to provide a clear understanding of the issues and policy choices. Each workshop, to the extent practicable, shall include urban simulation computer modeling to create visual representations of the SCS and the alternative planning strategy.</i>	TTD/Tahoe Transportation Commission	December 2018 – November 2020
<i>(2Eiv) Preparation and circulation of a draft SCS and an alternative planning strategy, if one is prepared, not less than 55 days before adoption of a final regional transportation plan.</i>	RTP Webinars	April 20 – May 18 2020
<i>(2Ev) At least three public hearings shall be held (page 66 of RTP Guidelines). To the maximum extent feasible, the hearings shall be in different parts of the region to maximize the opportunity for participation by members of the public throughout the Region.</i>	Draft available at trpa.org/transportation by September 10, 2020. Advertised in print in Lake Tahoe newspapers, through TRPA e-newsletter, and TRPA social media outlets.	September 10, 2020
	TTD/Tahoe Transportation Commission (Stateline, NV)	04.12.19
	TRPA Governing Board (Virtual)	09.30.20
	TTD/Tahoe Transportation Commission (Virtual)	10.09.20
	http://www.trpa.org/transportation/	On-going
	TRPA sent a memorandum to Nicole Dolney, Chief of the Transportation Planning	10.14.19

SB 375 Requirement	Outreach Activity	Date
<p><i>description to the state board of the technical methodology it intends to use to estimate the greenhouse gas emissions from its sustainable communities strategy and, if appropriate, its alternative planning strategy.</i></p>	<p>Branch at California Air Resources Board (ARB). More information can be found in Appendix I.</p>	
<p><i>Developing Regional Housing Needs Methodology (4c) Public participation and access shall be required in the development of the methodology and in the process of drafting and adoption of the allocation of the regional housing needs. Participation by organizations other than local jurisdictions and councils of governments shall be solicited in a diligent effort to achieve public participation of all economic segments of the community. The proposed methodology, along with any relevant underlying data and assumptions, and an explanation of how information about local government conditions gathered pursuant to subdivision (b) has been used to develop the proposed methodology, and how each of the factors listed in subdivision (d) is incorporated into the methodology, shall be distributed to all cities, counties, any sub-regions, and members of the public who have made a written request for the proposed methodology. The council of governments, or delegate sub-region, as applicable, shall conduct at least one public hearing to receive oral and written comments on the proposed methodology.</i></p>	<p>Developed by SACOG and the California Department of Housing and Community Development for Cycle 6, 2021-2029.</p>	<p>March 2020</p>
<p><i>Distribute Environmental Document to federal, state, and tribal land management, wildlife, and regulatory agencies. (Raymond Hess RTP checklist): A discussion of types of potential environmental mitigation activities and potential areas to carry out these activities, including activities that may have the greatest potential to restore and maintain the environmental functions affected by the metropolitan transportation plan. The discussion may focus on policies, programs, or strategies, rather than at the project level. The discussion shall be</i></p>	<p>When draft is released sent by email, through e-newsletter, posted on social media, mailed hardy copy, and available online.</p>	<p>September 10, 2020</p>

SB 375 Requirement	Outreach Activity	Date
<i>developed in consultation with Federal, State, and Tribal land management, wildlife, and regulatory agencies. The MPO may establish reasonable timeframes for performing this consultation.</i>		
<i>Send letters with link to draft RTP to all the agencies on the TAC, requesting comments. (page 73, RTP Guidelines).</i>	When draft is released sent by email with link to online location	09.10.20
<i>If responses not received, send a follow-up letter asking why a response was not received (Page 73, RTP Guidelines)</i>	Will send email one week prior to close of comment period.	10.16.20
<i>Conformity consultation requirements - document the consultation that you did.</i>	See Appendix G	n/a

Transportation in the 21st Century

On December 4, 2019, TRPA, the Truckee North Tahoe Transportation Management Association and the South Shore Transportation Management Association hosted a workshop focused on planned work to relieve traffic congestion, innovative and emerging transportation solutions, and the future of travel options for Tahoe. The workshop was attended by a cross section of planning and business community stakeholders from around the Lake Tahoe Region. See Appendix D for more information on this workshop.

Webinars

Following shelter-in-place orders in response to the Covid-19 pandemic, TRPA pivoted outreach for the plan online, hosting four, one-hour webinars that focused on each of the plan's focus areas: Transit, Trails, Technology, and Communities. A fifth webinar was added to highlight Regional collaborations that have resulted in innovative program and project development and implementation. In total, the webinars reached over 2,000 people through the live stream and recording links.

APPENDIX F (NEW): ENVIRONMENTAL JUSTICE

As the Metropolitan Planning Organization (MPO) developing the Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS) TRPA must prepare an Environmental Justice analysis. The analysis ensures the Plan's programs, policies, and activities do not disproportionately and adversely affect minority and/or low-income residents and that transportation benefits and burdens are equitably distributed. The vision for Tahoe laid out in the RTP/SCS includes providing multimodal transportation options for everyone, ensuring our most vulnerable populations have transit and bike paths within a reasonable distance. The goals and objectives for Environmental Justice (EJ) built into the RTP/SCS focus on providing alternatives to the car so that everyone can access essential services and critical medical appointments every day.

Goals and Objectives

The RTP/SCS emphasizes transportation projects and programs provide equitable opportunities

for all users and supporting policies that ensure EJ is integrated into the planning framework.

2.7: Provide specialized and subsidized public transportation services and programs for individuals with disabilities that is consistent with Coordinated Human Services Transportation plans.

Policy 2.8: Ensure all transportation projects, programs, and policies meet the transportation needs and minimize negative impacts for disadvantaged communities and people with special needs

Policy 5.2: Ensure access to public transit in identified Priority Community Zones

Objectives of the Regional Housing Needs Assessment (RHNA) are outlined in the RTP/SCS Communities section and complement the EJ analysis. The RHNA works to ensure that affordable and achievable housing will be built in the Region, offering opportunities for employees to live and work in Tahoe which can reduce commute times and improve quality of life.

Capitalize on existing and planned transportation system improvements to streamline approval of affordable-achievable housing projects, lowering construction costs and facilitating compliance with Regional Housing Needs Assessment requirements.

Framework

Environmental justice analysis uses a strong framework:

- **Step 1:** Use demographic data to understand the community's needs.
- **Step 2:** Develop a Public Engagement Plan that responds to the community.
- **Step 3:** Consider proposed projects and any likely adverse effects and benefits.
- **Step 4:** Select appropriate and equitable programs and projects as needed mitigation.

- **Step 5:** Take action to identify how this framework can be integrated into all project development, not only federally funded projects⁹.

The Community

Demographics

Lake Tahoe is situated in a beautiful and environmentally sensitive enclosed watershed, and its communities are supported by a robust seasonal recreation tourist economy that supports just over 51,000 residents and attracts millions of visitors each year.

TRPA conducted demographic analysis of the Region to better understand who the plan will serve

Tahoe's main roadway network is comprised of state route highways that circle the lake. The highways connect communities and connect neighborhoods to commercial areas and recreation sites. Employment opportunities are concentrated along the main roadways and in clusters on the North and South shores. Grocery stores and public schools are also a short distance from the main roadway network.

Residential areas are dispersed around the lake, although most of the Region's 51,000 permanent residents are concentrated along the North and South shores, as shown in the population density maps.

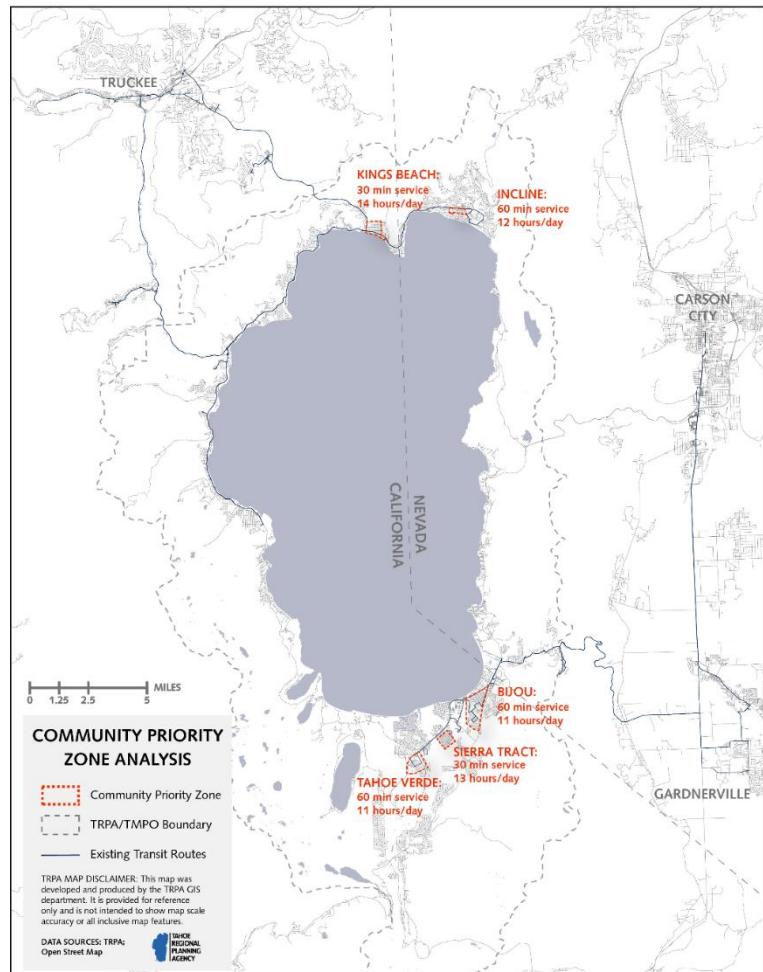


Figure 87: Community Priority Zone Analysis Map

⁹⁹ "California Department of Transportation (Caltrans) considers environmental justice to be activities taken by a recipient of federal funding to ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin"

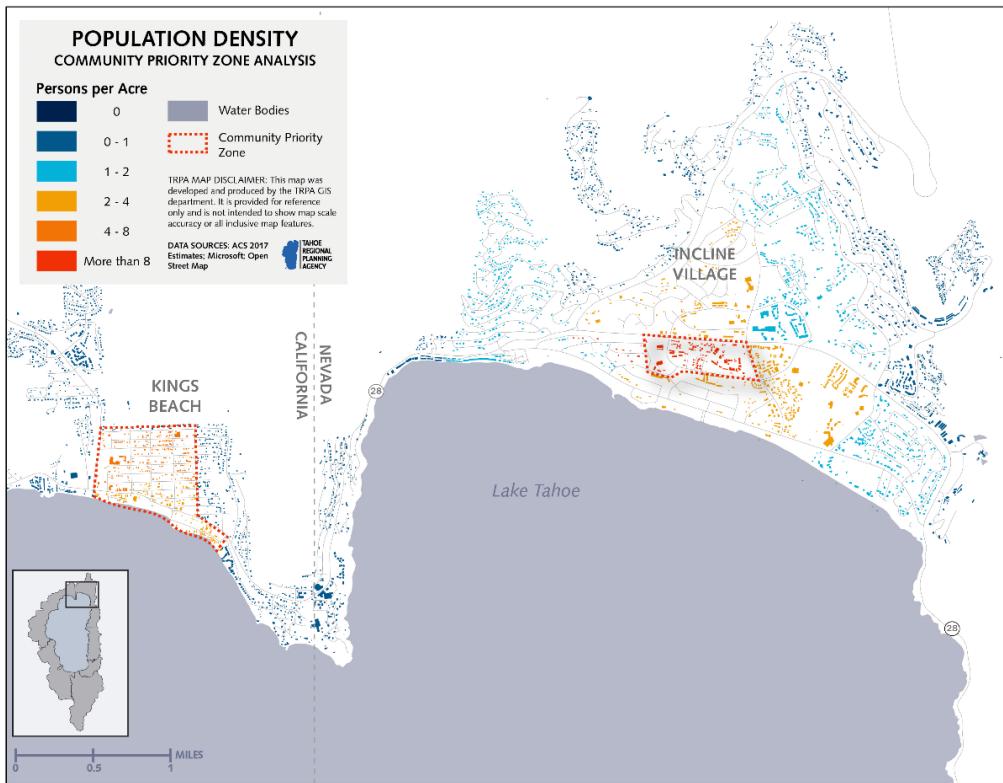


Figure 88: Population Density North Shore

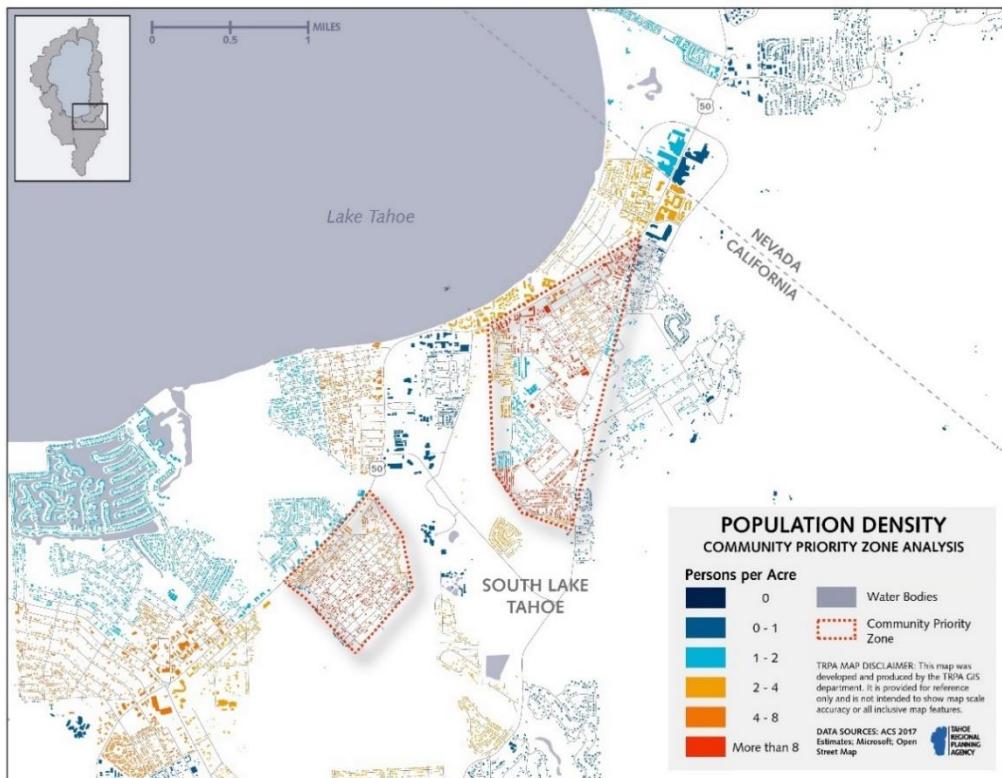


Figure 89: Population Density South Shore

Of Tahoe's 51,000 year-round residents, over 83% are white. The North Shore communities of Incline Village and Kings Beach have higher densities of minority populations than on the

South Shore, where minority residents are dispersed throughout the city and in several identified Priority Communities.

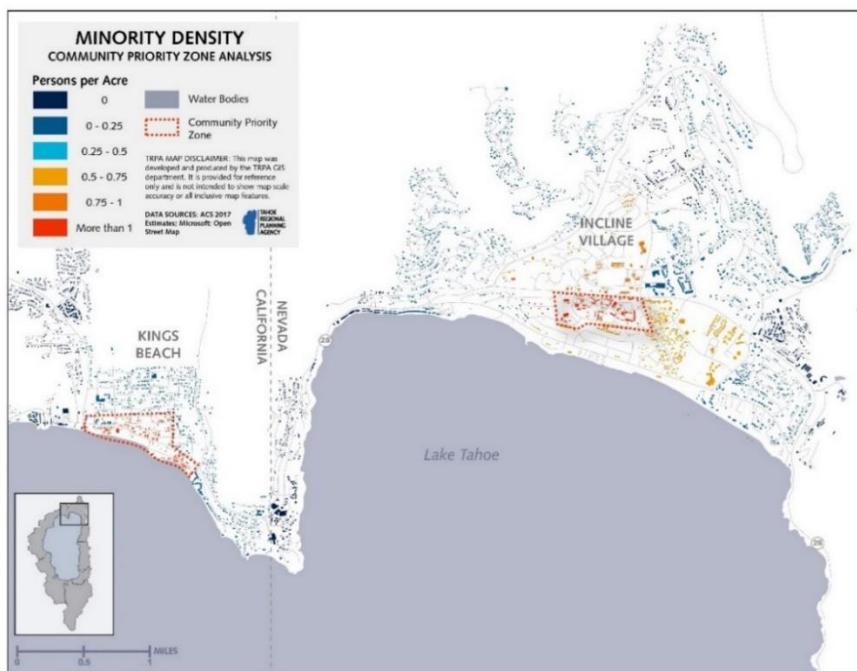


Figure 90: Minority Population Density North Shore

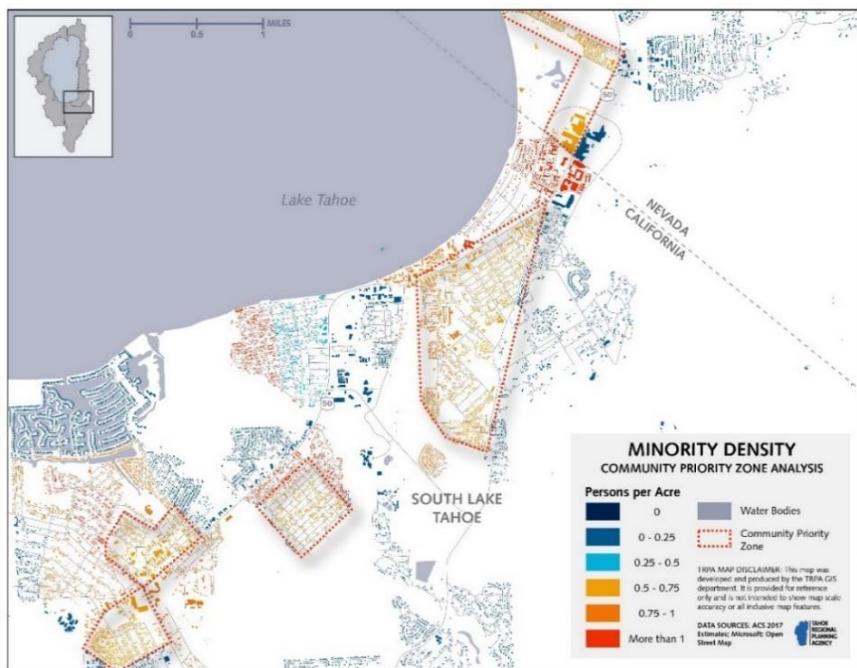


Figure 91: Minority Population Density South Shore

Low income is defined according to the U.S. Federal Poverty Guidelines and reflected through U.S. Census block groups in Tahoe.

