



WESTERN NEVADA COUNTY TRANSIT DEVELOPMENT PLAN FINAL REPORT

NEVADA COUNTY TRANSPORTATION COMMISSION

FINAL

PROJECT NO.: 189399A

DATE: JUNE 2021

WSP
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SACRAMENTO, CA 95833
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1 INTRODUCTION

The Western Nevada County Transit Development Plan serves as the planning document that will guide the development of transit and mobility over the next five-years (FY 2021 through FY 2026). Prior to the start of the project, the following were the identified goals:

- addressing the aging population’s mobility needs in Nevada County,
- attracting new ridership, and
- ensuring financial sustainability.

While those goals remained, the project kicked-off within a week of the State of California issuing a “shelter-in-place (SIP)” order in response to the Coronavirus Disease 2019 (COVID-19) in March 2020. As a result of the SIP and pandemic, the project pivoted to all virtual meetings including for project coordination and outreach. Transit ridership and funding from fare revenue plummeted across the country, and the importance of public transit in conducting non-traditional services like food deliveries was on full display. The pandemic also wrought, at least in the short-term, an exodus of urban residents able to work from home to more rural areas like Nevada County which increased housing prices and created a shortage of rental units for local or pre-pandemic residents in many areas. The pandemic created a level of uncertainty with the level of funding and population makeup in Nevada County. As a result of these uncertainties, the recommendations are based on what makes the most sense now, but they are also adaptable to allow for the service to grow or contract as needed.

The final report includes the following sections:

Market Conditions: Summarizes the work done in Tech Memo 1 for the evaluation of different demographic information that includes population density, seniors, minority, and travel patterns.

Service Analysis: Summarizes the work done in Tech Memo 1 for the evaluation of existing services.

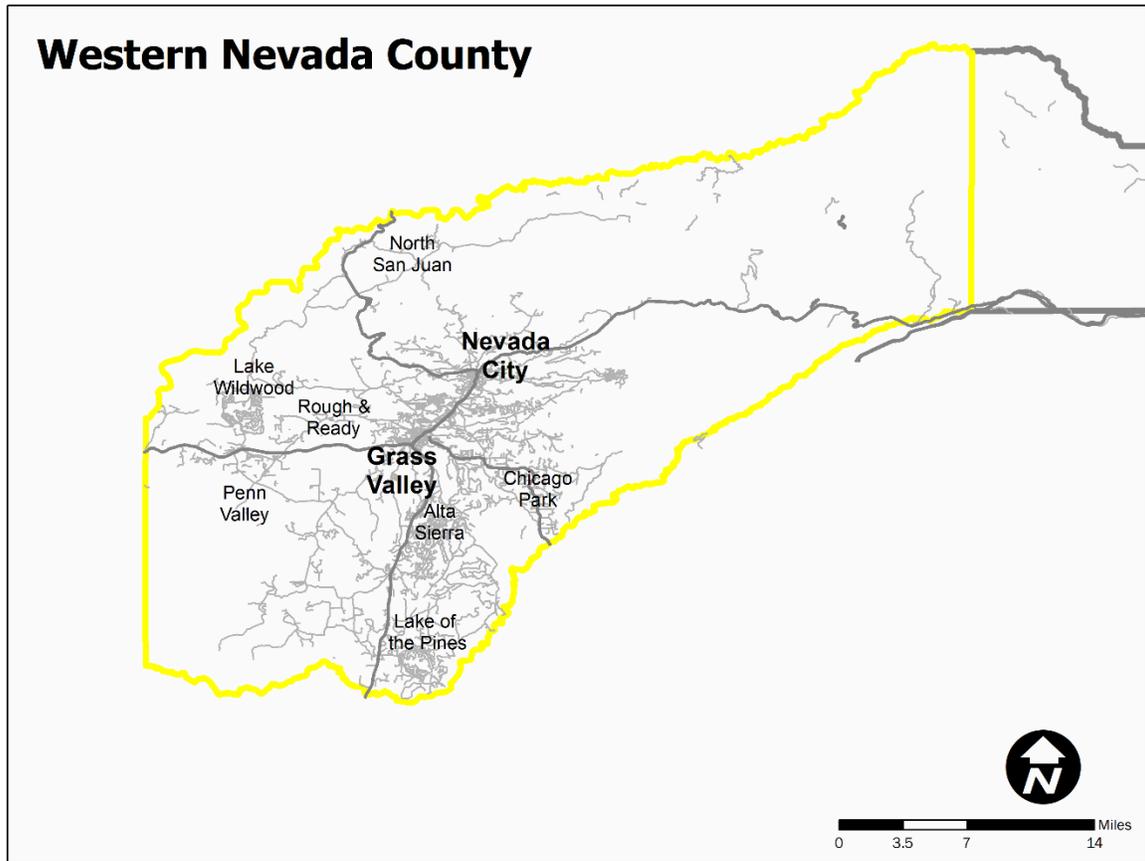
Public Outreach: Summarizes the two public workshops and the information learned from the survey.

Operational Recommendations: Provides the operational recommendations for Nevada County Connects identified in Tech Memo 2.

Capital and Other Recommendations: Provides the capital and non-operational recommendations identified in Tech Memo 3.

The map on the next page, Map 1-1, displays the service area for Western Nevada County. The area includes the cities of Nevada City and Grass Valley along with numerous smaller communities in the outlying area like North San Juan, Lake-of-the-Pines, Lake Wildwood, Penn Valley, Alta Sierra, Rough & Ready, and other smaller communities.

Map 1-1 Western Nevada County



2 MARKET CONDITIONS

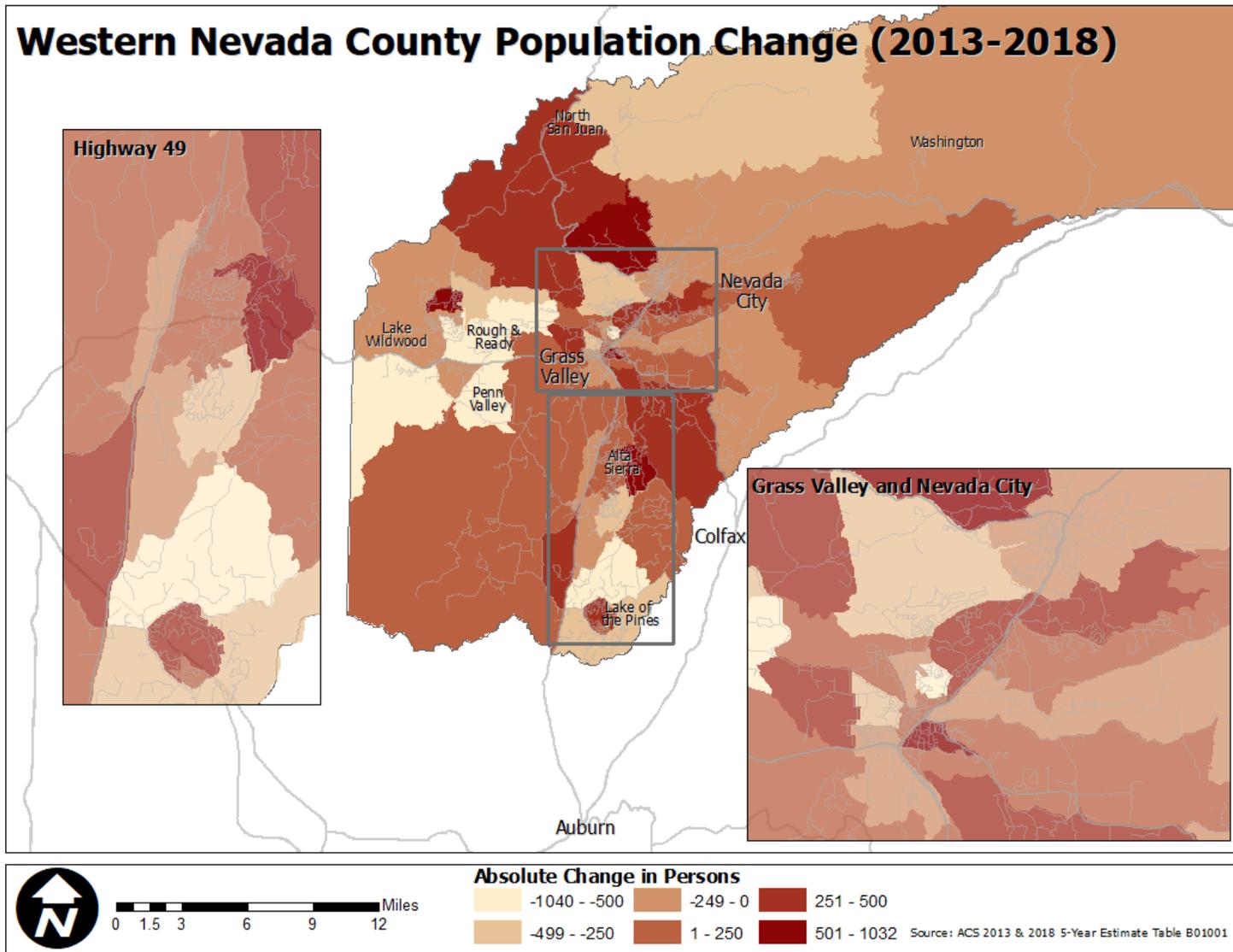
2.1 DEMOGRAPHICS

The following sections detail the population, senior, and minority characteristics for Nevada County. For the full analysis conducted for the WNCTDP, please see the Technical Memorandum 1: Existing Conditions and Transit Service.

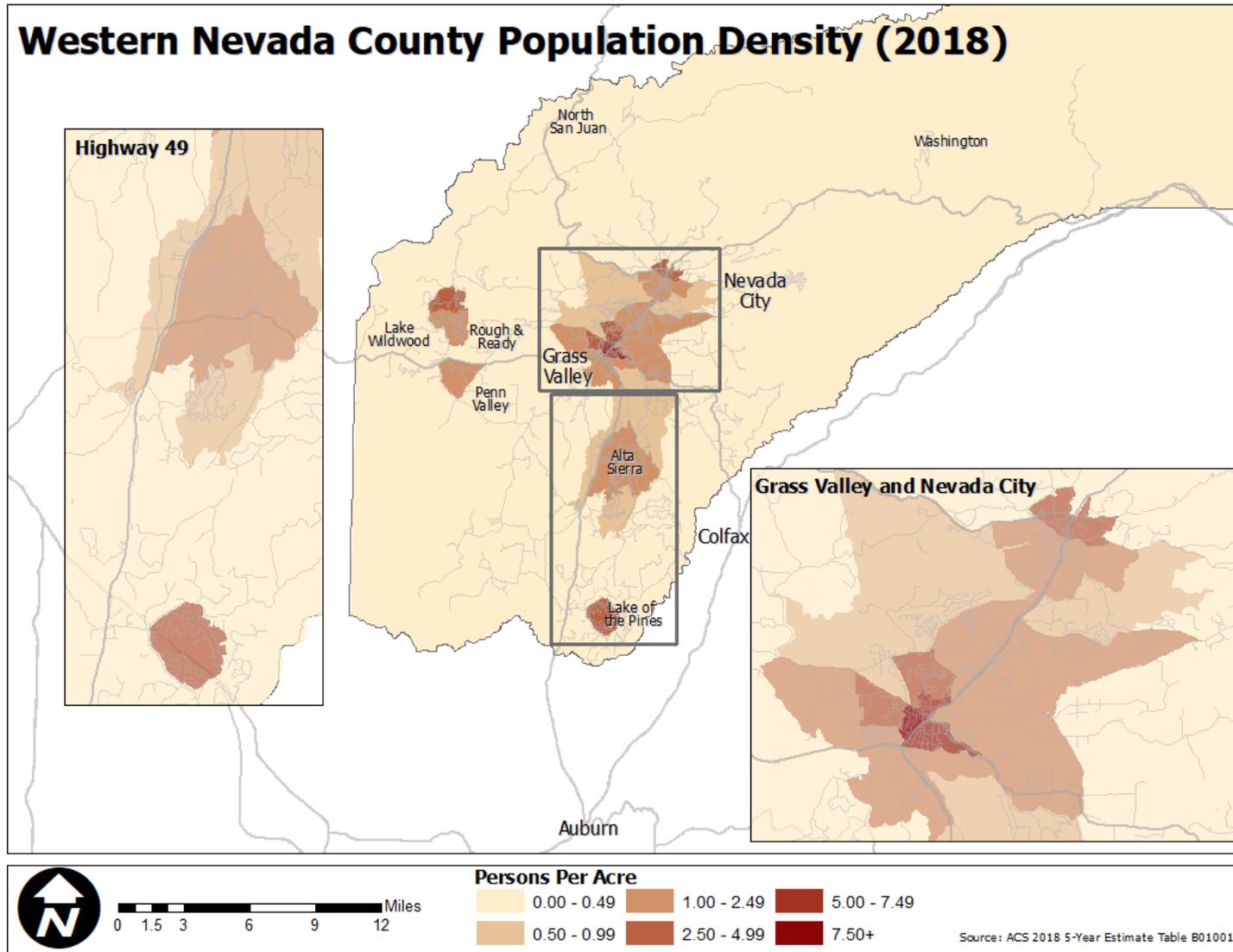
2.1.1 POPULATION DENSITY

In Western Nevada County, population density is quite low. The highest density areas are Grass Valley and Lake of the Pines, with slightly lower density in Nevada City and very minimal density in the outlying areas with the exception of Lake-of-the-pines and Alta Sierra. The highest density in 2018, was 8.4 persons per acre in the southern portion of Grass Valley. The highest density in 2013 was 10.4 persons per acre in Grass Valley; however, there has been a dispersion of people along the western (State Route 20) and southern (State Route 49) highway corridors between 2013 and 2018. The following maps (Map 2-1 Map 2-2) display the population density and change in Western Nevada County.

Map 2-1 Western Nevada County Population Change (2013-2018)



Map 2-2 Western Nevada County Population Density (2018)

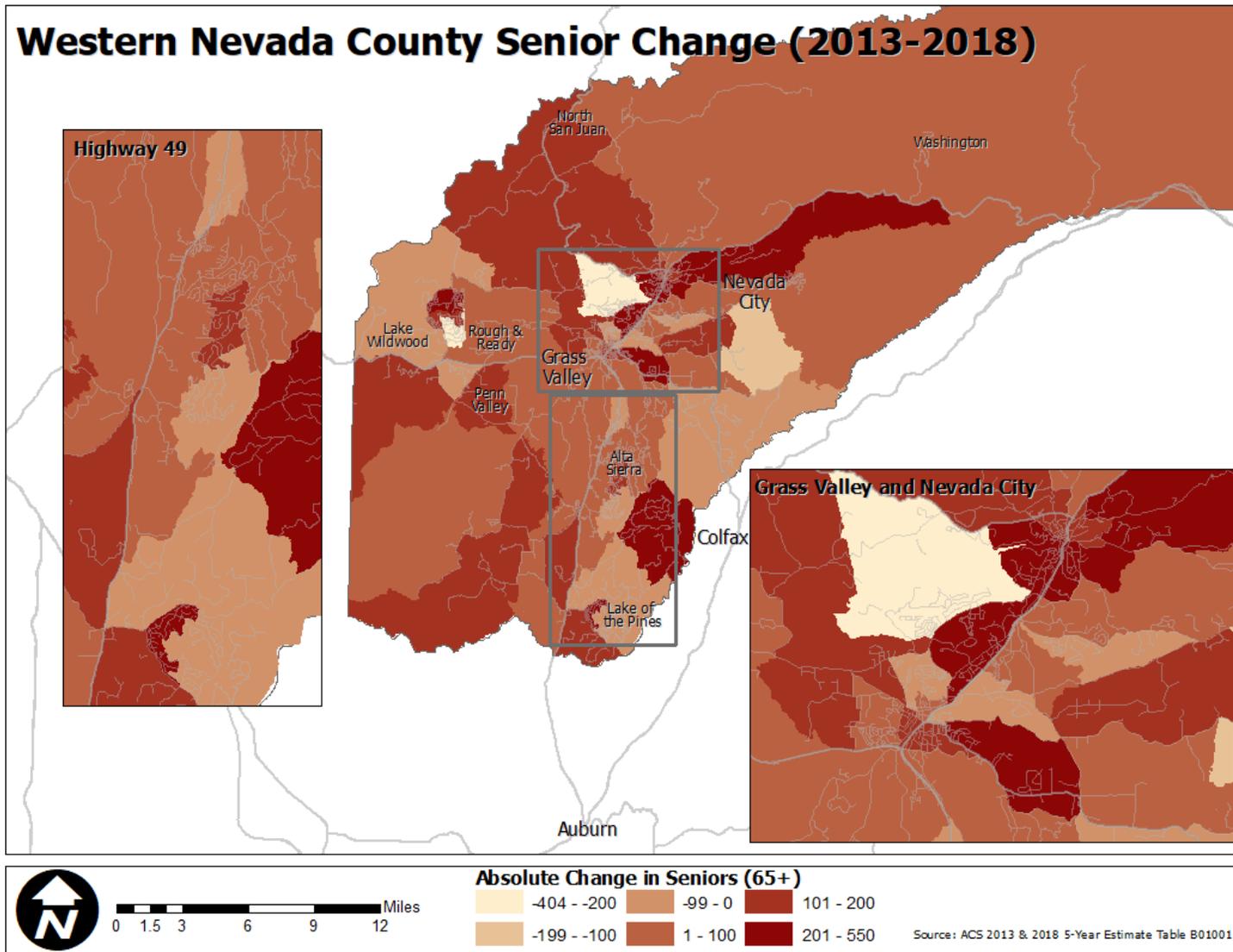


2.1.2 SENIOR CHARACTERISTICS

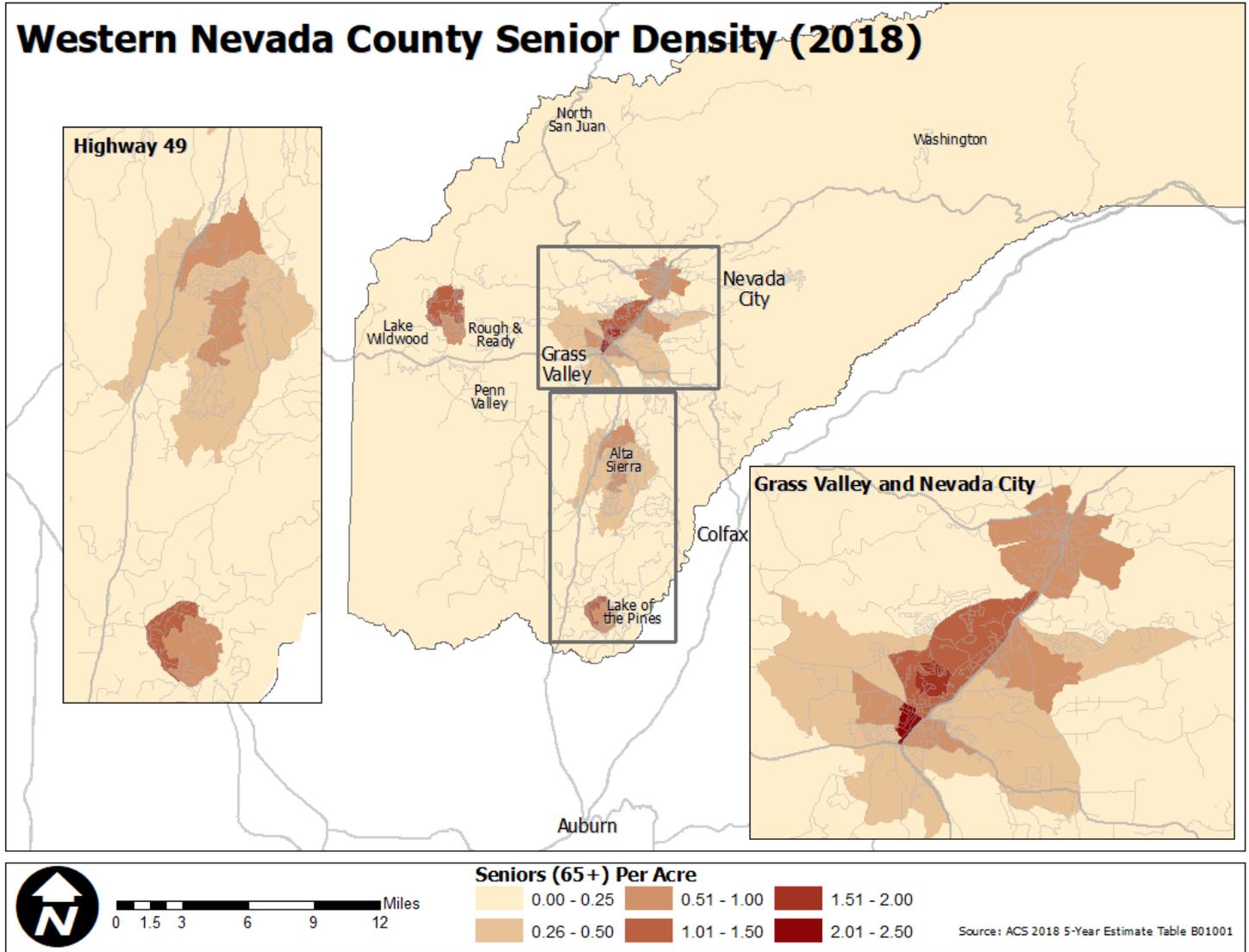
Nevada County’s aging population has a large impact on transit and paratransit. Aging populations typically require more assistance as their mobility and driving ability decreases. This will increase paratransit demand in high density senior areas, particularly to important medical appointments for outlying regions. Paratransit in Western Nevada County currently operates in the ADA corridor – a $\frac{3}{4}$ mile buffer around current fixed-route systems.

