

Tahoe Transportation District Short Range Transit Plan



Courtesy TRPA



TTD Board Adopted: October 13, 2017

TAHOE TRANSPORTATION DISTRICT
RESOLUTION NO. 2017-011

**A RESOLUTION ADOPTING THE SHORT RANGE TRANSIT PLAN AND RELATED
COMMITMENTS**

WHEREAS, the Tahoe Transportation District (TTD) was created as a bi-state special district by the states of California and Nevada and ratified by Congress in Article XI of Public Law (PL) 96-551 in 1980; and

WHEREAS, TTD is granted authorities to own, operate, and implement public transit and make transportation system improvements to the transportation network serving and connecting Lake Tahoe communities to each other and inter-regionally; and

WHEREAS, TTD and the Tahoe Regional Planning Agency (TRPA), also authorized by PL 96-551 to ensure transportation is integrated with land use and environmental carrying capacity threshold goals, work together to ensure that the transportation network serving the region is planned for and treated as a whole rather than disparate parts; and

WHEREAS, TTD has developed implementation plans to support TTD's long range transit plan, Linking Tahoe: Lake Tahoe Basin Transit Master Plan; and

WHEREAS, TTD has prepared the Short Range Transit Plan (SRTP) as a short-term, five-year implementation plan to guide the development of transit services and multi-modal supporting infrastructure to reduce vehicle trips impacting Tahoe's traffic, environment, and quality of life and user experience; and

WHEREAS, TTD has held, as part of the public process in developing the SRTP, a public hearing and a thirty-day public comment period on the plan which is now closed.

NOW, THEREFORE, BE IT RESOLVED that the TTD Board of Directors hereby adopts the SRTP for fiscal years 2017 through 2021 and acknowledges the challenges cited in the SRTP and resolves itself to work assertively with its partners and Staff to address them over the course of the plan to establish a foundation upon which to build the service of the future.


PASSED AND ADOPTED by the TTD Board of Directors at its regular meeting held on October 13, 2017, by the following vote:

Ayes: Mr. Arthur, Ms. Berkgigler, Mr. Garner, Ms. Maloney, Ms. McDermid, Ms. Novasel,
Mr. Sass, Mr. Teshara, Mr. Treabess

Nays:

Abstain:

Absent:



Steve Teshara
Chairman

Executive Summary

THE OBJECTIVE

The Short Range Transit Plan (SRTP) will guide the development of the Tahoe Transportation District’s (TTD) goals, objectives, and policies for the next five years of transit service within the Lake Tahoe Region. The SRTP is developed within the context of the long range transit plan, Linking Tahoe: Lake Tahoe Transit Master Plan (TMP), which is aimed at implementing a new vision for transit as “the vehicle for change in the Tahoe Region.” The TMP is an implementation plan developed to achieve the transportation policies of the Lake Tahoe Region. The Tahoe Basin welcomes visitors to the area each year that, according to new, detailed cell phone data, account for 75 percent of all vehicle trips made internal to the Region. This magnitude of visitation translates into a considerable number of vehicles congesting our transportation network (35 million vehicle trips). There is growing consensus within the Basin that our infrastructure can no longer handle this volume of vehicles. With transit, there exists an opportunity to get a large number of these vehicles—along with those of our residents and commuters—off the road and onto transit and other modes where they can get safely and reliably to their respective destinations.

THE CHALLENGE

The TTD operates transit services with both intra- and interregional connections that are vital to the communities in and around the Basin. Still, it is understood that in order for transit to effect significant change within the region, transit will need to have a much larger presence in the area’s communities. Recognizing the desire for a substantial shift in the Basin’s transit needs, TTD took a pivotal first step towards enhancing the transit system when the agency assumed direct operations in 2016. Directly operating transit allows for greater control over the services provided and the level of service TTD aims to achieve.



Courtesy TRPA

In June of 2017, the TTD Board of Directors adopted the TMP, along with some aggressive goals to achieve a transit and multi-modal vision that has been desired for decades. Among the goals were a twenty-percent transit mode split target within twenty years; establishment of a sixty million dollar revenue stream to achieve it; establishment of a regional traffic control center; addressing parking and the development of mobility hubs; and introduction of “free fare” transit service where appropriate. TTD is the champion for implementing the TMP and the SRTP is the first installment on the twenty year path.

With this in mind, there are a number of operational priorities and fundamentals that need to be addressed in order to realize the vision put forth in the TMP. The SRTP presents the following goals, challenges, and objectives:

Safety

TTD aims to provide the highest possible safety conditions for staff and the public.

Workforce Development

Workforce development remains one of the biggest challenges for the District after bringing transit operations in-house. The first priority, upon the agency's first full year of assuming direct operations, is assessing employee compensation, offering additional training, and examining new approaches towards staff retention.

Fleet Expansion and Replacement

TTD's fleet needs substantial and urgent attention. Over half of the current bus fleet is either approaching or is already beyond the Federal Transit Authority's (FTA) designated useful life. Under direct operations, staff has an opportunity to better understand the fleet and what would be best suited for each of the varied services TTD provides.

Facility Capacity and Modernization

TTD's existing leased facilities are in dire need of attention. This need is elevated with the FTA's State of Good Repair requirements. Additionally, TTD is approaching the existing transit yard's maximum capacity for bus storage. Should the funding become available to expand service, there persists the issue of limited space to accommodate more buses.

Future Service and Route Proposals

TTD would like to consider limited route proposals and route expansion where necessary to better serve the needs of residents, commuters, and visitors within communities throughout the South Shore service area. These possibilities include service expansion to Meyers and increased service to Lake Tahoe Community College (LTCC), a high-frequency route to Emerald Bay, and the expansion of TTD's demand response service to address this growing need.

TTD acknowledges that first and foremost, it must establish a solid foundation upon which a great transit system can grow. Of the five goals listed, the first four are identified as key fundamentals in need of considerable improvement as crucial building blocks to a resilient transit system: safety, workforce, fleet, and facilities. Before staff can deliver an ambitious transformation of the Basin's transit network consistent with the TMP, we must address these essential building blocks.

Additionally, the SRTP explores a select number of route expansion and new route proposals as mentioned, should funding become available. This is achievable but will require an aggressive pursuit of stable, sustainable resources. TTD anticipates that revenues will fluctuate as a result of increasingly uncertain priorities at the federal level in combination with retiring capital programs at the state level. Baseline transit operations require over \$39 million in operating funds to maintain existing levels of

service over the next five years, if current revenue sources remain steady. Staff has identified adequate funding sources to narrowly preserve baseline service through fiscal year (FY) 2021 with minimal carryover for capital needs.

Moreover, a substantial funding shortfall exists in capital replacement of fleet assets. With a bus replacement need of over \$17.7 million and only \$1.2 million in available funds with the slight carryover from operations, TTD is left with a \$16.5 million shortfall in capital needs. The shortfall is predicated on a fleet replacement policy following FTA useful-life guidelines and State of Good Repair guidance. Presently, the amount of annual transit expenditures does not include materially sufficient funding levels for any fleet replacement.

THE FUTURE RELIES ON FUNDING

TTD recognizes our current funding restraints and the need to establish new, robust channels of funding. An intensifying theme of funding uncertainty has emerged at the federal level. As we accept the uncertainty of federal sources, it is prudent that TTD aggressively explores new permanent funding possibilities and considers educating our partners and the public on self-help resource options for our region as a whole.

The SRTP proposes two action strategies to address current funding restraints and tailor the transit system to the current level of funding: The Progressive Track (unconstrained) or The Regressive Track (constrained). Both proposed action strategies include a path to securing a core, reliable labor force that can operate and maintain the system with minimal overtime.

Progressive Track (Unconstrained) - Recommended

The Progressive Track is a dual-action solution requiring an aggressive pursuit of new, robust sustainable funding sources at all levels—local, regional, state, and federal—needed for the development of an enhanced region-wide transit network consistent with the TMP, while also moving to support a revised system operational plan and a capital plan that balance service levels with existing funding. The revised system, as included in the Progressive Track, focuses on system productivity recognized through ridership and may include:

- Increases in frequency to boost productivity
- Rebalanced (reduced or expanded) service areas
- Rebalanced hours of operation recognizing the system’s most effective operation timing
- Modifications to seasonal services to balance resources

The integrated approach of the Progressive Track best aligns with the objectives outlined in the TMP, along with the Tahoe Regional Planning Agency’s (TRPA) Linking Tahoe: Regional Transportation Plan/Sustainable Communities Strategy 2017-2040 (RTP/SCS). This dual-action strategy will allow TTD to better work within the context of both regional plans. Furthermore, RTP/SCS compliance is predicated on successful implementation of the Progressive Track.

Regressive Track (Constrained)

This option is an alternative to the vision of the adopted RTP/SCS. The Regressive Track refocuses transit by revising the system's operational and capital plans to balance service levels to existing funding. The Regressive Track plan would include focusing on either system coverage (geographic density) or system productivity (ridership). As the cost of service provision typically escalates more rapidly than existing funding, transit services will slowly contract. The allocation of capital funds would shift to consolidation of facilities and asset preservation.

The Regressive Track does not permit the realization of the ambitious goals laid out in either the TMP or the TRPA's RTP/SCS. Non-compliance with the RTP/SCS could jeopardize future transportation dollars for the Basin.

The SRTP is developed for a five-year time frame within the context of the twenty-year vision of the TMP. Adoption of the Plan and policy direction will guide the course for transit over the next five years.

Short Range Transit Plan

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Acronyms – The ABCs of TTD

AAA4 – Agency on Aging – Area 4

ACT – Advanced Clean Transit rule

ADA – Americans with Disabilities Act

APTA – American Public Transit Association

ARB – California Air Resources Board

ATP - Active Transportation Plan

AVL - Automated Vehicle Locator

Caltrans - California Department of Transportation

CHSTP - Coordinated Human Services Transportation Plan

CMAQ - Congestion Mitigation and Air Quality

CNG – Compressed Natural Gas

DOT – United States Department of Transportation

ESE – East Shore Express

FAST Act - Fixing America’s Surface Transportation Act

FHWA – Federal Highways Administration

FTA – Federal Transit Administration

FY- Fiscal Year

GFI - GFI Genfare

GGE - Gas Gallon Equivalent

GHG – Greenhouse Gases

HVIP - Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project

LCTOP - Low Carbon Transit Operations Program

LTBMU - Lake Tahoe Basin Management Unit

LTCC – Lake Tahoe Community College

LTCCP - Linking Tahoe: Corridor Connection Plan

LTF - Local Transportation Fund

MOU - Memorandum of Understanding

MPO – Metropolitan Planning Organization

NAV - Microsoft’s Dynamic NAV

NDOT - Nevada Department of Transportation

NOx – Ozone

NTD - National Transit Database

NTTT - North Tahoe / Truckee Transport Program

PCT – Pacific Crest Trail

PM – Particulate Matter

PMI – Preventive Maintenance Inspection

PSA 4 - Planning and Service Area 4

PTMISEA - Public Transportation Modernization, Improvement, and Service Enhancement Account

RCC - Regional Coordinating Council

RTP – Regional Transportation Plan

RTPA – Regional Transportation Planning Agency

RTP/SCS - Linking Tahoe: Regional Transportation Plan/Sustainable Communities Strategy

SCO - State Controller’s Office

SCS – Sustainable Communities Strategy

SLT-STIS - South Lake Tahoe Specialized Transportation Service

SRTP – Short Range Transit Plan

SSTMA - South Shore Transportation Management Association

STA - State Transit Assistance fund

STAGE - South Tahoe Area Ground Express

TART – Tahoe-Truckee Area Regional Transit

TCTC - Tahoe City Transit Center

TDA – California’s Transportation Development Act

TIP – Transportation Improvement Program

TMP - Linking Tahoe: Lake Tahoe Transit Master Plan

TMPO – Tahoe Metropolitan Planning Organization

TNT-TMA - Truckee-North Tahoe Transportation Management Association

TOD – Transit Oriented Development

TOT - Transient Occupancy Tax

TRPA - Tahoe Regional Planning Agency

TSSSDRA - Transit System Safety, Security, and Disaster Response Account

TTC – Tahoe Transportation Commission

TTD – Tahoe Transportation District

USFS - United States Forest Service

UZA - Urbanized Area

VMT – Vehicle Miles Traveled

ZEB – Zero Emission Bus

Chapter 1 – Overview of the Short Range Transit Plan

1.1 INTRODUCTION AND ORGANIZATIONAL PLANNING OBJECTIVES

What is a Short Range Transit Plan?

A Short Range Transit Plan (SRTP) is a five to seven-year planning document that provides policy and financial direction to guide future transit planning, service operation, capital investment, and policy decisions. SRTP's may also provide broad direction for a period of up to ten years. SRTP's should be updated every three to five years to reflect progress towards implementation of recommendations from previous SRTPs and to adapt the financial plan to more accurately reflect fiscal realities.

TTD last adopted an SRTP in 2010. The SRTP for 2017-2021 serves as a guide for the development of the goals, objectives, and policies for future transit services in the Lake Tahoe Basin over the next five years. The SRTP is developed within the context of the regional planning process, which is aimed at implementing both the long range transit plan, Linking Tahoe: Lake Tahoe Basin Transit Master Plan (TMP), and the Tahoe Metropolitan Planning Organization's (TMPO) Linking Tahoe: Regional Transportation Plan/Sustainable Communities Strategy 2017-2040 (RTP/SCS).

The TTD operates under the following agency cultural Mission and Vision statements:

Mission

“The Tahoe Transportation District aims to deliver outstanding transit service and transportation project improvements for the greater Lake Tahoe Region.”

Vision

“The Tahoe Transportation District is a key part of Tahoe's success where our environment is protected, our communities are connected, and the quality of life is sublime.”



Within the context of the organization's mission and vision, TTD articulated a clear and compelling vision specifically aimed at transit, adopting the following transit vision statement:

Transit Vision

“Our transit vision is to develop an interregional transit system that provides safe, reliable, and attractive transit service for Tahoe residents, visitors, and commuters.”

Over the course of the fall of 2015, the Board further clarified the intent of each aspect listed within the Transit Vision as follows:

Safe: provide the highest possible safety conditions for the public.

Reliable: deliver consistent, dependable service, within budget. Pursue sustainable funding sources to expand transit, consistent with environmental strategies to reduce the impacts from transportation, and support the regional economy.

Attractive: make transit a desirable choice for transportation needs and a feature of our community that is valued by the public and local businesses.

Developing and updating the SRTP is a constructive operational step in the ongoing efforts of the Board of Directors and TTD staff to fulfill the agency’s mission and vision, along with the agency’s transit-specific vision. The SRTP proposes strategies that will guide transit development while containing costs within available revenues and simultaneously seeking new funding opportunities.

1.2 PURPOSE OF THE SRTP

Federal Transit Administration (FTA) statutes require that the TMPO, in partnership with state and local agencies, develop and periodically update the RTP/SCS, and a Transportation Improvement Program (TIP) which implements the RTP by programming federal funds to transportation projects contained in the RTP/SCS. In order to effectively execute these planning and fund programming responsibilities, the TMPO, in cooperation with Region IX of the FTA, requires each transit operator receiving federal funding through the TIP to prepare, adopt, and submit an SRTP to the TMPO.

The SRTP describes existing TTD transit services and facilities, financial forecasts, and planned improvements scheduled for implementation during Fiscal Year (FY) 2017 through FY 2021. TTD’s fiscal year runs from July 1 through June 30.

1.3 SRTP OBJECTIVES AND FOCUS AREAS

This short range plan will provide proactive policy and financial direction necessary to continue successful service and advance the development of service improvements provided by TTD.

At the local level, this SRTP update provides an opportunity to explore some key issues. In particular, the vision articulated by the TMP and the RTP/SCS that calls for an aggressive expansion of transit services and related infrastructure to meet the current and future transportation needs within and connecting to the Lake Tahoe Basin. This SRTP creates a path for implementing the anticipated service increases, operating and capital expenditures, and the revenues needed to support those service expansions.

At the regional level, this SRTP discusses the need for wider discussions regarding regional and interregional coordination with Reno, Sacramento, Stockton, and the San Francisco Bay Area.

Chapter 2 – Service Area Characteristics

2.1 SOUTH LAKE TAHOE AND BASIN BACKGROUND

The Lake Tahoe Basin is home to the largest alpine lake in North America and has been a popular vacation destination since the late 19th century. Lake Tahoe is one of the deepest and clearest lakes in the world with its surface at an elevation of 6,225 feet above sea level. The Lake Tahoe Region offers impressive scenery within the Lake Tahoe Basin and throughout the surrounding Sierra Nevada Mountains.

Native American tribes have inhabited the Basin for hundreds of years until the Lake’s “discovery” by General John C. Fremont’s exploration party in 1844. The region was soon exploited for its vast lumber resources, and by 1881, more than two billion board-feet of lumber had been extracted from the region. By the turn of the century, Lake Tahoe was a hugely popular vacation destination for visitors looking to get away from the hustle and bustle of city life. The biggest change for the Basin came in 1960 when the Olympic Games at Squaw Valley generated international attention to Lake Tahoe, which spawned a new era of development within the Basin. Significant pressures from development and a growing tourism industry accelerated. By the mid-1960’s, the Basin’s full-time residential population had risen to nearly 18,000 from just a couple thousand in the decade before. There were even plans for a city at Lake Tahoe with 750,000 residents. During this same time period, tourism had also increased exponentially from a modest 30,000 summertime visitors to roughly 150,000 during the summer months. This sharp increase in development and tourism had a notable impact on the region.

Research has proven Tahoe is one of the most heavily visited national forest areas. Current data introduces a new understanding of the number of visitors entering the Lake Tahoe Basin annually. This new data suggests there are over 24 million annual visitors to the Basin (80 percent confidence level), which equates to a total of 79.6 million annual person trips or 35 million vehicle trips annually. Previous studies indicate that over 70 percent of the particulates impacting lake clarity originate from the transportation system and built environment. Fine sediment pollution from roads and developed areas is the leading cause of declines in Lake Tahoe’s famed water clarity. Vehicles are also a major source of emissions that pollute the air and fuel algae growth once settled into the Lake. Transit has been identified as a pivotal transportation mode to effect significant change within the Basin.

2.2 POPULATION

Table 2.1 provides detailed data regarding the population characteristics of the South Shore area. The data is provided by U.S. Census block groups for the City of South Lake Tahoe, unincorporated South Lake Tahoe, Meyers, Stateline, Kingsbury, the Round Hill-Zephyr Cove area, and the Douglas County portion of the East Shore north of Zephyr Cove. The total population for the area, as shown in the 2010 Census data, was 36,072 persons. The City of South Lake Tahoe comprised approximately 59 percent of

the population (or 21,456 persons), followed by Meyers at about 10 percent (or 3,586 persons). The communities of Stateline, Upper and Lower Kingsbury, Round Hill-Zephyr Cove, along with the remainder of small communities continuing north to Glenbrook, collectively account for 15 percent of the South Shore area’s population (or 5,344 persons). The remaining 16 percent (or 5,686 persons) is comprised of the unincorporated neighborhoods outside of South Lake Tahoe’s municipal boundaries, but not included in the population of Meyers.

Table 2.1 Service Area Population

County	2010 Census Tracts	2010 Block Group	Area	Community	Population
El Dorado	316	All	City of South Lake Tahoe	Ski Run East - Stateline Area	4126
El Dorado	302	All	City of South Lake Tahoe	Bijou	4773
El Dorado	303.02	All	City of South Lake Tahoe	Highland Woods - Al Tahoe	2867
El Dorado	303.01	All	City of South Lake Tahoe	Sierra Tract	2469
El Dorado	304.01	All	City of South Lake Tahoe	Tahoe Island Drive - Tahoe Keys	3498
El Dorado	304.02	All	City of South Lake Tahoe	The Y - Gardner Mountain	3723
El Dorado	305.04	1	Pioneer Trail (County)	Pioneer Trail West (North)	1234
El Dorado	305.04	2	Pioneer Trail (County)	Pioneer Trail East	759
El Dorado	305.04	3	Pioneer Trail (County)	Pioneer Trail West (South)	919
El Dorado	305.02	1	North Upper Truckee	North Upper Truckee West	799
El Dorado	305.02	2	North Upper Truckee	North Upper Truckee East	960
El Dorado	305.02	3	Meyers	Meyers	882
El Dorado	305.05	1	Meyers	Christmas Valley West	909
El Dorado	305.05	2	Meyers	Tahoe Paradise	667
El Dorado	305.05	3	Meyers	Christmas Valley East	1128
El Dorado	320	1	Emerald Bay Road (SR 89)	Tahoma (El Dorado Co. Only)	783
El Dorado	320	2	Emerald Bay Road (SR 89)	Camp Richardson, Fallen Leaf Lake	52
El Dorado	320	3	Emerald Bay Road (SR 89)	Meeks, Emerald Bay, Cascade	180
Douglas	16	1	East Shore (NV)	Skyland - Glenbrook	1026
Douglas	16	2	Zephyr Cove (NV)	Zephyr Cove	565
Douglas	17	1	Roundhill (NV)	Roundhill	759
Douglas	17	2	Stateline (NV)	Stateline East	842
Douglas	18	1	Stateline (NV)	Stateline - Lower Kingsbury	1230
Douglas	18	2	Kingsbury (NV)	Upper Kingsbury	922
TOTAL POPULATION					36,072

The City of South Lake Tahoe covers roughly 10 square miles of land within the South Shore area. With 2,140 persons per square mile, it remains the most densely populated area on the South Shore and in the Tahoe Basin as a whole.

Fixed route transit system ridership is largely affected by the “transit dependent” population. This demographic relies upon transit as their primary source of transportation and typically consists of these groups as presented in Tables 2.2 and 2.3 based on U.S. Census Data:

- Older adults defined as individuals over 65 years of age
- Youths under 18
- Individuals with disabilities
- Individuals with limited means or low incomes defined as persons below U.S. Census Bureau’s 2012 Poverty Thresholds by size of family and number of children
- Members of households with no access to a vehicle

Corresponding maps for these five transit dependent populations can be referenced in Appendix A.

Table 2.2 Transit Dependent Population Age 65 and Over & Youths Under 18

County	Census Tracts	Area	Community	2010 Census Total Population	Population 65 and Over	Percent 65 and Over	Population Under 18	Percent Under 18
El Dorado	316	City of South Lake Tahoe	Stateline	4126	290	7.0%	951	23.0%
El Dorado	302	City of South Lake Tahoe	Bijou	4773	441	9.2%	1152	24.1%
El Dorado	303.02	City of South Lake Tahoe	Highland Woods - Al Tahoe	2867	254	8.9%	534	18.6%
El Dorado	303.01	City of South Lake Tahoe	Sierra Tract	2469	159	6.4%	507	20.5%
El Dorado	304.01	City of South Lake Tahoe	Tahoe Island Drive - Tahoe Keys	3498	527	15.1%	556	15.9%
El Dorado	304.02	City of South Lake Tahoe	The Y - Gardner Mountain	3723	437	11.7%	710	19.1%
El Dorado	305.04	Pioneer Trail (County)	Pioneer Trail (County)	2912	339	11.6%	579	19.9%
El Dorado	305.02	N. Upper Truckee - Meyers	N. Upper Truckee - Meyers	2641	244	9.2%	454	17.2%
El Dorado	305.05	Meyers	Christmas Valley - Tahoe Paradise	2704	261	9.7%	516	19.1%
El Dorado	320	Emerald Bay Road (SR 89)	Tahoma -West Shore	1015	132	13.0%	163	16.1%
Douglas	16	Zephyr Cove - East Shore	Zephyr Cove, Skyland, Glenbrook	1591	471	29.6%	176	11.1%
Douglas	17	Round Hill	Round Hill	1601	254	15.9%	239	14.9%
Douglas	18	Kingsbury	Stateline - Kingsbury	2152	285	13.2%	316	14.7%

Table 2.3 Transit Dependent Population Individuals with Disabilities, Low Income, and Zero-Vehicle Households

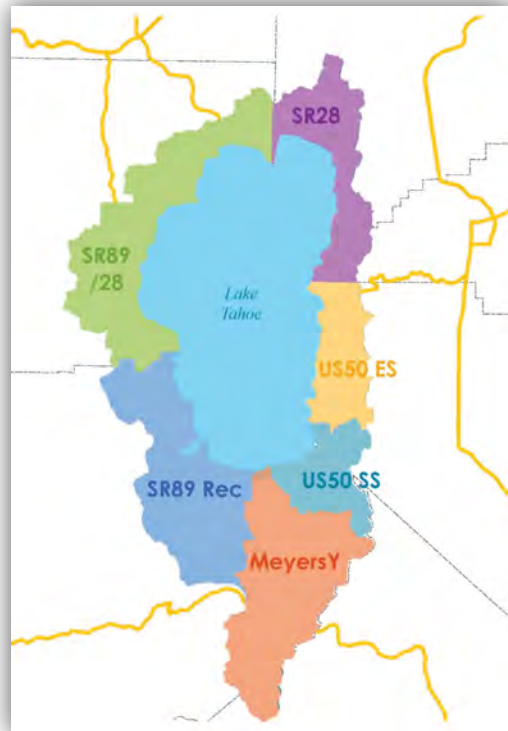
2011-2015 American Community Survey (ACS) 5-Year Estimates							
County	Census Tracts	Area	Community	2011-2015 ACS Household Estimate	Zero Vehicle Household	Percent with No Vehicle	% Margin of Error (+/-)
El Dorado	316	City of South Lake Tahoe	Stateline	1439	170	11.8%	6.3
El Dorado	302	City of South Lake Tahoe	Bijou	1745	235	13.5%	5.4
El Dorado	303.02	City of South Lake Tahoe	Highland Woods - Al Tahoe	1182	96	8.1%	6
El Dorado	303.01	City of South Lake Tahoe	Sierra Tract	950	137	14.4%	8.7
El Dorado	304.01	City of South Lake Tahoe	Tahoe Island Drive - Tahoe Keys	1642	57	3.5%	3.9
El Dorado	304.02	City of South Lake Tahoe	The Y - Gardner Mountain	1469	191	13.0%	5.7
El Dorado	305.04	Pioneer Trail (County)	Pioneer Trail (County)	982	0	0.0%	3.3
El Dorado	305.02	N. Upper Truckee - Meyers	N. Upper Truckee - Meyers	907	6	0.7%	1.2
El Dorado	305.05	Meyers	Christmas Valley - Tahoe Paradise	946	17	1.8%	2.1
El Dorado	320	Emerald Bay Road (SR 89)	Tahoma -West Shore	312	17	5.4%	8.3
Douglas	16	Zephyr Cove - East Shore	Zephyr Cove, Skyland, Glenbrook	569	0	0.0%	6
Douglas	17	Round Hill	Round Hill	862	28	3.2%	2.8
Douglas	18	Kingsbury	Stateline - Kingsbury	1027	0	0.0%	3.3
County	Census Tracts	Area	Community	2011-2015 ACS Population Estimate	Population with a Disability	Percent with a Disability	% Margin of Error (+/-)
El Dorado	316	City of South Lake Tahoe	Stateline	3912	543	13.9%	6
El Dorado	302	City of South Lake Tahoe	Bijou	4965	615	12.4%	3.6
El Dorado	303.02	City of South Lake Tahoe	Highland Woods - Al Tahoe	2748	412	15.0%	6.5
El Dorado	303.01	City of South Lake Tahoe	Sierra Tract	2184	456	20.9%	9.2
El Dorado	304.01	City of South Lake Tahoe	Tahoe Island Drive - Tahoe Keys	3874	413	10.7%	3.9
El Dorado	304.02	City of South Lake Tahoe	The Y - Gardner Mountain	3439	582	16.9%	4.5
El Dorado	305.04	Pioneer Trail (County)	Pioneer Trail (County)	2510	410	16.3%	7.1
El Dorado	305.02	N. Upper Truckee - Meyers	N. Upper Truckee - Meyers	2394	147	6.1%	3.7
El Dorado	305.05	Meyers	Christmas Valley - Tahoe Paradise	2555	181	7.1%	3.3
El Dorado	320	Emerald Bay Road (SR 89)	Tahoma -West Shore	667	163	24.4%	10.8
Douglas	16	Zephyr Cove - East Shore	Zephyr Cove, Skyland, Glenbrook	1173	152	13.0%	5
Douglas	17	Round Hill	Round Hill	2009	224	11.1%	4.6
Douglas	18	Kingsbury	Stateline - Kingsbury	1970	246	12.5%	5.6
County	Census Tracts	Area	Community	2011-2015 ACS Population* Estimate (for whom poverty status is determined)	Population Below Poverty	Percent Below Poverty	% Margin of Error (+/-)
El Dorado	316	City of South Lake Tahoe	Stateline	3912	798	21.5%	6
El Dorado	302	City of South Lake Tahoe	Bijou	4965	1368	27.4%	3.6
El Dorado	303.02	City of South Lake Tahoe	Highland Woods - Al Tahoe	2748	279	9.6%	6.5
El Dorado	303.01	City of South Lake Tahoe	Sierra Tract	2184	363	16.6%	9.2
El Dorado	304.01	City of South Lake Tahoe	Tahoe Island Drive - Tahoe Keys	3874	402	9.8%	3.9
El Dorado	304.02	City of South Lake Tahoe	The Y - Gardner Mountain	3439	638	18.7%	4.5
El Dorado	305.04	Pioneer Trail (County)	Pioneer Trail (County)	2510	260	10.0%	7.1
El Dorado	305.02	N. Upper Truckee - Meyers	N. Upper Truckee - Meyers	2394	152	5.5%	3.7
El Dorado	305.05	Meyers	Christmas Valley - Tahoe Paradise	2555	337	17.4%	3.3
El Dorado	320	Emerald Bay Road (SR 89)	Tahoma -West Shore	667	34	5.1%	10.8
Douglas	16	Zephyr Cove - East Shore	Zephyr Cove, Skyland, Glenbrook	1173	114	14.4%	5
Douglas	17	Round Hill	Round Hill	2009	99	6.1%	4.6
Douglas	18	Kingsbury	Stateline - Kingsbury	1970	132	8.1%	5.6

2.3 TRAVEL PATTERNS

Within the Tahoe Basin, there exists three distinct user groups: visitor, commuter, and resident. Each group has different travel patterns reflecting various trips purposes. Frequent short trips are characteristic of local, residential usage. Most of the frequent trips in the Basin are made either entirely within the South Shore or entirely within the North Shore. There are exceptions where resident travel behavior mimics those of the commuter or visitor, but generally these trips remain within those geographic areas.