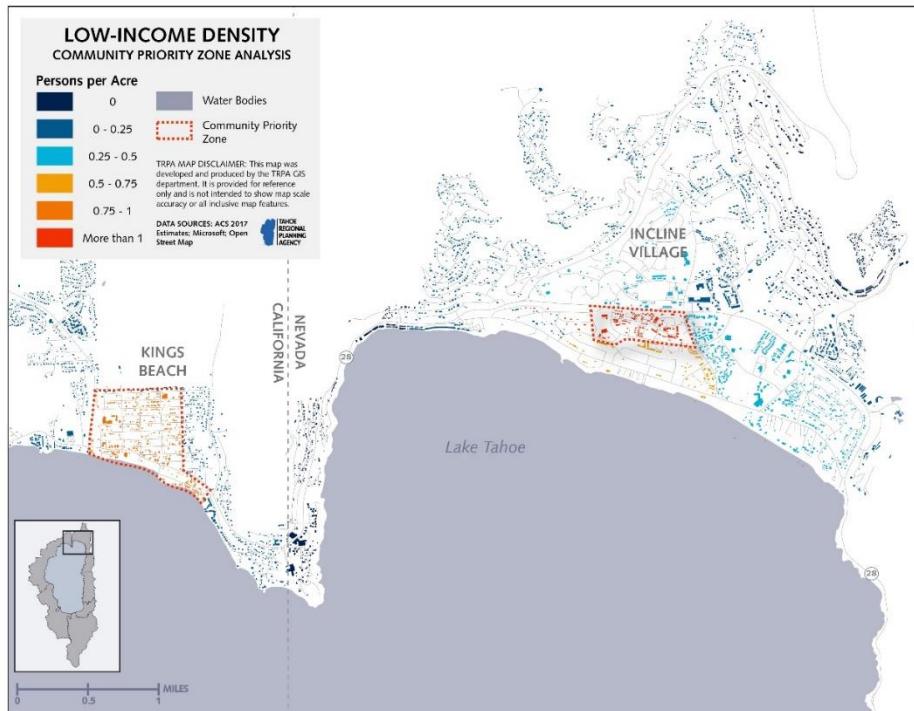


Figure 92: Low-Income Density North Shore

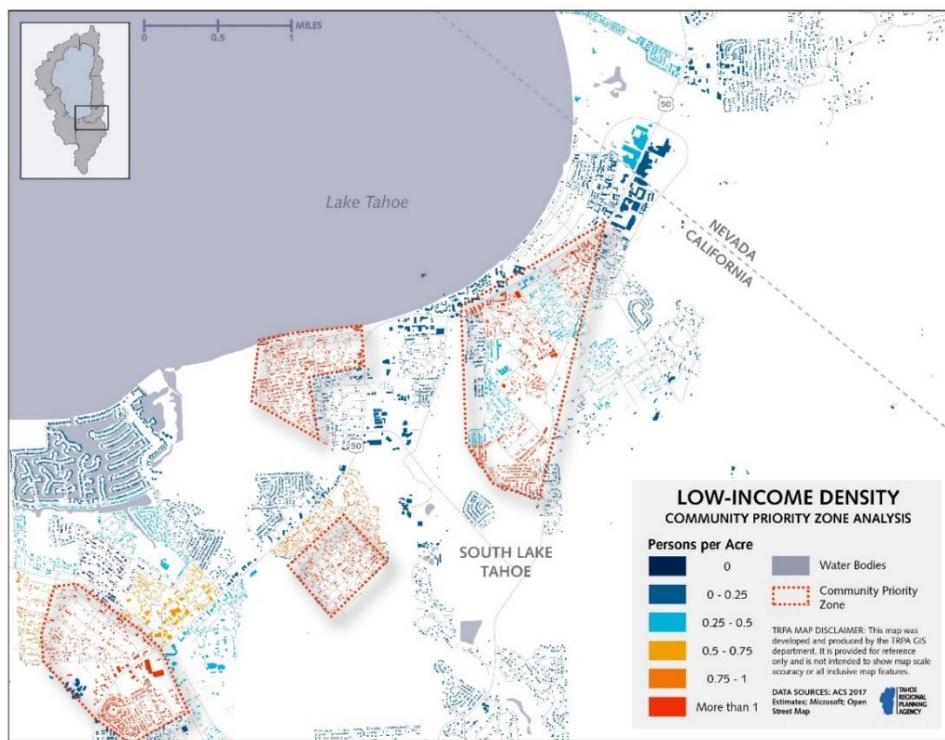


Figure 93: Low-Income Density South Shore

Defining Priority Communities

As the MPO, TRPA is required to adopt a definition for disadvantaged communities prior to receiving formula funds from the California Transportation Commission (CTC) for the Active Transportation Program. The TRPA adopted definition for disadvantaged communities is residents earning below 80 percent of the statewide median income and neighborhoods within two miles of school with more than 75 percent of students eligible for free and reduced priced meals. Under this definition, only one neighborhood in Tahoe is recognized as a disadvantaged community.

The EJ demographic analysis identified concentrations of need in the Region outside of the one recognized disadvantaged community. To ensure these residents are served by the plan, staff defined Priority Communities as neighborhoods with higher densities of at least three of the following criteria:

1. **Persons without Private Transportation (Zero Vehicle (ZEV)Households):** Lack of a personal vehicle is a significant factor for transit need. In 2018, 72 percent of TART riders and 61 percent of TTD riders did not have access to a personal vehicle.¹⁰
2. **Elderly (individuals 65 years and older):** Elderly individuals may choose not to drive or can no longer drive due to age
3. **Persons Below Poverty or Median Income Levels:** Purchasing and

maintaining a personal vehicle might be difficult for households with lower income

4. **Individuals with a Disability:** Disability status may impact an individual's ability to live independently, including driving a personal vehicle
5. **Minorities (Latinx/Hispanic, Black, Asian, American Indian, Pacific Islander, Other, Two or More Races):** Minority groups are more likely to live in densely populated areas, are less likely to have access to a car, and are more likely to use public transportation to commute to work.¹¹

The plan uses a layered approach to project and program implementation, with the first layer focused on expanding transit services and access to bike paths and pedestrian infrastructure for those living in disadvantaged and Priority Communities.

Process/Outreach

Public involvement is fundamental and essential to achieve equitable programs, services, and activities. The 2019 Public Participation Plan defines an inclusive and equitable outreach and public engagement process that considers expressed the viewpoints of minority, low-income, and low-English proficiency populations. Engagement opportunities were offered early and continuously through the planning process.

¹⁰

<https://monitoring.laketahoeinfo.org/FileResource/DisplayResource/137d250d-1271-4071-b47c-349b84d92f65>

¹¹ TCRP Report 49 Using Public Transportation to Reduce the Economic, Social, and Human Costs of Personal Immobility:

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_49.pdf

TRPA's Title VI, LEP, and Public Participation Plan provide guidance on for reaching underserved communities, including providing written materials in English and Spanish, distributing surveys in English and Spanish, actively working with social services agencies, attending meetings for Spanish-speaking community members, and conducting door-to-door outreach in low-English proficiency neighborhoods.

In 2017, TRPA formally established two Social Services Transportation Advisory Councils (SSTAC) on the North and South shores to serve as advisory bodies for transit dependent and transit disadvantaged people in Tahoe, including the elderly, disabled, and low-income individuals. Each SSTAC group meets at least twice per year to identify and discuss unmet transit needs, and accessibility issues, such as to town centers and mobility hubs. The annual Unmet Transit Needs report is developed and produced through the SSTAC and helps inform plan priorities.

As required by the Transportation Development Act, the SSTAC is comprised of the following members:

- One representative of potential transit users who is 60 years of age or older.
- One representative of potential transit users who are disabled.
- Two representatives of the local social service providers for seniors, including one representative of a social service transportation provider if one exists.
- Two representatives of local social service providers for persons with disabilities, including one representative of a social service transportation provider if one exists.

- One representative of a local social service provider for persons of limited means.
- Two representatives from the local consolidated transportation service agency, designated pursuant to subdivision (a) of Section 15975 of the Government Code, if one exists, including one representative from an operator, if one exists.
- The transportation planning agency may appoint additional members in accordance with the procedure prescribed in subdivision (b).

Analysis

Analysis helps to understand Priority Community's transportation needs.

Walking, biking, and using transit are often the only means of transportation for Priority Communities. Providing proximity to pedestrian and bicycle facilities and to transit is critical to ensuring essential daily activities and services, such as school and work, are reachable by the most vulnerable in our communities.

TRPA defines reasonable access to transportation services as:

1. Transit Access: 1/4 mile to transit stops
2. Bike Access: ½ mile to bike paths
3. Pedestrian Access: ¼ mile to bike paths and sidewalks

Environmental Justice in the Regional Transportation Plan

A gap analysis to assess whether the plan's projects and programs create inequitable impacts on Priority Communities.

The analysis found mixed levels of access across the Region. Some Priority Communities have good access to pedestrian and bike paths, such as Incline Village on the North Shore, while other communities, such as the Tahoe Verde neighborhood on the South Shore, has only 50 percent of its residents within ½-mile to pedestrian and bike paths. Many Priority

Communities lack access to transit, particularly Tahoe Verde and Sierra Tract on the South Shore.

The following table illustrates how the RTP/SCS constrained projects improve access within Priority Communities.

Table 23: Priority Communities Transportation Access

Priority Communities' Transportation Access

<i>Priority Communities</i>	<i>1/2 Mile Access to Bike Paths EXISTING</i>	<i>1/2 Mile Access to Bike Paths PROPOSED (2045)</i>	<i>1/4 Mile Access to Sidewalks and Bike Paths EXISTING</i>	<i>1/4 Mile Access to Sidewalks and Bike Paths PROPOSED (2045)</i>	<i>1/4 Mile Access to Transit Stops EXISTING</i>	<i>1/4 Mile Access to Transit Stops PROPOSED (2045)</i>
<i>Tahoe Verde</i>	56%	87%	62%	67%	45%	40%
<i>Sierra Tract</i>	100%	100%	92%	97%	9%	100%
<i>Bijou</i>	96%	98%	74%	91%	65%	97%
<i>Kings Beach</i>	0%	97%	99%	99%	57%	99%
<i>Incline Village</i>	100%	100%	99%	99%	56%	99%

These RTP/SCS projects helped improve transportation access:

- *MICRO TRANSIT serving the Sierra Tract and Bijou*
- *Multi Use Trail along US50 west of the wye serving Tahoe Verde*

- *Multi Use trail closing a large gap in the bike network in King's Beach*

- *Rerouting buses for efficiency in Tahoe Verde on the South shore*

The following maps visualize the outcomes of the plan's projects that focus on Priority Communities on the North and South shores.

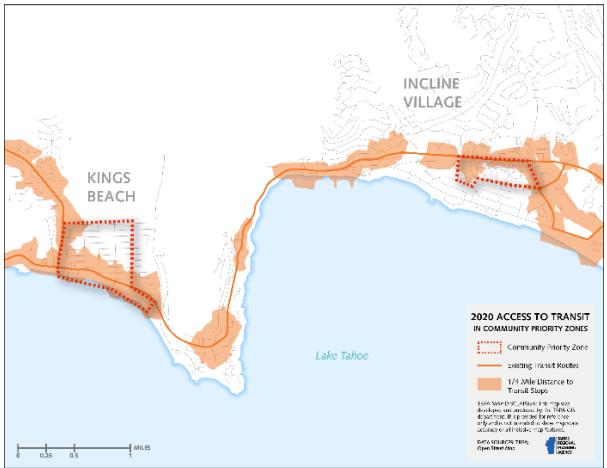


Figure 99: : 2020 Access to Transit North Shore

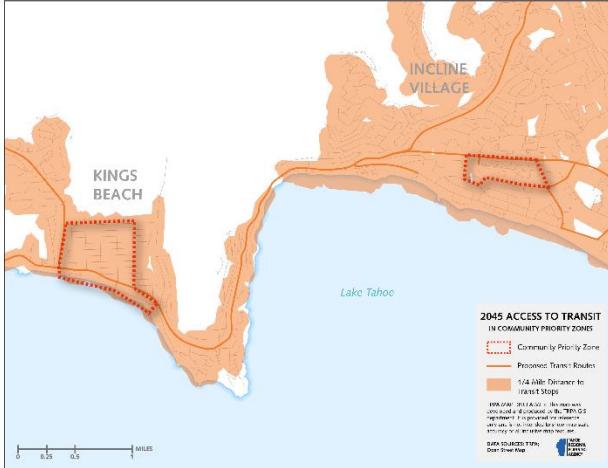


Figure 95: 2045 Access to Transit North Shore

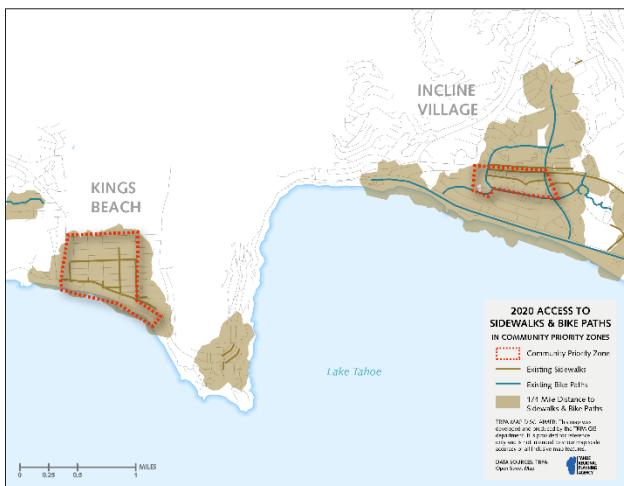


Figure 94: 2020 Access to Sidewalks and Bike Paths North Shore

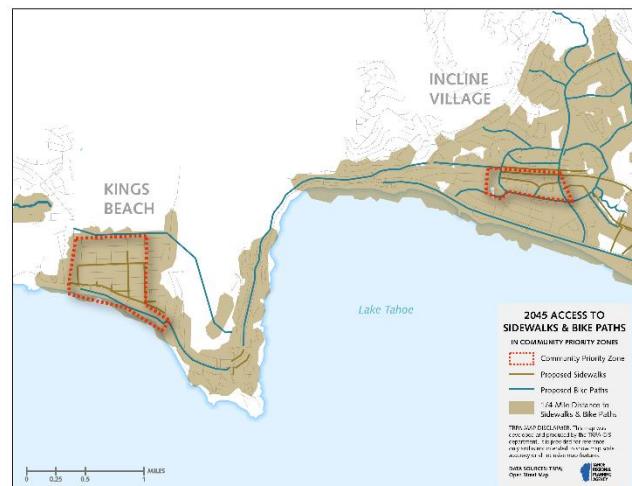


Figure 97: 2045 Access to Sidewalks and Bike Paths North Shore

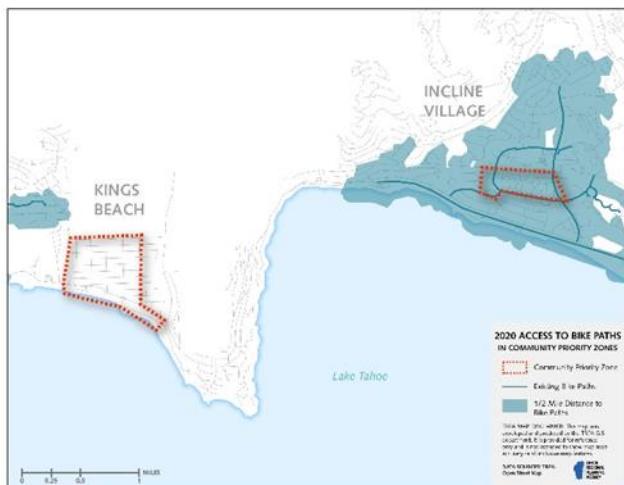


Figure 96: 2020 Access to Bike Paths North Shore

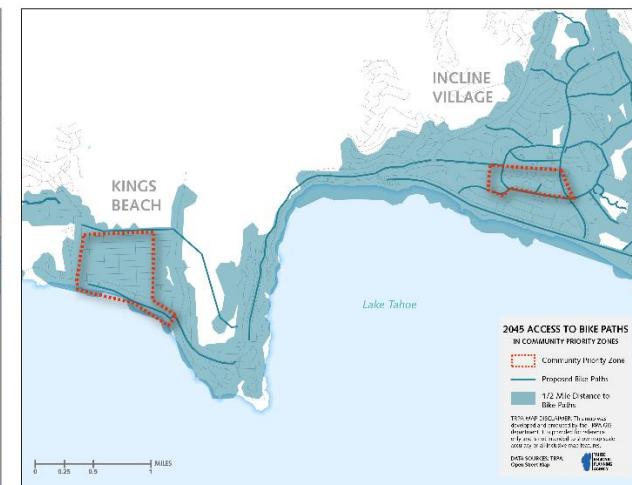


Figure 98: 2045 Access to Bike Paths North Shore

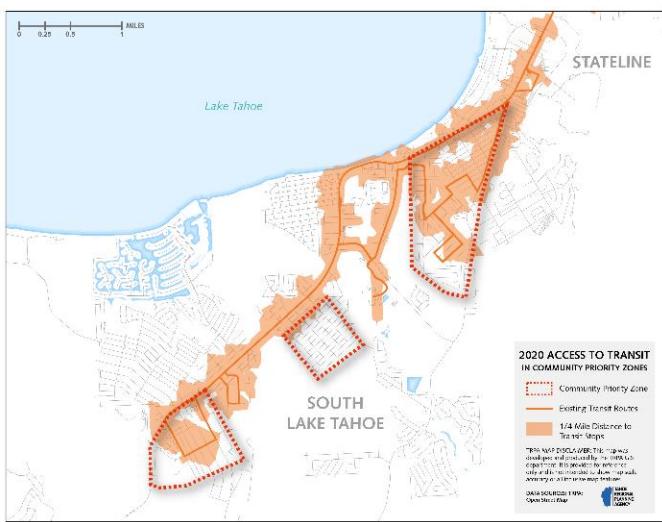


Figure 102: 2020 Access to Transit South Shore

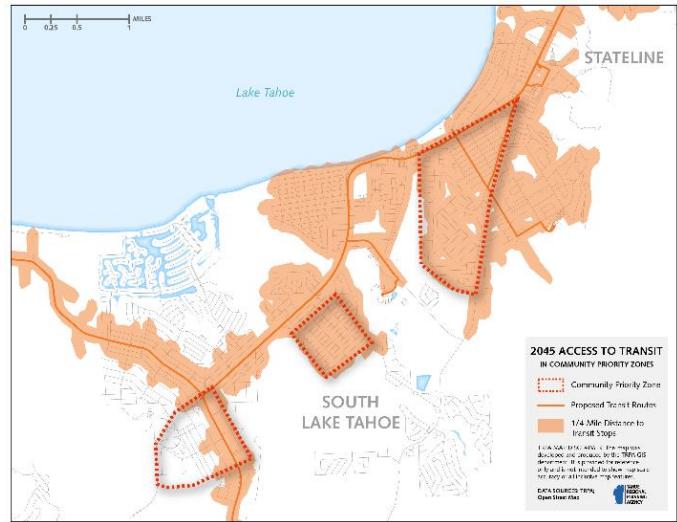


Figure 103: 2045 Access to Transit South Shore

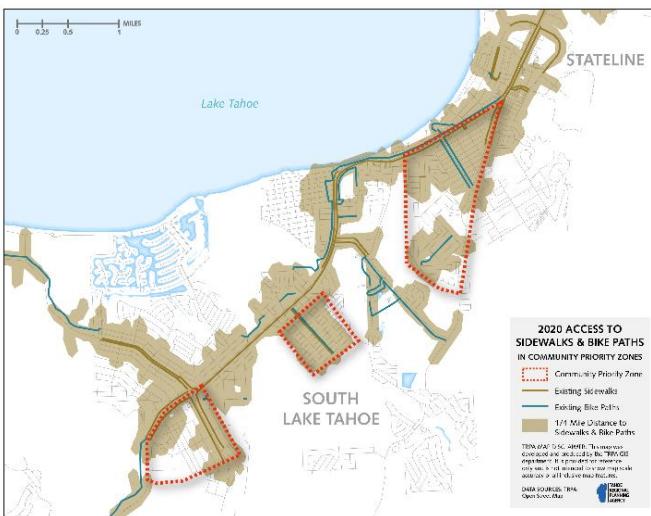


Figure 101: 2020 Access to Sidewalks and Bike Paths South Shore

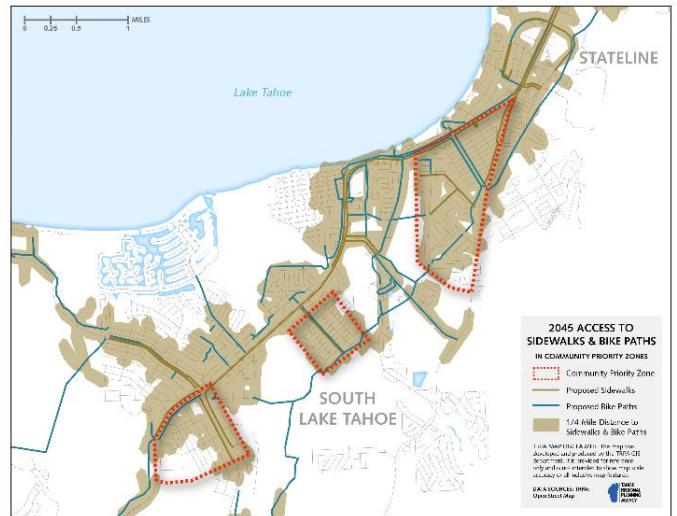


Figure 100: 2045 Access to Sidewalks and Bike Paths South Shore

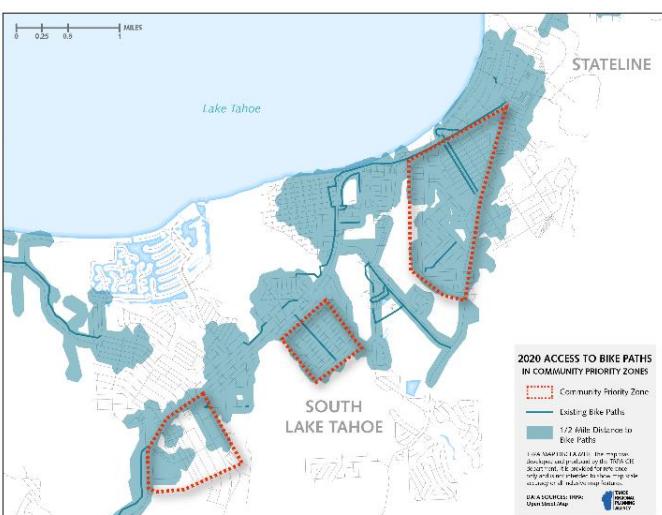


Figure 105: 2020 Access to Bike Paths South Shore



Figure 104: 2045 Access to Bike Paths South Shore

Taking Action

Updated policies and prioritized projects in the plan support the EJ framework.