Seniors (age 65+) make up a large proportion of residents in western Nevada County. In 2013, the highest density of seniors was 1.9 persons per acre; however, in 2018, this number increased to 2.2 persons per acre in parts of Grass Valley, showing an aging population. The following maps (Map 2-3 and Map 2-4) show the senior population characteristics for Western Nevada County.

Map 2-3 Western Nevada County Senior Change (2013-2018)



Map 2-4 Western Nevada County Senior Density (2018)



The block groups in Nevada County are large and do not provide as in-depth information for smaller areas like North San Juan, Rough & Ready, and others. To provide a focused look at the senior population, Table 2-1 shows the senior population and the percent of low-income seniors. Besides Alta Sierra, Lake Wildwood, and Lake of the Pines, nearly one out of every ten seniors is considered low-income, with nearly one in three seniors in North San Juan categorized as low-income and over four out of every 10 seniors in Penn Valley. The relatively large percentage of low-income seniors underscores the importance of affordable transportation options and the need for some type of service to ensure that there is access to medical, social, and government services, especially in the outlying areas like North San Juan.

Table 2-1 Seniors by Place and % Low-Income

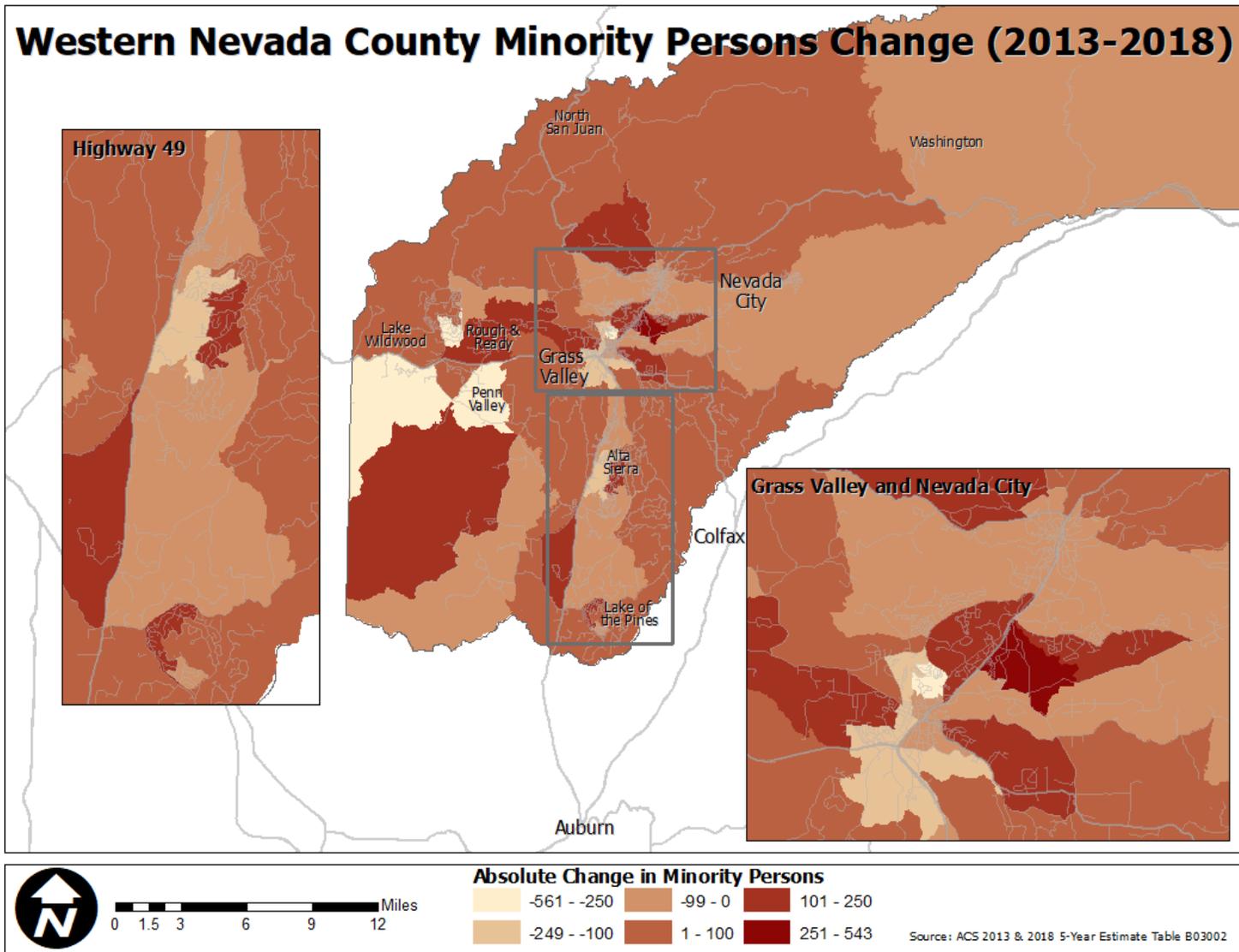
	Seniors	2018 Senior Low-Income %
Grass Valley	3,133	15.20%
Nevada City	905	8.80%
Alta Sierra	1,941	3.20%
Lake Wildwood	2,181	2.80%
Lake of the Pines	1,096	1.70%
North San Juan	101	31.70%
Penn Valley	329	41.60%
Rough & Ready	324	12.30%

Source: 2018 ACS 5-Year Estimate S1701

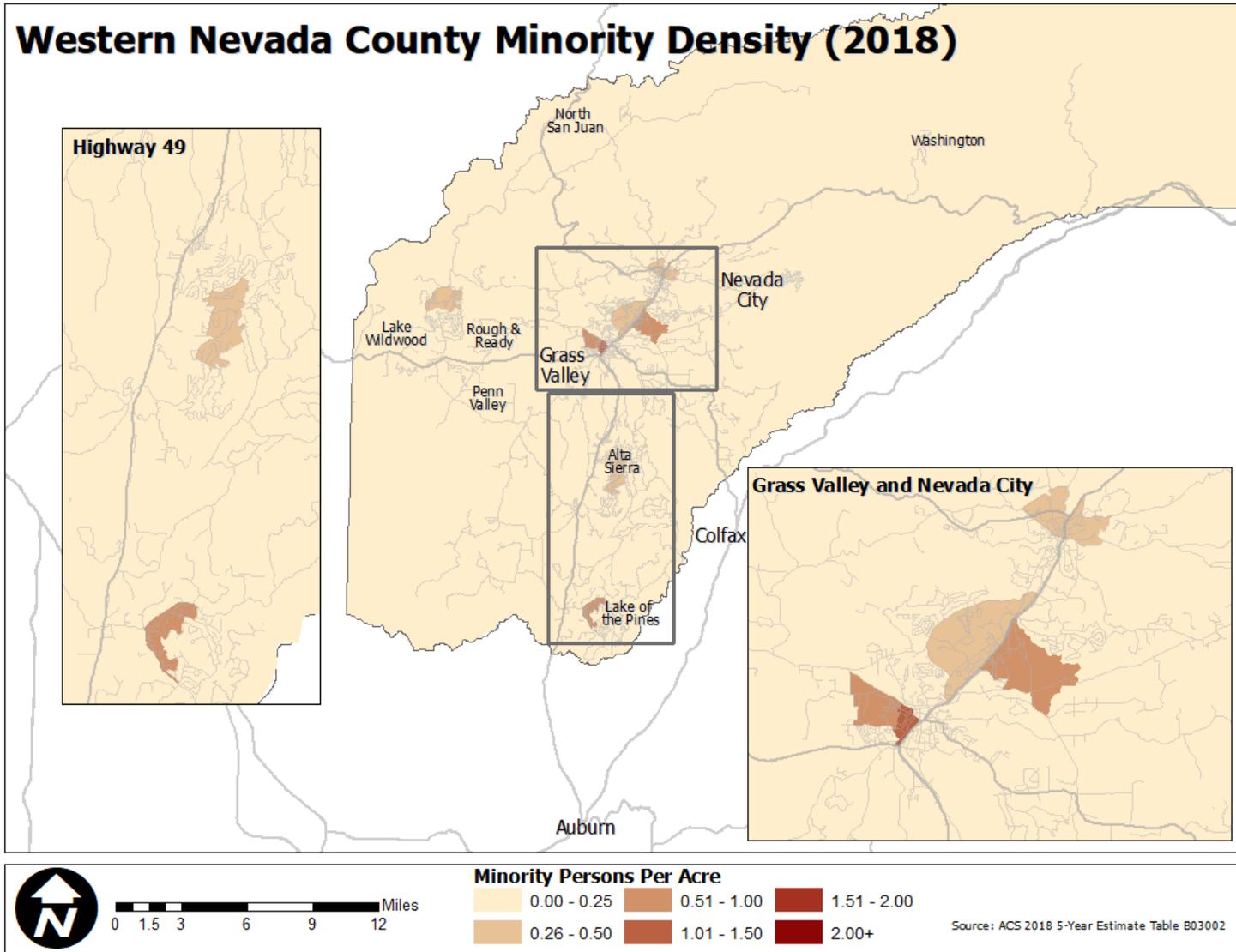
2.1.3 MINORITY CHARACTERISTICS

Minority populations is a broad-term that is used to encompasses many different and unique ethnicities. It would be a generalization to assume that minority populations are more likely or want to ride public transit compared to non-minority populations; however, it is important to identify where minority populations reside due to historical inequities that have resulted in lack of access to transportation, education, recreation, and employment. Western Nevada County has a low number of minority persons. In 2013, the highest proportion of minorities resided in small pockets of Grass Valley with a density of 3.2 persons per acre. Other areas with significant minority populations include Lake of the Pines and Lake Wildwood with 0.5 to 0.8 persons per acre. However, these densities decreased dramatically in 2018. The highest density in 2018 was 1.2 persons per acre in Grass Valley.

Map 2-5 Western Nevada County Minority Change (2013-2018)



Map 2-6 Western Nevada County Minority Density (2018)



To provide more context for minority data in Western Nevada County, Table 2-2, details the population by place, population by ethnicity, and the percent low-income for the ethnicity. Alta Sierra, Lake Wildwood, and Lake-of-the-Pines have very low poverty percentages and are also predominately white. There are very few Asians in the county, but they are the least likely to be categorized as low-income. Although small in population outside of Grass Valley, American Indian populations in North San Juan are all low-income.

Table 2-2 Low-Income Minorities by Place

	Total Population (Low-Income Population)	White alone, not Hispanic or Latino (% low Income)	Hispanic or Latino origin (of any race) (% low Income)	Black or African American alone (% low Income)	American Indian and Alaska Native alone (% low Income)	Asian alone (% low Income)	Native Hawaiian and Other Pacific Islander alone (% low Income)	Some other race alone (% low Income)	Two or more races (% low Income)
Grass Valley	12,472 (36.4%)	10,056 (22.4%)	1,542 (18.3%)	51 (0.0%)	498 (8.4%)	192 (4.2%)	0 (0.0%)	249 (0.0%)	543 (21.9%)
Nevada City	2,903 (21.6%)	2,464 (22.2%)	131 (55%)	2 (100%)	2 (100%)	18 (0.0%)	0 (0.0%)	3 (0.0%)	286 (1.0%)
Alta Sierra	7,195 (4.2%)	6,433 (4.7%)	348 (0.0%)	0 (0.0%)	0 (0.0%)	62 (0.0%)	0 (0.0%)	40 (0.0%)	414 (0.0%)
Lake Wildwood	5,208 (2.2%)	4,541 (2.3%)	398 (2.8%)	2 (100.0%)	11 (0.0%)	86 (0.0%)	0 (0.0%)	0 (0.0%)	171 (0.0%)
Lake of the Pines	4,137 (1.5%)	3,481 (1.8%)	542 (0.0%)	0 (0.0%)	0(0.0%)	29 (0.0%)	0 (0.0%)	0 (0.0%)	85(0.0%)
North San Juan	328 (49.10%)	263 (36.5%)	7 (100.0%)	0 (0.0%)	18 (100.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	40 (100.0%)
Penn Valley	1,424 (27.7%)	1,277 (28.9%)	84 (9.5%)	0 (0.0%)	15 (100.0%)	31 (12.9%)	0 (0.0%)	0 (0.0%)	17 (0.0%)
Rough & Ready	828 (51.1%)	526 (33.7%)	291 (84.5%)	11 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

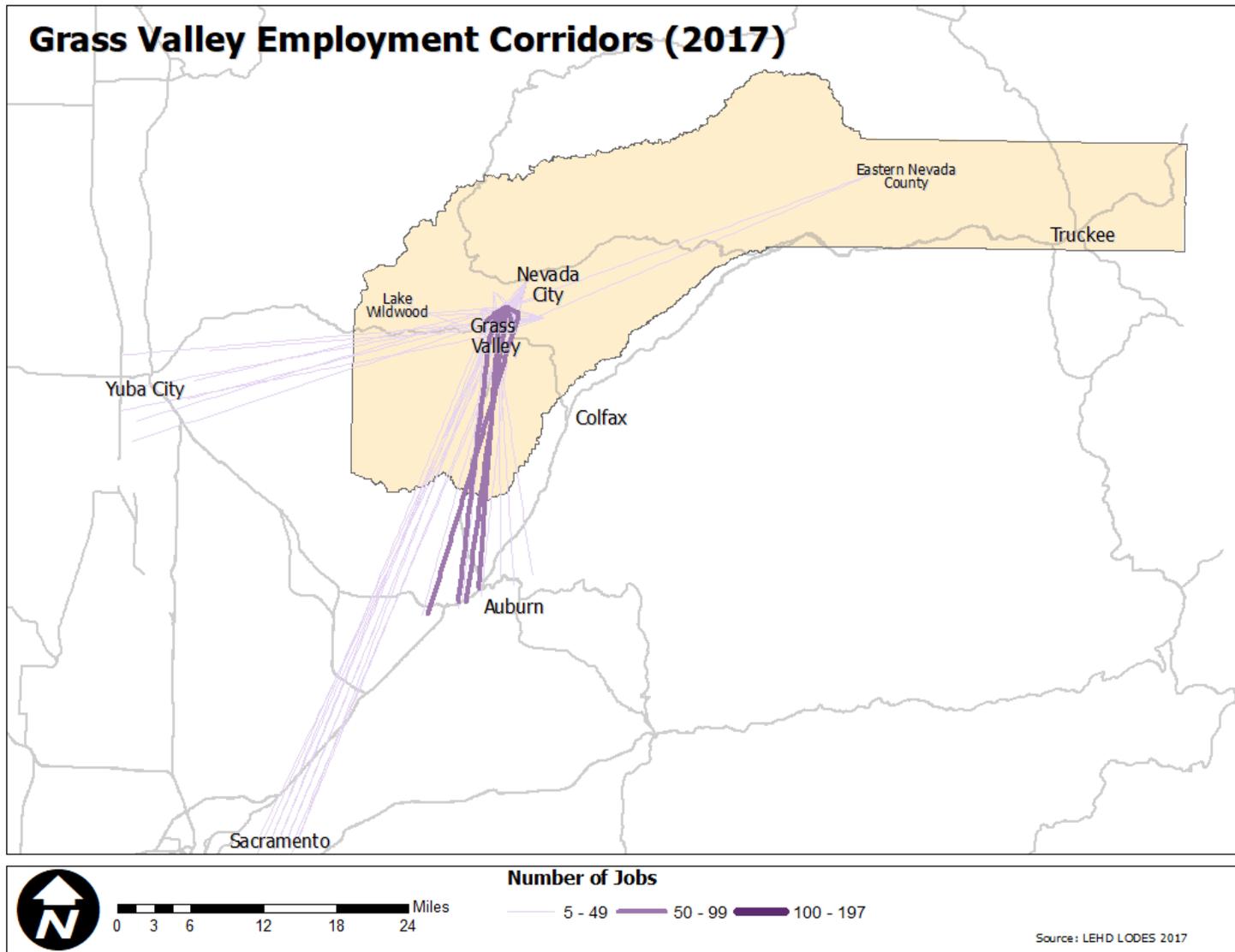
2.2 TRAVEL PATTERNS

The following map (Map 2-7) and Table 2-3 provide information on where residents who live in Western Nevada County are traveling to for work. The table is split up into City, community, and along major corridors and are not exclusive of each other (e.g. if someone lives in Penn Valley near Hwy 20, there work trip would show up in both in the table). Outside of trips within Nevada County, the most traveled employment destinations are to Placer and Sacramento Counties with almost 1,800 commuters traveling to Sacramento and 3,800 commuters to Placer.

Table 2-3 Employment Destinations by Area

	Nevada County	Placer County	Sacramento County	Sierra County	Sutter County	Yolo County	Yuba County	TOTAL
Western Nevada County	14,214	3,884	1,808	15	350	202	385	20,858
Grass Valley	2,912	500	293	4	45	23	48	3,825
Nevada City	799	81	65	-	11	10	17	983
S Highway 49	2,747	1,458	421	3	66	41	73	4,809
Highway 20	2,567	488	336	2	98	46	116	3,653
Alta Sierra	1,530	593	184	2	34	21	45	2,409
Lake of the Pines	382	438	91	-	11	8	8	938
North San Juan	546	61	58	2	13	6	11	697

Map 2-7 Grass Valley Employment Corridors



3 SERVICE ANALYSIS

The following section details the service analysis done for Nevada County Connects and Now. For the full summary of service, please see Technical Memorandum 1: Existing Conditions and Transit Service.

3.1 SUMMARY OF SERVICE

Nevada County Connects is the fixed-route bus network that serves Western Nevada County and Nevada County Now is the comparable and complimentary paratransit service. The fixed-route service operates eight routes in total, with seven routes (Routes 1, 2, 3, 4, 5, 6, 7) Monday through Friday from 5:30am to 8:00pm and limited Saturday service from 7:15am to 5:30pm on Routes 1, 2, 3, 4, 6, and Alta Sierra. There are routes that run within Grass Valley and Nevada City which provide service in the Core Service Area. There are also routes that connect important commercial, employment, medical, and social services in Grass Valley and Nevada City to outer lying regions within the County, including North San Juan, Lake Wildwood, Penn Valley, Rough and Ready, and Alta Sierra, and to neighboring Placer County which offers transit options to Sacramento County which are known as the Outlying Service Area routes.

