

Appendix H: Transit Operations & Funding Outlook

TRPA is responsible for supporting regional transit planning to ensure public transit is appropriately planned for and efficiently operated in the Lake Tahoe Region. With multiple transit operators and multiple target customers (local, workforce, tourist, etc.) it is essential to articulate a comprehensive transit picture to ensure alignment across jurisdictions and services provided. Public transit cannot stop at jurisdictional boundaries and must consider the needs of the traveling public first.

This appendix outlines transit operating scenarios for the 2030, 2040, and 2050 time periods of the Connections 2050: Regional Transportation Plan. The proposed services and corresponding assumptions outline an **illustrative** (unconstrained) transit scenario based on public outreach and previous planning efforts. This approach allows for flexibility, enabling operators to make adaptive decisions regarding the development of the transit network. The proposed 2030 time period reflects current and **foreseeable** (constrained) services, with minor changes to increase the efficiency of current routes over the next five years. To improve transit beyond today's levels, significant additional funding for transit operations is required. Coordination between transit operators, local, regional, and private partners will be essential. The collection of fares may also help collect and increase revenue, and TRPA has updated Policy 3.2 from free transit to affordable transit, to allow more flexibility. The 2040 and 2050 time periods outline an expanded transit scenario that will only be possible with additional revenues beyond what is currently foreseeable (constrained). The illustrative 2040 and 2050 proposals are based on services the community has identified during extensive outreach from previous surveys and planning work, including the Unmet Transit Needs Surveys, On-Board Passenger Surveys, and Short-Range Transit Plans.

The first step to building out an extensive, reliable transit system is identifying what the public needs and wants, followed by identifying what it will take to get there. For each proposed transit route, estimates of key metrics are detailed, including annual service hours, revenue hours, revenue miles, and vehicles required. As new funding sources are identified or generated, transit operators can utilize these cost estimates as a framework for introducing new services. Local jurisdictions will also have a clearer understanding of potential service and capital costs, enabling them to understand the budget magnitude as they explore new revenue streams.

The illustrative transit build-out is a layered approach supported by trip data, bolstering transit in town centers and key community routes first. Inter-regional connections are also strengthened, providing transportation to commuters and those traveling to essential services. Then, recreation trips are expanded, including services to Zephyr Cove and Emerald Bay. Finally, further inter-regional connections are enhanced, including service from South Lake Tahoe and Sacramento and between Incline Village and Reno.

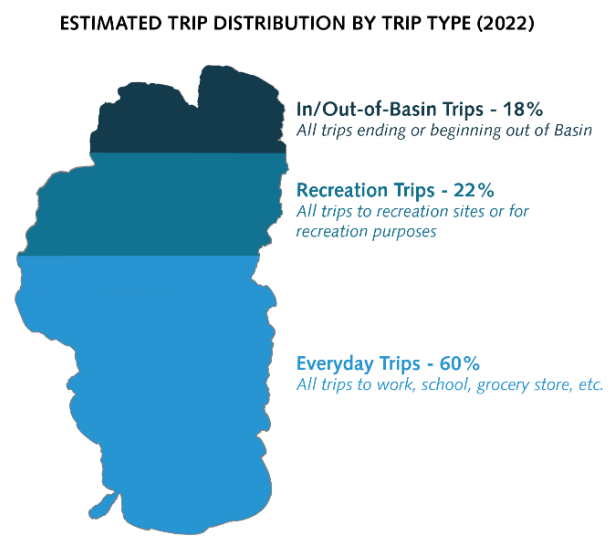
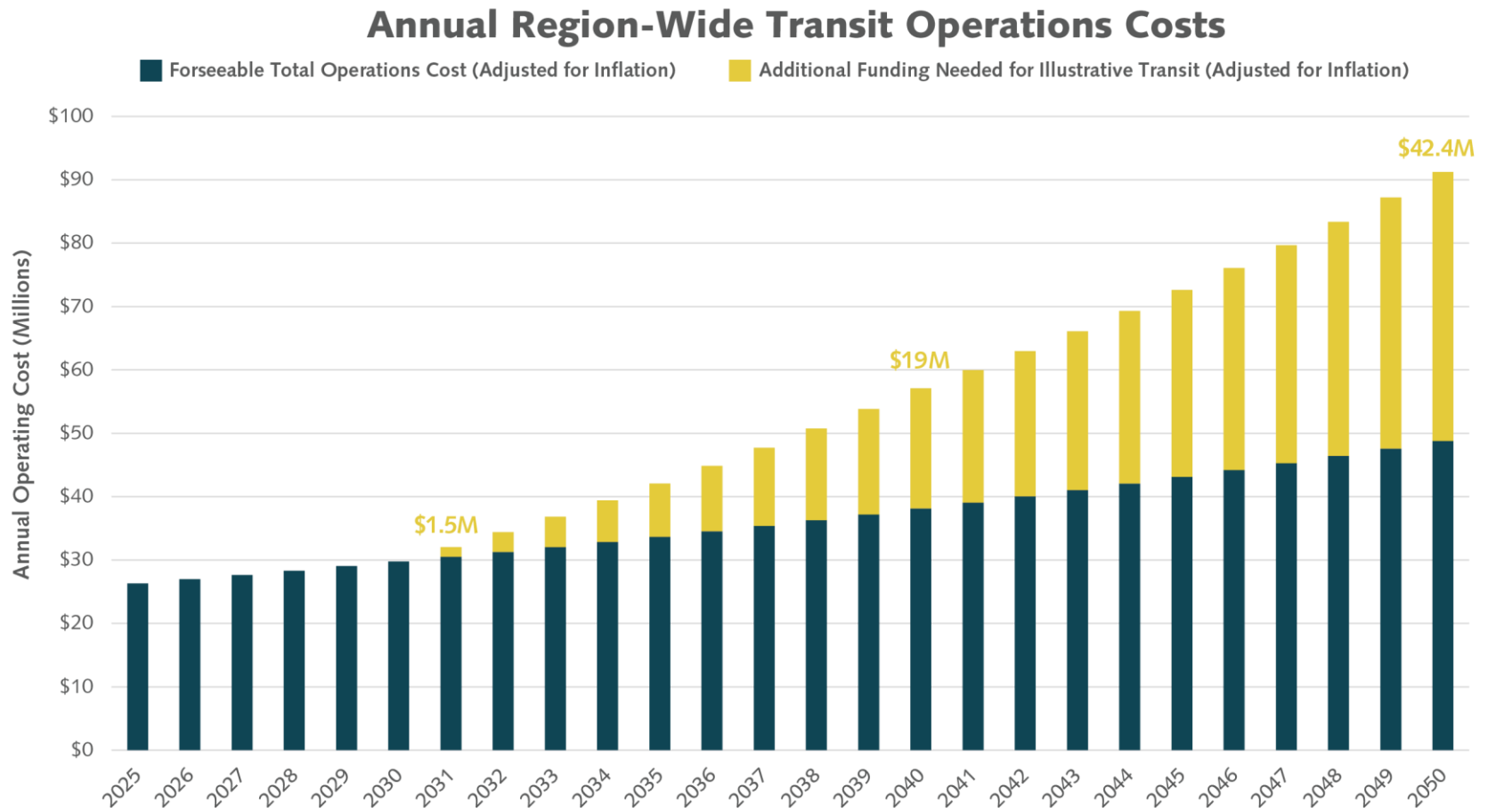


Figure 1: Annual Transit Operations Costs Adjusted for Inflation



GLOSSARY OF TRANSIT DEFINITIONS

Applied Operating Speed: Average speed of vehicle on a particular route, factoring in speed limit, stops, and traffic.