Funding for EJ

The RTP/SCS implementation supports Tahoe's Priority Communities by dedicating \$1.3 billion in constrained funding projects that meet their transportation needs. This equals over 60% of the RTP/SCS project funding.

Environmental Justice Analysis

<i>modal strategy</i>	Priority Communities
Transit	\$ 979,195,963
Active Transportation	\$ 84,984,655
Communities	\$ 121,083,290
Technology	\$ 14,147,863
Operations and Maintenance	\$ 171,942,600
	\$ 1,371,354,370

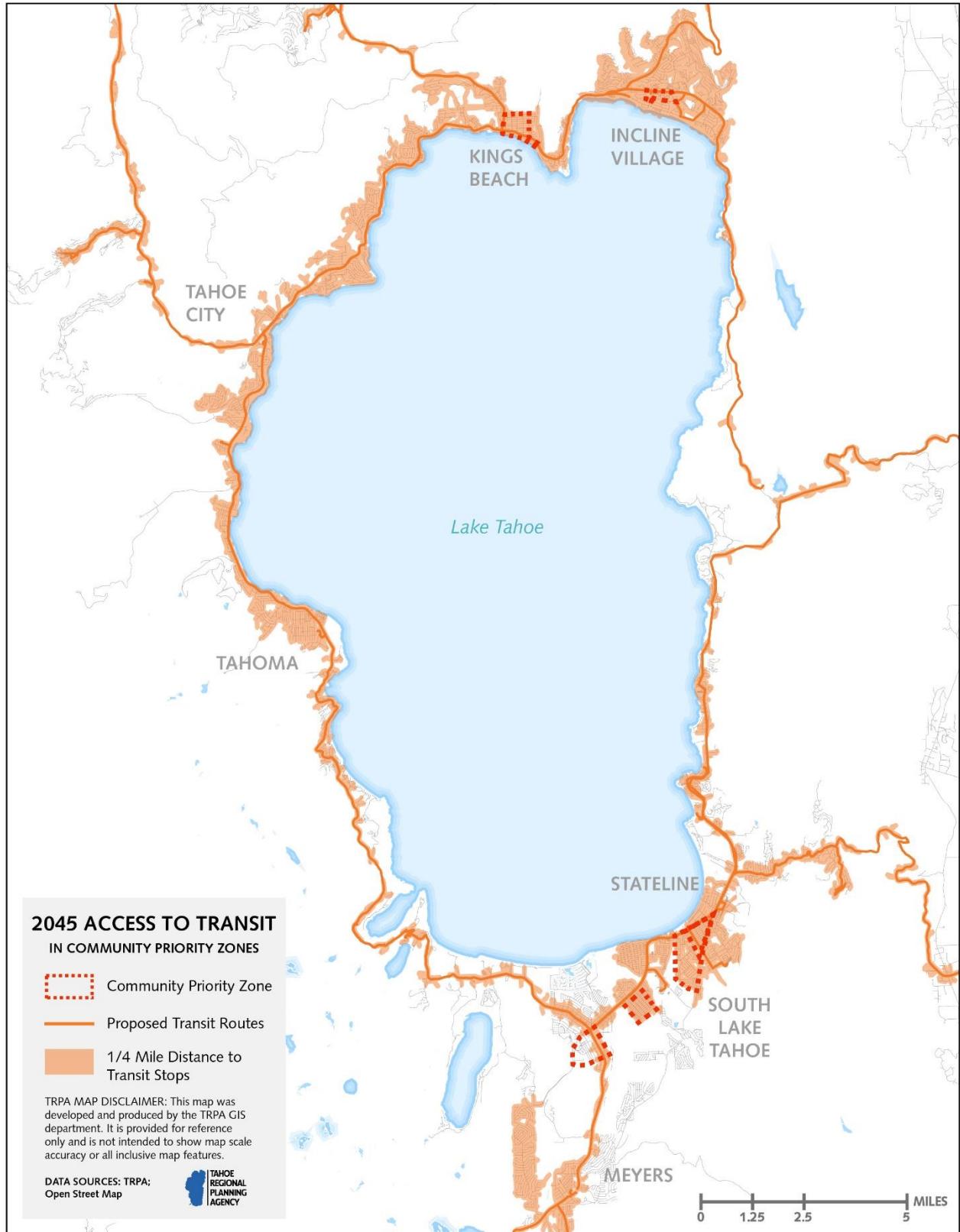


Figure 106: 2045 Access To Transit Map

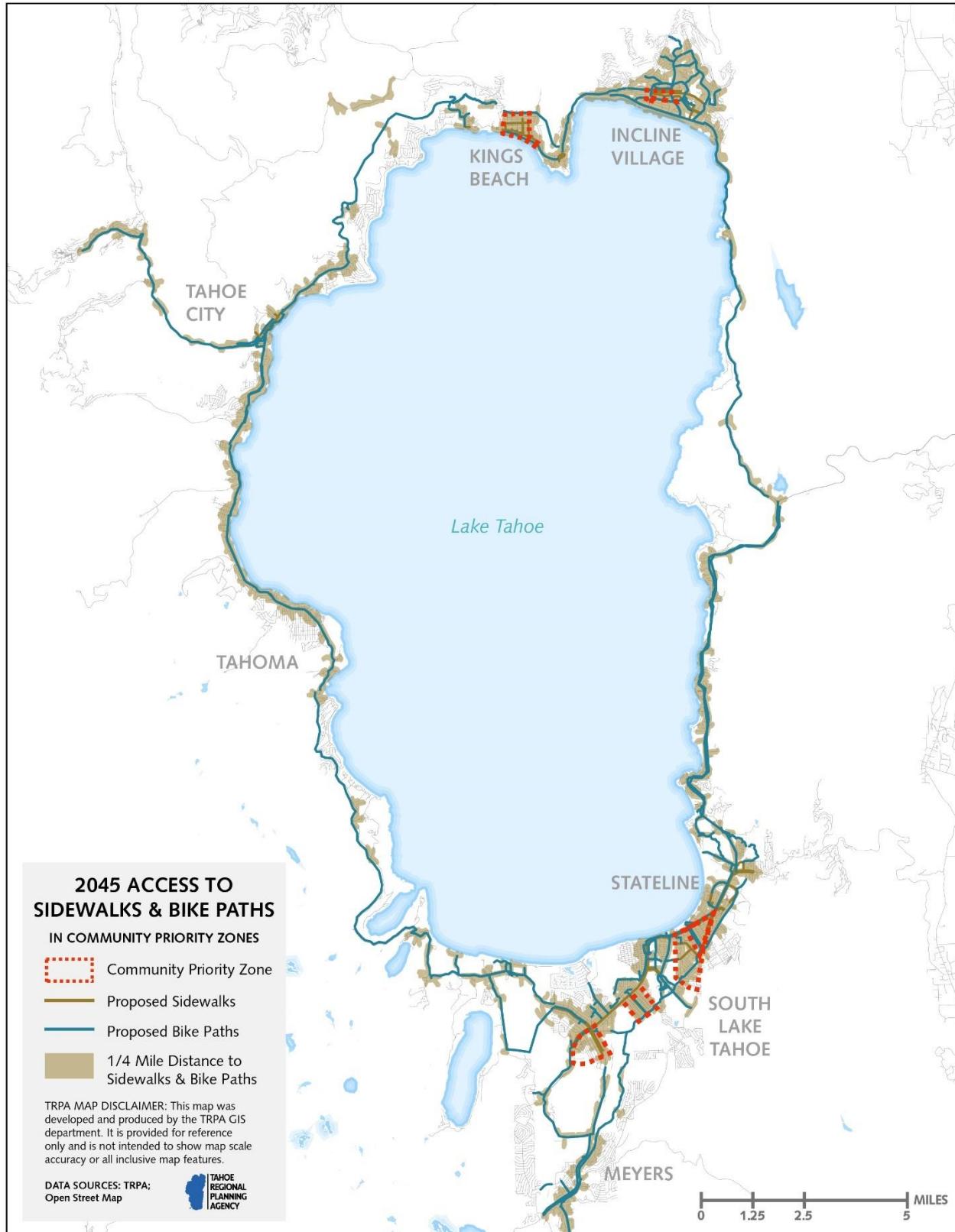


Figure 107: 2045 Access to Sidewalks and Bike Paths Map



Figure 108: 2045 Access to Bike Paths Map

Next Steps

Environmental justice will continue to be advanced in Tahoe through proposed action items:

1. Priority Community Access to Transportation is a key performance measure of the plan.
2. Transportation needs of Priority Communities will be assessed through continued public outreach through the SSTAC, and through the annual Unmet Transit Needs reporting.
3. Tracking affordable housing initiatives and ensuring that they are built with good access to transit and trails. TRPA will complete an EJ study prior to the

next RTP/SCS update that will review and make recommendations on, among other things: Consideration of built environment access needs

4. A transportation system gap analysis
5. Analyzing the displaced workforce to neighboring communities like Carson/Reno that have more affordable housing

In addition to the study, a new definition for CTC disadvantaged communities should be adopted by TRPA to reflect that work. This task will need to coincide with the California's Active Transportation Program Cycle.

APPENDIX G: DATA AND FORECASTING

Introduction

As part of the 2020 TRPA Regional Transportation Plan (RTP), TRPA prepared regional development and transportation forecasts for the years 2035 and 2045. The regional development forecast includes changes in development, population, demographics, and visitation. The transportation forecast includes the RTP project list, as well as the transportation strategies. The regional development forecast and the transportation forecast are implemented in the Tahoe travel demand model and the Trip Reduction Impact Analysis (TRIA) tool to allow planners to assess the efficacy of policies and projects that promote the goals of the Regional Plan and the RTP.

Development Forecast Summary

The 2035 and 2045 forecast years build upon the 2018 model base year, which was developed during the fall of 2019. More information about the 2018 base year can be found on the Tahoe [model website](#). The forecasts include a variety of projections related to land use and the characteristics of the Regions' traveling population in the forecast years; this population includes residents, visitors, and commuters. The forecast years of 2035 and 2045 were selected to meet specific regulatory requirements of the California Sustainable Communities Strategy (SCS) and Federal RTP requirements.

Residents—The forecast projects Lake Tahoe's full-time residential population to increase slightly. The forecasted increase is a deviation from the declines in the Region's population observed over the last 20 years and is influenced by a suite of factors. First, the number of regional housing units will increase as residential allocations are distributed and workforce

housing/affordable housing programs are implemented using residential bonus units (which restrict units from being used as second homes or vacation rentals). Similarly, the residential occupancy rate – the proportion of homes occupied by residents – is expected to increase due to the increase in housing supply available for residents from implementation of workforce and affordable housing initiatives as local and regional efforts to increase the housing supply for local residents take effect. The downward trend in regional population in the last 20 years was likely influenced by the declines in gaming and associated job loss. The precipitous declines in gaming revenues observed in the early part of the century following the opening of casinos in northern California have not continued into the second decade as revenues appear to have stabilized. The income distribution of the residential population will remain steady as increased provision of workforce and affordable housing counteract recent upward trends in household income. School enrollment will increase slightly because of overall population growth. Employment will also increase slightly as additional Commercial Floor Area (CFA) and Tourist Accommodation Units (TAU) are constructed throughout the Region.

Visitation—The forecast projects both day and overnight visitation to the Lake Tahoe Region to increase during the forecast years. This forecasted increase is based upon the projected population growth in the mega-region (Bay Area/Sacramento/Reno), forecasted increases in traffic counts in adjacent areas, and the increasing popularity of the outdoor recreation experience. This increase in visitation will result in an increase in the number of occupied

overnight lodging units, short-term rentals, and seasonal homes.

• **Table 1: 2045 Forecast Data Summary**

Forecast Data Summary				
	Base Year 2018	Forecast 2045	change (#)	change (%)
Residential Units and Population				
Residential Population	51,624	58,041	+ 6,417	12.4 %
Occupied Units	21,624	24,315	+ 2,691	12.4 %
Unoccupied Units	26,031	28,056	+ 2,025	7.8 %
Total Residential Units	47,655	52,252	+ 4,597	9.6 %
Income of Occupied Residential Units				
Low Income Units	10,463	11,886	+ 1,423	13.6 %
Medium Income Units	4,891	5,437	+ 546	11.2 %
High Income Units	6,254	6,843	+ 589	9.4 %
Total Overnight Visitor Units				
Short Term Rentals	6,005	5,931	-74	-1.2 %
Seasonal Units	17,129	18,544	+ 1,415	8.3 %
Campground Spots	2,120	2,120	0	0 %
Total Lodging Units	11,107	12,052	+ 945	8.5 %
Occupied Overnight Visitor Units				
Occupied Short Term Rentals	2,227	2,240	+ 13	0.6 %
Occupied Seasonal Units	6,396	6,911	+ 515	8.1 %
Occupied Camping Spots	1,278	1,278	0	0 %
Occupied Lodging Units	6,190	7,086	+ 896	14.5 %
Other Key Data Points				
Commercial Floor Area	6,327,319	6,533,869	+ 206,550	3.3 %
Employment	28,604	29,462	+ 858	3 %
School Enrollment	8,887	9,992	+ 1,105	12.4 %

Forecast Methodology

The overall approach to forecast development was to apply the best available information and data. The development rate forecast was informed by a review of historical development

rates, and an assessment of the performance of past forecasts. The forecast differs from past forecasts in at least two ways:

1. More rational development rates – Prior forecasts have generally assumed that

full build out of the Region would occur by 2035 but historic development rates have not kept pace with those forecasts. This forecast refines past methodologies by placing greater weight on observed development rates.

2. Recent overhaul of development rights system - This is the first forecast since significant changes were made to the development rights system to accelerate attainment of threshold standards and Regional Plan goals and policies. The changes enable easier conversion between types and facilitates the attainment of State housing mandates.

The forecasts contained in this document represent a conservative yet realistic view of the continued build out of the Lake Tahoe Regional Plan. Prior forecasts by TRPA had projected significantly faster growth and a faster consumption of the remaining development rights. The annual rate of consumption for commercial floor area and tourist accommodation units were adjusted to align with observed trends more accurately since the adoption of the 2012 Regional Plan update. Additionally, the forecast assumes that not all the remaining development potential for commercial floor area and tourist accommodation units will be constructed by 2045.

Staff anticipates that by 2045 the unknown but likely time-limited economic impacts from the COVID pandemic will be replaced by more normal economic forces.¹²

Residential Units

The number of housing units in the Region is influenced by market conditions as well as TRPA's development rights system, which caps the total development potential for the Region. The residential occupancy rate of the housing stock is influenced by economic factors, the number of residents, second home ownership, and visitors that frequent the Region.

There are currently 47,655 residential units in the Region (based on TRPA records); according to the occupancy rates published by the U.S. Census Bureau 2018 American Community Survey (ACS), an estimated 21,624 residential units (45%) are occupied by full-time residents and 26,031 units (55%) are not occupied by full-time residents (ACS 2018). Currently, approximately 20% of existing residential units in the Region are multi-family units (approximately 9,530 units) and 80% of existing units (38,125) are single family units. By 2045, an additional 4,597 units are expected to be constructed, bringing the total number of residential units in the Region to 52,252, a 9% increase. This includes the construction of 1,823 additional single-family residential units (40% of additional units) and 2,774 additional multi-family residential units (60% of additional units). Forecasts of residential projects in the three California jurisdictions are sufficient to accommodate the Regional Housing Needs Assessment (RHNA) Cycle 5 (2013-2021) and Cycle 6 (2022-2029). The forecast includes a continuation of the RHNA requirements beyond 2029. These requirements were linearly extrapolated to 2045 based on requirements

¹² Additional detail on the considerations related to COVID-19 are included in an addendum at the end of this document.

established to date and are accommodated in the forecasts.

All remaining residential allocations (2,234) are allocated and constructed in the forecast. This includes the award and construction of all residential bonus units (1,609), and all currently banked residential units (204) by 2045. The forecast also includes the conversion of 100,000 square feet of CFA and 130 TAUs to residential units, which will generate an additional 290 multi-family and 260 single-family units. The projected conversions are consistent with conversion trends since the adoption of the conversion programs and observed development rights utilization rates. The observed trends indicate a net conversion from CFA and TAUs and towards Residential.

Several key assumptions informed the spatial distribution of residential development in the forecast. First, new residential units were allocated to projects known to be in the pipeline, including multi-family and affordable-/moderate-income projects on public lands. This included 580 units expected to be built on California Tahoe Conservancy (CTC) asset lands¹³, redevelopment successor agency parcels¹⁴ and other publicly owned parcels where large multi-family and affordable/moderate-income housing projects are likely to be constructed¹⁵. For multi-family development on private properties, where the exact number of units to be constructed was not fully known, a computer-generated random selections to distribute units to vacant buildable multi-family and existing underbuilt residential

parcels throughout the Region. For these parcels, the number of units allocated was 60% of the maximum allowable buildout based on current zoning, coverage constraints, and density restrictions. This assumption is consistent with observed buildout patterns, and conservative in that it distributes new residential development throughout the Region (rather than modeling the most compact possible pattern). Multi-family units were only assigned to parcels that are currently zoned for multi-family residential, meet density requirements, and that have remaining coverage available to support additional units. Finally, the remaining private residential units were constructed as single-family units through random assignment to vacant buildable properties throughout the Region.

Residential Occupancy rate

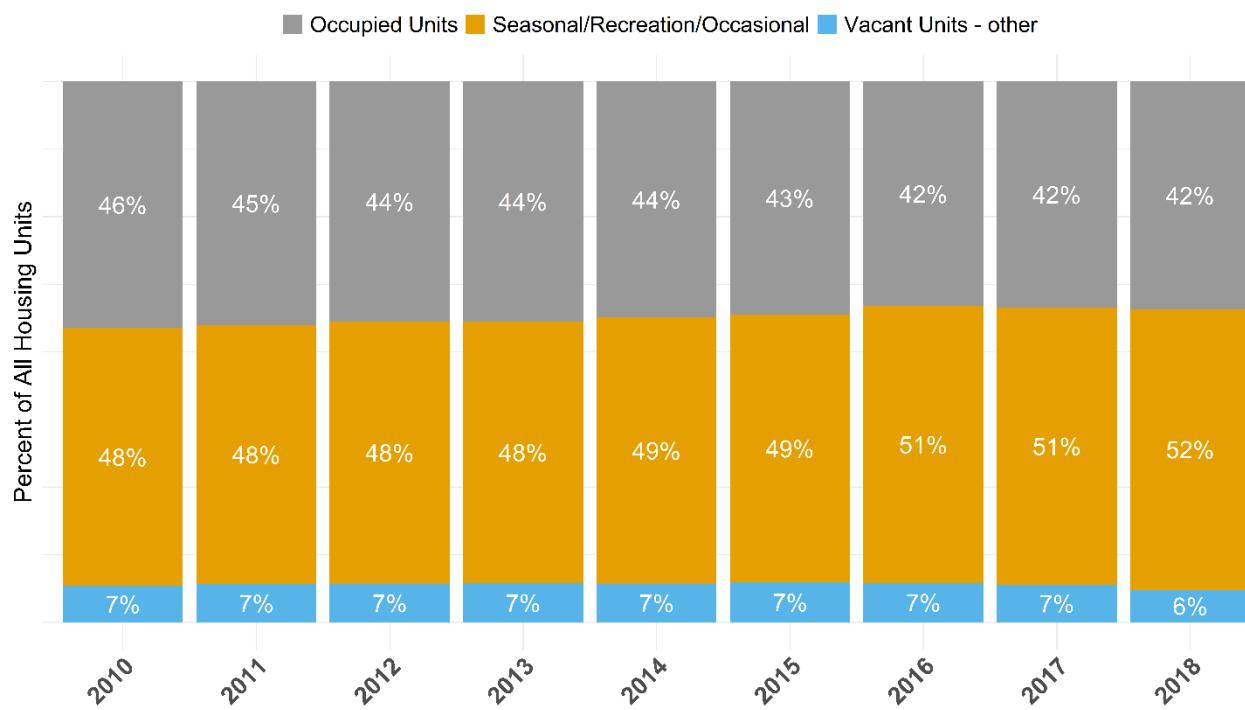
The U.S. Census American Community Survey (ACS) estimates that, since 2010, the proportion of occupied housing units in the Tahoe Region has dropped from 46% to 42% in 2018 (U.S. Census Bureau 2020). The remaining 58% of the regional housing supply not occupied by full time residents is classified by the ACS as vacant (ACS classifies houses as “vacant” if they are permanently unoccupied, periodically occupied by seasonal residents, used as a second homes, or rented by visitors, including short-term rentals). In recent years, the total number of seasonal or short-term housing units increased by 24%, from 21,000 in 2010 to 26,000 units in 2018.