The following details Nevada County Transit Services different routes and services:

- **Route 1:** Grass Valley to Nevada City
- **Route 2:** Grass Valley Ridge Road Loop
- **Route 3:** Grass Valley & Loma Rica Loop
- **Route 4:** Grass Valley Brunswick Basin Loop
- **Route 5:** Nevada City to Auburn Amtrak Station
- **Route 6:** Grass Valley to Lake Wildwood
- **Route 7:** Grass Valley to North San Juan & North Columbia
- **Route Alta Sierra:** Grass Valley to Alta Sierra (Saturday service)
- **Nevada County Now:** Paratransit service that operates in the same geography area as Routes 1, 2, 3, 4, and 6

3.1.1 NEVADA COUNTY CONNECTS

Nevada County Connects consists of seven routes and an additional route (Route AS) that operates on Saturdays only. None of the service operates on Sundays. The factsheets below display the performance for the individual routes and a summary of the routes performance metrics are shown in Table 3-1. FY 2018 – 2019 is displayed because it shows the most recent year's metrics that are not impacted by COVID-19. The following summarizes what the performance metrics show:

- **Farebox recovery:** the percent that fare revenue covers the cost of operating the service. It is used to show financial effectiveness of the service.
- **Subsidy per Passenger:** the operating cost (minus fare revenue) it costs to transport each passenger. It is used to show financial effectiveness of the service.
- **Passengers per Hour:** the number of passengers transported per vehicle hour. It is used to show the use and effectiveness of resources.
- **Passenger per Hour:** the number of passengers transported per vehicle mile. It is used to show the use and effectiveness of resources.

Route 4 – 7 perform well below the overall system performance with Route 7 performing below the system average with a subsidy per passenger of nearly \$61.01 and a farebox recovery that is almost eight percent below the system's 2.7 percent. Although Route 5 does perform well below the system average,

the performance metrics do not include the subsidy provided by Placer County Transit to operate the service to Auburn Station.

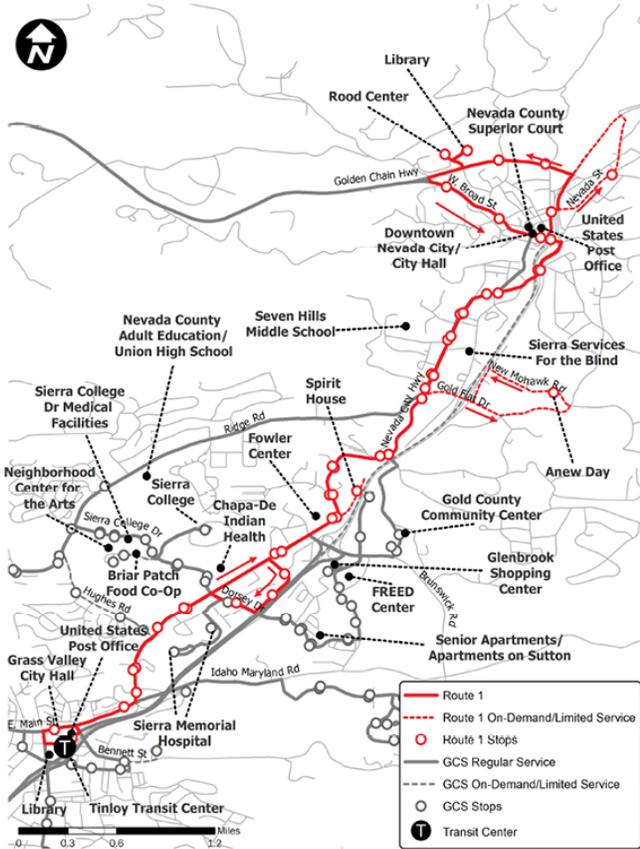
Table 3-1 FY 2018 – 2019 Operating Stats

Transit Stop	Farebox Recovery	Subsidy per Passenger	Passengers per Hour	Passengers per Mile
Route 1	10.1%	\$6.36	15.7	1.3
Route 2¹	6.8%	\$5.88	15.1	1.1
Route 3	6.8%	\$5.88	15.1	1.1
Route 4	9.4%	\$4.37	18.8	1.6
Route 5/AS	5.7%	\$30.64	3.7	0.1
Route 6	6.9%	\$21.74	5.1	0.2
Route 7	2.7%	\$61.01	2.0	0.1
Nevada County Connects System	10.6%	\$10.17	11.3	0.7

1

GRASS VALLEY - NEVADA CITY

TINLOY TRANSIT CENTER-MAIN STREET-NEVADA CITY HIGHWAY-
ZION STREET - BROAD STREET- COUNTY GOVERNMENT CENTER



Nevada County Connects Route 1 Travels between Tinloy Transit Center in Grass Valley to the County Government Center in Nevada City and is the backbone of the fixed-rotue system. It is one of two existing routes that serves both Western Nevada County Cities.



- Tinloy Transit Center
- County Government Center
- Downtown Grass Valley and Nevada City
- Chape De health
- Spirit House
- Fowler Center
- Sierra Services for the Blind
- Grass Valley City Hall
- United States Post Office

	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	53,200	59,020	54,466	38,910
Passengers per Hour	13.15	14.16	15.72	12.31
Passengers per Mile	1.0	1.2	1.3	1.0
Farebox Recovery	13.7%	11.1%	10.1%	14.0%
Subsidy Per Passenger	\$6.09	\$5.08	\$6.36	\$6.61
Operating Cost (Hours)	\$322,185	\$282,024	\$298,767	\$246,334
Operating Cost (Miles)	\$66,847	\$66,189	\$96,527	\$64,474
Operating Cost (Total)	\$473,374	\$435,690	\$484,902	\$384,841



- Serves two downtowns along a mostly straight path and busy corridor
- Connects social service agencies
- Timed with the majority of services at Tinloy Transit center



- Lack of continous sidewalks
- Steep terrain to and from the service
- Low-frequency for the rotue that connects the core service area



- Provide better service to Chape De Health
- Increase frequency
- Better stops in the northern section of the route
- Reduce variations and deviations



- Has similar alignment to portions of Route 4
- Very slow speed in the downtown areas
- Excessie timepoints increase the slow speeds of the service
- Confusing deviations



4:00a - 6:00p



Every 60 minutes



48 minute round trip



1 Bus Required



Mostly Straight



3 Deviations



Connects with all routes at Tinloy Transit Center



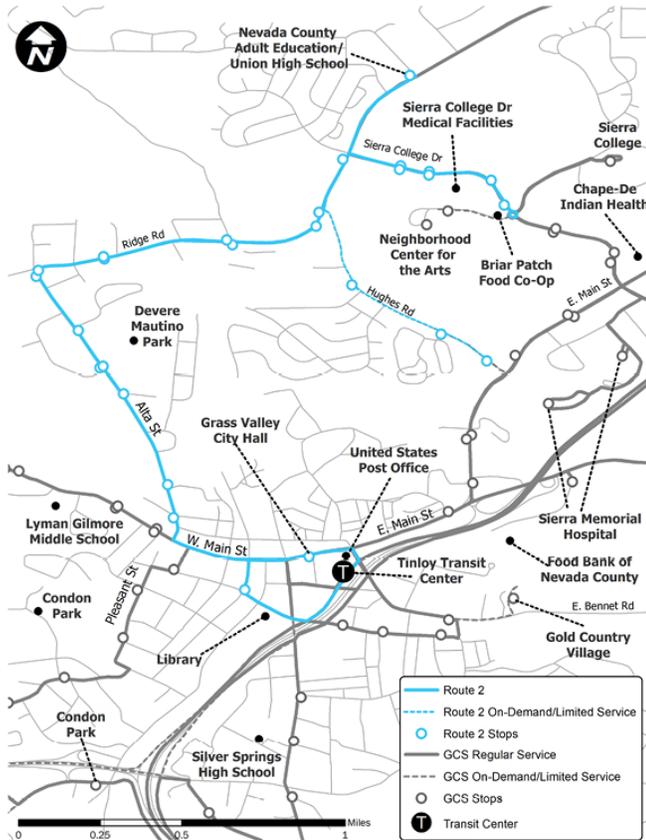
Core service area

2

RIDGE ROAD LOOP

TINLOY TRANSIT CENTER-ALTA ST-RIDGE ROAD

SIERRA COLLEGE DRIVE-NEVADA UNION HIGH SCHOOL



Nevada County Connects Route 2 travels between Tinloy Transit Center and Nevada Union High School. The route travels primarily on Alta Street and Ridge Road.



- Nevada Union High School
- Downtown Grass Valley
- Briar Patch Food Co-Op

	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	43,324	51,075	50,286	33,352
Passengers per Hour	10.89	12.37	15.09	10.65
Passengers per Mile	0.6	0.9	1.1	0.8
Farebox Recovery	9.4%	6.6%	6.8%	9.7%
Subsidy Per Passenger	\$8.23	\$6.36	\$5.88	\$8.37
Operating Cost (Hours)	\$312,365	\$279,387	\$288,208	\$244,054
Operating Cost (Miles)	\$90,150	\$74,053	\$109,470	\$72,794
Operating Cost (Total)	\$489,472	\$440,097	\$483,713	\$390,195



- The route operates very efficiently
- Connects students with schools



- does not fully connect with Sierra College
- limited population to serve



- Could be extended to serve more of Ridge Road



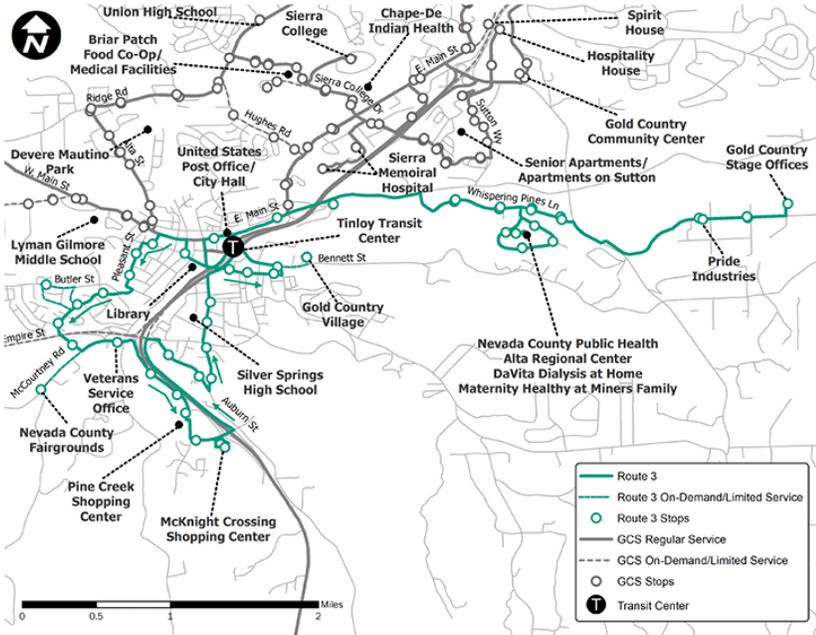
- N/A

7:30a - 6:30p	Every 60 minutes	30 minute round trip	0.5 Buses Required	Mostly Straight	2 Deviations	Connects with all routes at Tinloy Transit Center	Core service area

3

GRASS VALLEY LOOP & LOMA RICA

TINLOY TRANSIT CENTER-LOMA RICA-MCKNIGHT SHOPPING CENTER-NEVADA COUNTY FAIRGROUNDS-ALTA REGIONAL CENTER



Nevada County Connects Route 3 travels between Tinloy Transit Center and the McKnight Shopping Center and the Loma Rica Industrial Park. The Route is the only fixed-routue service that travels in the southwest area of Grass Valley.



- Tinloy Transit Center
- Downtown Grass Valley
- Grass Valley Shopping Center
- Pine Creek Shopping Center
- Loma Rica Industrial Center
- Nevada County airport
- Former Gold Country Stage/Nevada County Connects office

	<ul style="list-style-type: none"> • Distinct Service Area • Provides service to mental health and social services • Benefits seasonally from service to the fairgrounds
	<ul style="list-style-type: none"> • Operates in one-direction • two distinct routes branded as one • Limited service on the Loma Rica Loop
	<ul style="list-style-type: none"> • Affordable housing development occuring near Brunswick Road that could be served
	<ul style="list-style-type: none"> • N/A

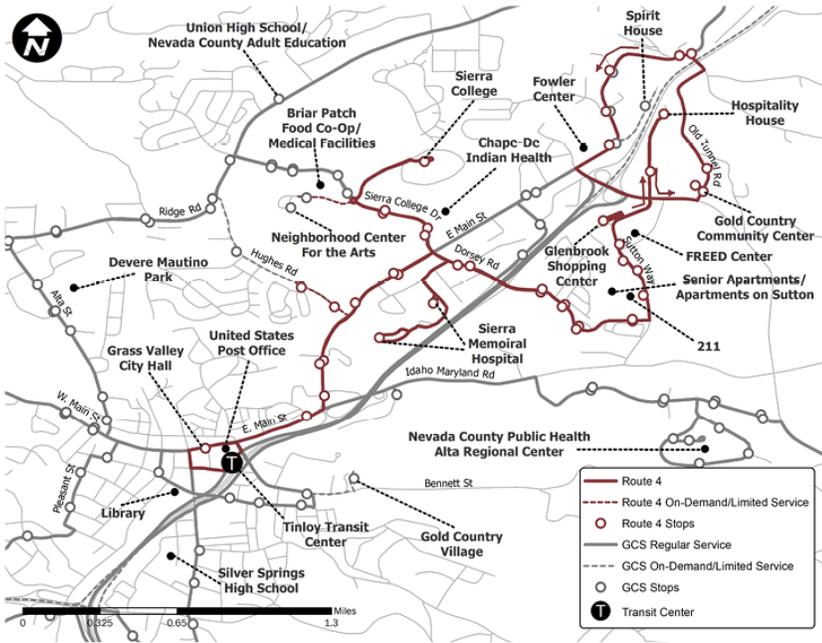
	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	43,324	51,075	50,286	33,352
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Operating Cost (Hours)	\$312,365	\$279,387	\$288,208	\$244,054
Operating Cost (Miles)	\$90,150	\$74,053	\$109,470	\$72,794
Operating Cost (Total)	\$489,472	\$440,097	\$483,713	\$390,195

4:00a - 6:00p	Every 60 minutes	30 minute round trip	1.5 Buses Required	Circulator	2 Deviations	Connects with all routes at Tinloy	Core service area

4

GRASS VALLEY - BRUNSWICK BASIN

TINLOY TRANSIT CENTER-SIERRA COLLEGE-HOSPITALITY HOUSE-
BRUNSWICK BASIN-SIERRA MEMOIRAL HOSPITAL-FOWLER CENTER



Nevada County Connects Route 4 Travels between Tinloy Transit Center and Hospitality House in the Brunswick Basin. The route serves multiple social services agencies like the Hospital and Hospitality House. The Route also serves a number of senior facilities and apartments.



- Tinloy Transit Center
- Grass Valley City Hall
- United States Post Office
- Sierra College
- Sierra Nevada Memorial Hospital
- Gold Country Shopping Center
- Hospitality House
- Western Sierra Medical Center
- Fowler Center

	<ul style="list-style-type: none"> • Serves the most dense areas in Grass Valley • Provides a vital transit service to seniors and disabled populations
	<ul style="list-style-type: none"> • Low frequency • routing pattern that only goes in one direction in northern section • many deviations
	<ul style="list-style-type: none"> • Enhance senior mobility on fixed-route with access to and from shopping centers, downtown, and medical facilities
	<ul style="list-style-type: none"> • Has similar alignment for portions of the route with Route 1 • non-linear routing makes the route overly long and confusing

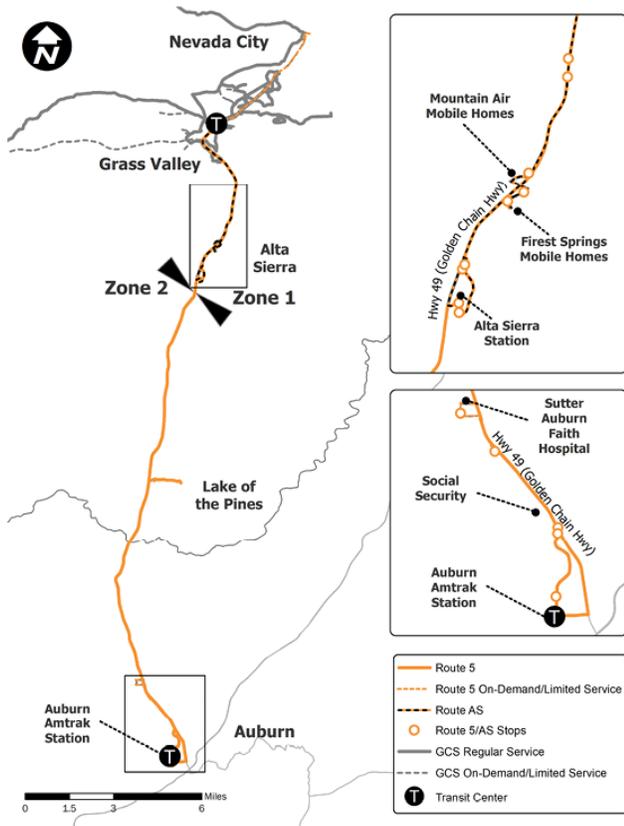
	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	57,350	61,861	63,467	45,818
Passengers per Hour	14.63	15.21	18.78	14.86
Passengers per Mile	1.0	1.3	1.6	1.3
Farebox Recovery	14.5%	8.9%	9.4%	14.3%
Subsidy Per Passenger	\$5.46	\$4.86	\$4.37	\$5.44
Operating Cost (Hours)	\$308,625	\$275,176	\$291,511	\$240,370
Operating Cost (Miles)	\$72,094	\$63,016	\$93,727	\$62,362
Operating Cost (Total)	\$465,705	\$423,544	\$472,172	\$374,973

7:00a - 7:00p	Every 60 minutes	60 minute round trip	1 Bus Required	Curvilinear	5 Deviations	Connects with all routes at Tinloy	Core service area

5

GRASS VALLEY - AUBURN

TINLOY TRANSIT CENTER - HIGHWAY 49 - ALTA SIERRA
AUBURN TRAIN STATION - LAKE-OF-THE-PINES



Nevada County Connects Route 5 Travels between Tinloy Transit Center in Grass Valley to the Auburn Train Station in Placer County. It is the only route that connects to other transit systems, including rail service to the Bay Area.



- Tinloy Transit Center
- Alta Sierra
- Higgs Corner
- Bear River High School
- Auburn Amtrak Station
- Community Health

	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	17,195	17,307	15,170	9,822
Passengers per Hour	5.59	4.96	5.23	3.71
Passengers per Mile	0.2	0.2	0.2	0.1
Farebox Recovery	7.5%	6.7%	4.7%	5.7%
Subsidy Per Passenger	\$19.01	\$19.05	\$21.61	\$30.64
Operating Cost (Hours)	\$241,792	\$235,793	\$249,771	\$206,282
Operating Cost (Miles)	\$110,989	\$116,83y	\$171,323	\$114,021
Operating Cost (Total)	\$344,557	\$344,074	\$456,566	\$340,562



- Connects to other transit service
- serves two major population areas in Alta Sierra and Lake-of-the-Pines
- Partially subsidized by Placer County Transit



- Expensive
- Operates infrequently



- Partnerships with transit operators and communities
- Provides connections to social services outside of Nevada County



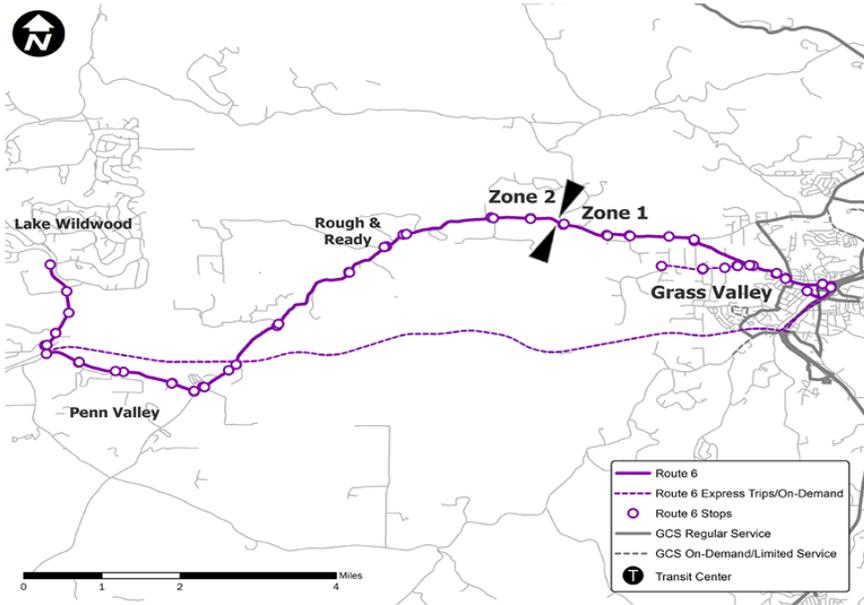
- Difficult to serve communities like Alta Sierra and Lake-of-the-Pines due to the terrain
- PCT may stop subsidizing the service

4:00a - 6:00p	~120 minutes	120 minute round trip	2 Bus Required	Straight	2 Deviations	All Routes at Tinloy and PCT and Amtrak	Outlying Service Area

6

GRASS VALLEY - PENN VALLEY

TINLOY TRANSIT CENTER-DOWNTOWN GRASS VALLEY- ROUGH & READY
PENN VALLEY-LAKE WILDWOOD-



Nevada County Connects Route 6 Travels between Tinloy Transit Center in Grass Valley to Lake Wildwood on Rough & Ready Highway and Highway 20. The route has two zones with a higher fare for customers that travel from one zone to another.



