Transportation Demand Management Strategies for North Lake Tahoe

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1 INTRODUCTION

Transportation Demand Management (TDM) uses policies, infrastructure improvements, and programs to make it easier to travel without a vehicle for everyday trips. TDM works with the existing transportation system to expand mobility options and accommodate future growth by effectively managing travel demands of a region through the promotion of biking, walking, scootering (e.g., Lime and Bird), taking transit, and carpooling. Additionally, TDM programs and tools promote more substantial environmental, health, and community benefits.

TDM programs are helpful in seasonal resort destinations, like North Lake Tahoe, because they offer tools for visitors, residents, and employees to travel between key destinations without a car. This is particularly impactful in mountain communities where roadway infrastructure can be limited. Additionally, commercial areas implement TDM programming to create great places that focus on people rather than cars. For this document, North Lake Tahoe is specifically defined as the Placer County area within the Tahoe Basin. However, strategies defined below may also have application within the larger Placer Resort Triangle region, including Squaw/Alpine, Northstar and/or Martis Valley.

Successful implementation of the strategies provided in this document will require partnerships and collaboration. Employers, resorts, the County, the Tahoe Regional Planning Agency (TRPA), and the Truckee/North Tahoe Transportation Management Association (TMA), as well as community members, will be asked to work together to create a TDM program that results in long-lasting transportation change in North Lake Tahoe.

TDM Strategies for North Lake Tahoe supports Placer County’s existing Trip Reduction Ordinance, which asks employers to sponsor rideshare programs for home to work trips. These strategies also support implementation of transportation goals identified in the Tahoe Basin Area Plan, TART Systems Plan and the County’s draft Sustainability Plan. A robust TDM approach for the region will promote the county’s goals of reducing traffic congestion and energy consumption, and will continue the County’s momentum to meet targets stated in the existing transportation plans and policies.

TDM ORIENTED GOALS

Twelve existing regional and local plans were reviewed to guide the direction of this report and are listed below. The plans reviewed include existing transportation goals and policies that affect the eastern portion of Placer County, as well as the respective portion of the Tahoe Basin, and represent a cross-section of documents which provide direction on transportation within the region. The TRPA, Placer County, North Lake Tahoe Resort Association, and the Tahoe Transportation District (TTD) authored the plans with broad community and stakeholder input.

- Alpine Meadows General Plan
- Squaw Valley General Plan
- Martis Valley General Community Plan
- Linking Tahoe Active Transportation Plan
- Placer County Tourism Master Plan
- Linking Tahoe: Lake Tahoe Basin Transit Master Plan
- North Tahoe Parking Study
- Placer County Tahoe Basin Area Plan (Chapter 5)
- Pedestrian & Road Safety Audit
- Tahoe City Mobility Plan
The following goals recurred among the documents and were determined to be relevant for guiding the future of TDM in the region:

- Improve pedestrian and bicycle circulation
- Prioritize investment in transportation solutions
- Reduce congestion and update parking regulations
- Meet Vehicle Miles Traveled (VMT) targets
- Protect and enhance the environment, promote energy conservation, and reduce GHGs
- Enhance connectivity and accessibility
- Improve safety for all modes of travel (pedestrian, bicycle, transit, vehicle, etc.)
- Coordinate with development projects within the region for implementation of TDM strategies

**OPPORTUNITIES**

There is momentum among stakeholders to reduce vehicle trips and encourage employees, visitors, and residents to travel by sustainable modes. This interest launched the regional airport shuttle program\(^1\), the paratransit program\(^2\), the County’s Trip Reduction Ordinance, and introduced transit shuttle service by private developments. Stakeholder groups are interested in expanding the number of programs and partnerships that go beyond existing efforts.

Potential programs include, but are not limited to, the following:

- **Explore opportunities to expand alternative modes that are outside of North Tahoe**
  While the Tahoe area is well served with public and private buses and shuttles, it can be challenging to get into and out of the region without a personal vehicle. Collaborating with larger cross-jurisdictional services such as Greyhound and Amtrak, leveraging technology to increase transportation options into the region, and promoting the use of non-driving alternatives will help bridge this gap.

- **Build on programmatic capital investment plans** to improve accessibility to multimodal transportation options by closing key gaps that connect people from where they live to where they want to go.

- **Manage parking facilities effectively** to ensure existing spaces are used efficiently, and that alternative modes (e.g., walking, biking, taking transit) are competitive options.

- **Create seamless connections between regional and local transit**

- **Strengthen the existing Trip Reduction Ordinance**

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CHALLENGES

North Lake Tahoe is a popular destination throughout the year. As a result, many visitors drive in from outside the area to enjoy the recreational attractions of Lake Tahoe, but the abundance of visitors can create traffic congestion on limited access roads. Additionally, due to limitations on attainable median income housing within the North Lake Tahoe area, many employees choose to live outside the area and commute in from Reno/Sparks and Truckee. This also contributes to local congestion and increased vehicle trips. However, expanding the roads to increase capacity does not work toward the transportation goals of the region. There are negative environmental impacts, high construction costs, and induced demand when more road lanes are added. Investments in improving mobility options and access can have a much larger impact on local roadways compared to widening roads3.

While congestion is a major issue in the region, there are many contributors to the stress of the region’s transportation system, which can be addressed by providing thoughtful multimodal investments.

These challenges include

- Seasonal spikes in visitors and employees with off-season transportation needs
- Lack of multimodal network and parking management.
- Limited funds to implement transportation initiatives
- Inability to recruit drivers for Tahoe Truckee Area Regional Transit (TART) to expand service
- Infrastructure constraints (267 and 89, mouse hole in Truckee)
- Drive patterns of visitors and employees travelling in and out of the Basin

Additionally, Lake Tahoe lies at the intersection of four counties and two states, presenting a challenge to consistent implementation of policies and programs. As TDM strategies are intended to leverage each other, it is important that solutions bring together all stakeholders—both public and private—and their abilities to implement change.

EXISTING TRANSIT SERVICES

Tahoe Truckee Area Regional Transit (TART)

TART operates daily bus service between several destinations including Incline Village (NV), Truckee, Squaw Valley, Tahoe City, Kings Beach, Northstar and Tahoma. TART is operated by the Placer County Department of Public works and is funded by Placer County, the Town of Truckee and the Washoe County Regional Transportation Commission. TART is also funded by Federal Transit Administration funds and California state transit funds. Several Resorts also contribute funds to TART operations through the TMA.

A one-way fare is $1.75 and seniors and persons with disabilities are eligible for discounted rates. Passes are available at discounted rates and include a 24-hour general pass, as well as 10-, 14-, and 30-day fare products. While route schedules vary based on the seasons, typically routes run between 6 a.m. and 7 p.m.\(^4\)

In addition to the agency’s three routes - the Mainline along SR 28, Highway 89, and Highway 267 - passengers have access to the area night shuttle. The free night shuttle operates in the summer and winter seasons and runs every hour between Squaw Valley and Crystal Bay (7 p.m. and 2 a.m.), Tahoe City and Tahoma (6:30 p.m. and 1:30 a.m.), and between Crystal Bay and Northstar (6:30 p.m. and 12:30 a.m.).\(^5\) In 2017 TART added night service in the spring seasons on the same routes operated in winter and summer with the service ending between 9:00 p.m. and 10:00 p.m.