Community Service: Either fixed route or circulator services (microtransit) that operate within a small zone and provide on-demand service to recreation hot spots and urban centers. Time between buses varies depending on the level of demand.

Fare Recovery: The monetary value given by passengers as payment for transit service.

Frequency: Headway, or the time between trips, for a given route.

Frequent Route: Fixed routes that operate on the main thoroughfare through urban cores or provide frequent service of 20 minutes or less between buses.

Fixed Route Transit: Services provided on a repetitive, fixed schedule along a specific route with vehicles stopping to pick up and deliver passengers to specific locations. Each fixed-route trip serves the same origins and destinations, such as rail and bus; unlike demand responsive and vanpool services.

Headway: The time interval between vehicles moving in the same direction or along a particular fixed route.

Interlining: The combination of two or more routes that arrive and depart from a common stop. A bus can arrive at a transit center as one route and after a brief layover, leave as a different route.

Inter-Regional Route: A fixed route that provides connections between neighboring regions and Tahoe.

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

On-demand microtransit: On-demand public transportation that allows vehicles to alter their routes during each journey based on transport demand without using a fixed route or timetable. Vehicles typically pick-up and drop-off passengers in locations according to passengers' needs. Vehicles are typically smaller than fixed route buses, including SUVs and vans.

Paratransit: A shared-ride, origin to destination public transportation service provided to individuals with disabilities that is comparable to fixed route bus service. Under Department of Transportation (DOT) Americans with Disabilities Act (ADA) regulations at 49 C.F.R. Section 37.131(a)(1)(i), transit entities must "provide complementary paratransit service to origins and destinations within corridors with a width of three-fourths of a mile on each side of each fixed route."

Revenue Hours: Hours in which a mass transit vehicle is operating in revenue service. For example, two vehicles operating from 9am to 5pm is considered 16 revenue hours.

Revenue Miles: The miles that vehicles travel while in revenue service. This excludes miles that vehicles travel when leaving or returning to the yard facility.

Ridership: The total number of passenger trips on a particular service or system during a given time period.¹

Spare Ratio: Per FTA, spare ratio is the total number of spare vehicles (also known as rolling stock) available for fixed-route service divided by the total number of fixed-route vehicles required for annual maximum service. This is expressed as a percentage, i.e. an operator that requires 100 vehicles for maximum service and keeps 20 spare vehicles has a spare ratio of 20%. Spare vehicles allow for breakdowns, for maintenance needs, or for a temporary surge in operations.²

Transit Stop: a designated location for fixed route transit to pick up and drop off passengers, which may include a bus shelter, bench, or transit center.

TRANSIT OPERATIONS PROPOSALS

Progression from 2025 to 2030

In the next five years, transit services are not expected to increase substantially beyond existing service levels. Transit operators continue to face operational challenges including staffing, aging fleet and facilities, and limited revenues. Increases in local funding contributions and development of strong public-private transit partnerships in the last several years have led to some service enhancements around the region. New on-demand microtransit services have helped to attract new transit users and increase overall ridership and mode share. These services will continue through 2030 and will integrate with the existing fixed routes to increase system efficiency and ensure a seamless user experience.

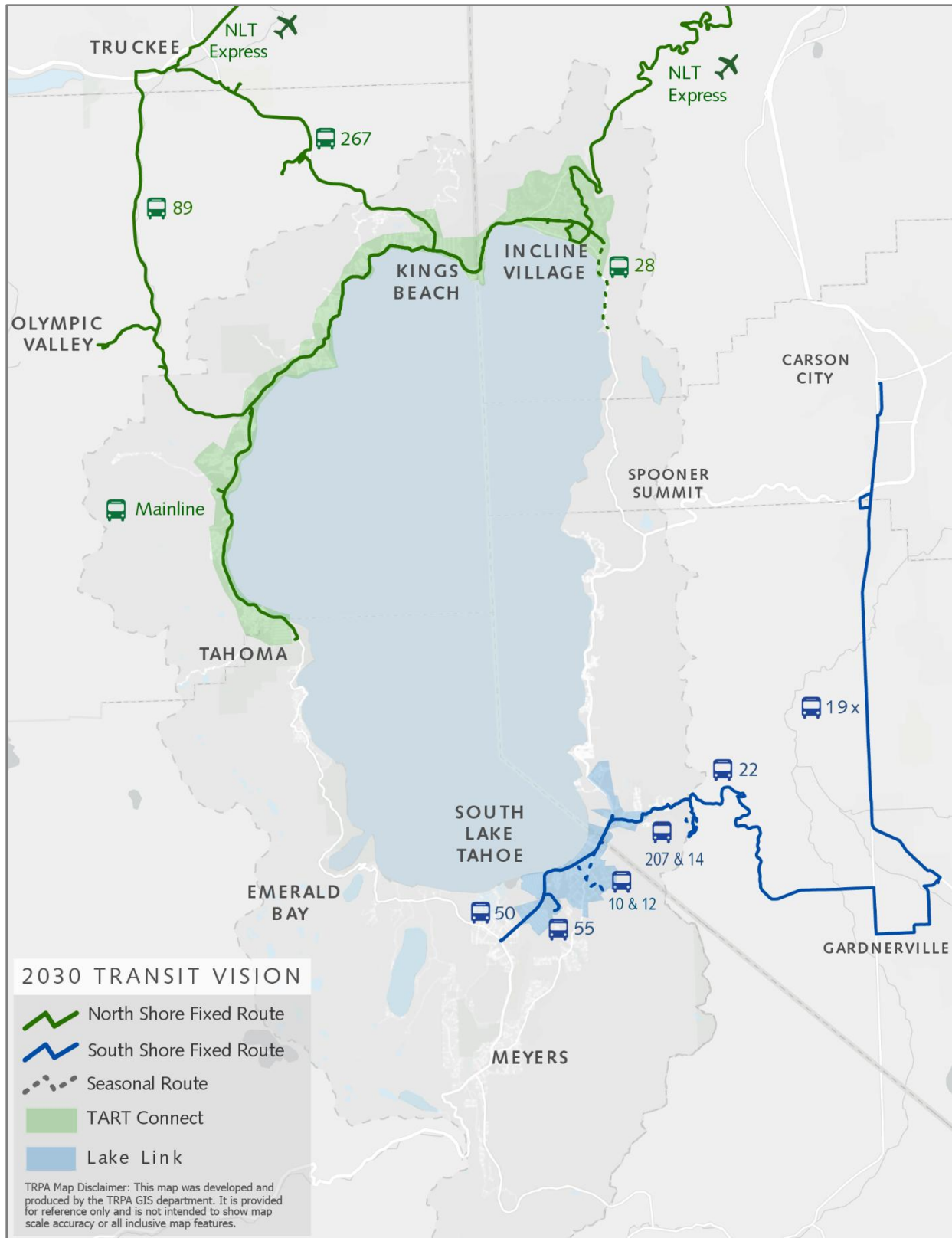
On the North Shore, fixed route and microtransit services will remain stable through 2030. Seasonal park and ride transit options will continue and expand during peak holiday periods. Should staffing challenges ease, TART may implement planned frequency increases on core routes including the Mainline, Route 89, and Route 267.

