REDDING AREA BUS AUTHORITY
SHORT RANGE TRANSIT PLAN

Draft Final Report

Prepared for the

Redding Area Bus Authority

December 1, 2023

LSC TRANSPORTATION CONSULTANTS, INC.

Prepared by LSC Transportation Consultants

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Short Range Transit Plan

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Prepared for

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TABLE OF CONTENTS

CHAPTERS *PAGE*

LIST OF TABLES

TABLES *PAGE*

LIST OF FIGURES

FIGURES *PAGE*

LIST OF APPENDICES

Chapter 1
INTRODUCTION

The Redding Area Bus Authority (RABA) public transit system provides mobility options to a large percentage of residents in Shasta County. The current RABA urban service area is an expansive 100-square-mile area that encompasses the Cities of Redding, Anderson, and Shasta Lake, as well as smaller communities and unincorporated portions of Shasta County. RABA also currently provides limited service in rural areas of Shasta County and could potentially provide additional services. The RABA Short Range Transit Plan (SRTP) reviews the current transit environment in the region and evaluates existing transit services. The SRTP ultimately presents a five-year operations plan that is sustainable, effective and meets the needs of the population within available resources. The RABA SRTP will serve as a "business plan" to ensure that the organization best meets the current and future mobility needs of the region.

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Chapter 2

STUDY AREA CHARACTERISTICS

INTRODUCTION

Transportation, including public transit, plays a vital role in the daily life of a resident, employee, and visitor in a region. Access to employment opportunities, social and medical services, and educational resources can greatly impact the local economy and general wellbeing of the community. Access is a key issue and public transit facilitates access for those in the greatest need (i.e., transit-dependent populations). In addition to providing transportation access, public transit can provide important contributions to the economic and environmental quality of a region. This chapter includes an overview of study area characteristics such as demographic census data, economic information, and major activity centers that are relevant when determining areas of high transit need and demand.

GEOGRAPHY

The study area is located along Interstate 5 (I-5) within the southwest region of Shasta County in Northern California. The Study Area encompasses approximately 100 square miles and is located at the base of the southern Klamath Mountains. The Sacramento River is the predominant feature of the counting, running south from Shasta Lake. It is a relatively flat area surrounded by National Forests and agricultural farmland. The largest population center in the study area, the City of Redding (Redding), is bisected by I-5 in the north-south direction and by both State Route (SR) 299 and SR 44 in the east-west direction. The study area is shown in Figure 1.

POPULATION

Historic and Current Population

Estimates of current population (as of 2020) are available through the US Census Bureau and the California Department of Finance (California DOF). While population growth in Redding outpaced the growth rate in California between 1980 to 2010, it slowed in the last decade, growing at an annual rate of 0.2 percent since 2010 (Table 1). The greatest period of growth was between 1970 and 1980 (152 percent), followed by 1980 to 1990 (58 percent).

As the City of Shasta Lake incorporated in 1993, decennial census data has only been available since the 2000 Census. The City of Shasta Lake experienced 12 percent population growth between 2000 and 2010, slowing to just 5 percent between 2010 to 2020 (0.5 percent annually). The City of Anderson, like Redding, grew the most between 1970 and 1980 (34 percent), but has since steadily slowed in growth year over year.

The California DOF also projected population by age group for Shasta County as shown in Table 2. As indicated, the total population is projected to grow 1.6 percent over the next decade. The fastest growing age group will be older seniors (ages 85 and older) with a forecasted growth rate of nearly 49 percent over the next 10 years. This is closely followed by mature retirees (those between 75 and 84 years old) at 34.5 percent growth over the next decade.

Figure 1
Study Area Site and Location Map

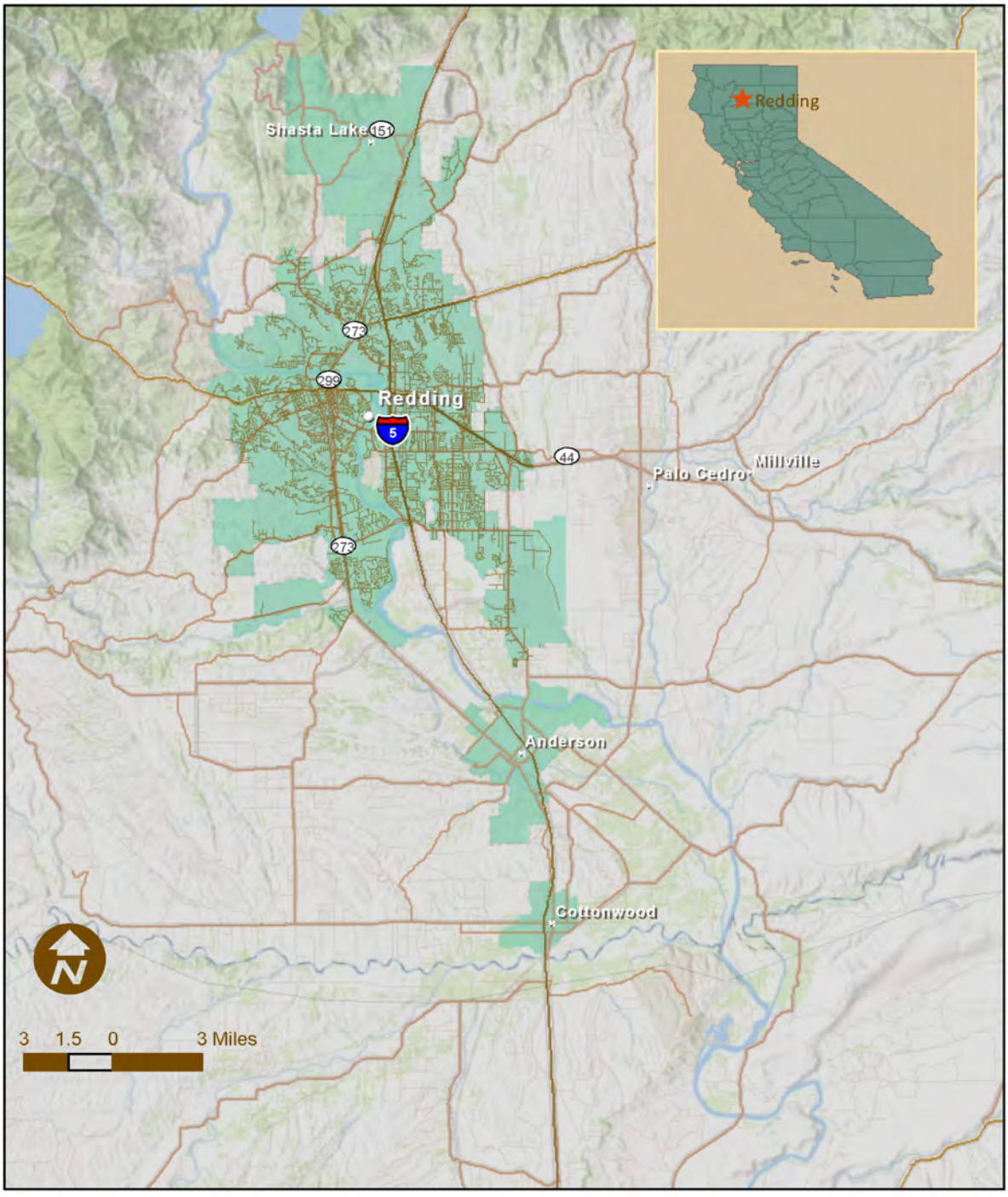


Table 1: Historic and Current Population

	1970	1980	1990	2000	2010	2020
City of Redding	16,659	41,995	66,462	80,865	89,861	91,503
Annual Percent Growth	-	15%	6%	2%	1%	0.2%
Over Previous 10 years	-	152%	58%	22%	11%	2%
City of Shasta Lake [1]				9,093	10,164	10,626
Annual Percent Growth	-	-	-	-	1%	0.5%
Over Previous 10 years	-	-	-	-	12%	5%
City of Anderson	5,492	7,381	8,299	9,027	9,932	10,645
Annual Percent Growth	-	3%	1%	1%	1%	0.7%
Over Previous 10 years	-	34%	12%	9%	10%	7%
Shasta County	77,640	115,715	148,606	163,256	177,277	181,893
Annual Percent Growth	-	0	0	0	1%	0.3%
Over Previous 10 years	-	0	0	0	9%	3%
California	19,963,000	23,667,902	29,760,021	33,871,648	37,253,956	39,538,223
Annual Percent Growth	-	2%	3%	1%	1%	1%
Over Previous 10 years	-	19%	26%	14%	10%	6%

Note 1: The City of Shasta Lake was incorporated in 1993, thus decennial data was first reported in 2000.
Source: US Census and California Department of Finance. Includes population in group quarters.

Table 2: Shasta County Population Projections by Age Category

Year	Total (All Ages)	Preschool (0-4 years)	School Age to Young Adult (5-19 years)	College Age (20-24 years)	Working Age (25-64 years)	Young Retirees (65-74 years)	Mature Retirees (75-84 years)	Older Seniors (85 years or older)
2010	177,376	10,337	34,328	10,974	91,663	16,652	9,424	3,998
2020	177,692	10,134	32,332	11,364	86,088	21,764	11,903	4,107
2030	180,498	9,620	32,586	11,025	84,558	20,591	16,007	6,111
2040	183,482	9,543	31,419	11,328	90,176	16,015	16,169	8,832
2010 to 2020 Change								
Number	316	-203	-1,996	390	-5,575	5,112	2,479	109
Percent	0.2%	-2.0%	-5.8%	3.6%	-6.1%	30.7%	26.3%	2.7%
2020 to 2030 Change								
Number	2,806	-514	254	-339	-1,530	-1,173	4,104	2,004
Percent	1.6%	-5.1%	0.8%	-3.0%	-1.8%	-5.4%	34.5%	48.8%
2030 to 2040 Change								
Number	2,984	-77	-1,167	303	5,618	-4,576	162	2,721
Percent	1.7%	-0.8%	-3.6%	2.7%	6.6%	-22.2%	1.0%	44.5%

Source: California Department of Finance.

Transit-Dependent Population

Nationwide, public transit ridership is drawn in large part from the potentially transit-dependent population consisting of elderly, youth, low-income, disabled, and members of households with no available vehicles. The American Community Survey is conducted every five years by the US Census and includes a total count of each of these populations. Table 3 depicts a summary of each of these population groups, including the proportion of the group within the Study Area Census Tracts (CTs). A series of figures showing this information graphically is included in Appendix A, and Figure 2 identifies the location of the numbered CTs. The following describes study area highlights by each transit dependent group:

- "Youth" (Under 18 Years) comprise 22 percent (33,101 persons) of the Study Area CT population. This is the greatest transit-dependent population in the Study Area. Youths are most concentrated in southeast Redding (i.e., CT 112.09 at 5.7 percent), followed northeast Redding (CT 108.03 at 4.2 percent). Generally, youths are often unable to drive and may not have a parent available to transport them. For example, junior high school students are often independent enough to attend after-school activities but are unable to drive.
- "Elderly" (65+ Years) comprise 19 percent (28,987 persons) of the Study Area CT population. This is higher than the statewide average of 14.3 percent. CTs 115, 123.02, and 106.02 have the greatest number of elderly at 5.1 percent, 4.6 percent, and 4.5 percent, respectively.
- "Persons with a Disability" comprise 17 percent (25,511 persons) of the Study Area CT population. Persons with a Disability are often transit dependent. The latest US Census changed the definitions of disability to better identify the impacts of disabilities rather than the fact that someone had a specific disability. If an individual is found to have one or more of six classified difficulties, they are identified as having a disability for the purposes of this study. As indicated in Table 3, the disabled population makes up 17 percent of the study area population, equal to 25,511 people. CT 120 has the greatest number of persons living with a disability at 4.8 percent, (or 1,228 people).
- Those "Below the Poverty Level" comprise 15 percent (21,708 persons) of the Study Area CT population. This is higher than the statewide average of 5.6 percent. The US Census counts the population living below the poverty level, by several factors, including household income and the number of dependent children. CTs 112.09 and 108.03 have the highest levels of persons living below the poverty line with 7.6 percent and 6.4 percent, respectively.
- "Zero Vehicle Households" comprise 7 percent (4,111 households) of the Study Area CT households. CTs 107.03 and 107.04 have the greatest number of households without a vehicle at 7.1 percent each.

Transit Needs Index

The data presented in Table 3 was used to define a Transit Needs Index (TNI) for each CT wherein the likelihood of needing transit is ranked based on the population characteristics of the CT. The TNI was calculated by identifying the density of each population group per CT (for example, the number of seniors per square mile), and then dividing the range of densities into quintiles, with 1 representing the lowest density (and lowest need) and 5 representing the highest density (and highest need).