¹³ See <https://tahoe.ca.gov/programs/tahoe-livable-communities/asset-land-sales/> for more details about potential housing development opportunities that have been identified by the California Tahoe Conservancy.

¹⁴ See <https://www.placer.ca.gov/3396/Housing> for information about potential housing development project opportunities in Placer County.

¹⁵ Includes housing commitments made by the Tahoe Transportation District as part of the Highway 50 Community Revitalization Project, see <https://www.tahoetransportation.org/us50>.

- **Figure 1: Housing Occupancy (2010-2018)**



Source: American Community Survey (ACS)

Despite these trends over the past several years, the forecast includes an increase in the proportion of residential units occupied by full-time residents (owner-occupied and renter-occupied). Three factors are expected to contribute to the shift: 1) Housing Initiatives to promote construction of new workforce, achievable, and affordable housing in the Region, 2) Housing initiatives to promote the

transition of the existing stock of residential units from second homes and short term rentals to resident-occupied units, and 3) Measure T in the City of South Lake Tahoe. Additional detail on each factor is provided below.

1. *Housing initiatives to promote new workforce and income-restricted housing:* The development forecast

includes construction of all the remaining 1,609 residential units from the TRPA residential bonus unit pool. Residential Bonus Units are awarded as transfer incentives for relocating remote development into town centers, and for the construction of affordable/moderate/achievable housing. New housing constructed with Residential Bonus Units is required by TRPA Code to be deed-restricted to prohibit these housing units from being used for second homes or vacation rentals.

2. *Housing initiatives to transition existing housing stock:* There are several initiatives underway to transition second homes, vacation rentals, and vacant house into residential units for full time residents. The forecast includes significant level of success for these initiatives (and other initiatives unknown at this time) that results in 700 additional units (~1.5% of the 2018 housing stock) occupied by residents in 2035 and 2045. The increase is independent of the forecasted increases described in and 1 and 3.
3. *Measure T in the City of South Lake Tahoe:* Voters passed Measure T in the City of South Lake Tahoe in November 2018 (see <https://www.cityofslt.us/453/Vacation-Home-Rentals>). The measure includes broad restrictions on short term rentals (STRs) outside select areas in the city. The restrictions go into effect on December 31, 2021. As a result of the measure, approximately 1,372 currently permitted VHRs will not be renewed. The market value of the existing VHR stock

skews higher than median values in the Region, so a conservative, but optimistic forecast is that 15% of the units will be transitioned to be occupied by residents (rented or owned); other units are expected to become part of the second home market. A recent study on the economic impact of VHRs in South Lake Tahoe suggested that 10% of existing VHR owners would likely rent to full time if they could no longer use the property as VHR (MBI 2017).

Commercial Floor Area (CFA)

There are currently 556,796 square feet of unused commercial floor area in TRPA and local jurisdiction community/area plan pools. Since 2013, a total of 41,928 square feet of CFA has been allocated to projects: an average rate of 6,988 square feet of CFA per year. The forecast includes the construction of an additional of 130,067 square feet of CFA by 2035 and 206,550 square feet by 2045. The forecasted rate of development - 7,650 square feet - is just higher than the observed rate since the 2012 Regional Plan, but lower than rates used in prior regional forecasts. For the forecasts, CFA was allocated to known projects that have been permitted or are in the planning phase, but not constructed; remaining CFA was allocated to town centers and area plans using the observed proportions from recent allocations.

The forecast includes the conversion of 100,000 square feet of CFA to residential units, consistent with conversion trends since the adoption of the conversion program; recent trends indicate the net conversion from CFA and TAUs towards Residential. The converted CFA is forecasted to result in the construction of 400 additional residential units --200 multifamily units, and 200 single family units. At the end of the forecast

period, 250,246 square feet of CFA remains unallocated and thus unconstructed.

Tourist Accommodation Units (TAU)

The forecast includes the construction of an additional 629 TAUs by 2035 and 945 TAUs by 2045. The forecast includes the completed construction of all currently permitted projects using 807 banked TAUs and the use of all 138 awarded TAU bonus units. Not all TAUs allowed in the Regional Plan are forecast to be constructed by 2045; an estimated 230 TAUs will remain undeveloped through 2045 (74 TAU bonus units and 156 banked TAUs). The TAU development rights pool is not exhausted within the forecast horizon, because of the slow rate of TAU right utilization and construction over the past 30 years. No TAUs have been allocated to projects and constructed since adoption of the 2012 Regional Plan, and only 58 TAUs have been allocated since the adoption of the 1987 Regional Plan. TAUs were allocated to projects that are permitted but not yet constructed (Homewood, Boulder Bay, Edgewood Casitas, Tahoe City Lodge, and Chateau/Project 3), and the forecast includes the removal and banking of some existing units. Bonus TAUs were assigned to permitted projects (Homewood, Boulder Bay, Tahoe City Lodge) and no additional allocations other than existing permits were included.

The forecast also includes the conversion of 130 TAUs to residential units, consistent with recent conversion trends since the adoption of the conversion programs; observed trends indicate the net conversion from CFA and TAUs and towards Residential.

Development Rights Forecast Summary

Total development in the Tahoe Region is capped by the Regional Plan. The type and rate of that development is further controlled by a complex system governing development rights in

the Region. Development rights are land use units someone must acquire before a property is developed. Development rights include tourist accommodation units (TAUs), single and multi-family residential units of use (RUUs), and commercial floor area (CFA).

Residential units of use (RUUs) are formed by combining a potential residential unit of use (PRU) and a residential allocation. The forecast differentiates between when a development right is allocated from TRPA or another jurisdiction's pool and the final use of that development right. Development rights can be utilized in one of two ways; they can be used to construct a project (e.g. a house) or converted to a different type of development right. The forecast is grounded in projections about the utilization, transfer, conversion, and construction of development rights. Tables 2-4 summarize the fate of development rights in the forecast period.

- Table 2 summarizes new construction which influences land use in the future scenarios. Tables 3 and 4 provide background detail on the underlying accounting that enabled the development.
- Table 3 summarizes the expected utilization of development rights in their current type.
- Table 4 summarizes the expected conversion of development rights between types.

The forecast includes the annual construction of 172 residential units, 7,650 square feet of commercial floor area and 35 tourist accommodation units (Table 2).

Table 2: Construction Forecast Summary

<i>Development Right Construction</i>	Annual Construction Rate	2035 Net Change	2045 Net Change
<i>Residential Units</i>			
Total Development of Residential Units	+172	+2,924	+4,597
<i>Commercial Floor Area (in Square Feet)</i>			
Total Utilization of CFA	+7,650	+130,067	+206,550
<i>Tourist Accommodation Units</i>			
Total Development of TAUs	+35	+629	+945

The forecast includes the utilization of allocation pools held by TRPA and local jurisdictions in the area plan, community plan, or plan area

statement pools, as well as the use of bonus and incentive pools, special projects pools, and banked development rights (Table 3).

Table 3: Development Rights Utilization Forecast Summary

<i>Development Right Utilization</i>	Annual Utilization Rate	2035 Net Change	2045 Net Change
<i>Residential Units</i>			
<i>Residential Allocations</i>	+83	+1,411	+2,234
<i>Residential Bonus Units</i>	+60	+1,020	+1,609
<i>Banked Residential Development</i>	+8	+136	+204
Total Development of Residential Units	+151	+2,567	+4,047

	<i>Commercial Floor Area (in Square Feet)</i>		
<i>Commercial Floor Area Allocations</i>	+6,413	+109,021	+173,142
<i>Commercial Floor Area Allocations (TRPA special projects pool)</i>	+2,963	+50,371	+80,000
<i>Banked Commercial Development</i>	+1,979	+33,643	+53,408
<i>Total Utilization of CFA</i>	+11,355	+130,067	+306,550
	<i>Tourist Accommodation Units</i>		
<i>TAU Allocations</i>	+5	+85	+130
<i>TAU Bonus Allocations</i>	+6	+102	+138
<i>Banked TAU Development</i>	+31	+527	+807
<i>Total Development of TAUs</i>	+42	+714	+1075

The forecast includes the conversion of development rights between the various types of development (Table 4). TRPA approved a comprehensive update to Tahoe's development rights system in 2018. This allows conversions between different types of development rights using environmentally neutral exchange rates and makes development rights simpler to transfer around the Basin, keeping limits on Tahoe's total development potential. The changes make it easier for the private sector to

invest in redevelopment projects that benefit Tahoe's environment and communities and provide needed workforce housing. The projected conversions are consistent with conversion trends since the adoption of the conversion programs and observed development rights utilization rates. The observed trends indicate a net conversion that reduces CFA by 3,700 square feet and 5 TAUs and creates an additional 21 residential units each year.

Table 4: Development Rights Conversion Summary

<i>Development Right Conversion</i>	<i>Annual Change as a Result of Conversion</i>	<i>2035 Net Change</i>	<i>2045 Net Change</i>

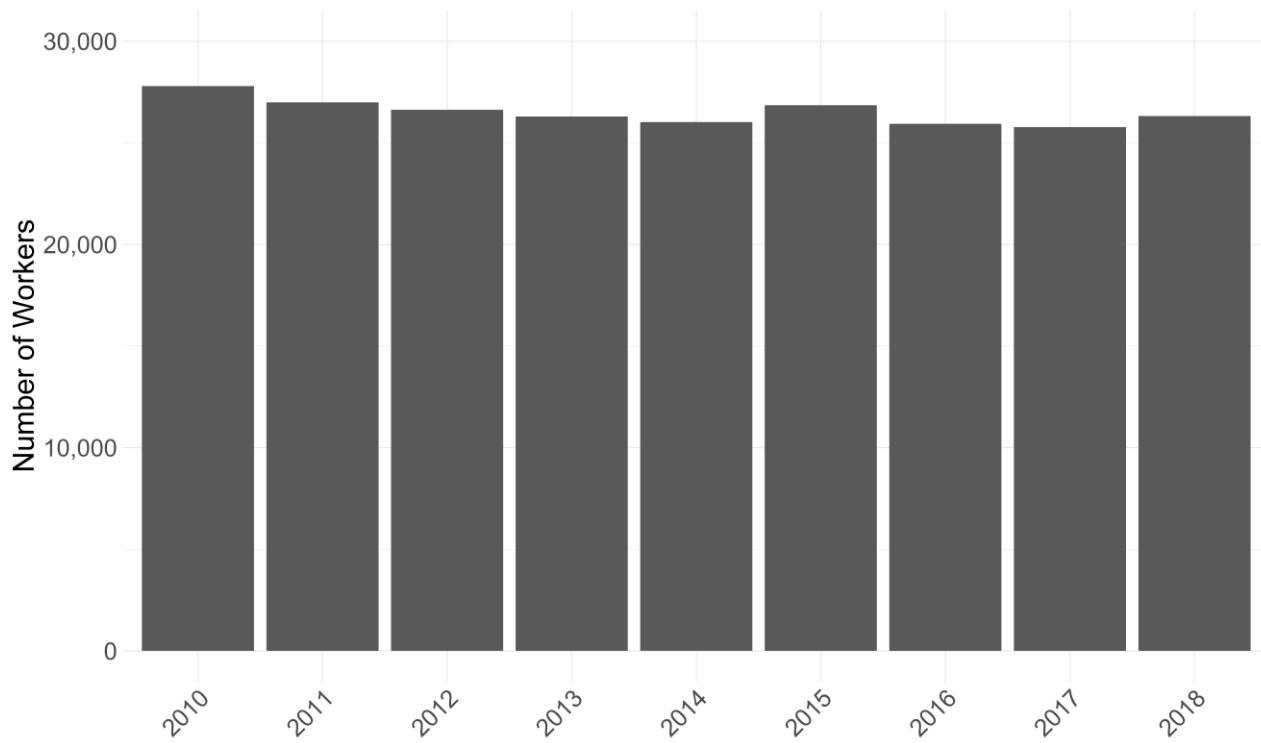
	Residential Units		
<i>Net Development Right Conversions to Residential</i>	+21	+357	+550
Commercial Floor Area (in Square Feet)			
<i>Net Development Right Conversions from CFA to RUU</i>	-3,704	-62,968	-100,000
Tourist Accommodation Units			
<i>Net Development Right Conversions from TAUs to RUU</i>	-5	-85	-130

Employment

The most recent region-wide data estimates that summer-time work opportunities in the Tahoe Region increased by 5% between 2014 and 2018, from 26,637 to 28,053 jobs. While employment increased, the number of workers estimated to

be living in the Region decreased by 6%, from 27,785 in 2010 to 26,314 in 2018 (ACS, 2018). This indicates that an increasing number of workers may be commuting into the Region for employment.

- **Figure 2: Number of Workers (2010-2018)**



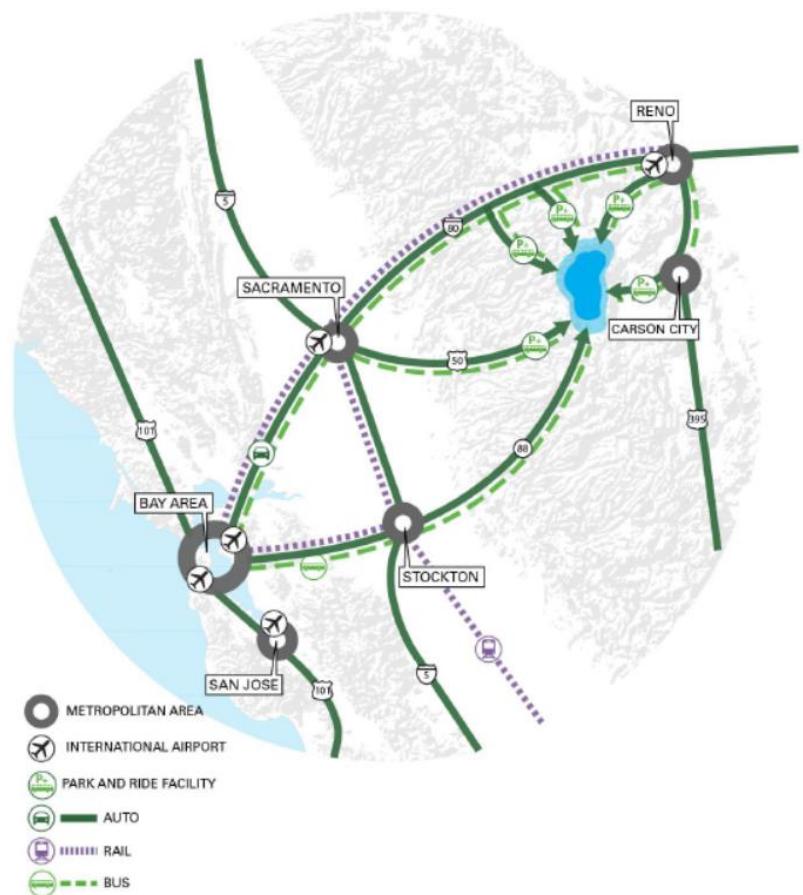
Source: American Community Survey (ACS)

The forecast projects a small increase in employment in the Region as a result of increased visitation, construction of new CFA and TAUs, and population growth. In the 2018 model base year there are an estimated 28,604 workers in the Tahoe Region (some residents hold jobs outside the Region). The forecast projects continued growth of jobs in the Region, with 572

(+2%) and 858 (+3%) new jobs in the Region by 2035 and 2045, respectively. The number of external workers (those commuting into the Region for work) is not expected to grow because more workers are expected to find housing locally as a result of the regional housing initiatives.

Visitation

The forecast includes an increase in visitation which is influenced by several factors. The Tahoe Region is located near and draws visitors from several regions that are projected to experience between 20% and 40% growth in the coming decades (Figure 3, Table 5). The Sacramento Council of Governments (SACOG), predicts that population in the greater Sacramento region¹⁶ will grow 26% by 2045. SACOG models traffic volumes on Interstate-80 and US Highway-50 leading into the Tahoe Region, and forecasts between 18% and 22% increases in volume in the next two decades (SACOG 2019). Farther west, but still within the Tahoe Mega-Region, the Association of Bay Area Governments (ABAG)¹⁷ forecasts 27% population increase by 2040 (MTC & ABAG 2017). To the north and east of Tahoe, RTC-Washoe predicts a 27% growth in population in the Reno/Sparks Metropolitan area¹⁸ by 2040 and the Carson Area MPO¹⁹ predicts a 28% growth in population (CAMPO 2016; RTC-Washoe 2018).



Population growth in the mega-region is likely to create increased demand for the recreation opportunities and the unique experience that Tahoe provides.

Table 5: Mega-Region Growth Forecasts

Location	Metric	Growth	Forecast Year	Source

¹⁶ The Sacramento Area Council of Governments (SACOG) includes the counties of El Dorado, Placer, Sacramento, Sutter, Yolo, Yuba and the 22 cities within this six-county region.

¹⁷ The Association of Bay Area Governments (ABAG) region encompasses Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties

¹⁸ Regional Transportation Commission (RTC) of Washoe County, Nevada serves the Reno and Sparks areas along with unincorporated areas of Washoe County.

¹⁹ The Carson Area Metropolitan Planning Organization (CAMPO) covers the Carson City urbanized area, which consists of Carson City, northern Douglas County, and western Lyon County.

<i>Sacramento Region</i>	Population	+26%	2045	SACOG 2020 MTP/SCS
<i>Sacramento Region</i>	Employment	+25%	2045	SACOG 2020 MTP/SCS
<i>Interstate-80</i>	Traffic Volumes	+22%	2040	SACOG 2020 MTP/SCS
<i>US Highway-50</i>	Traffic Volumes	+18%	2040	SACOG 2020 MTP/SCS
<i>Reno/Sparks Metro</i>	Population	+27%	2040	RTC-Washoe 2040 RTP, 2018
<i>Reno/Sparks Metro</i>	Employment	+37%	2040	RTC-Washoe 2040 RTP, 2018
<i>Carson City Region</i>	Population	+28%	2040	CAMPO 2040 RTP, 2018
<i>San Francisco Region</i>	Population	+27%	2040	ABAG 2040 RTP, 2017

Table 6: Sacramento and Reno Population Growth

Location	Metric	Growth	Between	Source
<i>Sacramento Region</i>	Population	+32% (+1.4% per year)	2000-2020	SACOG

<i>Reno–Sparks Metro</i>	Population	+36% (1.7% per year)	2000-2018	Nevada Regional Economic Analysis Project
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Population growth outside the Region over the last 20 years has not translated to a linear increase in visitation to the Region. Over the past 20 years (Table 6), the population in the SACOG region surrounding Sacramento has increased by 32% overall, or 1.4% per year compounded. The population of the Reno-Sparks Metropolitan region increased by 36%, or 1.7% per year compounded. Therefore, the forecast does not project increases in visitation in proportion to the projected growth in the mega-region. The mega-region is forecast to add another two million people over the next 20 years. The primary challenge in forecasting future visitation is in establishing the relationship between future population growth in the mega-region and visitation to the Tahoe Region. Looking at how historic growth in the mega-region has influenced travel into the Region through, we find that since 1990, the mega-region populations on the California side have grown by 32%, while AADT at the California entry stations has grown by 15%. Put another way, the populations of San Francisco, Sacramento, and San Jose have grown by over two million people, which translated into 5,500 more trips through the entry or exits on the California side. The mega-region is forecast to add another two million people over the next 20 years. The challenge is further complicated by the impact of macro-economic conditions that affect visitation.