On the South Shore, the Tahoe Transportation District is facing a fiscal cliff by Fiscal Year 2027 and a new transit Joint Powers Authority between the City of South Lake Tahoe and El Dorado County is looking to establish itself as a new transit operator for the South Lake Tahoe community. Several potential shifts in the governance of transit on the South Shore may impact services, but despite these looming uncertainties, South Shore partners remain committed to providing essential transit services and identifying sustained local funding while navigating operational shifts. Based on this commitment, existing fixed route and microtransit services are expected to operate as usual through 2030.

¹ The Definitive Glossary of Transition Definitions, TransLoc: <https://transloc.com/blog/the-definitive-transit-terms-glossary/#L>

² Shared Mobility Definitions, FTA: <https://www.transit.dot.gov/regulations-and-guidance/shared-mobility-definitions>

2030 Map of Operations



2030 Summary of Operations

South Shore Transit Operations

	Inputs	Annual Operations		Fleet Required		
	Cost per Service Hour	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$260	\$6,441,000	298,000	6	50%	9
Paratransit	\$260	\$1,354,000	9,000	3	50%	5
Microtransit	\$85	\$2,340,000	187,000	6	35%	8
Total	--	\$10,135,000	494,000	15	--	22

North Shore Transit Operations

	Inputs	Annual Operations		Fleet Required		
	Cost per Service Hour	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$205-260	\$7,361,000	415,000	11	35%	15
Paratransit	\$205	\$267,000	3,900	2	35%	3
Microtransit	\$85	\$5,000,000	240,000	18	35%	24
Total	--	\$12,628,000	660,000	31	--	42

Specialized Services, Shuttles & Vanpool Programs

	Inputs	Annual Operations		Fleet Required		
	Cost per Service Hour	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
South Shore Ski Shuttles	\$100	\$1,573,000	196,000	11	35%	15
North Tahoe Airport Shuttle and Park & Ride	-	\$939,000	20,000	-	-	3
SSTMA Vanpool Program	-	\$108,000	28,000	-	-	15
TNT/TMA Vanpool Program	-	\$288,000	55,000	-	-	30
Total	-	\$2,908,000	300,000	-	-	63

Note that the South Tahoe Airporter is not included due to lack of funding information.

2030 Detailed Service Assumptions

*Note that all cost figures reflect fiscal year 2024 expenses. The inflation factor is applied to the total annual cost in Figure 1 above.

Route 50 – Frequent Service

Route 50 is a frequent service from the South Lake Y Transit Center to Kingbury Transit Center. The deviation to LTCC has been removed to improve efficiency. Weekday service is proposed to run from 6am to 10pm at a 30-minute frequency. Weekend service is proposed to continue at the same frequency but begin at 7am. The 6.6-mile service will require three vehicles every day.

Route 50 Annual Summary

<i>One-Way Route Distance</i>	6.6 miles
<i>Applied Operating Speed</i>	13.5 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	17,208
<i>Revenue Miles</i>	151,430
<i>Operating Cost</i>	\$4,474,000
<i>Estimated Ridership</i>	201,907
<i>Peak Vehicle requirements</i>	3

Route 55 – Local Service

Route 55 is truncated at LTCC from the existing route 55 and will provide a local service from Lake Tahoe Community College to the Stateline Transit Center. This route is proposed to run on weekdays only with service from 7am to 7pm at a 60-minute frequency. The 5.0-mile service would require one vehicle every weekday.

Route 55 Annual Summary

<i>One-Way Route Distance</i>	5.0 miles
<i>Applied Operating Speed</i>	11.2 mph
<i>Days of Operation</i>	261 days
<i>Revenue Hours</i>	3,132
<i>Revenue Miles</i>	31,320
<i>Operating Cost</i>	\$814,000
<i>Estimated Ridership</i>	39,150
<i>Peak Vehicle requirements</i>	1

Route 22 and 19x (interlined) – Inter-Regional Service

Route 22 and 19x provide an interlined regional service from the Stateline Transit Center to Carson City. This route is proposed to run on weekdays only, with North/East service at 7am, 9am, 4pm, and 6pm. The 42-mile service would require one vehicle to operate on weekdays.

Route 22 and 19x Annual Summary

<i>One-Way Route Distance</i>	42.0 miles
<i>Applied Operating Speed</i>	25.2 mph
<i>Days of Operation</i>	261 days
<i>Revenue Hours</i>	3,488
<i>Revenue Miles</i>	87,905
<i>Operating Cost</i>	\$543,000
<i>Estimated Ridership</i>	27,906
<i>Peak Vehicle requirements</i>	1

Route 22 (short) – Local Service

Route 22 is a local route that provides service from the Stateline Transit Center to Upper Kingsbury. The shortened Route 22 is proposed to provide weekday and weekend services. Weekday service is planned to operate at a 60-minute frequency from 11am to 4pm (with service provided by the long 22 route earlier and later). Weekend service is extended, given that the longer regional route is not operating, with 60-minute frequency from 9am to 7pm on both Saturday and Sunday. The 5.5-mile route would require one vehicle to operate every day.

Route 22 Annual Summary

<i>One-Way Route Distance</i>	5.5 miles
<i>Applied Operating Speed</i>	12.7 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	2,345
<i>Revenue Miles</i>	25,795
<i>Operating Cost</i>	\$609,700
<i>Estimated Ridership</i>	28,846
<i>Peak Vehicle requirements</i>	1

South Shore ADA Paratransit

Complimentary paratransit is a shared-ride, origin to destination, transportation service provided to individuals with disabilities. Reservations are made between 7am and 8pm daily and same day reservations are accommodated when possible. On the South Shore, paratransit that is offered within one mile of fixed routes, and also to Kingsbury Grade, is called the baseline service area. An extended paratransit service covers the following neighborhoods: Meyers, Christmas Valley, North Upper Truckee, southern neighborhoods near Pioneer Trail, Tahoe Keys, and Round Hill.