To meet the heavy winter travel demands for both visitors and resort employees, and consistent with the TART Systems Plan Update, Placer County significantly increased the amount of TART service provided beginning the Winter of 2016/2017. Headways were reduced from 60 minutes to 30 minutes between 8:00 a.m. and 6:00 p.m. between Tahoe City and Crystal Bay, and between Tahoe City and Squaw Valley between 6:30 a.m. and 8:30 a.m. and in the afternoon between 4:00 p.m. and 6:00 p.m. An early morning run beginning at 5:42 a.m. in Incline Village to Northstar was added to assist with the early morning commute for Northstar employees.

Additional expansion was planned for both the winters of 2017/2018 and 2018/2019, but had to be cancelled due to a lack of enough bus driver staffing. The County has taken additional measures to recruit and retain bus drivers and is planning to add the higher level of service for the winter of 2019/2020. This additional expansion, also included in the TART Systems Plan, will reduce headways to 30 minutes between 6:30 a.m. and 6:00 p.m. between Tahoe City and Squaw Valley, and between 7:00 a.m. and 5:20 p.m. between Crystal Bay and Northstar. This will provide continuous 30-minute service south of the two major resorts and on the Northshore route.

Future improvements in the near term (by 2022/2023) will be to increase the 30-minute service on both Highway 89 and Highway 267 all the way to Truckee, and to add night service on both corridors to Truckee.

All of these added services are funded by Placer County’s Transient Occupancy Tax. In all, Placer County allocates just under $2 million per year to transit operations, which is a non-traditional source of public transit funding.

In 2016 Placer County and the town of Truckee completed efforts to co-brand Placer County’s TART service with Truckee Transit. Truckee and Placer County changed the appearance of their buses and both call the public transit service TART. T-A-R-T now stands for Tahoe Truckee Area Regional Transit. As part of that co-branding, there is one common phone number and both services are on the same Nextbus platform. The Town of Truckee operated TART services offers local shuttle services between downtown Truckee and several ski communities. In the winter (mid-December through mid-March), a fixed-route shuttle runs between key destinations (6 a.m. and 6 p.m.). The shuttle runs on a limited schedule in the off-season.\(^6\)

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Alternative Public Transportation Services in North Lake Tahoe

In 2018 TART expanded American Disabilities Act paratransit service. This service is provided to passengers who are unable to take traditional fixed-route services due to a disability. Up until 2018, trips were occasional on the ADA service. In October of 2018, TART began providing daily weekday trips for Placer County residents who attend Choices - Person Centered Services in Truckee.

Regional Transportation Options

Amtrak

The nearest Amtrak station to North Lake Tahoe is located in downtown Truckee. The station hosts one daily passenger train, the California Zephyr, which travels between Chicago and the San Francisco Bay Area once per day. Several shuttles, including the free Truckee Local line, provide connections from Amtrak to TART’s Highway 89 route and Highway 267, as shown in Figure 1.

Greyhound

Greyhound Lines runs two buses between Reno, NV and Oakland, CA every day. The route, which stops in Truckee, is $33.00 one way. The Truckee Greyhound station is located at the Amtrak depot in downtown Truckee. Riders have access to local bus connections including TART’s Highway 89 route and Highway 267.

Private Shuttle Options

North Lake Tahoe Express

Private shuttles are available for residents and visitors of North Lake Tahoe, as well. One option, the North Lake Tahoe Express, runs several routes between Reno, Truckee, and popular destinations along the northern and western edge to Lake Tahoe. The North Lake Tahoe Express requires 24-hour advance notice reservations. The price of a trip is reduced based on the number of riders in a party. A pick up for one to two people is $49.00 per person, whereas, a pickup for 11 to 12 people is $32.00 per person.

Figure 1  Bus Routes in North Tahoe and Truckee\textsuperscript{9}

\textsuperscript{9}Tahoe Truckee Area Regional Transit (2019). Route Map. 
https://tahoetuckeetransit.com/interactive-map/
2 TDM PROGRAM STRATEGIES

The following TDM strategies are recommended to enhance existing efforts that will reduce vehicle trips to and from North Lake Tahoe and the larger region.

TRANSIT

Shuttle Services

Shuttle services use smaller buses or vans to provide publicly available transit service. Shuttle routes are designed and priced to serve a specific market share (e.g., visitors and employees). Though there may be concerns about creating competition for local bus service, shuttle services tend to fill gaps in service (e.g., seasonal trips) rather than compete for existing ridership due to the higher levels of frequency and targeted service for specific markets. Shuttle services can also be particularly effective where high volumes of visitors are expected as they support park once strategies by providing a mode of transportation between parking facilities and popular destinations.

In North Lake Tahoe, the primary service markets that may be encouraged to drive less with the availability of low cost shuttle service are residents and visitors. Employees in the area may use the shuttle depending on the shuttle service area and work schedule; however, it is likely that employees would continue to use the existing regional TART service. To avoid high operating costs, service could be designed to operate in peak seasons and/or as a circulator with limited stops and service areas.

Key features of a successful shuttle service include the following:

- Dependable on-time arrivals
- Travel time between destinations are competitive with vehicular travel
- Schedule and route information is easily available to riders
- Shuttles are outfitted with racks to support recreational activities
- Shuttle routes complement parking management efforts. (E.g., remote parking lots connect visitors to key destinations via a frequent shuttle.)

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10 As part of the County’s Capital Improvement Program, there are efforts to explore bus only lanes and signal priority for transit vehicles.

11 Transit information is provided by many of the resorts via implementation of the requirements in the Trip Reduction Ordinance. Additionally, real-time information is available via NextBus and GoogleMaps.
**Guidelines for Improving Transit Services**

The existing transportation services that are in place – TART and the private shuttles – provide visitors, residents, and employees with non-driving options for traveling between key destinations. However, to reduce vehicle trips further, Placer County and its partners should consider implementation of additional efforts. The Linking Tahoe Lake Tahoe Basin Transit Master Plan as well as Placer County’s TART Systems Plan should be guiding documents for how to increase ridership; this can be achieved with (1) bus frequency and (2) service expansion. Note: Changes are depended on funding constraints.

**Increase Frequency**

As recommended in TRPA’s Linking Tahoe Lake Tahoe Basin Transit Master Plan, to increase ridership, TART should consider increasing bus frequency on their existing routes. As is, TART headways are currently between 30 minutes and one hour depending on the time of day and location of the stop. The Placer County TART Systems Plan includes a goal of shorter headways. Funding permitted, buses should run at 15-minute headways – this is where there is the highest potential for travel movement and increased ridership due to increased availability and convenience to the public.¹²

**Expand Service Area**

Expanded regional or shuttle service, particularly to the west shore and Homewood areas, would provide residents and visitors transit access to more of the area’s recreational activities. Additionally, a shuttle service could be operated by TART or private providers to better serve key population areas such as the Town Centers of Kings Beach and Tahoe City. It is recommended that this approach model existing private shuttle services that are provided by ski resorts, see Mountaineer Case Study below.