Table 3: RABA Study Area Demographic Characteristics

Census Tract	Square Miles	Total Persons	Total House-holds	Youth (Under 18 Years)		Elderly (65+)		Persons with a Disability		Below Poverty Level		Zero Vehicle Households	
				#	%	#	%	#	%	#	%	#	%
101	0.5	1,704	708	172	0.5%	253	0.9%	439	1.7%	335	1.5%	194	4.7%
102	1.3	2,458	1,148	404	1.2%	422	1.5%	476	1.9%	577	2.7%	135	3.3%
103	1.9	4,370	1,465	1,194	3.6%	490	1.7%	680	2.7%	852	3.9%	91	2.2%
104	2.5	4,450	1,579	906	2.7%	718	2.5%	561	2.2%	660	3.0%	68	1.7%
105	1.6	5,344	2,190	1,254	3.8%	700	2.4%	780	3.1%	1,030	4.7%	247	**6.0%**
106.01	2.0	2,407	911	450	1.4%	668	2.3%	260	1.0%	112	0.5%	17	0.4%
106.02	2.8	5,215	2,253	1,185	3.6%	1,300	**4.5%**	973	3.8%	353	1.6%	129	3.1%
106.03	8.5	1,421	468	415	1.3%	323	1.1%	132	0.5%	131	0.6%	0	0.0%
107.02	4.8	2,998	1,353	600	1.8%	685	2.4%	538	2.1%	477	2.2%	154	3.7%
107.03	1.4	3,681	1,946	536	1.6%	950	3.3%	727	2.8%	669	3.1%	241	5.9%
107.04	1.8	3,681	1,683	677	2.0%	971	3.3%	1,014	**4.0%**	1,097	**5.1%**	292	**7.1%**
108.03	2.0	5,799	2,359	1,389	**4.2%**	791	2.7%	628	2.5%	1,396	**6.4%**	293	**7.1%**
108.04	3.3	2,411	758	379	1.1%	474	1.6%	404	1.6%	304	1.4%	45	1.1%
108.05	3.5	5,477	2,063	1,131	3.4%	1,158	4.0%	893	3.5%	670	3.1%	31	0.8%
108.06	4.7	3,242	1,599	478	1.4%	650	2.2%	735	2.9%	449	2.1%	209	5.1%
108.07	6.8	4,397	1,692	754	2.3%	1,189	4.1%	784	3.1%	443	2.0%	137	3.3%
109	2.0	4,205	1,498	1,218	3.7%	877	3.0%	831	3.3%	1,079	5.0%	211	5.1%
110.01	17.7	1,679	596	353	1.1%	360	1.2%	177	0.7%	73	0.3%	19	0.5%
110.02	4.1	4,971	1,946	1,177	3.6%	972	3.4%	882	3.5%	427	2.0%	134	3.3%
111	2.1	3,113	1,176	776	2.3%	632	2.2%	476	1.9%	178	0.8%	24	0.6%
112.09	1.4	6,385	2,101	1,889	**5.7%**	745	2.6%	736	2.9%	1,651	**7.6%**	100	2.4%
113	1.3	4,770	1,980	981	3.0%	573	2.0%	581	2.3%	855	3.9%	105	2.6%
114.01	1.1	4,332	1,518	1,217	3.7%	772	2.7%	726	2.8%	504	2.3%	19	0.5%
114.02	0.9	3,066	1,060	662	2.0%	603	2.1%	380	1.5%	254	1.2%	39	0.9%
114.03	3.1	3,234	1,062	1,079	3.3%	445	1.5%	375	1.5%	386	1.8%	46	1.1%
115	16.7	5,672	2,102	1,258	**3.8%**	1478	**5.1%**	1,037	**4.1%**	598	2.8%	77	1.9%
116	20.9	3,784	1,512	648	2.0%	797	2.7%	887	3.5%	585	2.7%	53	1.3%
117.01	1.7	2,925	986	706	2.1%	458	1.6%	418	1.6%	376	1.7%	6	0.1%
117.02	1.9	3,402	1,296	888	2.7%	599	2.1%	807	3.2%	617	2.8%	130	3.2%
117.03	3.7	2,973	1,262	637	1.9%	597	2.1%	801	3.1%	631	2.9%	151	3.7%
118.01	13.6	2,723	1,049	549	1.7%	623	2.1%	456	1.8%	157	0.7%	21	0.5%
118.02	17.5	2,589	945	465	1.4%	547	1.9%	384	1.5%	167	0.8%	23	0.6%
118.03	40.4	2,509	1,075	462	1.4%	676	2.3%	330	1.3%	422	1.9%	74	1.8%
119	25.8	4,655	1,734	1,071	3.2%	1,085	3.7%	645	2.5%	224	1.0%	24	0.6%
120	4.2	4,627	1,953	1,228	3.7%	579	2.0%	1,228	**4.8%**	785	3.6%	222	5.4%
121.01	2.3	4,492	1,810	1,065	3.2%	624	2.2%	991	3.9%	893	4.1%	92	2.2%
121.02	4.3	2,225	998	542	1.6%	556	1.9%	479	1.9%	379	1.7%	148	3.6%
123.01	6.9	2,638	1,035	590	1.8%	479	1.7%	482	1.9%	203	0.9%	41	1.0%
123.02	36.7	5,871	2,125	1,083	3.3%	1,332	**4.6%**	771	3.0%	458	2.1%	47	1.1%
123.03	28.5	3,569	1,357	633	1.9%	836	2.9%	607	2.4%	251	1.2%	22	0.5%
Total	308	149,464	58,351	33,101	22%	28,987	19%	25,511	17%	21,708	15%	4,111	7%

Source: US Census Bureau American Community Survey 2018-2022 **X%** *= (bolded) tracts with the highest percentage of population type.*

The rank of each population group was then added together, so that CTs with multiple high numbers of transit dependent would rank highest overall. These again were divided into quintiles so that the overall score is also represented with 1 being a very low transit need, and 5 being a very high transit need. The TNI is presented in Table 4 and shown graphically in Figure 2. As shown, the CTs that indicate the highest need overall included the following: CTs 101, 105, 107.03, 107.04, 108.03, 109, 112.09, 112, and 114.0.

Figure 2
Transit Needs Index

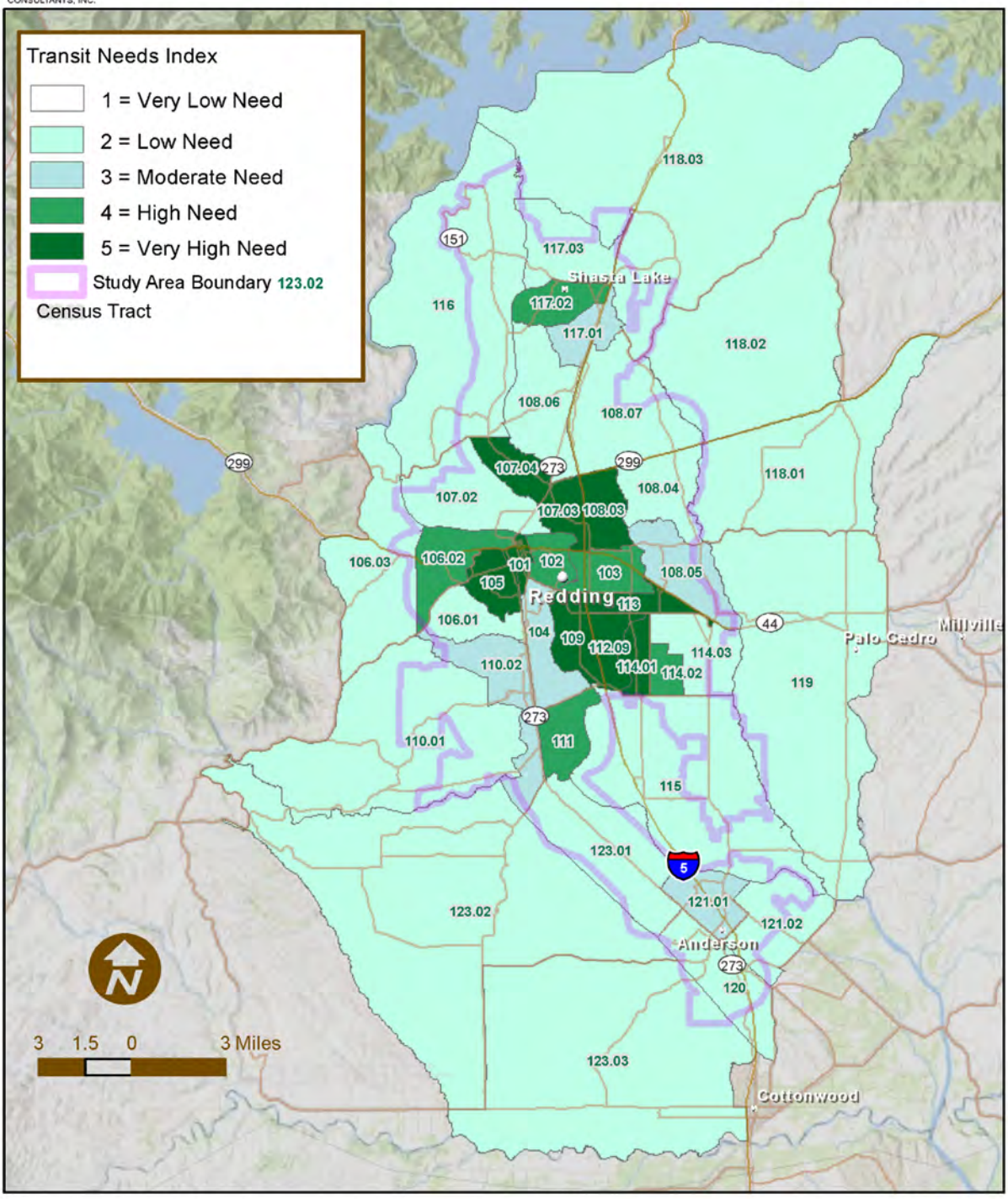


Table 4: Redding Region Transit Needs Index

Census Tract	Square Miles	Total Persons	Youth (Under 18 Years) Rank	Elderly (65+) Rank	Persons with a Disability Rank	Below Poverty Rank	Zero Vehicle Households Rank	Overall Transit Needs Index Rank
101	0.53	1,704	2	4	5	3	5	5
102	1.32	2,458	2	3	3	2	2	4
103	1.93	4,370	3	2	3	2	1	4
104	2.45	4,450	2	3	2	2	1	3
105	1.64	5,344	3	4	3	3	3	5
106.01	2.03	2,407	1	3	1	1	1	2
106.02	2.77	5,215	2	4	3	1	1	4
106.03	8.46	1,421	1	1	1	1	1	2
107.02	4.84	2,998	1	2	1	1	1	2
107.03	1.36	3,681	2	5	4	3	3	5
107.04	1.76	3,681	2	4	4	3	3	5
108.03	1.96	5,799	3	3	2	4	3	5
108.04	3.26	2,411	1	2	1	1	1	2
108.05	3.49	5,477	2	3	2	1	1	3
108.06	4.68	3,242	1	2	1	1	1	2
108.07	6.78	4,397	1	2	1	1	1	2
109	1.97	4,205	3	4	3	3	2	5
110.01	17.69	1,679	1	1	1	1	1	2
110.02	4.13	4,971	2	2	2	1	1	3
111	2.14	3,113	2	3	2	1	1	4
112.09	1.41	6,385	5	4	4	5	1	5
113	1.31	4,770	3	4	3	3	2	5
114.01	1.11	4,332	5	5	4	2	1	5
114.02	0.94	3,066	3	5	3	2	1	4
114.03	3.11	3,234	2	2	1	1	1	2
115	16.74	5,672	1	1	1	1	1	2
116	20.86	3,784	1	1	1	1	1	2
117.01	1.73	2,925	2	2	2	1	1	3
117.02	1.90	3,402	2	3	3	2	1	4
117.03	3.70	2,973	1	2	2	1	1	2
118.01	13.64	2,723	1	1	1	1	1	2
118.02	17.51	2,589	1	1	1	1	1	2
118.03	40.43	2,509	1	1	1	1	1	2
119	25.76	4,655	1	1	1	1	1	2
120	4.20	4,627	2	1	2	1	1	2
121.01	2.25	4,492	2	2	3	2	1	3
121.02	4.27	2,225	1	1	1	1	1	2
123.01	6.89	2,638	1	1	1	1	1	2
123.02	36.73	5,871	1	1	1	1	1	2
123.03	28.49	3,569	1	1	1	1	1	2

Source: US Census Bureau American Community Survey 2018-2022.

Rank illustrates transit need from 1 (very low) to 5 (very high).

1 = very low transit need

5 = very high transit need

ECONOMY

The regional economy is driven by a mix of medical, government, and non-profit organizations. The largest employers in the study area are Iris Global, Mercy Medical Center Redding, and Shasta County, followed by Bethel Church, Blue Shield of California, Dignity Health, Shasta Regional Medical Center, and Walmart Supercenter. A list of large employers is included in Appendix A.

Labor Force

The US Census American Community Survey (ACS) 5-Year 2020 data, provides data on the number of individuals in the labor force and employment. According to the ACS, of the "Population Over 16 Years" in the Study Area CTs (125,418 people), 56 percent (69,831 people) are in the civilian labor force. Of these, 65,775 people (94.2 percent) are employed and 4,056 people are unemployed, indicating an unemployment rate of 5.8 percent. This is higher than the California unemployment rate (4.2 percent) as of June 2022. Three CTs (i.e., CTs 101, 108.07, and 111) have double-digit unemployment rates. More detailed employment data is included in Appendix A.

Commute Flow and Distances

The U.S. Census "Longitudinal Employment-Household Dynamics" (LEHD) dataset provides data on where employees live and work and where employed residents live and work. However, this data is collected based on permanent residence, so there may be inaccuracies due to where military personnel and seasonal employees identify their permanent residences. Nonetheless, the data gives some useful insight regarding the general flow of commuters. Tables with the in-flow and out-flow of workers by each city within the study area are included in Appendix A and described below.

Redding Commuters

- *Inflow/Outflow:* Redding has 46,132 jobs and 33,780 employed residents, indicating a net inflow of employees into the city.
- *Where Redding Residents Work:* Of the 33,780 employed residents of Redding, 63 percent also work in Redding, followed by almost 3 percent who work in Anderson. Therefore, 37 percent commute to locations outside of Redding (or work remotely).
- *Where Redding Employees Live:* There are 46,132 individuals employed in Redding of which 46 percent (21,294 people) also live in Redding. Of those commuting from outside of Redding, 5 percent commute from Shasta Lake and 4 percent commute from Anderson.

Anderson Commuters

- *Inflow/Outflow:* Anderson has 3,576 jobs and 3,985 employed residents, indicating a small net outflow of residents to jobs outside of the city.
- *Where Anderson Residents Work:* Nearly 45 percent of Anderson residents commute to Redding for work, while 14 percent both live and work in Anderson. Residents disperse widely for other jobs.

- *Where Anderson Employees Live:* The largest commute pattern for Anderson employees is from Redding (26 percent) followed by almost 16 percent of employees who also live in Anderson. Around 3 percent of Anderson employees commute from Red Bluff.