ADA Paratransit Annual Summary

<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	5,207
<i>Revenue Miles</i>	58,987
<i>Operating Cost</i>	\$1,354,000
<i>Estimated Ridership</i>	9,231
<i>Peak Vehicle requirements</i>	3

Lake Link Zone 1 – Community Service

On-demand microtransit is planned to continue to operate on the South Shore in one comprehensive zone from Round Hill to Sierra Tract. Service hours are from 7am to 9pm on weekdays and 7am to 11pm on weekends. Six vehicles are required to operate this service.

Annual Summary

<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	27,528
<i>Revenue Miles</i>	242,593
<i>Operating Cost</i>	\$2,340,000
<i>Estimated Ridership</i>	187,190
<i>Peak Vehicle requirements</i>	6

Mainline (Long) – Local Service

The long Mainline Route is planned to continue to provide service from Tahoma to Incline Village. This local service is planned to operate from 7am to 8pm on weekdays and weekends at a 60-minute frequency. The 25-mile service would require three vehicles every day to operate.

Mainline (Long) Annual Summary

<i>One-Way Route Distance</i>	25.0 miles
<i>Applied Operating Speed</i>	20.9 to 22.9 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	14,235
<i>Revenue Miles</i>	237,250
<i>Operating Cost</i>	\$2,918,000
<i>Estimated Ridership</i>	155,620
<i>Peak Vehicle requirements</i>	3

Mainline (Short) – Local Service

The short Mainline Route is proposed to continue to supplement the long mainline route, with earlier service between Tahoe City and Crystal Bay. Service is planned every 60-minutes between 5am and 7am on weekdays and weekends. The 11.5-mile route would require two vehicles daily in the mornings.

Mainline (Short) Annual Summary

<i>One-Way Route Distance</i>	11.5 miles
<i>Applied Operating Speed</i>	19.5 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	1,460
<i>Revenue Miles</i>	16,790

<i>Operating Cost</i>	\$299,000
<i>Estimated Ridership</i>	12,054
<i>Peak Vehicle requirements</i>	2

Route 89 – Local Service

Route 89 is proposed to continue to provide service from the Tahoe City transit center to the Truckee Train Depot along State Route 89. Service is planned from 6am to 7pm on weekdays and weekends at a 60-minute frequency. The 14.5-mile service would require two vehicles to operate.

Route 89 Annual Summary

<i>One-Way Route Distance</i>	14.5 miles
<i>Applied Operating Speed</i>	20.6 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	9,490
<i>Revenue Miles</i>	137,605
<i>Operating Cost</i>	\$1,945,000
<i>Estimated Ridership</i>	93,518
<i>Peak Vehicle requirements</i>	2

Route 267 – Local Service

Route 267 is proposed to continue to provide service from Crystal Bay to the Truckee Train Depot along State Route 267. The route is planned to operate from 5am to 6pm on weekdays and weekends at a 60-minute frequency. The 13.8-mile service would require two vehicles every day to operate.

Route 267 Annual Summary

<i>One-Way Route Distance</i>	13.8 miles
<i>Applied Operating Speed</i>	18.2 mph
<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	9,125
<i>Revenue Miles</i>	125,925
<i>Operating Cost</i>	\$1,871,000
<i>Estimated Ridership</i>	96,865
<i>Peak Vehicle requirements</i>	2

Route 28 – Frequent Service

Route 28, the East Shore Express, is proposed to continue to provide seasonal summer service along State Route 28 from Incline Village to Sand Harbor. Service is planned at a 30-minute frequency from 10am to 7pm on weekdays and weekends. The 5.4-mile service would require two vehicles to operate every day.

Route 28 Annual Summary

<i>One-Way Route Distance</i>	5.4 miles
<i>Applied Operating Speed</i>	16.7 to 18.2 mph

<i>Days of Operation</i>	70 days
<i>Revenue Hours</i>	1,260
<i>Revenue Miles</i>	13,608
<i>Operating Cost</i>	\$328,000
<i>Estimated Ridership</i>	14,333
<i>Peak Vehicle requirements</i>	2

North Shore ADA Paratransit

Paratransit offers a complementary ADA taxi service comparable to the level of fixed route bus services provided. This means that the ADA complimentary taxi service is provided from 6am to 6pm seven days a week. Service is within a three-quarter mile buffer of routes: the Mainline, Route 89, and Route 267.

ADA Paratransit Annual Summary

<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	1,300
<i>Revenue Miles</i>	23,500
<i>Operating Cost</i>	\$267,000
<i>Estimated Ridership</i>	3,900
<i>Peak Vehicle requirements</i>	2

TART Connect All Zones – Community Service

TART Connect is an on-demand community rideshare service, with zones 1 and 2 continuing to cover the West Shore, Tahoe City, and Kings Beach and zone 3 continuing to cover Incline Village. This service is proposed to continue to operate from 8am to 10pm daily.

TART Connect Annual Summary

<i>Days of Operation</i>	365 days
<i>Revenue Hours</i>	60,000
<i>Revenue Miles</i>	N/A
<i>Operating Cost</i>	\$5,000,000
<i>Estimated Ridership</i>	240,000
<i>Peak Vehicle requirements</i>	18

Route 12 – Frequent Service

Route 12 provides seasonal winter service from Heavenly Gondola to Cal Base via Pioneer Trail. This privately operated ski shuttle is planned to operate every day in the winter a 10-minute frequency, from 8am to 5pm on weekdays, 7am to 5pm on Saturdays and 6am to 4pm on Sundays. This service requires three vehicles to operate.

Route 12 Annual Summary

<i>One-Way Route Distance</i>	2.5 miles
<i>Applied Operating Speed</i>	12.0 mph
<i>Days of Operation</i>	154 days
<i>Revenue Hours</i>	4,290
<i>Revenue Miles</i>	42,900
<i>Operating Cost</i>	\$429,000
<i>Estimated Ridership</i>	64,350
<i>Peak Vehicle requirements</i>	3

Route 10 – Frequent Service

Route 10 provides seasonal winter service from Heavenly Gondola to Cal Base via Hwy 50. This privately operated ski shuttle is planned to operate daily in the winter at 15-minute frequency, from 8am to 5pm on weekdays, 7am to 5pm on Saturdays and 6am to 4pm on Sundays. This service requires three vehicles to operate.

Route 10 Annual Summary

<i>One-Way Route Distance</i>	3.0 miles
<i>Applied Operating Speed</i>	10.0 mph
<i>Days of Operation</i>	154 days
<i>Revenue Hours</i>	4,290
<i>Revenue Miles</i>	34,320
<i>Operating Cost</i>	\$429,000
<i>Estimated Ridership</i>	61,776
<i>Peak Vehicle requirements</i>	3

Route 207 – Local Service

Route 207 provides seasonal winter service to the Heavenly Kingsbury Route. This privately operated ski shuttle is planned to operate daily at a 60-minute frequency, from 8am to 5pm on weekdays, 7am to 5pm on Saturdays and Sundays.