In the past, new services have been financed through public/private partnerships, the On Our Way grant program, federal block and formula grants, flexible funding opportunities through California’s Congestion Mitigation Program, as well as earmarked funds from the Transient Occupancy Tax (TOT). The Linking Tahoe Regional Grant Program is the newest funding stream. Funds are for regional projects that have been identified in the Linking Tahoe Regional Transportation Plan, particularly projects that reduce the area’s reliance on the automobile. TRPA will allocate more than $1.4 million in the 2019/2020 grant cycle.¹⁴ ¹⁵  TRPA funding source eligibility vary by source, but often fund operations and capital improvements for transit.

Funding aside, TART expansion attempts in the last two years have been significantly impacted by seasonal and even permanent driver hiring challenges. This continues to be a challenge for system operations and additional focus to this limitation is needed to provide potential solutions.

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Transit Subsidy Programs

Transit subsidies are a direct allocation of money towards transit that reduces out-of-pocket expenses placed on a municipality or a county that is interested in expanding or improving service. Subsidies can be collected either through a benefit district, an employee benefit, or as part of a developer’s Conditions of Approval. There are currently many existing developments within and outside the Tahoe Basin which are required to contribute via County Serve Area (CSA) Zone of Benefit (ZOB), and Development Agreements (DA).

Zone of Benefit

The Tahoe Basin Area Plan (TBAP) and its associated EIR established the need for future funding of transit service via contributions from private development. As development occurs, depending on specific project parameters, the TBAP mitigation (MM 10-1b) requires the project form or annex into an existing County Service Area Zone of Benefit (ZOB) for transit. The ZOB is a mechanism to fund transit improvements and expansion projects. Mitigation Measure 10-1b requires contributions by any new development which has the potential to increase transit ridership. Additionally, policy TP-31 further identifies projects subject to discretionary approval or any redevelopment that increases density, overall square footage, and/or occupancy load for implementation of transit service to meet future transportation demands. The fee pays for a wide variety of planned improvements including new service, increased frequency of daytime and nighttime routes, and maintenance and bus stop improvement projects. The ZOB could ultimately collect about $312,700 per year or $68.00 per dwelling unit.16

Costs

Cost estimates for a shuttle bus purchase are $70,000 for a fully ADA equipped 14-passenger vehicle and $535,000 for a 32-passenger coach.

Operational cost estimates are $80-$100 per hour and include incremental costs of labor, fuel, maintenance, and administrative support.

Key Action Steps

The following action steps are recommended as preliminary steps in determining where and how to expand existing TART service and introduce new shuttle service.

- Conduct a survey to learn about residents’ and visitor travel preferences. Is there demand for transit expansion via new shuttles?
- Per the success of the Mountaineer and shuttles currently provided by Northstar, work with other resorts to pilot seasonal shuttle service expansion where service demand is identified
- Encourage employers, the Resort Association, Town Center and other Business Associations and the TMA to discuss opportunities for implementing employee-based shuttle or rideshare program(s)
- Work with employers to identify employees’ travel needs. Provide employers participating in the Trip Reduction Ordinance with TART routes and schedule information
- Consider additional incentives for bus driver employees

Case Study

In July 2018, the Placer County Board of Supervisors unanimously elected to form a tourism business district (TBID) to fund an on-demand shuttle within Olympic Valley and Alpine Meadows. The TBID anticipates collecting more than $700,000 a year from a tax on short-term room rentals and lift ticket revenues. The Mountaineer, which runs between Squaw Valley and the Alpine Meadows ski area, picks up and drops off customers along a main route. Similar to rideshare, customers request a trip through their smartphone app.17 18

BUS STOP IMPROVEMENTS

The bus stop experience impacts a person’s decision on whether he/she will take the bus. The Transit Center report, Who’s on Board 2016, found that, aside from improving frequency and travel time, shelters and real-time information are the most important factors to improve rider satisfaction. Other elements such as lighting, visibility, seating, and protection from the elements can also play a big role in making transit desirable throughout the year and at all hours of the day.

Guidelines for Improving Bus Stops

- **Lighting and hailing signals** increase the visibility of passengers waiting at bus stops, reducing the likelihood of customers going unseen by bus drivers. Lighting improves both perceived safety and actual safety of passengers waiting on low-traffic streets.
- **Seating** to accommodate seniors and people with disabilities.
- **Protection from the elements**, including heating (if feasible) is essential to creating a service that is comfortable and accessible year-round.
- **Real-time information** takes away the uncertainty associated with transit service and allows riders to maximize their time by limiting wait times. Over the next year, Placer County will be adding real-time signs to all new bus shelters in Tahoe using the NextBus platform.
- **Installation of WiFi**

Costs

Real-time information tends to be the most expensive bus stop upgrade because it requires buses be equipped with GPS. Fortunately, Placer County has already taken this step to provide GPS on all TART Buses.

To save costs, many jurisdictions are collaborating with companies to create smartphone apps. See 2-25 for information on multimodal trip planning applications.

<table>
<thead>
<tr>
<th>Element</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bench</td>
<td>$430</td>
</tr>
<tr>
<td>Enclosed Shelter</td>
<td>$80,000 to $100,000</td>
</tr>
<tr>
<td>Heating</td>
<td>$10,000 to $60,000</td>
</tr>
<tr>
<td>NextBus Real Time Sign</td>
<td>$5,000 per shelter</td>
</tr>
</tbody>
</table>


20 A beg button light to indicate to an approaching bus a passenger is waiting at the stop.

21 While real-time information is currently available through NextBus, the information can be unreliable due to spotty cellular service.
Key Action Steps

- Implement the existing transit shelter improvement plan
- Assess current bus stop amenities. Improvements to existing stations should be made based on transit expansion plans and other priorities.
- Develop a strategy for funding key improvements
  a. Direct funds to stops that have high ridership.
  b. Include transit shelters in future modification/creation of a Benefit Assessment District (BAD)
  c. Require private developers to improve bus stops adjacent to their future residential and commercial sites per Conditions of Approval
PARKING MANAGEMENT

Placer County is committed to providing a more efficient transportation system, focused on improving transit in accordance with the Regional Plan and the 2010 Lake Tahoe Sustainable Communities Strategy (SCS), which seeks to limit greenhouse gas emissions. This can happen through the implementation of alternative transportation services such as shuttles and rideshare programs, but also requires parking management policies.

Often, parking is either free or undercharged and when it is, there is a tendency for people to drive rather than take transit. However, as the cost of parking approaches what the market is willing to bear, people begin to weigh their transportation choices more evenly. Drivers will consider using non-driving modes for all or some of their trips when they have to pay to park.

Charging for parking in key destinations, paired with other parking management strategies included below, can encourage residents and visitors to park once. Park once is the concept of parking your car once rather than driving to each of your destinations and re-parking.

Parking Management Guidelines

Paid parking is best suited in areas within a short walk from commercial and recreation areas or within proximity to regional transit or shuttle services. The cost of parking should be set to align with market value to maintain a parking occupancy rate of 90 percent during peak periods. To ensure accessibility by all visitors to these areas, payments should be available by multiple methods—cash, credit card, and mobile app.

To align with the shifts in parking demand and visitor travel, parking costs can be set to price bands that are more expensive at the most congested periods. Similarly, to keep affordable options available, distance-based pricing can be implemented with more expensive parking spaces closer to the activity core, and less expensive options available within a short walk.