Despite the population growth outside the Region, the number of rooms rented in the Region is lower today than it was at the turn of

the century. The recent observed trends in overnight lodging occupancy show generally flat or increasing occupancy in recent years, depending on location. Between 2013 and 2018, the number of hotel/motel rooms rented in the city of South Lake Tahoe increased by 37%. On the other hand, Douglas county casino occupancy (South Shore) has declined over the last two decades (Douglas County Room Tax Reports, 18-19); total rooms sold in the 2018-2019 fiscal year was 80% of the number sold in 2001-2002. The majority of the decline in Casino occupancy occurred between 2000-2010, and more recently occupancy has been relatively stable. Occupancy in Washoe county has varied between years over the last 20 years but overall is generally flat.

It is uncertain why past population growth has not translated in a linear fashion to increased visitation, but working theories include the decline in popularity of the local casinos as the gaming experience has become more widely available, limited tourist accommodation capacity, the limited roadway capacity into the Region and associated willingness to travel to the Region given the longer travel times.

The visitation forecast is comprised of related but independent projections regarding the expected characteristics of both the number and occupancy of overnight lodging accommodations types, and day visitation. The visitation forecast can be broken down into overnight visitors (staying in Hotels/Motels/Casinos/STRs/Private

homes) and day visitors. The number of occupied overnight visitor units is forecast to grow by 9% by 2045.

Overnight Visitors in Hotels/Motels/Casinos – In the 2018 model base year, 6,190 of the Region's 11,107 TAUs are occupied (56%) during the modeled day. The forecast includes the construction of an additional 945 TAUs by 2045, an 8.5% increase in tourist accommodation units. Forecasted occupancy of TAUs was increased slightly to account for the impact of Measure T in the City of South Lake Tahoe, which is expected to affect where visitors to the city can stay but not the overall demand (MBI 2017). The forecast estimates that 50% of the visitor parties that may have previously stayed overnight in STRs within the City of South Lake Tahoe would now stay in TAUs, because of the expected lower supply of STRs in the City. As a result, the regional overnight lodging occupancy rate (in TAUs) increases from 56% to 59% in the forecast years. As a result of both additional unit availability from new TAU construction and the higher occupancy rate, the actual number of occupied Hotel/Motel/Casino units increases by 14.5% in 2045.

Overnight Visitors in STRs – In 2018, TRPA estimated that there were 6,005 permitted STRs in the Tahoe Region, which comprised approximately 13% of all existing residential units and 23% of the vacant housing units. On the model day, 37% of the units (2,227) are occupied. The forecast projects that both the total number and occupancy of STRs is relatively flat in the forecast years. This projection is highly influenced by the City of South Lake Tahoe's Measure T, which eliminates STRs within most of the City's jurisdiction. Measure T will reduce the number of available STRs in the City of South Lake Tahoe but is unlikely to reduce the overall regional demand for the home-based stay

experience in Tahoe. As a result, the forecast includes the displacement of STRs from the city to other jurisdictions in the Region. The result will be more STRs (in absolute and proportional terms) in other jurisdictions in the Region and in areas of the City where STRs are still allowed. As a result of Measure T, approximately 1,372 STRs within the City of South Lake Tahoe but located outside of the Tourist Core area will not have their licenses renewed. During the model analysis period (model day), 508 of those 1,372 STRs were occupied. The forecast assumes that all 508 visitor parties will still visit the Region and find overnight accommodations elsewhere. Of the visitor parties that would have been staying at one of the STRs impacted by Measure T, half are forecasted to find accommodations in STRs in the Tourist Core areas within the City of South Lake Tahoe, where STRs remain allowed, or in STRs in other jurisdictions, and half of visitor parties are forecast to shift to accommodations in the casinos, hotels, motels, and resorts in the Region.

Overnight Visitors in Seasonal Units – Seasonal units are residences within the model that are not claimed as the primary residence for the owner. Within the model they could be occupied by the owner, friends of the owner, time-shares, informally rented, but are not accounted for included in the total of STRs. These units comprise approximately 36% of the total housing market in the Region, of which 37% were estimated to be occupied on modeled day in the 2018 base year. The forecast maintains these percentages into the forecast years. The proportion of seasonal units in the Region has grown in the last 10 years. The proportion of seasonal units is not forecast to continue to increase in the forecast, due to three factors: 1) the construction of additional workforce housing units which cannot be used for second homes, and 2) initiatives focused on making the existing

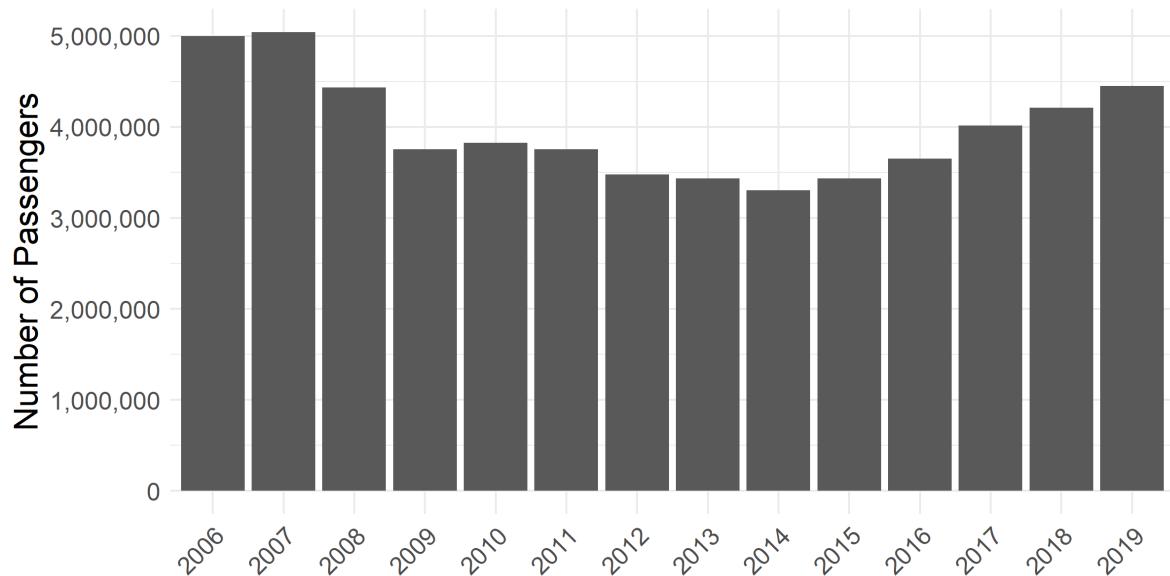
stocking more affordable for workers and residents, and 3) the conversion of some existing vacation rentals in the City of South Lake Tahoe to resident housing because of the Measure T requirements. The forecast projects the occupancy rate of second units will remain the same, maintaining the 37% occupancy of the base year in 2035 and 2045. As a result of the increase in the total number of homes in the Region the number of seasonal units increases by 8% in 2045.

Day Visitors – Day visitation is forecast to increase as a result of population growth in the mega-region, at a similar rate as overnight visitation. Day visitors are one of the more challenging travel parties to forecast. The model assumes the factors that drive overnight

visitation are positively correlated with factors driving day visitation. The relationship between these two types of visitors was established as part of the calibration and validation for the 2018 base year and is not expected to change in the forecast years.

Passenger Traffic at Reno Tahoe International Airport - TRPA staff also analyzed the total passenger data from the Reno Tahoe International Airport (Figure 4), which shows that passenger traffic has increased in each of the past 5 years, but remains below the passenger volumes in the mid-2000s. Between 2014 and 2019, annual growth in passengers ranged from +4% to +10%, with the average annual growth from 2014 to 2019 of +6%.

Figure 4: Reno-Tahoe International Airport: Total Passengers 2006-2019



Source: The Reno-Tahoe Airport Authority, Reno-Tahoe International Airport: Passengers and Cargo Statistics Reports 2008 through 2019, Retrieved May 25, 2020 from <https://www.renoairport.com/airport-authority/facts-figures/statistics>.

Sensitivity of Visitation Forecasts

In meetings with the TRPA Governing Board, Tahoe Model Working Group and other

stakeholders, TRPA staff were asked to test and report on the sensitivity and impact of higher or lower than expected changes in visitation and different scenarios that might change the

forecast assumptions. In response, staff assessed the sensitivity of VMT forecasts to a range of visitation assumptions. performed additional validation and testing for changes in visitation and the resultant effect on VMT.

All visitors in the base year model (including day, overnight, second homeowners, and thru-travelers) average 7.9 in-region VMT a day. So, for every 100 additional (or fewer) visitors, Regional VMT would change by 790 VMT. At a high level, Visitors make up 47.3% of the VMT in the model, so if total visitation increased by 10%, regional VMT would increase by approximately 4.7% increase in regional VMT.

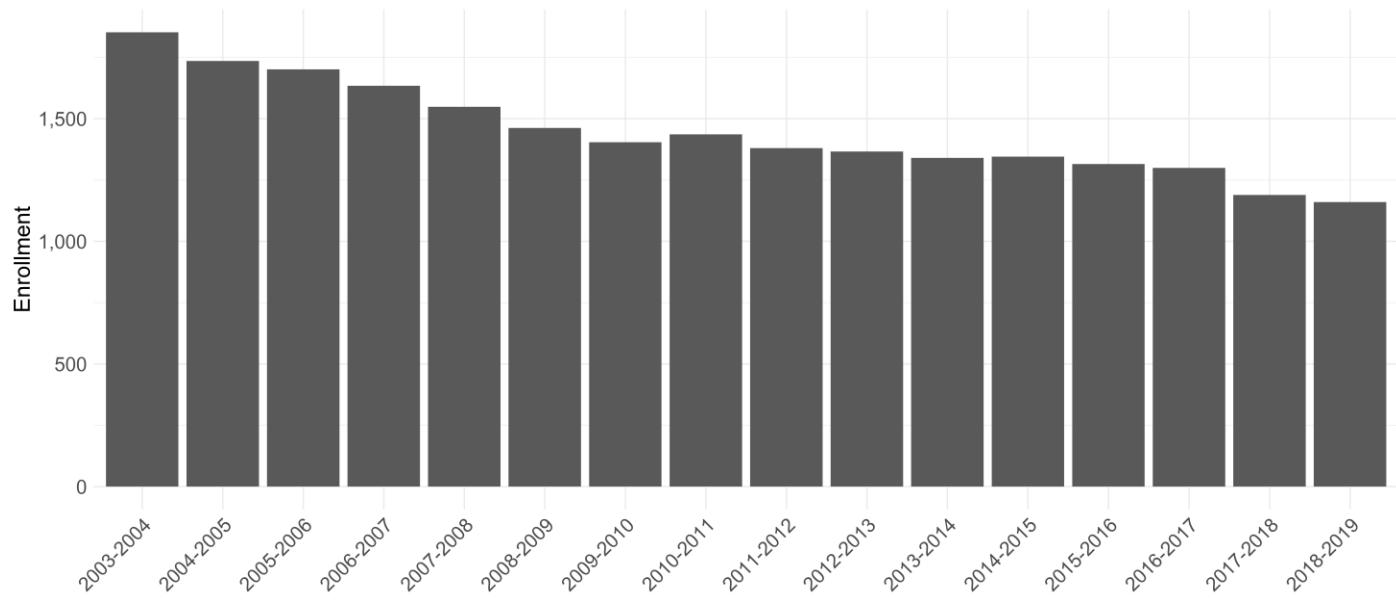
If each of these visitor types were adjusted independently, the results would be as follows:

- A 10% increase in the number of day visitors would result in a 1.8% increase in regional VMT
- A 10% increase in overnight visitors would result in a 1.8% increase in regional VMT
- A 10% increase in second homeowners would result in a 0.9% increase in regional VMT

School Enrollment

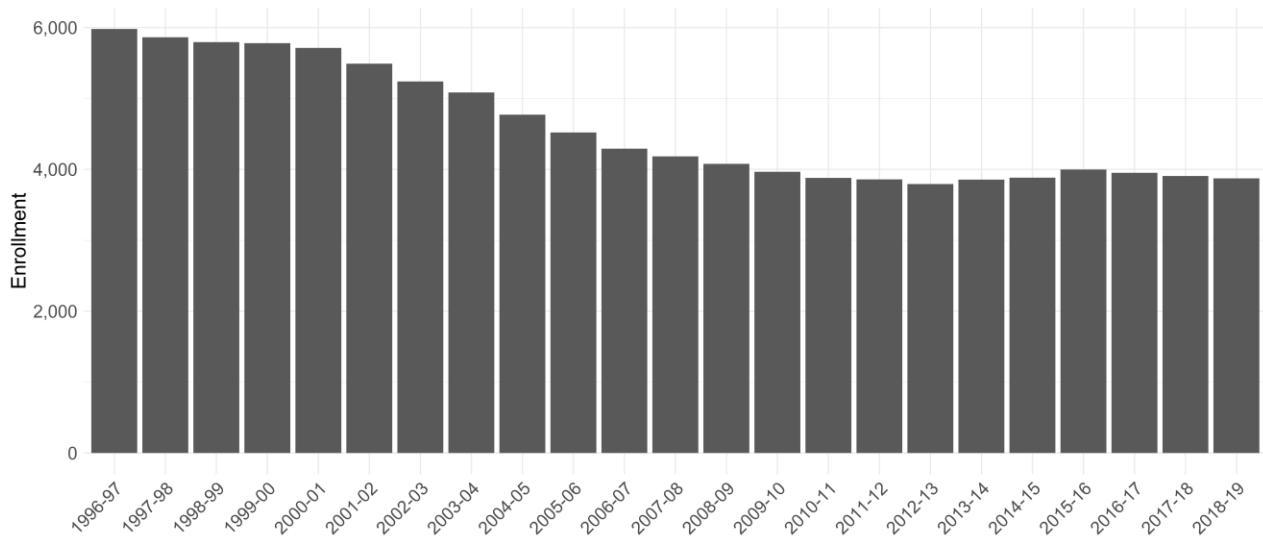
Like the overall population, school enrollment in the Region has decreased in the last two decades, but in most recent years has been relatively steady. Between 1996 and 2018, enrollment in the Lake Tahoe Unified School district in South Lake Tahoe, California decreased by 35%, while enrollment on the Nevada side decreased by 37%, from 1,852 in 2003 to 1,160 in 2019. The forecast projects that school enrollment will increase by 12.4% as new employment (858 additional jobs) and residents (6,417 additional full-time residents) are added to the Region.

Figure 5: Tahoe - Nevada School Enrollment (2003-2019)



Source: <http://nevadareportcard.nv.gov/di/main/demoprof>

Figure 6: Lake Tahoe Unified School District Enrollment (1996-2018)

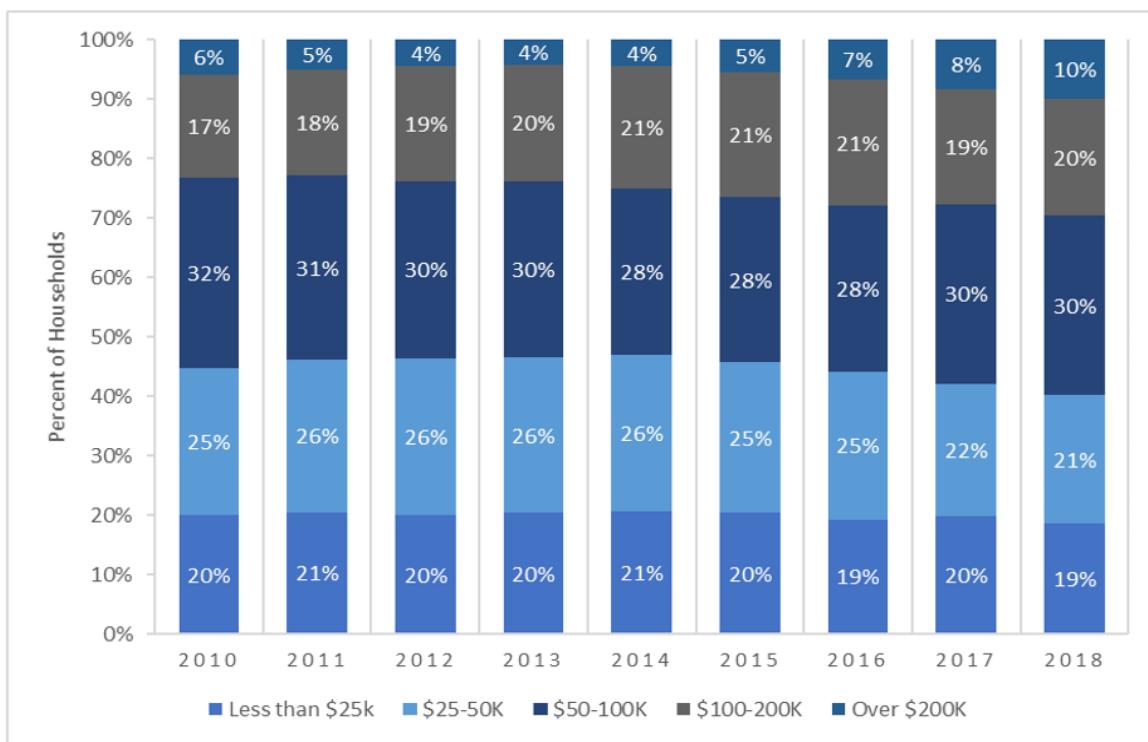


Source: dq.cde.ca.gov

Household Income

Household income is a key characteristic of the residential population, which influences travel behavior. Census data over the last nine years

show that household income in the Region is trending upwards towards higher incomes (ACS 2010-2018). Annual median income for



Source: American Community Survey (ACS)

households nationally rose to \$61,937 in 2018, within California it is \$75,277, and in Nevada it is \$58,646 (Guzman 2019). Median income in the Tahoe Region has grown over the last five years as the Region emerged from the Recession and is now close the national average. However, the proportion of households earning less than \$25,000/year annually has remained at relatively stable, at about 20% of households. Between 2010 and 2018 the number of households earning over \$200,000/year grew by 67% and those earning between \$100,000 and \$200,000 increased by 11%. Despite these gains,

households earning less than \$100,000/year outnumber households earning more than \$100,000/year by two to one. Some have suggested the decline in lower-income households has been driven by workers leaving the Region in search of more affordable housing. The forecast projects that the relative distribution of household incomes will be maintained at the current level. Initiatives to provide workforce and affordable housing are expected to increase the regional housing availability at the lower end of income distribution.

Figure 7: Household Income Categories (% of Households 2010-2018)

Addendum

COVID-19

The research and majority of the forecasts for the 2020 Regional Transportation Plan were developed prior to the impact of COVID-19 on our community and the world. The immediate impact of COVID-19 on our community has been severe. Both states issued stay-at-home orders and the casinos, ski resorts and many other businesses closed in March 2020, furloughing or laying off thousands of employees. The Lakeside Inn and Casino announced that it would not reopen. The hotels, motels, restaurants, bars, and many of the recreation areas, beaches and parks that are the lifeblood of our tourism-based economy were closed for weeks. The impacts on transportation were apparent in the traffic volumes around the Region. In early May, VMT in the counties that make up the Tahoe Region was estimated to be down 30-50% from levels observed in the same period in prior years.

The long-term impacts of COVID-19 on the Region are uncertain. Some believe that the job losses, business closures, and economic hardship will continue. Others think that urban flight will result in a mass movement from cities to rural areas, as remote work continues and people seek to escape crowded cities for open spaces, resulting in massive population shifts and increased housing needs in the Region.

Given this uncertainty, staff recommends maintaining the above assumptions for the forecast scenarios even considering the COVID - 19 pandemic and associated economic downturn. The Harvard Business Review (HBR) recommends that in “moments of unprecedented uncertainty”, one must “know when not to make a forecast” (Saffo, 2007). HBR suggests that “even in periods of dramatic, rapid transformation, there are vastly more elements that do not change than new things that emerge” (Saffo, 2007).

Transportation Projects & Strategies Forecast Summary

Transportation Projects & Strategies

The second element of the RTP/SCS forecast was the transportation forecast. The transportation projects and strategies were forecasted using both the Tahoe travel demand model and the Trip Reduction Analysis Tool (TRIA). All fixed-route transit projects were directly incorporated into the travel demand model; the route locations, fares, and headways were directly forecasted within the model network. In terms of roadway capacity, the plan does not include many changes. As a result, the Highway 50 Revitalization project was the only roadway project directly represented in the travel demand model. The rest of projects and strategies were incorporated in the forecast using TRIA; these include microtransit, bike/ped projects, ITS, TDM, parking, and others.