- Tinloy Transit Center
- Lake Wildwood
- Penn Valley
- Rough & Ready
- United States Post Office
- Yube River Charter School
- Penn Valley Shopping Center
- The Wildwood Center

	<ul style="list-style-type: none"> • Connects outlying area with Tinloy Transit Center • Straight routing
	<ul style="list-style-type: none"> • Low population density that limits performance • low farebox recovery ratio
	<ul style="list-style-type: none"> • Explore new service strategies to connect outlying area with Grass Valley • Provide more
	<ul style="list-style-type: none"> • Nevada County Now serves the same area with the same span

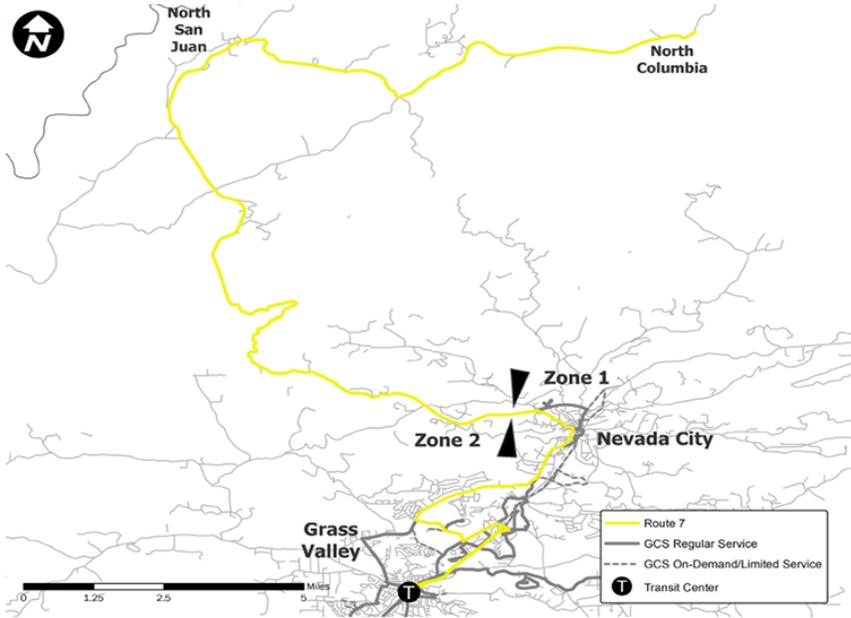
	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	10,384	10,475	10,597	7,147
Passengers per Hour	5.53	2.57	4.00	5.06
Passengers per Mile	0.2	0.2	0.3	0.2
Farebox Recovery	7.3%	3.3%	4.1%	6.9%
Subsidy Per Passenger	\$18.21	\$31.02	\$23.41	\$21.74
Operating Cost (Hours)	\$147,569	\$275,870	\$209,152	\$110,099
Operating Cost (Miles)	\$59,737	\$63,202	\$91,449	\$59,258
Operating Cost (Total)	\$248,018	\$424,639	\$363,469	\$202,446

6:35a - 7:00p	60 - 150 minutes	52 minute round trip	1 Bus Required	Straight	2	Connects with all routes at Tinloy	Outlying Service Area

7

NORTH SAN JUAN - GRASS VALLEY

TINLOY TRANSIT CENTER-NEVADA UNION HIGH SCHOOL-NORTH SAN JUAN
NORTH COLUMBIA-COUNTY GOVERNMENT CENTER



Nevada County Connects Route 7 Travels between Tinloy Transit Center in Grass Valley to the outlying areas of North San Juan and North Columbia. It is one of two existing routes that serves both Western Nevada County Cities.



- Tinloy Transit Center
- County Government Center
- Downtown Grass Valley and Nevada City
- Nevada Union High School
- North San Juan
- North Columbia
- Downtown Nevada City
- Downtown Grass Valley

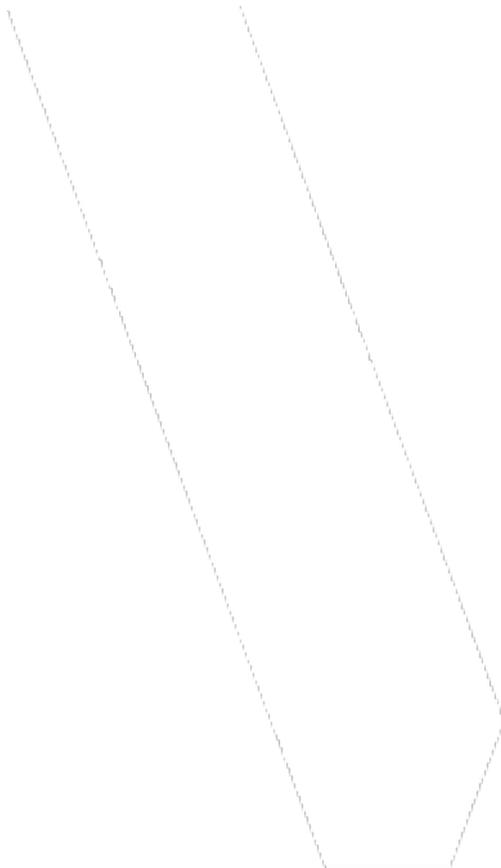
	<ul style="list-style-type: none"> • Serves two downtowns • Connects outlying areas to the Core Service Area and routes
	<ul style="list-style-type: none"> • Lack of sidewalks • Very long and expensive • Lack of density and ridership
	<ul style="list-style-type: none"> • Explore different service models • Identify potential community partners to advocate for the route
	<ul style="list-style-type: none"> • Expensive to operate • Low performance

	2016 - 2017	2017 - 2018	2018 - 2019	2019 - YTD
Boardings	N/A	N/A	N/A	2,360
Passengers per Hour	N/A	N/A	N/A	1.96
Passengers per Mile	N/A	N/A	N/A	0.1
Farebox Recovery	N/A	N/A	N/A	2.7%
Subsidy Per Passenger	N/A	N/A	N/A	\$61.01
Operating Cost (Hours)	N/A	N/A	N/A	\$93,858
Operating Cost (Miles)	N/A	N/A	N/A	\$54,942
Operating Cost (Total)	N/A	N/A	N/A	\$177,009

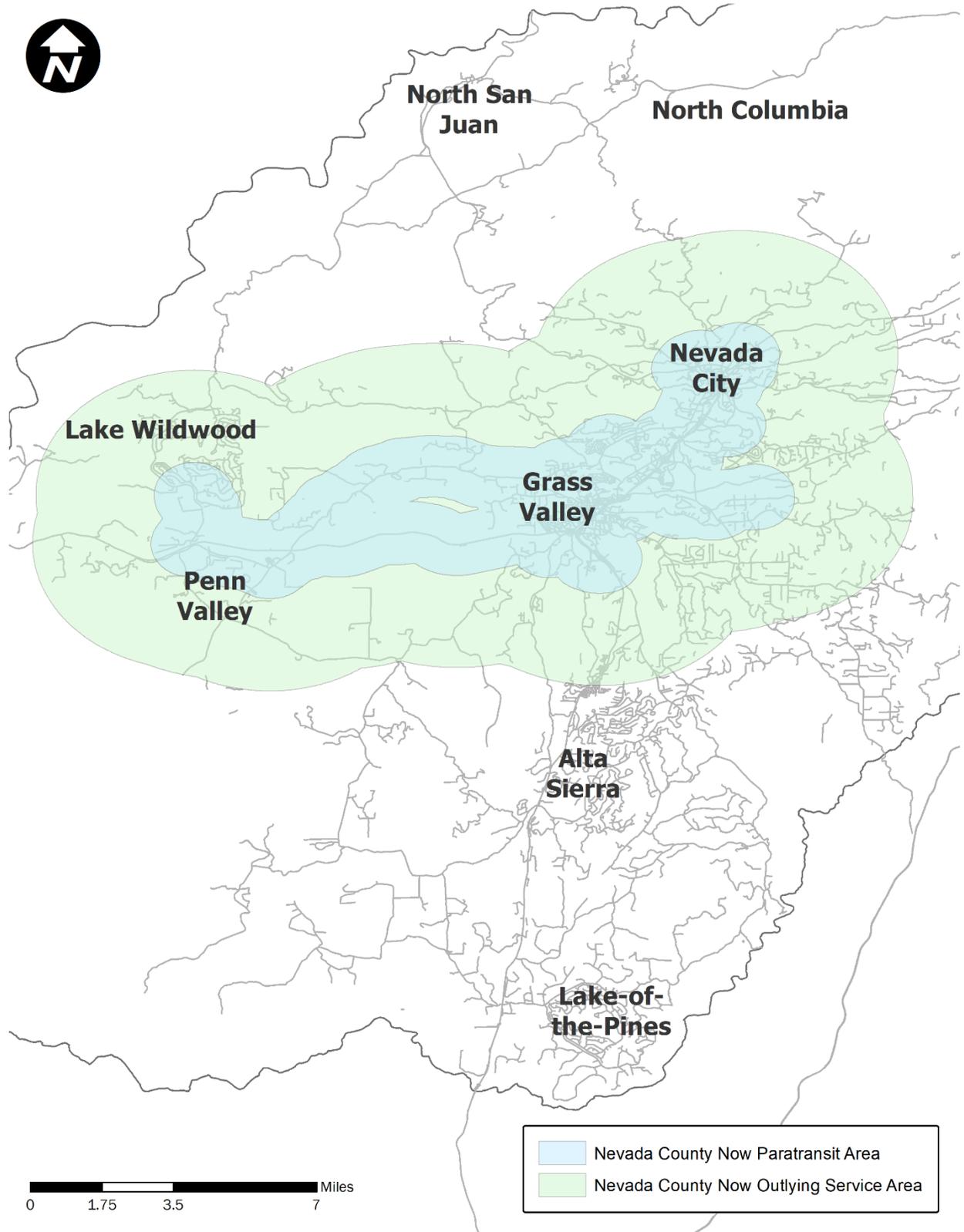
7:00a - 6:30p	360 - 390 minutes	120 minute round trip	1 Bus Required	Straight and long	0 Deviations	Connects with all routes at Tinloy	Outlying Service Area

3.1.2 NEVADA COUNTY NOW

Nevada County Now is Nevada County Transit Service’s paratransit program. It operates as an on-demand service within the ADA Corridor – within $\frac{3}{4}$ mile of the core fixed-route service and to outlying areas. The service provides public transportation service for people who are unable to access the fixed route bus due to a disability or disabling health condition (see Map 3-1) and as of very recently seniors who live within the area. Passengers can request one-off rides or if they have a reoccurring trip, request that it be a subscription trip where they would not need to request it every time needed.



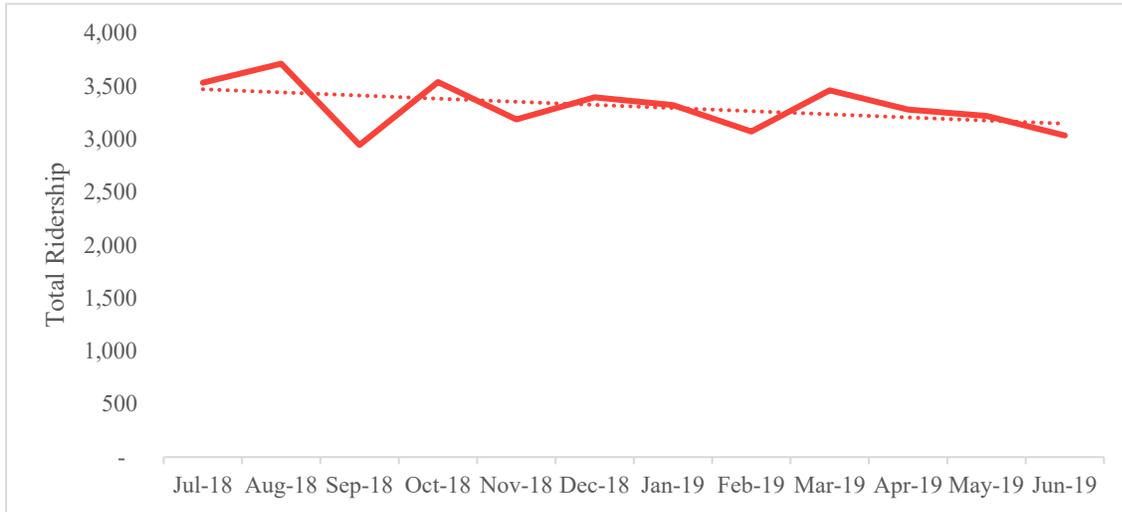
Map 3-1 Nevada County Now Service Area



Source: Nevada County Transit Services and Remix.

Figure 3-1 shows Nevada County Now’s ridership by month for FY 2019. Ridership is fairly constant, with an average of 3,307 riders per month.

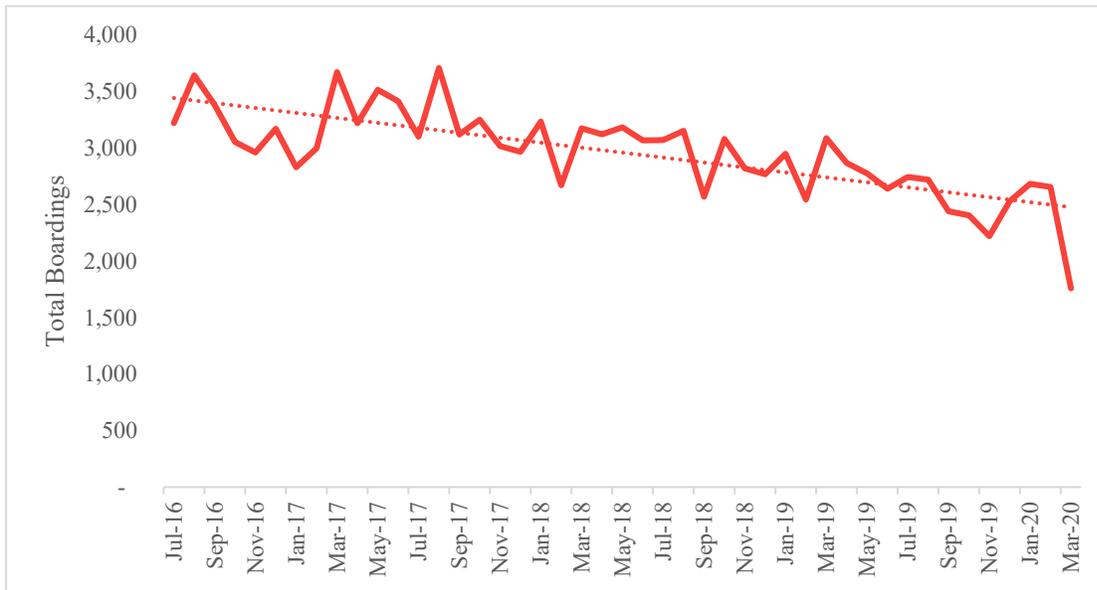
Figure 3-1: Nevada County Now System Ridership by Month (FY2019)



Source: Nevada County Transit Services.

Figure 3-2 shows Nevada County Now’s total boardings for July 2016 through March 2020. Total boardings has fluctuated but has decreased overall over the time period.

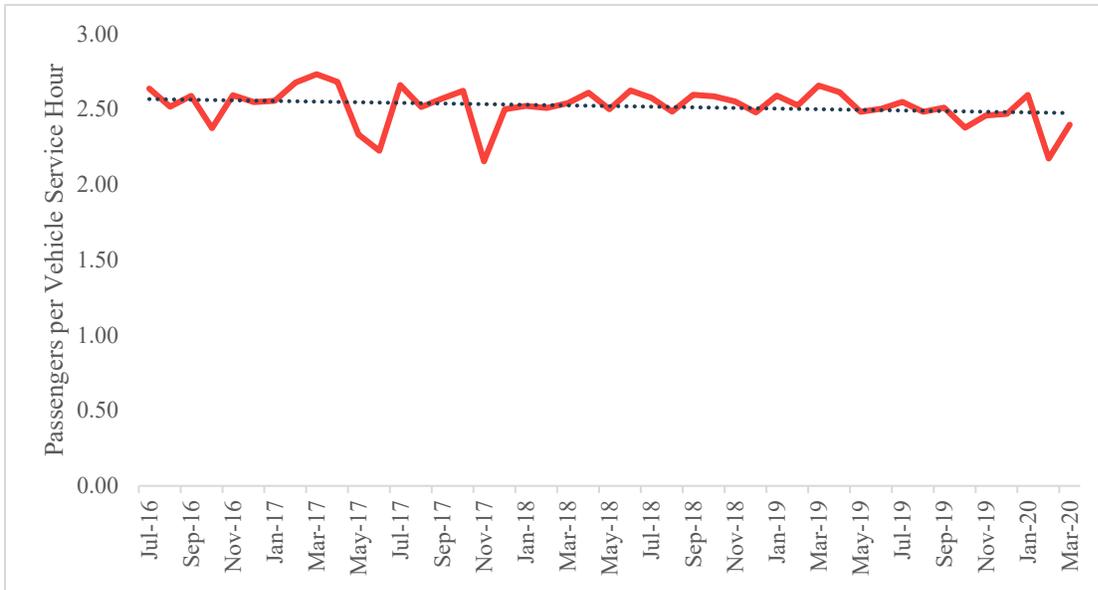
Figure 3-2: Nevada County Now Total Boardings



Source: Nevada County Transit Services.

Figure 3-3 shows the number of passengers per vehicle service hour. Passengers per vehicle service hour has remained fairly constant (at 2.50 passengers per vehicle service hour) over the time period.

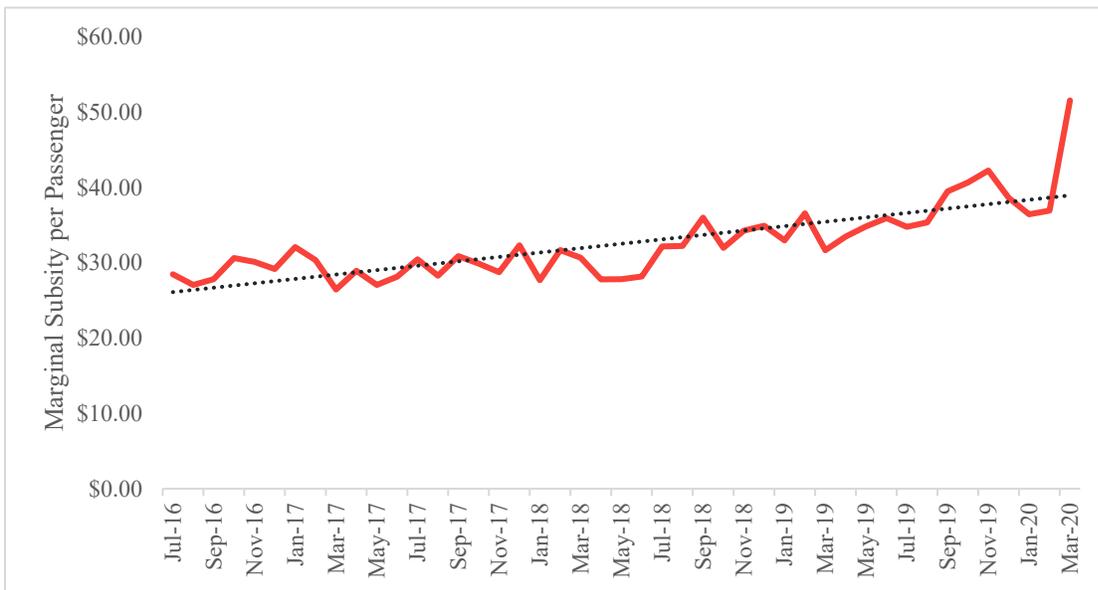
Figure 3-3: Nevada County Now Passengers per Vehicle Service Hour



Source: Nevada County Transit Services.