Time limits are an important feature of paid parking in commercial areas. Restricted parking time limits and paid parking generate parking turnover and ensure that local businesses benefit from parking regulations. Time limits can be designed to complement adjacent land uses to ensure an appropriate balance of parking turnover. Where long-term parking is needed, park-and-ride lots or satellite parking can be considered for peak seasons to encourage all day parkers to leave their cars away from destinations and maximize the space for development and active uses.

Key considerations when establishing parking fees:

- Price parking to achieve a maximum parking occupancy of 90 percent to ensure there will always be some parking available for residents, visitors, and employees.
- Charge for parking only in hourly/daily increments. The daily parking cost should incentivize visitors to leave their car for the day and use alternative modes between destinations.
- Costs, rules, and penalties (if applicable) should be publicly stated, easy to comprehend, clearly visible, and available online to inform trip-making decisions.
- Parking fees should be accepted by a variety of payment forms, including credit cards, cash, in person, and online, to facilitate payment for people of all income levels.

Establish an enforcement program that would be paid for through revenues from parking fees and citations. Recently several jurisdictions/agencies have invested in License Plate Recognition (LPR) enforcement systems, which can scan parking lots every few hours (the cost of an LPR device is about $30,000).

**Cost**

Cost estimates for on-street parking meters depend on the type of infrastructure used. A modern single-space parking meter (credit card capabilities) starts at about $800 (Meter+post). Whereas, a multi-space kiosk can cost between $6,000 and $8,000. Paid parking programs also require an information plan to alert residents of new parking programs and signage throughout the paid parking zone.

**Key Action Steps**

- Work with partner agencies, commercial areas, and local business communities to conduct a parking occupancy study to calculate the parking demands of certain areas
- Establish parking occupancy thresholds to determine when parking pricing adjustments should be made
- Create the role of parking management employee(s) to include managing and enforcing the North Lake Tahoe’s parking program
- Establish criteria for reevaluating parking time limit
- Implement a pilot study in the Kings Beach or Tahoe City areas

**Case Study**

Downtown Truckee charges drivers to park in certain lots. Rates are between $0.25 and $1.50 per hour, depending on the location of the lot. Truckee provides free two-hour parking in the Beacon parking lot between the hours of 10 a.m. and 6 p.m. Employees who work in downtown Truckee can purchase annual, bi-annual, and monthly passes, and they can receive a permit for free parking at meters and at the Beacon lot. In the winter, November 1 through April 30, overnight parking is not permitted to allow for on-street snow removal. Truckee has two staff members that manage the parking program – a community service officer and a police aide who both manage enforcement.23

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PARKING BENEFIT DISTRICTS

A parking benefit is a funding mechanism that directs parking revenues from a certain area to transportation or public space improvements. This strategy, which requires a paid parking program to be in place, is an effective way to pay for improvements, enforcement, maintenance, and other streetscape issues in areas where funding options are limited. Placer County has established a Benefit Assessment District (BAD) as a funding mechanism for the recently completed Kings Beach Commercial Core Improvement project. This approach could serve as a model for the North Tahoe region.

Key Action Steps

A cost estimate for a parking benefit district would require the following efforts. Note: The cost of a parking benefit district is subject to the establishment and adoption of a parking management program.

- Estimate annual parking and enforcement revenue for Placer County’s proposed parking program to determine whether it is feasible to assume that paid parking revenues will cover the capital and operational costs of a parking benefit district (this would be part of a detailed parking management assessment and feasibility study).

- Estimate Placer County’s annual administrative, maintenance, and enforcement costs.
A Residential Parking Permit (RPP) program is typically designed to regulate on-street parking adjacent to commercial and recreational attractions by managing the “spillover” which is likely to occur as a result of a parking management program, particularly if parking in those areas are priced. The RPP would allow people with designated permits to park all day while other drivers have limited access. Residential Parking Permit programs are most appropriate in neighborhoods adjacent to areas that face high parking demand from other uses, such as commercial and recreation areas.

**Guidelines for Implementing Residential Parking Permits**

RPP zones should be developed strategically in North Tahoe (such as residential areas adjacent to Highway 89 in Tahoe City and/or Highway 28 in Kings Beach) to increase convenience and access for existing residents and to discourage commuters and other non-residents from using parking on residential streets for extended periods. An RPP program should be designed to meet the specific needs of each neighborhood and their particular parking issues (this would be part of a detailed parking management assessment and feasibility study).

Elements of a RPP program are likely to include:

- Resident have access to visitor passes for use as necessary
- Program implements restricted time limits for public parking to accommodate day time parking demand

An RPP program may provide residents with visitor passes for use as necessary, which may be a necessary tool for homes used as vacation rentals. RPP zones may also implement restricted time limits for public parking to accommodate parking demand where parking is extremely limited compared to demand. For example, a roadway may have 2-hour parking for vehicles without a parking permit throughout the day.

**Key Action Steps**

- Analyze parking supply of residential neighborhoods versus parking demands in adjacent commercial areas.
- Establish a process for launching an RPP program including:
  - Determine RPP boundaries
  - Create permit process
  - Set perimeters of visitor pass

**Case Study**

**South Lake Tahoe**

South Lake Tahoe has an RPP program that provides residential permits at no cost with proof of residency. The program was established in May 2013 to manage the challenges faced by neighborhoods located adjacent to popular locations such as Lakeside Park and Regan Beach. The program has helped secure parking spaces for residents and their guests by limiting parking opportunities for visitors.

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24 Collection and analysis of parking data and a survey of local residents are recommended to develop an effective RPP program.

ACTIVE TRANSPORTATION IN NORTH TAHOE

The 2010 Lake Tahoe Regional Bicycle Plan and the 2016 Linking Tahoe: Active Transportation Plan serve as the bicycle and pedestrian element of Mobility 2035, the Regional Transportation Plan for the Tahoe Metropolitan Planning Organization (TMPO). These coordinated plans seek to create an environment with more opportunity for walking and biking. Today, North Tahoe visitors and residents have access to both on-street and off-street bicycle and pedestrian facilities. State Route 28 has a Class II bike lane between Tahoe City and Kings Beach, and the Tahoe City Public Utility District maintains 16.2 miles of multiuse Class I bike routes including facilities between Tahoe City and Squaw Valley along the Truckee River.

As stated in the Placer County Tahoe Basin Area Plan, several new active transportation facilities are underway to close gaps in existing infrastructure. This includes, but is not limited to, a multiagency effort to construct the Dollar Creek Shared Use Trail, a 2.2-mile shared-use trail that would extend North Tahoe Bike Trail, linking Tahoe City to Kings Beach.26 Refer to Figure 4 existing and planned pedestrian and bicycle infrastructure.27 28

Guidelines for Pedestrian Improvements

A walkable environment gives people more transportation choices and improves quality of life. A well-designed network of streets and pedestrian pathways is key to pedestrian accessibility, and includes streets, alleys, trails, midblock crossings, and improved crosswalks.

Improving walkability can have a key role in reducing vehicle trips by making it easier and more pleasant for people to walk or bike rather than drive. To maximize the impact in reducing driving trips, improvements should be prioritized to strengthen connections between where people start and end their trips.

The 2015 Tahoe City, Placer County, California Pedestrian and Bicycle Road Safety Audit and the 2016 Lake Tahoe Active Transportation Plan identify key challenges in the pedestrian network, and provide recommendations for accessible crossings, eliminating pedestrian crossing restrictions, and closing gaps in the network.