TRIA 2.0

The Tahoe Regional Planning Agency developed and maintains a Trip Reduction Impact Analysis (TRIA) spreadsheet tool to evaluate the trip and VMT reduction impacts of various transportation policies and programs under consideration as part of the Sustainable Communities Strategy (SCS) effort. The TRIA spreadsheet tool captures the strategies that can have a significant effect on travel demand such as parking policies, traveler information systems, new transit operations, or construction of new bike trails and sidewalks but which cannot be accurately captured in the TRPA travel demand model. The purpose of the TRIA is to provide planning-level, order-of-magnitude, comparative estimates of the quantitative vehicle trip reductions in the travel demand modeling process to inform expected total trips, vehicle miles traveled (VMT), and greenhouse gas (GHG) emissions based on the combined impact of the capital

improvement projects, operational enhancements, policies, and programs considered in the TRPA 2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

As noted above, the TRIA 2.0 tool provides a way to make comparisons between different policy alternatives and their ultimate effect on vehicle trips, VMT, and GHG emissions. The tool is integrated as a step in the travel demand modeling process in order to allow TRPA to understand the impact of policies, programs, and other investments tailored to the Tahoe area that will help the Region meet the GHG emissions reduction targets set by the California Air Resources Board under California's Senate Bill 375, the VMT reduction targets under California's Senate Bill 743, and trip reduction goals.

As much as possible, the TRIA 2.0 used estimates based on current conditions in the Tahoe Basin, or existing trip reduction estimates developed locally, particularly in the case of new transit services and new active transportation facilities such as bike trails and sidewalks. For policies or projects for which there are no local studies, the trip reduction impacts were estimated based on a review of the current (2020) literature and studies of locations where similar policies, programs, or investments have been implemented. Where research shows that a policy might vary in effectiveness a more conservative approach will be chosen, so as not to overstate the trip and VMT reduction potential.

The TRIA 2.0 is built around the main modes of transportation and analysis of how the land use plan and transportation strategies and policies proposed in the RTP will impact these modes.

The main categories previously considered in the model are:

- Active transportation (bicycling and walking)
- Public transit service
- Intelligent Transportation System (ITS) technologies
- Transportation demand management (TDM) measures
- Parking policy changes

As well as updating the existing categories in TRIA, the update also includes the addition of the following categories:

- Shared Micromobility services (i.e., E-scooters)
- Microtransit Services

The model is structured in such a way as to estimate the potential growth for each mode, where relevant (e.g. the potential for new transit riders who were previously vehicle riders), and estimate a vehicle trip reduction as a result of the strategy. See Table for an overview of the strategies analyzed and their individual estimated trip reduction potential in the 2035 and 2045 RTP/SCS scenarios.

Analysis by Mode

The approach taken in TRIA 2.0 for the strategies considered are summarized below. The table that follows lays out the full details on trip reduction by strategy, sources used and overall reduction.

Active Transportation

The following describes the three active transportation-related trip reduction strategies.

Bike and Pedestrian Facilities

The vehicle trip reductions for bicycle and pedestrian trips were developed using the bicycle and pedestrian monitoring data collected by TRPA for the past three years (the data used for this analysis and ongoing monitoring data is available at <http://www.trpa.org/transportation/monitoring/>). The monitoring data was used to develop an understanding of how walking and biking trips vary by different facility types (e.g., sidewalk, bike lanes, and shared-use paths) in different contexts (e.g., town centers, recreation corridors, campgrounds, etc.) to establish a relative classification of usage. New bicycle and pedestrian improvements were then classified into one of the facility and context types to estimate the number of walking and biking trips expected based on the new facility. These usage estimates are then used to estimate a vehicle trip reduction associated with the new walking and biking facilities. The TRIA assumes that the implementation of the bicycle and pedestrian network will happen at a uniform rate across the timeframe of the plan, therefore by 2035 only a portion of the network will have been completed, and therefore the VMT reduction is not as great in 2035 (1.12%) as in 2045, at 1.19%. This trip reduction is applied to all trips in the Region.

Electric Bicycles

The prevalence of electric bicycles, or “e-bikes”, was introduced in the 2020 TRIA update to calculate trip reductions associated with programs and policies to encourage the safe use of e-bikes. E-bikes are gaining prevalence in many locations around the world through individual ownership, rental programs, and bikeshare services. A literature review was conducted to determine how e-bikes affect travel behavior and patterns. The primary finding

of the literature was people are willing to travel nearly twice as far using an e-bike than a regular bicycle. To account for this impact, the TRIA tool estimates increases in the bicycle mode share based on the potential for longer bike trips using e-bikes. The reduction in vehicle trips based on the adoption of e-bikes (0.79%) was applied to all trips in the Tahoe Basin based on an expected bicycle mode share by trip length for both the 2035 and 2045 scenario.

Shared Micromobility

Trip reductions associated with shared micromobility services were included in the TRIA 2.0 update. Shared micromobility services include shared e-scooters and e-bikes, that are accessed and paid for via applications and allow trips within a defined service area. Overall trips reduction factors associated with shared mobility services were calculated using 2018 and 2019 trip data and survey data from South Lake Tahoe's implementation of the Lime e-scooter program which showed that 48% of e-scooter trips replaced an automobile trip. The trip reduction is calculated using trips in the areas expected to provide shared micromobility service in the future: Tahoe City, Kings Beach, and South Lake Tahoe areas. The regional trip reduction percentage (0.53%) is calculated by dividing the total trips reduced in micromobility areas by regional trips. The resulting trip

Year 2035:

- TTD 20 and 19x (long)- Stateline TC to Carson (interlined)
- TTD 21x - Stateline TC to Carson via Spooner
- TART 89 (long) - Tahoe City TC to Truckee Depot
- TART 267 (long) - Stateline to Truckee Depot

reduction factor was corroborated through review of e-scooter trip research from Portland and Chicago and is applied to all trips in the Region.

Transit Services and Facilities

The following four strategies describe the trip reductions calculated in TRIA associated with new or improved transit services not captured by the TRPA travel demand model.

Transit Service and Capital Projects

The transit portion of the trip and VMT reductions are based on ridership projections for new or improved transit routes included in the RTP's constrained project list for 2035 and 2045. The model currently accounts for transit ridership for all transit trips internal to the TRPA's travel demand model network (e.g., the Tahoe Basin). Therefore, the transit portion of the trip reductions in TRIA is only based on trips that either originate or end external to the Tahoe Basin. Additionally, trip reductions associated with circulator, ferry taxi, and other non-route-based services that cannot be represented in the travel demand model are also estimated in the TRIA 2.0 transit service calculations. The name and description of the new or improved transit routes included in the trip reduction calculations are listed below:

- Event Center Circulator - Tourist Core to Round Hill
- South Shore Ferry Taxi - Round Hill Pines to Camp Richardson
- STS - STS Medical Transportation

Year 2045:

- TTD 20 and 19x (long) - Stateline TC to Carson (interlined)

- TTD 21x - Stateline TC to Carson via Spooner
- TART 89 (peak) - Tahoe City TC to Truckee Depot
- TART 89 (off-peak) - Tahoe City TC to Truckee Depot
- TART 267 - Stateline to Truckee Depot
- TART 3 - Incline Village to Reno
- Trans Sierra 1 - Meyers to Stockton
- Trans Sierra 2 - Meyers to Sacramento
- Event Center Circulator - Tourist Core to Round Hill
- South Shore Ferry Taxi - Round Hill Pines to Camp Richardson
- North Shore Ferry Taxi - Sand Harbor to Tahoma
- STS - STS Medical Transportation

Trip reduction calculations associated with these additional transit services results in trip reductions of 0.51% and 1.61% in 2035 and 2045, respectively. This trip reduction is applied to regional trips (including external trips).

[Intercept Lots](#)

Additionally, a strategy implementing intercept parking lots to allow visitors or residents to park in designated lots and transfer to transit services was also evaluated in the updated TRIA calculations. The strategy targets reducing visitor vehicle trips into the Tahoe Basin and the impact was estimated based on a study by the Alameda County Transportation Commission estimating

drive-to-transit mode shares. The estimated impact of the intercept lots was adjusted down from 8% to 4% to conservatively estimate the number of visitors that would be willing to use the intercept lots. Based on the percentage of external traffic generated by visitors (70%), the calculated trip reduction for was 2.8%. This trip reduction factor is only applied to external trips entering or leaving the Region.

[Microtransit Service Areas](#)

Trip reductions associated with microtransit services were also included as a new strategy in the TRIA update. Microtransit services are on-demand transit services that typically provide flexible routes within a defined service area using lower-capacity transit vehicles.

Microtransit services can be funded by public agencies, private agencies, or through public-private partnerships. Overall trip reduction factors associated with microtransit were calculated using 2019 and 2020 trip data from the Squaw Valley and Alpine Meadows' Mountaineer microtransit service. User survey data from Aspen's Downtowner microtransit service was used to calculate the percentage of microtransit trips that replace vehicle trips.

Vehicle trip reductions associated with microtransit service areas are calculated based on the total number of trips in areas where microtransit services are planned as part of the RTP/SCS: Tahoe City, Kings Beach, and South Lake Tahoe. The reduced vehicle trips are then used to calculate regional trip reduction factors of 0.28% and 0.45% in 2035 and 2045, respectively. The trip reduction factor is then applied to all trips in the Region.

[Intelligent Transportation System \(ITS\) Technologies](#)

Several strategies to increase the functionality and usability of transit based on ITS technology

improvements were included in the TRIA 2.0.

These included:

- Improved transit coordination between local and regional providers, through simplified trip planning (e.g. Google Transit). This strategy is associated with trip reduction percentages of 0.68% and 0.66% of trips to or from Town Centers in 2035 and 2045, respectively. For external trips, this strategy is associated with trips reductions of 0.43% and 0.42% in 2035 and 2045, respectively.
- Improved transit coordination between local and regional providers, through the elimination or shortened wait time of transfers, as well as improvements to ticketing structure and agency cooperation to eliminate "transfer anxiety". This strategy is associate with trip reduction percentages of 0.08% and 0.10% of trips to or from Town Centers in 2035 and 2045, respectively.
- Real-time arrival information at transit stops, online, and/or via web-enabled mobile devices. The trip reduction factor for this strategy is 0.04% and is applied to trips to or from Town Centers.
- Dynamic ridesharing for inter-regional trips. This strategy introduces services and/or subsidies to encourage commuters to rideshare. Examples include through carpool matching services and vanpools. The TRIA tool calculates the expected reduction in trips with the introduction of these services as 1.00% and is this reduction is applied to internal-external and external-internal trips only.

Transportation Demand Management (TDM) Measures

The TRIA 2.0 TDM calculations were updated with current employer data. The businesses are categorized by size with 19 small (less than 100 employees), three medium (between 100 and 200 employees) and four large employers (more than 200 employees) included in the data set. TRIA 2.0 compares the effect of improving the participation rate of the existing Employer Trip Reduction ordinance through improved enforcement and/or updating policies and programs. Target participation rates for small, medium, and large employers were established and compared to an assumed 50% existing participation rate. The change in participation is then used to calculate reduced trips based on expected TDM policies impacts based on the current literature and average local employer size data. The TDM measures trip reduction is calculated for new development (1.86%) and existing development (0.82%). New development is estimated to be 3% of all new trips in the Region and is used to weight the potential trip reduction of TDM measures. The TDM measures trip reductions are only applied to trips going to or from a Town Center.

Parking Management

TRIA 2.0 evaluates the expected reduction in vehicle trips associated with parking pricing and parking management strategies in select parking management zones in the Tahoe Basin. This includes demand-responsive pricing in commercial areas with residential permits to prevent parking spillover into residential areas, changes to parking standards, shared parking arrangements, etc. This trip reduction percentage is calculated relative to regionwide trips based on the trips reduced in areas implementing parking strategies. The trip reduction calculation methodology was updated to simplify the overall calculation method and account for a wider range of parking strategies in

an inclusive calculation based on an updated literature review on the latest research into parking impacts on vehicle trip reductions. A parking management trip reduction percentage from the current literature (2.7%) was halved to 1.35% to reflect the lower potential impact of parking management policies based on the high recreational travel demand for the Region. This trip reduction was applied to trips in areas across the Region that were expected to implement parking management strategies to calculate the total number of vehicle trips reduced. These trip reductions were then recalculated as a trip reduction factor that is applied to all regional trips (1.2%).

Trip Reductions Summary

Table presents a summary of the trip reductions by individual strategy described above. The summary table provides a brief description of the vehicle trip reduction strategy, the primary source of reduced vehicle trips, the type of vehicle trips impacted, employer type, and the individual 2035 and 2045 percent reductions.

Trip reductions are classified into one of three vehicle trip type groupings:

- **Regional Trips:** This grouping applies the vehicle trip reduction to all trips in the Region.
- **Town Center Trips:** This grouping only applies the vehicle trip reduction to trips that are going to or from a designated Town Center.
- **External Trips:** This grouping only applies the vehicle trip reduction to trips that are entering or exiting the Region.

For the TDM strategy, reductions are calculated for new and existing employers. Given some employers are already participating in employer trip reduction programs, the impact on existing

employers is lower than for new employers. This is the only strategy for which the employer type is considered.

Table 7: Trip Reduction Impact Analysis (TRIA) Estimates – 2045 RTP/SCS

Vehicle Trip Reduction Strategy	Primary Source of Reduced Vehicle Trips	Vehicle Trip Types Impacted	Employer Type	2035 Percent Reductions in Vehicle Trips	2045 Percent Reductions in Vehicle Trips
Active Transportation					
<i>Complete regional network of bike and pedestrian facilities (includes expanded bike parking)</i>	Increased bike and pedestrian mode share for trips in the corridor/district served by the project, partially drawn from former vehicle trips of 3 miles or less.	Regional Trips	--	1.12%	1.19%
<i>Shared micromobility service areas</i>	Reduced vehicle trips due to use of shared micromobility devices (e.g., e-scooters or shared e-bikes)	Regional Trips	--	0.53%	0.53%
<i>Promotion of electric bicycle use</i>	Reduced vehicle trips due to the widespread use of electric bicycles	Regional Trips	--	0.79%	0.79%
Public Transit Service					
<i>Intra-regional transit capital projects within the Tahoe Basin; currently this only includes south shore water taxi service)</i>	Increased transit mode share, partially drawn from former vehicle trips.	Regional Trips	--	0.51%	1.64%
<i>Inter-regional transit service that extends outside the Tahoe Basin.</i>	Reduced commuter and recreational trips.	External Trips	--	0.51%	1.64%
<i>Intercept lots at entrances to the Tahoe Basin providing frequent shuttle service into the Region.</i>	Reduced visitor trips.	External Trips	--	2.80%	2.80%
Microtransit service areas					
<i>Improved transit coordination between local and regional providers, through simplified trip planning (for example Google Transit).</i>	Reduced trips for all types served by Microtransit service areas.	Regional Trips	--	0.28%	0.45%
ITS Technologies					
<i>Improved transit coordination between local and regional providers, through the elimination or shortened wait time of transfers, improvements to ticketing structure and agency cooperation to eliminate "transfer anxiety".</i>	Increased transit mode share for trips in the corridor/district served by the project, partially drawn from former vehicle trips.	Town Center Trips	--	0.68%	0.68%
<i>Real-time arrival information at transit stops, online, and/or via web-enabled mobile devices.</i>	Increased transit mode share for trips in the corridor/district served by the project, partially drawn from former vehicle trips.	Town Center Trips	--	0.04%	0.04%

<i>Enhanced transit trip planning (for example Google Transit).</i>	Increased transit mode share for trips in the corridor/district served by the project, partially drawn from former vehicle trips.	External Trips	--	0.43%	0.42%
<i>Regionally implemented dynamic ridesharing (conservative implementation).</i>	Reduced commuter and recreational trips.	External Trips	--	1.00%	1.00%
TDM Measures					
<i>Improve existing employer vehicle trip reduction program (carpool and vanpool matching programs, employee shuttles, on-site secure bicycle storage and shower facilities, flexible work hours, parking, and transit use incentives.)</i>	Reduced peak-hour commuter trips.	Town Center Trips	New Employers	1.86%	1.86%
		Town Center Trips	Existing Employers	0.82%	0.82%
Parking Management					
<i>Parking pricing and parking management strategies including demand-responsive pricing in commercial areas with residential permits to prevent parking spillover into residential areas, changes to parking standards, shared parking arrangements, etc.</i>	Reduced trip generation from managed on- and off-street parking spaces for trips to and from managed areas. Reduced demand due to reduced parking spaces as a result of shared parking requirements or changes to parking standards for new development.	Town Center Trips	--	1.22%	1.22%

Source: TRPA, Kittelson & Associates, Inc., 2020.

Cumulative Effect

While the effect of each policy or project type is analyzed individually, the cumulative effect of these strategies was estimated to apply to the TRPA travel demand model. The cumulative effect of each individual strategy is not simply the sum of the individual strategy effects. The impact of some strategies depends on the origin and destination trip type – for example whether they affect trips that start in Tahoe but end outside the Region, or if the entire trip takes place within the Tahoe Basin.

Where there are several reduction measures that are not mutually exclusive, the total cumulative reduction does not equal Measure A + Measure B. Once Measure A has been applied, Measure B will be applied to a base that has already been reduced by Measure A. For example, if two trip reduction measures would each give a 10% trip reduction, the total cumulative reduction is not 20%. Rather, it would be equal to $100\% - (90\% * 90\%) = 19\%$. This process continues for each additional strategy considered for a grouping.

Table summarizes the cumulative impact by trip area type impacted. These cumulative impacts for each of the three trip area types (Town Center, Non-Town Center, and Internal-External) are calculated using the method described above. The strategies applied to trip each area type are combinations of the vehicle trip types noted for each individual strategy in Table .

These combinations are summarized below:

- **Town Centers:** all “Regional Trips” and “Town Center Trips” strategies are combined in this trip area type.
- **Non-Town Centers:** only “Regional Trips” strategies are combined for these trip types.
- **Internal-External:** only “External Trips” strategies are combined for this trip area type.

Table 8. Cumulative Impact by Trip Area Type Impacted

Trip Area Type	Employer Type	2035 Percent Reduction in Vehicle Trips	2045 Percent Reduction in Vehicle Trips
<i>Town Centers</i>	Existing employers	5.92%	7.21%
	New employers	6.91%	8.18%
	Overall	5.95%	7.28%
<i>Non-Town Centers</i>	--	3.20%	4.53%
<i>Internal-External</i>	--	4.67%	5.75%

Source: TRPA, Kittelson & Associates, Inc., 2020.

For Town Centers, the TDM measures strategy distinguishes between new and existing employers. As a result, a vehicle trip reduction percentage is calculated for each scenario and employer type. These are then combined into overall trip reductions by year using a weighted average based on the assumption that new employer trips represent 3% of all travel consistent with the 2017 RTP/SCS assumptions. The cumulative impacts by trip area type are then applied to the TRPA travel demand model as described below.

Travel Demand Model Integration

An additional component of the 2020 TRIA 2.0 update was to integrate the overall trip reductions directly into the TRPA travel demand modeling process rather than relying on off-model reductions using the TRIA tool to post-process vehicle trips. As part of this integration, the TRIA trip reduction factors for each traffic analysis zone (TAZ) in the travel demand model is calculated based on the strategies that are applicable to a trip starting or ending in that

zone using the trip area types described above. The trip reduction factors vary based on whether trips are within the Tahoe Basin, travel to a Town Center, or start or end external to the Tahoe Basin. The TRIA 2.0 trip adjustment factor model script is run for each RTP/SCS scenario and the travel demand model's trip table is adjusted to account for the reduction in vehicle trips for each origin-destination pair (e.g., Kings Beach to Tahoe City, or South Lake Tahoe to Carson City). These reduced trips are then reassigned to the travel demand model network to obtain an estimate of trips and vehicle miles traveled for the entire model roadway network. The resulting trip and VMT data can then be used to calculate RTP/SCS performance metrics and impacts based on the expected number of trips after considering the strategies included in the TRIA.

Table 9: Total Proportion of Vehicle Trip Reductions

Parking	TDM	Transit	Rideshare	Ped/Bike	Micromobility
9.8%	22.1 %	32.9 %	4.3%	24.0 %	6.8%

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APPENDIX H (NEW): CONGESTION MANAGEMENT PROCESS

Background

All MPOs with a population over 200,000 are federally required (23 CFR 450.320) to develop, establish, and implement a formal congestion management process (CMP).

The CMP is a systematic way of measuring and monitoring current and forecasted future congestion on the Region's multimodal transportation system; monitoring and evaluating performance measures related to congestion; and requiring strategies to address current and future regional congestion.