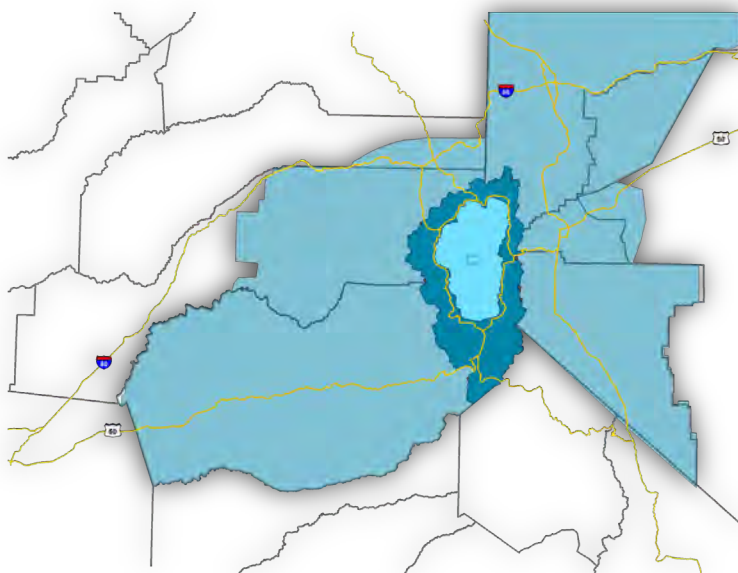
The Linking Tahoe: Corridor Connection Plan (LTCCP) is an effort to better understand the movements of these groups in and connecting to the Lake Tahoe Basin. The LTCCP is based on the approach and success of TTD's SR 28 Corridor Management Plan. The SR 28 implementation planning effort introduced the idea of seeking and developing more comprehensive corridor transportation solutions to address the corridor's needs. In doing so, it meant securing the agreement of thirteen affected management agencies and working with the public. With this model in mind, TTD proposed to take the same approach to the rest of the Basin as a more effective way to focus and accelerate the implementation of needed improvements. Staff created six corridors (Figure 2.4) for use in the LTCCP development.

Figure 2.4 LTCCP Corridors



Two external corridors were also developed to address interregional travel to and from the Lake Tahoe Basin (Figure 2.5).

Figure 2.5 LTCCP External Corridors



Two external corridors were also developed to address interregional travel to and from the Lake Tahoe Basin (Figure 2.5).

Visitors

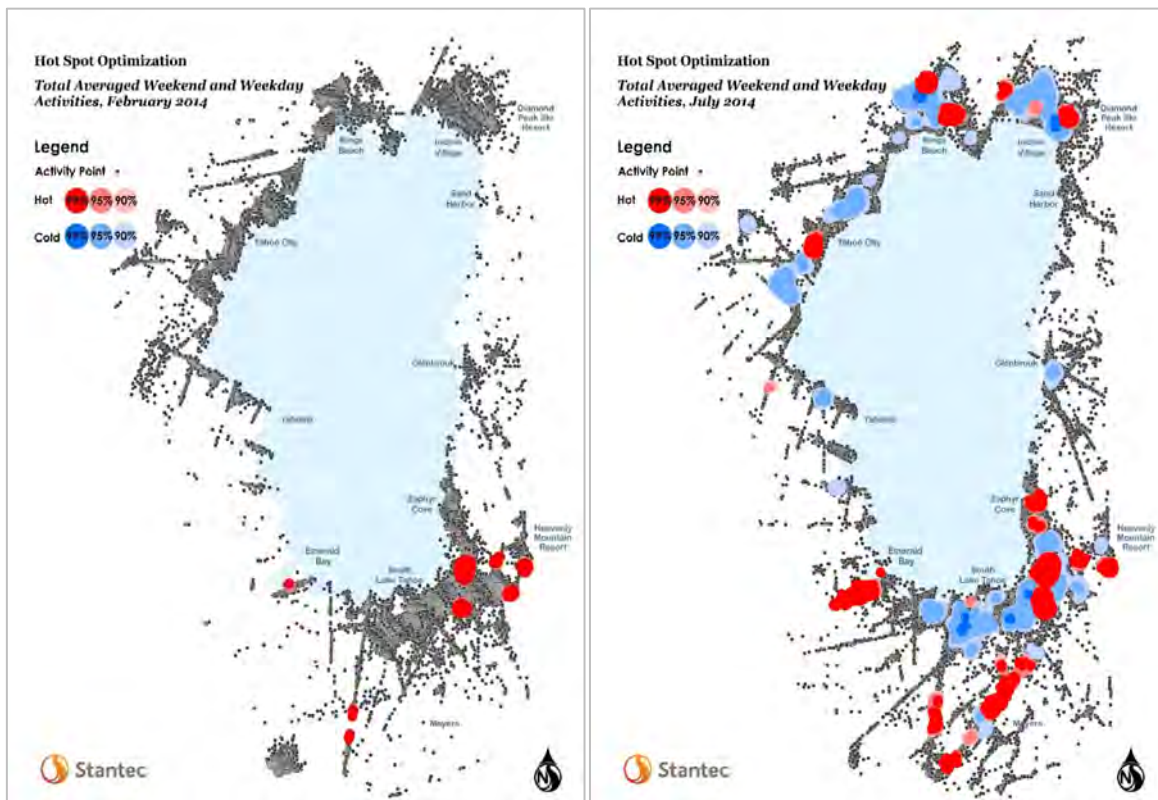
What the Research is Telling Us

Visitors hail from nearly every county in every state in the U.S., especially during the summer months. However, over 60% of all Lake Tahoe Basin visitors arrive by car from California. The proportion of visitors from Nevada declines in July, compared to February, as proportions from most other states increase.

- In 2014, 24.4 million visitors entered the Tahoe Basin, equating to 9.4 million vehicles.
- Visitors account for 87.2% of all trips entering the Basin; commuters 5.5%; and residents/home workers 7.3%.
- Nearly 43% of all visitors are considered day visitors and do not contribute to transient occupancy room taxes (TOT).
- The Northern California megapolitan¹ region, home to 15 million residents, anticipates growth forecasts between 20 to 30 percent by 2035, which will directly impact the Tahoe Basin.
- The highest proportion of visitors arrive via US 50 west in both winter and summer months (30 percent and 27 percent respectively).
- Approximately 1.6 million vehicles were counted at Emerald Bay in 2014; whereas seasonal transit ridership along the West Shore only totaled 7,500 trips.
- In total, nearly 80 million person trips were tallied inside the Tahoe Basin and **just 1.4% of all trips utilized transit.**

Visitor destinations in winter are concentrated at Heavenly Mountain Resort; summer destinations are widespread. Figure 2.6 details activity density locations as measured by unique wireless devices seen within that month. TTD’s service area in the southern Lake Tahoe area is the prime visitation area

Figure 2.6 Activity Density Locations



¹ The Northern California megapolitan region is defined as the fast growing urban area stretching from San Francisco, through Sacramento, to Reno.

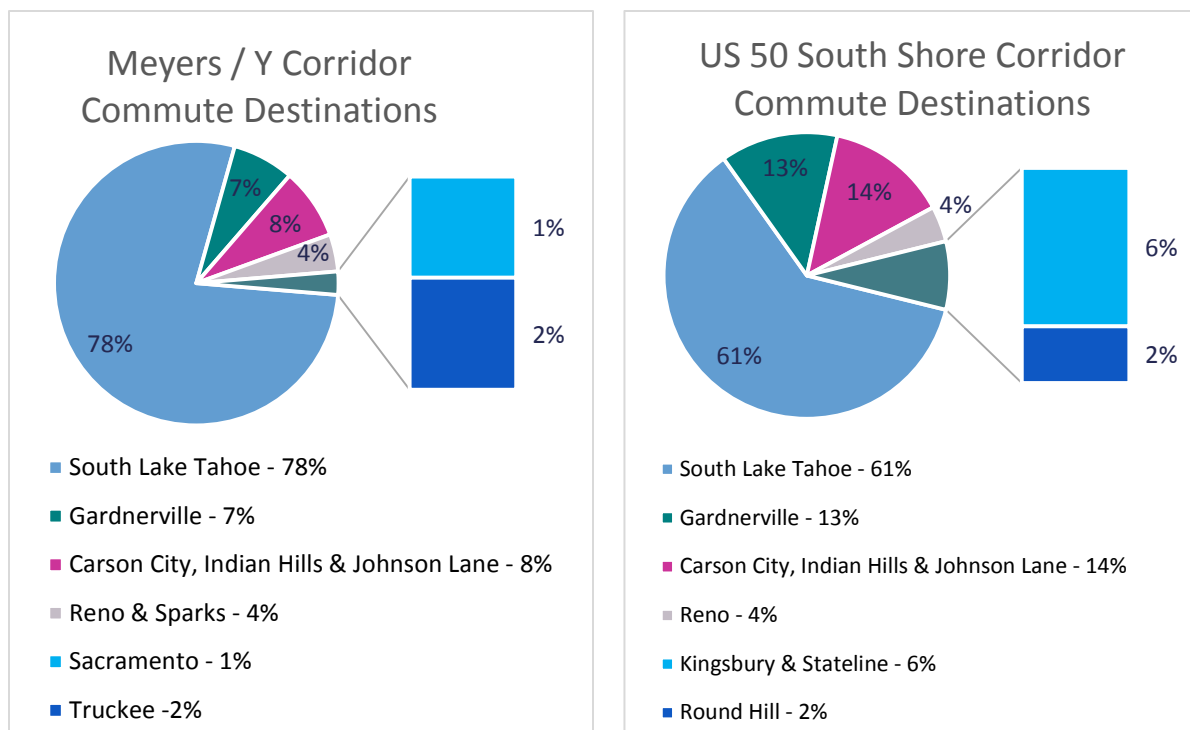
during the winter and retains the largest percentage of summer visitors. Seasonal routes serve the popular Sand Harbor destination on the north shore and Emerald Bay and Tahoe City on the West Shore.

The data depicted in Figure 2.6 is derived from the Stantec-led LTCCP project that used anonymous mobile device tracking to show how the devices moved into and around the Basin, resulting in the spatial graphics that show the concentration of mobile devices.

It is important to note that while the data depicts movement, it does not reveal motivation or consideration for other modes of travel. What still needs to be understood is how the visitor perceives transit and what barriers are influencing their mode choice. TTD must continue to study non-riders to design transit as an attractive and appealing alternative to driving.

Commuters

Table 2.7 South Shore Corridor Commute Patterns



Commute patterns vary widely by region. Table 2.7 demonstrates the dominant commute patterns in the South Shore within both the Meyers and US 50 South Shore corridors (see figure 2.4 LTCCP Corridors for corridor boundaries). Residents of both corridors commute largely to the City of South Lake Tahoe. The second largest commute destination are to employers located within the Carson Valley, which includes Carson City, Gardnerville, Indian Hills, and Johnson Lane, followed by a small percentage of commuters to the Reno area. Tahoe communities are beginning to see the typical signs of a resort

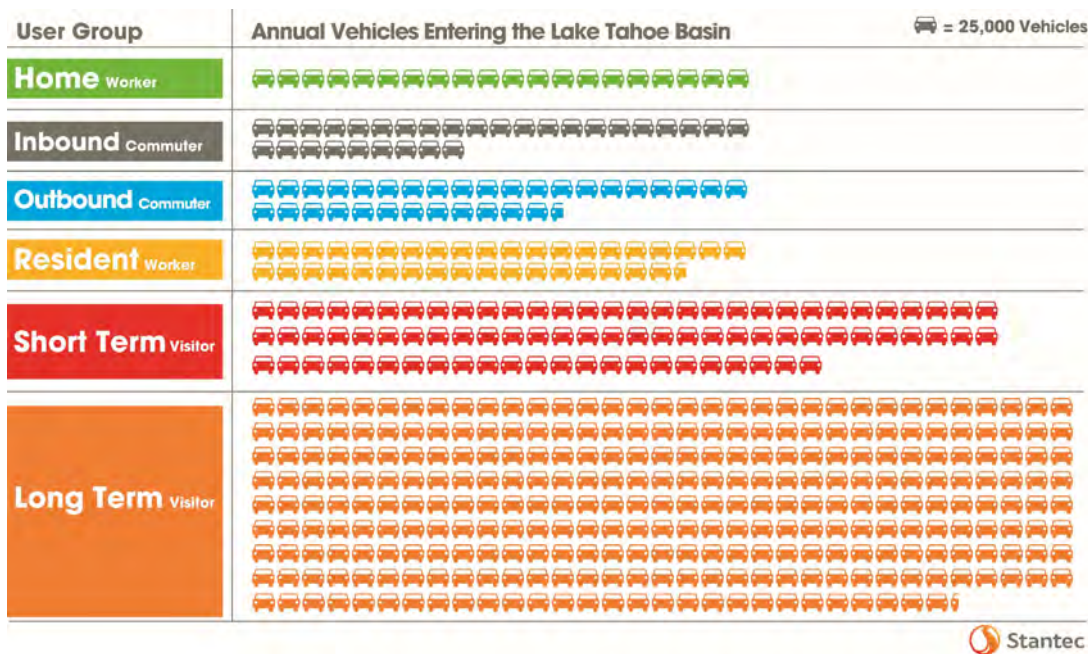
area where affordable housing for workers is in short supply, creating commuter communities outside the area. This can make the economics of Lake Tahoe more challenging as has happened in places like Vail and Aspen. Having a mixed population that includes workers creates more vibrant communities rather than showcases for those able to afford the area. Transit Oriented Developments (TOD) can be the supporting element that provides a focus for the renewal of the transit service in the basin. More information on TTD’s efforts regarding TOD’s can be found in the TMP.

Residents

Residential travel patterns follow the geographical restrictions of the urbanized business corridor mainly utilizing US 50, Nevada State Route 207 (SR 207) and California State Route 89 (SR 89). Most resident commuter trips remain in South Lake Tahoe. While the resident trips are currently the majority of TTD’s fixed route ridership, the travel patterns identified in the TMP clearly demonstrate a myriad of opportunities to grow ridership beyond the “transit dependent” demographic and begin attracting choice riders. The choice rider typically expects a higher frequency service with more direct and/or express service to popular tourist destinations. While TTD’s winter program is highly successful in capturing and transporting choice riders, the TMP notes that the pool of potential ridership is greater than that of winter and a high frequency service to Emerald Bay should be a priority to increase transit’s mode share.

Table 2.8 below is a more detailed description of the types of users entering the Basin.

Table 2.8 Vehicle Trips by User Group



2.4 RECREATION

Recreation is a large draw for both visitors and residents in the Lake Tahoe Basin. There are a multitude of outdoor recreational opportunities in both the North and South Shore areas. Recreational access is attributed to a notable portion of vehicle trips. It is pivotal that transit takes recreational access into consideration when planning services. Summer recreation includes biking, hiking, golfing, camping, rock climbing, backpacking, fishing, boating, and various water sports. Winter recreation goes beyond the area's world class downhill skiing and snowboarding and includes miles of cross-country ski trails, snowshoeing, ice skating, sledding, snowmobiling, and an abundance of back-country skiing and snowboarding possibilities.

Given the Basin's wide range of outdoor offerings, Tahoe's tourism market has recently started to shift its focus to geotourism, which emphasizes a destination's natural features, landscape, and geology with



opportunities for learning and the intent of fostering an appreciation for the outdoors. Tahoe has ample points of interest as a geotourism destination.

The South Shore offers easy access to world class hiking, biking, skiing and snowboarding, along with various visitors' centers and sites of historical interest. Points of interest include:

- Sugar Pine Point State Park
- Vikingsholm Castle
- Emerald Bay
- The Tallac Historic Site: Baldwin Estate, Pope Estate, and Valhalla
- Fallen Leaf Lake
- Taylor Creek Visitor Center and Stream Profile Chamber
- Van Sickle Bi-State Park
- Explore Tahoe: An Urban Trailhead

World-class Trail Networks

The Tahoe Basin offers something for everyone when it comes to biking and hiking. Whether you are a day hiker or backpacking cross country, a road-bike enthusiast or a mountain bike junkie, or simply the leisurely cruiser bike type, there are trail networks throughout the Basin with something for all types and levels. These trails offer access to numerable outdoor activities throughout the region.

Road-bike enthusiasts can try their hand at smaller segments of the road network throughout the Basin's communities or attempt more demanding feats, such as America's Most Beautiful Bike Ride, an organized ride around the lake offering spectacular views and ample fresh air. The Tahoe Region continues to draw organized rides and races annually. The newest addition to these notable events is AMGEN's Tour of California stage through South Lake Tahoe.



There are innumerable trails throughout the Basin's open space and gateways to nearby treasures like Desolation Wilderness. The Pacific Crest Trail (PCT) runs along the Sierra Crest on the western boundary of the Tahoe Basin. South Lake Tahoe is often utilized by PCT hikers as a pivotal rest stop along this

challenging cross-country backpacking trail. The Tahoe Rim Trail (TRT) offers a local 165-mile trail circumnavigating the Lake. The TRT can be enjoyed leisurely in day hike segments or as a complete through hike. Trails throughout the area's open spaces, public lands, and parks offer seemingly endless vistas and access to countless high alpine peaks, meadows, and lakes.

There is no shortage of world-class single track for mountain bikers in the region. Again, there is something for everyone and all levels. Riders can find mellow trails that meander through local meadows or attempt downhill trails like the ever-popular Corral Trail for anyone looking to graduate to something more challenging or even Mr. Toad's Wild Ride for those who are in search of the most technical heart-stopping adventure on two wheels.

The region offers an extensive paved trail network with continued additions on a regular basis. Class I shared-use paths are continually being constructed to close gaps to the network of paved trails within the Basin. These trails connect bicyclists to varied outdoor locations of interest, particularly the area's wealth of public beaches.

Beaches

Lake Tahoe has over 70 miles of shoreline. Though much of the shoreline is privately owned or difficult to access, there are plenty of easily accessible beaches to visit. Listed below are the various beaches located along the south shore of Lake Tahoe, many of which are accessible by the paved bike trail network:

- Zephyr Cove Resort
- Round Hill Pines
- Nevada Beach
- Lakeview Commons
- Regan Beach
- Pope Beach
- Camp Richardson
- Kiva Beach
- Baldwin Beach
- Meek's Bay Resort

Local Ski Resort Access

South Lake Tahoe offers easy access to three world-class resorts within 35 minutes of the city limits. Although there are several additional resorts within the Tahoe region, winter traffic patterns within South Shore are directly affected by peak visitation to the resorts listed below.

Heavenly Mountain Resort

Heavenly is home to Tahoe's highest summit elevation at 10,067 feet. It offers impressive views and the longest vertical drop in Tahoe as well. It straddles both California and Nevada, with 4,800 acres of skiable terrain. Both the Heavenly Village and Gondola and its California Base Lodge are located within South Lake Tahoe's city limits.

Sierra-at-Tahoe

Sierra-at-Tahoe offers 2,000 acres of terrain and is just 12 miles west from South Lake Tahoe. The resort receives an average annual snowfall of over 400 inches and is home to three Olympic Gold Medalists.

Along with its award-winning terrain parks and halfpipe, Sierra-at-Tahoe also boasts 320 acres of backcountry terrain. Resort shuttles are offered daily from South Lake Tahoe to the resort.

Kirkwood Mountain Resort

Kirkwood is best known for its big mountain skiing and deep snowpack. It offers 2,300 acres of skiable downhill terrain and 80 kilometers of cross-country trails. Nestled into the Sierra Nevada Range at the convergence of Alpine, Amador, and El Dorado Counties, it has the area's highest base elevation at 7,800 feet. Kirkwood currently offers limited shuttle service to the resort twice a week on weekdays only.

2.5 REGIONAL AGENCIES

In addition to local governments, there are numerous agencies within the Lake Tahoe Basin that serve as key partners to strategically accomplish like goals within the region. A few of these essential agencies with whom TTD strives to maintain collaborative relationships in order to accomplish parallel goals and objectives are listed below.

TRPA

The Tahoe Regional Planning Agency (TRPA) operates under the authority of the federal government and the states of California and Nevada through the Bi-State Compact. The Compact designates TRPA as the leader of environmental standards and land-use regulation in the Basin. The Agency works in cooperative partnership with other agencies, organizations, and many private property owners to implement environmental protection and restoration, and public safety improvements. TRPA receives direction on Agency decisions from a 15-member Governing Board, a 21-member Advisory Planning Commission, and various other community stakeholders and members of the public.

TMPO

TRPA is the federally designated Metropolitan Planning Organization (MPO) for the Lake Tahoe Region, known as the Tahoe Metropolitan Planning Organization (TMPO), which plans and funds transportation and transit improvements to support attainment of regional environmental thresholds. The TMPO's planning process is carried out by the transportation staff at TRPA. Actions are taken by the TMPO Board, which consists of the full TRPA Governing Board, plus an additional representative from the U.S. Forest Service. The TMPO is required to maintain a Long Range Transportation Plan.

RTPA

TRPA is a state-designated regional transportation planning agency (RTPA) recognized by the state's Business, Transportation and Housing Agency. As a RTPA, TRPA is responsible for the administration of the Transportation Development Act funds received for the Tahoe Region.

TTC

The Tahoe Transportation Commission (TTC) provides the TMPO Governing Board with technical input and recommendations on transportation plans and programs. TTC serves as the Commission to the TMPO.

California Department of Transportation (Caltrans)

Caltrans' mission is to provide a safe, sustainable, integrated, and efficient transportation system to enhance California's economy and livability. The agency is responsible for the design, construction, operation, and maintenance of the California State Highway System, as well as the portion of the Interstate Highway System that lies within the state's jurisdictional boundaries. This network consists of over 50,000 miles of highway and freeway lanes. Caltrans is divided into 12 districts. District 3 is responsible for 11 Sacramento Valley and Northern Sierra counties, including the Tahoe Basin and surrounding areas. Caltrans' headquarters are located in Sacramento. The agency manages six primary programs to carry out its mission: Aeronautics, Highway Transportation, Administration, the Equipment Service Center, Mass Transportation, and Transportation Planning.

Nevada Department of Transportation (NDOT)

The mission of NDOT is to provide a better transportation system for Nevada through unified and dedicated efforts. The Department is responsible for the planning, construction, operation, and maintenance of Nevada's highway system, which consists of 5,400 miles of highway and over 1,000 bridges. The Department is divided into three districts, each of which is tasked with supervising all state transportation activities within their local jurisdictions. District 2 covers northwest Nevada and is responsible for Nevada's transportation system located within and surrounding the Tahoe Basin. NDOT's headquarters are located in Carson City. NDOT is directed by senior staff and is overseen by a seven-member Board of Directors.

USFS Lake Tahoe Basin Management Unit (LTBMU)

The Tahoe Basin consists of 154,851 acres of National Forest Lands, which includes land within three separate National Forests: Toiyabe to the east, Tahoe to the north, and Eldorado to the south and west. In 1973, the USFS reorganized these forest reserves within the Basin boundaries—previously known as the "Lake Tahoe Forest Reserve"—to address the area's unique resources, issues, and values. The fundamental mission of the LTBMU was identified as the comprehensive protection and restoration of the area's watershed. This new mission reflected an improved approach to forest management, which began to appreciate the forest as a complete ecosystem. The fresh approach recognized the dynamic relationship the surrounding forests have with Lake Tahoe. LTBMU established several new focus areas to address this unique ecosystem, including erosion control management, watershed restoration, fire and fuels management, forest management, and recreation management. The USFS is the largest land manager in the Basin. As such, LTBMU plays a key role in managing, improving, and conserving these lands that are so vital to the region's environment and quality of life.

Tahoe Truckee Area Regional Transit (TART)

TART is committed to providing comprehensive and reliable transit service to North Tahoe residents and visitors. The service is provided by Placer County and operates from Tahoma on the West Shore, north to the Town of Truckee, and east to Incline Village. Like TTD, TART runs seven days a week, including all holidays. During the months in which TTD offers summer services, both seasonal TTD routes, the Emerald Bay Shuttle and East Shore Express, offer connections to TART services. The Tahoe City Transit Center (TCTC) was completed in 2012. The TCTC offers an interior waiting area, restrooms, parking, bike lockers, bus arrival information, and a TART pass vending machine.

Chapter 3 – Existing Transit Services and Programs

3.1 HISTORICAL BACKGROUND

In 1969, California and Nevada legislators agreed to a unique Compact for sharing Lake Tahoe resources and responsibilities. The two states and the U.S. Congress amended the Compact in 1980, with public law 96-551, which also established the TTD under Article XI. The agency is responsible for facilitating and implementing safe, environmentally positive, multi-modal transportation plans, programs, and projects for the Lake Tahoe Basin, including transit operations.