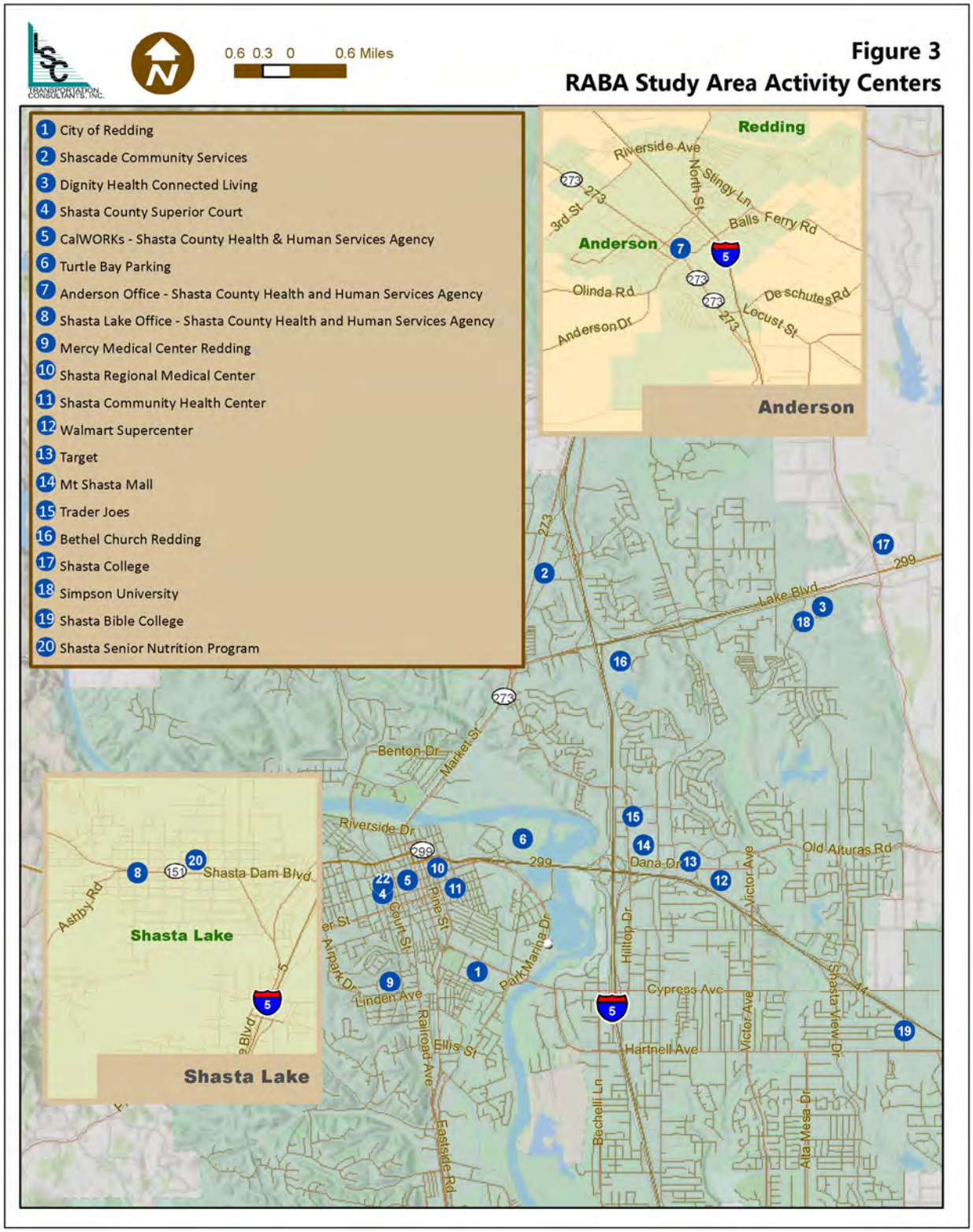
Shasta Lake Commuters

- *Inflow/Outflow:* Shasta Lake has 1,643 jobs and 4,015 employed residents, indicating a significant outflow of residents to jobs outside of the city. Shasta Lake is therefore considered a "bedroom community."
- *Where Shasta Lake Residents Work:* 57 percent of Shasta Lake residents work in Redding, while 8 percent stay in Shasta Lake for work. Other residents are widely dispersed for employment.
- *Where Shasta Lake Employees Live:* A third of Shasta Lake employees commute from Redding, while almost 20 percent also live in Shasta Lake. Just over 3 percent commute from Anderson to Shasta Lake for work.

ACTIVITY CENTERS

Major activity centers typically include areas where origin and destination transportation demands are high. There is no set formula that is used to derive a list of activity centers, but this typically includes cultural and tourist attractions, large commercial retail, public and private educational institutions, medical centers, government facilities, and consolidated residential areas (e.g., high-density housing, such as apartments or other multi-family housing, with a high percentage of transit-dependent populations). Activity centers within the RABA study area that are most likely to generate trips (and potential transit ridership) are summarized below and shown in Figure 3.

- *Government:* City of Redding and County of Shasta offices are located primarily near downtown Redding. Other county centers/services, such as Shasta County Superior Court and social services, also are located in Downtown Redding.
- *Healthcare/Medical:* Major medical centers include Mercy Medical Center, Shasta Regional Medical Center, and Shasta Community Health Center. The VA clinic recently moved from an urban area, where it could easily be served by transit, to a rural location. Adult healthcare programs include Shascade Community Services and Dignity Health Connected Living (Formerly known as Shasta Senior Nutrition Program).
- *Education:* School districts include Redding School District, Anderson Unified School District, Gateway Unified School District, and Shasta Union High School District (eight schools, including Shasta High School and U-Prep). College and vocational schools include Shasta College, Simpson University, Bethel School of Ministry, and Shasta Bible College.
- *Commercial:* Concentrated commercial retail is located mostly in the City of Redding along major roads. The largest retail center is Mt. Shasta Mall. Adjacent to the mall is other retail establishments, including Target and Walmart Supercenter. Commercial recreation is abundant, with Turtle Bay Park being a major destination.


0.6 0.3 0 0.6 Miles
Figure 3
RABA Study Area Activity Centers
1 City of Redding
2 Shascade Community Services
3 Dignity Health Connected Living
4 Shasta County Superior Court
5 CalWORKs - Shasta County Health & Human Services Agency
6 Turtle Bay Parking
7 Anderson Office - Shasta County Health and Human Services Agency
8 Shasta Lake Office - Shasta County Health and Human Services Agency
9 Mercy Medical Center Redding
10 Shasta Regional Medical Center
11 Shasta Community Health Center
12 Walmart Supercenter
13 Target
14 Mt Shasta Mall
15 Trader Joes
16 Bethel Church Redding
17 Shasta College
18 Simpson University
19 Shasta Bible College
20 Shasta Senior Nutrition Program
Redding
Riverside Ave
North St
Slingy Ln
Balls Ferry Rd
3rd St
Anderson
Olinda Rd
Anderson Dr
Deschutes Rd
Locust St
Anderson
Lake Blvd
Benton Dr
Market St
Riverside Dr
Shasta Dam Blvd
Ashby Rd
Shasta Lake
Court St
Pine St
Airpark Dr
Linden Ave
Railroad Ave
Ellis St
Eastside Rd
Park Marina Dr
Hilltop Dr
Dana Dr
Old Alturas Rd
Victor Ave
Cypress Ave
Hartnell Ave
Bechelli Ln
Alta Mesa Dr
Shasta View Dr
Shasta Lake

- *Religious:* There are numerous religious institutions throughout the study area. The largest of which is the Bethel Church, serving approximately 11,000 members.
- *Residential:* Two Affordable Housing and Sustainable Community (AHSC) projects were recently awarded immediately east of the RABA Transit Center (1530 Yuba Street, Redding). One is currently under construction and the other was recently completed. Both include transportation opportunities (such as RABA monthly passes for low-income residents). Other major low-income and/or large-scale multi-family housing within the study area include the following by area:
    - Anderson along Highway 273: Anderson Court Apartments, Ivy Common Apartments, Seasons at Los Robles, Valley View Apartments, Park Village Apartments, Anderson Heights Apartments, and Manzanita Hills Apartments.
    - Redding along Hartnell Avenue: Wilshire Place Apartments, Della Williams Gardens, Shadowbrook Apartment Homes, and Creekside Village.
    - Shasta Lake: Deer Creek Apartments and Valley Ridge Senior Apartments.

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Chapter 3

OVERVIEW OF EXISTING TRANSPORTATION SERVICES

INTRODUCTION

This chapter provides an overview of existing transportation services in or adjacent to Shasta County. The primary focus is the existing RABA system (e.g., services, fares, ridership, operating expenses and revenues, performance, and capital assets). However, other transportation services are also presented to identify potential opportunities for coordination. This chapter provides the foundation on which to consider service alternatives for RABA to implement during the five-year planning period.

RABA ORGANIZATION

RABA was formed in 1976 by a Joint Powers Agreement (JPA) between the City of Redding and the County of Shasta to provide public transit services within the Greater Redding Area. RABA began services in November 1981. The JPA was amended in 1997 to include the City of Anderson and the City of Shasta Lake. RABA service is operated and maintained by a third-party contractor and RABA administration is provided by the City of Redding.

RABA bus and paratransit services are provided to the Cities of Anderson, Redding, and Shasta Lake, as well as portions of unincorporated Shasta County. The Study Area is 100 square miles. Figures 4A and 4B illustrate the RABA bus routes and service areas, both urban and rural. Generally, RABA service hours are from 6:20 AM to 7:15 PM weekdays and from 9:20 AM to 7:15 PM Saturdays (with a few exceptions). RABA does not operate on Sundays. Table 5 details RABA services as of August 2022.

RABA BUS SERVICE

RABA provides fixed route and commuter bus service. Fixed route service is operated on 1-hour headways, excluding Route 9 which operates on 1-hour headways during peak periods and 2-hour headways during off-peak periods.

For the commuter bus service:

- Anderson Commuter (Route 12x) operates one run per weekday between Downtown Redding and the City of Anderson, providing supplemental service (e.g., addition to Route 9) for morning commuters.
- School Express (Route 17) operates two runs per weekday (one morning and one afternoon) between Downtown Redding and Shasta College, with service to four schools during the peak period.
- Crosstown Express (Route 18) provides 30-minute headways between the east and west sides of the City of Redding, including service to two RABA transfer centers during peak periods.

It should be noted that RABA operates the Burney Express through a contract with the County of Shasta. RABA is also contracted to operate the Beach Bus service. Both the Burney Express and Beach Bus are described further later in this chapter and shown in Figure 4B. Service details for the Burney Express are also summarized in Tables 5 and 6.