Figure 3-4 shows the subsidy per passenger for Nevada County Now from July 2016 to March 2020. Over time, the subsidy per passenger has increased.

Figure 3-4: Nevada County Now Subsidy per Passenger



Source: Nevada County Transit Services.

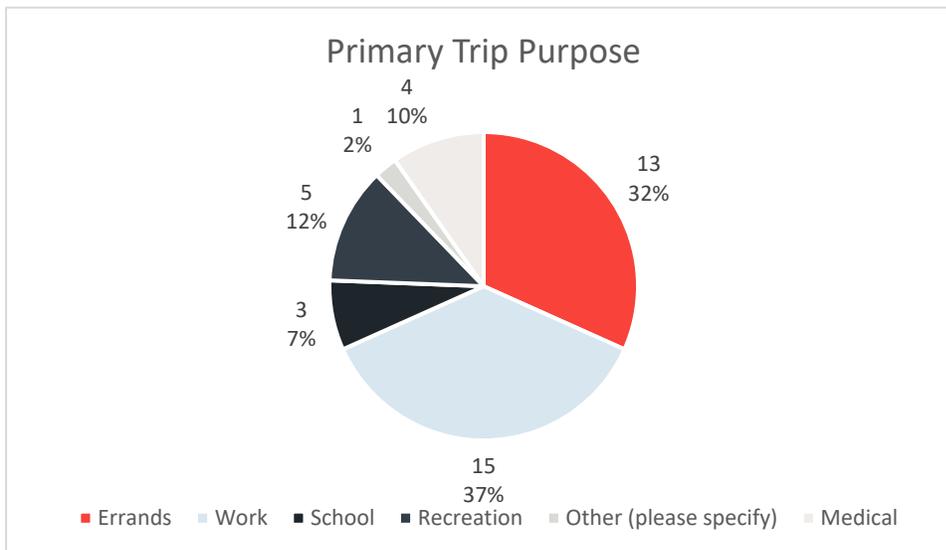
4 PUBLIC OUTREACH

The project consisted of three rounds of public outreach. The first outreach was a survey that was available online and on transit vehicles for customers to fill out. The second round included a workshop that focused on identifying the priorities of the attendees. The final outreach summarized the recommended changes to the system.

4.1 SURVEY SUMMARY

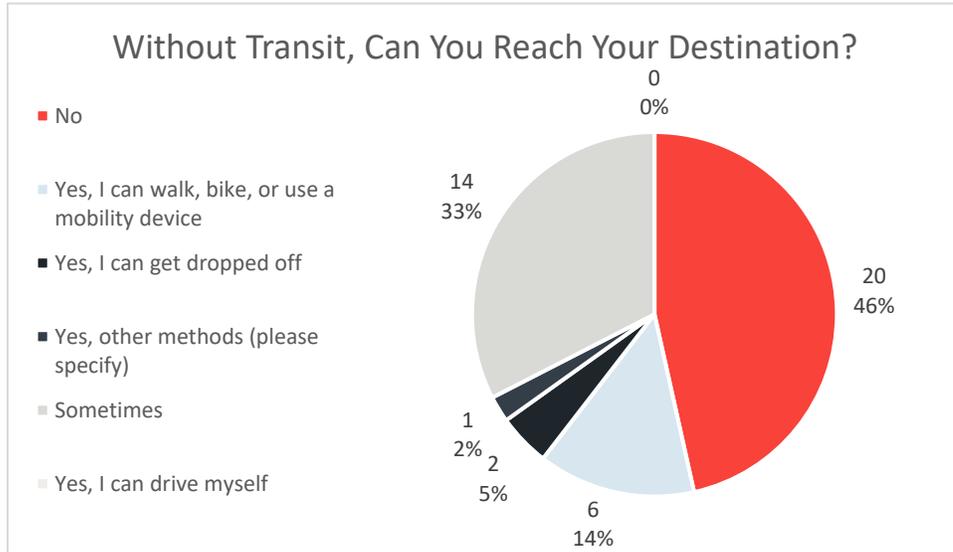
Based on survey results, the primary trip purposes are for errands and work, followed closely by medical and recreation trips. The customer responses demonstrate that the service is used for more than just commuting and access to destinations like shopping centers and other stores are essential.

Figure 4-1 Primary Trip Purpose



Based on the survey results, nearly half of the customers would not be able to reach their destination without Nevada County Connects or Now followed by 33 percent that would sometimes be able to reach their destination. The high percentage of customers that would not be able to reach their destinations without transit underscores the importance of mobility and ensuring the mobility for customers.

Figure 4-2 Ability to Reach Destination Without Transit



4.2 FIRST PUBLIC WORKSHOP

The first public workshop was held in June 2020 and had representatives of the public and social service agencies at the meeting

The primary comments provided by attendees was the need to use transit to travel to and from errands and into town and the need to enhance and frequency to areas like Alta Sierra, Lake Wildwood, and along Highway 49 to make the service more usable for senior and disabled customers.

At a regional level, attendees identified the need for connections to Eastern Nevada County and to areas like Sacramento and Yuba City.

4.3 SECOND PUBLIC WORKSHOP AND TRANSIT SERVICES COMMISSION

The second workshop consisted of a summary of the recommendations to the public and the Transit Services Commission. The public meeting was sparsely attended.

The presentation to Transit Services Commission summarized the recommendations. Comments provided by the commission focused on ensuring that North San Juan and North Columbia residents would maintain some form of mobility to access the Core Service area. It was also clarified that any changes to the system would be brought to the Commission.

5 OPERATIONAL RECOMMENDATIONS

5.1 NEVADA COUNTY CONNECTS

The following details the recommended change to the Nevada County Connects System. The changes and cost are detailed in Table 5-1 and the recommended system map is shown in Map 5-1. The recommended changes are expected to increase operating cost by 58,933.58 or one percent of the current operating budget. The cost increase includes the change of converting Route 1 to 30-minute service which would have occurred in the middle of the study if COVID-19 did not occur (an almost \$300,000 increase).

Map 5-1 System Map

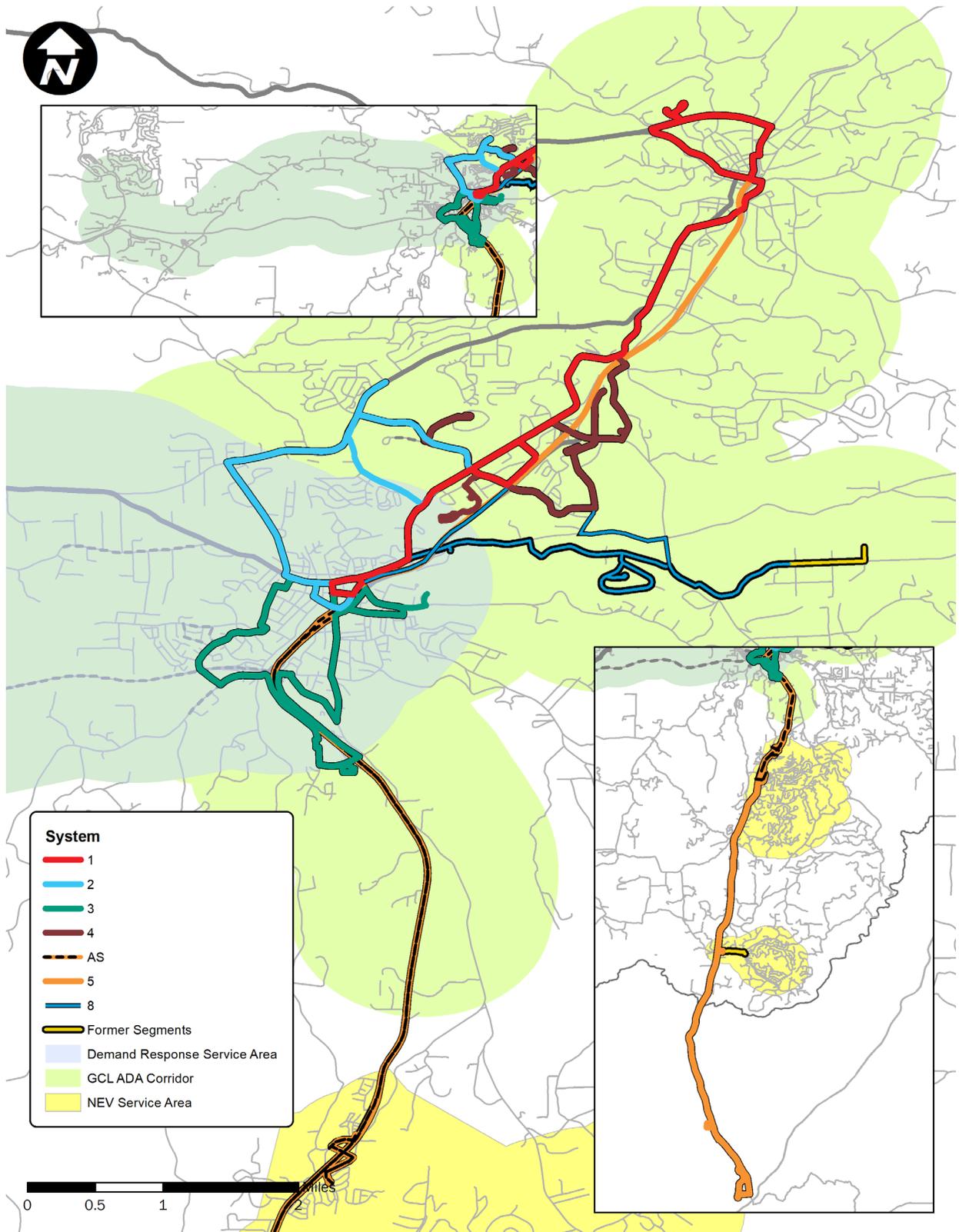


Table 5-1 Recommended Service for Nevada County Connects

Route	Description of Change	Operating Cost	Proposed Change Operating Cost	Difference	Vehicles
Route 1	Continue with the planned service increases and remove all deviations to provide consistent routing on the entire route. Increase frequency to every 30-minutes from start and end of peak.	\$485,981.15	\$764,633.67	\$278,652.52	2
Route 2	Continue with existing service and travel on the new Hughes Routing.	\$117,091.01	\$115,688.44	-\$1,402.57	0.5
Route 3	Continue with the existing service and shorten the turnaround of the Loma Rica Loop, remove the Butler Street Deviation, and reroute the Loma Rice Loop to use Sutton Way. Consider rebranding the Loma Rice Loop with its own route number.	\$375,124.48	\$371,476.83	-\$3,647.65	1.5
Route 4	Continue with existing service, remove inbound service to Sierra College on weekdays, all trips to Sierra College on weekends, the Litton deviation, and the Hughes Street deviation.	\$487,822.27	\$465,511.40	-\$22,310.87	1
Route 5	Add additional trips in the morning that supplement Route 1 when it is not operating and provide earlier service to connect with PCT Express an Amtrak. Discontinue service past the new Holiday Market.	\$500,627.60	\$784,138.92	\$283,511.32	2
Route 6	Replace existing service with demand response service and expand to cover more of Lake Wildwood.	\$285,947.10	\$179,552.60	-\$106,394.50	2
Route 7	Discontinue the service and assist in implementing a volunteer driver program through ConnectingPoint and/or the community center.	\$253,359.15	\$0.00	-\$253,359.15	0
Route AS	Continue Service as is.	\$16,425.18	\$16,425.18	\$0.00	0.5
Total		\$5,335,920.49	\$5,394,854.07	\$58,933.58	9

5.1.1 ROUTE 1

5.1.1.1 SERVICE CHANGES

It is recommended that the following changes occur to Route 1's alignment and service to improve consistency and service:

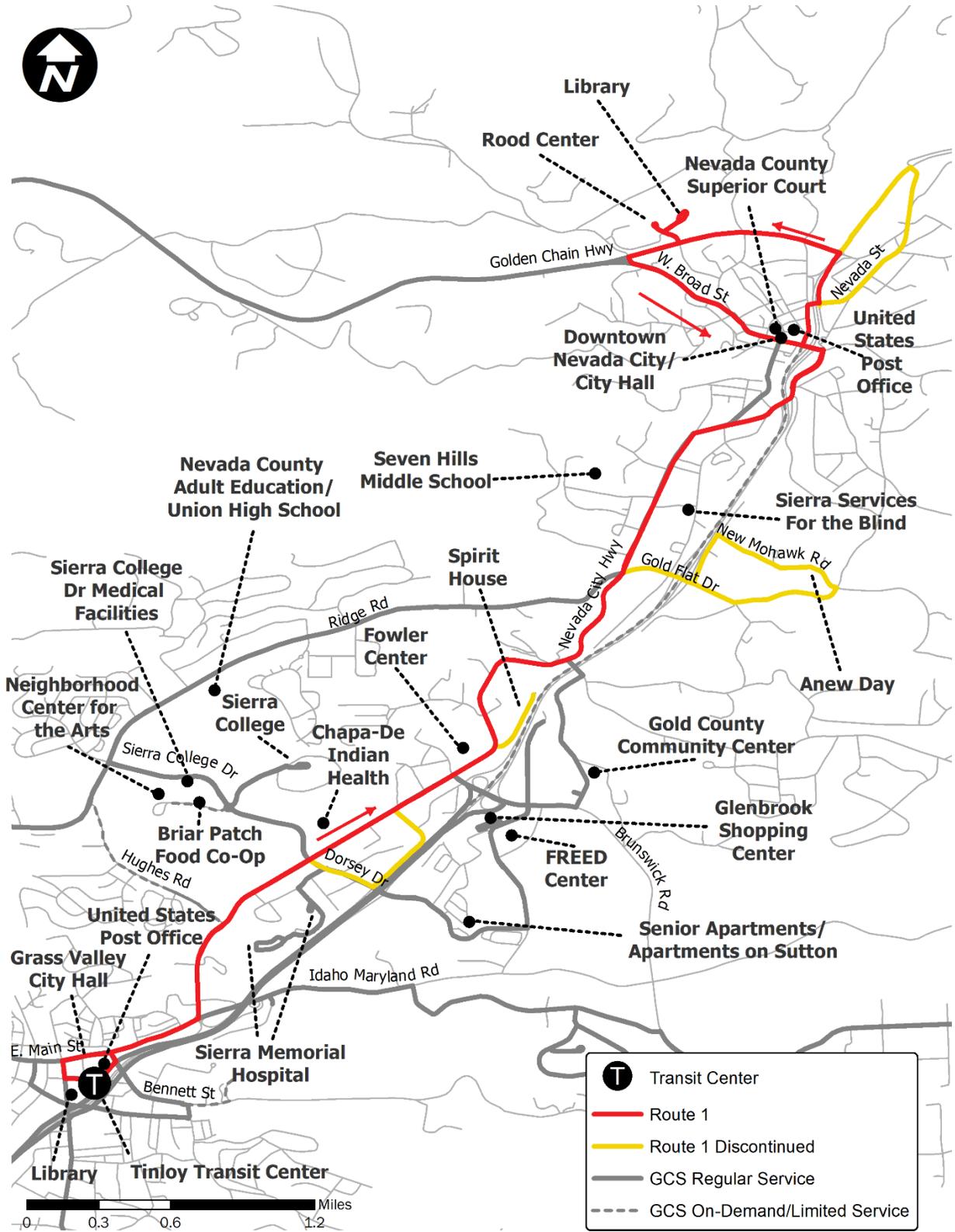
- Discontinue use of the Joerschke Drive loop southbound and continue on Main Street with the addition of stops southbound and northbound near Chapa-De Health Clinic. Customers on Joerschke would be able to walk to Main Street to access Route 1 or Dorsey Road to access Route 4 with the areas within ¼-mile of existing or future stops.
 - This would reduce mileage by 0.3 miles per trip and an estimated 4.2 total miles on weekday and 3.0 miles per Saturday.
- Discontinue the deviation on Nevada Street at Willow Valley Road to provide consistent routing.
 - This would Result in reduced mileage of 0.6 miles per trip and a total of 4.2 miles per weekday and 2.4 miles per Saturday.
- Discontinue deviation to Spirit House, existing stops on Nevada City Highway are less than a 1/3-mile from the Spirit House stop. There is a 7 percent grade on Gates Place between the end of the street and Nevada City Highway, but this is within Nevada County Now's service area and seniors and disabled customers would be able to utilize that service if needed.
 - This would result in reduced mileage of 0.5 miles per trip or 1.5 miles on weekdays and 1.0 mile on Saturday.
- Discontinue Service to New Mohawk Road. The Nevada County Narrow Gauge Railroad is only open on weekends in the fall and winter and Friday – Tuesday in the summer. The existing service does not coincide with when staff would use the service (opens 10:00 AM – 4:00 PM but service is at 7:10 AM and 9:10 AM and 3:10 PM and 5:10 PM). Most of the New Mohawk area is within Nevada County Now's service area.
 - This would result in reduced mileage of 1.6 miles per trip or 6.4 miles per weekday and 3.2 miles per Saturday
- Increase frequency to every 30-minutes between

The summary of the change in operating cost is shown in Table 5-2 and in Map 5-1.

Table 5-2 Route 1 Alignment Changes and Cost (FY 2025-2026)

Segment	Weekday Miles	Total Weekday Miles	Weekday Cost (FY 2025-2026)	Saturday Miles	Total Saturday Miles	Saturday Cost (FY 2025-2026)	Total Cost (FY 2025-2026)
Joerschke Drive	-4.2	-1,071.0	\$-2,878.29	-3.0	-156.0	\$-419.25	\$-3,297.54
Nevada Street at Willow Valley Road	-4.2	-1,071.0	\$-2,878.29	-2.4	-124.8	\$-335.40	\$-3,213.69
Spirit House	-1.5	-382.5	\$-1,027.96	-1.0	-52.0	\$-139.75	\$-1,167.71
New Mohawk	-6.4	-1,632.0	\$-4,385.97	-3.2	-166.4	\$-447.20	\$-4,833.17
Increased Frequency	111.2	28,356.0	\$291,164.61	0	0	0	\$-291,164.61
Total	16.3	4,156.5	\$279,994.10	-9.6	-499.2	\$-1,341.59	\$278,652.51

Map 5-2 Route 1 Recommendations



5.1.1.2 STOP IMPROVEMENTS

Based on feedback from operators and proposed alignment changes the following stop recommendations include:

- Add northbound and southbound stops on Main Street near Chapa-De Clinic (if the Joerschke loop is not eliminated, add a stop in the northbound direction)
- Improve northbound stop on Nevada City Highway at Gold Flats Road
- Improve ADA accessibility of Northbound stop at Fowler Center

5.1.1.3 TIMEPOINTS

Completely removing the deviations which all have timepoints, Route 1 has a total of seven timepoints in each direction even though it is around a 25-minute one-way trip which equates to a timepoint every 3.5 minutes and less than every mile.

To reduce the amount of timepoints, they should be changed to the following in each direction:

- Tinloy Transit Center
- Fowler Center
- Zion St at SPD Market
- Eric R Rood Government Center

5.1.2 ROUTE 2

5.1.2.1 SERVICE CHANGES

The Hughes deviation is recommended to be made permanent. The change in operating cost is very minimal and providing consistent routing would benefit customers to know when the service will operate where and operators through more consistency.

If made permanent, the alignment would change to travel down Hughes Road, turn left on Main Street, then turn left on Sierra College before returning to Ridge Road which would then require the discontinuation of the stops traveling southeast on Sierra College Drive, including the stop with a bench and shelter directly adjacent to the Briar Patch. Customers would need to utilize a non-ADA accessible stop and cross a street to then access the grocery store which would most likely need to be improved.