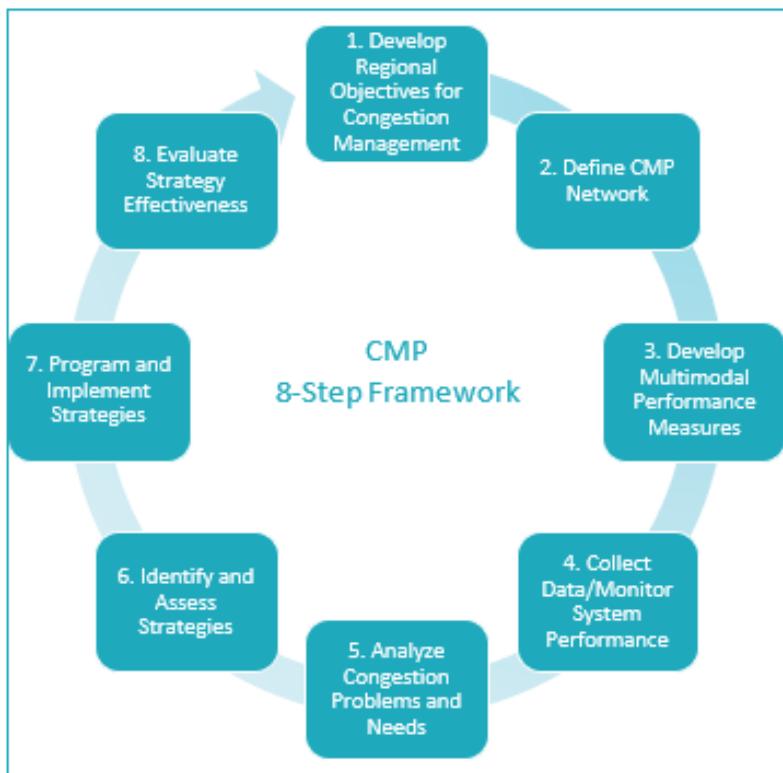


Figure 109: Congestion Management Process 8-Step Framework

Federal regulations are not prescriptive regarding the methods and strategies of a CMP. This flexibility allows MPOs to design appropriately for their individual needs. The CMP must, at minimum, be updated often enough to provide relevant and timely information for the region's transportation plan update. For

efficiency, many metropolitan planning organizations sync updates to their RTP, CMP, and TIP cycles.

Flexible approaches are needed because congestion in Tahoe does not occur during the typical weekday commutes. Rather, congestion occurs in Tahoe from a high volume of visitors to the Region and its popular recreation destinations on roadways that have a fixed capacity. In Tahoe, the road network will not be expanded; rather congestion will be addressed by improving mobility for all users, including pedestrians, bicyclists, transit riders, and automobile drivers. In a recreation destination like Tahoe, there may be times that congestion is accepted, for example on a winter Sunday when skiers are returning to neighboring regions. Instead of addressing these discrete periods of congestion, the plan and this CMP provide multimodal benefits, such as bikeable and walkable destinations that are connected by frequent transit.

Federal Requirements and 8-Step Framework

The Federal Highway Administration's (FHWA), Congestion Management Process: A Guidebook (2011), outlines an 8-step framework for the development of a CMP. A review of the required steps and current development approach is provided below.

Step 1: Develop Regional Objectives for Congestion Management

The Regional Transportation Plan goals and policies represent the guidance of the TRPA Bi-State Compact, federal and state (California) transportation planning requirements, and serve as the Regional Objectives for Congestion Management for the plan's CMP. The goals of

the Regional plan and the RTP are consistent with CMP objectives.

Step 2: Define the CMP Network

The defined CMP network includes roadways, transit and trails that serve pedestrians and cyclists. The transit, bike/ped maps that follow include highlighted priority communities from the Environmental Justice analysis which include high populations of elderly, low income, and minorities. Keeping these communities in mind when analyzing congestion is important to ensure that no community is being affected more than another.

The Tahoe Roadway Network includes all local, county, and state-maintained roadways within the Lake Tahoe Basin. The network is controlled by six entry and exit points that include SR 28/US50 Spooner Summit, SR 89 Alpine Meadows, SR 89 Luther Pass, Highway 50 Echo Summit, SR 431 Mount Rose, SR 267 Brockway Summit, and SR 207 Kingsbury Grade within the Tahoe basin.

The transit network includes all existing transit service within the Region and those transit lines that carry off of the map connect to inter-regional routes to and from Truckee and Reno to the north, Carson City to the east, Minden Gardnerville to the southeast and Sacramento to the south.

The bicycle and pedestrian network include shared-use paths (Class I), bike lanes (Class II), bike routes (Class III), sidewalks, marked crosswalks, and enhanced pedestrian crossings.

Step 3: Develop Multimodal Performance Measures

Performance measures are used in the CMP to measure progress toward meeting regional objectives, such as congestion mitigation, and to

communicate performance to public officials, private sector stakeholders, and the general public. The following CMP performance measures are discussed in more detail in the Measuring and Managing for Success chapter and Appendix I: Performance Measures.

TRPA tracks # people walking, biking, and using transit. Federal and state performance measures require tracking of key safety measures, such as the number and severity of crashes; transit performance measures, to make sure buses are running on time and transit service is efficient; and roadway infrastructure performance measures, including pavement and bridge condition, to make sure routine maintenance is completed. These along with vehicle miles traveled per capita helps us ensure that the transportation system is a well-balanced, efficient multimodal system.

Step 4: Collect Data/Monitor System Performance

TRPA conducts ongoing data collection and monitoring of system performance through its monitoring program. The monitoring map includes bicycle and traffic monitoring sites for the Region. TRPA maintains an activity-based travel model for estimating daily activity of persons, households, and traveler groups on our transportation system; and has access to vehicle probe data (INRIX) which can be utilized to monitor real-time speed and travel times on the Region's roadways. TRPA also coordinates with each state's department of transportation to collect and monitor roadway volumes and collects real time bike and ped volumes from partner jurisdictions and through intercept surveys.



TAHOE ROAD NETWORK

- Major Roads
- Arterial Streets
- Regional Entry/Exit
- [---] TRPA Jurisdiction

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.

DATA SOURCES: TRPA;
Open Street Map



Mount Rose

Brockway Summit

89 - Alpine Meadows

TAHOE CITY

TAHOMA

KINGS BEACH

INCLINE VILLAGE

CARSON CITY

NEVADA
CALIFORNIA

50
28
Spooner Summit

Kingsbury Grade

207

50
SOUTH LAKE TAHOE

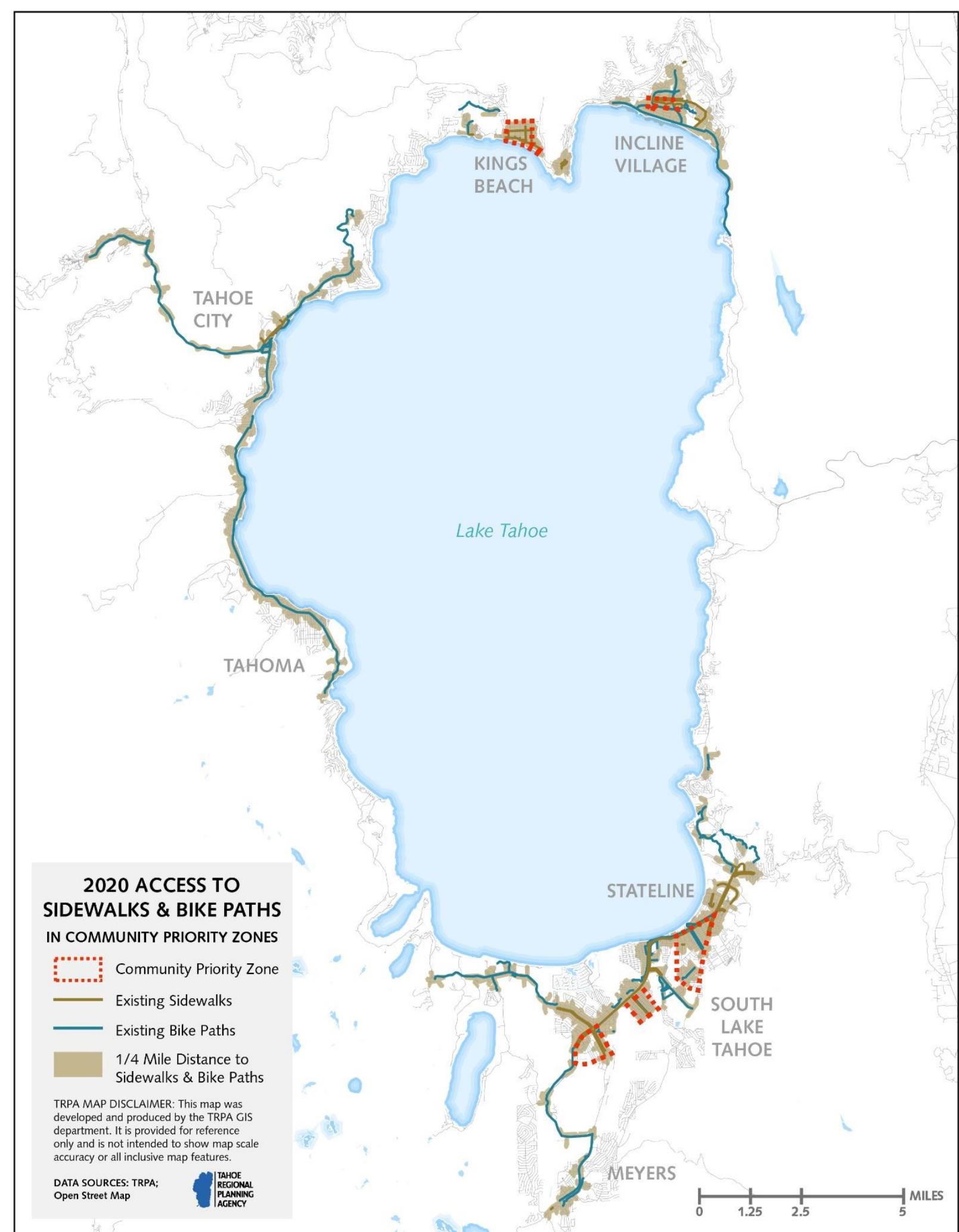
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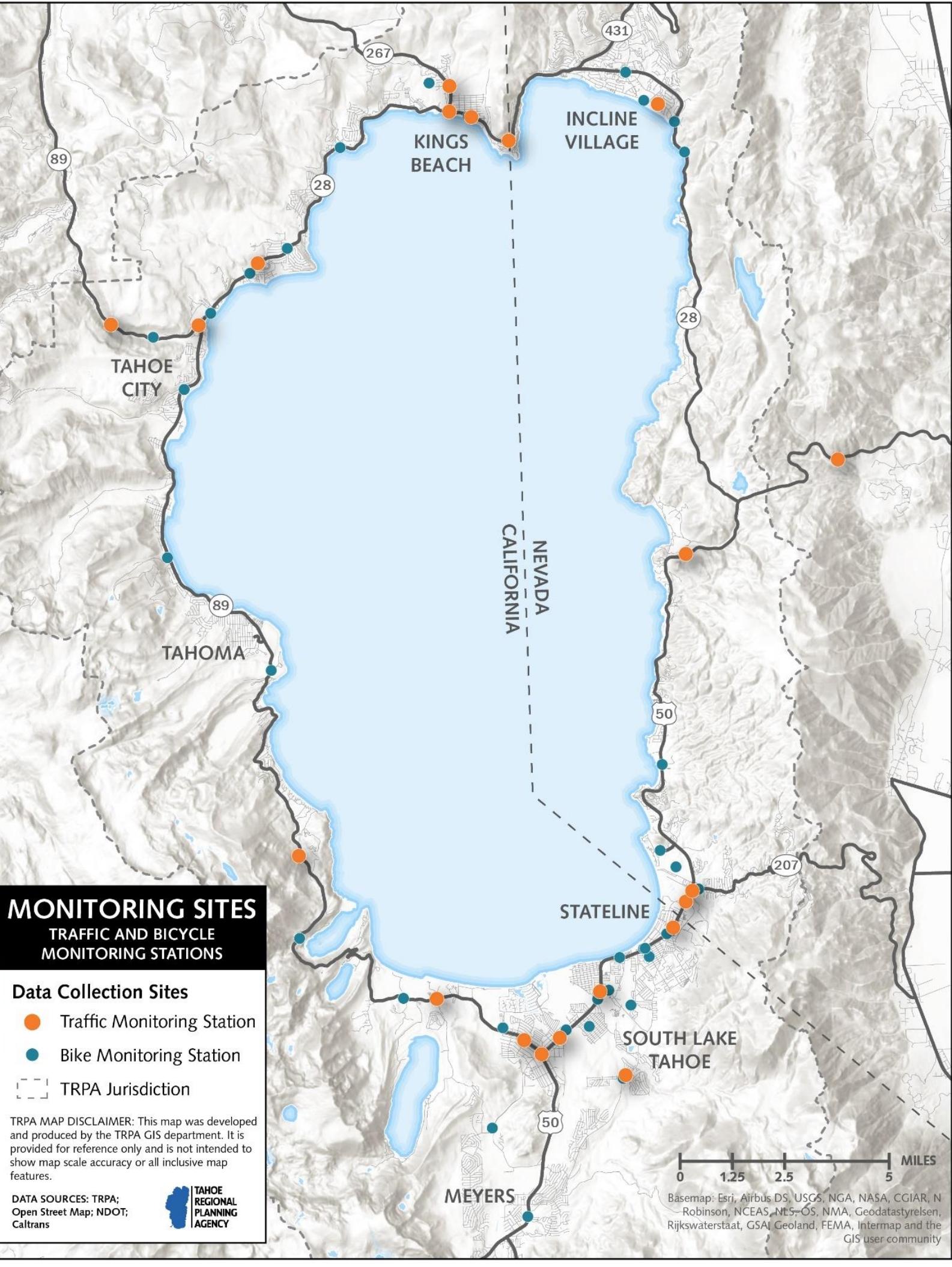
Echo Summit

Luther Pass

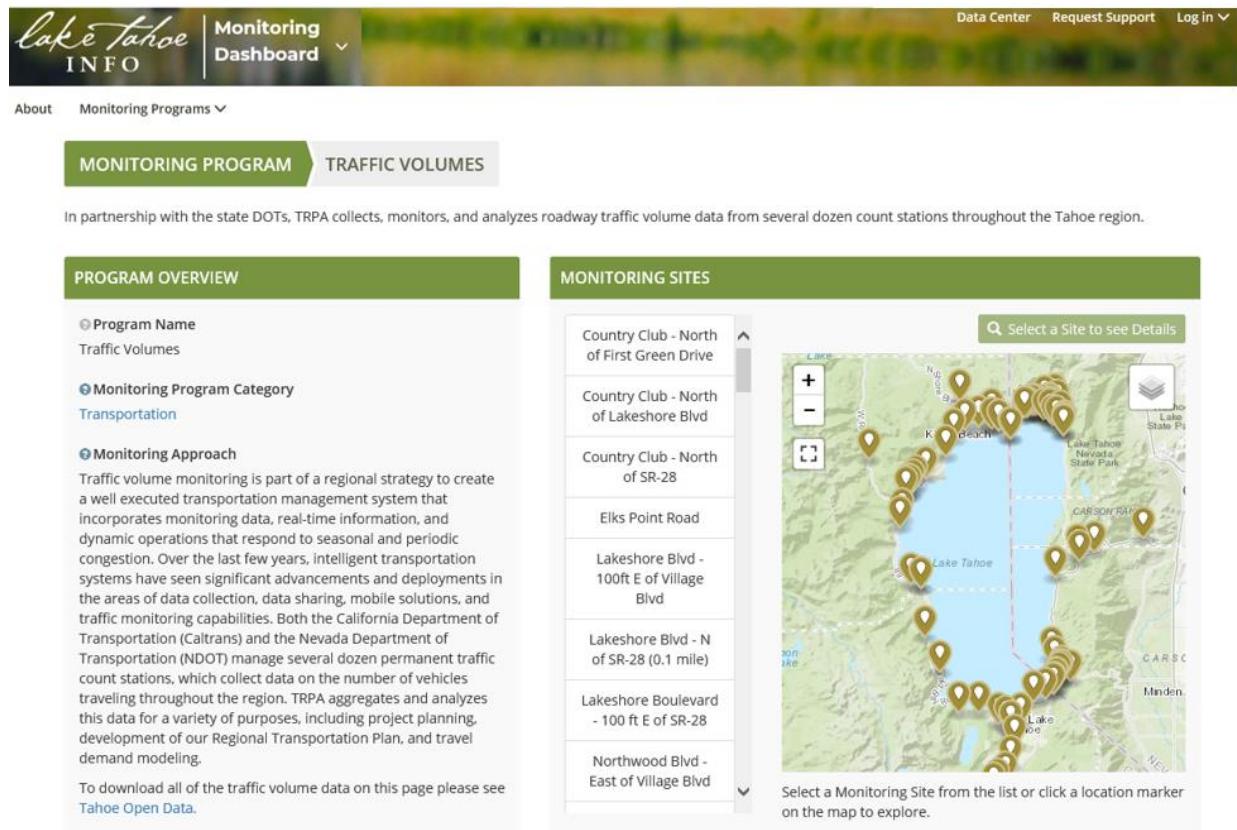
0 1.25 2.5 5 MILES

Basemap: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatistyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community





Regional data trends are reported every four years with RTP updates and the Lake Tahoe Info webpage Monitoring Dashboard (www.laketahoeinfo.org). Improvements to Tahoe's model and monitoring data will be implemented into Future CMP's.



The screenshot shows the Lake Tahoe Info Monitoring Dashboard. At the top, there is a navigation bar with links for Data Center, Request Support, and Log in. Below the navigation bar, there are two main tabs: MONITORING PROGRAM and TRAFFIC VOLUMES. The MONITORING PROGRAM tab is selected. On the left, there is a 'PROGRAM OVERVIEW' section with a list of monitoring categories: Program Name, Traffic Volumes, Monitoring Program Category (Transportation), and Monitoring Approach. The Monitoring Approach section describes how traffic volume monitoring is part of a regional strategy to create a well-executed transportation management system. It mentions significant advancements in intelligent transportation systems, data sharing, mobile solutions, and traffic monitoring capabilities. Both the California Department of Transportation (Caltrans) and the Nevada Department of Transportation (NDOT) manage several dozen permanent traffic count stations. The right side of the dashboard features a map of the Lake Tahoe area with numerous monitoring site locations marked by yellow pins. A legend indicates that these pins represent different monitoring sites. A callout box on the map says, "Select a Site to see Details". Below the map, a list of monitoring sites is provided:

- Country Club - North of First Green Drive
- Country Club - North of Lakeshore Blvd
- Country Club - North of SR-28
- Elks Point Road
- Lakeshore Blvd - 100ft E of Village Blvd
- Lakeshore Blvd - N of SR-28 (0.1 mile)
- Lakeshore Boulevard - 100 ft E of SR-28
- Northwood Blvd - East of Village Blvd

At the bottom of the page, there is a link to download all traffic volume data: [Tahoe Open Data](#).

Step 5: Analyze Congestion Problems and Needs

TRPA staff analyzes collected data on a biennial basis. Once collected, raw data is analyzed and translated into meaningful measures of performance that identify and document progress toward meeting the Region's goals. The Regional Transportation Plan sets the performance measurement framework including monitoring and managing. The CMP will be implemented in such a way as to identify the underlying causes of recurring and non-recurring congestion.

Step 6: Identify and Assess Strategies

The RTP goals and policies provide a “toolbox” for addressing local and regional congestion needs, such as supporting mixed-use, transit oriented development, and community revitalization projects that encourage walking, bicycling, and easy access to existing and planned transit stops, and to collaborate with jurisdictions and state departments of transportation to develop adaptive traffic management strategies.

Development of the RTP project list includes evaluation of strategies identified to implement CMP related goals and policies at the local and regional level. For example, regional CMP strategies will support carpooling and vanpooling, inter-regional transit service, and expanded park-and-ride lots.

Step 7: Implement Strategies and Evaluate Effectiveness

The RTP lays out multimodal strategies that address congestion. The projects and programs to be implemented in the future as identified in the RTP are focused on transit improvements, trail connections, capitalizing on technology and building complete streets. The plan provides forceable revenue to carry out the implementation.

Data collection and analysis post-implementation of the 2020 RTP's projects and programs will evaluate the effectiveness of each strategy. The RTP policies support data collection and analysis for the congestion management process and identify in the plan a performance management framework.