Identification key locations where pedestrian infrastructure is non-existent and/or is non-ADA compliant is a critical first step to implementation of the robust planning efforts so far. The 2017 Placer County Tahoe Basin Area Plan identifies planned sidewalks, bikeways, and trails, as shown in Figure 4. The 2016 Lake Tahoe Active Transportation Plan (Tahoe ATP) identifies 88 miles of shared-use paths projects and 7.7 miles of complete streets projects to improve pedestrian infrastructure in Lake Tahoe.

Pedestrian infrastructure improvements can include:

- Create a continuous sidewalk network and install painted crosswalks at intersections
- Landscape between sidewalks and the roadway to create a more calming walking environment

- Ensure that curbs are accessible for users with mobility challenges
- Use high-visibility pavement marking to increase visibility of pedestrian crossings
- Design tight curb radii to slow turning motor vehicle traffic at intersections
- Add pedestrian-scaled lighting to improve visibility of pedestrians and bicyclists
- Locate parking behind storefronts to create a more welcoming public realm and active street blocks
- Incorporate safety signage developed by the Pathway Partnership, led by TRPA

**Cost**

Pedestrian network and public realm improvements can include everything from lighting to painted crosswalks. Some potential components are shown in Figure 3 with a related range of costs, excluding maintenance.

### Figure 3  Range of Costs for Pedestrian Improvements

| Element                               | Cost                        |
|---------------------------------------|                            |
| Sidewalks                             | $10 per sq. ft.            |
| Landscape/buffers medians             | $2 to $44 per sq. ft.      |
| High visibility crosswalk             | $600 to $2,000 per leg     |
| Striped crosswalk                     | $100 to $500 per leg       |
| Sidewalk extensions to reduce radius  | $3000 to $7,000 per curb corner |
| Pedestrian-scaled street lighting     | $3,000 to $14,000 per light|

**Key Action Steps**

- Apply design guidelines to inform features such as lighting, vegetation, and street furniture as gaps are filled and for future developments.
- The 2017 Placer County Tahoe Basin Area Plan (TBAP) identifies street design, landscaping, and lighting design guidelines in Chapter 3.09 of the TBAP.
- Establish a process for prioritization of pedestrian improvements. Typically, locations along commercial districts or resort areas with high volumes of pedestrians are considered for prioritization.
- Chapter 6.3 of the Tahoe Active Transportation Plan identifies high priority projects and prioritization criteria.
- Identify potential funding streams and develop a maintenance approach.
- Chapter 6.4 of the Tahoe Active Transportation Plan identifies funding opportunities, such as the Kings Beach Benefit Assessment District, that funds facility maintenance.
- Chapter 2 of the Tahoe Active Transportation Plan identifies maintenance strategies.
- Appendix A of the Tahoe Active Transportation Plan identifies maintenance standards for multi-use paths, trails, and on-street bikeways.
- Appendix H of the Tahoe Active Transportation Plan identifies maintenance responsibilities and a plan template.
- Chapter 4 of the Tahoe City Mobility Plan identifies funding opportunities.
- Page 23 of the 2015 Tahoe City, Placer County, California Pedestrian and Bicycle Road Safety Audit identifies funding opportunities.
Figure 4   Existing and Planned Bicycle and Pedestrian Infrastructure – Tahoe City
Figure 5 Existing and Planned Bicycle and Pedestrian Infrastructure – Kings Beach
Guidelines for Bicycle Facilities

As with improving the pedestrian network, bicycle network improvements can encourage more people to ride bikes instead of driving. Bike facilities can serve direct door-to-door trips, especially trips that are “too far to walk but not far enough to drive” (e.g., trips of between one and two miles are too long to walk for most people, but are a short bicycle ride) and are ideal in areas with many destinations - again supporting a park once strategy.

Bicyclists should be accommodated using dedicated space in the roadway or as a separated path to accommodate a broad array of bicyclists comfortably. In the roadway, bicycle lanes with buffers (painted or physical), help separate bike traffic from vehicles and increase the visibility of bicyclists in the road; this is an important consideration on streets with high-speed differentials between bikes and cars. The Tahoe Active Transportation Plan includes buffered bike lane recommendations. Improvements to the bicycle network should strive to create a network that is inviting to more than just competitive bicyclists and connects residential neighborhoods, community amenities, retail areas, and recreational destinations.

Completing, maintaining, and expanding the trail system was identified as a public priority in the North Lake Tahoe Tourism Master Plan (2015). Winter weather, including cold temperatures, snow and ice, can make bicycling less appealing, and there will be less demand, especially from visitors. However, with the right equipment and winter gear, bicycling is manageable in many conditions. Local bike shops may consider expanding winter bicycling as a recreational activity. Further, there are residents who rely on their bicycles as a primary form of transportation, especially in households with limited access to cars. Therefore, maintaining priority trails and bikeways with high likelihood of use is important, even in winter.

Biking isn’t just a recreational activity; both residents and tourists would like to get around without relying on a car. Building a complete bikeway network can help support those demands. The 2017 Active Transportation Plan identifies several gaps in the bicycle/trail network that need improvements. The Tahoe Active Transportation Plan identifies a comprehensive list of both regional and local bikeways to address gaps in coverage, including on-street bikeways and multi-use paths. The improvements will help people get around North Lake Tahoe and beyond. The regional, proposed “Resort Triangle” trail will provide more direct, convenient, and safe bike connections between Kings Beach, Tahoe Vista, Tahoe City, Alpine Meadows, Squaw Valley, Truckee, Martis Valley, and Northstar, in a 40-mile loop. Figure 5 shows a multimodal corridor improvement project from the Tahoe Active Transportation Plan that includes both pedestrian and bikeways improvements along State Routes 267 and 28.

Ongoing efforts include the Martis Valley Trail, the North Tahoe Trail, and the Truckee River Trail. Tahoe City Public Utilities District clears snow on many of their paths, and the Lake Tahoe Bicycle Coalition has a map showing plowed routes.

http://map.tahoebike.org/
Figure 6  Corridor 1 North, Existing and Proposed Infrastructure

MAP KEY:
- Schools
- Town Centers
- Proposed Facilities
  - Shared Use Path
  - Bike Lane or Cycle Track
  - Bike Route
  - Complete Street Improvements
- Intersection Priority
- Complete Street Priority Area
- Bus Stop or Location in need of Bike Panning
- Existing Facilities
  - Shared Use Path
  - Bike Lane
  - Bike Route
  - Sidewalks
  - Trails

SR 89/ SR 28

Pin Point Trail
In need of upgrade

King's Beach Commercial Core,
Griff Creek, & Boardwalk Projects

Dollar Creek Trail
to be constructed 2016/2017

Kings Beach
Existing Sidewalks

TAHOE REGIONAL PLANNING AGENCY

CORRIDOR 1: SR 89 / SR 28, NORTH
EXISTING & PROPOSED INFRASTRUCTURE

TIPMAP 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.
Cost

The costs of bicycle network improvements depend on the existing right-of-way and local standards for street design. These costs should be determined on a case-by-case basis. Facility maintenance in the Tahoe area is most costly in the winter, because of snow removal—the costs are dependent on facility types and the required snow removal vehicles.