The alignment change would result in the following:

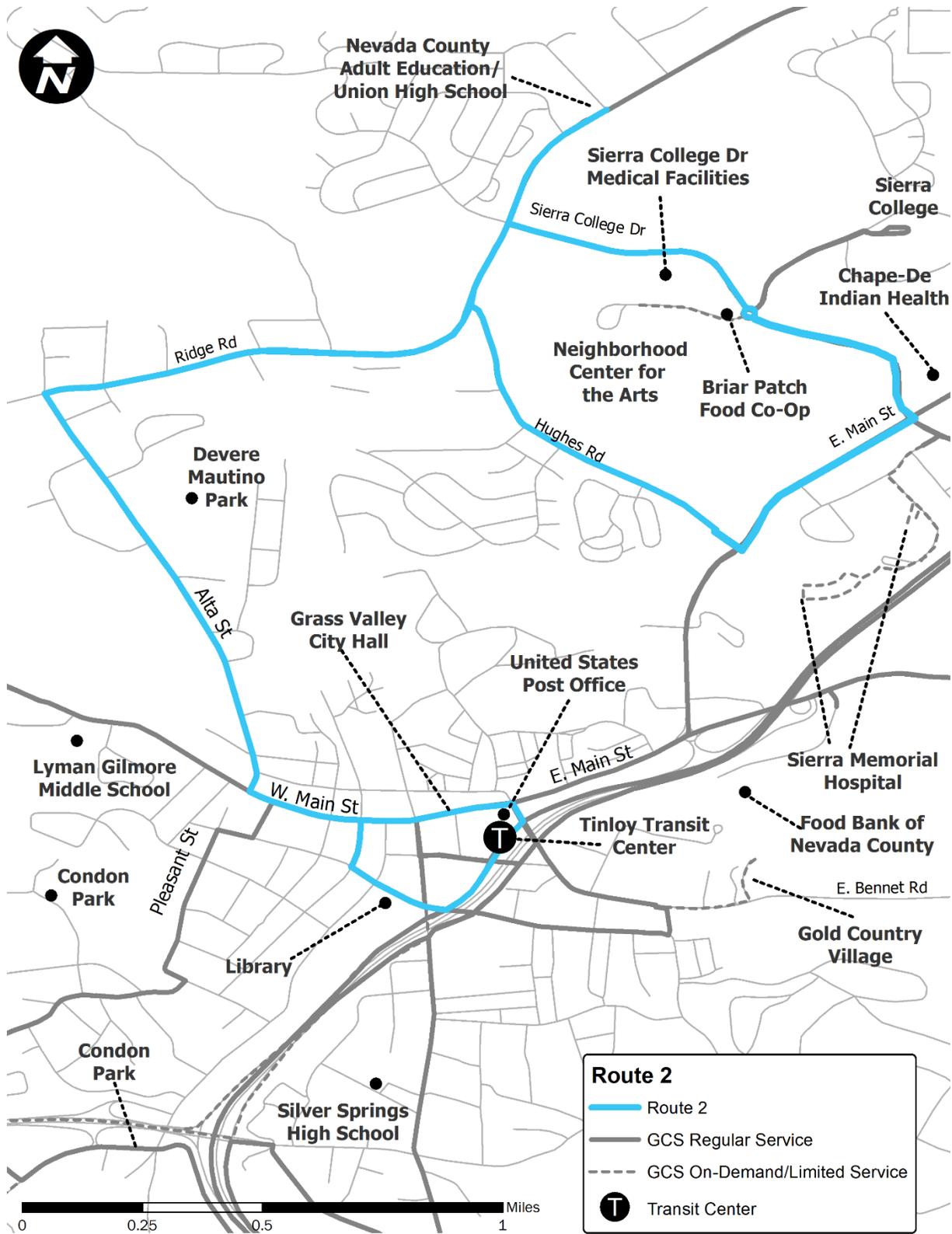
A reduction of 0.3 miles per trip or 1.8 miles on weekdays and 1.2 miles on weekends.

The cost breakdown is shown in Table 5-3 and the change in routing is shown in Map 5-2.

Table 5-3 Route 2 Alignment Changes and Cost (FY2025 - 2026)

Segment	Weekday Miles	Total Weekday Miles	Weekday Cost (FY 2025-2026)	Saturday Miles	Total Saturday Miles	Saturday Cost (FY 2025-2026)	Total Cost (FY 2025-2026)
Hughes Street Change	1.8	459	\$1,234.71	1.2	62.4	\$167.86	\$1,402.57

Map 5-3 Route 2 Recommendations



5.1.2.2 STOP IMPROVEMENTS

The stop across from the Briar Patch Food Co-Op should be improved if the Hughes Road deviation is made permanent.

5.1.2.3 TIMEPOINTS

Similar to Route 1, Route 2 should have the condensed timepoints listed below. The recommended list condenses the total timepoints from ten to six.

- Outbound: Tinloy Transit Center
- Outbound: Ridge Road at Hughes Road
- Outbound: Nevada Union High School
- Inbound: Nevada Union High School
- Inbound: Ridge Road at Hughes
- Inbound: Tinloy Transit Center

5.1.3 ROUTE 3

5.1.3.1 SERVICE CHANGES

The following changes to alignment should occur for Route 3:

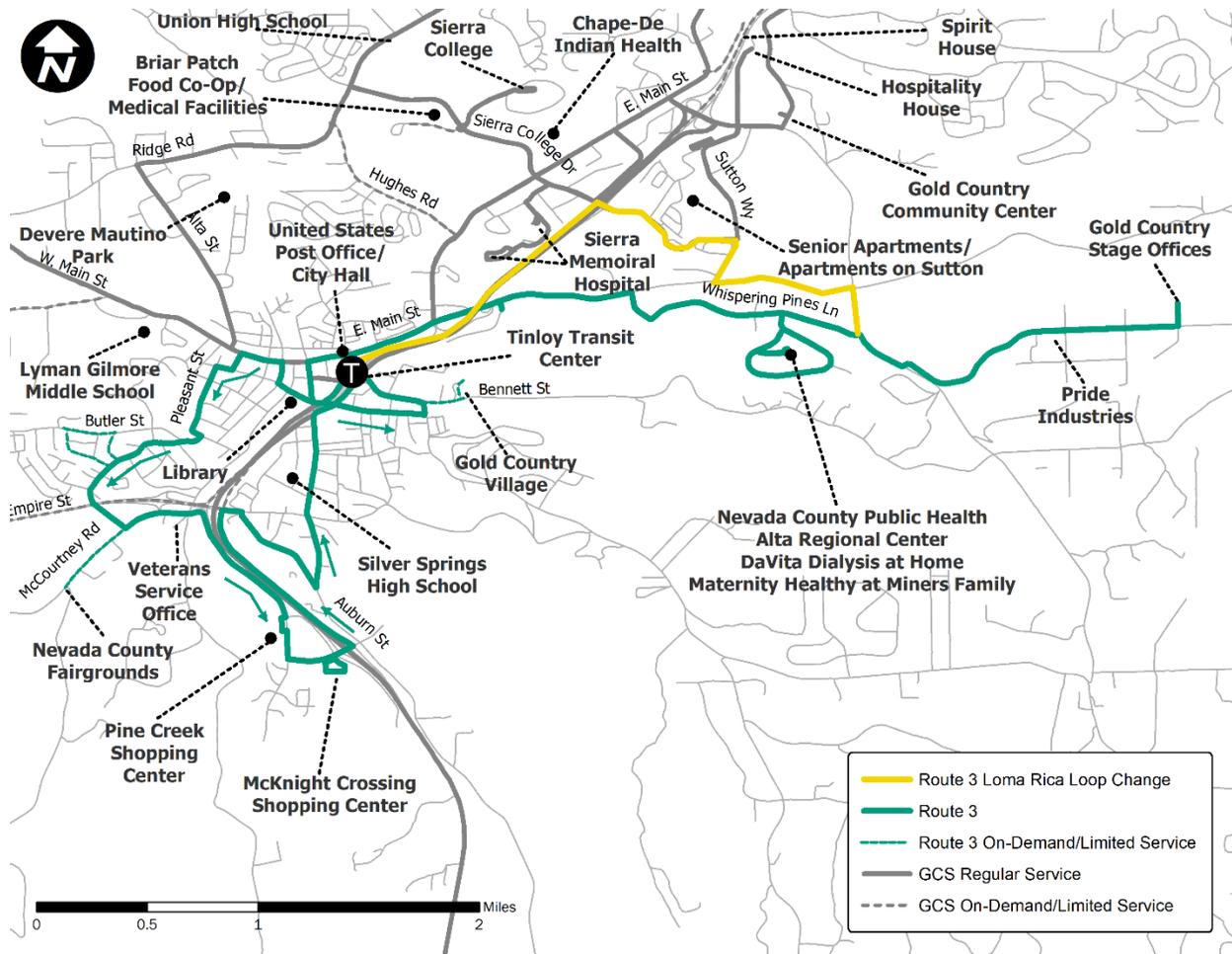
- The Loma Rica Loop return segment should be rerouted to use Sutton Way, Dorsey Drive, and Highway 20 to return to Tinloy Transit Center. This provides better connections to the senior and higher density housing on Sutton Way and potentially increases ridership to Pride Industries.
- The rerouting adds an additional 0.6 miles per trip and a total of 3.6 miles on weekdays.
- The Butler Street deviation should also be eliminated.
- The rerouting reduces miles by 0.5 per trip and 6.5 miles on weekdays and 4.5 miles on Saturdays.
- The Loma Rica loop no longer needs to travel to former Gold Country Stage offices and can turnaround at Pride Industries, route would continue on Loma Rice Dr, turn right on Nevada City Ave, turn right on Charles Dr, turn right on Grass Valley Ave, then turn left on Loma Rica Drive.
- The rerouting reduces the distance by 0.25 miles or 1.5 miles on weekdays.

The alignment changes and respective costs are shown in Table 5-4 and shown in Map 5-3.

Table 5-4 Route 3 Alignment Changes and Cost (FY 2025 -2026)

Segment	Weekday Miles	Total Weekday Miles	Weekday Cost (FY 2025-2026)	Saturday Miles	Total Saturday Miles	Saturday Cost (FY 2025-2026)	Total Cost (FY 2025-2026)
Sutton Drive	3.6	918	2,469.42	-	-	-	\$2,469.42
Butler Street	-6.5	-1,657.50	\$-4,458.68	-4.5	-234.0	\$-629.46	\$-5,088.14
Pride Industries	-1.5	-382.50	\$-1,028.93	-	-	-	\$-1,028.93
Total	-4.4	-1,122.0	\$-3,018.19	-4.5	-234.0	\$-629.46	\$-3,647.65

Map 5-4 Route 3 Recommendations



5.1.3.2 STOP IMPROVEMENTS

No recommended changes.

5.1.3.3 TIMEPOINTS

Similar to the previous routes, Route 3 should reduce the number of timepoints. The following details the timepoints that should remain for both loops:

- Grass Valley Loop
 - Tinloy Transit Center
 - Pine Creek Shopping Center
 - Brighton Street at Fairgrounds
 - Tinloy Transit Center
- Loma Rica Loop
 - Tinloy Transit Center
 - Crown Point Circle
 - Pride Industries
 - Dorsey at Ridge Care Center (assuming the new routing occurs)
 - Tinloy Transit Center

5.1.4 ROUTE 4

5.1.4.1 SERVICE CHANGES

The following changes to Route 4 should be implemented:

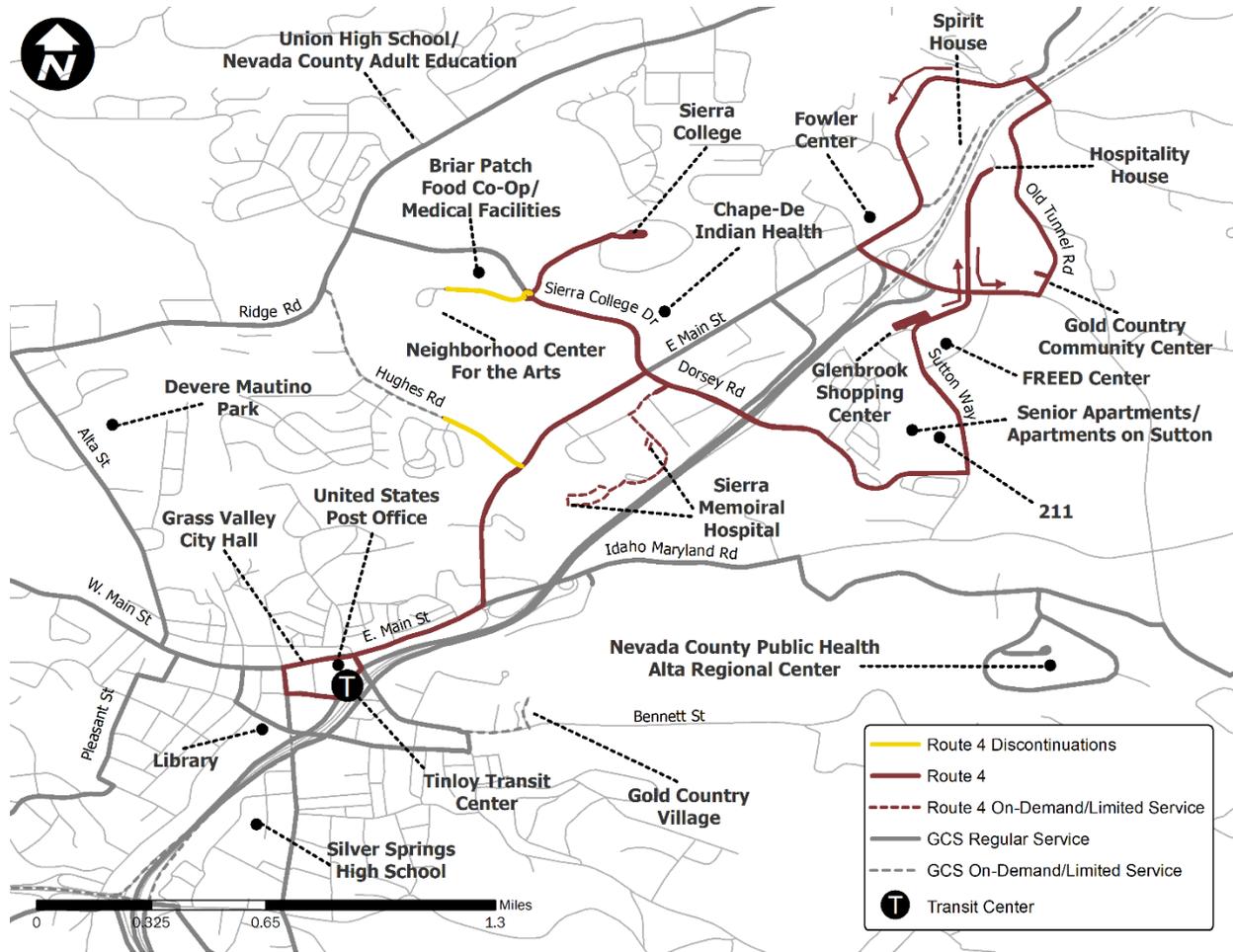
- The Route currently serves Sierra College in both directions on Weekdays and Saturday. The weekday service should be discontinued returning to Tinloy Transit Center. Customers wishing to travel to Sierra College would be able to remain on the vehicle and/or not pay an additional fare and reach Sierra College on the outbound trip, around 20 minutes later. Although this change would reduce running time, it will be used to increase on-time performance if there are any deviations called to the hospital.
 - The alignment change would reduce miles traveled by 1.5 per trip or 19.5 miles on weekdays and 27 miles on Saturdays (Saturday is larger because all trips will no longer serve Sierra College).
- The two trips that serve Hughes Road should be discontinued. This discontinuation will reduce potential confusion for customers and operators because of how infrequent the deviation is currently operated (twice a day).
 - The alignment change would reduce distance traveled by 0.9 miles or 1.8 miles for both weekday and Saturdays.
- The Litton Drive deviation should be discontinued; the stop is within ¼-mile of existing stops on Sierra College Drive and there are sidewalks with no steep slopes between the existing stop and the next closest stop.
 - The alignment change will reduce distance traveled by 0.36 miles per trip or 4.7 miles on weekdays and 3.2 miles on Saturdays.

The changes to costs are shown in Table 5-5 and shown in Map 5-4.

Table 5-5 Route 4 Alignment Changes and Cost (FY 2025 -2026)

Segment	Weekday Miles	Total Weekday Miles	Weekday Cost (FY 2025-2026)	Saturday Miles	Total Saturday Miles	Saturday Cost (FY 2025-2026)	Total Cost (FY 2025-2026)
Sierra College	-19.5	-4,972.5	\$-13,376.03	-27.0	-1,404	\$-3,776.76	\$-17,152.79
Litton Drive	-4.7	-1,198.5	\$-3,223.97	-3.2	-166.4	\$-447.62	\$-3,671.59
Hughes Road	-1.8	-459.0	\$-1,234.71	-1.8	-93.6	\$-251.78	\$-1,486.49
Total	-26.0	-6,630.0	\$-17,834.71	-32.0	-1,664.0	\$-4,476.16	\$-22,310.87

Map 5-5 Route 4 Recommendations



5.1.4.2 STOP IMPROVEMENTS

No recommended changes.

5.1.4.3 TIMEPOINTS

Similar to the previous routes, Route 4 should reduce the number of timepoints. The following timepoints are recommended:

- Tinloy Transit Center
- Sierra College (outbound only)
- Sierra Nevada Hospital (on-demand)
- Glenbrook Shopping Center
- Hospitality House
- Fowler Center
- Glenbrook Shopping center
- Dorsey Drive at Segworth
- Tinloy Transit Center

5.1.5 ROUTE 5/AS

5.1.5.1 ROUTE 5 SERVICE CHANGES

To enhance connections from Alta Sierra and Lake-of-the-Pines to Route, a Neighborhood Electric Vehicle (NEV) service should be introduced in those areas. These would be small vehicles that would provide short distance trips for customers to enhance circulation within the areas and also connect with the commuter service to Auburn. The service areas for the NEV are shown in Map 5-5. If successful, these programs could be introduced in Lake Wildwood and potentially in Grass Valley and Nevada City to enhance the ability for customers to traverse steep terrain in short distances and reduced the need for parking in the downtown areas to enhance the walkability of each city.