Route 207 Annual Summary

<i>One-Way Route Distance</i>	7.3 miles
<i>Applied Operating Speed</i>	12.2 – 12.7 mph
<i>Days of Operation</i>	154 days
<i>Revenue Hours</i>	2,860
<i>Revenue Miles</i>	20,735
<i>Operating Cost</i>	\$286,000
<i>Estimated Ridership</i>	23,087
<i>Peak Vehicle requirements</i>	2

Route 14 – Frequent Service

Route 14 provides seasonal winter service on the Heavenly Tramway/Quaking Aspen Loop. This privately operated ski shuttle is planned to operate daily at a 10-minute frequency, from 8am to 5pm on weekdays, 7am to 5pm on Saturdays and 6am to 4pm on Sundays.

Route 14 Annual Summary

<i>One-Way Route Distance</i>	3.0 miles
<i>Applied Operating Speed</i>	10.0 mph
<i>Days of Operation</i>	154 Days
<i>Revenue Hours</i>	4,290
<i>Revenue Miles</i>	25,740
<i>Operating Cost</i>	\$429,000
<i>Estimated Ridership</i>	46,332
<i>Peak Vehicle requirements</i>	3

North Lake Tahoe Express and Park & Ride – Inter-Regional Service

The North Lake Tahoe Express Airport Shuttle provides service between the Reno Tahoe International Airport and the Northshore via three routes. The red route provides service to Olympic Valley, Tahoe City, and the West Shore, the green route provides service to Truckee and Northstar, and the blue route provides service to Carnelian Bay, Tahoe Vista, Kings Beach, Crystal Bay, and Incline Village. The Truckee North Tahoe Transportation Management Association (TNT/TMA) also provides a seasonal park & ride service offering transit between Tahoe City and Truckee and the Northstar and Palisades Resorts.

North Lake Tahoe Express & Park & Ride Program Annual Summary

<i>Days of Operation</i>	365 days
<i>Operating Cost</i>	\$938,000
<i>Estimated Ridership</i>	6,500

South Shore Vanpool Program – Community Service

Vanpool Annual Summary

<i>Operating Cost</i>	\$108,000
<i>Estimated Ridership</i>	28,000
<i>Peak Vehicle Requirements</i>	15

North Shore Vanpool Program – Community Service

Vanpool Annual Summary

<i>Operating Cost</i>	\$288,000
<i>Estimated Ridership</i>	55,000
<i>Peak Vehicle Requirements</i>	30

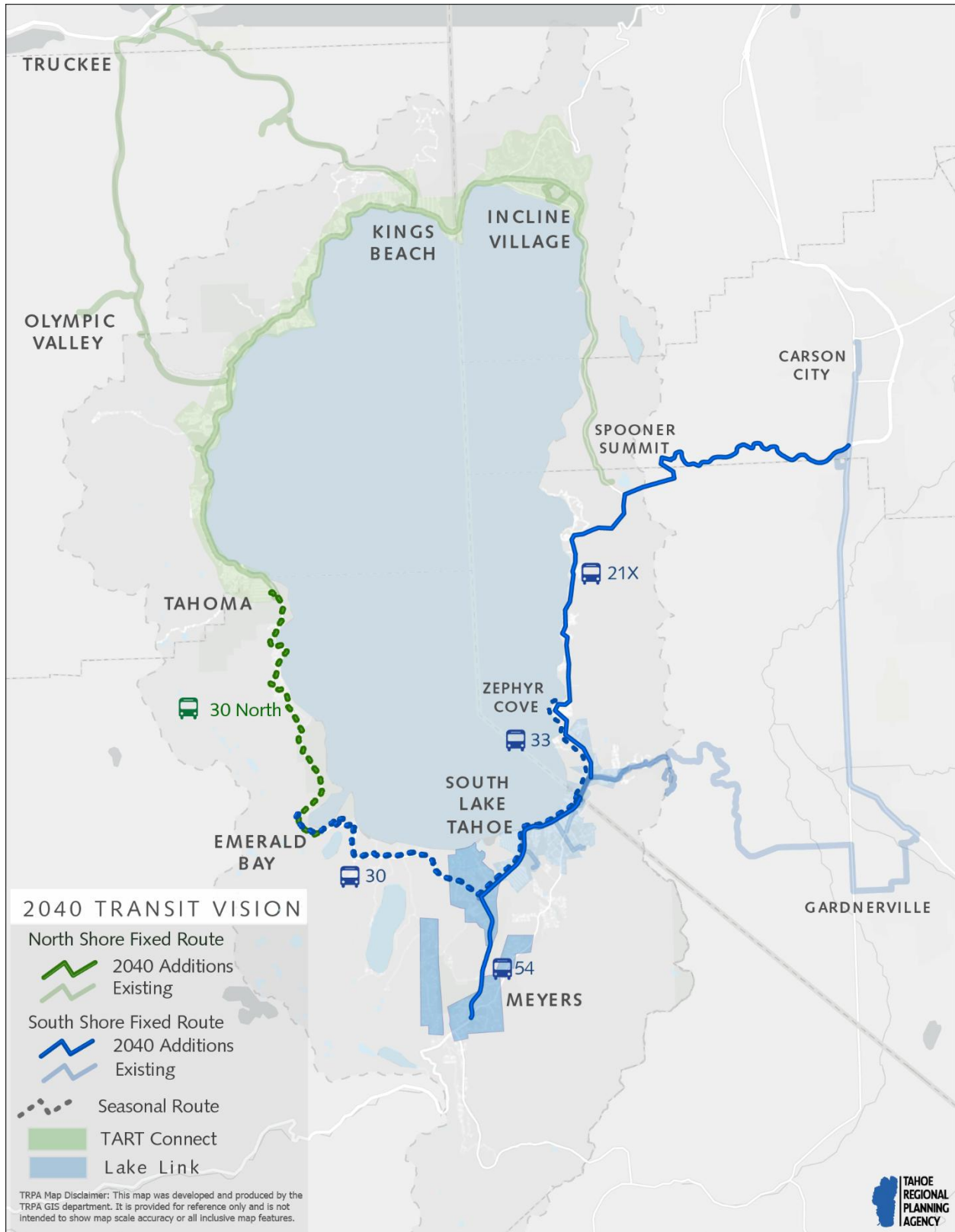
Progression from 2030 to 2040

The illustrative vision for target years 2030 to 2040 is to enhance transit service by expanding service span, increasing frequency, and improving coverage. As transit becomes more convenient and reliable, transit ridership is predicted to increase across all routes. A more reliable and frequent transit system would attract more choice riders, shifting transit mode share from 1.53% to 2.78% of all trips. This vision for transit expansion by 2040 is only possible through the identification of new sustainable funding sources, seamless coordination across all operators, the collection of low-cost fares on inter-regional and recreational routes, and the procurement of additional fleet vehicles. Fare collection is proposed on inter-regional routes and seasonal recreational routes, adding an estimated \$1.5 million in revenue based on ridership forecasts. Approximately thirty-eight additional revenue vehicles will be needed to support expanded public transit operations across the basin. This includes fixed route, microtransit, paratransit, and specialized medical transportation services.