2020 RTP Policy 4.12: Maintain monitoring programs for all modes that assess the effectiveness of the long-term implementation of local and regional mobility strategies on a publicly accessible reporting platform (e.g. www.laketahoeinfo.org website).

Policy Highlight

Policy 4.2: Collaborate with jurisdictions and state departments of transportation to develop adaptive management strategies.

The MPO also plays another role in the congestion management process with its regional grant program. Proposed transportation

projects selected to receive MPO programmed funding are scored based on their ability to meet the regional transportation plan goals. This allows the MPO to manage priorities based on effectiveness of the strategies, making needed adjustments based on performance.

The outcome of this analysis will inform future RTP financially constrained project lists and biennial updates of the FTIP. The CMP is built into the Regional Transportation Plan and will examine the effectiveness of regional strategies by continuously and iteratively applying performance management framework adopted as part of the RTP and this planning process.

Step 8: CMP Review and Update Process

The CMP review and update process commit to:

- Regional Plan and RTP goals and policies will be reflected in the CMP with revisions occurring no less often than the RTP update
- Changes to federal rules and associated requirements will be reflected in the CMP no less often than the RTP update
- Congestion management objectives will be reviewed and revised as necessary, in coordination with updates to the RTP
- Transportation metrics such as bike trail use, transit ridership will be made available on the Lake Tahoe Info monitoring dashboard – found here <https://monitoring.laketahoeinfo.org/>.
- Observed traffic volumes will be incorporated into the CMP database as they are made available by Caltrans and NDOT

- Regional system performance will be analyzed on a cycle consistent with, and no less often than, the RTP
- Regional system performance will be factored into the MPO Regional Grant Program project selection

Other elements of the CMP may be reviewed and updated on a case-by-case basis as requested by federal and state partners.

Conclusion

The CMP includes a systematic process for determining acceptable mobility levels in the Region, measuring the effectiveness of transportation strategies on the transportation system, and prioritizing changes to strategies and project development standards as needed. TRPA will continue to establish and implement the most relevant and feasible CMP performance measures and congestion management strategies, which should be considered and refined iteratively in conjunction with other transportation planning processes.

APPENDIX I: PERFORMANCE MEASURES

TRPA uses performance measures to track and report on the implementation and outcomes of the projects and programs proposed in the regional transportation plan. Performance measures provide consistent reporting, show transparency of publicly funded investments, and assess and demonstrate progress towards achieving the goals of the plan and the Regional Plan.

Results Chain

The performance measure framework uses a results chain approach. By assessing and tracking the “output” associated with the

strategies of the plan, future transportation plans can better link investments to desired outcomes. For example, if increased transit service results in more people using transit and results in an increase in the Non-Auto Mode Share, then additional transit service could be prioritized for funding.

The following figures display the results chain approach for each focus area of the plan and demonstrates the connection between proposed projects and programs to intermediate data collection and analysis and to the performance measures for each.

Transit Results Chain

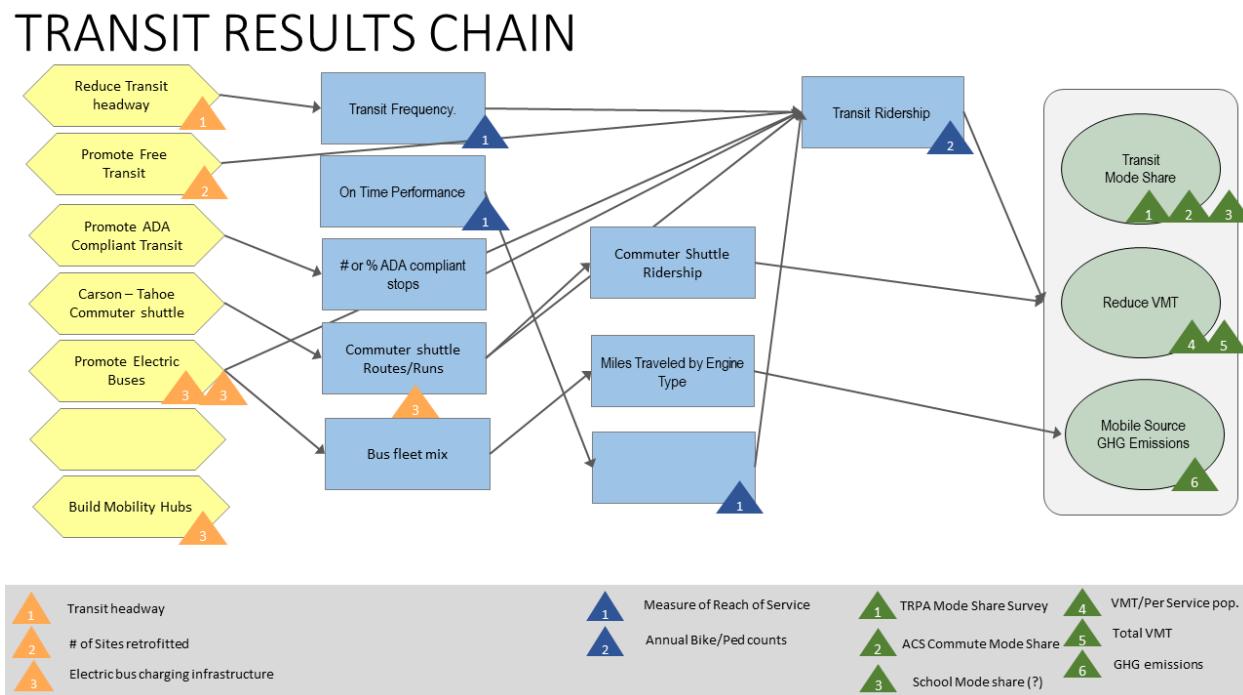


Figure 111: Transit Results Chain

Trails Results Chain

TRAILS RESULTS CHAIN

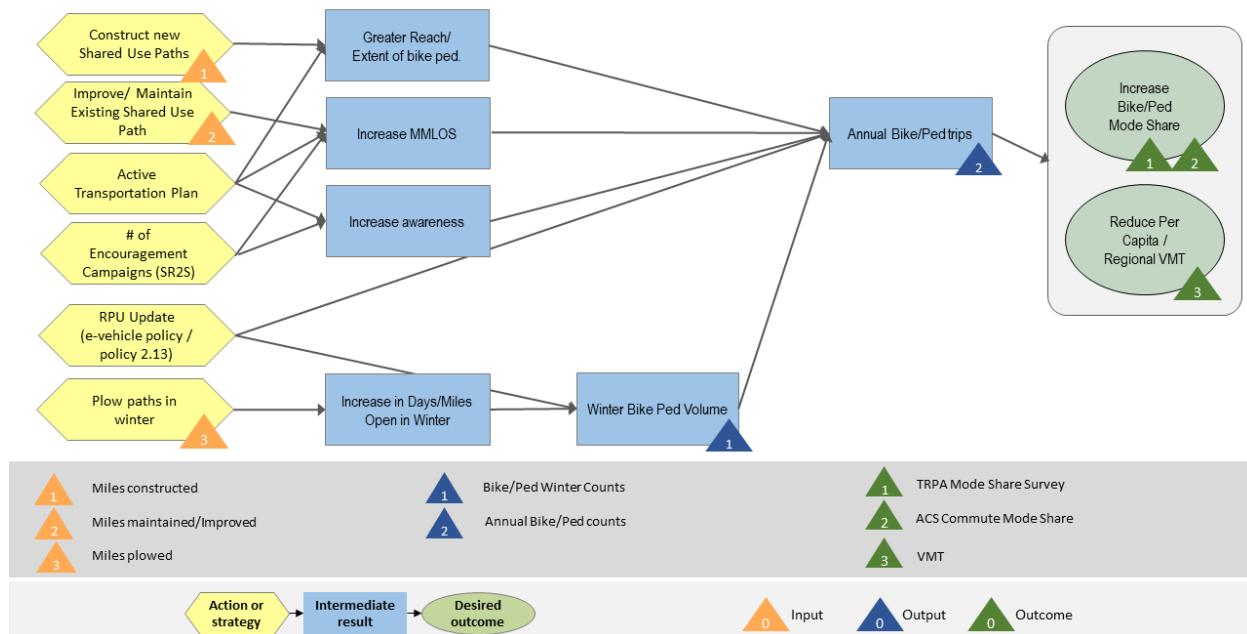


Figure 112: Trails Results Chain

Technology Results Chain

TECHNOLOGY RESULTS CHAIN

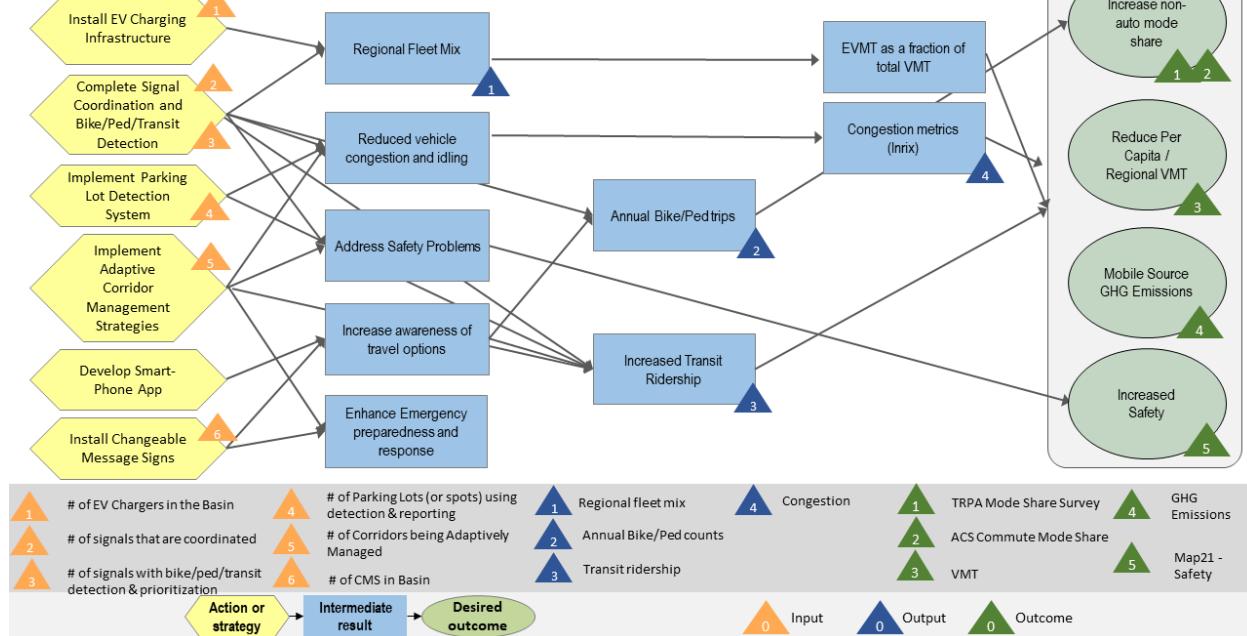


Figure 113: Technology Results Chain

Communities Results Chain

COMMUNITIES RESULTS CHAIN

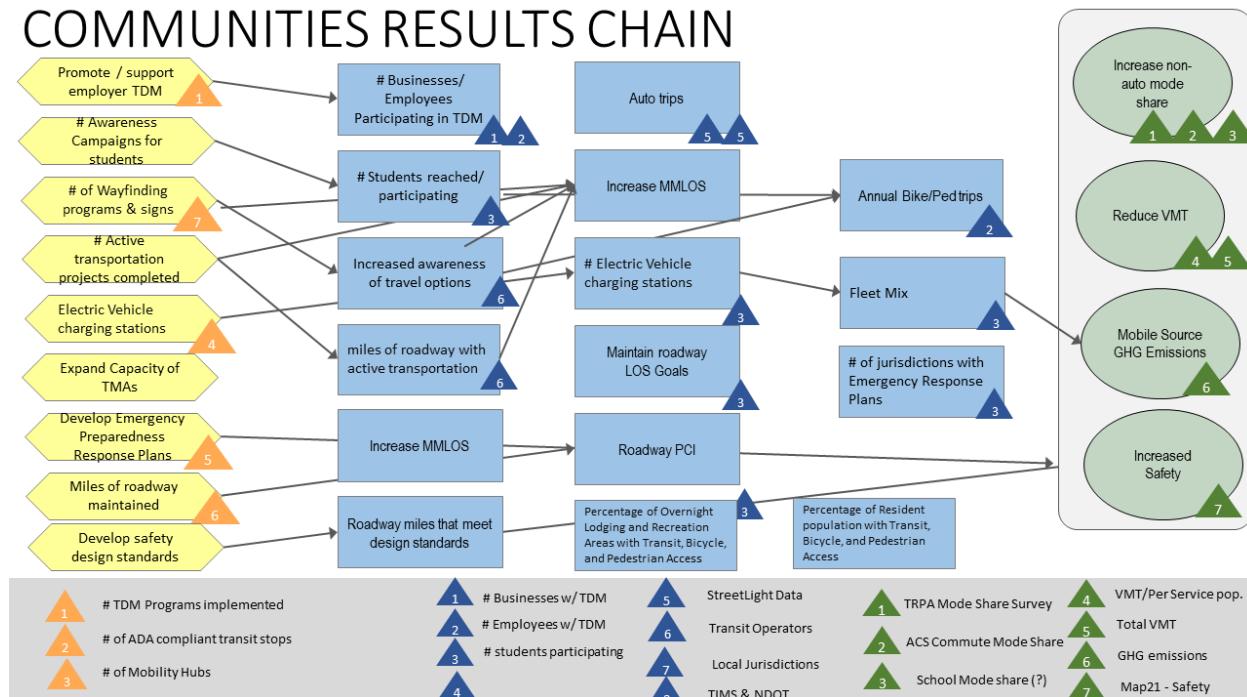


Figure 114: Communities & Corridors Results Chain

What Is Measured

TRPA collects and analyzes a variety of transportation data and information to better connect projects and investments to outcomes and performance measures, and to manage success by informing future planning and project design.

Some of this data measures inputs, such as miles of roadway maintained; other data measures outputs from implemented projects and programs, such as the pavement condition rating for the Region's roadways; and other data measures the outcome, such as the Rate of Serious Injuries per 100 Million VMT.

Some of these measures are called for by regional goals, others by state and/or federal requirements, and some to support TRPA's environmental thresholds for transportation.

Data is collected according to transportation industry best practices and standards, and for some modes of transportation, per TRPA developed monitoring protocols, such as the Lake Tahoe Region Bicycle and Pedestrian Monitoring Protocol, Transit Monitoring Protocol, and Safety Strategy. The following table summarizes the measures tracked for transportation planning in Tahoe.

Table 24: Performance Measures

Measure	TRPA Threshold	Regional Goal	State Requirement	Federal Requirement
<i>% of Overnight Lodging & Recreation Areas with Transit (1/4 mile), Bicycle (1/2 mile), & Pedestrian (1/4-mile, Class I) Access</i>		X		
<i>Average Travel Time to Work</i>		X		
<i>Bicycle and Pedestrian Trail Use (Mid-Week Average Hourly Count Volumes)</i>		X		
<i>Bicycle and Pedestrian Trail Use (Mid-Week Hourly Count Volumes)</i>				
<i>Bridge Condition in Good Condition (National Highway)</i>				X
<i>Bridge Condition in Poor Condition (National Highway)</i>				X
<i>Cost-Effectiveness</i>			X	X
<i>Daily VMT Traveled</i>	X			
<i>Deadhead Miles and Hours</i>		X		
<i>Environmental Justice Communities Transportation Access</i>				

<i>Equipment Condition (Transit)</i>			X
<i>Facilities (Transit)</i>			X
<i>Farebox Recovery</i>		X	
<i>GHG per capita</i>	X	X	X
<i>Interstate Travel Time Reliability</i>			X
<i>Miles of Bike/Ped Facilities Constructed</i>	X		
<i>Miles Traveled by (Transit) Engine Type</i>	X		
<i>Non-Auto Mode Share</i>	X		
<i>Non-Interstate Travel Time Reliability</i>			X
<i>Number of Fatalities per 100 million VMT</i>			X
<i>Number of Non-Motorized Fatalities and Serious Injuries</i>			X
<i>Number of Serious Injuries</i>			X
<i>On Time Performance (Transit)</i>	X		
<i>Pavement Condition</i>	X		X
<i>Rate of Fatalities per 100 million VMT</i>			X

<i>Rate of Serious Injuries per 100 million VMT</i>			X
<i>Regional Daily Average Annual Traffic Volume Percentage Variation</i>		X	
<i>Regional Monthly Average Annual Traffic Volume Percentage Variation</i>		X	
<i>Rolling Stock</i>			X
<i>Transit Cost per Revenue Hour</i>			X
<i>Transit Cost per Revenue Mile</i>			X
<i>Transit Farebox Recovery Rate</i>			X
<i>Transit Passengers per Revenue Hour</i>			X
<i>Transit Passengers per Revenue Mile</i>			X
<i>Transit Ridership</i>	X		X
<i>VMT per Capita</i>	X		

Transit Monitoring Protocol

TRPA implemented the transit productivity improvement program and adopted the Lake Tahoe Region Transit Monitoring Protocol. The protocol identifies transit performance measures, establishes targets, and outlines data collection methods for each transit operator, some of which are regulated per TDA Public Utilities Code (PUC) Section 99244.

Under this protocol, the Region's transit operators must submit data to TRPA to inform the following transit performance measures which aid in the determination of federal funding allocations:

- **Deadhead Miles and Hours** – The miles and hours transit vehicles travel when out of revenue service
- **Ridership** – Unlinked passenger trips, or the number of total boardings not including transfers
- **Transit Mode Share** – The percentage of all daily trips that use public transit service
- **Productivity** – The number of transit users per hour or mile of the transit service
- **On Time Performance** – The frequency transit arrives or leaves on time, or within one minute early and five minutes late
- **Cost Effectiveness** – The total cost the operator must pay per revenue hour or mile
- **Farebox Recovery** – Revenue obtained by transit services, calculated by determining the ratio of fare and local revenue to operating costs
- **Rolling Stock** – Percentage of revenue vehicles (by type) that exceed useful life benchmarks
- **Equipment** – Percentage of non-revenue service vehicles (by type) that exceed useful life benchmarks
- **Facilities** – Percentage of facilities (by group) rated less than 3.0 on the Transit Economic Requirements Model (TERM) Scale

Bicycle and Pedestrian Monitoring Protocol

TRPA adopted the Lake Tahoe Region Bicycle and Pedestrian Monitoring Protocol to build on prior monitoring efforts and to create an on-going monitoring program to track changes in bicycle and pedestrian volumes in a consistent manner.

The protocol defines seasonal count periods, winter-spring and summer, and data collection procedures for existing manual and automatic count locations on sidewalks, Class I pedestrian/bicycle shared-use paths, and Class II facilities in the Region. The Bicycle and Pedestrian Monitoring Protocol has been in use for multiple years so that comparisons year-over-year are now possible.

The following performance measures are collected through the Bicycle and Pedestrian Monitoring Protocol:

- Average Hourly Bicycle and Pedestrian Trail Use by Season (automatic count locations only)
- Average Daily Bicycle and Pedestrian Trail Use
- Average Weekly Bicycle and Pedestrian Trail Use
- Average Monthly Bicycle and Pedestrian Trail Use
- Total Volume Bicycle and Pedestrian Trail Use

- Gender of Bicyclists and Pedestrians (manual count locations only)
- Individual Intersection Movement Counts (manual count locations only)

CARB GHG

CARB established new, more aggressive GHG reduction targets for the Tahoe Region. Under these new targets the Tahoe Region is required to meet GHG reduction targets of 8 percent by 2020 and 5 percent by 2035, based on 2005 emission levels. The projects and programs in the plan meet these reductions with an estimated 8.8 percent reduction in 2020 and a 5 percent reduction in 2035.

Table 25: Per Capita Carbon Dioxide Emission Comparison - Passenger Vehicles

	2005 Baseline (per SB 375)	2035	2045
Annual Average Daily Total VMT per Capita ¹	21.59	19.94	19.68
Passenger Vehicle GHG Emissions (tons/day)	388.8	345.5	352.9
Population ²	41,340	41,951	43,468
Per Capita Passenger Vehicle GHG Emissions (pounds/person/day)	18.81	16.47	16.24
Percent Change from in Per Capita GHG Emissions from 2005		-12.4%	-13.7%
SB 375 Target		-5%	n/a ³
SB 375 Target Met?		Yes	n/a ³

¹ Source: TRPA 2020a

² Source: TRPA 2020b

³ SB 375 targets have not been adopted for post-2035 years.

See Appendix D for SB 375 calculations.