Figure 4A:
RABA Urban Fixed Route Services

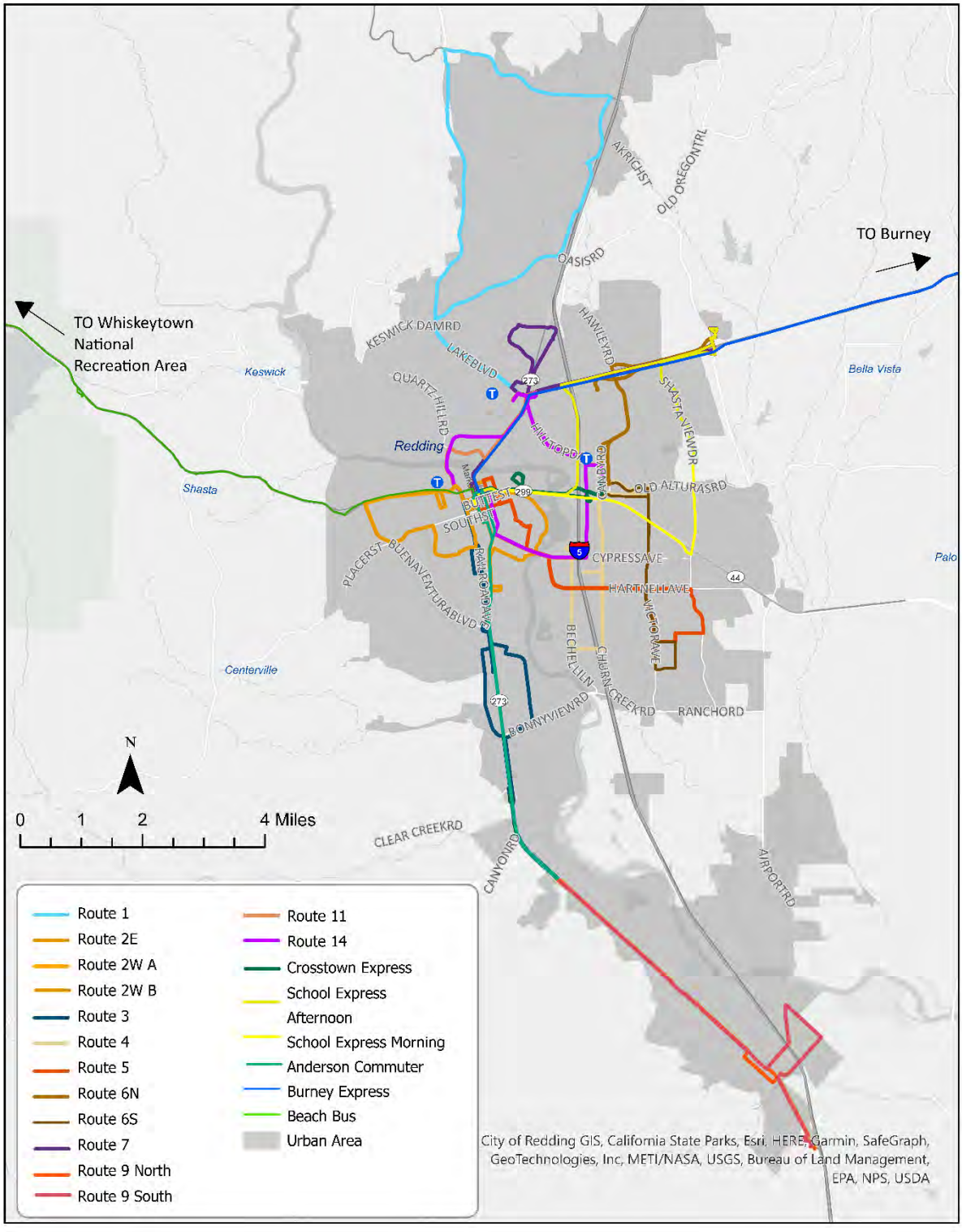


Figure 4B:
RABA Rural Fixed Route Services

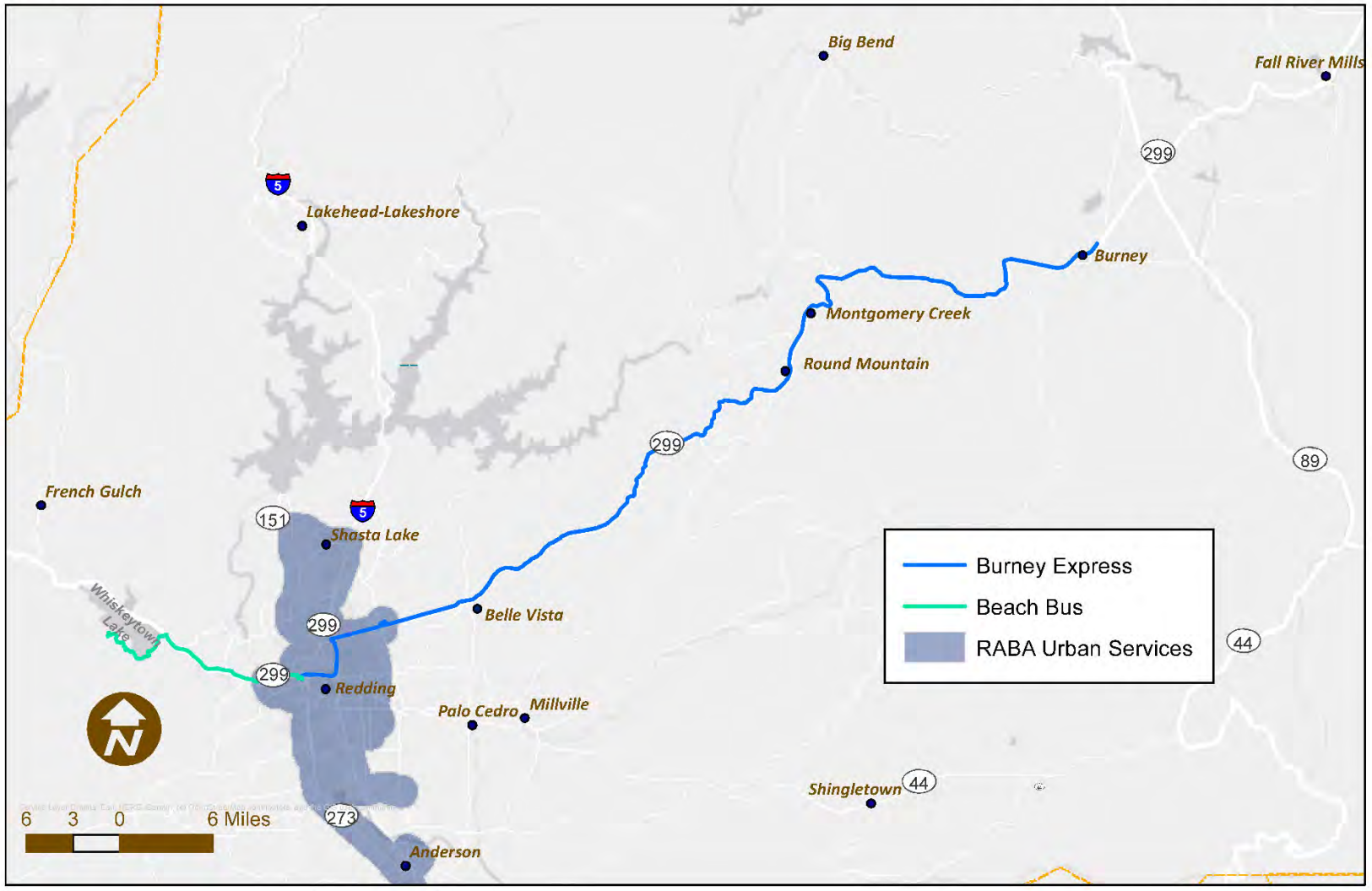


Table 5: Summary of RABA Services and Frequency

	Service Hours[1]					Start & End Locations		Weekday Service Frequency (Minutes)
	Weekday Service			Saturday Service				
	Start	End	Headway[1]	Start	End	Start	End	
Bus: Fixed Route								
Route 1	5:35 AM	7:30 PM		8:35 AM	7:30 PM	Masonic TC	Same as start	60
Route 2 East	6:20 AM	6:47 PM	60 min.	9:20 AM	6:47 PM	Downtown TC	Same as start	60
Route 2 West Even	6:50 AM	7:17 PM		9:50 AM	7:17 PM	Downtown TC	Same as start	120
Route 2 West Odd	7:50 AM	6:17 PM	60 min.	10:50 AM	6:17 PM	Downtown TC	Same as start	120
Route 3	6:20 AM	7:15 PM		9:20 AM	7:15 PM	Downtown TC	Same as start	60
Route 4	6:20 AM	7:15 PM		9:20 AM	7:15 PM	Canby TC	Same as start	60
Route 5	6:20 AM	7:15 PM		9:20 AM	7:15 PM	Downtown TC	Same as start	60
Route 6	6:50 AM	7:13 PM		9:50 AM	7:13 PM	Canby TC	Old Alturas/Bradford	60
Route 7	7:20 AM	7:15 PM		10:20 AM	7:15 PM	Downtown TC	Same as start	60
Route 9 North	6:20 AM	6:47 PM		10:20 AM	6:47 PM	Walmart [4]	SR 273/Happy Valley	120
Route 9 South	9:50 AM	7:17 PM		9:50 AM	7:17 PM	SR 273/Happy Valley	Walmart [4]	120
Route 11	6:20 AM	7:15 PM	30 min.	9:20 AM	7:15 PM	Canby TC	Same as start	60
Route 14	6:20 AM	7:15 PM	None	9:30 AM	7:15 PM	Downtown TC	Same as start	60
Bus: Commuter Bus			2 RT daily					
Anderson Commuter	6:50 AM	8:15 AM		--	--	SR 273/Happy Valley	Walmart [4]	1 Round Trip
Crosstown Express [2]	8:20 AM	6:47 PM		--	--	Canby TC	Same as start	30
School Express (AM) [3]	7:30 AM	7:52 AM		--	--	Downtown TC	Shasta College	1 Round Trip
School Express (PM, Mon) [3]	1:20 PM	1:50 PM	None	--	--	Shasta	Downtown TC	1 Round Trip
School Express (PM, Tues-Fri) [3]	3:20 PM	3:50 PM		--	--	Shasta	Downtown TC	1 Round Trip
Burney Exp. WB [5]	Depart Burney			Arrive Redding				
Trip 1	5:40 AM			7:15 AM		Burney Sprt Goods	Downtown TC	
Trip 2	11:50 AM			1:15 PM		Burney Sprt Goods	Downtown TC	
Trip 3	3:50 PM			5:15 PM		Burney Sprt Goods	Downtown TC	
Burney Exp. EB [5]	Depart Redding			Arrive Burney				
Trip 1	10:25 AM			11:50 AM		Downtown TC	Burney Sprt Goods	
Trip 2	2:25 PM		None	3:50 PM	--	Downtown TC	Burney Sprt Goods	
Trip 3	5:35 PM			7:00 PM	--	Downtown TC	Burney Sprt Goods	

Paratransit: Service hours are the same as fixed route hours: generally, from 6:20 AM to 7:30 PM weekdays and 9:20 AM to 7:30 PM Saturdays (and earlier along Route 1 per above schedule).

Note 1: Summary accurate as of August, 2022. No service on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, or Christmas Day. No Sunday service.

Note 2: Crosstown Express operates on 30 minute headway with a break from 12:17 PM to 2:50 PM.

Note 3: SE operates during the school year only and not during school breaks.

Note 4: Walmart at 5000 Rhonda Rd, Anderson

Note 5: Burney Express is provided by the County of Shasta and operated by RABA. This service is outside of the RABA Service Area. Operated weekdays only.

Source: RABA

RABA DEMAND RESPONSE

RABA provides complementary paratransit services in accordance with the Americans with Disabilities Act (ADA). RABA demand response is an origin-to-destination, shared ride, advanced reservation service for persons with disabilities who are functionally unable to use fixed route service. The paratransit service area operates within ¾ of a mile of fixed routes (i.e., Routes 1-14). Paratransit service hours are comparable to fixed route service hours.

RABA FARE STRUCTURE

RABA fares are structured around the type of service and type of rider for single-trip and multi-trip fare media, as shown in Table 6. Fares are defined for three zones, with one zone encompassing Redding, one zone encompassing Shasta Lake, and one zone encompassing Anderson. The base fare is $1.50 for a single zone (discounted to $0.75 for qualified individuals) and $0.75 for each additional zone (or $0.35 discounted). Monthly passes are available ranging from $29.00 per month for youths in all zones, $48.25 for adults in Redding, or $82.00 for adults in either Redding and Shasta or Redding and Anderson. A one-way paratransit trip is $3.00 for one zone and $1.50 for each additional zone. RABA also offers the Student Transit Pass Program and field trip fares for local schools and students.

Table 6: RABA Fare Summary

Bus	1-Way Trip		Monthly Pass [3]		
Passenger Type	1 Zone	Additional Zone	Redding	Redding & Shasta Lake	Redding & Anderson
Children (0-5 years) [1]	Free	Free	--	--	--
Youth (6-17 years)	$1.50	$0.75	$29.00	$29.00	$29.00
Adult (18-61 years)	$1.50	$0.75	$48.25	$82.00	$82.00
Senior (62+ years) & Disabled/Medicare [2]	$0.75	$0.35	$24.00	$41.00	$41.00
Paratransit (1-Way Trip)	$3.00	$1.50	--	--	--

Burney Express	To			
From	Shasta College/ Bella Vista	Round Mt/ Montg Creek	Burney	Redding
Redding	$2.00	$3.50	$5.00	--
Burney	$3.50	$2.00	--	$5.00

Note 1: Children (0-5 years) are free on 1-Way Trips (up to two children per paid adult).

Note 2: Seniors (62+ years), persons with disabilities, and persons presenting a Medicare card are eligible for half fare with proof of eligibility (i.e., ID card or driver's license, RABA Disabled ID Card, and/or Medicare card).

Note 3: Each Monthly Pass is valid for unlimited trips within the area(s) indicated on the pass within a calendar month. Youth (6-17 years) must present their student ID card, along with their Monthly Pass, when boarding. The youth's name must be clearly printed on the back of the Monthly Pass.

Note 4: RABA offers $10.00 punch passes. Punch passes are equal to $10.00 worth of fares, and can be used on both fixed route and demand response services. Punch passes can be purchased at the Downtown Transit Center, over the phone, or by mail.

Note 5: RABA offers two fare programs for students. The Student Transit Pass Program provided discounted monthly passes to schools for their students. Shasta College currently participates in this program. RABA also offers the Student Field Trip Program for student field trips. Schools fill out an application, then they are eligible for $0.25 fares per students per one-way trip on the day of the student field trip.

CHANGES TO RABA IN THE PAST FIVE YEARS

RABA has undergone several changes in the past five years, both based on recommendations from the 2014 RABA SRTP, as well as in response to events or changes to ridership. Highlights of changes are listed below.

Implemented Recommendations from the 2014 RABA SRTP

Several routing changes were implemented based on recommendations of the 2014 RABA SRTP. The most significant of these included:

- Route 1 was realigned around Beltline Road, and portions of the route became two-way instead of one-way.

- A portion of Route 3 was moved to Route 2, and the clockwise loop on Route 2 was made one-way. (This was confusing to passengers and was further amended, changing Route 2 West "clockwise" and "counterclockwise" service every other hour was added). Also, Route 2 was revised to add service through Orange Avenue and Magnolia Avenue.
- Route 3 was extended south to meet Route 9, as Route 9 no longer serves the Downtown Transit Center. Routes 3 and 7 are now interlined to provide seamless travel for Anderson commuters going to Shasta College.
- On Route 4, two-way service was implemented in place of a large one-way loop, and a northern section of the loop serving the Canby Transfer Center was moved to Route 6.
- Route 5 was shortened on the east end of Hartnell Avenue, instead making a loop by going southbound on Alta Mesa Drive. The route overlaps with Route 6 to create transfer opportunities. When the route was changed to a residential neighborhood, many residents complained, and it was re-routed again.
- Route 6 was revised to no longer serve the Downtown Transit Center. Service was added by extending the segment from the Canby Transfer Center north along Churn Creek Road, then serving Shasta College.
- Route 7 was revised to eliminate a large loop (now served by Route 6 and School Express) to provide direct service between Shasta College and the Downtown Transit Center.
- The northern portion of Route 9 was eliminated and replaced by Route 3. Routing in Anderson was realigned.
- Route 14 and Route 11 were revised to provide bi-directional service (except for a small area north of Downtown Redding) to all three transit/transfer centers.

Other Changes to RABA

- The most significant change in the past five years has been the acquisition of technology.
    - Paratransit services now uses computer (not paper) dispatching, hugely improving efficiency and record keeping.
    - Fixed route service now uses a real-time passenger information system (i.e., Swiftly). Passengers can track their buses in real time via the desktop map (on the RABA website), Transit app, or text/voice services.
    - There is a large monitor at the Downtown Transit Center that displays fixed route real-time arrivals.
- Airport Express was eliminated due to low ridership (e.g., the flight school terminated their fare agreement with RABA approximately 1 year prior).
- Cottonwood Express was eliminated due to low ridership.
- Crosstown Express was added.
- A "Youth" fare was added to the monthly pass.

Changes Due to COVID-19 Pandemic

As with public transit systems everywhere, RABA ridership was significantly impacted by the COVID pandemic. Nonetheless, only the School Express bus route was temporarily eliminated. Additionally, only one bus route was not operated for one day due to a driver shortage. No other changes occurred to the bus service.

RABA demand response service, on the other hand, was severely impacted by COVID. Many of the programs that rely on paratransit to transport participants or constituents were closed, and many programs remain significantly reduced even now. Pre-COVID, there were 11 to 12 paratransit vehicles in service at peak times. During COVID, this was reduced to just 2 to 3 paratransit vehicles, carrying lighter than normal passenger loads to maintain social distancing. Currently, between 5 and 6 vehicles are regularly operated, which is half of pre-COVID operations.

RABA RIDERSHIP

Historical Ridership

RABA ridership from Fiscal Year (FY) 2010-11 through FY 2021-22 is presented in Figure 5. This figure can be considered in three periods:

- Even prior to the start of COVID (FY 2018-19), ridership had been dropping substantially. From the peak (FY 2012-2013) to FY 2018-2019, paratransit ridership dropped 28 percent from 59,951 to 49,169.
- During COVID (FY 2018-19 to FY 2020-21), bus ridership dropped 43 percent (245,282 boardings), while paratransit ridership dropped 69 percent (33,855 boardings).
- Between FY 2020-21 and FY 2021-22, bus ridership increased by less than 1 percent (1,677), while paratransit ridership increased by 55 percent (8,461).

It should be noted that the drop in RABA ridership over the years prior to COVID was like that of many other transit operators nationwide; the strong economy and reduced auto costs resulted in more people driving and a loss in transit ridership. RABA's COVID ridership impacts were also like those experienced by other transit operations in similar settings, though the percentage loss was less than that seen in many larger metropolitan areas.

Annual Ridership by Route

Annual ridership by service type for FY 2018-19 through FY 2021-22 is shown in Table 7. Routes 11 and 14, which serve all three transit centers as a bi-directional pair, carry a third of the fixed route ridership. Route 3, Route 4, and Route 2 have the next highest ridership, and combined, they also carry a third of the bus ridership. School Express, Anderson Commuter, and Crosstown Express carry the fewest passengers, excluding the Airport Express, which was discontinued.

All services saw ridership losses over this four-year period. Excluding the eliminated Airport Express, the greatest proportionate ridership loss was on School Express (a 65 percent loss), followed by Route 6 (54 percent loss). The lowest proportionate loss was seen on Anderson Commuter (28 percent loss). Route profiles, including ridership by route, are included in Appendix B.