Key Action Steps

- Placer County should continue to prioritize gaps in the region’s bicycle network for build out. Future projects should be consistent with the following plans:
  - The 2017 Placer County Tahoe Basin Area Plan identifies planned bikeways and trails for implementation.
  - The 2016 Lake Tahoe Active Transportation Plan (Tahoe ATP) identifies 88 miles of shared-use path projects and 7.7 miles of complete streets projects to improve bike infrastructure in Lake Tahoe, including complete streets improvements to State Route 89/State Route 28 corridor in North Lake Tahoe.

- Continue to pursue funding for project implementation and working to maintain and manage snow on bike facilities.
  - Chapter 6.4 of the Tahoe Active Transportation Plan identifies funding opportunities, such as the Kings Beach Benefit Assessment District, that funds facility maintenance.
  - Chapter 2 of the Tahoe Active Transportation Plan identifies maintenance strategies.
  - Appendix A of the Tahoe Active Transportation Plan identifies maintenance standards for multi-use paths, trails, and on-street bikeways.
  - Appendix H of the Tahoe Active Transportation Plan identifies maintenance responsibilities and a plan template.
  - Chapter 4 of the Tahoe City Mobility Plan identifies funding opportunities.
  - Page 23 of the 2015 Tahoe City, Placer County, California Pedestrian and Bicycle Road Safety Audit identifies funding opportunities.

- Continue to identify funding streams for improvements and develop a maintenance approach for prioritizing facility maintenance during high snow/weather conditions.

- Implement TDM requirements on new development as identified in the Placer County Tahoe Basin Area Plan (i.e. bike parking, shower facilities, etc)

- Incorporate safety signage developed by the Pathway Partnership, led by TRPA
Bicycle Parking

Bicycle parking is a critical element in a cohesive bikeway network. It helps people rely on bicycling as a form of transportation, including for short trips to an activity center or longer trips between destinations. Bicycle parking should be convenient, secure, and, ideally, protected from the elements.

An effective bicycle parking strategy improves the coverage and quality of outdoor bicycle racks and sheltered and/or indoor bicycle parking for long-term parkers or during inclement weather. Convenient parking that is close to building entrances can encourage the use of a bike, particularly as parking management strategies are implemented, and can reduce the ease of driving and parking.

Major destinations, such as office buildings, institutions, and multifamily housing should provide sheltered or indoor bike parking to keep them safe and protect them from weather. Ideally, sheltered parking should be accessible 24 hours a day, be clearly marked and easy to find, and be accessible to/from surrounding streets and building entrances. Indoor bike parking should include different types of bike racks to house a wide-selection of bicycles.

Short-term bike parking on sidewalks or on-street (such as a bike corral) typically include:

- Buffered space between bike parking and vehicle activity that accounts for a person locking/un-locking a bike
- Adequate spacing from sidewalk activity without limiting sightlines from passersby
- Bike racks that accommodate standard U-locks and support a bike at two distinct points
- Convenient access to/from surrounding streets and building entrances
- Highly visible

The proportion of short- and long-term spaces provided varies depending on the type of building use (e.g., retail uses have predominantly short-term spaces, whereas office and residential buildings need more long-term parking). The Tahoe ATP provides recommended bicycle parking ratios for consideration in the region. The plan also identifies areas in need of improved bicycle parking facilities.
**Cost**

Cost of bicycle parking facilities may include:

**Figure 7  Range of Costs for Bicycle Amenities**

<table>
<thead>
<tr>
<th>Element</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-bicycle U-Rack</td>
<td>$150 to $300</td>
</tr>
<tr>
<td>Secure bike parking</td>
<td>$200 to $600</td>
</tr>
<tr>
<td>Indoor bicycle parking (construction)</td>
<td>$500,000 to $1,000,000 (depending on size and amenities)</td>
</tr>
<tr>
<td>Indoor bicycle parking operating costs</td>
<td>$100,000 to $150,000</td>
</tr>
<tr>
<td>Bike depot construction</td>
<td>$500,000 to $1,000,000</td>
</tr>
<tr>
<td>Bike depot operating costs</td>
<td>$100,000 to $150,000</td>
</tr>
</tbody>
</table>

**Key Action Steps**

- Determine the need for parking in the region
- Develop a strategy and funding mechanism for siting and installing bicycle racks at key community destinations
- Enforce the bicycle parking requirements by land use identified in the Tahoe ATP in effect for new developments
Mobility Hubs

Mobility Hubs are centrally located stations that provide multimodal connections and access for all non-drive modes of transportation – biking, walking, and taking transit. These hubs are most often centered around transit or shuttle service and include amenities for people who link multimodal trips – trip planning assistance, transit information and fare payment, bike parking, walking routes, share bikes, etc. A mobility hub currently exists at the Tahoe City Transit center. Bicycle parking is available, and the hub is in close proximity to transit and local trails, and commercial and recreational areas.30

Mobility hub cost consideration depends on size and location. A mobility hub strategy may include land acquisition and the costs of rerouting transit service in addition to staff time, kiosks, bicycle parking, rental bicycle stations (or bike-share stations), transit shelters, etc.

Key Action Steps

- Work to determine key locations where mobility hubs could be successful
- Identify funding requirements and funding sources

---

Case Study

The Tahoe City Transit Center (TC TC) is located off Interstate 89 just south of the Fanny Bridge. The TC TC is a hub for buses, providing connections to other recreational areas and transportation services. Additional amenities include a TART pass/bike locker vending machine, bike lockers, bus arrival information, and parking. The TC TC is open Monday through Friday, 6 a.m. to 4 p.m.

---

Wayfinding Approaches

Signage and wayfinding make it easy for people to walk or bike between transit and their destinations when created at a pedestrian scale. Aside from providing direction to key destinations, signage may also display travel times for those walking and biking to encourage and increase the awareness of non-driving modes.

Effective wayfinding signage should include connections between community attractions, transportation services/mobility hubs, and other key information. Appealing and consistent branding is critical to ensure a pedestrian, bicyclist, or driver can recognize that they are traveling within the same region.

The North Lake Tahoe Community Wayfinding Design Standards Manual, adopted in 2013, provides guidelines for vehicular and pedestrian scale signage, including signage materials, fonts, placement, etc. This resource may be considered for the region to maintain consistency and make signage easily recognizable by visitors.

Cost

While the North Lake Tahoe Community Wayfinding Signage Design Standards Manual does not include cost estimates, estimates for pedestrian and bicycle oriented signage may range from $500-$2,000.

Key Action Steps

- Determine the specific needs for wayfinding in the region.
- Placer County and collaborating jurisdictions may use the North Lake Tahoe Community Wayfinding Signage Design Standards Manual to create a consistent sense of place throughout the region. Alternatively, a new set of guidelines may be developed for implementation.

The destination hierarchy and information displayed on placemaking should be consistent with the North Lake Tahoe Community Wayfinding Signage Design Standards Manual or any new guidelines developed.

Coordinate with TRPA lead Pathway Partnership efforts

**Mobility Option Information**

For any TDM program to be effective, people need to know what options are available for their most frequent trips. Establishing a clear approach to providing reliable and up to date information is essential and a consistent brand can further increase effectiveness.