On the South Shore, Route 55 is proposed to expand from weekdays only to every day of the week. Service is also proposed to expand on Route 22 and 19x, from four trips a day to seven trips a day, with trips starting earlier and ending later than current service hours. In 2030, there are six proposed total routes on the South Shore: two frequent routes, two local routes, and two inter-regional routes. By 2040, thirteen total routes are proposed: five local routes, one frequent route, five seasonal frequent routes, and two inter-regional routes. New fixed-routes include service to Emerald Bay, service to Carson City over Spooner Summit, service from Stateline to Zephyr Cove, and to Meyers. Microtransit is projected to expand on the South Shore, from one microtransit zone to multiple zones covering most south shore neighborhoods, including Tahoe Valley and Meyers. Paratransit is also proposed to come in line with microtransit operations on the South Shore. This shift in operating framework allows paratransit riders more flexibility with same-day, on-demand trips available through the accessible microtransit service and lowers the operating cost for the operator. The introduction of a specialized transportation service that provides basin-wide medical transportation once per week to facilities outside of the basin, particularly Placerville, Sacramento, and Reno is also proposed by 2040.

On the North Shore, most transit operations are proposed to increase in hours and frequency between 2030 and 2040, including the Mainline, Route 89, and Route 267. The existing Route 28 (East Shore Express), which previously ended at Sand Harbor, is proposed to expand to Spooner Summit, servicing the newly constructed Spooner Mobility Hub. New service is proposed from the Sugar Pine State Park, the current terminus of the Mainline route, to Emerald Bay. North shore microtransit service is expected to remain the same in terms of hours and coverage for the North Shore, covering the West Shore, Tahoe City, Kings Beach and Incline Village.

2040 Map of Operations



2040 Summary of Operations

*Note that all cost figures reflect fiscal year 2024 expenses. The inflation factor is applied to the total annual cost in Figure 1 above.

South Shore Transit Operations

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$11,626,000	823,000	22	35-50%	31
Microtransit & Paratransit Comingled	\$5,389,000	431,000	12	35%	16
Total	\$17,015,000	1,254,000	34	--	47

North Shore Transit Operations

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$13,111,000	824,000	18	35-50%	25
Paratransit	\$267,000	3,900	2	35%	3
Microtransit	\$5,000,000	240,000	18	35%	24
Total	\$18,378,000	1,068,000	38	--	52

Specialized Services, Shuttles & Vanpool Programs

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
STS Medical Transportation (Basin-wide)	\$88,000	1,040	2	35%	3
South Shore Ski Shuttles	\$1,573,000	250,000	12	35%	16
North Lake Tahoe Express and Park & Ride	\$939,000	20,000	-	-	-
SSTMA Vanpool Program	\$144,000	36,000	-	-	20
TNT/TMA Vanpool Program	\$336,000	65,000	-	-	35
Total	\$3,080,000	372,000	69	-	85

Note that the South Tahoe Airporter is not included due to lack of data available.

2040 Detailed Service Assumptions

Route	Description	Service Tier	Frequency	Annual Revenue Hours	Peak Vehicle Requirement
South Shore Transit					
50	Y to Kingsbury Transit Center	Frequent	30 min	12,306	2
54	Meyers to Stateline	Local	60 min	10,220	2
55	LTCC to Stateline	Local	60 min	4,902	1
22 & 19X	Stateline to Carson City	Inter-Regional	60 min*	6,786	4
22 Short	Stateline to Upper Kingsbury	Local	60 min	2,553	1
21x	Stateline to Carson City via Spooner Summit	Inter-Regional	60 min	9,490	2
33	Stateline to Zephyr Cove	Seasonal Frequent	20 min	2,178	3
30 Middle	Sno Park to Emerald Bay	Seasonal Frequent	15 min	3,164	4
30 South	Stateline to Emerald Bay	Seasonal Frequent	30 min	4,632	4
Lake Link Zones	Roundhill to Meyers (multiple zones)	Community	On-Demand	63,400	12
North Shore Transit					
Mainline Long	Tahoma to Incline Village	Local	60 min	16,425	3
Mainline Short	Tahoe City to Crystal Bay	Frequent	30 min	10,842	3
89	Tahoe City TC to Truckee Depot	Local	40 min	15,642	3
267	Crystal Bay to Truckee Depot	Local	40 min	16,060	3
28	East Shore Express to Spooner Summit, stopping at Sand Harbor	Seasonal Frequent	20 min	3,150	5
30 North	Sugar Pine State Park to Emerald Bay	Seasonal Frequent	60 min	1,166	1

Route	Description	Service Tier	Frequency	Annual Revenue Hours	Peak Vehicle Requirement
TART Connect Zones	West Shore/Tahoe City to Incline Village	Community	On-Demand	60,000	18
Specialized Services, Shuttles & Vanpool Programs					
10	Heavenly Gondola to Cal Base via Hwy 50	Seasonal Frequent	10 min	6,160	5
12	Heavenly Gondola to Cal Base via Pioneer Trl	Seasonal Frequent	15 min	2,464	2
207	Heavenly Kingsbury Route	Seasonal Local	60 min	2,772	2
14	Heavenly Tramway/Quaking Aspen Loop	Seasonal Frequent	10 min	4,158	3
SSTMA Vanpool	South Shore	Community	Varies	Varies	20
STS	Specialized Transportation Services – medical transportation	Community	Varies	1,040	2 (1 on South Shore, 1 on North Shore)
TNT/TMA Services	NLT Express between North Shore and airport. Park & ride between Truckee, Tahoe City, and ski resorts Palisades and Northstar.	Community	Varies	Varies	30
TNT/TMA Vanpool	North Shore	Community	Varies	Varies	Varies

Progression from 2040 to 2050

While 2040 included an increase in frequency and hours on many routes, the vision for 2050 is to continue to provide a quality, reliable, and predictable service to riders. Route 55, 22, 19x, 50 and Mainline all included proposed increases in frequency or hours in 2040 and are projected to continue at the same service levels through 2050. By 2050, several capital improvements, such as coordinated signal timing, transit signal priority, strategically placed mobility hubs, and transit-only lanes along certain corridors seek to enhance the operating speeds and efficiency of the transit network. With a more effective, frequent, and reliable transit system, ridership is projected to continue to increase, with mode share shifting from 2.78% to 3.79%. Inter-regional routes and seasonal recreational routes are proposed to continue to collect fares, adding an estimated \$4.7 million in revenue based on ridership forecasts. Approximately twelve additional revenue vehicles will be needed to support these proposed expanded public transit operations across the basin. This includes fixed route, microtransit, paratransit, and specialized medical transportation services.

By 2050, South Shore operations have two new routes proposed. Route 1 is planned to operate from Stateline Transit Center to Incline Village Transit Center, and Trans Sierra 1, is planned to connect South Lake Tahoe and Sacramento via U.S. Hwy 50. Connections between the South Shore and North Shore are key and have been identified as priorities in past Unmet Transit Needs surveys and Short-Range Transit Plans. Microtransit operations are planned to continue from Roundhill to Meyers, spanning multiple zones.