The following alignment changes should occur to Route 5:

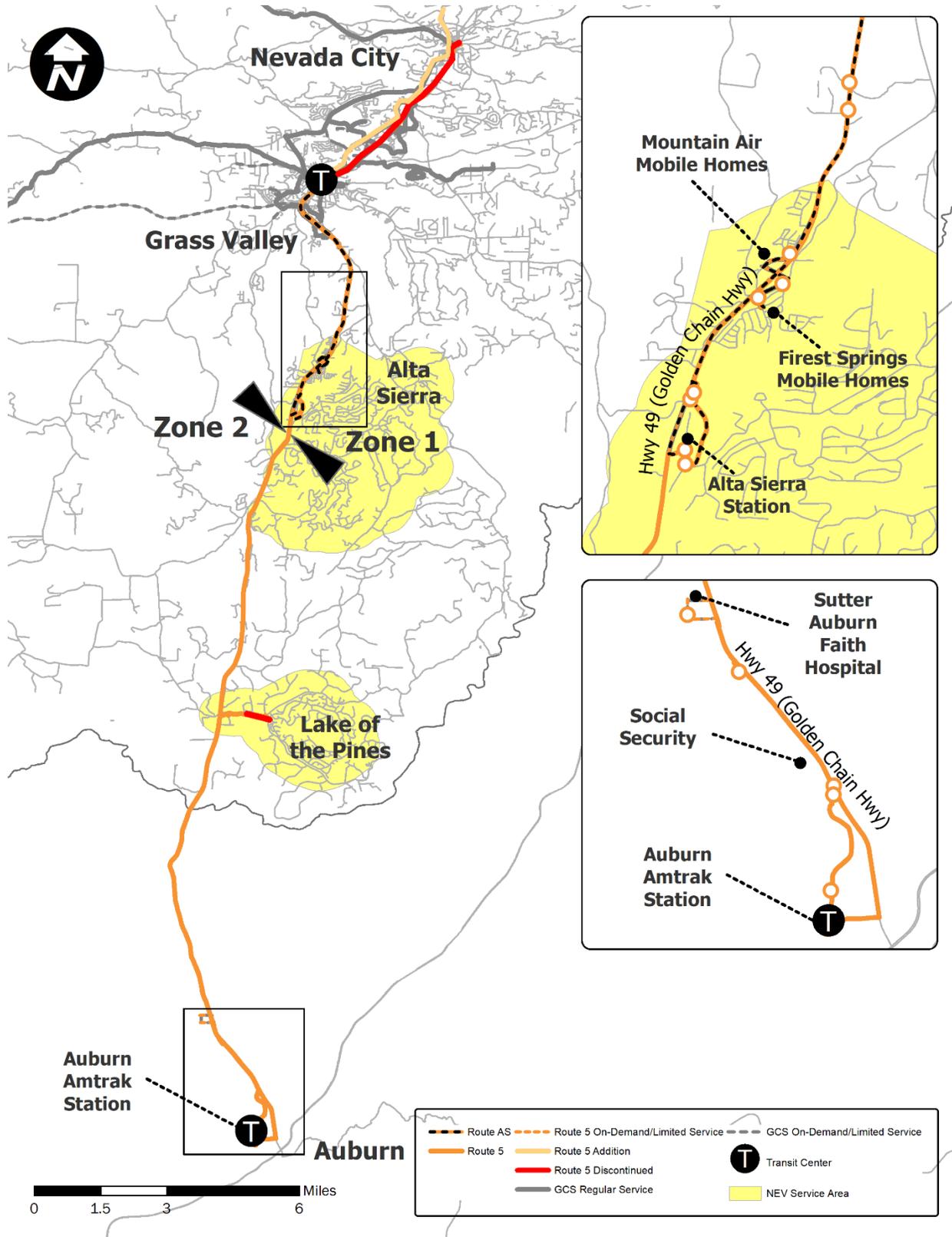
- Because Route 1 does not operate when the first trip on Route 5 departs Tinloy Transit Center, extending Route 5 to operate from the Eric R Rood Government Center to Tinloy Transit Center via Main Street, Zion Street, and Nevada City Highway would improve commuter access for Nevada City and Grass Valley residents.
 - This would result in an additional 0.5 revenue hour per trip and a total of 1 additional revenue hour a day and an additional 5.1 miles per trip for a total of 10.2 miles on weekdays.
- If a NEV service is implemented in Lake-of-the-Pines, the segment past the new Holiday Market should be discontinued.
 - This would save 1.6 miles per trip or 19.2 miles each day.

The changes to cost are shown in Table 5-6 and service alignment changes are shown in Map 5-5.

Table 5-6 Route 5 Service Alignment Changes

Segment	Weekday Miles	Total Weekday Miles	Weekday Cost (FY 2025-2026)	Weekday Hours	Total Weekday Hours	Total Weekday Hour Cost	Total Cost (FY 2025-2026)
New Holiday Market	-19.2	-4,896.0	\$-13,170.24	-	-	-	\$-13,170.24
Route 1	10.2	2,601.0	\$6,996.69	1	255	\$21,496.50	\$28,493.19
Total	-9.2	-2,295.0	\$-6,173.55	1	255	\$21,496.50	\$15,322.95

Map 5-6 Route 5 Recommendations



5.1.5.2 ROUTE AS SERVICE ALIGNMENT CHANGES

No recommended changes.

5.1.5.3 ROUTE 5 STOP IMPROVEMENTS

No recommended changes.

5.1.5.4 ROUTE AS STOP IMPROVEMENTS

No recommended changes.

5.1.6 ROUTE 6

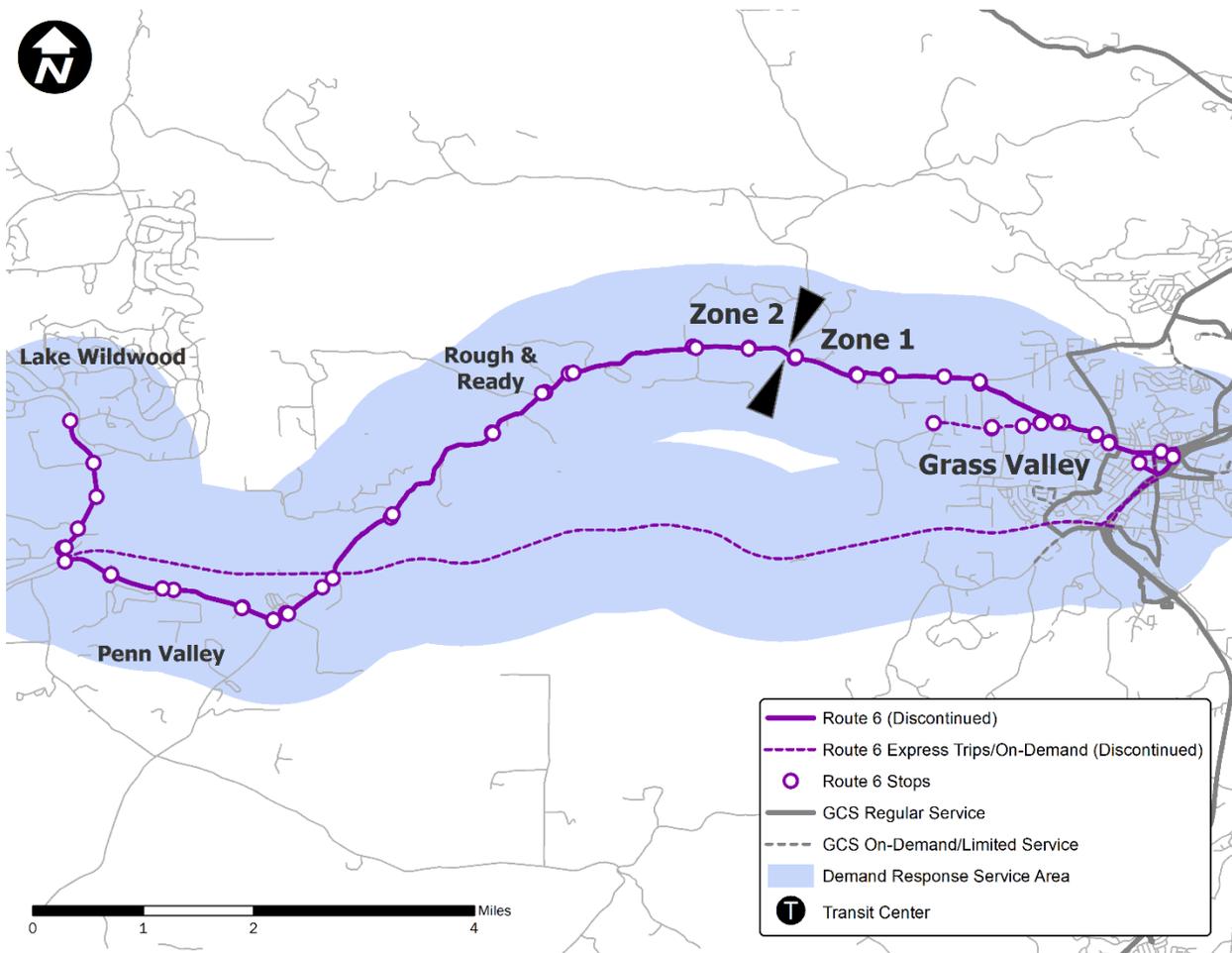
5.1.6.1 SERVICE CHANGES

Convert alignment to be serviced by Nevada County Now service as shown in Map 5-6 with the service open to all users.

Table 5-7 Route 5 Service Alignment Changes

Segment	Cost
Route 6	\$-258,947
Nevada County Now Service	\$179,523
Cost Difference	\$-106,394

Map 5-7 Route 6 Recommendations



5.1.6.2 STOP IMPROVEMENTS

Remove all stops or continue to use with on-demand service if customers are willing to call from former fixed-route stops.

5.1.7 ROUTE 7

5.1.7.1 SERVICE ALIGNMENT CHANGES

The route is recommended for discontinuation after the conclusion of the pilot. The main factor in this recommendation is due to the very low performance and usage of the route.

Like all changes, the Transit Services Commission will be notified before any changes are recommended. With the discontinuation, it is recommended that the TSD work with the community and social providers to develop a volunteer/community provided shuttle program or a volunteer driver program for residents in the outlying area.

Table 5-8 Route 5 Service Alignment Changes

Segment	Cost savings
Route 7	\$253,395

5.1.7.2 STOP IMPROVEMENTS'

None, Due to elimination of the service.

6 CAPITAL AND OTHER RECOMMENDATIONS

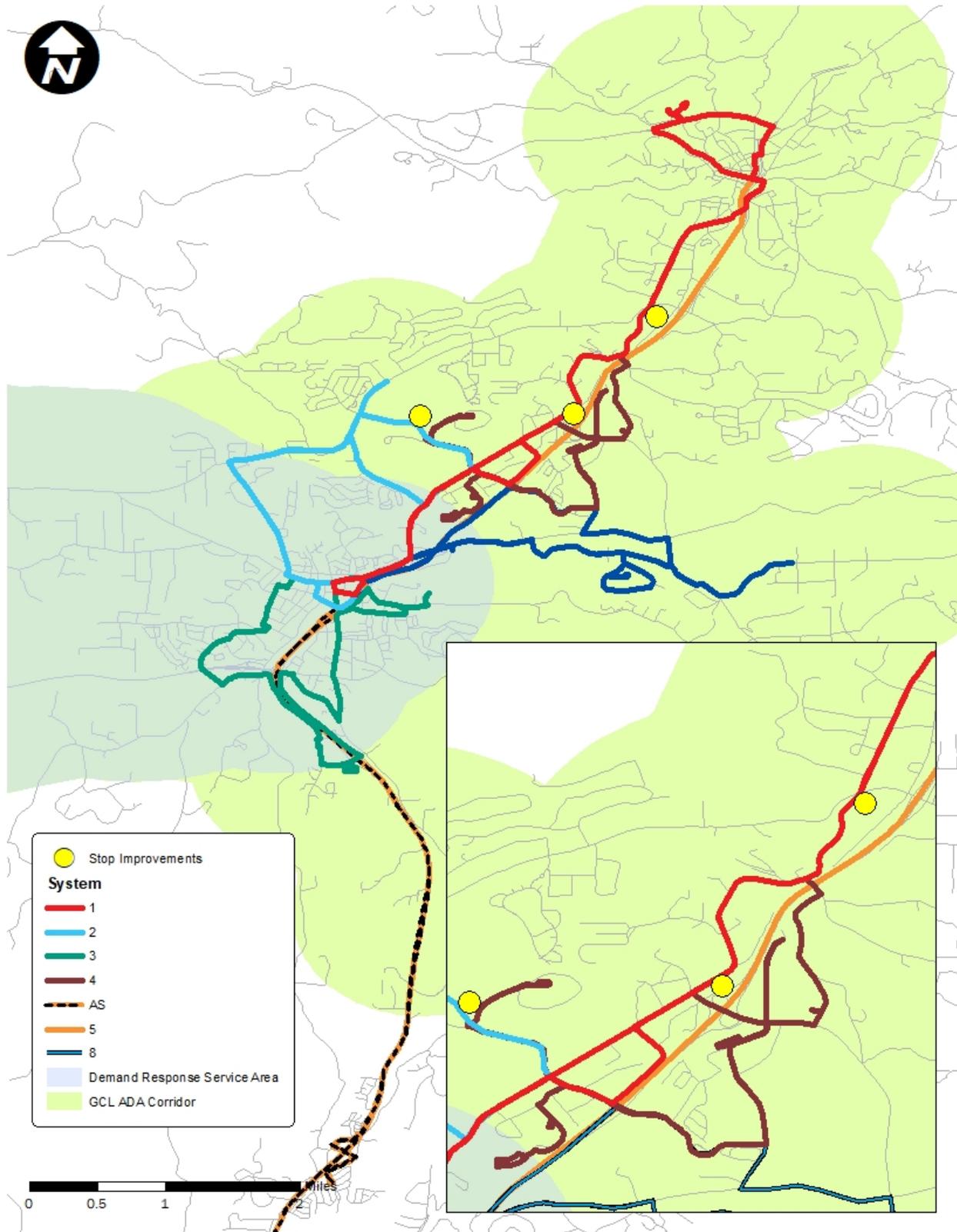
6.1 STOP IMPROVEMENTS

While it is not financially sustainable for every stop to feature a bench and shelter, specific transit stops listed in Table 6-1 are recommended for improvement and shown in Map 6-1. The recommendations are based on feedback from the operators and identified higher usage stops.

Table 6-1 Transit Stop Improvement Recommendations

Transit Stop	Recommended Improvement	Estimated Cost	Routes Served
Across from Briar Patch Food Co-Op	Improve ADA accessibility and consider moving the existing bench and shelter across the street to this stop	\$15,000	Route 2
Nevada City Highway at Gold Flat Road (Northbound)	Improve ADA accessibility and add a bench and shelter	\$15,000 for the ADA accessibility improvements and \$15,000 for the addition of a bench and shelter	Route 1
Fowler Center (Northbound)	Improve ADA accessibility	\$15,000	Route 1

Map 6-1 Stop Improvements



Real-time information is increasingly important for today's riders and enhances the usability of the service through increased knowledge and the ability to provide real-time updates to customers. It is recommended to implement real-time schedule information at select transit stops using electronic schedule holders with e-ink technology. The signs are solar powered, can update automatically with a

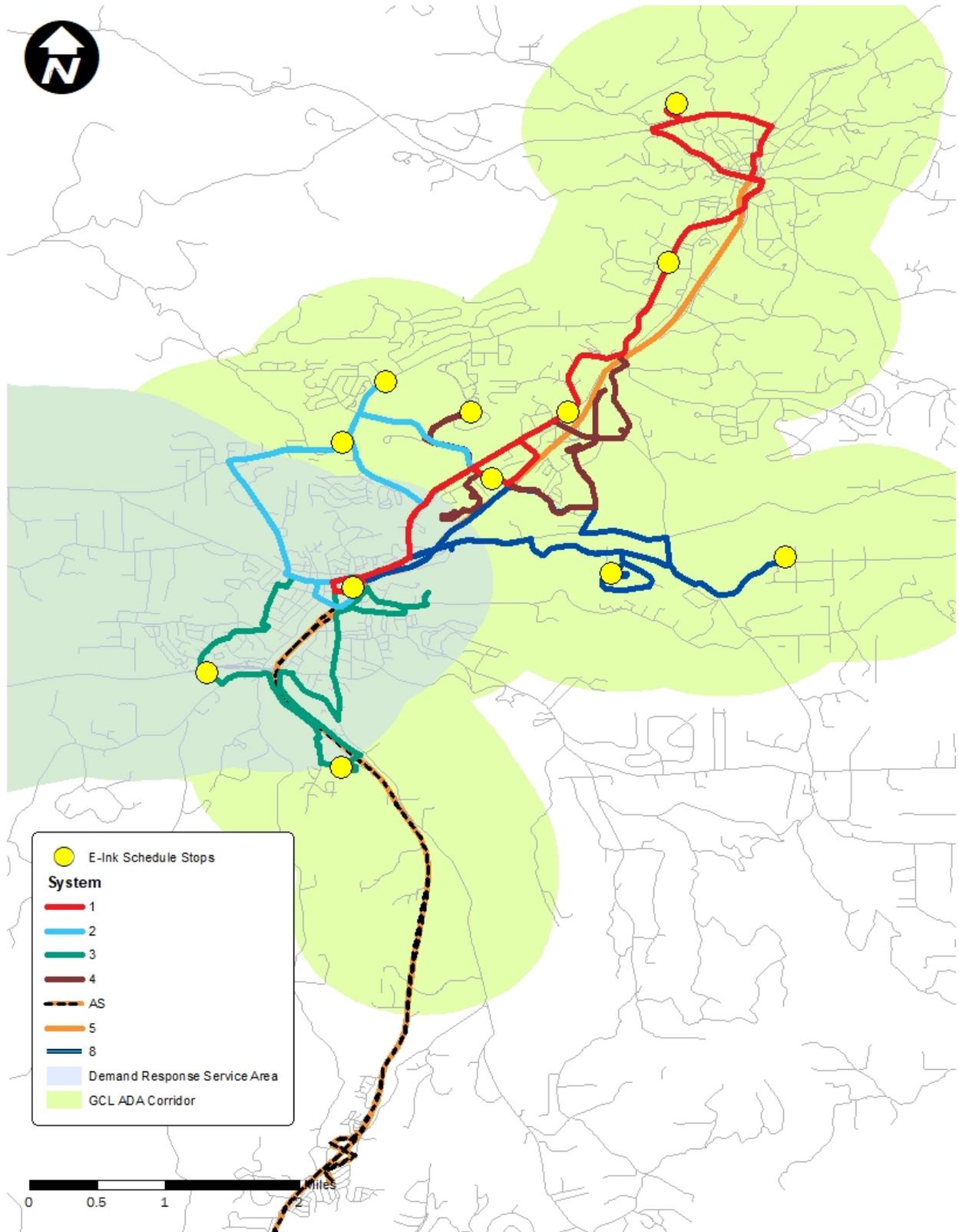
data connection, and can be used to send messages to riders when service may be impacted. It is estimated that each schedule sign costs between \$6,000 - \$8,000, which includes the schedule display, solar equipment, battery, and monitoring equipment. E-ink provides a cost-effective option to provide real-time travel information and has the benefit of requiring almost no power so they can be implemented anywhere without the added infrastructure cost associated with providing utilities. The continued maintenance of the signs is an additional cost estimated at \$500 per year for each digital sign.

The total estimated cost of implementing electronic signage is \$132,000 – \$154,000 for the 21 timepoints and additional \$10,500 in maintenance. Table 6-2 highlights the recommended stops by location and is also shown in Map 6-2.

Table 6-2 E-Ink Schedule Recommended Stops

Transit Stop	Units	Routes Served
Tinloy Transit Center	5	All Routes
Fowler Center (Southbound)	2	Routes 1, 4
Zion St at SPD Market (Both Directions)	2	Route 1, 5
Eric R Rood Government Center	1	Route 1, 5
Ridge Road at Hughes Rd (Both Directions)	2	Route 2
Nevada Union High School	1	Route 1
Pine Creek Shopping Center	1	Route 3
Brighton Street at Fairgrounds Gate	1	Route 3
Crown Point Circle	1	Route 8 (formerly Route 3)
Pride Industries	1	Route 8 (formerly Route 3)
Dorsey at Segsworth	2	Route 4, 8 (formerly Route 3)
Sierra College	1	Route 4
Glenbrook Shopping Center	1	Route 4

Map 6-2 E-Ink Schedule Stops



6.2 VEHICLES

The following section details the vehicles required and the replacement schedule for Nevada County Connects and Now service.

6.2.1 NEVADA COUNTY CONNECTS

Nevada County Connects needs seven vehicles to operate existing service and should maintain the current fleet size of 11, which includes spare vehicles. All existing vehicles at the facility will be eligible for replacement by 2023 (based on a useful life of five-years) with most vehicles exceeding their useful life in 2021. By 2029, Nevada County Connects is required to comply with the California Air Resources Board Innovative Clean Transit (ICT) regulations for all new vehicle purchases to be zero-emission vehicles. Nevada County Connects is proactively experimenting with battery technology and recently received grant funding for two battery electric buses (BEB) that will assist the agency with future decision making on vehicle technology. Nevada County Connects will receive two vehicle credits for the purchase of the BEB and can purchase eight non-zero emission vehicles between 2026 and the start of 2029 while still complying with the ICT regulation. Extending the transition to battery electric for as long as possible will allow Nevada County Connects to reduce vehicle costs and increase the flexibility to replace the seven cutaways that are proposed to remain in the fleet before 2029, while having the added benefit of allowing technology to increase and prices to decrease. Table 6-3 shows the vehicles needed to be replaced, when they should be replaced along with the estimated cost.