Figure 5: RABA Bus and Paratransit Ridership by Year, FY 2011 to FY 2022

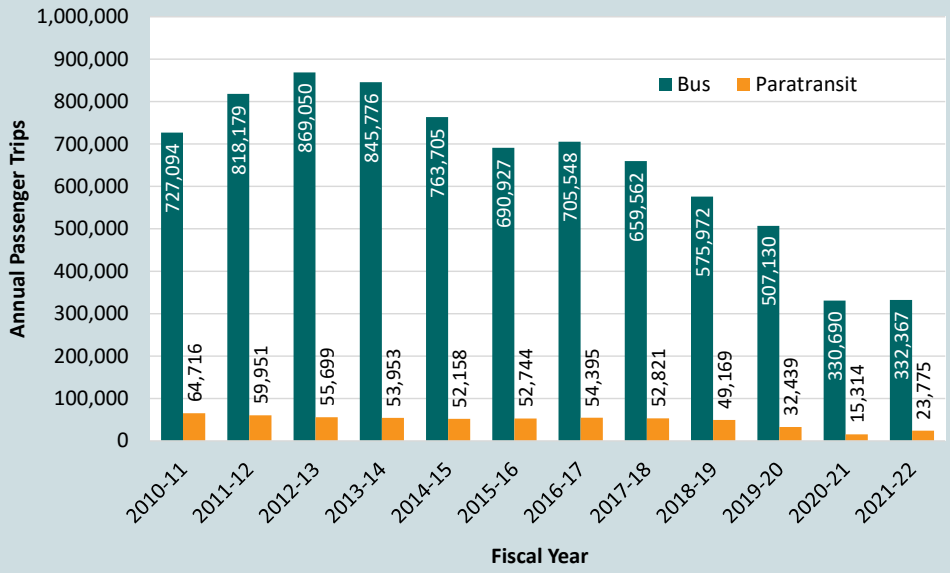


Table 7: RABA Bus and Paratransit Ridership by Route, FY 2019 to FY 2022

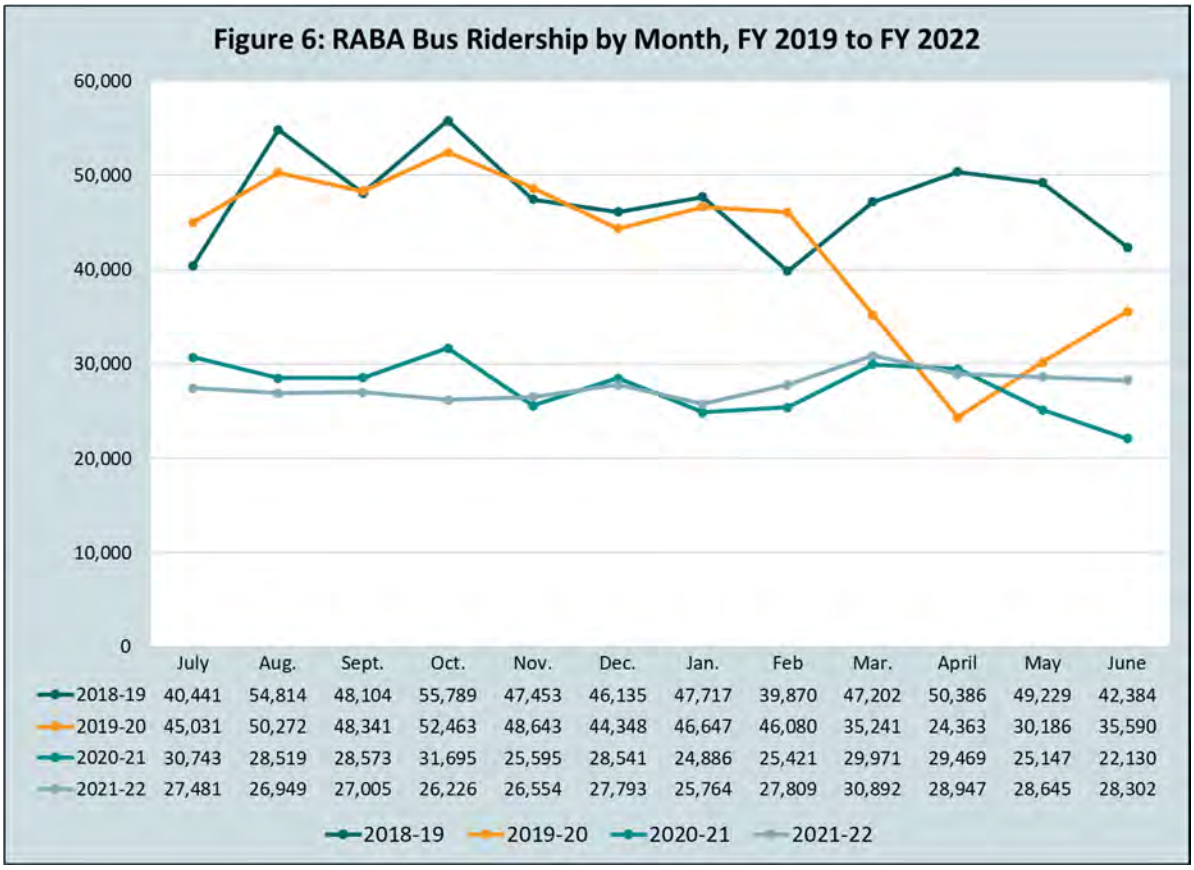
	Fiscal Year				% Change
	2018-19	2019-20	2020-21	2021-22	FY 18-19 to 21-22
Bus: Fixed Route - Redding Only					
Route 2	55,015	50,445	29,822	31,965	-42%
Route 3	68,651	55,808	38,162	40,015	-42%
Route 4	53,750	47,838	30,601	32,251	-40%
Route 5	44,195	38,481	24,891	23,760	-46%
Route 6	52,157	43,325	21,844	23,952	-54%
Route 7	35,028	40,125	19,319	20,320	-42%
Route 11	79,686	74,036	53,399	51,395	-36%
Route 14	84,436	74,159	59,105	52,823	-37%
Subtotal	*472,918*	*424,217*	*277,143*	*276,481*	-42%
Commuter Routes					
Route 1	58,789	53,571	32,582	34,829	-41%
Route 9	23,161	20,731	12,106	11,977	-48%
Anderson Commuter	1,608	1,091	1,046	1,164	-28%
Subtotal	*83,558*	*75,393*	*45,734*	*47,970*	-43%
Express Routes					
Airport Express	4,770	0	0	0	-100%
School Express	1,290	350	0	451	-65%
Crosstown Express	11,927	7,065	7,813	7,465	-37%
Subtotal	*17,987*	*7,415*	*7,813*	*7,916*	-56%
120 *Free Trips & Misc.*	*1,509*	*105*	*0*	*0*	-100%
Total Bus	575,972	507,130	330,690	332,367	-42%
Total Paratransit	49,169	32,439	15,314	23,775	-52%
Contract Services					
Burney Express	4,981	5,224	2,759	2,697	-46%
Beach Bus	-	-	407	908	-
Subtotal	*4,981*	*5,224*	*3,166*	*3,605*	-28%

Source: RABA

Note: Contract services not included in RABA ridership totals.

Ridership by Month

Ridership by month by route and service type is shown in Figure 6. Ridership has typically been highest in summer and fall (August and October) and lowest in winter (December through February). As shown, however, ridership dropped significantly in March and April of 2020, and monthly ridership has been more even month to month in recent years.



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb	Mar.	April	May	June
2018-19	40,441	54,814	48,104	55,789	47,453	46,135	47,717	39,870	47,202	50,386	49,229	42,384
2019-20	45,031	50,272	48,341	52,463	48,643	44,348	46,647	46,080	35,241	24,363	30,186	35,590
2020-21	30,743	28,519	28,573	31,695	25,595	28,541	24,886	25,421	29,971	29,469	25,147	22,130
2021-22	27,481	26,949	27,005	26,226	26,554	27,793	25,764	27,809	30,892	28,947	28,645	28,302

Boarding Data: Ridership by Time of Day

Ridership by time of day was collected by RABA in early October 2021. The passenger boarding data for ten weekdays were factored by the annual average daily ridership to estimate the ridership by route by hour, as shown in Figure 7. The ridership was assigned based on the starting time of each run. As indicated, the ridership pattern generally follows a bell pattern, with ridership strongest from 1:00 PM to 4:00 PM.

RABA FINANCIAL OVERVIEW

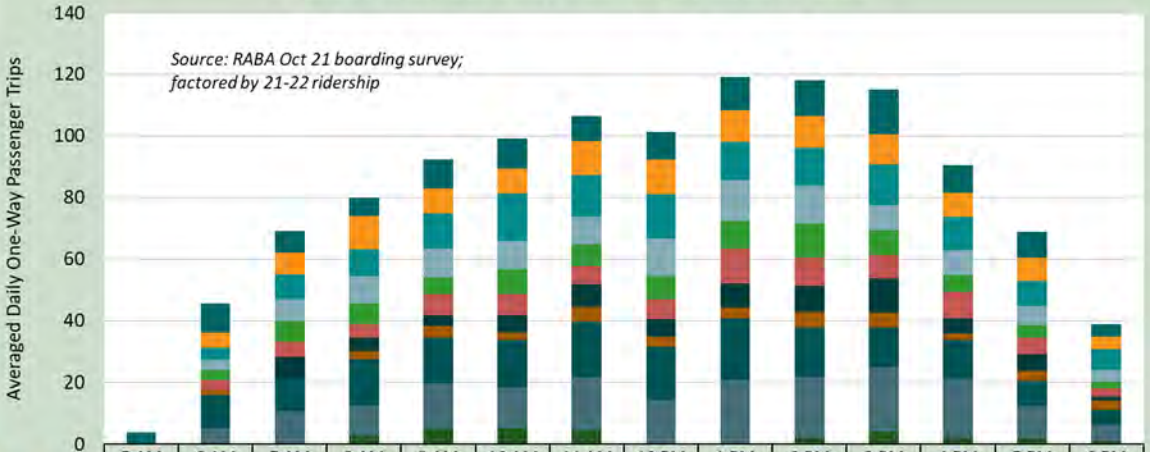
RABA operating expenses and revenues are presented in Table 8 for FY 2019-2020 (actual) through FY 2022-2023 (adopted).

RABA Operating Expenses

As indicated in Table 8, the operating expenses range from $5.9 to $6.9 million, with the purchased transportation accounting for approximately 63 percent of the total operating expenses. The

administrative expenses incurred by the City of Redding account for 6 to 7 percent of the total operating cost. Vehicle-related operating costs, including fuel, maintenance, and parts, are 16 percent of operating expenses. There was a significant cost increase from 2019-20 to 2020-21, primarily in the category of purchased transportation.

Figure 7: RABA Bus Daily Ridership by Hour, FY 2022



	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM
Route 1	3.9	9.5	7.2	5.8	9.6	9.6	8.3	8.8	10.8	11.7	14.6	8.8	8.3	4.3
Route 2		4.9	6.8	10.9	8.1	8.1	11.0	11.5	10.3	10.2	9.7	8.0	7.7	4.0
Route 3		4.0	8.1	8.8	11.2	15.5	13.7	14.5	12.3	12.5	13.1	10.7	7.9	6.8
Route 4		3.3	7.3	8.7	9.4	9.2	8.8	12.0	13.4	12.1	8.3	8.2	6.2	3.9
Route 5		3.4	6.6	6.9	5.5	8.1	7.1	7.7	8.8	11.0	8.1	5.5	4.1	1.9
Route 6		2.9	4.9	4.3	6.7	6.9	5.8	6.4	11.5	9.4	7.5	8.7	5.6	2.6
Route 7			6.9	4.1	3.7	5.5	7.3	5.7	7.8	8.3	11.0	4.8	5.4	1.5
Route 9		1.6	0	2.7	3.7	2.4	4.8	3.1	3.7	5.2	4.8	2.1	3.2	2.78
Route 11		11.0	10.6	14.9	14.8	15.2	18.3	17.2	19.8	15.9	13.0	12.7	8.0	4.9
Route 14		5.2	10.7	10.1	14.7	13.4	17.1	14.4	20.7	19.5	20.5	18.6	10.4	5.5
CTE				2.5	5.0	5.2	4.4	0.0	0.0	2.2	4.3	2.4	2.0	0.9

RABA Operating Revenues

RABA operating revenues, excluding capital revenues, are also shown in Table 8. As indicated, passenger fares, contract transit services, and other sources generate 20 to 24 percent of RABA's revenues. The largest source of revenue, however, is Transportation Development Act (TDA) Funds (approximately 50 percent); TDA funding is generated from state sales tax and fuels tax. Federal Transit Administration (FTA) funds also account for much of RABA's operating revenues (approximately 26 percent).

RABA Cost Allocation

Based on the operating expenses and service parameters, a cost allocation formula to identify marginal operating costs was developed. The marginal operating costs are those costs which change based on the variation of hours and miles of service provided and exclude fixed costs. For example, the marginal hourly costs are those costs charged by the contractor for each hour of service.

Table 8: RABA Operating Expenses and Revenues

RABA Operating Expenses	Fiscal Years 2019/20 Actual	2020/21 Amended	2021/22 Budgeted	2022/23 Adopted
Administration Expense	**$435,473**	**$405,110**	**$390,760**	**$414,600**
Operating/Materials				
Contracts/Consulting, Permits	$201,555	$225,840	$224,870	$234,670
Landscape/Building/Utilities	$91,902	$111,110	$117,500	$116,030
Vehicle Costs (Maintenance, fuel, parts)	$933,479	$1,086,680	$1,085,100	$1,132,110
Communication/Software	$35,165	$118,830	$45,000	$135,800
Purchased Transportation	$3,798,020	$4,221,550	$4,471,642	$4,392,110
Marketing	$82,339	$67,420	$90,000	$68,790
Subscriptions, Travel, Other	$20,655	$28,350	$22,500	$29,350
Insurance	$57,772	$54,170	$60,000	$57,680
Total Ops/Materials Expense	**$5,220,887**	**$5,913,950**	**$6,116,612**	**$6,166,540**
City Interdepartmental Charges	$334,674	$365,440	$341,460	$379,310
Total Operating Requirements	**$5,991,034**	**$6,684,500**	**$6,848,832**	**$6,960,450**
RABA Operating Revenues				
Passenger Fares	$566,199	$384,937	$525,000	$583,250
Contract Transit Services	$619,628	$671,310	$175,000	$176,750
Other Revenue	$70,611	$93,136	$361,280	$399,810
Total Operating Revenue	**$1,256,438**	**$1,149,383**	**$1,061,280**	**$1,159,810**
TDA	$3,409,691	$2,435,576	$2,861,960	$3,974,470
FTA 5311	$254,616	$339,000	$347,480	$356,170
FTA 5307	$1,500,000	$1,500,000	$1,500,000	$1,500,000
FTA 5307 CARES Act	$0	$1,500,000	$1,000,000	$0
Non-Operating Revenues	**$5,164,307**	**$5,774,576**	**$5,709,440**	**$5,830,640**
Total Revenues	**$6,420,745**	**$6,923,959**	**$6,770,720**	**$6,990,450**

Source: RABA FY 2022-29 Proposed 7-year expense plan; RABA Annual Budgets; Draft 22-23 TDA Allocation

Additionally, a cost-per-mile of service can be estimated based on the vehicle-based costs (vehicle maintenance, fuel, and parts), divided by the total number of miles operated. All remaining costs can be assumed to be a fixed cost. The formula can be used to evaluate the relative performance of each route or service. The cost formula for RABA FY 2021-22 marginal operating costs is therefore as follows:

RABA FY 2021-22 Marginal Operating Cost =

$34.61 X vehicle-hours of service + $1.86 X vehicle-mile of service

This cost equation, which excludes fixed costs, is used to evaluate the relative cost performance of RABA services.

RABA PERFORMANCE ANALYSIS

A performance analysis was conducted based on the RABA cost allocation and operating statistics from FY 2021-22. Data used in the performance analysis is shown in Table 9 and includes revenue hours and miles, passenger trips, operating cost, and fare revenue, by route or service. Operating costs were allocated based on the formula above and do not include fixed costs.