A new inter-regional route, Route 3, is proposed on the North Shore to provide service between Incline Village and Reno via Mt. Rose Highway. Establishing a connection between the North Shore and Reno has been a consistent public request for service to medical appointments, jobs, essential services, and to the airport. By 2050, Placer County, Caltrans, and partners are planning to have successfully implemented transit infrastructure on Hwy 267 and Hwy 89, including reversible bus-only lanes, transit priority signals, and transit queue jump lanes. These transit infrastructure improvements would allow buses on Route 89 and Route 267 to avoid traffic congestion and operate at faster operating speed, reducing headways. Route 89 is proposed to increase from every 40-minutes to every 20-minutes and Route 267 to increase from 40-minutes to 30-minutes. Microtransit operations are planned to remain as three zones from the West Shore to Incline Village, with service from 8am to 10pm.

2050 Map of Operations



2050 Summary of Operations

*Note that all cost figures reflect fiscal year 2024 expenses. The inflation factor is applied to the total annual cost in Figure 1 above.

South Shore Transit Operations

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$14,961,000	1,139,000	27	35-50%	38
Microtransit & Paratransit Comingled	\$5,389,000	485,000	12	35%	16
Total	\$20,350,000	1,624,000	39	--	54

North Shore Transit Operations

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
Fixed Route	\$19,186,000	1,419,000	22	35-50%	30
Paratransit	\$267,000	3,900	2	35%	3
Microtransit	\$5,000,000	270,000	18	35%	24
Total	\$24,453,000	1,692,000	42	--	57

Specialized Services, Shuttles & Vanpool Programs

	Annual Operations		Fleet Required		
	Operating Cost	Estimated Ridership	Vehicles	Spare Ratio	Total Vehicles
STS Medical Transportation	\$88,400	1,040	2	35%	3
South Shore Ski Shuttles	\$1,573,000	295,000	12	35%	16
North Lake Tahoe Express and Park & Ride	\$939,000	20,000	-	-	-
SSTMA Vanpool Program	\$216,000	55,000	-	-	30
TNT/TMA Vanpool Program	\$384,000	75,000	-	-	40
Total	\$3,200,400	446,000	-	-	89

2050 Detailed Service Assumptions

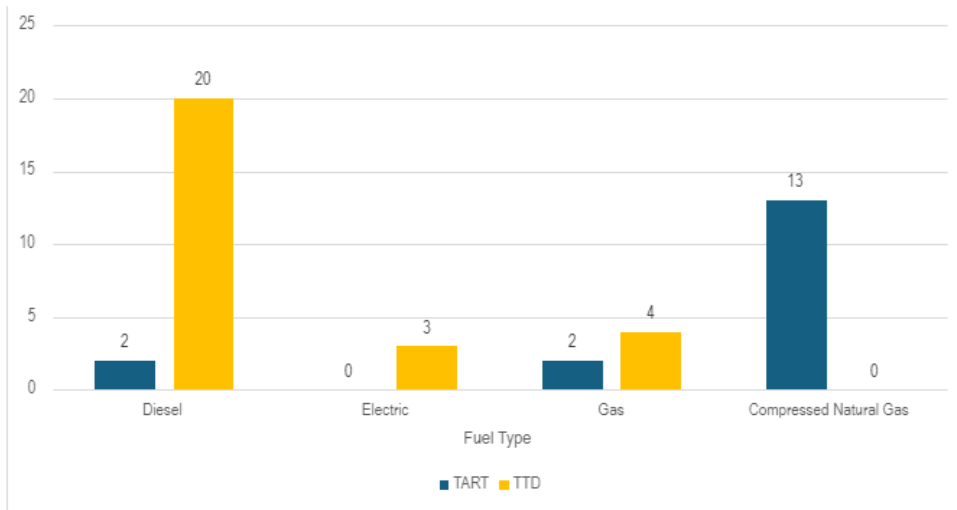
Route	Description	Service Tier	Frequency	Annual Revenue Hours	Peak Vehicle Requirement
South Shore Transit					
50	Y to Kingsbury Transit Center	Frequent	30 min	12,306	2
54	Meyers to Stateline	Local	60 min	10,220	2
55	LTCC to Stateline	Local	60 min	4,902	1
22 & 19X	Stateline to Carson City	Inter-Regional	60 min morning & evening	6,786	4
22 Short	Stateline to Upper Kingsbury	Local	60 min	2,553	1
21x	Stateline to Carson City via Spooner Summit	Inter-Regional	60 min	9,490	2
33	Stateline to Zephyr Cove	Seasonal Frequent	20 min	2,178	3
30 Middle	Sno Park to Emerald Bay	Seasonal Frequent	15 min	3,164	4
30 South	Stateline to Emerald Bay	Seasonal Frequent	30 min	4,632	4
1	Stateline Transit Center to Incline Village	Inter-Regional	60 min	9,879	3
Trans Sierra 1	Meyers to Sacramento	Inter-Regional	180 min	11,213	2
Lake Link Zones	Roundhill to Meyers (multiple zones)	Community	On-Demand	63,400	12
North Shore Transit					
Mainline Long	Tahoma to Incline Village	Local	60 min	16,425	3
Mainline Short	Tahoe City to Crystal Bay	Frequent	30 min	10,842	3
89	Tahoe City TC to Truckee Depot	Local	20 min	26,070	5
267	Crystal Bay to Truckee Depot	Local	30 min	21,170	4

Route	Description	Service Tier	Frequency	Annual Revenue Hours	Peak Vehicle Requirement
28	East Shore Express to Spooner Summit, stopping at Sand Harbor	Seasonal Frequent	20 min	4,770	5
30 North	Sugar Pine State Park to Emerald Bay	Seasonal Frequent	60 min	1,166	1
3	Incline Village to Reno	Inter-Regional	60 min	9,490	2
TART Connect Zones	West Shore/Tahoe City to Incline Village	Community	On-Demand	60,000	18
Specialized Services, Shuttles & Vanpool Programs					
10	Heavenly Gondola to Cal Base via Hwy 50	Seasonal Frequent	10 min	6,160	5
12	Heavenly Gondola to Cal Base via Pioneer Trail	Seasonal Frequent	15 min	2,464	2
207	Heavenly Kingsbury Route	Seasonal Local	60 min	2,772	2
14	Heavenly Tramway/Quaking Aspen Loop	Seasonal Frequent	10 min	4,158	3
SSTMA Vanpool	South Shore	Community	Varies	Varies	30
STS	Specialized Transportation Services – medical transportation	Community	Varies	1,040	2 (1 on South Shore, 1 on North Shore)
TNT/TMA Services	NLT Express between North Shore and airport. Park & ride between Truckee, Tahoe City, and ski resorts Palisades and Northstar.	Community	Varies	Varies	40
TNT/TMA Vanpool	North Shore	Community	Varies	Varies	Varies