Information should be provided through a mix of digital and print materials. Print materials are ideal for hotel welcome packets, Airbnb/VRBO information packets, and community gathering places (e.g., civic centers, libraries, etc.). Digital information is best suited for a website (e.g. linkingtahoe.com, gotahoenorth.com, keepatohoeblue.org) or a multimodal trip-planning app.

Information should include:

- Walking paths with travel times
- Transit routes, fare information, travel times, and stops
- Bicycle routes, travel times, rental services, and costs
- Paid parking policies and locations

Mobility information reinforces driving alternatives as reliable transportation options and contributes to more realistic wait times.32

**Cost**

Costs of a mobility information effort varies based on scope and materials. Print materials and efforts to develop web content has a relatively high cost, mostly staff time; whereas, mobility kiosks providing interactive information throughout an area and can range in cost depending on the provider.

One option for a mobility kiosk is Ike Smart City. The Ike Smart City kiosk integrates a weatherproof touch screen kiosk that displays information at no cost for the user, assuming it can include advertising. If Placer County would prefer not to allow advertising, supplemental costs would be required for installing the kiosk.

The kiosk is flexible in the data it can share. It can include detailed information on attractions, information on public services and nearby amenities, and share any other information the County would like to distribute to the public.

**Key Action Steps**

- Continue to collaborate with the TMA to develop, distribute, and update transportation information
- Collaborate with the TRPA, service providers, TMA, and local jurisdictions to determine the data to be distributed and an approach to alert the responsible party of changes to service or coverage
- Collaborate with TRPA on development of travel applications
Multimodal Trip Planning App

Several companies currently provide comprehensive commuter management and communications services (e.g., Ride Amigos, RideShark, Luum, and TripShot). These companies help jurisdictions/agencies and companies reduce single-occupancy vehicle trips for their constituents.

It is important to note that the Tahoe Regional Planning Agency (TRPA) is currently exploring options for a Basin wide mobility trip-planning app. Placer will seek to coordinate with TRPA on this and other TDM efforts which may work together to benefit our visitors, employees and residents.

Regardless of the vendor chosen, a multimodal trip-planning app should include the following features:

- Channels to promote the County’s TDM brand
- A single starting point in which one can easily launch into understanding the many transportation options available based on their applicability, cost, and convenience to the user
- Value for individual employers setting up their own networks on the platform to:
  - Track individual behavior
  - Inform decisions and priorities in transportation and commute options
- Assistance in spurring relationships with employers and other partners
- Potential to provide additional insights into behaviors through reporting modules (and calculations provided by the platform with regards to impacts on the transportation network and environment)

Key Action Steps

The following next steps are crucial for selecting an online platform that performs all the functionalities desired for a successful TDM program.

- **Platform Testing.** Testing of recommended online platforms by creating an account and touring the online interface will help Placer County and its partners gain a greater level of comfort and understanding.

- **Request for Information.** An inevitable step in the process will be to directly request information and/or presentations from multiple platforms. Doing so will add clarity to the considerations of costs and ensure that there was a degree of competition in the process.

- **Identify Project Team.** Determining the main points of contact from the project team who will regularly interface with the platform’s customer service will be a crucial piece of the TDM program’s ongoing management and administration. In terms of the ongoing use of the platform, the following responsibilities and roles will need to be delineated:
  - Recipients of initial training in platform administration and report generation.
  - Bridge between participants and the platform regarding customer service requests.
  - Provision of official feedback from the project team to the platform.
  - Responsibility for keeping all program and service information up to date.
OTHER MEASURES

Trip Reduction Ordinance

The existing Trip Reduction Ordinance (TRO) was adopted by Placer County in an effort to reduce total VMT and vehicle trip generation. Currently, the ordinance requires employers with more than 100 employees to make a good faith effort to encourage employees to carpool, vanpool, bike, walk, or telecommute. While all employers are required to post informational material about ridesharing and transit options, only companies with 100 or more employees must have a plan to actively promote alternative commute options. Company plans for reducing vehicular trips are scored according to a system that provides point values to different trip reduction efforts.

These TDM strategies provide an opportunity for the County to reevaluate the existing TRO to strengthen it to better align with the TDM goals and efforts outlined in this document. A possible amendment could be grouping commercial areas together and business-types together to help implement free fares or other programs.

Key Action Steps

Overarching recommendations for accomplishing this include:

- Strengthening language in the ordinance that calls attention to the need for efforts across all employers to actively manage transportation patterns to meet regional goals
- Application and enforcement of penalty fines for employers that fail to comply with the requirements of the TRO
- Consider incentives in the TRO for employer compliance
- Establishment of an efficient monitoring system that allows employers to digitally submit annual results to allow employers and the County to track progress of how different strategies are working
- Work with TRPA on developing tools for commute trips (i.e. TRPA's Commute Tahoe)

Additionally, the point values assigned to different trip reduction strategies do not align with anticipated impact. Figure 7 outlines the point values in the existing TRO, and compares them with their anticipated impact.

33 30 points are required for a satisfactory plan
### Figure 8  TRO Transportation Control Measures and Impact

<table>
<thead>
<tr>
<th>Transportation Control Measures</th>
<th>TRO Points Assigned</th>
<th>Projected Impact</th>
<th>Required Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designate employee transportation coordinator</td>
<td>2</td>
<td>High</td>
<td>Yes</td>
</tr>
<tr>
<td>Ridesharing information</td>
<td>1</td>
<td>Low</td>
<td>Yes</td>
</tr>
<tr>
<td>Post or provide employers alternative transportation mode information</td>
<td>1</td>
<td>Low</td>
<td>Yes</td>
</tr>
<tr>
<td>Distribute commuter matching service applications to employees</td>
<td>3</td>
<td>Low</td>
<td>Yes</td>
</tr>
<tr>
<td>Bicycle Parking Facilities</td>
<td>1</td>
<td>Medium</td>
<td>Yes</td>
</tr>
<tr>
<td>Preferential Carpool/Vanpool Parking</td>
<td>2</td>
<td>Low</td>
<td>Yes</td>
</tr>
<tr>
<td>ETC Education Program</td>
<td>2-10</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>In-House Carpool Matching Service</td>
<td>4</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>Additional Preferential Carpool/Vanpool Parking</td>
<td>1-3</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Transportation Management Association Membership</td>
<td>4</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Guaranteed Ride Home Program</td>
<td>3</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Parking Fee</td>
<td>6</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Clean Air Fuel Vehicles (for fleets)</td>
<td>1-10</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Shuttle Bus/Buspool Program</td>
<td>4</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Vanpool Program</td>
<td>4</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Transit/Rail Subsidy</td>
<td>4</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Transit Shelter</td>
<td>2</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Secure Bicycle Parking</td>
<td>2</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>Showers and Lockers</td>
<td>2</td>
<td>Low</td>
<td>No</td>
</tr>
<tr>
<td>Flexible Work Location/Telecommuting</td>
<td>4</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>Flexible Work Hours</td>
<td>2</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>Compressed Workweeks</td>
<td>3</td>
<td>Medium</td>
<td>No</td>
</tr>
<tr>
<td>Onsite Services*</td>
<td>1-15**</td>
<td>High</td>
<td>No</td>
</tr>
<tr>
<td>Transit System Subsidy/Grant</td>
<td>1-20**</td>
<td>High</td>
<td>No</td>
</tr>
</tbody>
</table>

* Includes but not limited to: child care, cafeteria/restaurant, lunch room, automated teller machine, dry cleaners, or post office. These services may be provided by the employer, through cooperative efforts of employers and service providers.