In November 2010, TTD became the public administrator of the South Shore’s public transit system after the former administrator declared bankruptcy and began the process of dissolution. Service for the operation was provided by a private contractor through June 2016. TTD adopted the South Lake Tahoe/BlueGO 2010 Short Range Transit Plan available at that time as its own.

As part of implementing the 2010 SRTP, TTD established regular commuter express transit service between Carson City, Nevada, the communities of Minden and Gardnerville, Nevada, and South Lake Tahoe, California through an inter-local cooperative agreement between the TTD, Douglas County, and the Carson City Regional Transportation Commission in October 2011. This cooperative agreement facilitated the provision of regularly scheduled, fixed-route commuter express intercity bus service between the three areas and became known as the triangle plan, with TTD acting as the lead agency for administration of the service.

TTD piloted a mobility management program in 2013. The program promotes ease of access and transportation options for individuals with limited mobility. Coordination amongst existing service groups is encouraged to enhance the ease of use within the transportation network.

Summer 2016 marked TTD’s fourth consecutive year of operating the seasonal East Shore Express Shuttle program designed to shuttle beachgoers from Incline Village to Sand Harbor State Park. The program is currently funded through grants from the FTA and Nevada State Parks, in response to community and public safety concerns regarding safety, seasonal congestion, and water quality issues as a result of highway shoulder parking.

On July 1, 2016, at the conclusion of its contract with a private sector operator, TTD assumed direct operation of the transit system in order to provide a reliable, coordinated transit system that is convenient and safe for residents, commuters, and visitors. The move to direct operations versus the contract model was an intentional one, conceived as the first step towards developing the transit system of the future. Transit service is provided through fixed route, commuter bus, and demand response services every day of the year. Service has, more recently, been supplemented by specialized

transportation services offered through the efforts of, and funding through, the mobility management program. TTD began the move to retire the “BlueGO” moniker in favor of branding the system as “TTD.”

These changes paralleled the culmination of years of effort to designate the Lake Tahoe Basin as an Urbanized Area (UZA) in recognition of the visitor population that is in-Basin any given day. The change to a UZA brought changes in funding, with the addition of formula-based federal funds and far more options for TTD to access competitive funding. TTD weathered the loss of some rural funds that were replaced by the urban formula funds. In general, the urban formula funds are more stable than rural funds, which are controlled by the states and are discretionary on an annual basis.

3.2 THE ORGANIZATION

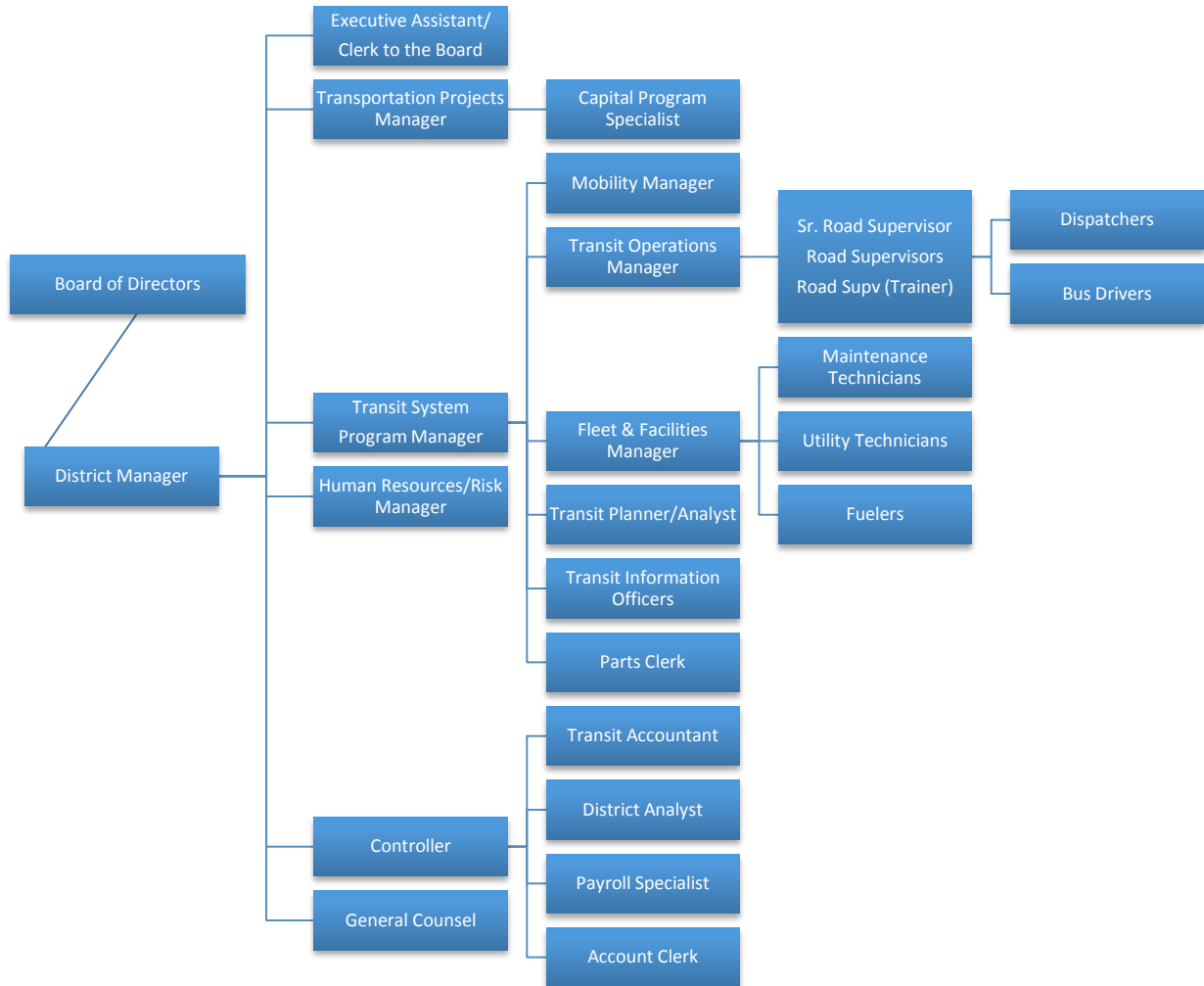
As noted above, TTD is a special purpose district created by Article IX of the 1980 Tahoe Regional Planning Compact. As accorded by the Compact, TTD may own and operate a regional public transit system, including to the exclusion of others. TTD can also own and operate transit service and facilities outside the Tahoe Basin for purposes of connecting Tahoe. TTD is eligible to apply for and receive state and federal grants and can contract with private companies and local governments within the Lake Tahoe Region for purposes of connecting the region with out-of-basin transit facilities. TTD’s role has also included: providing transit vehicles to public transit operators, managing grants from FTA and Federal Highway Administration (FHWA), and advising TRPA and TMPO through its Board, acting as the TTC.

TTD receives policy direction from an eleven-member Board of Directors comprised of one member appointed from each of the following: the Boards of Supervisors of El Dorado and Placer Counties, the City of South Lake Tahoe City Council, the Boards of County Commissioners of Douglas and Washoe Counties, the Carson City Board of Supervisors, the Truckee-North Tahoe Transportation Management Association (TNT-TMA), and the South Shore Transportation Management Association (SSTMA). A member at large, representing a public or private transportation system operating in the region, is appointed by a majority of the other voting Directors. Representatives of Caltrans and NDOT sit on the Board as non-voting members. When sitting as the TTC, two additional Board members are added as voting members, the Washoe Tribe and the USFS. The Board meets once monthly, on the second Friday.

TTD is led by a District Manager who reports to the Board members. The District Manager oversees all TTD activities in three distinct categories: capital projects, transit operations, and administration. Staff in each of these functions supports the District Manager. Transit staff includes the transit system management and administrative team, along with the transit operations staff of drivers, mechanics, dispatchers, customer service, and facility and utility workers, as shown in Table 3.1.

Capital projects staff consists of the Transportation Capital Program Manager who is assisted by a Capital Projects Specialist. TTD’s administrative staff supports both the transit system management and administrative teams and the capital projects staff. The administrative staff includes human resources as well as the finance team managed by the Controller. Legal counsel advises TTD staff but reports directly to the Board and the District Manager. Additionally, the District Manager receives support from the District’s Executive Assistant and Clerk to the Board.

Table 3.1 TTD Organizational Chart



3.3 SERVICE AREA

TTD facilitates, implements, and delivers transportation projects in the Tahoe Basin, an area of 501 square miles, of which approximately 191 square miles comprise the surface waters of Lake Tahoe. TTD also provides operational authority for transit services within the Basin boundaries. Under this authority, TTD is currently operating transit service in South Lake Tahoe, California. The South Shore service offers connections to surrounding areas, both in and out of the Tahoe Basin.

The Tahoe Basin straddles the borders of the California and Nevada state lines between the Sierra Crest and the Carson Mountain Range. Approximately two-thirds of the Basin is located in California and one-third in Nevada, with 80 percent publicly owned as National Forest land and seven percent as State

Parks land. The lake dominates the features of the Basin and is the primary focus of local environmental regulations to protect its exceptional water clarity.

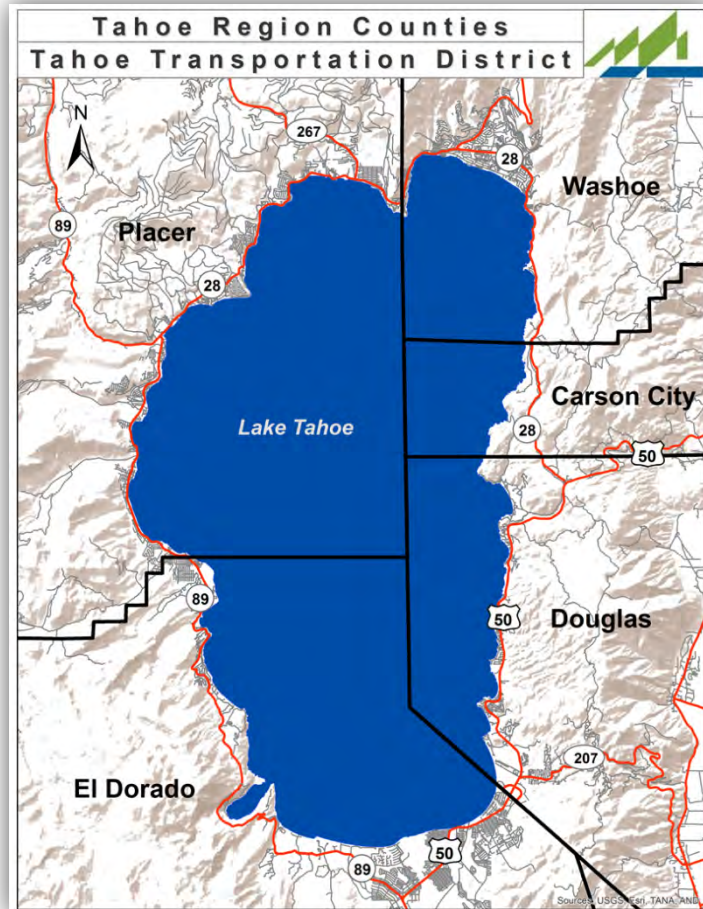
The Basin encompasses two states, five counties, and one incorporated municipality, as shown in Table 3.2. Located within the California portion of the Tahoe Basin is the incorporated City of South Lake Tahoe and portions of El Dorado County and Placer County. On the Nevada side of the state line, portions of Washoe and Douglas counties are included, along with rural areas of the city and county of Carson City. The Basin is regularly delineated between the North and South Shore regions.

Lake Tahoe Basin – South Shore

The South Shore region of Lake Tahoe includes both El Dorado County and the City of South Lake Tahoe in California and Douglas County in Nevada. El Dorado County boundaries includes the City of South Lake Tahoe and neighborhood communities such as Meyers, Christmas Valley, Camp Richardson, Meeks Bay, Tahoma, and various neighborhoods along the southern portion of Pioneer Trail situated outside of South Lake Tahoe’s municipal boundary.

In Douglas County, there are many small neighborhood communities dispersed along the Carson Mountain Range, including Stateline, Upper and Lower Kingsbury, Round Hill, Zephyr Cove, Skyland, and Glenbrook among others. All of the communities located in the South Shore region of Lake Tahoe are located within the boundaries of TTD’s operational authority. Currently, only the City of South Lake Tahoe, Stateline, and Kingsbury communities are served year-round by TTD’s South Shore fixed-route service. Supplemental summer operations provide seasonal service to Camp Richardson, Meeks Bay, Tahoma, and Tahoe City during summer months as funding permits.

Table 3.2 Map of Counties Located in Tahoe Region



Lake Tahoe Basin – North Shore

The North Shore region of Lake Tahoe includes Placer County in California and both Washoe County and Carson City in Nevada. The rural boundary of Carson City extends to the eastern shore of Lake. The portion of Washoe County located within the Tahoe Basin includes the communities of Incline Village and Crystal Bay, the only populated areas of Washoe County in the Tahoe Basin.

In Placer County, there are many neighborhood communities that lie along the North Shore, including Tahoe City, Carnelian Bay, Tahoe Vista, and Kings Beach. The communities of Sunnyside, Tahoe Pines, and Homewood are also located within Placer County, but are often collectively referred to as the West Shore. The West Shore moniker includes the communities of Tahoma and Meeks Bay with former being located in both Placer and El Dorado counties and the later in El Dorado County past the Hwy 89 closure. Like the South Shore, all of the communities located in the North Shore region of Lake Tahoe are within the boundaries of TTD’s operational authority. Currently, only seasonal summer service is offered by TTD on the North Shore providing service from Incline Village to Sand Harbor State Park, as well as service along the West Shore. A more comprehensive transit network is offered by TART on the North Shore.

3.4 EXISTING TRANSIT OPERATIONS

TTD provides both intra- and interregional connectivity that is vital to the region. South Shore operations include local fixed-route service, commuter, and demand response services. The commuter service connects Stateline, the Minden and Gardnerville areas of Carson Valley, and Carson City. TTD provides seasonal service within the region, which includes both supplemental summer service, along with a winter shuttle service designed to provide high frequency connections between the community and Heavenly Mountain Resort. Summer services include the East Shore Express, a transit link between Incline Village and Sand Harbor State Park, as well as transit service along the West Shore, linking the south and north shores of the Lake Tahoe Basin. See Appendix B for maps of current services.

Local Routes – South Shore Service

Routes 50, 53, and 23 serve the South Shore community daily connecting the west end of South Lake Tahoe to Stateline, Nevada on the east end of the south shore community. Route 50 offers service from 5:15 a.m. through just after 11:00 p.m. This route begins at the South Y Transit Center at the junction of Emerald Bay Road (CA SR 89) and Lake Tahoe Boulevard (US 50) and continues along US 50—the main corridor through South Lake Tahoe—turning around at Kingsbury Transit Center for the return trip of this bi-directional route from Stateline, Nevada.

Route 53’s operational hours and route reflect varied demand between late night service needs, Sunday and holiday service needs, and the service demands of weekdays and Saturdays. This route most often runs along Lake Tahoe Boulevard (US 50) from the South Y Transit Center before turning onto Al Tahoe Boulevard to serve the neighborhood known as Bijou, east of Johnson Boulevard and along Glenwood Way and Spruce Avenue. Route 53 then travels along a small portion of Ski Run Boulevard just north of Pioneer Trail. At Pioneer Trail, the route continues northeast along Pioneer Trail before returning to US

50 for its turnaround at the Stateline Transit Center. This is the only bus route that serves the Lake Tahoe Community College (LTCC). LTCC is only served every other hour Monday through Saturday.

Route 23 offers service along Kingsbury Grade (NV SR 207) operating from 7:20 a.m. until 12:25 a.m. This route begins at Stateline Transit Center and continues along NV SR 207 until it reaches Daggett Summit. Route 23 then heads south towards The Ridge Resorts where the route turns around to make its return trip down Kingsbury Grade and back to Stateline Transit Center. On Fridays and Saturdays, there is one additional round trip offered, departing the Stateline Transit Center at 12:30 a.m., arriving at The Ridge Resorts at 1:00 a.m. for its return trip ending at Stateline Transit Center at 1:25 a.m.

Commuter Bus Routes – Lake & Valley Express Service

Routes 19X and 20X are part of the triangle plan developed in 2011. Both routes provide a pivotal daily connection between the South Shore community and the Carson Valley. Route 19X offers service from 5:00 a.m. until 8:00 p.m. This route begins in Gardnerville, Nevada at the Douglas County Community and Senior Center located at 1329 Waterloo Lane and continues north along the US 395 corridor through Minden, Nevada. The northbound route culminates at the junction of Washington and Plaza streets in Carson City, where it turns around heading south for the return trip of this bi-directional route through Carson Valley.

Route 20X also offers daily service from 5:30 a.m. until 9:00 p.m. This route begins in South Lake Tahoe at the Stateline Transit Center and travels eastbound on US 50 to NV State Route 207 (SR 207) via the Kingsbury Transit Center. The route continues east over Kingsbury Grade (SR 207) stopping at the Foothill Park & Ride before travelling to the Douglas County Community and Senior Center via the Tillman Center in Gardnerville, Nevada. Connections to the 19X are encouraged and can be made at the Douglas County Community and Senior Center. Utilizing the link between the 19X and 20X routes offers a transit connection between South Lake Tahoe and Carson City.

On October 2, 2016, Route 21X service was suspended indefinitely due to funding constraints. This route offered a more direct connection from South Lake Tahoe to Carson City via US 50 over Spooner Summit. Routes 19X and 20X were streamlined as a result of the route 21X suspension, reducing the travel time between those two routes from South Lake Tahoe to Carson City.

Seasonal Bus Routes – Supplemental Summer Service

TTD currently offers two seasonal service routes during the summer months. Both routes serve extraordinary locations within the Tahoe Basin with significant visitor concentrations and are intended to relieve traffic congestion, improve air quality in the fragile High Sierra environment, and improve safety by reducing unsafe parking practices that result from the overcrowding in these popular corridors.

The East Shore Express (ESE), also known as Route 28, shuttles beachgoers from Incline Village to Sand Harbor State Park. The service was created in response to concerns about the numerous pedestrian and



traffic challenges along SR 28 and designed as part of a larger project, the SR 28 National Scenic Byway Corridor Management Plan. See Appendix C for the complete project overview. ESE service hours and days of operation fluctuate slightly year over year based on trends from the previous summer's operations. ESE generally operates from mid-June through Labor Day

weekend from approximately 10:00 a.m. until 7:00 p.m. Service is offered on weekends only from mid-June through July 1 when daily operations commence through Labor Day.

Route 30, also known as the Emerald Bay Shuttle, is designed to offer service from South Lake Tahoe to Emerald Bay during summer months beginning at the end of June. The area served by Route 30 offers access to numerous summer activities in iconic locations, such as Emerald Bay. The area is heavily congested during summer months as parking options are extremely limited. Route 30 provides access to hiking, biking, and other various recreational destinations while giving visitors the option to leave their personal vehicles behind.

Route 30's operational hours and route design are highly dependent on funding and any restrictions thereof. Service typically runs daily in the weeks leading to and following the Fourth of July holiday. Days of operation are often then reduced to four days per week serving the route Friday through Monday until Labor Day weekend. After Labor Day weekend, service is offered weekends only through the first weekend in October. When funding is available, the route is often expanded to continue farther north along SR 89 on the West Shore all the way to TART's Transit Center in Tahoe City. When this extension is offered, Route 30 provides the only regional transit connection between the North and South Shores of the Lake Tahoe Basin.

Seasonal Bus Routes – Supplemental Winter Service

TTD offers winter shuttle service throughout the South Shore community that provides a high frequency connection to Heavenly Mountain Resort from mid-November through April. The winter shuttle service routes are designed to connect the community to several points of interest with significant winter usage and high visitor concentrations:

- Stateline Transit Center
- Heavenly Village
- Heavenly Gondola
- Ski Run Boulevard
- Heavenly California Base Lodge
- Heavenly Stagecoach Lodge
- Heavenly Boulder Lodge
- The Ridge Resorts

Heavenly Mountain Resort is a vital employer in the South Shore community with upwards of 1,800 employees during peak operations in the winter and approximately 700 employees during peak summer operations. TTD’s transit services support Heavenly Mountain Resort’s goals to support the vitality of our community and the conservation of the surrounding natural environment. The winter shuttle service saves over 1.5 million vehicle miles travelled annually through the combined utilization of TTD’s fixed-route service and seasonal winter services.

TTD transports nearly 300,000 guests and employees each ski season, helping to protect the sensitive Lake Tahoe environment. Heavenly customers and employees rely on these transportation options as convenient alternatives to access recreational opportunities, services, and jobs.

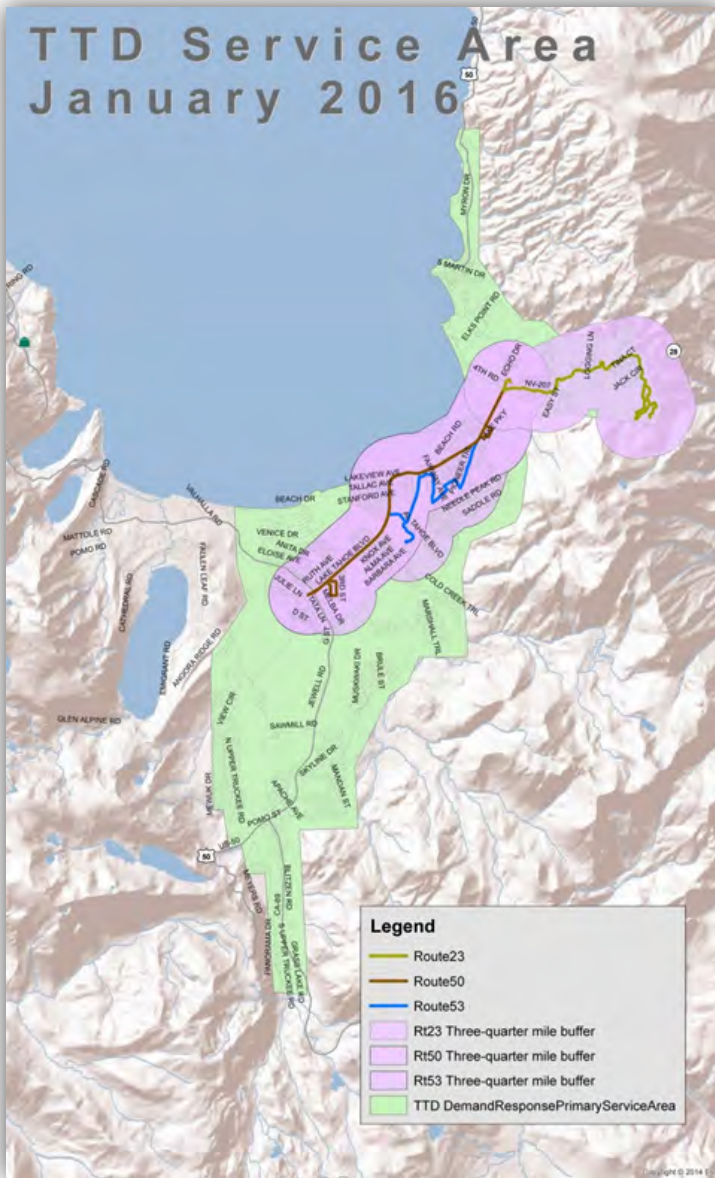


Demand Response Service

TTD’s Americans with Disabilities Act (ADA) Demand Response service is a shared-ride origin to destination transportation service. It is intended for persons who are unable to:

- Travel to or from transit stops or stations within the service area
- Independently board, ride, or exit fixed-route vehicles
- Otherwise independently “navigate the system”

Table 3.3 TTD ADA Demand Response Service Area



All persons must prove eligibility for the demand response service. Individuals 60 years of age and older may show a photo identification card, veterans may show their service-connected disability designation on their veteran’s identification card, and others must complete a Demand Response Application to apply, and if eligible, receive a Demand Response Identification Card. TTD’s eligibility criteria were developed under the guidelines established by the U.S. Department of Transportation (DOT) Americans with Disabilities Act of 1990.

Demand response service is available during fixed-route service hours, though hours can vary on designated holidays. Demand response service is required to travel three-quarters of a mile beyond local fixed-route service boundaries. TTD far exceeds this requirement in travelling well beyond the three-quarter mile boundary requirement. See table 3.3 for a map of TTD’s demand response service area.

3.5 EXISTING SPECIAL SERVICES

Reliable transportation is a challenge for those with limited mobility and some segments of the population who are more vulnerable, such as those with limited means, people with disabilities, and older adults. Promoting mobility helps individuals live independently with less reliance on others, while reflecting the positive community values of the Tahoe Region. Recognizing the importance of mobility, TTD established a mobility management program in 2013 to focus on the specific needs of these passengers.

The mobility management program was designed with a set of fundamental goals:

- Connect community groups and transportation partners
- Improve public awareness of programs and services
- Collaborate with health and social service groups to understand client needs
- Provide community outreach, including travel orientation and training
- Assist in improving effectiveness, efficiency, and quality of travel services
- Promote transit-oriented, livable communities

Coordinated transportation is essential to keep people linked to their employment, healthcare, education, social services, civic activities, social networks, and recreation. With a clear set of goals as guidance and through the targeted efforts of the mobility manager, TTD has developed specialized transit services to address the unique transportation needs of this demographic residing in the Tahoe Basin.

North Tahoe / Truckee Transport

In 2014, TTD partnered with the Town of Truckee to operate an interregional transportation service for seniors on the North Shore known as the North Tahoe / Truckee Transport Program (NTTT). NTTT is a shared-ride, origin to destination, ADA accessible public transit. The program is independent of traditional transit services and offers a fixed schedule to regional destinations, such as Reno and Sacramento, in order to allow passengers to plan ahead and schedule appointments as needed.

South Lake Tahoe – Specialized Transportation Service

In 2016, TTD piloted the South Lake Tahoe Specialized Transportation Service (SLT-STS), which offers service similar to NTTT for the residents of South Shore. SLT-STS provides regional ADA accessible, origin to destination transportation to medical, dental, social service, and other essential needs appointments for older adults and individuals with disabilities. The program offers a fixed schedule to regional destinations and requires advanced reservations to accommodate the number of passengers and their origin and destinations.

Both the NTTT and SLT-STS continue to provide critical access to lifeline services outside of the Basin. These are highly-valuable programs for this unique demographic which offer better transit access for this underserved population of the community. Preservation of these special services is predicated on receipt of discretionary grants and/or the development of more sustainable funding sources.

Chapter 4 – TTD Transit Fleet and Facilities

4.1 OPERATIONS AND ADMINISTRATIVE FACILITIES

TTD currently works out of two administrative offices: the transit administration office located at 4114 Lake Tahoe Boulevard, 3rd Floor, South Lake Tahoe, California, and the main administrative office located at 128 Market Street, Suite 3F, Stateline, Nevada.

The transit administrative team office is located on the third floor above Explore Tahoe, which provides customer service to riders utilizing the Stateline Transit Center during business hours. The upstairs office location offers a training room, conference room, break room for drivers, along with offices for transit’s administrative and management team.