Table 9: RABA Performance FY 2021-22

Routes	Service Parameters: Pass. Trips	Revenue Hours	Revenue Miles	Fully Allocated Operating Costs	Marginal Operating Cost [1]	Fare Revenue	Service Performance: Passengers per… Hour	Passengers per… Mile	Marginal Subsidy per Passenger Trip	Relative Farebox Ratio
Redding Routes	276,481	30,393	428,630	$4,251,910	$1,899,432	$100,690	9.1	0.65	$6.51	5.3%
2 West Redding	31,965	3,854	42,614	$521,515	$223,208	$9,021	8.3	0.75	$6.70	4.0%
3 South Redding	40,015	3,854	61,952	$550,592	$252,285	$15,994	10.4	0.65	$5.91	6.3%
4 Churn Creek / Bechelli	32,251	3,854	54,002	$538,638	$240,331	$12,019	8.4	0.60	$7.08	5.0%
5 Hartnell / Alta Mesa	23,760	3,854	70,276	$563,109	$264,801	$8,410	6.2	0.34	$10.79	3.2%
6 Churn Creek / Victor	23,952	3,723	65,328	$540,120	$251,952	$9,120	6.4	0.37	$10.14	3.6%
7 Market / Shasta College	20,320	3,546	56,356	$505,621	$231,153	$8,198	5.7	0.36	$10.97	3.5%
11 Cypress / Hilltop CCW	51,395	3,854	35,648	$511,041	$212,733	$18,013	13.3	1.44	$3.79	8.5%
14 Cypress / Hilltop CW	52,823	3,854	42,454	$521,274	$222,967	$19,914	13.7	1.24	$3.84	8.9%
Inter-City Routes	47,970	6,813	131,520	$1,006,407	$479,067	$25,300	7.0	0.36	$9.46	5.3%
1 City of Shasta Lake	34,829	4,162	79,510	$613,550	$291,403	$18,384	8.4	0.44	$7.84	6.3%
9 City of Anderson	11,977	2,262	42,654	$332,617	$157,534	$6,320	5.3	0.28	$12.63	4.0%
12 Anderson Commuter	1,164	389	9,356	$60,239	$30,130	$596	3.0	0.12	$25.37	2.0%
Express Routes	7,916	1,793	24,336	$249,407	$110,626	$2,459	4.4	0.33	$13.66	2.2%
17 School	451	180	4,534	$28,182	$14,250	$77	2.5	0.10	$31.42	0.5%
18 Crosstown Express	7,465	1,613	19,802	$221,225	$96,376	$2,382	4.6	0.38	$12.59	2.5%
Demand Response	23,775	9,245	162,140	$1,341,107	$625,526	$64,154	2.6	0.15	$23.61	10.3%
Burney Express [2]	2,697	2,329	88,236	$381,708	$228,840	$11,293	1.2	0.03	$80.66	4.9%
Fixed Total	332,367	38,999	584,486	$5,507,725	$2,489,125	$128,449	8.5	0.57	$7.10	5.2%
RABA Total	356,142	48,244	746,626	$6,848,832	$3,114,651	$192,603	7.4	0.48	$8.20	6.2%

Note 1: Marginal operating cost for FY 2021-22 is based on contracted hourly cost ($41.29) and vehicle costs per mile (fuel, parts, vehicle maintenance costs, divided by the miles operated = $1.50 per mile). It does not include fixed costs.

Note 2: The Burney Express is a County of Shasta service operated by RABA, therefore Burney Express operations data are not included in the RABA systemwide totals.

Source: RABA, LSC

Fare revenues were derived from RABA route data. From this data, the efficiency and effectiveness of the RABA services can be evaluated. The performance indicators are summarized below:

- Figure 8 graphically illustrates service productivity in terms of passenger trips carried per hour of service. As shown, RABA had a systemwide productivity of 7.4, with an average of 8.5 passenger trips per hour on fixed route service and 2.6 on paratransit service. The most productive routes were Routes 11 and 14 (13.3 and 13.7, respectively), which together provide bi-directional service between all three transit centers. Route 3 serving south Redding was also productive with 10.4 passengers per hour. The remaining routes were all below average.
- The least efficient, as is true with most public transit systems, was the paratransit service (which provides curb-to-curb service). The School Express also saw poor efficiency in FY 2021-22, as ridership was heavily impacted by the pandemic. The Burney Express carried the least passenger trips per hour (1.2).
- Figure 9 shows the service effectiveness of RABA based on the number of passenger trips per revenue-mile. Overall, RABA carried 0.5 passengers per mile, with Routes 11 and 14 performing best (1.4 and 1.2, respectively). The lease effective services were the Anderson Commuter, School Express, Burney Express, and demand response (all with 0.1 passengers per mile).
- The marginal subsidy was calculated by subtracting the fare revenue from the marginal operating cost for each route and dividing it by passenger trip to determine cost effectiveness. This is a particularly useful performance measure as it directly relates the key public input to a transit program (subsidy funding) with the key output (passenger trips). As shown in Figure 10, the systemwide marginal subsidy per passenger trip was $7.19. Routes 11 and 14 require just $3.25 and $3.32 in marginal subsidy per passenger trip, while the School Express requires $28.25. The Burney Express requires the greatest subsidy per trip at $80.66.

Figure 8: RABA Passenger Trips per Revenue Hour FY 21-22

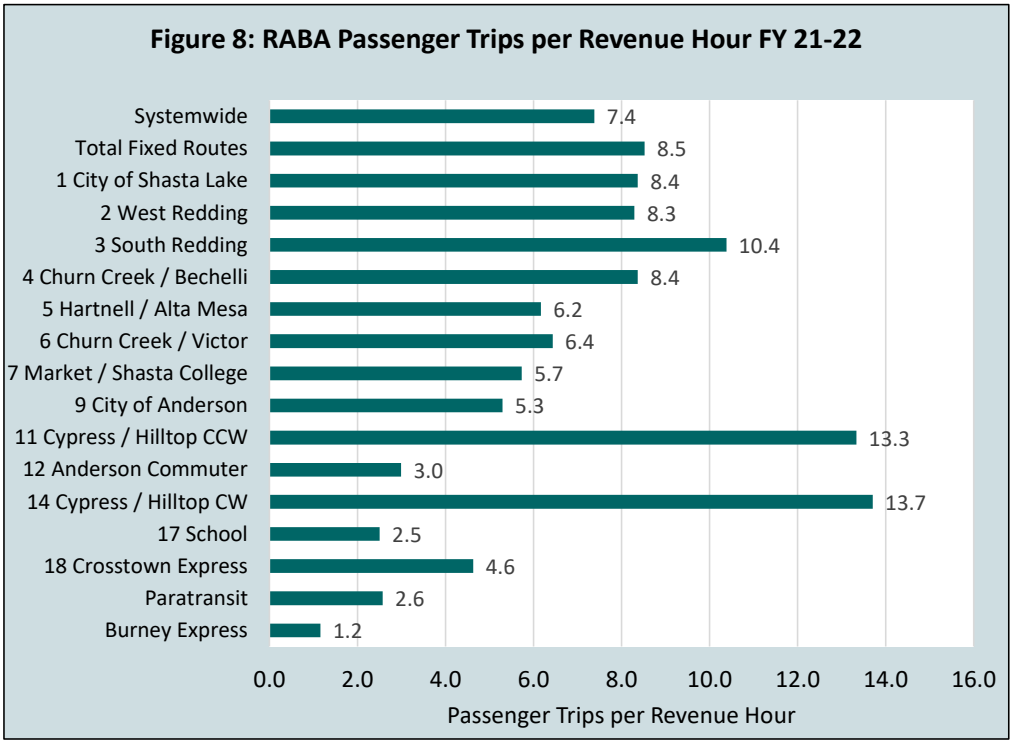


Figure 9: RABA Passenger Trips per Revenue Mile FY 21-22

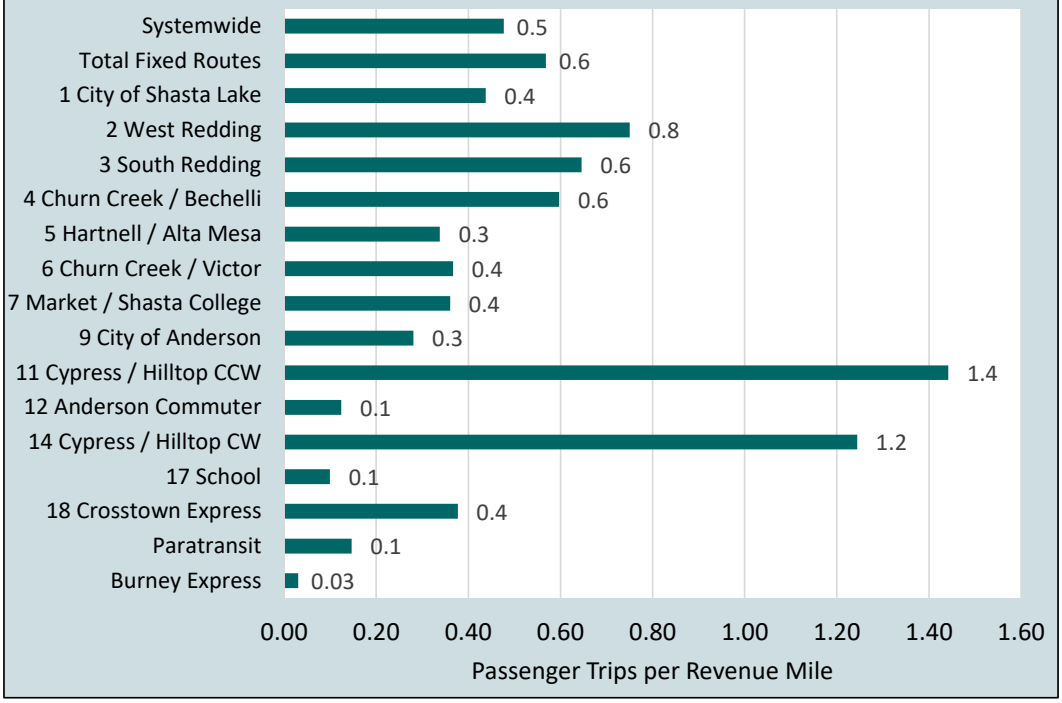
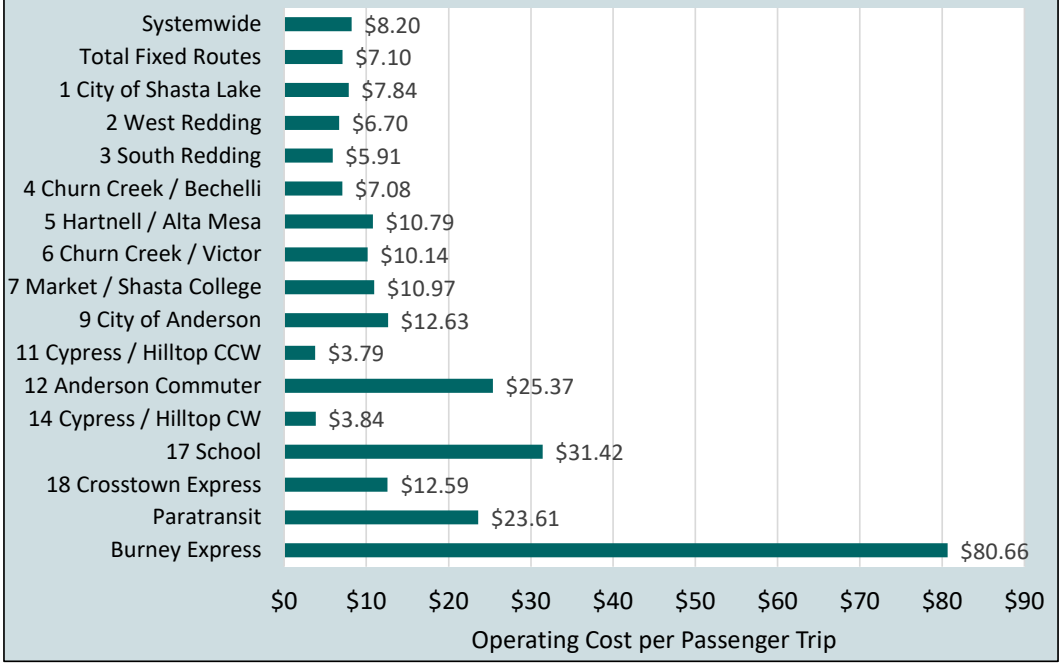


Figure 10: RABA Marginal Operating Subsidy per Passenger Trip FY 21-22



RABA QUALITY OF SERVICE

When evaluating a transit service, it is helpful to consider the travel experience from the perspective of the rider. Beyond the fare, there are three key trip characteristics that influence an individual's opinion of a fixed route bus ride: travel time, frequency of service, and the transfer requirement.

As shown in Table 10, travel times, service frequency, and transfers for seven bus stop locations (reflecting various service areas) were analyzed. For each trip origin/destination pair, the existing schedules were used to identify the fastest travel time possible to complete the trip. Once it was determined which buses would provide the fastest travel between each origin/destination pair, the frequency of the buses and whether a transfer was required were recorded.

Note that for many trips, the actual travel times vary between individual trip-departure times, as someone may have to wait for a bus much longer if they leave at a different time. If a transfer is required to reach the destination, a 10-minute penalty was added to the overall travel time to reflect this inconvenience. Table 10 presents the fastest travel time between each origin/destination pair assuming optimal conditions and no traffic. A review of the table indicates the following:

Table 10: RABA Sample Trips: Travel Times, Frequency, and Transfers

60 Minute Frequency or Less	One- to Two-Hour Frequency

Travel Time in Minutes T = Transfer Required		Destination Stop						
		Downtown Transit Center	Shasta College	Canby Transfer Center	Patients Hospital	Walmart (Anderson)	Parsons Middle School	City Hall
Origin Stop	Downtown Transit Center		22	12	12	69	21	7
	Shasta College	39 T		14	70 T	104 T	46 T	41 T
	Canby Transfer Center	12	10		52 T	109 T	20	14
	Patients Hospital	19	54 T	59 T		100 T	59 T	37
	Walmart (Anderson)	68 T	95 T	110 T	125 T		111 T	99 T
	Parsons Middle School	33	53 T	28	85 T	115 T		20
	City Hall	18	48 T	23	35	100 T	19	

Note: Excludes Burney Express, Anderson Commuter and School Express as they are not regularly available throughout the day.
Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).

- Individual trip times range from as short as 7 minutes to as long as 125 minutes.
- Trips which require a transfer take on average 3 ½ times as long as those that do not require a transfer.

- Not surprisingly, trips between Walmart in Anderson and other locations take the longest (over an hour, and up to two hours).
- Within Redding, trips between Parsons Middle School (on Route 2W) and Patients Hospital (on Route 5) take the longest (85 minutes including the 10-minute transfer "penalty").
- The quickest trip is between the Downtown Transit Center and City Hall (seven minutes), followed by Canby Transfer Center to Shasta College (10 minutes).

Comparison of Auto Travel Times to Transit Travel Times

To further the analysis, for the sample trips (i.e., origin/destination pairs), transit travel times (Table 10) were compared to auto travel times (as reported by Google Maps during typical, non-peak hours. The transit travel times were divided by the auto travel times to identify the ratio of transit/auto travel time, as in Table 11. Lower ratios, such as the 1.3 ratio of travel times between the Canby Transfer Center and Shasta College (which takes the same time by car as by bus), are preferred.