CAPITAL EXPENSES

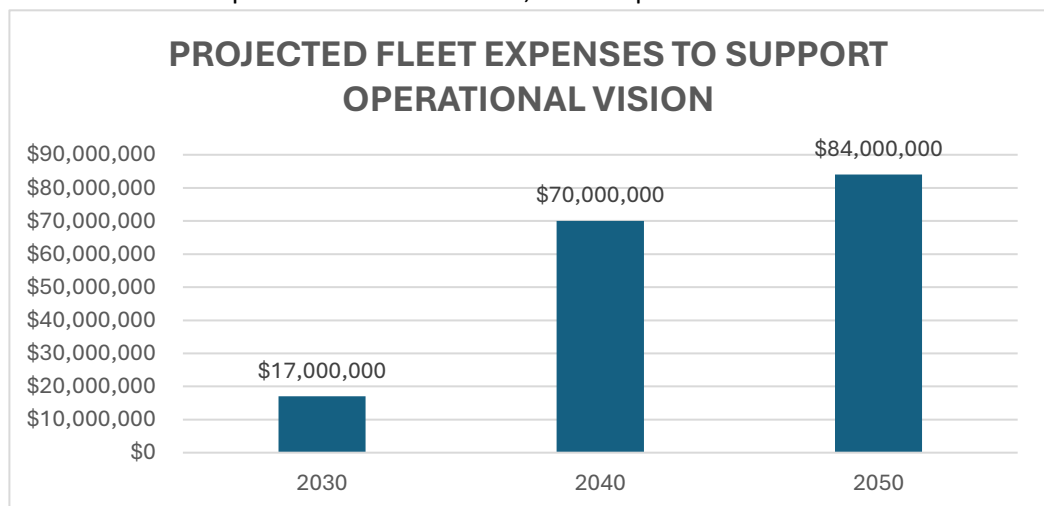
While the appendix focuses on transit operations, we recognize that capital infrastructure will be needed to support existing and future transit services. While 2030 reflects current services and will not require additional vehicles, fleet will exceed their useful life in this timespan and require replacement. Approximately \$17 million is projected for these replacement expenses, with a mix of electric and gasoline vehicles to transition to a zero-emission fleet, in alignment with regional goals and the California Air Resources Board's (CARB) Innovative Clean Transit (ICT) Regulation.

Figure 2: Existing Fleet by Fuel Type



For the 2040 and 2050 scenarios, in addition to aging fleet replacement, the purchase of additional new fleet will be necessary to support the proposed expanded services. Starting in 2040, all fleet vehicle procurements are planned to be electric, which would support the transition to a zero-emission fleet, but also have a higher cost per vehicle. Approximately \$70 million is projected in fleet expenses to support the 2040 operational scenario and \$84 million to support the 2050 operational scenario. In addition to fleet procurement, capital infrastructure includes charging infrastructure, bus shelters, mobility hubs, bus pull out lanes, bus boarding islands, and maintenance facilities. Transit infrastructure projects are further described in Chapter 2: The Plan - Transit, and Chapter 2: The Plan – Towns & Corridors.

**Figure 2:
Capital Fleet
Expenses**



CONCLUSION

Expanded transit services are key to achieving the region’s goals of reducing dependency on the automobile, reducing air pollution, and enhancing the connectivity and accessibility of Tahoe’s transportation system. Although there is general agreement among the operators, TRPA, and the public on the vision for expanded transit operations, the approach to funding this vision has yet to be determined. Multiple funding avenues will need to be pursued to support the development of a comprehensive, connected transit system for the Tahoe Basin. While sustainable ongoing funding is preferred over individual contributions, the shared funding strategy has resulted in additional funds for transit service. It should be noted that revenue sources are likely to vary by service type, for example, local routes and inter-regional connections may have more local and formula state funding to maintain critical community services and regional commuter/medical connections, while recreation routes may involve recreation providers and private sources.

Federal Transit Administration and state funding alone are not sufficient to support the transit vision outlined in this appendix. The FTA reported that nationally from 2019 to 2022, local funding for transit agencies decreased from \$27.1 billion to \$21.5 billion and state funding decreased slightly from \$18 billion to \$17.4 billion. At the same time, federal funding increased from \$11.9 billion to \$28.6 billion, with the influx of relief funding, including the 2020 Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act, and the American Rescue Plan (ARP) Act. As transit agencies deplete these relief Federal funds, they face a looming “fiscal cliff” if they cannot secure additional funding. On the South Shore, transit operations have primarily relied on formula state and federal funding and are facing a potential fiscal cliff if no additional funding is identified.

On the North Shore, public and private partners have committed to local transit funding, including Transient Occupancy Tax (TOT) and Tourism Business Improvement District (TBID) funding. This provides the North Shore with more consistent and flexible transit funding. Analysis of the transit funding sources for the top 50 major metropolitan regions found that 46 of the 50 largest metro areas have secured some form of dedicated funding for their transit agencies. Of these 46 metro areas, 39 utilize some form of sales tax ranging from 0.375% to 2%, which generates an average of almost \$394 million in annual revenue and represents the most common form of revenue. Other common sources of revenue include property taxes and vehicle registration.³ In Summit and Wasatch Counties, Utah, a transit-focused ballot measure increased sales tax by 0.25% to help expand transit. Revenue from parking fees or parking fines are another potential transit revenue source. The establishment of a Parking Benefit District (PBD) helps jurisdictions create, manage, and regulate a shared parking supply.⁴ Boulder, Colorado and Austin, Texas have both successfully created PBDs to generate funding for transit.

TRPA is currently evaluating the use of existing formula highway funding programs administered by TRPA that can be flexed to transit operations. These sources include Congestion Mitigation and Air Quality, the Surface Transportation Block Grant, and the Carbon Reduction Program.⁵ However, this approach tends to be more impactful in larger urban areas. For example, the Metropolitan Transportation Commission, in the Bay Area, allocated \$150 million in federal highway funds towards

³ ThinkTennessee

⁴ FHWA: Parking Benefit Districts, State of Practices in the United States

⁵ TransitCenter

transit projects from 2018 to 2022. MTC received \$652 million in federal highway funds during this time period, amounting to approximately 23% of the funds. TRPA received approximately \$10.4 million in STBG and CMAQ funds from FY 23/24 through FY 26/27. If 23% of those funds were allocated to transit, that would be approximately \$2.4 million, or an average of \$600,000 a year.

In addition to funding, we recognize that additional workforce would be needed to accomplish this transit vision. While workforce shortages were a challenge for transit agencies pre-pandemic, the pandemic exacerbated this issue. In a 2022 American Public Transportation Association survey, 96 percent of transit agencies reported experiencing a workforce shortage, and 84 percent of those agencies said the shortage affected their ability to provide service. Transit agencies in Tahoe are continuing to identify strategies to recruit and retain qualified drivers, including wage increases and contract renegotiations.

TRPA is committed to working with public and private partners to secure additional transit funding and workforce to work towards the outlined vision.