The Market Street office houses TTD’s District Manager, legal counsel, capital project staff, and administrative staff. TTD’s monthly Board Meetings, when held on the South Shore on a bi-monthly basis, are typically held in the same building.

TTD’s maintenance and operations facility is located at 1663, 1669, and 1679 Shop Street at the west end of South Lake Tahoe. This facility is leased from the City of South Lake Tahoe and consists of three buildings which house bus maintenance, parts storage, along with office space for dispatch, road supervisors, the fleet and facilities manager, and additional operations and maintenance management and staff. The paved lot provides employee parking and fleet storage. There are three maintenance bays located in the 1679 building and both a wash bay and maintenance bay located in the 1663 building.

4.2 TTD VEHICLE FLEET

TTD has a total fleet of 38 vehicles as shown in Table 4.1. The table identifies the total current operating fleet by year built, manufacturer, seating capacity, wheelchair securement locations, vehicle length, and fuel type for all services, including fixed route, commuter, demand response, and specialized transportation. The average age of the current bus fleet is seven years old.

The vehicles range in type from large heavy-duty diesel transit buses to specialty use buses, such as the open-air trolley vehicles used on summer service routes. The fleet includes vehicles fueled by diesel and gasoline.

Table 4.1 Active TTD Vehicle Fleet

Year	Make	Capacity	Wheelchair		Fuel Type
			Stations	Length	
<i>Large Heavy-Duty Transit Buses</i>					
2005	Bluebird Xcel	38	2	34 ft	Diesel
2005	Bluebird Xcel	38	2	34 ft	Diesel
2006	Bluebird Xcel	38	2	34 ft	Diesel
2006	Bluebird Xcel	38	2	34 ft	Diesel
2006	Bluebird Xcel	38	2	34 ft	Diesel
2008	Bluebird Xcel	36	2	35 ft	Diesel
2008	Bluebird Xcel	36	2	35 ft	Diesel
2009	NABI LFW-15	27	2	35 ft	Diesel
2009	NABI LFW-15	27	2	35 ft	Diesel
2009	NABI LFW-15	27	2	35 ft	Diesel
2009	NABI LFW-15	27	2	35 ft	Diesel
<i>Medium Size Medium-Duty Cutaway Buses</i>					
2008	Ford Aerotech	24	2	25 ft	Unleaded
2008	Ford Aerotech	16	0	25 ft	Unleaded
2008	Glaval Titan	30	2	35 ft	Diesel
2008	Glaval Titan	30	2	35 ft	Diesel
2008	Glaval Titan	30	2	35 ft	Diesel
2015	International Aeroelite	30	2	35 ft	Diesel
2015	International Aeroelite	30	2	35 ft	Diesel
2015	International Aeroelite	30	2	35 ft	Diesel
2015	International Aeroelite	30	2	35 ft	Diesel
2015	International Aeroelite	30	2	35 ft	Diesel
2012	Ford F650	30	2	35 ft	Diesel
<i>Medium Size Light-Duty Cutaway Buses</i>					
2006	Chevy Aerotech	14	2	26 ft	Diesel
2009	Starcraft Allstar	16	2	25 ft	Unleaded
2009	Starcraft Allstar	16	2	25 ft	Unleaded
2009	Starcraft Starlite	9	2	25 ft	Unleaded
2009	Starcraft Starlite	9	2	25 ft	Unleaded
2010	Ford Starcraft	10	2	25 ft	Unleaded
2012	Chevy Glaval Titan II	18	2	26 ft	Diesel
2015	Chevy Aerotech	16	2	22 ft	Diesel
2015	Chevy Aerotech	16	2	22 ft	Diesel
2015	Chevy Aerotech	16	2	22 ft	Diesel
2015	Chevy Aerotech	16	2	22 ft	Diesel
<i>Specialty Use Buses</i>					
2003	Ford E-350	9	2		Diesel
1993	Chevy Trolley	28	2	30 ft	Unleaded
2004	Cable Car Classics	34	2	40 ft	CNG
2004	Cable Car Classics	34	2	40 ft	CNG
2012	Hometown Main Street	27	2	31 ft	Diesel

CNG Fleet

In July 2015, after a thirteen year run, TTD began closing out the CNG fuel path. The CNG vehicles lacked sufficient performance for use on many of TTD’s routes. The majority of the CNG fleet was reaching the end of its useful life either through age/mileage or expiring tanks. Compounding the limited adaptability of the fleet was the unsustainable operations and maintenance cost of the CNG fueling station. TTD’s transit operations did not use a sufficient amount of CNG to offset the operation and maintenance costs for the contracted supplier, leaving TTD in the position of subsidizing the fuel cost with approximately \$72,000 annually. The result was the gas gallon equivalent cost of CNG far exceeded the cost of diesel. Additional consideration was the aging equipment at the station itself. Required annual maintenance topped \$15,000 annually and upgrades were estimated at over \$25,000. With the exception of TART, no other fleets in the area converted to CNG by 2015 as was proposed years ago in the Regional Transportation Plan, which would have helped offset the operations cost of operating the only CNG fueling station in the South Shore. TART continues to utilize the CNG fueling facility at Cabin Creek located off of SR 89 between the North Shore and Truckee.

TTD decommissioned the fueling station in late 2015. Four CNG buses were transferred to Placer County. Two CNG trolleys were retained for the Emerald Bay Trolley service and are utilized only in the summer for that particular route. Fueling is accomplished at Placer County’s Cabin Creek CNG Station. The remaining fleet was auctioned.

Table 4.2 TTD Support Fleet

Year	Vehicle Type	Vehicle Support Use
2014	Compressor Truck	Maintenance
	Ford F-250 Heavy-Duty Diesel Truck	Maintenance, Utilities
2014	Chevy Equinox	Road Supervision, Administration

Support Fleet

TTD utilizes support vehicles to assist in maintaining and supervising operations. There are currently three vehicles available for road supervision and maintenance. Table 4.2 summarizes the support vehicle fleet.

4.3 PASSENGER AMENITIES

The passenger amenities provided by a transit system are a key factor in a system’s overall attractiveness to the community it serves and its visitors. In order to fulfill its vision of being a choice transportation service for the greater Lake Tahoe region, TTD must provide extraordinary passenger amenities and customer service. TTD passenger amenities include convenient transit centers, boarding area improvements, multi-modal access and facilities, effective fare recovery systems, and readily available public information.

Transit Centers

TTD has three transit centers located within the service area. The **Stateline Transit Center**, located at 4114 Lake Tahoe Boulevard (US 50) in South Lake Tahoe, California, is directly adjacent to the Heavenly



Village and Gondola. This location serves as the primary passenger facility for South Shore's transit passengers. With room for 12 buses concurrently, it is the largest of the transit hubs on the South Shore and serves as a transfer point for the local routes 50, 53, and 23, as well as winter shuttle service and commuter routes. Connections to Amtrak's Capital Corridor service to Sacramento are also available at this site. The well-lit facility offers an enclosed waiting area with restrooms and is conveniently located in the same building as Explore Tahoe, an

interpretive visitor center, where bus passes are sold and public information is available.

The **South Y Transit Center**, is located at 1000 Emerald Bay Road on the southwest corner of the intersection at Lake Tahoe Boulevard (US 50) and Emerald Bay Road (SR 89). The lighted facility offers restrooms, a sheltered waiting area, pass sales, customer service, and can accommodate two buses at a time. In the summer, it serves as a transfer point between Route 30's seasonal summer service and local routes 50 and 53. Passengers can also connect to Amtrak's Capital Corridor service to Sacramento at this location. The South Y Transit Center provides direct service to several major establishments at the west end of town including Raley's, Kmart, Wells Fargo, Big 5, and T.J. Maxx.



The **Kingsbury Transit Center**, is located near Kingsbury Grade at 169 US 50 in Stateline, Nevada. It is also a lighted facility equipped with restrooms and a small waiting area. This site can accommodate up to two buses and provides direct access to Amtrak and several services, including Stateline Medical Center, the Lake Tahoe Visitor's Authority, Douglas County Clerk's Stateline office, Douglas County's Lake Tahoe Law Enforcement and Sherriff Substation, and the Kahle Community Center.

Bus Connections

TART connections are available during summer months when TTD is running seasonal summer service routes. The East Shore Express offers a connection to TART in Incline Village, Nevada anytime the service is operational. The Emerald Bay Trolley also offers a connection to TART within their service area along the West Shore. However, the availability of connection locations via the Emerald Bay Trolley is directly affected by funding. Historically, there have been summers where the service is limited to Homewood, California, while other summers TTD is able to operate service to the Tahoe City Transit Center six miles north of Homewood. TART connections are available at any of the TART bus stops the Emerald Bay Trolley serves.

Boarding Areas

TTD has approximately 184 bus stops in the greater Lake Tahoe region. TTD staff installs most bus stop signs, and is presently replacing all bus stop signage with newly updated versions, which incorporate Automated Vehicle Locator (AVL) information. At some transit stop locations, TTD shares an existing utility pole for its bus stop signs. TTD is responsible for maintenance of the bus stops and signage, along with any informational displays and trash and recycling receptacles where installed. In 2016, TTD installed schedule holders at all timed stop locations for better identification of bus stops and their corresponding route schedules to address the community's safety concerns resulting from unclear stops and schedule information.

TTD maintains 29 bus shelters located at bus stop sites within the service area as illustrated in Table 4.3.



In 2016, TTD completed the installation of solar lighting panels at 26 of the shelter sites where there had previously been little to no lighting in order to provide a safer, more user-friendly boarding area at these locations. Bike racks are also available for convenient bike storage at the six new wood shelters.

Additionally, there are approximately 84 benches located at TTD bus stops system-wide. Many of these benches were carried over from previous transit management organizations and are refurbished by TTD.

Table 4.3 TTD Bus Shelter Inventory

STREET	CROSS STREET	LANDMARK	DIRECTION	ROUTES SERVED
South Ave.	Third St.	Barton Memorial Hospital	Eastbound	50
Third St.	Jean Ave.	Tahoe Senior Plaza	Eastbound	50
Lake Tahoe Blvd. (US 50)	Al Tahoe Blvd.	U.S. Bank	Eastbound	50, 53
Lake Tahoe Blvd. (US 50)	Lyons Ave.	South Tahoe Middle School	Eastbound	50, 53 (Late Night & Weekend Service Only)
Lake Tahoe Blvd. (US 50)	San Francisco Ave.	Tahoe South Visitor's Center	Eastbound	50, 53 (Late Night & Weekend Service Only)
Lake Tahoe Blvd. (US 50)	Rufus Allen Blvd.	South Lake Tahoe Branch El Dorado County Library	Eastbound	50, 53 (Late Night & Weekend Service Only)
Lake Tahoe Blvd. (US 50)	Takela Dr.	Bank of America & DMV	Eastbound	50, 53 (Late Night & Weekend Service Only)
Lake Tahoe Blvd. (US 50)	Johnson Blvd.	Safeway	Eastbound	50, 53 (Late Night & Weekend Service Only), Winter Shuttle
Lake Tahoe Blvd. (US 50)	Ski Run Blvd.	N/A	Eastbound	50, Winter Shuttle Service
Lake Tahoe Blvd. (US 50)	Wildwood Ave.	N/A	Eastbound	50
Lake Tahoe Blvd. (US 50)	Pioneer Trail	N/A	Westbound	50, Winter Shuttle Service
Lake Tahoe Blvd. (US 50)	Wildwood Ave.	N/A	Westbound	50
Lake Tahoe Blvd. (US 50)	Fairway Ave.	Bijou Shopping Center	Westbound	50, Winter Shuttle Service
Lake Tahoe Blvd. (US 50)	San Jose Ave. (Lakeview Ave.)	Lakeview Commons	Westbound	50, 53 (Late Night & Weekend Service Only)
Lake Tahoe Blvd. (US 50)	Bigler Ave.	N/A	Westbound	50, 53 (Late Night & Weekend Service Only)
One College Way	N/A	Lake Tahoe Community College	Eastbound & Westbound	53
Ski Run Blvd.	Paradise Ave.	N/A	Eastbound	Winter Shuttle Service
Ski Run Blvd.	Spruce Ave.	N/A	Eastbound	53, Winter Shuttle Service
Pioneer Trail	Shepard's Dr.	N/A	Eastbound	53, Winter Shuttle Service
Pioneer Trail	Glen Rd.	N/A	Eastbound	53, Winter Shuttle Service
Pioneer Trail	Moss Rd.	N/A	Eastbound	53, Winter Shuttle Service
Pioneer Trail	Moss Rd.	7-Eleven	Westbound	53, Winter Shuttle Service
Pioneer Trail	Aspenwald Rd.	N/A	Westbound	53, Winter Shuttle Service
Ski Run Blvd.	Willow Ave.	N/A	Westbound	53, Winter Shuttle Service
Kingsbury Grade Rd. (NV SR 207)	Market St.	N/A	Eastbound	20X, 23, Winter Shuttle Service
Kingsbury Grade Rd. (NV SR 207)	Foothill Rd. (NV SR 206)	Foothill Park & Ride (Carson Valley)	Eastbound	20X
Kingsbury Grade Rd. (NV SR 207)	Foothill Rd. (NV SR 206)	Foothill Park & Ride (Carson Valley)	Westbound	20X
US Highway 50 (@ Safeway)	Elks Point Rd.	Roundhill Shopping Center	Eastbound	21X
US Highway 50	US Highway 395	US 50 Park & Ride Lot	Westbound	21X

Bus Stop Signage

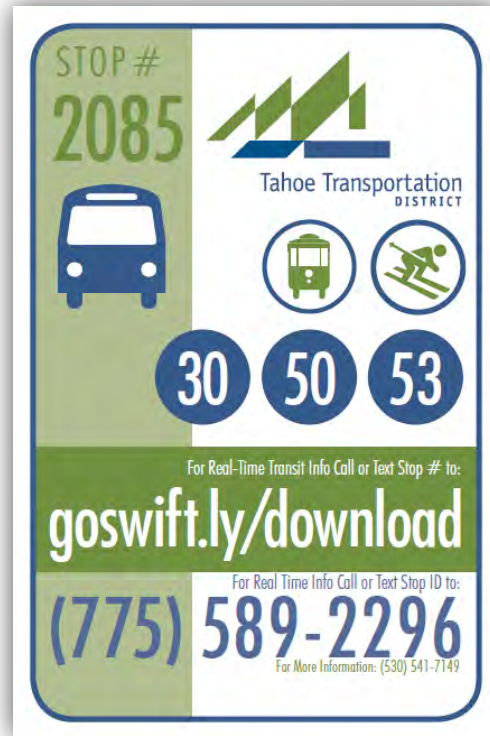
TTD is currently in the process of replacing all bus stop signage with a newly designed version that incorporates the AVL system technology. The new signage better identifies TTD stops and provides improved visibility of the transit system.

Automated Vehicle Locator System

TTD introduced Swiftly, a new AVL system, in 2016. The mobile application brings real-time transit predictions to TTD's service. Passengers can locate their bus by texting their stop number to either the Swiftly web address or the local phone number as identified on new bus stop signage.

Public Information

Public information is available at Stateline Transit Center and South Y Transit Center. Passes can be purchased at both of these locations. TTD offers a dedicated transit page on its website which includes links to all transit services and programs. Comprehensive public information is also readily available via TTD's main transit information phone line operated by dispatch and transit information officers. Limited public information can be obtained through administrative staff at the Market Street office.



Bicycle Facilities

TTD completed the purchase and installation of exterior bike racks on all fixed-route buses in 2015. The bike racks offer intermodal options for passengers traveling throughout the service area, increasing the range of service to riders whose origin or destination are beyond walking distance to transit stops. Additionally, bicycle storage racks are available at all newly constructed shelter facilities.

Chapter 5 – Management Systems

5.1 MANAGEMENT SYSTEM OVERVIEW

TTD maintains several management systems to aid in the effective collection and maintenance of data. TTD strives to keep pace with industry trends and identify cost-effective solutions to replace legacy systems with next-generation technology when possible. This chapter outlines existing management systems and the progress towards remaining relevant in an ever-changing technological environment.

5.2 FINANCIAL MANAGEMENT SYSTEM

TTD maintains its financial records utilizing Microsoft’s Dynamic NAV (NAV) software solution. NAV is a highly customizable software suite that affords specialized functionality for government and other industries. The system offers database tools and solutions for all finance-related efforts, including budget development and forecasting, fixed assets, purchase orders, accounts receivable, accounts payable, timekeeping and payroll, as well as human resource management.

TTD currently uses Kronos as the timekeeping system for the majority of its transit employees. Kronos provides an online software service that tracks and reports staff time and attendance. TTD has two time clocks—one located at its Shop Street facility and one located at Stateline Transit Center—allowing staff to conveniently clock in and out as needed. Kronos also offers a timekeeping function available via smartphone or tablets, which allows authorized staff to clock in and out, as needed, from any location with their assigned mobile device. The web-based Kronos database allows management staff to review and approve work hours for their employees in a convenient and efficient manner. Most of the administrative staff utilizes the timekeeping module within NAV for manual entry of their hours to associated projects. NAV allows for detailed allocation of time, project, and funding source.

TTD currently contracts with Wildcreek Consulting to provide support for NAV software, including the payroll function. With their expertise in NAV configuration, implementation, and support, Wildcreek Consulting delivers cost-effective solutions to keep TTD’s financial management systems running efficiently.

5.3 FUEL MANAGEMENT SYSTEM

TTD presently procures fuel from Flyer’s Energy (Flyer’s) who provides fuel cards to TTD for simple but controlled purchase of fuel by TTD staff for transit vehicles. Each vehicle is assigned a fuel card. Operations and maintenance staff utilize PIN numbers to mitigate fraud.

Flyer’s offers detailed reports of fuel use which TTD staff reviews on a regular basis. Fuel usage is also input regularly into The Reporting Solution, TTD’s transit data management tool. All fuel data can be used for various operational analytics. TTD continues to explore best practices for tracking fuel usage.

5.4 DATA MANAGEMENT SYSTEM AND TRANSIT ANALYTICS

Solutions for Transit (Solutions) provides TTD’s transit data reporting software package: The Reporting Solution. In 2015, TTD opted to utilize The Reporting Solution after careful consideration of Solutions’ technical competence, creativity, cost effectiveness, responsiveness, and insight into the specific challenges faced by TTD. The Reporting Solution is a service that provides data analysis and reporting via a web-based application. The database is completely searchable using packaged and/or custom Crystal Reports drawing from the SQL data. The Reporting Solution’s full service package meets TTD’s needs in maintaining, analyzing, and optimizing operational data.

Transportation Database

The transportation database allows the entry of daily and monthly operational information, customer comments, emergency notifications and email alerts, and regular review and analysis of TTD data.

GFI Genfare Electronic Farebox Support

Solutions’ GFI Genfare (GFI) electronic farebox support includes regular review and correction of GFI exceptions, revenue analysis, training recommendations, and acting liaison to GFI Genfare for any electronic farebox database issues.

Table 5.1 The Reporting Solution Interface



Maintenance Database

The maintenance database allows the entry of daily and monthly maintenance-related information of the transit vehicles, customizable tracking, and monthly review of TTD maintenance data.

Information Technology (IT) Support

IT support for The Reporting Solution includes responsive phone support, remote connections to the GFI server, on-site servicing, and disaster recovery backups.

Planning and NTD Databases

Both the planning and National Transit Database (NTD) Solutions databases offer tools for tracking ridership, vehicle service hours and mileage, and other various data needed to complete NTD reporting.

The Reporting Solution package provides daily, monthly, quarterly, and annual reports for TTD staff to help make informed operational decisions. TTD maintains and updates the data management system,

as displayed in Table 5.1, in order to accurately collect and report operating data so staff can review service efficiencies and develop new services in line with the SRTP and the Board's direction. TTD staff is also responsible for maintaining data input to ensure data accuracy.

5.5 ASSET MANAGEMENT SYSTEM

TTD tracks assets through a few different software applications including The Reporting Solution, NAV, and CIPAce.

NAV

Finance staff has been successfully managing assets for financial purposes within NAV for several years beginning with NAV's implementation.

The Reporting Solution

Transit staff is currently working with Solutions to build a complete asset management picture within The Reporting Solution package. With the Tahoe Basin's new designation as a UZA, TTD is now required to report as a full reporter to the NTD. With this new responsibility, Solutions' asset management tools have proven highly valuable. The Reporting Solution pulls data that is both input by staff and also stored within GFI to generate reports that can be entered directly into NTD. This function has been employed more recently and continues to be a work in progress.

CIPAce

CIPAce is a powerful business process automation and application development platform primarily utilized by TTD's capital projects staff. The CIPAce software is used for capital project management, including related contracts and work orders. It also offers an asset management tool where transit assets, along with other various TTD assets, can be tracked as a complete package, including attachments such as photographs of assets for easier identification.

TTD continues to explore and modify its asset management systems to best fit transit asset management needs which continue to change with new regulatory requirements.

5.6 FARE MANAGEMENT SYSTEM

In 2014, TTD contracted with Solutions for Transit to fully implement the existing electronic farebox system. At the time, some newer electronic fareboxes existed on several buses but were not being utilized to their fullest potential. Solutions assisted TTD staff in the migration from manual fareboxes to GFI Genfare's Odyssey validating electronic farebox. The process involved working with Solutions to physically accept all new fareboxes; develop and implement a new electronic fare structure; train all operators on the fareboxes and the new fare structure; train the maintenance staff on the fareboxes; develop preventive maintenance inspection sheets for the fareboxes; program and train staff on new GFI related hardware; and train staff on the GFI data and report system. The project was highly successful. GFI data is now collected on buses in revenue service and transferred to the GFI server daily.

Solutions performs daily imports of the data to a server that is provided as part of the service. Data is analyzed for errors and the exception reporting is verified. Inefficiencies are identified and reported with specific information about what the issue is, which operator was associated with each issue, and what training should be performed. All modifications to the fare structure are handled by Solutions, who can work directly with GFI on the TTD's behalf.

The package has proven to be a highly valuable component of TTD's management systems. Staff continues to work with Solutions to customize The Reporting Solution when necessary.

5.7 SCHEDULING MANAGEMENT SYSTEM

Ecolane scheduling software provides planning, management, and optimization for TTD's demand response service. Ecolane affords the ability to maintain electronic manifests, as well as manage passengers, reservations, dispatching, schedules, drivers, and vehicles. The system utilizes tablet computers for mobile data communication and navigation, essentially an electronic manifest. It offers customizable reporting capabilities to monitor a variety of demand response functions, such as real-time vehicle location, manifest updates, and driver behavior, including driver speeds. The Ecolane data communication package also includes responsive and efficient support.

Ecolane's highly efficient, user-friendly software has enabled TTD to increase productivity while improving customer satisfaction. TTD will explore possible updates and upgrades to scheduling software on a regular basis to ensure the scheduling system remains highly effective.

5.8 AUTOMATED VEHICLE LOCATOR SYSTEM

As mentioned earlier, TTD implemented automated vehicle locator (AVL) technology through the Swiftly mobile application to bring real-time transit predictions to TTD's service in 2016. Swiftly provides a data-driven technology platform to help improve operational efficiency, while offering a complementary multi-modal trip planning experience to help passengers find the fastest and most affordable ways around town.

GPS trackers were installed on all buses to generate real-time arrival information. The up-to-the-moment bus arrival prediction data is accessible to the public via the mobile applications and website. Swiftly users can access multi-modal trip planning, live maps

Table 5.2 Swiftly Smartphone Application



with vehicle locations, and can report transit related issues for other riders to view. The Swiftly mobile app can be downloaded for iOS and Android at goswift.ly/download and can be viewed in Table 5.2. New bus stops signs display a unique identification number. This number can be transmitted to Swiftly that will return a text message with real-time arrival information or the passenger can call and receive automated annunciation of the next arrival time(s).

Chapter 6 – System Performance and Evaluation

6.1 PERFORMANCE TRENDS

Many factors influence transit ridership: population demographics, weather, traffic, land use density, the local economy, unemployment levels, and fuel pricing. It is important for TTD to recognize and respond to these trends as they change and to continuously analyze performance statistics to determine the effectiveness of all services.

This chapter discusses the impact of TTD’s efforts to respond to social and economic changes over the past few years. To gain further insight into the efficiency and effectiveness of TTD services, this chapter

Table 6.1 Key System Statistics

Key System Statistics	
City of South Lake Tahoe	10 square miles
Tahoe Basin	501 square miles
Number of Vehicles	38
Number of Employees	72
ROUTES	
Local Fixed Routes	3
Commuter Fixed Routes	2
Seasonal Winter Routes	6
Seasonal Summer Routes	2

will examine performance trends and outline the results of a performance review of ridership and operations. Indicators such as ridership, revenue miles, and revenue hours illustrate performance trends in the system over time. Table 6.1 summarizes TTD’s key system statistics.

During the spring of 2015, Solutions for Transit was contracted to store and maintain operational statistical data. Information noted for FY 2016 and projected for FY 2017 was obtained from TTD’s Solutions for Transit database. Information from the preceding years was available through

reporting from the transit contractor. Most of this information was deemed inconsistent. However, this information was included for comparative purposes. More information on Solutions for Transit and TTD’s data management systems are outlined in Chapter 5.

TTD Service Trends

TTD’s fiscal year runs from July 1 to June 30. Table 6.2 provides a summary of TTD’s service trends from FY 2014 projected through the end of FY 2017.

Table 6.2 Base Operating Statistics

TTD Base Operating Statistics		FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017 (Projected)	% Change FY 2013/2014 - FY 2016/2017
Total Passengers	Fixed Route (50, 53, 23)	455,549	394,882	408,083	419,505	-8%
	Commuter Bus (19x, 20x, 21x)	50,235	47,899	46,812	34,002	-32%
	Summer Seasonal	28,948	21,521	25,604	32,581	13%
	Winter Seasonal	207,234	155,667	311,655	358,974	73%
	Demand Response	17,640	15,244	31,853	33,252	89%
	System	759,606	635,213	824,007	878,314	16%
Revenue Service Hours	Fixed Route (50, 53, 23)	19,603	19,602	19,551	19,585	0%
	Commuter Bus (19x, 20x, 21x)	10,788	10,823	11,078	10,896	1%
	Summer Seasonal	3,440	2,230	2,525	2,732	-21%
	Winter Seasonal	13,654	12,030	14,169	11,823	-13%
	Demand Response	6,844	6,399	12,734	12,831	87%
	System	54,329	51,084	60,056	57,867	7%
Revenue Service Miles	Fixed Route (50, 53, 23)	244,312	248,812	263,574	253,823	4%
	Commuter Bus (19x, 20x, 21x)	265,406	265,974	267,245	236,050	-11%
	Summer Seasonal	64,823	36,308	45,201	39,121	-40%
	Winter Seasonal	134,445	116,149	133,513	112,734	-16%
	Demand Response	88,943	78,681	162,816	160,784	81%
	System	797,929	745,924	872,349	802,511	1%
Farebox Revenues	Fixed Route (50, 53, 23)	\$391,190	\$378,347	\$346,467	\$372,001	-5%
	Commuter Bus (19x, 20x, 21x)	\$69,102	\$66,679	\$70,273	\$53,524	-23%
	Summer Seasonal	\$64,823	\$29,612	\$29,743	\$42,668	-34%
	Winter Seasonal	\$0	\$0	\$110	\$415	N/A
	Demand Response	\$16,249	\$16,345	\$44,423	\$51,226	215%
	System	\$541,364	\$490,983	\$491,015	\$519,833	-4%

Nationwide, bus transit ridership has dropped eight percent from 2013 levels according to the American Public Transit Association (APTA). However, TTD’s overall performance from FY 2014 through projected FY 2017 is strong. During the past two years, TTD has expanded the summer Emerald Bay Shuttle service to Tahoe City; and snow, along with winter sports enthusiasts, returned to the Sierras. Also notable is the uptick in demand response ridership accomplished through an expansion of the program to include a public-private partnership with a local taxi company. Using taxis is a cost effective way to move ambulatory trips from the higher cost, TTD-operated demand response system, and ultimately, serve more of the community.