** Negotiable with County
Regional Ride-Matching Services

Ride-matching services make it easy for people who want to find others for carpool/car-share and or vanpool opportunities. Typically, programs take the form of an online or app-based platform that allows participants to post either a ride they intend to share or a shared ride request, including timing and origin/destination information.

Currently, some employers in the region have in-house carpool/car-share programs, which provide co-workers with the opportunity to coordinate rides. While this is an effective tool for larger employers, smaller employers may have trouble facilitating shifts in commute patterns.

A regional ride-matching service, potentially sponsored by TRPA and/or the TMA, could be developed as a pilot to reduce the amount of commute vehicle trips that occur during the week. A regional program would broaden the pool of shared-ride participants and maximize the benefits of the program from a trip reduction perspective and a user convenience perspective.

Key Action Steps

- Placer County, the TRPA and/or TTD, and the TMA should collaborate to determine the feasibility of operating and funding a joint regional ride-matching service.
- Consider a pilot program with a focus on the resort triangle area.
- Coordinate with the TRPA and/or TTD to launch a call for proposals to determine potential app-based or web-based platform for the region.
- Placer County, the TRPA, TTD, and the TMA need to collaborate to ensure information of this new service is distributed to employers and their employees.
- Determine if the trip reduction ordinance needs to be revised to change the points attributed to ride-matching program participants, and/or establish this strategy as a requirement for larger employers.
Potential Implementation Partners

Web- and app-based car-share providers may be potential partners in this effort:

- Scoop
- Waze
- Lyft
- Enterprise

The cost of these partnerships can often be offset via partnering with app-based service providers. Developing a separate service may cost about $25,000 per year.

INTERAGENCY COORDINATION

With many other TDM efforts being promoted in the basin by partner agencies, it is important to work collaboratively to increase their chances of success and to promote regional consistency.

Examples of collaboration opportunities include:

- Coordinate with the TMA to conceptualize new public-private shuttle routes
- Collaborate with major employers and smaller business associations to refine existing Trip Reduction Ordinance
- Collaborate with TRPA to promote use of the Commute Tahoe program (soon to be launched)
- Continue to partner with the Tahoe City Public Utilities District and other Community Service Districts helping expand and fund shared paths
- Coordinate internally to assign staff to explore a new parking management effort
- Work with TRPA and the local TMA to research new mobility information options, while continuing to promote linkingtahoe.com
3 IMPACT AND COST

Figure 8 below provides a general order-of-magnitude assessment of the level of investment of each TDM measure on a conceptual level. A qualitative approach is used due to the difficulty in quantifying how individual measures impact vehicle trips in different contexts. Since there are several ways to implement these measures, cost refers to a qualitative assessment of both the financial costs and the intangible level of effort required. Detailed cost estimates or quantifiable trip reductions per TDM strategy are not included and would require further research.
### Figure 9  TDM Strategies, Cost, and Impact

<table>
<thead>
<tr>
<th>TDM Strategy</th>
<th>Description</th>
<th>Cost</th>
<th>Impact</th>
</tr>
</thead>
</table>
| Transit Services              | Shuttle for visitors and residents to key destinations                      | • $70,000 for fully ADA-equipped 14-passenger vehicle  
• $535,000 for 32-passenger transit coaches  
• Operation costs: TBD[^34]             | High                                           |
| Bus Stop Improvements         | Improve stop design offerings to include shelter, lighting, seating, trash receptacles, and shade/heating if possible | • $85,000 - $140,000                           | Medium |
| Parking Management            |                                                                              |                                                |        |
| Parking Pricing               | Pricing parking to ensure target occupancy rates of 90% and encourage alternative modes | • $800 - $8,000                                | Medium |
| Residential Parking Permits   | Establishes a program to limit parking demand from visitors on residential communities | • -TBD                                        | Medium |
| Active Transportation         |                                                                              |                                                |        |
| Develop and Maintain Bicycle Facilities | Brings a connected and safe bicycle network to the study area | • Vary by Type                                 | Medium |
| Develop and Maintain Pedestrian Facilities | Brings a connected and safe pedestrian network to the study area | • Vary by Type                                 | Medium |
| Provide Bicycle Parking       | Provides bicycles with a variety of parking options to meet different bicyclist needs | • Vary by Type                                 | Medium |
| Develop Mobility Hub          | Creates a center where visitors can access multiple modes of transportation and information about transportation offerings | • Vary by Offerings                           | Medium |
| Information Access            |                                                                              |                                                |        |
| Improved Wayfinding           | Creates signage to make the study area easier to navigate by all modes        | • $500-$2,000                                  | Low    |
| Mobility Option Information   | Establishes a standard for transportation information to be made readily available | • Free with Advertising Allowances             | High   |
| Other                         |                                                                              |                                                |        |
| Trip Reduction Ordinance      | County ordinance requesting that companies reduce their commute trips        | • Vary by Offerings                           | High   |
| Regional Ride-matching services | Utilizes an app-platform to connect users to potential carpool opportunities | • Partnerships may offset costs               | High   |

[^34]: Incremental cost based on labor, fuel, maintenance, and administrative costs.
4 MONITORING

Ongoing monitoring of TDM strategies is an important element of effective implementation. This approach supports a responsive and evolving TDM program, identifying what is working best and what measures may need adjustment or replacement.

A comprehensive monitoring process tracks how TDM strategies impact the transportation environment within the project area over time, and relies on shared responsibility between partners – including the TRPA/TTD, TMA, large employers, and the County. The monitoring process should be established as a collaborative effort and reflect funding and administrative constraints. The existing TRO ordinance described above outlines policy on monitoring employer performance including an annual commute mode survey, and employee parking space monitoring, which provides a framework for defining the initial TDM monitoring requirements.

Additional measures to monitor long-range effectiveness of TDM strategies in Placer County communities may include:

- **Community Travel Surveys:** Online surveys and intercept surveys distributed periodically by partners – resorts, business associations, and employers – can collect travel mode, socioeconomic, household and transportation-related information from Placer County residents and workers.

- **Vehicle Counts:** Automatic vehicle counters can be placed at major gateway corridors to track changes in traffic volumes over time at a set of representative locations. These counts would also support detailed traffic analysis as needed, to be determined by the TDM implementation plan.

- **Regular parking counts:** Parking supply and utilization counts provide an evaluation tool to track changes in vehicle mode share and site access over time, which is an indicator of changes in demand for parking, and effectiveness of mode shift programs.

Specific evaluation measures and details of monitoring and evaluation cycles will be determined as part of the upcoming TDM implementation phase, and will depend on available resources. All TDM strategies are intended to be flexible to adjust over time to address gaps and improve effectiveness. To build on the framework that is already provided by the TRO, the County may consider the following approaches in developing an implementation plan:

- Identify new strategies for inclusion in the ordinance in response to rapidly changing mobility;

- Adjust the point values in the existing TRO of strategies (summarized in Figure 7) that are less or more of a County priority over time, or that prove to be more or less effective than initially anticipated; and

- Increase the total point count that organizations are required to meet, to incentivize more robust TDM programs.