Table 6-3 Nevada County Connects Replacement Vehicle Schedule

Service	Vehicle	Make	Model	Year	Replacement Year (Eligible/ Suggested)	Replacement Vehicle	Replacement Cost
Nevada County Connects	57	IC-Eldorado	AreoElite HDE	2015	2020/2021	35' BEB	\$850,000
	58	IC-Eldorado	AreoElite HDE	2016	2021/2021	35' BEB	\$850,000
	59	IC-Eldorado	AreoElite HDE	2016	2021/2022	Cutaway	\$185,000
	60	IC-Eldorado	AreoElite HDE	2016	2021/2022	Cutaway	\$185,000
	61	IC-Eldorado	AreoElite HDE	2016	2021/2022	Cutaway	\$185,000
	62	IC-Eldorado	AreoElite HDE	2016	2021/2023	Cutaway	\$185,000
	63	IC-Eldorado	AreoElite HDE	2016	2021/2023	Cutaway	\$185,000
	64	IC-Eldorado	AreoElite HDE	2016	2021/2023	Cutaway	\$185,000
	65	IC-Eldorado	AreoElite HDE	2016	2021/2023	Cutaway	\$185,000
	66	IC-Eldorado	AreoElite HDE	2018	2023/2024	30' Standard	\$400,000 – \$675,000
	67	IC-Eldorado	AreoElite HDE	2018	2023/2024	30' Standard	\$400,000 – \$675,000

An example schedule of vehicle purchases after 2026 is shown Table 6-4. After the first two BEBs go into service, Nevada County Connects will be able to delay purchasing additional BEBs until 2032 with the cutaways that are procured in 2027, or extend the purchasing even longer depending on the existing vehicle health at the time. This would also position Nevada County Connects to have the luxury of adopting BEB earlier if technology increases to where it would not jeopardize service, drastically increase operating costs with increased deadheads, or allow additional funding to become available where it would make the transition financially sustainable.

Table 6-4 2027 Vehicle Purchasing Schedule

Service	Vehicle	Year In Service Year	Replacement Year Suggested	Replacement Vehicle
Nevada County Connects	35' BEB	2021	2034	30-35' BEB
	35' BEB	2021	2034	30-35' BEB
	Cutaway	2022	2027	Cutaway
	Cutaway	2022	2027	Cutaway
	Cutaway	2022	2027	Cutaway
	Cutaway	2023	2028	Cutaway
	Cutaway	2023	2028	Cutaway
	Cutaway	2023	2028	Cutaway
	Cutaway	2023	2028	Cutaway
	30' Standard	2024	2035	30-35' BEB
	30' Standard	2024	2035	30-35' BEB

6.2.2 NEVADA COUNTY NOW

There are currently 12 vehicles in Nevada County Now’s fleet and they require eight to operate service. All but four of the vehicles are past their useful life and based off the age, use of the vehicles, and the terrain they traverse, it is imperative that the vehicles are replaced as soon as possible (additional vehicles have been awarded in grant funding, but have yet to arrive due to unexpected delays in procurement). The vehicle purchases should be staggered to make capital budget planning easier with similar funds needed each year to procure the vehicles rather than large amounts of funds sporadically; however, due the age of the majority of the vehicles, the vehicles should be replaced as soon as possible. The proposed replacement schedule is shown in Table 6-5 with the majority of the vehicles suggested for replacement this year and all vehicles by 2023. When the majority of the fleet is not past its useful life, two to three vehicles should be replaced every year to balance the procurement schedule.

Table 6-5 Nevada County Now Replacement Vehicle Schedule

Service	Vehicle	Make	Model	Year	Replacement Year (Eligible/ Suggested)	Replacement Vehicle	Replacement Cost
Nevada County Now	2	Ford	V350	2018	2023/2023	Class B/C Vehicle	\$75,000
	3	Ford	V350	2018	2023/2023	Class B/C Vehicle	\$75,000
	4	Ford	V350	2018	2023/2023	Class B/C Vehicle	\$75,000
	5	Ford	V350	2018	2023/2023	Class B/C Vehicle	\$75,000
	6	Ford	E350	2013	2018/2021	Class B/C Vehicle	\$75,000

Service	Vehicle	Make	Model	Year	Replacement Year (Eligible/Suggested)	Replacement Vehicle	Replacement Cost
	7	Ford	E350	2013	2018/2021	Class B/C Vehicle	\$75,000
	8	Ford	E350	2013	2018/2021	Class B/C Vehicle	\$75,000
	9	Ford	E350	2013	2018/2021	Class B/C Vehicle	\$75,000
	10	Ford	E450	2013	2018/2021	Class B/C Vehicle	\$75,000
	11	Ford	E450	2013	2018/2021	Class B/C Vehicle	\$75,000
	12	Ford	E450	2013	2018/2021	Class B/C Vehicle	\$75,000
	13	Ford	E450	2013	2018/2021	Class B/C Vehicle	\$75,000

6.2.3 NEIGHBORHOOD ELECTRIC VEHICLE SERVICE

In addition to the Nevada County Connects and Now’s current services, the service recommendations include implementing neighborhood electric vehicles (NEV) in Alta Sierra and Lake of the Pines (Depending on the success of these two areas, a NEV service could also be introduced in Lake Wildwood). The service recommendations would require at least four vehicles to operate the two recommended NEV zones. Each NEV costs approximately \$16,000, with charging infrastructure costs around \$3,000 per charging unit for a total cost of \$76,000. Because NEVs exclusively benefit the Alta Sierra and Lake of the Pines communities, it is recommended that Nevada County Connects and Now identifies partnerships within those communities to cover the storage and operational costs.

6.3 TECHNOLOGY

Technology advancements have lowered the cost of technology elements, such as real-time travel information and mobile ticketing, that once was too cost-prohibitive for small transit agencies to implement. The increase in technology companies providing goods and service directly to the transportation industry have made these tools more attainable.

Nevada County Connects currently uses software products from Swiftly, Remix, Route Match and Trillium, and should continue to do so. In addition to these software providers, there are many options available for scheduling software, including the use of Remix for fixed-route scheduling. The additional cost is approximately \$10,000, similar to Nevada County Connects current cost for Remix’s planning cloud platform. Route Match, recently purchased by Uber, offers on-demand scheduling services with the aim to improve the existing performance of the service and to increase the accessibility of service to more people. Route Match’s “Next Generation Scheduling” is currently being launched with several transit agencies which should be monitored to see if it could be a solution that would improve Nevada County Now’s performance. Additionally, Remix was recently purchased by Via which would expand the potential software vendors that Nevada County still has a relationship with.

Lastly, Nevada County Connects should procure automatic passenger counter (APC) equipment and software. APC equipment and software will allow for better ridership monitoring and reporting by individual trip and day by recording when and where passengers are boarding and alighting the transit service. It will also improve the ability to provide data to the National Transit Database Reporting, which is required of the transit service. It is estimated that APC equipment will cost around \$10,000 per vehicle, \$500 for operations and maintenance annually, and up to \$250,000 for the installation and use of software

to analyze the data. Depending on if scheduling software is procured, APC equipment would also remove the need for Route Match. Swiftly is beginning to integrate APC information if available live into its system to better inform live decision making.

6.4 SERVICE METRICS

Developing service metrics helps ensure the long-term financial health of Nevada County Connects and Now's transit system and that service is effective, efficient, and sustainable. This section details the performance metrics required for Nevada County Connects to meet California's Transportation Development Act (TDA) funding requirements². The Table 6-6 details the estimated budget, revenue hours, and average fare for Nevada County Transit Services through FY 2025 – 2026. The table assumes consistent service-levels and fare by service type with a three percent inflation for operating costs. The performance metrics are derived from the ridership and fare revenue that would be required to continue to receive the full apportionment of TDA funds in 2026 and uses current service levels as the baseline to develop the metrics. As discussed in previous memos, routes in the Core service area are all routes that provide service within Grass Valley and Nevada City and the outlying routes includes all routes that provide service to the communities surrounding the core area. The following details the core and outlying routes:

Core Service Area

- Route 1
- Route 2
- Route 3
- Route 4

Outlying Service Area

- Route 5
- Route 6
- Route 7
- Route AS

Table 6-6 Forecasted Budget, Revenue Hours, and Average Fare for Nevada County Transit Services

	FY 2020 - 2021	FY 2021 - 2022	FY 2022 - 2023	FY 2023 - 2024	FY 2024 - 2025	FY 2025 - 2026
Transit Budget	\$5,903,096	\$6,080,189	\$6,262,595	\$6,450,472	\$6,643,987	\$6,843,306
Transit Capital Items	\$898,335	\$925,285	\$953,044	\$981,635	\$1,011,084	\$1,041,416
Nevada County Now Budget	\$1,573,370	\$1,620,571	\$1,669,188	\$1,719,264	\$1,770,842	\$1,823,967
Nevada County Connects Operating Budget	\$3,431,391	\$3,534,333	\$3,640,363	\$3,749,574	\$3,862,061	\$3,977,923
Budgeted Revenue Hours	20,196	20,196	20,196	20,196	20,196	20,196
Average Fare Per Passenger FY 2019-2020	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34	\$1.34
Core Service Average Fare	\$1.24	\$1.24	\$1.24	\$1.24	\$1.24	\$1.24
Outlying Service Area Average Fare	\$1.98	\$1.98	\$1.98	\$1.98	\$1.98	\$1.98

Based off the estimated operating cost for each service area and their respective routes’ average fare per passenger, Table 6-7 details the minimum and ideal requirements for farebox recovery, passengers per vehicle revenue hour, and subsidy per passenger along with needed passengers and fare (based on the current average fare for each service area) in 2026.

The minimum metrics are developed with the goal of reaching a 10 percent system-wide farebox in FY 2025 – 2026 and based on the projected total operating expenses identified in the table above, but still account for different nuances between the core outlying service areas. The core service should be able to operate with a higher productivity that supports the service to the outlying areas that are more difficult to serve but provide essential transportation for those that live there. The ideal performance metrics were developed with the system operating with a 15 percent farebox recovery rate and the outlying services reaching the 10 percent minimum required by TDA. Achieving a system-wide 15 percent farebox recovery ratio would allow for enough operating funds to operate an additional 6.4 hours of service (based off implementation in 2026) shown in Table 6-8 with no additional state or federal operational assistance outside of increases due to inflation. The additional funds could be used to implement pilot routes, programs, or add additional service through frequency or span to existing service.

Table 6-7 Performance Metrics

10% System Wide Farebox Recovery - Minimum (2026)					
Service area	Fare Revenue Needed	Boardings Needed	Farebox Recovery	Passengers Per Vehicle Hour	Subsidy per Passenger
Core Routes	\$293,739	236,603	11.6%	17.1	\$10.20
Outlying Routes	\$71,357	36,099	6.5%	5.7	\$32.32
System	\$365,096	272,702	10.0%	13.5	\$13.13
15% System Wide Farebox Recovery - Ideal (2026)					
Service area	Fare Revenue Needed	Boardings Needed	Farebox Recovery	Passengers Per Vehicle Hour	Subsidy per Passenger
Core Routes	\$449,425	362,006	17.3%	26.1	\$6.24
Outlying Routes	\$114,567	57,958	10.0%	9.2	\$19.38
System	\$563,992	419,965	15.0%	20.8	\$8.05

Table 6-8 Potential Transit Reinvestment with 15% Farebox Recovery

15% System-Wide Farebox Recovery (2026 Stats)	Stats
Usable Operating Funds	\$198,896.13
Expected Fares from Additional Service	\$19,889.61
Operating and Fare Funds	\$218,785.74
Cost Per Hour	\$133.84
Potential Additional Hours of Service	1,634.65
Additional Revenue Hours per Day (255 Weekdays)	6.4

Table 6-9 shows the potential implications that increased operating costs with stagnant ridership and no change to fares will have on funding. In the example below all operating costs are met in present day, but with ridership staying consistent there will be a 1.4 percent shortfall in five years with no new sources of funding. In this situation, performance monitoring will help provide Nevada County Connects and Now with yearly data to make decisions to address the funding shortfall: raise fares, reduce service, or identify other sources of revenue.

Table 6-9 Example of Impacts of Fares Staying Constant with Increased Inflation on Operating Cost

Budget Items	Present Day	Year 1	Year 2	Year 3	Year 4	Year 5
Operating Funds Needed (3% adj CPI)	100	103	106	109	113	116
Subsidy Provided (3% adj CPI)	90	93	95	98	101	104
Fares	10	10	10	10	10	10
Additional Revenue Needed	0.0	0.3	0.6	0.9	1.3	1.6
Percent Funding Shortfall	0.0%	0.3%	0.6%	0.8%	1.1%	1.4%

6.5 GOVERNANCE

Transit in Western Nevada County is currently operated under the Nevada County Transit Services Division (TSD). The TSD reports to the Nevada County Public Works Department, the Transit Services Commission (TSC) and the Board of Supervisors. The goal of this analysis of the current governance structure is to determine if there may be a better alternative that would improve service delivery and transit performance overall. The following types of governance were analyzed in the study:

1. Municipal Agency:
 - a. Public transit services are managed by a department in one of the municipalities within the transit service area (current structure)
 - b. Examples include Santa Rosa City Bus, Placer County Transit, and Nevada County Transit Services
2. Joint Powers Authority:
 - a. A separate entity that is formed when two or more public agencies enter into a Joint Powers Agreement to establish a legally separate entity to oversee and provide a specific service
 - b. May make and enter into contracts; employ agents and employees; sue and be sued; incur debts, obligations, and liabilities, including the issuance of bonds; own or lease equipment or buildings; acquire property; and apply for grants from public agencies and administer funds
 - c. Governed by a separate board which consists of one or more representatives of each entity
 - d. Administrative functions currently performed by County departments would be conducted by TSD staff or outside contractors
 - e. Examples include Caltrain, San Francisco Bay Area Rapid Transit, Amador Transit, El Dorado Transit Authority
3. Special District
 - a. Any agency of the State for the local performance of governmental or proprietary functions within limited boundaries
 - b. Formed by submitting a petition or resolution to the county's Local Agency Formation Commission (LAFCO) or through the legislative actions of a State Senator or Assembly Representative \ Administrative functions currently performed by County departments would be conducted by TSD staff or outside contractors
 - c. It includes an elected board that has taxing authority, which a JPA does not
 - d. Examples include North County Transit District, AC Transit, and Central Contra Cost Transit Authority

The most important aspect of any change to the governance structure is whether the general public notices a change in how services are delivered or if a change greatly increases service or service delivery. Most members of the public and transit users would not know that Nevada County Connects and the administration of Nevada County Now are under the umbrella of the County and would be indifferent if it was a separate entity or remains in its current structure as long as service is not negatively impacted. Because of this, the cost of remaining with the County compared to the cost of a special district or JPA was the main point of analysis for the recommended governance structure.

Since the previous governance study was completed, the non-TSD staff costs have remained relatively constant with the exception of the building leases, the Paratransit Contract, CDA Admin Cost, and the Department of Public Works Administration Reimbursement (DPW Admin), as shown in Table 4-1. The paratransit contract has nearly doubled since 2010/11, but the contract was competitively bid on and should represent the best service provided. The TSD recently relocated to the newly completed

Operations Center which has led to the increased lease amount. The DPW Admin Reimbursement has increased by 138 percent from \$19,957 to \$47,658, and the CDA Admin charge has increased by 400 percent from \$53,585 to \$267,749 over the last ten years. Assuming the CDA Admin and DPW Admin Reimbursement kept pace with inflation they should combine for just under \$100,000 today, however, the associated costs are 229 percent higher than what would be expected with a total cost of \$315,407.

The costs shown in Table 4-1 and described earlier are the share that Nevada County Connects pays for services the County provides like human resources, legal, information system, public information, payroll, accounting, administration, and any other service the County provides that does not have an exact hourly cost. When adding all interfund reimbursements, the total cost the TSD pays the County is almost \$500,000 annually which does not include leases, IT support, custodial services, or utilities.

Table 4-10 Non-TSD Staff Expenditures

Line Item Expenditure	FY 2010/2011	FY 2016/2017	FY 2020/2021
Maintenance Buildings and Improvements	\$2,401	\$20,000	\$10,000
Paratransit Contract	\$739,274	\$1,573,370	\$1,573,370
Rent & Leases (Building)	\$14,327	\$23,000	\$44,795
Interfund Reimbursements	\$73,542	\$287,430	\$326,035
A/C Audit Charges		\$409	\$426
Information Services		\$3,416	\$2,815
Cobblestone		-	\$277
CDA Admin	\$53,585	\$250,211	\$267,749
On Bill Financing		-	\$1,295
DPW Admin Reimbursement	\$19,957	\$33,038	\$47,658
GIS Annual Charge		\$5,200	\$5,200
IS Discretionary Billing		-	\$200
Facilities Discretionary Billing		-	\$465
Other A-87 Charges/Cost Plan SRV A-87	\$135,058	\$116,144	\$173,330

If what is currently the TSD were to become a special district or JPA, it would need to address the items below. These areas represent the services provided by the County to Nevada County Connects and are

needed to ensure employees are paid, there is legal representation with contracts, procurement and legislation, information technology, and Board of Director costs.

- Additional staff and salary to perform the extra tasks that were formerly provided by the County
 - TSD would most likely require an additional staff member which is estimated at \$107,000 per year or the estimated cost of the supervisors in FY 2025/2026.
 - Increased pay for the current manager who would be taking on a general manager/chief executive officer role.
- Human Resources and Payroll
 - Based on available third-party vendors, it is estimated that outsourced human resources and payroll could be provided for around \$10,000 annually. The additional staff member would need to be familiarized with the payroll system though.
- Information Technology (IT) including website management
 - It is conservatively estimated that IT professional services would require 20 hours a month with an estimated \$220 per hour rate for services, totaling \$52,800 per year.
- Procurement Services
 - The additional staff member would assist in any procurement services needed and would be supported by the procured legal services.
- Legal Services
 - Outsourced professional legal counsel was estimated at a \$220 hourly rate with counsel participating in two-hour monthly Board Meetings and eight hours of services each month, totaling \$26,800 per year.
- Board of Directors Cost
 - The estimated cost is based on a \$100 stipend for five board members that meet 12 times a month for a total of \$6,000 annually.

The estimated cost of providing the needed services is shown in Table 4-2 and is estimated at \$222,200 annually, which is nearly identical to what the A-87, CDA Admin, and the DPW Admin Reimbursement would be if it increased with an assumed 3 percent inflation over the past ten years from FY 2010/2011 (estimated to be at \$235,000). This is much less than the \$499,365 that the TSD is currently paying.

Table 4-11 Estimated Additional Costs

Line Item Expenditure	Estimated Cost
Additional Staff Member	\$107,000
Human Resources/Payroll	\$10,000
Information Technology	\$52,800
Legal Services	\$26,400
Board of Directors	\$6,000
Increased Manager Salary	\$20,000
Total	\$222,200

As discussed previously, the most important aspect of this service and all transit services is the ability to provide transportation to the public. The type of governance that is able to provide the most effective service to the public should be prioritized. Since 2012, the administrative costs have more than doubled. There are benefits to being part of a larger organization with access to different resources, but the cost has drastically increased over the past ten years and Nevada County Connects could operate with a much leaner budget. If Nevada County Connects left the County, there would be the added cost of an additional staff position and the need for increased professional services, but that cost is under \$250,000 annually

and would be drastically less than the \$500,000 the transit service is currently paying as part of the County in interfund reimbursement. The savings realized would translate to the ability to provide additional service on routes or introduce pilot routes throughout the service area.

Unless the very high interfund reimbursement costs can be reduced, a JPA or Special District should be pursued if there is a champion to help create legislation (for a special district) or a willingness for the jurisdictions to enter into a JPA to oversee the operation of the transit service. If a JPA or Special District is not formed, the TSD should also negotiate or do an updated cost assessment to ensure that the price for maintenance is reflective of the service provided and the additional administration costs paid towards the DPW, CDA, and A-87 are reflective of the services they provide to Nevada County Connects or remove those costs through the elevation of the transit service to its own department.

Another benefit of forming a special district would be the ability for the district to attempt to pass a tax measure to increase funding for transit in Western Nevada County. With California prioritizing the shift to zero-emission vehicles, the Transportation Development Act may see a decline in funding from the gasoline taxes. As a special district, Nevada County Connects would be able to mitigate some of the potential funding losses through the passage of a tax.