Commuter services were disrupted when TTD’s funding for the popular 21x commuter route between Stateline and Carson City was no longer available. The two remaining commuter routes were re-worked to continue a connection to Carson City, but are unable to attract the same ridership as the single seat trip. Fixed route is slowly building ridership, but remains largely as a lifeline service due to the inconvenient hourly headways.

Passenger growth has outperformed marginal increases in revenue service hours and revenue service miles. The largest increase in passengers resulted from the increased usage of the free-to-user winter shuttle services. However, with no corresponding fares, the overall farebox revenues decreased four percent. The opportunity cost of free-to-user transit provided during winter of 2016-2017 alone was over \$420,000.

6.2 PERFORMANCE MEASURES

Public transit employs a variety of standardized measures to assess system performance. The table below notes the indicators used and classifies the system by type of service (fixed route, commuter, summer seasonal, winter seasonal, and demand response).

Table 6.3 Performance Indicators by Service Mode

TTD Performance Indicators		FY 2013/2014	FY 2014/2015	FY 2015/2016	FY 2016/2017 (Projected)	% Change FY 2013/2014 - FY 2016/2017
Budgeted Operating Expenses (Allocated by RevHr)	Fixed Route (50, 53, 23)	\$1,851,241	\$2,004,006	\$1,779,127	\$2,132,325	15%
	Commuter Bus (19x, 20x, 21x)	\$1,018,782	\$1,106,487	\$1,008,120	\$1,186,306	16%
	Summer Seasonal	\$324,862	\$227,984	\$229,787	\$297,448	-8%
	Winter Seasonal	\$1,289,438	\$1,229,884	\$1,289,359	\$1,287,234	0%
	Demand Response	\$646,324	\$654,200	\$1,158,808	\$1,396,969	116%
	System	\$5,130,647	\$5,222,561	\$5,465,200	\$6,300,282	23%
Farebox Recovery Ratio (Fares / Expense)	Fixed Route (50, 53, 23)	21%	19%	19%	17%	-17%
	Commuter Bus (19x, 20x, 21x)	7%	6%	7%	5%	-33%
	Summer Seasonal	20%	13%	13%	14%	-28%
	Winter Seasonal	0%	0%	0%	0%	N/A
	Demand Response	3%	2%	4%	4%	46%
	System	11%	9%	9%	8%	-22%
Net Operating Cost per Passenger (Gross less fares / Expense)	Fixed Route (50, 53, 23)	\$3.21	\$4.12	\$3.51	\$4.20	31%
	Commuter Bus (19x, 20x, 21x)	\$18.90	\$21.71	\$20.03	\$33.32	76%
	Summer Seasonal	\$8.98	\$9.22	\$7.81	\$7.82	-13%
	Winter Seasonal	\$6.22	\$7.90	\$4.14	\$3.58	-42%
	Demand Response	\$35.72	\$41.84	\$34.99	\$40.47	13%
	System	\$6.04	\$7.45	\$6.04	\$6.58	9%
Average Fare per Passenger	Fixed Route (50, 53, 23)	\$0.86	\$0.96	\$0.85	\$0.89	3%
	Commuter Bus (19x, 20x, 21x)	\$1.38	\$1.39	\$1.50	\$1.57	14%
	Summer Seasonal	\$2.24	\$1.38	\$1.16	\$1.31	-42%
	Winter Seasonal	\$0	\$0	\$0	\$0	N/A
	Demand Response	\$0.92	\$1.07	\$1.39	\$1.54	67%
	System	\$0.71	\$0.77	\$0.60	\$0.59	-17%
Passengers/ Revenue Service Hour	Fixed Route (50, 53, 23)	23.24	20.14	20.87	21.42	-8%
	Commuter Bus (19x, 20x, 21x)	4.66	4.43	4.23	3.12	-33%
	Summer Seasonal	8.42	9.65	10.14	11.93	42%
	Winter Seasonal	15.18	12.94	22.00	30.36	100%
	Demand Response	2.58	2.38	2.50	2.59	1%
	System	13.98	12.43	13.72	15.18	9%
Passengers/ Revenue Service Mile	Fixed Route (50, 53, 23)	1.86	1.59	1.55	1.65	-11%
	Commuter Bus (19x, 20x, 21x)	0.19	0.18	0.18	0.14	-24%
	Summer Seasonal	0.45	0.59	0.57	0.83	86%
	Winter Seasonal	1.54	1.34	2.33	3.18	107%
	Demand Response	0.20	0.19	0.20	0.21	4%
	System	0.95	0.85	0.94	1.09	15%
Operating Cost/Revenue Service Hour	Fixed Route (50, 53, 23)	\$74.48	\$82.93	\$73.28	\$89.88	21%
	Commuter Bus (19x, 20x, 21x)	\$88.03	\$96.07	\$84.66	\$103.96	18%
	Summer Seasonal	\$75.59	\$88.96	\$79.22	\$93.26	23%
	Winter Seasonal	\$94.44	\$102.23	\$90.99	\$108.84	15%
	Demand Response	\$92.06	\$99.68	\$87.51	\$104.88	14%
	System	\$84.47	\$92.62	\$82.83	\$99.89	18%
Operating Cost/Revenue Service Mile	Fixed Route (50, 53, 23)	\$5.98	\$6.53	\$5.44	\$6.94	16%
	Commuter Bus (19x, 20x, 21x)	\$3.58	\$3.91	\$3.51	\$4.80	34%
	Summer Seasonal	\$4.01	\$5.46	\$4.43	\$6.51	62%
	Winter Seasonal	\$9.59	\$10.59	\$9.66	\$11.41	19%
	Demand Response	\$7.08	\$8.11	\$6.84	\$8.37	18%
	System	\$5.75	\$6.34	\$5.70	\$7.20	25%
CPI Growth		0.0%	2.2%	2.7%	3.3%	N/A
Inflation on the Dollar		\$1.00	\$1.02	\$1.05	\$1.08	8%

Also included in the above table is a comparison to the Consumer Price Index (CPI) based on the San Francisco – Oakland – San Jose Consumer Price Index – Urban Wage Earners and Clerical Workers as reported by the California Department of Industrial Relations. This comparison helps the reader better digest the real dollar impacts of the fluctuations in performance metrics.

Highlights

As each mode of service is unique in scope and operation, each performance measure is mode specific. A “System” total is included for those measures that are more holistic in nature. Budget Operating Expenses, for example, increased 23 percent (gross) from FY 2014 through projected FY 2017. When adjusted by the CPI of eight percent, the net growth rate is 15 percent. Over the same period, revenue service hours increased by seven percent.

Farebox recovery ratios continue to fall as the substantive increases in ridership have occurred on the free-to-user winter seasonal routes. Additional downward pressure is exerted by the decline in ridership on the commuter routes despite relatively constant revenue service hour delivery.

TTD’s commuter services trend as the lowest performance routes. While some inefficiency is structural from the long distances covered by the route for lesser ridership, the loss of ridership and generous fare structure impacts performance.

Summer seasonal services are doing well. Ridership continues to grow on the East Shore and the West Shore’s ridership is rising with a consistent scheduled connection to Tahoe City.

Since the implementation of TTD’s Mobility Management Program, demand response service ridership has increased a staggering 89 percent! Better outreach, expansive service areas, software improvements, and the addition of a taxi partnership have resulting in superior levels of service and geographical access for Tahoe’s senior and disabled population. Unfortunately, due to grant reductions, this level of service is likely not sustainable beyond December 2018.

Coordination with the RTP/SCS

Prior planning efforts have identified multiple transit goals for the Tahoe Basin. TTD will focus its limited resources on continuing to improve safety, workforce development, fleet sustainability, and facilities modernization. The RTP/SCS recognizes the need for additional services and the building blocks for robust transit must be in place for these improvements to flourish.

TRPA’s RTP/SCS identifies the following goals directed at transit within the Tahoe Basin:

- Increasing frequency to 30 minute headways
- Providing free-to-the-user service
- Improving recreation access
- Transit prioritization

This SRTP supports frequency improvements to 30 minute headways on key routes and improving recreational access. TTD’s popular winter program and prior years’ summer free days serve as the basis

for evaluating free-to-user transit services. While the operational benefits are evident for the winter service, the financial impact creates a strain on the entire system operation and creates a visitor class service (free) and a transit dependent/commuter service (pay). The RTP/SCS champions the goal of free-to-user transit, but funding – specifically non-federal funds – must be secured prior to implementing free-to-user transit. Also, California’s TDA mandates that public transit systems receiving TDA funds (STA and LTF) are required to recover 20 percent of the cost of service from fares for fixed route and 10 percent of the cost of service from fares for demand response service. Prior to implementing free-to-user transit, the TMPO must create an alternative performance measure to the default TDA farebox recovery ratios.

Other challenges to implementing system-wide free-to-user transit include a larger fleet, and subsequent labor force, to accommodate the increased demand. Transit facilities would likely need expansion and endure a higher level of use, necessitating more maintenance. Additional supervisory staff may also be needed as free-to-user transit has historically been used as mobile shelters for indigent individuals – some with untreated mental illnesses.

The RTP/SCS also promotes the following goals which affect transit operations:

- Signal optimization: *Requires coordination with Caltrans, NDOT, and the City of South Lake Tahoe.*
- Real-time information: *Project complete. Swiftly real-time AVL and predictive arrivals implemented 2016. Additionally, TTD anticipates the installation of monitors at Stateline Transit Center to display real-time information to passengers at that location.*
- Vehicle electrification: *TTD is preparing an order for two 40-foot battery electric buses, expected delivery in late 2018.*
- Improve existing transit systems through increased frequency, reducing headways from one hour to 30 minutes: *Proposed on US 50 Corridor, Meyers Corridor, and with Emerald Bay High-Frequency.*
- Expand service areas and extend service hours: *TTD currently operates between 20 and 22 hours per day. Proposed service expansion areas include Meyers and possibly Echo Summit/Sierra at Tahoe.*
- Preferential signal controls: *Most effective if done in conjunction with bus only transit lanes. Requires coordination with Caltrans, NDOT, and the City of South Lake Tahoe.*
- Improve access to transit stops: *TTD is actively engaged with Caltrans, NDOT, El Dorado County, and the City of South Lake Tahoe on many projects and continues to promote improved access to transit stops. TTD regularly performs snow removal at all transit stops and shelters.*
- Vehicle Miles Traveled (VMT) mitigation: *TTD seeks to reduce VMT through aggressive expansion of transit services.*
- Service to major winter and summer recreational areas: *High frequency service is provided to Heavenly Resort and The Ridge Resort during the winter. Proposed service increases to Emerald Bay will improve summer access. Sand Harbor continues to enjoy robust transit services.*

- Transit facilities that encourage bike, pedestrian, and transit use: *California’s SB1 dedicates \$100 million per year for the Active Transportation Program to expand and improve bicycle and pedestrian facilities. TTD anticipates a portion of these funds becoming available to augment existing facilities.*
- Regional connections: *Regional connections exist with Amtrak (South Lake Tahoe); Reno, Douglas County and Carson City transit service, South Tahoe Airporter; and seasonally with TART. TTD also offers STS service for qualifying individuals to regional locations from both the north and south shores. TTD is committed to developing additional public-private partnerships to increase regional connections to, from, and within the Tahoe Basin.*

The RTP/SCS recognizes that multimodal transportation, “...promote[s] viable alternatives for mobility needs, encourage[s] alternative mode use, and decrease[s] dependency on the private automobile.”


















Over the past year, communities along and adjacent to the North Shore of the Tahoe Basin have deliberated a comprehensive transit vision encompassing expanded and more frequent service which utilizes current technology and improves the surrounding environment. While locally, the City of South Lake Tahoe’s General Plan lays out a vision of an expanded transit system focused on increasing visitor transit use, while encouraging increased resident use through changes in land use patterns.

Coordination with the Linking Tahoe: Lake Tahoe Basin Transit Master Plan

The TMP recognizes that “transit is the vehicle for change in the Tahoe Region.” To effect that change, the TMP developed performance standards specifically geared toward assessing the incremental progress toward the plan implementation through the 2028 horizon. These performance measures augment the higher-level goals of the RTP/SCS and provide stakeholders with feedback on the direction and status of transit in the Basin. Table 6.4 is a summary of the new performance measures offered in the TMP.

Some of these measures are more suited for the longer scope of the TMP, whereas others are relevant on an annual basis. Part of the process of adopting the SRTP is to identify the performance measures best suited for TTD’s variety of transit modes and set the standards for those measures.

Table 6.4 TMP Performance Measures

	<p>Transit First</p>	<p>Goal: Transit is a priority in decision making and investments in the basin as part of the desire to change the mode split to 50% active modes and transit.</p>	<p>Objective: To ensure that decision-making on land use and transportation issues consider the impact on expanding active mode opportunities and the transit system.</p>	<p>Performance Measure: Investments made in expansion of active mode and transit services and infrastructure (projects or dollars per resident)</p> 
	<p>Creating Choice</p>	<p>Regional Goal:The Transit Network is comprehensive, allowing visitors to choose more environmentally sustainable mode options for travel to the basin than a personal car</p>	<p>Objective: Support the increase in the level of rail connections that can be made to key cities such as Reno, Truckee, Stockton and Sacramento. These connections are supported by regional bus routes to South Lake Tahoe.</p>	<p>Performance Measure: The percent of the long term transit network that is complete.</p> 
	<p>Local Goal: The Transit Network is comprehensive, allowing residents and visitors to choose not to use more environmentally sustainable modes than a personal car for local travel in the basin</p>	<p>Objective: Increase the level of service and the number of connections that can be made throughout the basin and to key cities such as Reno and Sacramento. This increases the use of the system.</p>	<p>Performance Measure: Annual service hours growth from 2016 base to full system hours</p> <p>Performance Measure: Annual Boardings growth from the 2016 base to XX</p>  	
	<p>Creating Connections</p>	<p>Goal:Transit creates preferred local, cross-lake, seasonal, and regional connections for residents and visitors with a high quality service and passenger amenities</p>	<p>Objective: The higher the quality of the service, the more it can be relied upon for routing trips therefore performance is a key objective. The provision of real-time passenger information and high quality road-side infrastructure supports this.</p>	<p>Performance Measure: Boardings per Trip growth from 2016 base to XX</p> <p>Performance Measure: On Time Performance growth from 2016 base to XX</p>  
	<p>Supporting Transformational Change</p>	<p>Goal: Transit supports and promotes the development of compact urban form along Frequent Transit Corridors with targeted services that supports walking & cycling</p>	<p>Objective: Transformational change means the provision of more transit service per resident (as a proxy for service hours per person in the basin) but equally, the greater the density of residents along major transit routes.</p>	<p>Performance Measure: Annual Service Hours per Resident growth from 2016 base to XX</p> <p>Performance Measure: Average Density on Frequent Transit Routes from 2016 base to XX</p>  
	<p>Improving Safety</p>	<p>Goal: Transit can safely deliver people to key locations to reduce congestion and remove the need to park on highways</p>	<p>Objective: Safety is created by ensuring that the transit system provides a reliable alternative that makes other choices less desirable. Two key areas of reliability are the consistency of travel times and the consistency of service.</p>	<p>Performance Measure: Running time Consistency</p> <p>Performance Measure: Headway Consistency</p>  
	<p>Improving the Environment</p>	<p>Goal: Transit can help improve the environment by reducing congestion, supporting the reduction of highway side parking, and reducing overall green house gases</p>	<p>Objective: The greater the use of the transit system, the fewer vehicle miles travelled by car and the greater the boardings by transit per mile. Transit can also support a change from highway side parking to bus stops at key locations and designated parking areas.</p>	<p>Performance Measure: Annual Vehicle Miles Traveled growth from 2016 base to XX</p> <p>Performance Measure: Boardings per Mile growth from 2016 base to XX</p>  

Staff has also identified the performance measures below, in Table 6.5, specifically for defining success over the term of the SRTP. The intent is to make reasonable efforts to improve services in order to reach these goals within the five-year period.

Table 6.5 SRTP Performance Measures

Goal	Performance Measure	Standard
Continued Focus on Safety	<i>Injuries per 100,000 boardings</i>	<=1
	<i>Miles between major preventable accidents</i>	100,000
Increased Ridership	<i>Frequency (headways)</i>	
	<i>Fixed Route (50, 53, 23)</i>	15 minute peak
	<i>Commuter Bus (19x, 20x, 21x)</i>	30 minute peak
	<i>Summer Seasonal</i>	30 minutes
	<i>Winter Seasonal</i>	10 minute peak
	<i>Passengers per Revenue Hour</i>	
	<i>Fixed Route (50, 53, 23)</i>	>25
	<i>Commuter Bus (19x, 20x, 21x)</i>	>5
	<i>Summer Seasonal</i>	>15
	<i>Winter Seasonal</i>	>30
	<i>Demand Response</i>	>2.5
	<i>Mode Share</i>	>=5%
	<i>Annual Ridership Growth</i>	>=5%
Improved Efficiency	<i>Operating Cost per Revenue Hour</i>	< National Average
	<i>Change in Operational Cost / Revenue Hour</i>	<=5%
Improved Reliability	<i>Miles between Road Calls</i>	20,000
	<i>On-time Performance</i>	100% of trips start on time from first stop
	<i>% of PMIs completed within 500 miles of schedule</i>	100%
Increased Community Support for System	<i>Community Financial Participation</i>	% Contributed Funding
	<i>Positive Media Mentions</i>	# of articles
	<i>Active Outreach Events</i>	# of events
Increased Community Satisfaction	<i>Ratio of Compliments to Complaints</i>	1:2
	<i>Repair of all Body and Interior Damage on Buses</i>	<=90 Days
	<i>% Ranking transit service Excellent or Good</i>	>=80%

Safety

The key indicators of safety are injuries to the public, passengers, or staff and property damage as measured by miles between preventable accidents. Although the preferred term is now “collisions,” “preventable accidents” is still the industry standard.

Ridership

Ridership can be expressed as an increase in total system carriage, but for the purposes of the SRTP, TMP, and RTP/SCS, ridership is better measured not as the gross number of passengers carried, but the percentage of passengers removed from private vehicle travel. The mode share of transit must increase to meet the aggressive Greenhouse Gases (GHG) and VMT reduction goals in the RTP/SCS. Data reveals that increased frequencies serve to limit trip anxiety and increase ridership. TTD’s goals are to reduce headways to a level where more visitors will choose to park once and ride transit. Passengers per revenue hour demonstrates the effectiveness of the specific mode or route and revealing whether the service is capturing a sustainable amount of passengers for the route/mode’s intended function.

Efficiency

Efficiency is viewed by TTD as cost control. While a transit system operating in a mountainous environment with steep grades and substantial snowfall is not the national average, TTD aspires to maintain an annual cost per revenue hour that is less than the national average as reported by APTA. Another measure TTD has proposed is a five percent or less annual operating cost increase per revenue

hour. This measure will likely have many caveats for new services, pilot projects, and volatile commodities like insurance and fuel, but remains a valid target.

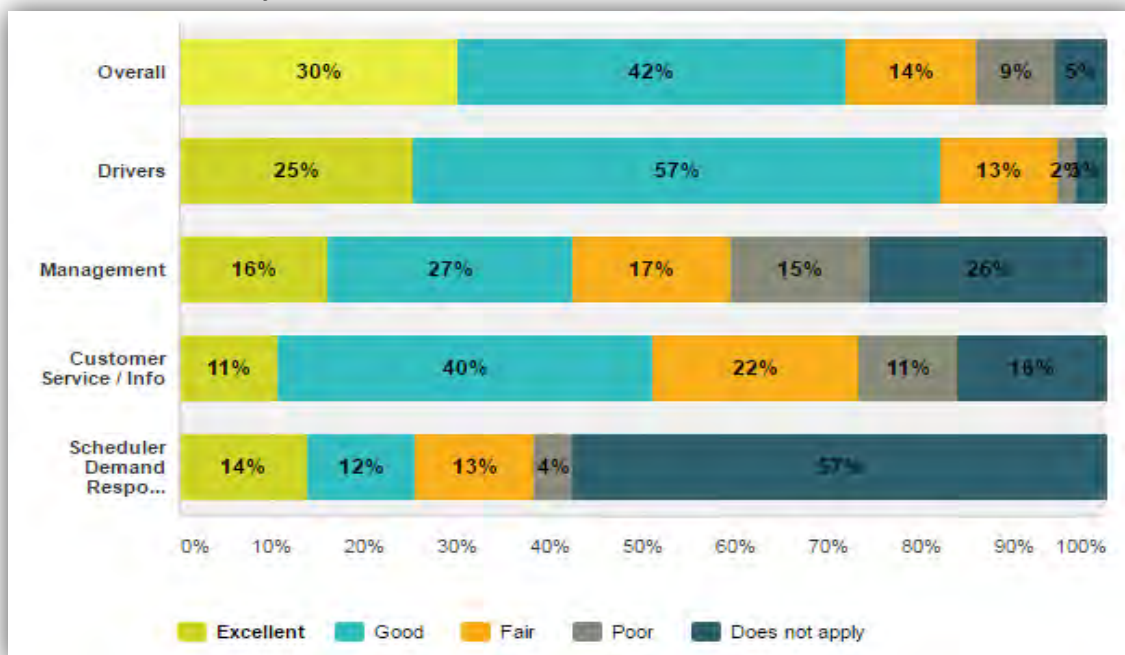
Reliability

Service reliability is a function of interruptions to revenue service and on-time performance. If the number of mechanical road calls is low, the vehicles and operations typically show improved reliability. Conversely, a high number of road calls indicates decreased service reliability and potentially higher maintenance costs. The onboard fareboxes measure the distance between failures and service interruptions. This data is uploaded to the Solutions for Transit database for review by maintenance staff and management. Daily manifest entries supplement this data generating a tool to evaluate on-time performance as well. Maintaining a consistent schedule increases service reliability and demonstrates a positive image as a service provider.

Community Support and Satisfaction

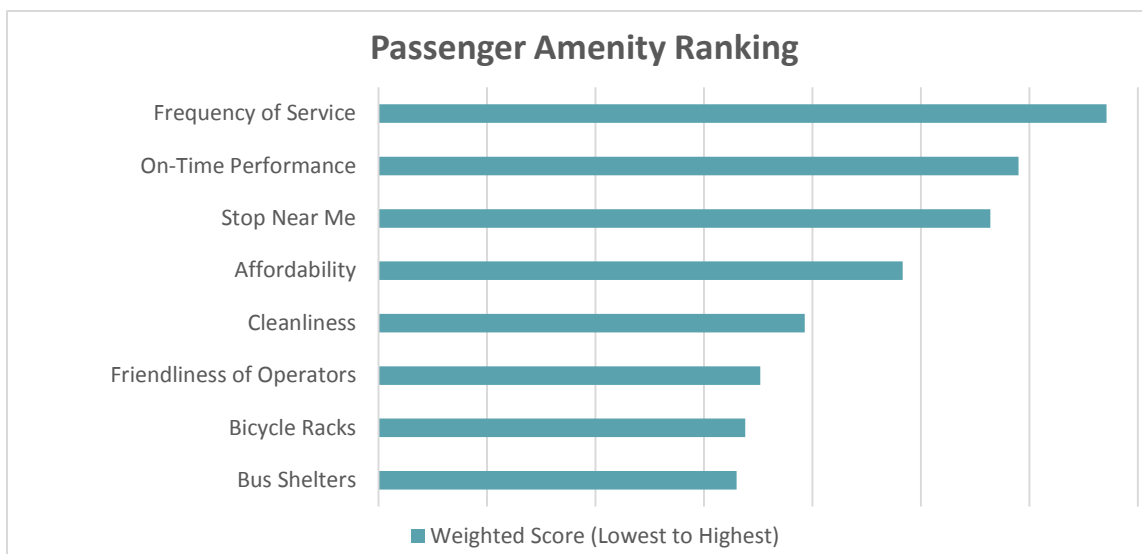
Community support for the system is a key measure of service. TTD receives contributions from various private entities and the amount of the cost of service provision offset by these contributions tells the story of the value the community, and by extension, the businesses derive from public transit. Community satisfaction is less objective and, therefore, more difficult to measure. TTD collects customer comments, complaints, and commendations on a regular basis. These are catalogued within the Solutions for Transit database. TTD also intends to maintain a regular schedule of comprehensive transit surveys and workshops to obtain more consistent and methodical feedback from the community. The 2016 transit survey proved highly effective in measuring the current community support for TTD’s system and can be viewed in Appendix D. Table 6.6 illustrates the current measure of community satisfaction with the system as chronicled in the 2016 survey.

Table 6.6 Community Satisfaction



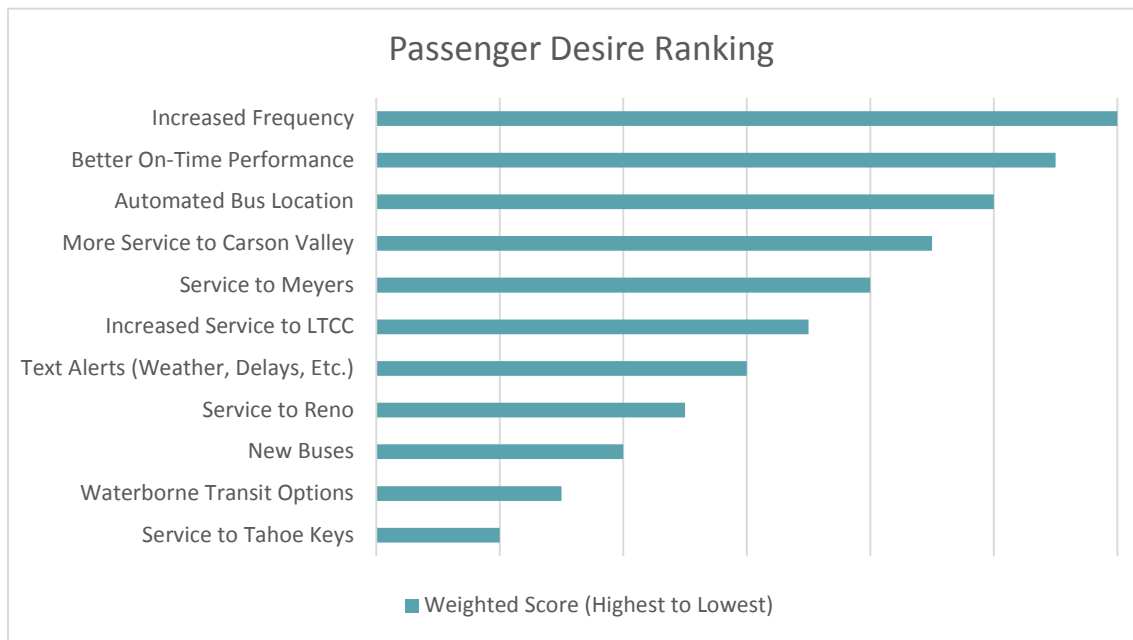
The 2016 transit survey provided clear indications of the overall level of customer satisfaction. Tables 6.7 and 6.8 demonstrate how passengers rank the importance of various factors through a weighted average. Passengers were asked to rank passenger amenities in order of importance from one to eight; one is the most important to the passenger and eight is the least important.