Table 11: Comparison of RABA Bus Versus Auto Travel Times

LEGEND	11	Typical Auto Travel Times in Minutes (1)
	2.0	Ratio of Transit Travel Time to Auto Travel Time

Origin Stop	Destination Stop: Downtown Transit Center	Shasta College	Canby Transfer Center	Patients Hospital	Walmart (Anderson)	Parsons Middle School	City Hall
Downtown Transit Center		11 *2.0*	8 *1.5*	5 *2.4*	17 *4.1*	9 *2.3*	4 *1.8*
Shasta College	*10* *3.9*		*8* *1.8*	*13* *5.4*	*19* *5.5*	*11* *4.2*	*5* *8.2*
Canby Transfer Center	*7* *1.7*	*8* *1.3*		*9* *5.8*	*16* *6.8*	*7* *2.9*	*10* *1.4*
Patients Hospital	*5* *3.8*	*14* *3.9*	*10* *5.9*		*18* *5.6*	*11* *5.4*	*8* *4.6*
Walmart (Anderson)	*17* *4.0*	*19* *5.0*	*17* *6.5*	*20* *6.3*		*16* *6.9*	*17* *5.8*
Parsons Middle School	*8* *4.1*	*10* *5.3*	*8* *3.5*	*11* *7.7*	*15* *7.7*		*7* *2.9*
City Hall	*5* *3.6*	*11* *4.4*	*8* *2.9*	*8* *4.4*	*15* *6.7*	*7* *2.7*	

Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).

Higher ratios, such as between Parsons Middle School and either Patients Hospital or Walmart in Anderson indicate such trips are significantly less convenient by transit than by car; for instance, these trips would take 7.7 times longer by bus than by car.

RABA CAPITAL ASSETS

RABA Revenue Fleet

As shown in Table 12, the RABA revenue fleet consists of eighteen fixed route buses (numbered 48-66) and eighteen paratransit vans (numbered 252-275). Table 12 also shows the age, size, and minimum useful life (UL) of each vehicle (as defined by the FTA).

California Air Resource Board (CARB) regulations will require vehicles to be replaced with zero emission vehicles. Starting in 2026, 25 percent of the fleet purchases must be zero emission vehicles (ZEVs), and 100 percent of purchases must be ZEV by 2029, with full transition of the fleet by 2040. This will be fully considered when developing the capital plan for this SRTP.

RABA Maintenance and Operations Facility

The RABA maintenance and operations facility is located at 3333 S. Market Street in Redding. This location has offices for administration and dispatch, a training room, restrooms, a maintenance bay with storage for parts, a bus wash, and ample parking in a fenced lot. The contractor administrative staff, dispatch staff, and maintenance staff operate from this location.

RABA Transit Centers

RABA services center around three main transit or transfer centers:

- *Downtown Transit Center*, located at 1530 Yuba Street in Redding. This transit center is centrally located in downtown between Yuba Street on the south, Tehama Street on the north, California Street on the east, and Oregon Street on the west. There are twelve bays for buses with a landscaped fence separating the east and west sides of the terminal, and two crosswalks in addition to the crosswalks at the streets. The stops have signage, shelter, benches, and waste receptacles. The office on the west side of the transit center has a staffed kiosk (one or two dispatchers) where passengers can purchase fares or ask questions. There is also a break room and restroom for drivers. Passengers can ask for a token to use the restroom as well.
- *Masonic Transfer Center*, located on the east side of Masonic Avenue behind the Lake Blvd Plaza Shopping Center. The curb (painted red) accommodates four buses. Masonic Avenue ends in a court with two driveways. Buses turn around in the court to access the bus stop. This is not always a safe option. During a recent field visit, for example, emergency vehicles were parked at the edge of the court and the bus had to make a 3-point turn. There is lighting at the stop, but no benches or shelters. This location experiences high transient activity.
- *Canby Transfer Center* is located on the west side of Canby Road, on the east side of the Mt. Shasta Mall. There are two large shelters and a bus pullout. There is also adjacent parking.

Table 12: RABA Revenue Vehicles

Vehicle Number	Year	Chassis & Make	Fuel Type [1]	Fixed Seats	Wheel-chair Positions	Vehicle Length	Mileage [2]	Minimum Useful Life [3]	Primary Use
48	2009	Gillig G27D102	Diesel	37	3	40	467,604	2021	Fixed Routes
49	2010		Diesel	37	2	40	323,776	2022	Fixed Routes
51	2010		Diesel	37	2	40	423,774	2022	Fixed Routes
52	2011		Diesel	32	3	35	383,222	2023	Fixed Routes
53	2011		Diesel	32	3	35	400,187	2023	Fixed Routes
54	2011		Diesel	32	3	35	393,246	2023	Fixed Routes
55	2011		Diesel	32	3	35	403,505	2023	Fixed Routes
56	2013	Gillig G27D103	Diesel	32	3	35	351,027	2025	Fixed Routes
57	2013	Gilling G27D104	Diesel	32	3	35	333,914	2025	Fixed Routes
58	2013	Gillig G27D105	Diesel	32	3	35	340,090	2025	Fixed Routes
59	2015	Gillig G27B102N4	Diesel	30	3	35	286,620	2027	Fixed Routes
60	2015		Diesel	30	3	35	285,368	2027	Fixed Routes
61	2017	Gillig GLFoor17	Diesel	30	3	35	161,596	2029	Fixed Routes
62	2017		Diesel	30	3	35	139,467	2029	Fixed Routes
63	2017		Diesel	30	3	35	156,607	2029	Fixed Routes
64	2019	Proterra Catalyst E2	Electric	26	3	35	25,671	2031	Fixed Routes
65	2020	Gillig GLFoor17	Diesel	30	3	35	43,336	2032	Fixed Routes
66	2020		Diesel	30	3	35	40,492	2032	Fixed Routes
252	2010	El Dorado Chevy GMT 600	Gas	8	2	21	118,909	2015	Paratransit
254	2010		Gas	8	2	21	99,729	2015	Paratransit
256	2010	El Dorado Chevy Aerotech 200	Gas	10	4	22	226,399	2015	Paratransit
259	2010		Gas	10	4	22	256,383	2015	Paratransit
260	2011	El Dorado Ford Aerotech 240	Gas	16	4	23	249,883	2016	Paratransit
261	2011		Gas	16	4	23	244,198	2016	Paratransit
264	2017		Gas	16 or 8	2 or 4	25	90,947	2022	Paratransit
265	2017		Gas	16 or 8	2 or 4	25	93,123	2022	Paratransit
266	2017		Gas	16 or 8	2 or 4	25	80,085	2022	Paratransit
267	2017		Gas	16 or 8	2 or 4	25	97,650	2022	Paratransit
268	2019	Glaval E450	Gas	12 or 6	2 or 4	24	8,478	2024	Paratransit
269	2019		Gas	12 or 6	2 or 4	24	7,802	2024	Paratransit
270	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
271	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
272	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
273	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
274	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
275	2021		Gas	12 or 6	2 or 4	24	N/A	2026	Paratransit
307	2014	Chevrolet G4500	Gas	10	3	25	216,951	2019	Burney Express [4]
308	2019	Glaval E450	Gas	12 or 6	2 or 4	24	23,597	2024	Burney Express [4]
309	2019		Gas	12 or 6	2 or 4	24	40,108	2024	Burney Express [4]

Note 1: Diesel = low sulfur diesel

Note 2: Mileage as of July 2021.

Note 3: Minimum Useful Life per Federal Transit Administration: 12 years for buses, 5 years for vans.

Note 4: Vehicles used to operate the Burney Express are owned by the County of Shasta.

Source: RABA. Mileage as of July 2021

RABA Passenger Amenities

RABA has approximately 340 bus stops. The stops have the following amenities:

- 60 stops (18 percent) have one or more shelters.
- 126 stops (37 percent) have one or more benches.
- 90 stops (28 percent) have lights.
- 278 of stops (82 percent) have a sidewalk of at least four feet wide accessing the stop, with the average sidewalk width being 5.6 feet.

OTHER TRANSPORTATION SERVICES

There are many intraregional and interregional transportation services that serve Shasta County and/or connect to RABA services. A brief description of each of these services is provided below.

Amtrak /Amtrak Thruway

Amtrak's *Coast Starlight* train from Los Angeles to Seattle serves the Redding Train Station, adjacent to the RABA Downtown Transit Center, in the early morning. Amtrak San Joaquins also operates the Thruway Bus Route 3 between Stockton, Sacramento, and Redding. The Thruway bus departs Redding southbound at 6:05 AM and 10:05 AM each day. The northbound bus arrives in Redding at 5:45 PM and 9:35 PM.

The State of California requires Thruway Bus Route 3 passengers to transfer to an Amtrak train as part of their trip. Recent changes to California regulations now allow the San Joaquins Joint Powers Authority to modify this policy, so that eventually passengers will be able to make Thruway bus trips independent of train trips. This change has not yet been implemented as of the time of writing.

Beach Bus

The Beach Bus was initiated in 2021 and is funded by non-profits and others[1] to bring residents and visitors in Redding to Whiskeytown National Recreation Area. The service operates four runs daily on Thursdays, Fridays, and Saturdays in summer (Memorial Day to Labor Day) under contract with RABA. In 2021, ridership was 407 (2.26 per hour) and in 2022, ridership was 908 (5.19 per hour).

Burney Express

Burney Express is a public transit service in Shasta County (i.e., outside of the Study Area). Burney Express is provided by the County of Shasta and is operated by RABA; however, it is not a RABA service. Three westbound and three eastbound trips are provided on weekdays. The schedule is shown in Table 13. The current service schedule for the Burney requires two vans.

[1] The National Park Service (NPS) or NPS-related friends/non-profits provided grant funds for operating costs, plus fares were charged. More recently (last two years) SRTA has funded both operating costs (TDA spillover) and fares (free fares via the regional Caltrans LCTOP allocation.

Table 13: Burney Express Schedule

Westbound						
Runs	Burney	Montg Creek	Round Mtn	Bella Vista	Shasta College	Redding
1st Trip	5:50 AM	6:15 AM	6:25 AM	6:55 AM	7:05 AM	7:15 AM
2nd Trip	11:50 AM	12:15 PM	12:25 PM	12:55 PM	1:05 PM	1:15 PM
3rd Trip	3:50 PM	4:15 PM	4:25 PM	4:55 PM	5:05 PM	5:15 PM

Eastbound						
Runs	Redding	Shasta College	Bella Vista	Round Mtn	Montg Creek	Burney
1st Trip	10:25 AM	10:35 AM	10:45 AM	11:15 AM	11:25 AM	11:50 AM
2nd Trip	2:25 PM	2:35 PM	2:45 PM	3:15 PM	3:25 PM	3:50 PM
3rd Trip	5:35 PM	5:45 PM	5:55 PM	6:25 PM	6:35 PM	7:00 PM

Greyhound/FlixBus

Greyhound and Flix Bus offer two northbound bus trips from Redding which depart at 9:00 AM and 11:00 PM from the RABA Downtown Transit Center each day. Greyhound also offers two southbound trips departing Redding at 4:25 AM and 5:50 PM each day. The route follows I-5 as far as Vancouver, British Columbia to the north, and San Ysidro, California to the south. One-way fares between Redding and Sacramento are in the $27-32 range. RABA is the local ticketing agent for Greyhound/FlixBus.

Sage Stage

Sage Stage is a public transit service in Modoc County (northeast of Shasta County) and operates a route between Alturas and Redding on Tuesdays. The westbound run departs Alturas at 7:30 AM, stops in Burney at 9:10 AM and arrives at the RABA Downtown Transit Center at 10:30 AM. The eastbound run departs the Mt Shasta Mall at 1:15 PM, serves the RABA Downtown Transit Center at 1:30 PM, Burney at 2:30 PM and arrives in Alturas at 4:20 PM. The fare for the full distance is $26.00 one-way, or $19.40 discounted (children under 12, seniors over 60, or disabled persons meeting ADA criteria).

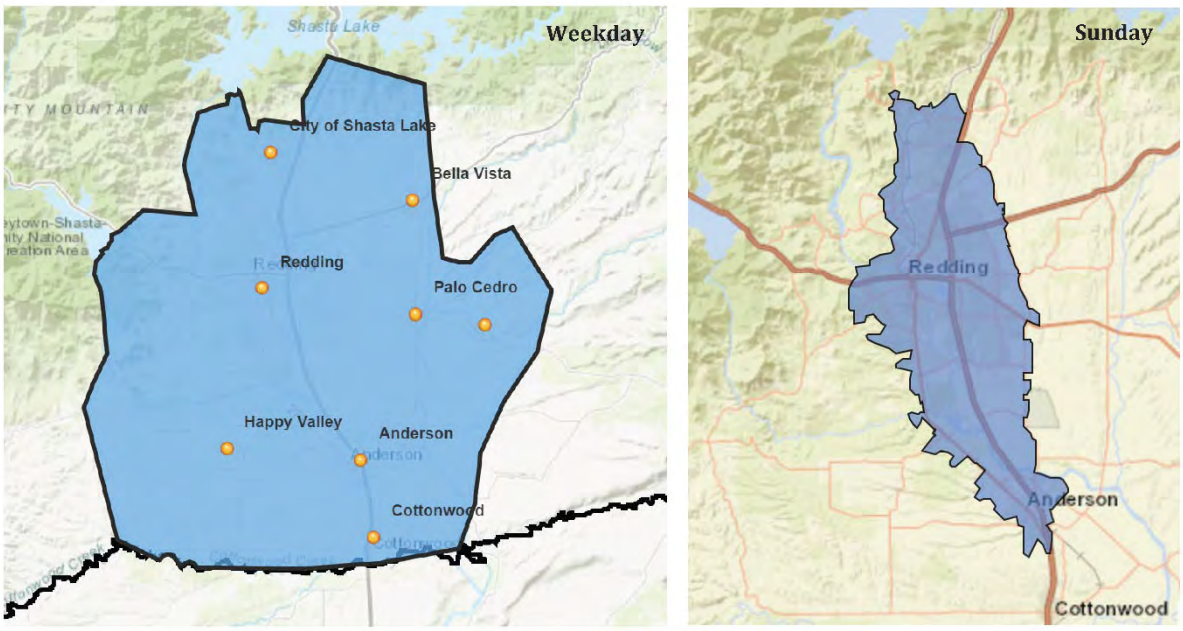
SRTA/ShastaConnect

ShastaConnect is the umbrella under which the Shasta Regional Transportation Agency (SRTA) provides weekday Coordinated Transportation Service Agency (CTSA) service and Sunday On-Demand Transit service in Shasta County. These services are operated by a contractor (currently, Dignity Health Connected Living). SRTA, the metropolitan planning organization (MPO) for Shasta County, has provided on-demand CTSA service (or "community transportation" under the TDA), outside of the RABA Service Area (e.g., the Communities of Burney, Cassel, Fall River, and McArthur (the "Intermountain Area")), for over 20 years.