Table 6.7 Customer Ranking of the Importance Passenger Amenities



Additionally, respondents were asked to rank passenger desires in order of importance from one to 11; one is the most important and 11 is the least important.

Table 6.8 Customer Ranking of the Importance Passenger Desires



Increased frequency continues to be the number one priority of passengers. On-time performance and nearby stop locations follow in passengers' stated desires. Automated bus location was another top priority of passengers that TTD has since delivered. TTD was in the midst of deploying Swiftly, the new AVL system accessible by mobile application, telephone, and internet, while the 2016 transit survey and transit workshops were being conducted. The next highest priority of passengers is service expansion to Meyers, the Carson Valley, and Lake Tahoe Community College.

6.3 UNMET TRANSIT NEEDS

A thorough review of unmet transit needs acts as another helpful gauge of service effectiveness to the community. TRPA, as the RTPA, conducts an Unmet Transit Needs process annually through a public outreach program, which consists of workshops in both El Dorado and Placer counties. The purpose of this process is to identify any unmet transit needs and assess whether any of those needs are reasonable to meet. This process is required by the TDA and is intended to ensure that all unmet transit needs, identified as reasonable to meet, have been addressed before any TDA funds are utilized for non-transit purposes, such as road and street projects.

TRPA defines "unmet transit needs" and "reasonable to meet" as follows in accordance with TDA rules:

Unmet Transit Needs

"Those public transportation improvements which have not been funded or implemented but have been identified through public input, the annual unmet transit needs hearing, and transit studies in the claimant's jurisdiction to be identified for implementation in the Regional Transportation Plan."

Reasonable to Meet

"New, expanded, or revised transportation service to the public that offers equitable access, can be implemented within the first five-year phase of the Regional Transportation Plan, is technically feasible, would be accepted by the community, can be funded within the five-year time period and is cost effective."

Transit needs are the highest priority for TDA funds. All of TRPA's LTF funding apportionments available for public transportation are currently utilized for transit services only. However, TRPA continues the unmet transit needs identification process and forwards all findings to the transit operators. The Unmet Transit Needs Report for FY 2015-2016 can be found in Appendix E.

Chapter 7 – Future Service Improvements and Programs

7.1 FUTURE SERVICE PLAN

TTD acknowledges that first and foremost, it must establish a solid foundation upon which a great transit system can grow. Four key fundamentals are in need of considerable improvement as crucial building blocks to a resilient transit system: safety, workforce, fleet, and facilities. Before staff can deliver an ambitious transformation of the Basin’s transit network, we must address these essential building blocks.

Safety

TTD aims to provide the highest possible safety conditions for staff and the public. This includes projects such as:

- Electronic daily vehicle inspections
- Automated passenger counters
- Electronic logbooks
- Surveillance cameras on board TTD vehicles
- Distinct vehicles to aid in emergency operations
- Passenger alert system to share information quickly
- Security personnel to protect TTD employees, passengers, and assets
- Remote sensing of location, speed, G-force, and lateral force of TTD vehicles
- Safety equipment (PPE, fall protection, eye wash stations, AEDs, etc.)
- Driver and maintenance staff safety meetings to share information
- Review and updates of safety policies, practices, and procedures
- Workplace injury prevention training programs
- Full OSHA compliance
- Regular safety audits
- Reflective signage
- Bus shelter upgrades
- Facility lighting upgrades
- Modernization of equipment with latest safety features
- Physical infrastructure design upgrades to best industry practices

RTP/SCS: “Over the next four years, many of the needed service enhancements will begin... On the South Shore, TTD will increase frequency on its U.S. 50 route, extend service to Meyers and Zephyr Cove and increase service frequency and connectivity to the Lake Tahoe Community College. Additionally, TTD will add recreational transit service to Emerald Bay, and Echo Summit. To support these increased operations, TTD will enhance administrative facilities, transit stops and infrastructure operations at the Lake Tahoe Community College, Emerald Bay, and along the East shore. TTD will also work with private entities to enhance transit services to the Region from Sacramento and Reno. All transit improvements will provide enhanced services to residents, commuters, and visitors.”

TTD will continue to prioritize safety through ongoing review and evaluation of safety practices, and ongoing training of staff.

Workforce Development

Workforce development remains one of the biggest challenges for TTD after bringing transit operations in-house. The first priority as the agency nears its first full year of assuming direct operations is assessing employee compensation, offering additional training, and examining new approaches towards staff recruitment and retention such as:

- Continuing education programs
- TTD provided uniforms
- Providing training
- Flexible schedules
- Staff recognition program
- Attendance and safety bonuses
- Competitive compensation package
- Affordable housing options and transit oriented development

The region is seeing considerable recruitment challenges, not only in transit, but also in all industries within the area. Affordable housing continues to be a substantial barrier to driver and staff recruitment. There is growing momentum on this topic as many employers throughout the region struggle to attract staff for similar reasons. TTD is hopeful that this momentum will accelerate towards action and drive a positive outcome. System expansion will prove difficult without driver and staff recruitment and retention.

Fleet Expansion and Replacement

TTD's fleet needs substantial and urgent attention. Over half of the current bus fleet is either approaching or is already beyond the FTA's designated useful life. Under direct operations, staff has gained a better understanding of the fleet and what would be best suited for each of the varied services TTD provides. Section 7.4 further explores this key fundamental.

Facility Capacity and Modernization

TTD's existing leased facilities are in dire need of attention. This need is elevated with the FTA's State of Good Repair requirements. Additionally, the existing transit yard is approaching its maximum capacity for bus storage. Should the funding become available to expand service, there persists the issue of limited space to accommodate more buses. Section 7.3 further explores this key fundamental.

Future Service and Route Proposals

Staff suggests select route proposals and route expansion where necessary to better serve the needs of residents, commuters, and visitors within communities throughout the South Shore service area. These options include service expansion to Meyers concurrent with increased service to LTCC, a high-frequency

route to Emerald Bay, and the expansion of TTD’s demand response service to address this growing need. Section 7.2 further explores these proposals.

7.2 FUTURE ROUTE EXPANSION

Increased frequency was the number one overall priority identified through the 2016 transit survey and workshops. This was reinforced by the LTCCP’s AirSage data, which identified significant opportunities to capture additional ridership with increased frequency. Each route proposal put forward in this section addresses increased frequency. On-time performance ranked second as both a passenger desire and amenity. It is anticipated that adding capacity in these areas will improve on-time performance as well. Following closely behind these passenger requests were additional services to Meyers, the Carson Valley, and LTCC. Again, the survey mirrored the data analyzed in the TMP. Movement within the Basin demonstrated a need for increased frequency within the US 50 corridor and expanded single seat service from Stateline to Emerald Bay. With the Tahoe Basin’s new designation as an UZA, TTD is better equipped to expand service within the Basin. Increased service proposals within the Basin were developed in consideration of Tahoe’s UZA designation.

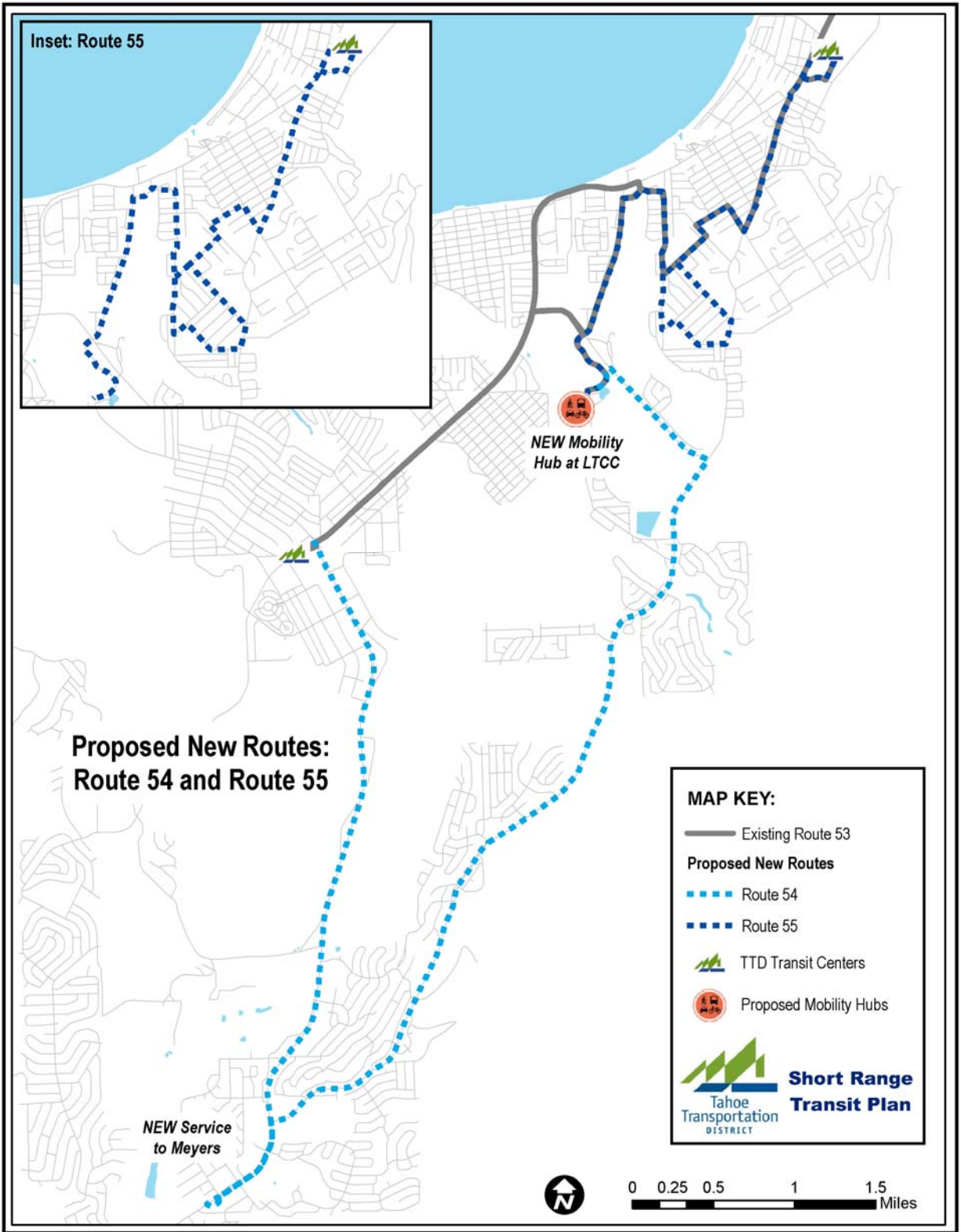
PROPOSED ROUTES: Route 54 & 55

These are two separate routes that will circulate to the west of LTCC and to the east of LTCC, replacing the existing Route 53. The eastern Route 54 will connect Meyers to the Y Transit Center and LTCC. The western Route 55 will connect LTCC and midtown to Stateline. It is envisioned that both routes will operate every thirty minutes.

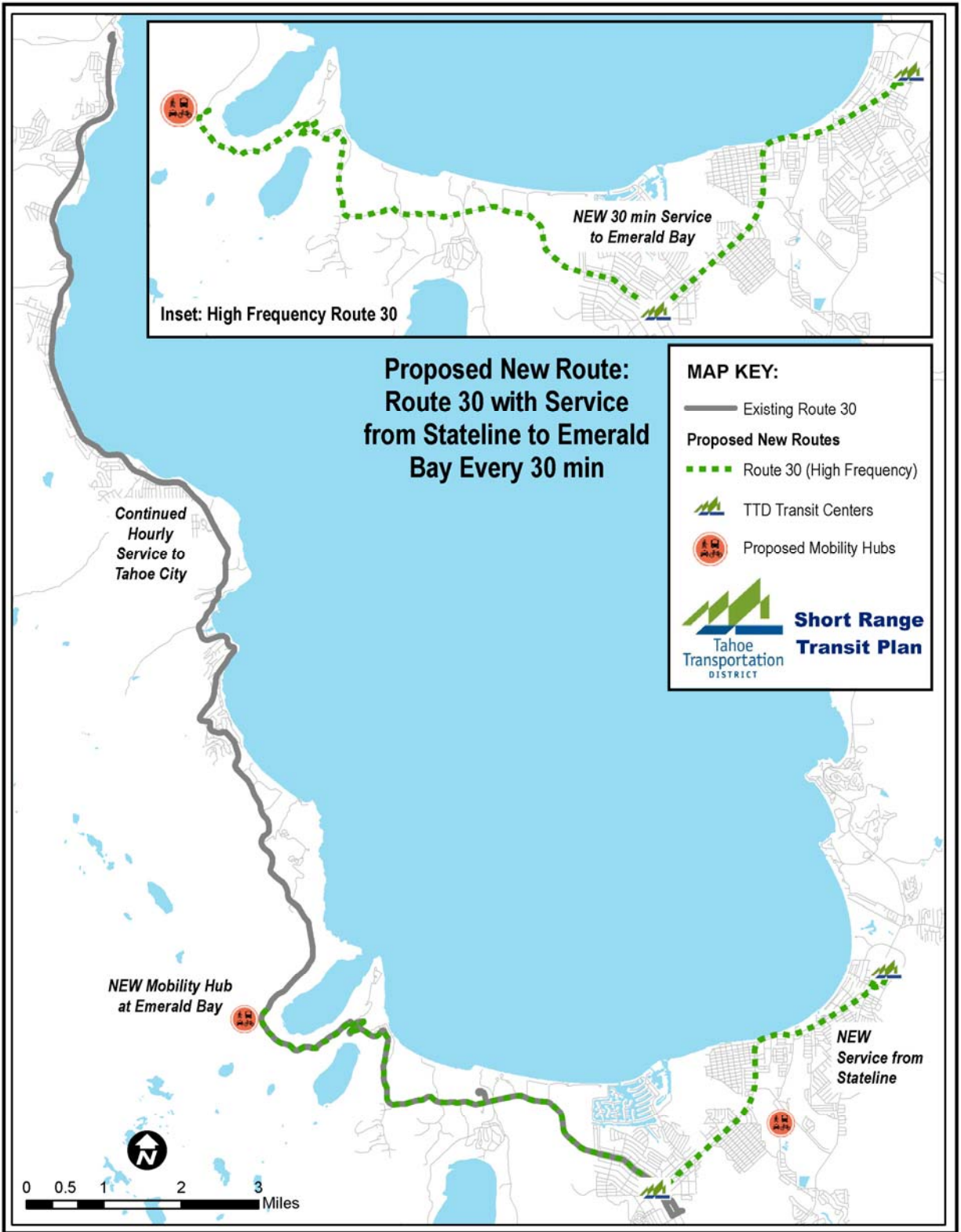
Both routes would utilize LTCC as a transfer point. A mobility hub, as proposed in the TMP, is envisioned for LTCC. This opportunity is possible in partnership with the college and its efforts in upgrading the transit stop. This proposed transit facility would offer multi-modal access to transit, where passengers can park their vehicle for the day and ride transit. Multiple bike and pedestrian pathways will also connect to the LTCC mobility hub making it a choice example of what a mobility hub would look like in the Tahoe Basin.

STATISTICS:

Revenue Miles:	414,668
Revenue Hours:	23,296
Peak Vehicles:	1,456 (Four daily buses)
Estimated Annual Net Cost:	\$2,382,690 (\$3,061,463 Gross less cost of existing Route 53 of \$678,773)
Additional Fleet:	+3 Low-Floor Battery Electric Heavy Duty Transit Buses
Capital Improvements:	Proposed augmentation of Meyers Visitor Information Station to become the transit center for the Meyers community. Increased number of shelters at LTCC to accommodate transfer passengers.



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.



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PROPOSED ROUTE: Emerald Bay High-Frequency Route

This route would quickly move passengers from Stateline to Emerald Bay with continuing, lower frequency service to Tahoe City. The route would operate as an express with limited stops through the US 50 corridor and serve the existing trolley stops along SR 89. It is envisioned the route will depart the Stateline Transit Center every 30 minutes, with service at the top of the hour through to Tahoe City and the bottom of the hour to Emerald Bay. This route will add needed 30 minute frequency to Route 50 and replace the seasonal service of Route 30. Limited operating days are envisioned due to SR 89 winter closures.

STATISTICS:

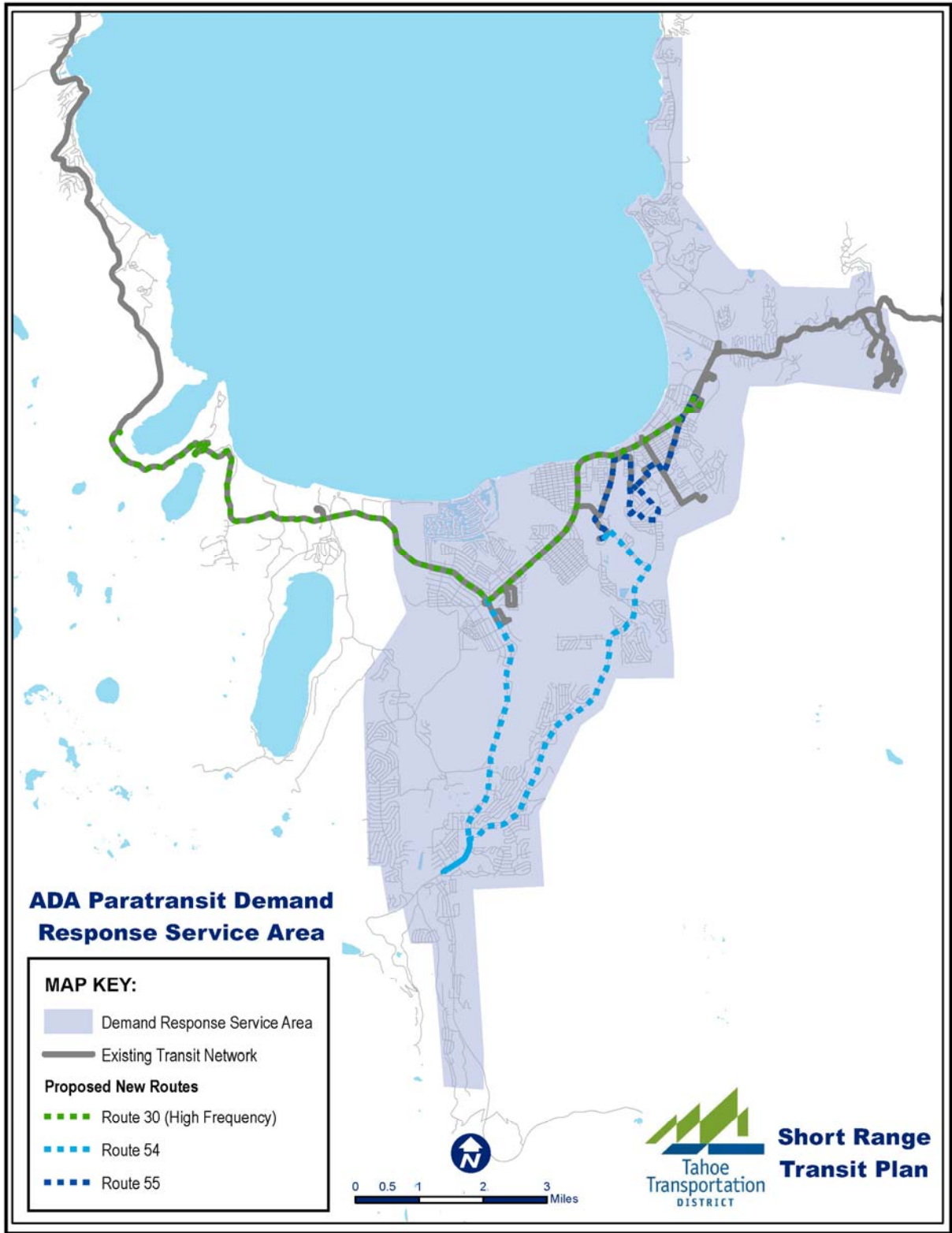
Revenue Miles:	183,040
Revenue Hours:	44,800
Peak Vehicles:	1,280 (Five buses overlapping with 256 operating days)
Estimated Annual Net Cost:	\$2,320,586 (\$2,543,991 Gross less cost of existing Route 30 of \$223,405)
Additional Fleet:	+2 Low Floor Diesel/Electric Hybrid Heavy Duty Trolleys
Capital Improvements:	Proposed improvements at Emerald Bay include construction of a safe, off-highway, boarding/alighting zone/transit center. Current conditions are constrained to the point that a bus is unable to safely turn around on SR 89 until Sugar Pine State Park. A dedicated bus facility is necessary for the successful implementation of any high frequency service serving Emerald Bay.

PROPOSED ROUTE: Demand Response Fleet Expansion

This route would add capacity rather than service area to the Demand Response system to accommodate more passengers with shorter wait times. Data indicates that an aging population, along with increased awareness of the services offered, is increasing the demand on the current Demand Response service. The Americans with Disabilities Act (1990) requires that transit agencies have a goal of zero denials and that a trip on Demand Response should not take longer than the twice the amount of time the trip could be made on fixed route. This expansion will ensure TTD remains compliant during the SRTP period.

STATISTICS:

Revenue Miles:	30,000
Revenue Hours:	2,912
Peak Vehicles:	364 (One bus with 364 operating days)
Estimated Annual Net Cost:	\$292,321
Additional Fleet:	+1 Gasoline Small Cutaway



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Table 7.2 Peak Vehicles Existing Service and Peak Vehicles Proposed Services

Route	Peak Vehicles	Route	Peak Vehicles
50	1	50	1
53	1	54/55	4
23	1	23	1
19X	2	19X	2
20X	2	20X	2
28	3	28	3
30	3	30	5
10	1	10	1
11	4	11	4
12	1	12	1
13	4	13	4
14	2	14	2
15	3	15	3
Demand Response	3	Demand Response	4
STS	1	STS	1
TOTAL FLEET REQUIRED	32	TOTAL FLEET REQUIRED	38

The additional six buses types required for enhanced service delivery are categorized as follows:

- 3 Low-Floor Battery Electric Heavy Duty Transit Buses
- 2 Low Floor Diesel/Electric Hybrid Heavy Duty Trolleys
- 1 Gasoline Small Cutaway

In order to maintain the proper spare ratio during peak demand, two low-floor battery electric heavy duty transit buses should be purchased in addition to the fleet listed above.

Minimum fleet cost for expansion: \$3,680,000

Minimum fleet cost for expansion with proper spare ratio: \$5,180,000

Other opportunities for expansion exist with public-private participation, and/or intergovernmental cooperation, but have not been assessed pending funding agreements. These opportunities include:

- Seasonal service to Sierra-At-Tahoe from Stateline Transit Center
- Seasonal service to Echo Summit from Stateline Transit Center
- Seasonal service to Zephyr Cove from Stateline Transit Center (requires capital improvements for safe entry/exit from US 50)
- Seasonal bike trailer service on Kingsbury Grade
- Seasonal extended operational hours and service expansion for Incline Village
- Restoration of regularly scheduled, single seat service from Stateline Transit Center to Carson City

Proposed Partnerships

In addition to TTD operated expansions of service, there are opportunities to extend the reach of transit through public-private partnerships. TTD is currently working with Bob Hassett, the owner of the water taxi service that serves Camp Richardson, Lakeside, Round Hill Pines, and Timber Cove. This service is underutilized and could be expanded to offering more alternatives to the congested US 50 corridor. Interregional bus service is another area that could benefit from an investment of public dollars. These funds could be used to incentivize private charter operators to add capacity and frequency to their current schedule of trips to the Basin. This would reduce the number of vehicles entering the Basin and provide a cost-effective solution to directly operated long distance service. TTD is also investigating partnership with the public transit operators in the areas that generate the most visitation. The San Francisco Bay Area could be linked by Capitol Corridor rail service to Truckee and/or long distance coach services. Other operators could help provide connections to Sacramento (SacRT, El Dorado Transit), Stockton (SJRTD, ACE), and Reno (Washoe RTC).

7.3 CAPITAL AND INFRASTRUCTURE IMPROVEMENTS

Existing facilities are detailed in Chapter 4. This section proposes capital and infrastructure improvement possibilities for existing facilities and passenger amenities.

Facility Upgrade and Modernization

TTD's existing leased facilities are in dire need of attention. This need is elevated with the FTA's State of Good Repair requirements. Additionally, the existing transit yard is approaching its maximum capacity for bus storage. Should the funding become available to expand service, there persists the issue of limited space to accommodate more buses.

There exists a sizeable need for additional space to develop a modern transit yard and maintenance facilities, as the existing yard is about 1.5 acres in size and its facilities decades old. Currently, it is difficult to justify an investment at the existing leased facilities, as the future of these leases remains uncertain. TTD plans to either identify a location for a new transit yard and maintenance facilities or consider entering into a memorandum of understanding (MOU) with CSLT to establish a certainty of future use before investments are made at the existing facility.

Proposed Improvements and Additions to Physical Infrastructure

TTD currently employs solar lighting at all transit stops with a bus shelter. TTD plans to continue to install and maintain solar lighting at sheltered bus stops. Legacy benches are located at roughly one third of TTD stops and are a carry-over from the STAGE service. Many of these benches are in disrepair, located on uneven surfaces, and simply chained to a nearby sign. Many TTD bus stops require extensive attention and efforts are made to ensure that new projects accommodate placement of a standard shelter pad and an accessible connection to the sidewalk. Bike racks are common at sheltered stops, but the unimproved nature of standard bus stops precludes a wider deployment of bicycle amenities.

TTD will continue to deploy security cameras where needed to protect passengers, staff, and its assets. Critical needs include the bus bays at Stateline Transit Center and Kingsbury Transit Center and the Parts Room at Shop Street.

In addition to passengers using the Swiftly real-time arrival software via their phone, computer, or mobile device, TTD will deploy LED display boards at Stateline, the Y, and Kingsbury transit centers to better communicate real-time arrival information and schedules to passengers. TTD is also redesigned the standard bus stop sign to include instruction on how to access real-time arrivals at the stop. Wayfinding signage upgrades are being considered, but will require partnerships with local agencies to arrive at a standard.

Proposed Improvements to Fleet Management and Equipment

With the direct operations and maintenance, TTD reviewed the previous contractor’s practices and have found many of those practices in need of improvement. Pre- and post-trip inspections are preformed using triplicate carbon forms, which are expensive, easily lost, and frequently incomplete. A superior alternative is to utilize an electronic daily vehicle inspection (DVI) program, such as Zonar. Zonar Electronic Vehicle Inspections requires the driver to actively record data regarding their bus into the handheld Zonar device before being allowed to move to the next inspection item. These records are then sent immediately to Maintenance for review. The electronic records are kept and cross-referenced with work orders and easily reviewed by the California Highway Patrol during their biennial terminal inspection.

Active transportation is often cited as the Tahoe solution to last mile connections. The community regularly identifies their desire to have more bicycle and pedestrian facilities. Currently, the bike racks on TTD buses accommodate two bikes. The frequency of the urban bus system creates the capacity to move bicycles in a timely fashion. However, with TTD’s limited headways, the ability to transport bicycles is severely restricted. In an effort to address the community’s desires, TTD staff are working with stakeholders to explore the possibility of a bike trailer pilot program on Route 23—serving a popular mountain biking route.



Enhanced security includes the implementation of biometric time clocks and planning efforts to secure TTD buildings with keyless electronic security locks.

7.4 FLEET RENEWAL AND EXPANSION

Forty-two percent of the bus fleet is beyond its FTA designated useful life. This year, that number will increase to fifty-two percent (i.e., 20 buses). The current fleet is a collection of the various managements' thoughts and opportunities that have been presented over time, beginning with the initial fleet inherited from STATA and the replacements since that time. The current fleet is an assortment of bus size and capacity, along with a mix of body and engine types. TTD staff continues to look ahead at transit bus choices that will better serve the public and operations. As the community continues to press for more transit and sustainable service, TTD must move to replace vehicles based on safety, functionality, durability, and sustainability.

Replacement Schedule

TTD follows the FTA Guidelines for vehicle replacement, as shown in Table 7.3.

Table 7.3 Minimum Service-life Categories for Buses and Vans

Minimum Service-life categories for Buses and Vans						
Category	Typical Characteristics				Minimum Life	
	Length	Approx. GVW	Seats	Average Cost	(Whichever comes first)	
					Years	Miles
Heavy-Duty Large Bus	35 to 48 ft and 60 ft artic.	33,000 to 40,000	27 to 40	\$325,000 to over \$600,000	12	500,000
Heavy-Duty Small Bus	30 ft	26,000 to 33,000	26 to 35	\$200,000 to \$325,000	10	350,000
Medium-Duty and Purpose-Built Bus	30 ft	16,000 to 26,000	22 to 30	\$75,000 to \$175,000	7	200,000
Light-Duty Mid-Sized Bus	25 to 35 ft	10,000 to 16,000	16 to 25	\$50,000 to \$65,000	5	150,000
Light-Duty Small Bus, Cutaways, and Modified Van	16 to 28 ft	6,000 to 14,000	10 to 22	\$30,000 to \$40,000	4	100,000

Appendix F displays a detailed list of the number, type, and fuel path of vehicles to be replaced over the next six years. Current equipment will be replaced with electric, hybrid, or gasoline equipment. The approach reflects fuel path, purpose, standardization, and number required to operate existing service. This replacement schedule, which conforms to FTA requirements, is updated on a regular basis to address service needs and regulatory changes.

Appendix F depicts the following scenario:

- 2017: Sixteen buses are in need of immediate replacement. Seven large cutaway buses will be replaced with seven heavy duty, low floor transit buses. Two CNG trolleys will be replaced with diesel/electric hybrid trolleys. One gasoline powered trolley will be replaced with a diesel/electric hybrid trolley. One gasoline powered van will be replaced with a small cutaway. Three small cutaway diesel buses will be replaced with three small cutaway buses.

- 2018: Four replacements. One large cutaway bus will be replaced with one heavy duty, low floor transit bus. Three other heavy duty, low floor transit buses will be replaced with the same.
- 2019: Two replacements. One large cutaway bus will be replaced with one heavy duty, low floor transit bus. One large cutaway will be replaced with a large commuter cutaway.
- 2020: Six replacements. Four small cutaway diesel buses will be replaced with four small cutaway buses. Two heavy duty, low floor transit buses will be replaced with the same.
- 2021: Four replacements. Four heavy duty, low floor transit buses will be replaced with the same.
- 2022: Six replacements. Five large cutaways will be replaced with five large commuter cutaways. One trolley will be replaced with a hybrid trolley.

After 2022, TTD's fleet will consist of:

- Eight 25' gasoline small cutaways
- Six 35' clean diesel commuter cutaways
- Four 30' low floor diesel/electric hybrid heavy duty trolleys
- Twenty 35' low-floor battery electric heavy duty transit buses

Two additional 35' low-floor battery electric heavy duty transit buses should be purchased to maintain FTA's recommended 20 percent spare ratio during peak winter demand.

Considerations for passenger amenities will include reliability, lighting, comfort, suspension, and safety of the vehicles. Ease of boarding is also an important issue, and when feasible, it is recommended that all heavy-duty transit buses utilize perimeter seating.

Future vehicle procurements will maintain the same standard of two wheelchair slots on standard and paratransit cutaway vehicles. However, if there were a need driven by service demand, TTD would consider changing the standard and increasing the capacity in future purchases.

Three position front-end bike racks will be part of all standard bus vehicle procurements.

Electric Bus Implementation

Electric buses have a role in the future fleet. For TTD, the exclusive use of battery electric propulsion is not yet technologically practical. However, battery electric propulsion does have a significant role to play. One of the drivers for the bus industry moving towards using this fuel type is the zero emission bus (ZEB) regulatory direction. The purpose of this direction is to initiate a drastic reduction or elimination of polluting emissions that affect the environment and human health, such as GHG, particulate matter (PM), and ozone (NOx). Regulatory efforts have been focused on larger transit operators and commercial truck

fleet emissions improvements. However, the trend in California is shifting to all transit fleets and pursuing a zero emissions goal (as described further below) by the year 2040.

TTD's transit operations on Routes 50 and 53 (or 54 and 55 as proposed) are highly suitable for advanced ZEB technologies. The daily mileage on these high use routes is within the nominal range for a single charge battery electric bus. These routes operate in congested areas where pollution affects air quality and lake clarity. Given the sensitive ecological nature of Tahoe, Route 50, traveling Lake Tahoe Boulevard from the Y Transit Center to Kingsbury Transit Center, presents a high profile opportunity to showcase TTD's leadership in deploying zero emission technology and demonstrates TTD's commitment to continued environmental stewardship. Deadhead miles—which are defined as miles operated without accepting passengers, like those driven from a transit yard to a route's first transit stop—can drain battery life. Operationally, Routes 50 and 53 have low deadhead miles, which will preserve the battery life for passenger service. When charging the buses, TTD will benefit from Liberty Utilities' electric vehicle rate structure, which is less than half of what utilities in southern California charge. And unlike TTD's experience with CNG, the installation and operation of electric fueling infrastructure is nominal. Namely, it requires the installation of the correct type of electric plug. Finally, unlike combustion motors, battery electric propulsion is not affected by altitude, humidity, or temperature. The same amount of torque is produced at 6,500 feet as at sea level. A potential drawback is temperature, however, which will affect the range of the battery.

In an effort for TTD to prepare to achieve the goals in GHG, NOx, and Particulate Matter (PM) reductions, this plan proposes a strategy of battery electric buses where feasible and hybrid buses for those routes not suited for battery electric technology. TTD is also exploring the possibility of transitioning the small transit buses used for Demand Response service to gasoline, which is the most improved fuel type to date next to electric. Ideally, battery electric technology will continue to proliferate into lighter duty vehicles while increasing range. As the technology becomes available, TTD will be ready to transition to a zero emission bus fleet by 2040 or sooner.

This approach reflects matching the fuel path to the purpose, standardization, and the right vehicles to operate existing service.

Regulatory Environment and Direction

Over the last ten years, there has been considerable regulatory push within California and nationally to address air pollution and GHG. Nationally, this may change given the new Administration, but California reinforced its direction in 2016, with the renewal of landmark goals adopted in the legislation cited below.

AB 32 Compliance: The California Global Warming Solutions Act of 2006, requires a sharp reduction of GHG emissions to set the stage for a transition to a sustainable, low-carbon future. AB 32 requires California to reduce GHG emissions to 1990 levels by 2020 — a reduction of approximately 15 percent below emissions expected under a “business as usual” scenario. Pursuant to AB 32, the California Air Resources Board (ARB) must adopt regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The full implementation of AB 32 will help mitigate risks associated with climate change, while improving energy efficiency, expanding the use of renewable energy resources, cleaner transportation, and reducing waste.

SB 375 Compliance: The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375, Chapter 728, Statutes of 2008) supports California's climate action goals to reduce GHG emissions through coordinated transportation and land use planning, with the goal of more sustainable communities. Under the Sustainable Communities Act, ARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, ARB established these targets for 2020 and 2035 in each region covered by the State's MPOs. ARB periodically reviews and updates the targets.

All California MPOs must prepare a "sustainable communities strategy" (SCS) as an integral part of its RTP. The SCS contains land use, housing, and transportation strategies that, if implemented, will allow the region to meet its GHG emission reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. ARB must review the adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets.

The TMPO has included a robust investment in transit, including electric bus deployments, as a strategy in its RTP/SCS to meet the required AB 32 GHG reductions.

California Air Resources Board Transit Fleet Rule: Adopted in 2000, the Fleet Rule for Transit Agencies (Transit Fleet Rule) required reductions in pollutant emissions from urban buses and transit fleet vehicles. Urban bus fleet agencies were required to select either a diesel path or alternative-fuel path. Agencies that selected the diesel path needed to meet the requirements sooner, while agencies with the alternative-fuel path had to ensure that 85 percent of urban bus purchases used alternative fuel. For example, all agencies under the South Coast Air Quality Management District (SCAQMD) must follow the alternative-fuel path, per SCAQMD Rule 1192. As a consequence, transit fleet operators have been instrumental in developing technologies, such as compressed natural gas buses, exhaust after treatment systems, battery electric buses, and fuel cell buses.

To comply with the Transit Fleet Rule, transit agencies upgraded existing vehicles by retrofitting them with diesel particulate filters (DPFs), replaced older vehicles with vehicles that came equipped with exhaust

after treatment or that used CNG. Many transit operators installed a natural gas refueling infrastructure, including TTD.

The Transit Fleet Rule was amended in 2006 to include an advanced demonstration from the diesel path transit agencies and to temporarily postpone the purchase requirement. In 2009, ARB, through Resolution 09-49, directed their staff to report back to the Board with an assessment of zero emission technology and its progress towards commercialization, and to develop commercial readiness metrics to be used for purchase implementation criteria to initiate the ZEB purchase requirement. This work will be completed as part of development of the Advanced Clean Transit (ACT) regulatory proposal.

ARB's proposed ACT direction significantly impacts California's transit systems. As currently conceptualized, the ACT regulation would seek to transition all transit fleets to ZEB technology by 2040. New funding is not anticipated to offset the associated costs. ARB staff is also developing a proposal to further reduce emissions from the conventional bus fleets by requiring the use of renewable fuels, cleanest available engines, and phasing-in ZEB purchases. The transformation of transit vehicles is an important first step in ARB's strategy to accelerate the use of advanced technologies in heavy-duty vehicles to meet air quality, climate, and public health goals.

Battery Electric Bus Specifics

Battery electric transit buses utilize an electric drive power train powered solely by an onboard battery storage system and features regenerative braking, along with other electric components, such as inverters and electric motors that are common to other medium- and heavy-duty battery electric trucks and buses. Most components in a battery electric bus are similar or, in some cases, identical to those used in existing hybrid buses. Battery electric buses are commercially available from several manufacturers and in several configurations. The capital cost for a base 35-foot, plug-in battery electric bus is approximately \$600,000, which is about \$200,000 more than a diesel bus and roughly the same cost as a diesel-electric hybrid.² Options will quickly add another \$100,000 to the price of any variant.

Available Resources and Subsequent Requirements

TTD has a responsibility to the public to provide thoughtful, innovative, and fiscally responsible solutions. There are few financial resources available to TTD for bus replacement and those that exist are aligned with regulatory policy direction. California has two funding sources that specifically apply to the implementation of environmentally responsible technologies. ZEBs satisfy these requirements.

Congestion Mitigation and Air Quality

The Congestion Mitigation and Air Quality (CMAQ) program funds transportation projects or programs that contribute to attainment or maintenance of the National Ambient Air Quality Standards for NO_x, carbon monoxide, and/or PM. Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit. CMAQ funds are provided to the state of California by the FHWA and distributed to MPO's and RTPA's in federally designated air quality non-

² *"Plug-In" battery electric buses are recharged, typically overnight, from stationary charging equipment where the bus is stored or laying over.*

attainment and maintenance areas within the state. TTD receives CMAQ funds, as apportioned by the TMPO, to promote public transit and support TTD's capital projects when possible.

In May 2016, TTD was awarded CMAQ funds totaling \$1,483,047 (\$998,047 in FY 2017 and \$485,000 in FY 2020) for the purpose of purchasing electric vehicles. These funds are available without local match, as California's Toll Credits are available.

Low Carbon Transit Operations Program

The Low Carbon Transit Operations Program (LCTOP) was created to provide operating and capital assistance for transit agencies to reduce GHG emissions and improve mobility. The program is administered by Caltrans in coordination with the ARB and the State Controller's Office (SCO). TTD has previously used LCTOP funds to support new or expanded bus service on the west shore. LCTOP funds are also available for electric bus purchases.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)

ARB, in partnership with CALSTART³, launched HVIP in 2009 to accelerate the purchase of cleaner, more efficient trucks and buses in California. HVIP provides incentives for zero-emission and hybrid trucks and buses and low NOx natural gas engines. CALSTART found that the greatest barrier to purchasing cleaner trucks and buses is the increased price. HVIP provides point-of-sale price reductions to purchasers. HVIP works directly with bus dealers to provide price reductions to purchasers. HVIP can reduce the price of a ZEB by up to \$150,000.

Energy Costs

Energy costs for battery electric buses are favorable to conventional diesel-powered buses. For example, Routes 50 and 53 buses, combined, travel approximately 350 miles per day with an average fuel efficiency of 3.5 miles per gallon. Last year, TTD paid an average price of \$2.23 per gallon of diesel fuel. (350 miles per day x 365 days = 127,750 miles / 3.5 miles per gallon = 36,500 gallons x \$2.23 average cost per gallon = \$81,601 in diesel fuel). Contrast the \$81,601 annual cost in diesel fuel to an estimated electrical expense of just \$8,344 annually for the same distance. Staff discussions with Liberty Utilities confirmed TTD would be subject to Liberty Utilities' rate schedule # TOU A-1 EV. These rates were programmed into ARB's energy model (Table 7.2).

Further reductions in energy costs could be realized with the installation of solar panels and energy storage systems.

³ CALSTART is dedicated to the growth of a clean transportation technologies industry that will:

- Clean the air;
- Secure the nation's transportation energy future;
- Create high-quality economic opportunities; and
- Reduce greenhouse gas emissions

Table 7.2 Liberty Utilities EV Rate Structure

Utility Selection:	Charging Style:	Fleet Size	Bus Miles Per Day:	kWh/Mi
Utility Selection:	Depot charge - not on-peak (50 kW charger)	2	365	2

kWh Usage Distribution:	Peak Period	0%
	Mid-Peak Period	20%
	Off-Peak Peiod	80%

% of Fleet Charging Simultaneously
100%

Charger Rating (kW)
50

LIBERTY UTILITIES				Schedule		TOU A-1 EV	
Summary:				Est. Charge Time		Service Description: #N/A	
Monthly Average	Summer	Winter	Annual	4.5 hours	Peak Hours (hh-hh)	Meter Fee:	\$233.04
Avg Rate \$/kWh	\$0.08	\$0.11	\$0.10	Total kWh/Month	Summer: 10-20	Number of Summer Months:	4
\$/Mile	\$0.16	\$0.22	\$0.20	44,530	Winter: 17-20		

Summer				
Usage Charges	\$/kWh		kWh	Total
On-Peak	\$0.15	x	0	= \$0
Mid-Peak		x	8,906	= \$0
Off-Peak	\$0.09	x	35,624	= \$3,275
Total Usage Charges				\$3,275

Winter				
Usage Charges	\$/kWh		kWh	Total
On-Peak	\$0.16	x	0	= \$0
Mid-Peak	\$0.15	x	8,906	= \$1,328
Off-Peak	\$0.09	x	35,624	= \$3,275
Total Usage Charges				\$4,603

Maximum	\$0.00	x	0	= \$0
On-Peak	\$0.00	x	0	= \$0
Mid-Peak	\$0.00	x	0	= \$0

Maximum	\$0.00	x	0	= \$0
On-Peak	\$0.00	x	0	= \$0
Mid-Peak	\$0.00	x	0	= \$0

Total Demand Charges	\$0
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Total Demand Charges	\$0
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Total Bill:	\$3,508
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Total Bill:	\$4,836
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Maintenance

In addition to substantial fuel savings, the maintenance costs on a battery electric bus are 30 percent less when compared to diesel bus maintenance costs. Diesel powertrains also require mid-life overhauls at approximately \$35,000. Battery electric buses have no such requirement.⁴

The reduction in maintenance costs is a direct result of the simplicity of the drive train. There are simply fewer moving parts and fewer wear items. There are no oil changes or emissions after-treatments. TTD technicians will not have to maintain an engine, fuel system, cooling system or exhaust system. Without those costs, maintenance savings can add up to \$151,000 over the lifetime of a battery electric bus compared to a diesel bus, with a substantial reduction in inventoried parts. The operational savings are dramatic.

Reliability

There are over 330 battery electric buses in service in the United States. Battery electric buses have an excellent reliability record. These buses share the electrical half of the diesel-electric hybrids first deployed almost 15 years ago. Not only have the diesel-electric hybrids proven to be mechanically reliable, the battery technology has exceeded expectations. Battery electric bus manufacturers, responding to transit agencies' largest maintenance concern, now warranty their batteries for up to six years, and extended warranties are available.

⁴ ARB literature review of available studies and reports

Range

As the battery reliability improved, so has the storage capacity and charging technology. Proterra's Catalyst E2 bus boasts an Altoona⁵ tested nominal range of 251 miles and will be TTD's preferred battery electric vehicle. TTD's Route 50 is approximately 220 daily miles and Route 53 is 145 daily miles. This advance in battery technology accommodates TTD's routes without having the expense of adding on-route charging, estimated at \$300,000. TTD can use overnight, plug-in chargers at the maintenance and operations facility on Shop Street. A separate meter and the installation of standard J1772-CCS plug-in chargers will be required. The cost for that work is estimated at \$25,000 to \$50,000.

Non-Revenue Vehicle Enhancement Program

TTD is serious about sustainability. By extending the conversion of the transit revenue fleet to electric vehicles to the non-revenue fleet, TTD continues to demonstrate a commitment to the lake clarity, air quality, and future generations. As the non-revenue fleet ages, TTD will seek out battery electric vehicles for replacements. These vehicles will be clean, quiet, all-wheel drive, and integrate into TTD's existing charging infrastructure.

TTD is projecting a need for a replacement service truck and an expansion of three staff vehicles. The service truck will replace an existing compressor truck that is far beyond its useful life, yet critical to responding to Road Calls in a timely manner. The staff vehicles will add to the current single vehicle shared by all Road Supervisors and Administration personnel.

7.5 PUBLIC INTERFACE IMPROVEMENTS AND PROGRAMS

TTD continues to develop various programs to increase public engagement with the agency and improve public participation with community-oriented goals.

Public Involvement

The most recently completed transit survey was released in the spring of 2016 and concluded after the 2016 Fourth of July holiday. Riders provided valuable feedback and suggestions for the existing transit system, as well as the future of transit in the Tahoe Basin. TTD aims to release biannual web-based surveys in a continued effort to collect information from the community. Annually, TTD plans to release one survey per year during either of the region's two peak periods: summer or winter. The annual survey will be followed by a secondary survey each year—during either of the region's two off-peak seasons: spring or fall—with an intention of alternating the peak and off-peak survey season selection each year.

The current 2017 transit survey was released in late July and concluded just after Labor Day.

⁵ FTA's Model Bus Testing Program (often referred to as "Altoona Testing" due to the location of the main testing center) tests new transit bus models for: safety, structural integrity and durability, reliability, performance (including brakes), maintainability, noise, fuel economy, and emissions. Bus models that fail to meet one or more minimum performance standards will "fail" their test and thus be ineligible for purchase with FTA funds until the failures are resolved. FTA will use this authority to make sure defects are fixed before vehicles are allowed to go into service. The rule generates data from the scoring system that makes it easier to compare similar bus models from different manufacturers. Test results for a particular bus model are compiled in a report; an FTA grantee must certify that it has received a copy of the test report prior to final acceptance of the first vehicle.

TTD strives to remain relevant as web-based applications and social media platforms grow and evolve. TTD currently maintains a presence on both Facebook and Twitter. TTD, in coordination with other regional transportation agencies, will continue such efforts to include web-based applications and social media platforms in order to communicate with the public. Swiftly also provides alerts and notifications to keep passengers informed.

Website Improvements

Transit service, route, and fare information is currently accessible within the TTD’s website. Transit information is often limited to the current season’s service and the readiness of promotional materials, such as transit brochures and schedules.

The agency looks to improve the availability, convenience, and functionality of all transit information within the TTD website. TTD will explore website developments to enhance the TTD website’s efficiency and user interface. Possible improvements include:

- Developing a “mobile-friendly” website formatted for smart phone access
- Creating an online and mobile fare payment system
- Designing interactive mapping tools for easier use of the transit system

TTD currently utilizes Google Transit for trip planning and will assist other regional partners in their trip planning efforts. TTD will continue to consider new developments in technology and implement new technologies when possible in working towards attaining a highly efficient electronic communication system for the public.

Transit to Trails

The Tahoe Basin is ideally situated to offer dedicated, regional public transit from new Mobility Hubs, as proposed in the TMP, to parks and open space. There exists a distinct possibility for the TTD, in partnership with other local agencies, to help residents and visitors plan outdoor adventures by connecting the public with curated trips that leave the car behind and get people outside to enjoy all that Tahoe has to offer.

Environmental Stewardship

The existence of our community relies heavily on the health of Lake Tahoe. Lake Tahoe’s famed water clarity remains threatened by fine sediments that remain suspended in the water from the built environment and transportation. Studies have identified that 72 percent of the pollutants that harm Lake Tahoe’s famous water clarity wash into the lake with stormwater from roads, parking lots, and other developed areas. These pollutants are microscopically small solid particles called particulate matter (PM) that includes diesel exhaust particles.

TTD has an opportunity to recognize the significant reductions necessary to meet air quality and climate goals, protect lake clarity, and improve the health of residents and visitors while reducing dependence on

depletable resources. Major investments in zero emission technology will be needed to meet California’s aggressive environmental goals. California Legislature has mandated to achieve:

- 40% reduction in GHG by 2030
- 50% reduction in petroleum use by 2030
- 90% reduction in NOx by 2031, and
- 80% reduction in GHG by 2050

Achieving these goals will require a transformational change in transit (Table 7.3). Zero emission technologies will be necessary, where feasible, and near-zero emission technologies (hybrids) and gasoline-powered engines can fill out the gaps.

TTD’s fleet will play a major role in the Basin environment. Committing to clean technology reduces TTD’s mobile emissions and, as transit ridership grows, the impact of ZEBs will intensify the benefit. Further environmental benefits

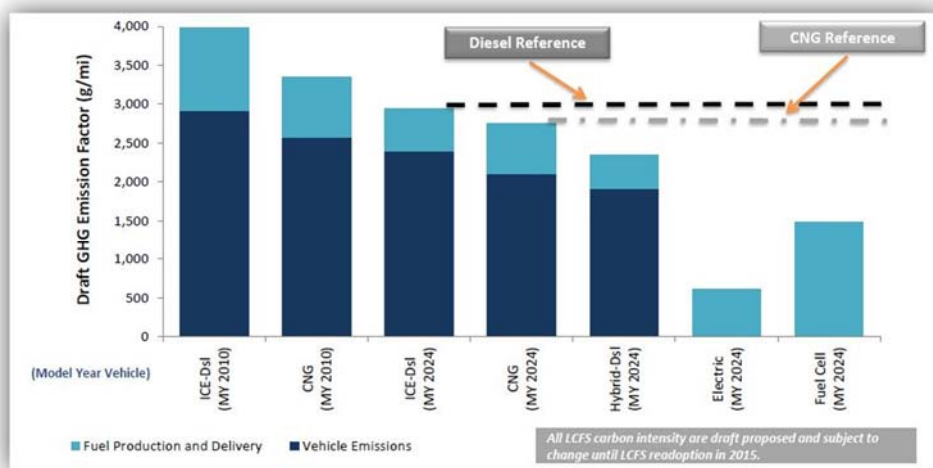
can be realized by adding solar panels to future TTD facilities. Self-generation of power will blunt market fluctuations, result in more PM reduction as the delivery of energy is localized, and add to Tahoe’s sustainability.

Reducing PM is not only critical to the health of Lake Tahoe, but equally important to improving public health. ARB cites recent studies that indicate PM can:

- Cause lung irritation, which leads to increased permeability in lung tissue
- Aggravate the severity of chronic lung diseases, causing rapid loss of airway function
- Inflammate lung tissue, resulting in the release of chemicals impacting heart function
- Change blood chemistry, resulting in clots that may lead to heart attacks
- Increase susceptibility to viral and bacterial pathogens, leading to pneumonia in vulnerable persons
- Increase rates of asthma

TTD has a unique opportunity to lead the Basin in reductions in diesel PM and air toxics to protect Lake Tahoe and public health. TTD will pursue opportunities to reduce energy consumption and GHG emissions. In February 2017, the Board approved the development of a Fleet Replacement Plan, which included a clean fuel path.

Table 7.3 GHG Emissions by Fuel Type



Promote Transit-Oriented Development

A critical relationship exists between public land use decisions, public transportation development, and private development. Land use and growth policies within the Tahoe Basin greatly influence the demand for public transit services. Public transit performs best in places where there are pockets of dense developments with facilities that support multiple modes of travel, including public transit, bicycle, and pedestrian functions.

Transit-oriented development (TOD) creates compact, mixed-use communities within walking distance to public transit where people enjoy easy access to jobs and services. Well-designed TOD projects connect transit to desirable places to live, work, and visit that feature amenities like entertainment venues, parks, retail, restaurants, an improved pedestrian environment and diverse housing choices.

Focusing growth around transit stations capitalizes on public investments in transit and provides many benefits including:

- Revitalization of neighborhoods
- A vehicle to supply much needed affordable housing
- Economic returns to surrounding landowners and businesses
- Increased ridership and possible associated revenue gains for transit should fares remain a fixture
- Improved safety for pedestrians and cyclists
- Congestion relief

TTD's operating area on the South Shore is dominated by the CSLT. CSLT is developed along the south shore of Lake Tahoe and has a linear orientation paralleling US 50 which doubles as a Main Street. This auto-oriented commercial strip and hotel environment is being slowly morphed into a multi-modal corridor capable of supporting vehicular traffic, along with pedestrian and bicycle friendly features. The creation of TOD projects within the US 50 corridor are proposed to:

- Utilize existing transit lines
- Link to existing and proposed pedestrian and bicycle infrastructure
- Provide an affordable housing option for low income wage earners
- Provide workforce housing options for locally employed workers

To accomplish this, TTD must continue to foster close relationships among key decision makers and stakeholders, including elected leaders, City and County staff, TRPA staff, civic and business leaders, and real estate developers. TTD is committed to coordinating with regional partners to maximize the efficiency of land use and public transit. When the review and enforcement of land use is inconsistent, public transit planning loses its efficacy.

With existing housing development focused primarily on residential hotels (vacation home rentals) and market rate single and multi-family housing, difficult conversations will be required with communities to refocus on housing equity, including the needs of low-income and vulnerable populations, and a deliberate vision and strategy that will incorporate equity into planned projects.

A pilot project to coalesce support could be proposed at the Y area, Stateline, Meyers, or at LTCC. By focusing on key aspects of a TOD project, TTD can assess the characteristics most agreeable to the community and functional for the purpose and success of the project. Those four possible sites all pose differing challenges and possibilities for success.

At LTCC, the administration is already planning a mobility hub and is focused on student housing. However, the college is only served every other hour by TTD's Route 53. The implementation of TTD's Route 54/55 proposed service expansion with LTCC as a transfer point and 30 minute headways will be critical to success. Similarly, Meyers will also need service levels beyond the proposed Route 54/55 for a successful connection to the rest of the community. The Y area of CSLT is the most logical choice, as the potential exists for a highly walkable community with many commercial and transit resources readily available. Improvements to the pedestrian and bicycle infrastructure at the Y area could provide significant value to a TOD project in this location.

Regardless of location, there is a strong need for basic education about TOD, in that it is more than simply development by transit. It is important to emphasize the importance of density, walkability, intermodal connectivity, and designing development to support transit use. First- and last-mile connections are critical to successful TOD.

Overall challenges will likely include a discussion on where high density housing fits in the South Shore communities; what type of design exceptions are possible; and what regulatory barriers must be overcome. Once there is a proposal, TTD can gain a better understanding of local barriers, strengths, and market realities to ensure that South Lake Tahoe successfully capitalizes on TOD.

Implementation Planning

If funding is available, TTD will move into the next phase of detailed corridor connectivity planning based on the LTCCP for the SR 89 Recreation Corridor, the Meyers/Y Corridor, the US 50 South Shore Corridor, and the US 50 East Corridor. Implementation planning will consider transit, parking, TOD, bike, and pedestrian facilities as each corridor is addressed. Opportunities to launch the mobility hub concept will be pursued with property owners where current parking is underutilized, or oversubscribed. Hotspots such as Zephyr Cove, Stateline, the Y, Camp Richardson, and Emerald Bay in particular will be addressed.

The US 50 Community Revitalization Project is expected to be the first effort in the phased corridor approach and will address transportation infrastructure improvements near the state line area in the US 50 South Shore Corridor. Some of these improvements include the potential of a transit circulator service within the project area and a TOD objective. The circulator would shuttle visitors and residents from

The US 50 Community Revitalization Project is expected to be the first effort in the phased corridor approach and will address transportation infrastructure improvements near the state line area in the US 50 South Shore Corridor. Some of these improvements include the potential of a transit circulator service within the project area and a TOD objective. The circulator would shuttle visitors and residents from available parking to destinations within the US 50 Community Revitalization Project area. The TOD objective aims to set a 200-unit minimum target of residential housing to be implemented within one or more of the local area plans in the South Shore. Of the 200-units, 102 are committed as mitigation for the US 50 project, with the balance as regional plan policy fulfillment. A net gain to South Shore's housing stock will benefit residents as primary housing while also supporting transit service ridership. A secondary benefit to TTD is the potential to supply housing stock in order to assist with employee attraction and retention as discussed in Section 7.1 under Workforce Development.

7.6 SECURITY

For any transit system to be successful, the riders must feel safe and secure on the buses and at the transit facilities. TTD uses an extensive system of security cameras to observe and record issues on and around the buses and at transit facilities. While passive security is critical to determining what happened and assist the police in solving crime, the need for active security measures has come into focus in the last two years.

South Lake Tahoe's transient population has grown in recent years with mild winters in 2013/2014 and 2014/2015. Security emerged as a top issue in early 2016 with increased disruptions on summer services during free-to-users days. In 2017, the heavier snowfalls brought increased ridership to the winter program. With long lines waiting for buses, tempers shortened and TTD staff witnessed numerous fistfights between visitors at Stateline Transit Center. Also, in the late winter of 2017, TTD's Transit Information Officer staffing the Y Transit Center reported aggressive transients. After reviewing the situation, the Y Transit Center lobby was closed and staff was reassigned for their safety. Within a month, a stabbing occurred at the Y Transit Center, followed by another incident in May 2017 where a scissor-wielding transient was threatening people in the adjacent parking lot.

TTD has no formal security personnel, although operators are trained in de-escalation techniques. The incidents at the Y Transit Center and Stateline Transit Center highlight a need for a more formal security presence. Staff has reached out to Raley's at the Y and the owner of the complex, Alliance, to partner with them for increased security. The proposed solution would be to have a security presence on-site during operating hours. The proposed solution includes extending Heavenly Village's security coverage to the Stateline Transit Center. Staff has proposed \$50,000 for security in the FY 2018 budget.

Chapter 8 – Financial Plan

8.1 FINANCIAL INTRODUCTION

TTD operates transit services with both intra- and interregional connections that are vital to the communities in and around the Basin. Transit will need to have a much larger presence in the area's communities in order to affect the magnitude of change that will begin to solve the region's transportation network issues. TTD is funded by a complex variety of federal, state, and local revenue sources. TTD recognizes its current funding restraints and the need to establish new and robust channels of funding. This chapter describes existing funding sources and illustrates future funding needs.

8.2 DESIGNATION OF THE LAKE TAHOE URBANIZED AREA

In 2007, the TTD and TMPO began working toward designating Lake Tahoe as an Urbanized Area. This move was contemplated to add the stability of formula funding sources to the existing competitive funding sources. The UZA designation would also change TTD's eligibility to apply for other federal funding sources and expand the number of programs available. In short, the UZA designation would "grow the pie." On December 4, 2015, President Obama signed the Fixing America's Surface Transportation Act (FAST Act) into law. FAST Act was the first multi-year transportation bill passed by Congress in over a decade and included the pivotal change for transportation funding the TTD and TMPO had sought for the Tahoe Basin. The FAST Act contains specific language regarding the Tahoe Basin, which resulted in a key shift in the region's designation as a Rural Area to the new UZA designation. The new designation establishes stable, formulaic, non-discretionary funding from several federal transportation programs. The new language establishes a population factor that recognizes a portion of visitors to the public lands located within the Tahoe Basin.

8.3 FUNDING SOURCE DESCRIPTIONS

The following section provides a brief description of each major funding source utilized by TTD's transit division.

Federal Revenues

FTA provides financial assistance to local public transit systems, including buses, subways, light rail, trolleys, and ferries, as authorized by the FAST Act of 2015. FTA also oversees safety measures and helps develop next-generation technology research. FTA provides annual formula grants to transit agencies nationwide, as well as discretionary funding in competitive processes. Appendix G provides fact sheets on some of the funding programs available to TTD and highlighted below:

FTA 5307 – Urbanized Area Formula Grants

The 5307 program provides formula funding to public transit systems in UZA's for public transportation capital, planning, job access, and reverse commute projects, as well as operating expenses in certain circumstances. TTD now operates within a newly designated UZA and will utilize 5307 funds to support the preventative maintenance program, operations, and supplement TTD's capital projects where available.

FTA 5310 – Enhanced Mobility of Seniors and Individuals with Disabilities

The 5310 program provides formula funding to states for the purpose of meeting transportation needs of the elderly and persons with disabilities. TTD utilizes 5310 funds, as apportioned from Caltrans, to support the mobility management program and to fund specialized transportation services.

FTA 5311 – Formula Grants for Rural Areas

The 5311 program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations less than 50,000. TTD utilizes 5311 funds, as apportioned by NDOT, to support preventative maintenance, fund both rural operations and specialized transportation services, and support the mobility management program.

Congestion Mitigation and Air Quality (CMAQ)

CMAQ program funds transportation projects or programs that contribute to attainment or maintenance of the National Ambient Air Quality Standards for NOx, carbon monoxide, and/or PM. Funds may be used for any transit capital expenditures otherwise eligible for FTA funding as long as they have an air quality benefit. CMAQ funds are provided to the state of California by FHWA and distributed to MPO's and RTPA's in federally designated air quality nonattainment and maintenance areas within the state. TTD receives CMAQ funds, as apportioned by the TMPO, to promote public transit, and support TTD's capital projects when possible within the El Dorado County portion of Tahoe only.

State Revenues

Proposition 1B

In 2007, California voters passed Proposition 1 (A-E), which provided the State of California the authority to sell bonds for capital infrastructure improvements for transportation related projects. TTD receives funding for capital projects under two of the subcategories of Proposition 1B: the Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA) and the Transit System Safety, Security, and Disaster Response Account (TSSSDRA). TTD has programmed funding for several safety and security improvement projects with both PTMISEA and TSSSDRA funds. TTD utilizes these funds for facility, technology, and passenger amenity improvements. TTD is now using the last of the funds available under this program as the bonds are fully expended.

California’s Senate Bill 1 (SB1)

On April 28, 2017, Governor Brown signed Senate Bill 1, a landmark transportation funding package. The \$5.24 billion per year funding package generates new revenues from various taxes and fees and is designed to repair and maintain state highways and local roads, improve trade corridors, and support public transit and active transportation. The funding package is a huge step forward for California’s public transit services. SB 1 provides public transportation funding as shown in Table 8.1.

Table 8.1 SB 1 Public Transportation Funding

	Allocations	Expected Revenue	Eligible Uses	Revenue Increase Effective Date
Increases Sales Tax on Diesel Fuel by 4 Percentage Points	3.5 Percentage Points to State Transit Assistance (STA) Program	Approximately \$250 Million/Year	Transit Capital and Operations	November 1, 2017
	0.5 Percentage Points to Intercity & Commuter Rail Systems	Approximately \$36 Million/Year	50% (\$18 million) for Intercity Rail Purposes 50% (\$18 million) for Commuter Rail Purposes	
Establishes New Transportation Improvement Fee under Vehicle License Fee Law	State Transit Assistance Program	\$105 Million/Year	"State of Good Repair" Purposes	January 1, 2018
	Transit and Intercity Rail Capital Program	\$245 Million/Year	Transit Capital	
	Solutions for Congested Corridors Program	\$250 Million/Year	Transportation, Environmental and Community Access Improvements within Highly Congested Corridors, including Transit Projects	

The funding package also provides for accelerated loan repayments from California’s General Fund to public transit; \$236 million will go to the Transit and Intercity Rail Capital program.

SB 1 directs or makes available more than \$700 million in new public transit funding in FY 2019. Some of the revenue sources will grow or be adjusted up over time, generating \$800 million per year by FY 2027 according to the Governor’s Administration. (While many of the new taxes and fees will be adjusted over time by a consumer price index factor – such as the TIF – the new incremental sales tax on diesel fuel is not indexed to CPI.)

Additionally, SB 1 provides funding for various other multimodal programs with the potential to boost public transit. More specifically, the funding package provides:

- \$200 million per year for the “State and Local Partnership Program” to reward self-help counties
- \$110 million per year for the State Transportation Improvement Program
- \$100 million per year for the Active Transportation Program to expand and improve bicycle and pedestrian facilities
- \$25 million per year to fund planning grants to assist regions with developing and updating their Regional Transportation Plans and Sustainable Community Strategies

Finally, SB 1 directs:

- \$1.5 billion per year for fix-it first highway projects
- \$1.5 billion per year for fix-it first local streets and roads projects

The funding package also advances a constitutional amendment – ACA 5 – to dedicate, for transportation purposes, all vehicle fee and gasoline or diesel tax revenues raised by the bill, as well as some existing transit funding sources. ACA 5 will be before voters in June 2018 and will require only a simple majority to pass.

TTD expects to utilize these critical funds for leveraging federal sources to improve and expand services, as well as continue to replace and rehabilitate transit fleet and facilities.

Low Carbon Transit Operations Program (LCTOP)

LCTOP was created to provide operating and capital assistance for transit agencies to reduce GHG and improve mobility. The program is administered by Caltrans in coordination with ARB and SCO. TTD utilizes LCTOP funds to support new or expanded bus service. These funds are expected to continue for the term of this SRTP.

Nevada Division of State Parks

In July 2015, the Nevada Division of State Parks and TTD entered into an interlocal agreement for the purpose of providing TTD with local match to FTA’s 5311 (now FTA 5307) for TTD’s ESE seasonal summer service between Incline Village and Sand Harbor State Park. The State Parks funding source supports local efforts to dramatically improve public safety, visitor services, and overall park operations.

Local Revenues

Transportation Development Act (TDA)

The TDA is a California State law that dedicates funding to local agencies for transportation and public transit needs. TDA provides two major sources of funding for public transportation: the Local Transportation Fund (LTF) and the State Transit Assistance fund (STA). These funds are for the development and support of public transportation needs that exist in California and are allocated to

areas of each county based on population, taxable sales and transit performance. Some counties have the option of using LTF for local streets and roads projects, if they can show there are no unmet transit needs. Caltrans provides oversight of the public hearing process used to identify unmet transit needs. Caltrans also ensures local planning agencies complete performance audits required for participation in the TDA. TTD utilizes TDA funds to support transit programs as needed.

Douglas County

Douglas County recognizes the necessity of a transit system and partners with TTD through a cooperative agreement to provide a quarterly contribution to TTD for the support of the transit system and as a benefit to the local community. TTD utilizes this local revenue as a flexible, unconstrained funding source that can be applied wherever it is needed most.

Agency on Aging – Area 4 (AAA4)

Agency on Aging – Area 4 is one of thirty-three Area Agencies on Aging in California. It serves the Planning and Service Area 4 (PSA 4), which includes the seven counties of Nevada, Placer, Sacramento, Sierra, Sutter, Yolo, and Yuba. The AAA4 program aims to create and support opportunities that enhance the lives of older adults and their families to be safe, healthy, and independent. TTD utilizes AAA4 grant funding to partner with the Town of Truckee to operate a specialized transportation service originating in eastern Placer and Nevada counties.

Private Contributions

TTD maintains cooperative agreements with both Heavenly Mountain Resort and The Ridge Resorts, which provide annual contributions to the transit system. These local revenues are flexible funding sources that can be applied as needed. Generally, the contributions are treated as local match for federal grants programs.

Fare Revenues

TTD collects fares from passengers to ride many of the routes. Current fares can be found within the TTD route maps located in Appendix A.

Other Revenues

Whenever possible, TTD applies for and receives other contributions and local grant funds that can be utilized as flexible local match sources for the various programs. These funding sources include the Tahoe Truckee Community Foundation, Barton Hospital Foundation, and South Tahoe Public Utility District (STPUD). TTD is continuously pursuing new funding opportunities to support and assist in operating or capital improvements.

8.4 CAPITAL AND OPERATING FORECAST

TTD uses historical data to review trends in order to provide future revenue forecasts. TTD anticipates that revenues will continue to fluctuate as a result of uncertain priorities at the federal level and retiring capital programs at the state level. TTD will continue work to develop local partnerships. As an UZA, Lake Tahoe is eligible to receive federal 5307, 5339, and 5310 formula funds. However, these funding sources are subject to an annual appropriations process that often delays allocations. Table 8.2 below identifies the anticipated Operating Revenues and Expenses through the life of this plan.

Table 8.2 Capital and Operating Forecast through FY 2021

Operating Revenues	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
Operating Grants & Contributions					
Federal Transit Administration	\$ 4,172,285	\$ 3,021,378	\$ 3,021,378	\$ 3,021,378	\$ 3,474,585
Other Federal	\$ 264,212	\$ 164,212	\$ 464,212	\$ 464,212	\$ 464,212
Contributions	\$ 1,050,861	\$ 1,320,384	\$ 1,367,509	\$ 1,416,472	\$ 1,467,346
Local (State)	\$ 1,300,112	\$ 1,316,381	\$ 1,323,082	\$ 1,329,620	\$ 1,336,301
Fares & Passes	\$ 692,712	\$ 703,072	\$ 713,588	\$ 724,262	\$ 735,096
Preventative Maintenance and Special Items	\$ 711,570	\$ 749,370	\$ 765,140	\$ 784,115	\$ 831,548
Sub-Total Operating Grants & Contributions	\$ 8,191,751	\$ 7,274,798	\$ 7,654,910	\$ 7,740,060	\$ 8,309,088
Prior Year carry-over (Operations)	\$ -	\$ 1,846,989	\$ 2,089,957	\$ 1,974,241	\$ 1,101,595
TOTAL REVENUES	\$ 8,191,751	\$ 9,121,787	\$ 9,744,867	\$ 9,714,300	\$ 9,410,683
Operating Expenses					
Transit Operations					
Transit Operations (Non-Maintenance)	\$ 5,643,762	\$ 6,293,031	\$ 7,016,056	\$ 7,839,160	\$ 8,504,309
Transit Operations (Maintenance)	\$ 701,000	\$ 738,800	\$ 754,570	\$ 773,545	\$ 820,978
TOTAL OPERATING EXPENSES	\$ 6,344,762	\$ 7,031,831	\$ 7,770,626	\$ 8,612,705	\$ 9,325,287
Projected Surplus/(Deficit)	\$ 1,846,989	\$ 2,089,957	\$ 1,974,241	\$ 1,101,595	\$ 85,396

Capital Revenues	FY 16/17	FY 17/18	FY 18/19	FY 19/20	FY 20/21
Formula Capital Grants					
FTA 5307 - Lake Tahoe UZA	\$ 528,826	\$ 543,191	\$ 543,191	\$ 543,191	\$ 543,191
FTA 5311 - NDOT	\$ 178,749	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000
FTA 5339	\$ 189,090	\$ 141,407	\$ 141,407	\$ 141,407	\$ 141,407
Sub-Total Formula Capital Grants	\$ 896,665	\$ 834,597	\$ 834,598	\$ 834,598	\$ 834,598
Preventive Maintenance (Formula Capital Grants Only)	\$ (701,000)	\$ (738,800)	\$ (754,570)	\$ (773,545)	\$ (820,978)
Sub-Total Capitalized Operating Costs	\$ (701,000)	\$ (738,800)	\$ (754,570)	\$ (773,545)	\$ (820,978)
Remaining Capital Funds	\$ 195,665	\$ 95,797	\$ 80,028	\$ 61,053	\$ 13,619
Carry-Over from prior year	\$ -	\$ 195,665	\$ 291,462	\$ 371,489	\$ 432,542
Capital Fund Availability	\$ 195,665	\$ 291,462	\$ 371,489	\$ 432,542	\$ 446,161

8.5 FUTURE FUNDING NEEDS THROUGH FY2021

TTD will continue to maintain existing levels of transit service (Baseline Service) through FY 2021, if current revenue resources remain consistent. TTD anticipates increasing services if funding becomes available. Service expansion to Meyers, increased frequency to LTCC, and additional demand response fleet capacity are envisioned. However, these expansions will create significant impacts to operating expenses, and funding sources are not yet identified. Bus replacement is the most pressing unfunded capital need, but transit facilities are also critically important to successful service delivery. TTD will pursue an aggressive effort to secure competitive federal, state, and local funds to close the funding shortfall. The impact of these operational expansion and capital needs are depicted in Table 8.3.

Table 8.3 Operational Expansion and Capital Needs Cost

SHORT RANGE TRANSIT PLAN PROJECT LISTING				OPERATING			CAPITAL		
		Need	Available	+/-	Need	Available	+/-		
BASELINE SERVICE	Operating - Baseline	\$ 39,085,211	\$ 39,170,607	\$ 85,396				\$ -	
	Capital - Bus Replacement				\$ 17,725,000	\$ 1,137,319	\$ (16,587,681)		
	State of Good Repair - Preventive Maintenance				\$ 3,788,893	\$ 3,788,893	\$ (0)		
	Summary	\$ 39,085,211	\$ 39,170,607	\$ 85,396	\$ 17,725,000	\$ 4,926,212	\$ (12,798,788)		
ROUTE 54/55	Route 54/55	\$ 2,382,690	\$ -	\$ (2,382,690)					
	Meyers Terminal	\$ 175,000	\$ -	\$ (175,000)	\$ 1,500,000	\$ -	\$ (1,500,000)		
	LTCC Terminal Improvements	\$ 25,000	\$ -	\$ (25,000)	\$ 250,000	\$ -	\$ (250,000)		
	Route 54/55 Fleet Requirement				\$ 3,750,000	\$ -	\$ (3,750,000)		
	Summary	\$ 2,582,690	\$ -	\$ (2,582,690)	\$ 5,500,000	\$ -	\$ (5,500,000)		
EMERALD BAY HIGH FREQUENCY	Emerald Bay High-Frequency Route	\$ 2,320,586	\$ -	\$ (2,320,586)					
	Emerald Bay Terminal	\$ 50,000	\$ -	\$ (50,000)	\$ 1,500,000	\$ -	\$ (1,500,000)		
	Emerald Bay Fleet Requirement				\$ 1,200,000		\$ (1,200,000)		
	Summary	\$ 2,370,586	\$ -	\$ (2,370,586)	\$ 2,700,000		\$ (2,700,000)		
DEMAND RESPONSE EXPANSION	Demand Response Expansion	\$ 292,321	\$ -	\$ (292,321)				\$ -	
	Demand Response Fleet Requirement				\$ 70,000	\$ -	\$ (70,000)		
	Summary	\$ 292,321	\$ -	\$ (292,321)	\$ 70,000		\$ (70,000)		
CAPITAL PROJECTS	Capital - Safety & Security				\$ 750,000	\$ -	\$ (750,000)		
	Capital - Amenities				\$ 1,100,000	\$ 250,000	\$ (850,000)		
	Capital - Efficiencies				\$ 625,000	\$ 350,000	\$ (275,000)		
	Summary				\$ 2,475,000		\$ (2,475,000)		
System Summary		\$ 44,330,808	\$ 39,170,607	\$ (5,160,201)	\$ 28,470,000	\$ 4,926,212	\$ (23,543,788)		

Chapter 9 – Future Action Strategies

9.1 PROPOSED ACTION STRATEGIES

The TMP identifies transit as the “vehicle for change in the Tahoe Region” and a priority investment. Within this context, the SRTP’s five-year vision and proposal focuses on establishing a solid foundation upon which an improved transit system can grow. The SRTP acknowledges key system fundamentals that must be addressed before TTD can deliver the ambitious transformation of the Basin’s transit network, as put forth in the TMP vision: safety, workforce development, fleet, and facilities. The SRTP also suggests a limited number of route expansion and new route priorities. This is all achievable but requires an aggressive pursuit of resources.

TTD has identified funding to carry operations through FY 2021. However, a significant funding shortfall exists in capital replacement of fleet assets, as illustrated in Section 8.4. This \$16.5 million shortfall in capital needs is predicated on a fleet replacement policy following FTA useful-life guidelines and State of Good Repair guidance. The amount of annual transit expenditures does not include materially sufficient funding levels for fleet replacement. (See Appendix F for Fleet Replacement Schedule.) Diverting current funding to a capital replacement fund will require service reductions and other cost saving maneuvers.

TTD recognizes current funding restraints and the need to establish new, robust channels of funding. An intensifying theme of funding uncertainty is emerging at the federal level. As we accept the uncertainty of our federal funding sources, it is prudent that TTD aggressively explore new permanent funding possibilities and consider educating our partners and the public on self-help resource options for our region as a whole.

SRTP goals and objectives are based on a five year vision that is subject to available funding. The SRTP proposes two action strategies to address current funding restraints and tailor the transit system to the current level of funding: The Progressive Track or The Regressive Track. Both proposed action strategies include a path to securing a core, reliable labor force that can operate and maintain the system with minimal overtime.

Progressive Track (Unconstrained) - Recommended

The Progressive Track is a dual-action solution requiring an aggressive pursuit of new, robust sustainable funding sources at all levels—local, regional, state, and federal—needed for the development of an enhanced region-wide transit network consistent with the TMP, while also moving to support a revised system operational plan and capital plan that balances service levels with existing funding. The revised system, as included in the Progressive Track, focuses on system productivity recognized through ridership and may include:

- Re-balanced (reduced or expanded) service areas
- Increases in frequency to boost productivity
- Re-balanced hours of operation (shifting hours to most effective times)
- Modifications to seasonal services to balance resources

The integrated approach of the Progressive Track best aligns with the objectives outlined in the TMP along with the TRPA’s RTP/SCS. This dual-action strategy will allow TTD to better work within the context of both regional plans. Furthermore, RTP/SCS compliance is predicated on successful implementation of the Progressive Track.

Regressive Track (Constrained)

This option is an alternative to the vision of the adopted RTP/SCS. The Regressive Track refocuses transit by revising the system operational plan and capital plan to balance service levels to existing funding. The Regressive Track plan would include focusing on either system coverage (geographic density) or system productivity (ridership). As the cost of service provision typically escalates more rapidly than existing funding, transit services will slowly contract. The allocation of capital funds would shift to consolidation of facilities and asset preservation.

The Regressive Track will not meet the ambitious goals in either the TMP or the TRPA’s RTP/SCS.

9.2 CONCURRENT POLICY DIRECTIVES: THE SRTP, OTHER PLANS, AND THE PUBLIC

TTD’s strategic plan, core values, goals, and initiatives described in this SRTP are consistent with other regional transportation plans. These regional plans provide a clear direction towards accomplishing a more effective, comprehensive transportation system within the Tahoe Basin that is accessible and offers local and regional mobility.

Coordinated Human Services Transportation Plan

The Coordinated Human Services Transportation Plan (CHSTP) was completed in 2014 to address unmet transportation needs and identify current service gaps present in the Tahoe region. TTD was the lead agency to develop the CHSTP and collaborated closely with the TMPO to coordinate with local service agencies in order to identify the transportation needs of individuals with disabilities, older adults, and the low-income population.

The CHSTP is designed to gather input and cooperation of local transit agencies, social service agencies, community agencies, and the public. The plan offers strategies for meeting local needs as determined collectively through participation in the Regional Coordinating Council (RCC). The RCC provides an opportunity for groups that may not typically meet to discuss transportation needs and ways to improve access throughout the region. The RCC includes representatives from health and human service agencies, transportation providers, non-profit agencies, and other community groups.

Active Transportation Plan

The Active Transportation Plan (ATP) promotes the planning, design, construction, and maintenance of a safe, comfortable, and efficient roadway for users of all ages and abilities, including pedestrians, bicyclists, transit riders, motorists, and commercial and emergency vehicles. The ATP encourages biking, walking, skating—even cross country skiing—as modes of transportation to support a healthier lifestyle, improve air quality, boost local economy, and enhance our community character.

The Plan aims to increase connectivity, improve safety, support consistent project implementation, and increase encouragement and awareness. For a sizable portion of the community, transit is identified as a preferred method of travel and is a key component of successful multimodal connectivity within the Basin. The implementation of complete streets, shared-use paths, and bike lane improvement projects will significantly enhance transit and its accessibility by improving first- and last-mile connections.

Public Participation Policy

Public participation is essential to provide transit services that address the transportation needs of the community. TTD welcomes public participation and comment during its monthly Board meetings. TTD strives to recognize the region’s Unmet Transit Needs as identified at public hearings held annually by the TMPO. TTD intends to maintain a regular schedule of transit surveys to obtain more frequent feedback from the community, complemented by transit workshops during any significant service modifications to foster public participation. Public participation helps TTD develop and establish goals and strategies in order to benefit the community.

Title VI

The TTD wholeheartedly adopts Title VI requirements into its programs, activities, and services. A copy of the Title VI program is available at the TTD main administrative offices and is accessible on the TTD’s website.

9.3 BOARD DIRECTIVES

The SRTP is developed for a five-year time frame within the context of the 20-year vision of the TMP. Adoption of the Plan and policy direction will guide the course for transit over the next five years.

The Plan identifies the Progressive Track as the recommended action strategy proposal. This holistic dual-action approach suggests aggressive pursuit of new, robust funding sources with a transit benefit. Examples could include:

- Greater participation in transit funding by local agencies and businesses
- Local sales tax
- Tahoe Basin entry fee
- Regional property tax
- Project mitigation fees
- Paid parking program

- Regional transient occupancy tax (TOT)
- State legislative funding bills
- Rental car mitigation fees
- Augmented federal support

It is advised that TTD aggressively explore these new, permanent funding possibilities and consider educating our partners and the public on self-help resource options for our region as a whole in order to meet the goals and realize the vision of the TMP. Transit is the priority investment and can effect significant change in the region.