With available regional Caltrans Low Carbon Transit Operations Program (LCTOP) funds (commencing with the FY2017-18 allocation), SRTA is able to fund Sunday On-Demand Transit service, a pilot project to test Sunday service (a long-standing regional unmet transit need) (e.g., within the RABA Service Area). For CTSA service, fares are $3.00 but temporarily free (e.g., FY 2022) due to Caltrans LCTOP funds. For Sunday On-Demand Transit service, fares have always been free (i.e., for the 3+ years of demonstration) due to Caltrans LCTOP funds.

According to SRTA staff reports, the cost per passenger trip is as follows: Sunday On-Demand Transit service (pre-pandemic) $71.84 per passenger trip; Sunday On-Demand Transit service (post-pandemic) $80.12 per passenger trip; and weekday CTSA service $20.59 per passenger trip. ShastaConnect (e.g., weekday CTSA service and Sunday On-Demand Transit service) is not a RABA service. The ShastaConnect weekday and Sunday service areas are shown in Figure 11.

Figure 11:
ShastaConnect Service Area



Tehama Area Rural eXpress (TRAX)

Tehama Rural Area eXpress (TRAX) is the public transit service in Tehama County (south of Shasta County). Services include local fixed routes in Red Bluff and Corning, regional routes, and paratransit services (ParaTRAX). TRAX and ParaTRAX are operated through a contractor and administered by the Tehama County Transportation Commission (TCTC). TRAX provides approximately 85,000 passenger trips annually.

In July 2022, TRAX initiated a route from Red Bluff (Tehama County) to the Walmart in Anderson (Shasta County), providing a connection to RABA Route 9. This route is referred to as the Shasta-Tehama Connection.

Trinity Transit

Trinity Transit is a public transit service in Trinity County (west of Shasta County). Services include the Redding Line, the Willow Creek Line, the Lewiston Line, and the Hayfork Line.

The Redding Line includes two round trips between Weaverville and Redding on weekdays. Eastbound trips to Redding depart Weaverville at 7:15 AM and arrive at the RABA Downtown Transit Center at 8:24 AM, with a second eastbound departure at 11:00 AM arriving at 12:09 PM. Westbound trips depart the RABA transit center at 10:15 AM and arrive in Weaverville at 11:27 AM, with the second run departing at 3:30 PM, and arriving at 4:42 PM. This schedule allows passengers a minimum of three-and-a-quarter hours and a maximum of seven hours in Redding. Fares are $10.00 per one-way trip, or $7.50 reduced fare for Veterans, students traveling to or from school, youths 6-11, seniors 65 and older, or disabled per ADA criteria.

Chapter 4

PUBLIC OUTREACH AND FIELD DATA COLLECTION

INTRODUCTION

This chapter presents an overview of public outreach and field data collection efforts conducted for the RABA SRTP. Key takeaways from the RABA onboard passenger survey, the Shasta College online community survey, and the rural Shasta County surveys are all presented. Analyses of RABA boarding and alighting data and RABA on-time performance data are also included.

PUBLIC OUTREACH

Public Workshops

RABA and LSC Transportation Consultants, Inc. (LSC) organized two public workshops during the SRTP planning process. The first workshop took place in November 2022 and discussed the findings from the existing conditions analysis, presented in Chapters 1 through 3, the onboard passenger survey, and the Shasta College survey. The second workshop was held in May 2023, and discussed the alternatives analysis presented in Chapters 6 through 11. Both of these workshops were in-person events held at Redding City Hall. Condensed versions of the community workshop slides are included in Appendix C.

RABA Onboard Passenger Survey

An onboard passenger survey was conducted on RABA services from July 12 to July 16, 2022. Trained survey staff were placed on most fixed routes to distribute and collect surveys. Surveyors did not ride the Anderson Commuter Bus, nor paratransit vehicles, though paper survey forms were available on both these services. Surveyors also did not ride the School Express due to it not being in operation at the time. Passengers had the opportunity to answer the survey virtually on every RABA route by scanning QR codes on flyers posted on buses.

The survey instrument consisted of a one-page questionnaire in English on one side and Spanish on the reverse side, printed on card stock. The online survey was available through Survey Monkey in both English and Spanish and contained the same questions as the paper version. The survey included a simple introduction, with 17 questions in multiple-choice, short-answer, or comment format. A total of 328 passengers participated in the survey; all but one of the respondents completed the survey in English. Survey highlights are described below, with detailed results presented in Appendix D.

Passenger Profile

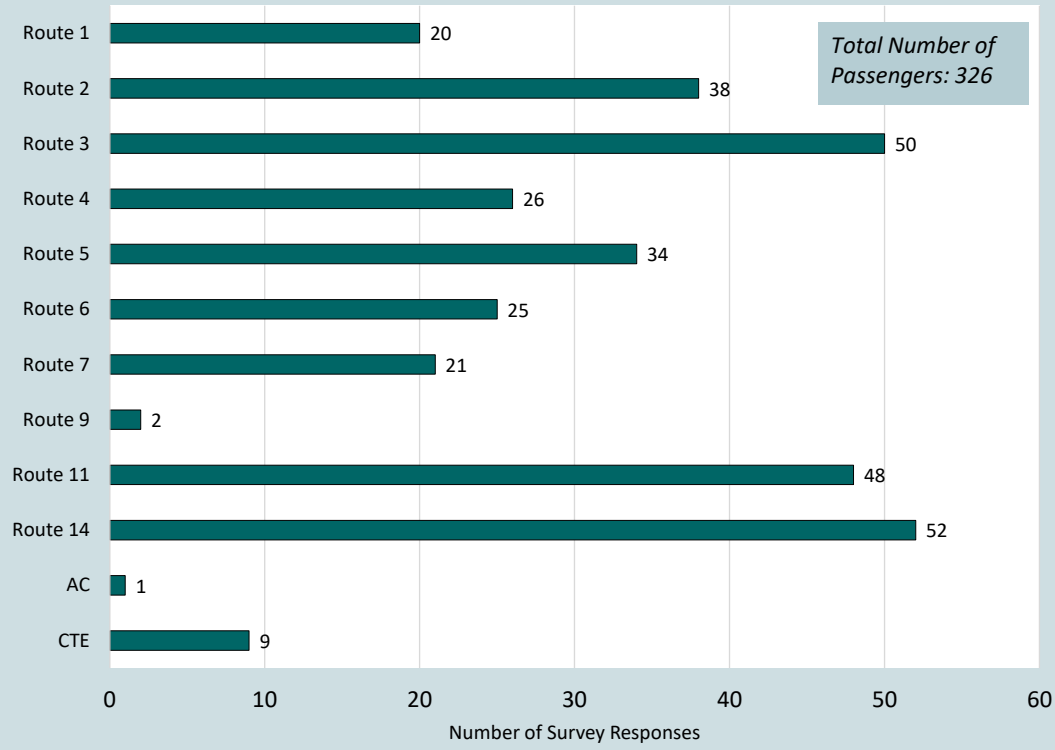
- The onboard survey data indicated most RABA passengers are likely transit dependent. 61 percent of respondents did not have a driver's license, and 85 percent did not have an alternative vehicle available that they could have used the day of the survey.
- The most common reasons RABA passengers rode the bus were to go shopping (29 percent) or to work (25 percent). 17 percent of respondents were going to medical/dental or social services appointments and 11 percent were out for personal business.

- Passengers who ride RABA buses normally ride more than once a week; 25 percent complete 2 to 3 one-way trips, 28 percent travel complete 4 to 7 one-way trips, and 23 percent complete over 8 one-way trips, with many passengers making over 16 one-way trips weekly.
- About one-third of the RABA passengers said they were employed at the time of the survey (34 percent), while 46 percent were either unemployed, retired, or disabled.
- Nearly half of respondents were 41 to 64 years old. Seniors (adults ages 65 and older) represented 19 percent of respondents. Less than 1 percent of survey participants were youth and only 5 percent were college-aged adults, potentially because the survey was conducted in summer when many schools are not in session.

Trip Patterns

- 46 percent of respondents were riding Routes 14, 3, or 11 (Figure 12). This is similar to overall ridership trends in FY 2021-22, as these three routes carry the greatest ridership (Table 9).

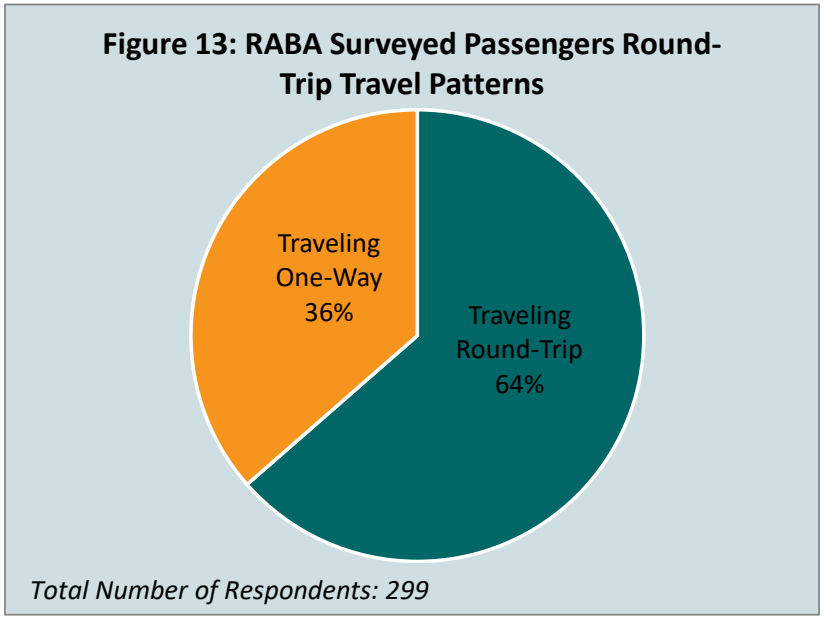
Figure 12: RABA Onboard Survey Responses by Route



- Boarding and alighting activity was dispersed, but the surveys indicated passenger activity is strongest at the following locations:
  - Downtown Transit Center (19 percent of boardings; 20 percent of alightings)
  - Canby Transfer Center (5 percent of boardings; 9 percent of alightings)
  - Masonic Transfer Center (8 percent of boardings; 4 percent of alightings)
  - Mount Shasta Mall (7 percent of boardings; 5 percent of alightings)
- The most popular route pairs for passengers to transfer between were as follows:

- From Route 3 to Route 14 (5 percent of transfer pairs)
- From Route 11 to Route 1 (4 percent of transfer pairs)
- From Route 1 to Route 11 (3 percent of transfer pairs)

- As shown in Figure 13, about a third of passengers (36 percent) were planning on riding RABA buses one-way rather than round-trip. This indicates there may be an opportunity to increase ridership by providing options which allow more passengers to make roundtrips.



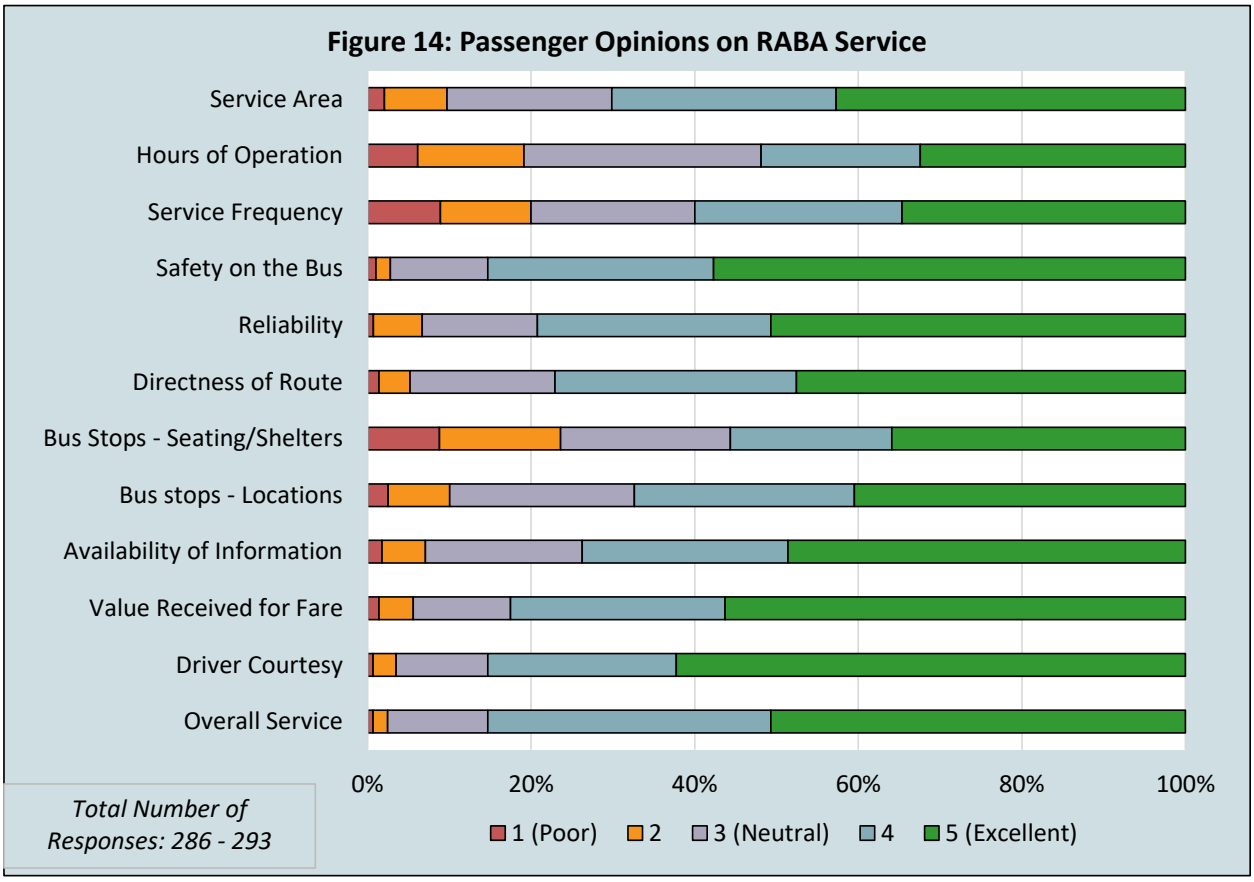
- Most passengers get to and from bus stops by walking (79 and 73 percent). The next most common mode to and from the bus stop was a bus transfer (15 and 21 percent).

Impacts of the COVID-19 Pandemic on Ridership

As the COVID-19 pandemic greatly impacted transit ridership across the nation, passengers were asked if they expected their use of RABA services to change once the pandemic is fully over. The majority (76 percent) said they expected no change in their current transit use, but 19 percent said they would likely ride the bus either slightly more or much more. Although the COVID-19 pandemic caused some people to work remotely, over two-thirds of the survey respondents said they work in-person full time (4 to 7 days per week). Less than 4 percent of respondents work remotely full-time.

Passenger Opinions

Passengers were asked to rank various components of RABA services on a scale of 1 (poor) to 5 (excellent). Considering all the responses, passengers indicated a high level of satisfaction with RABA: 85 percent of answers ranked service factors as either 4 (good) or 5 (excellent), and the overall service ranked an average of 4.3. The highest ranked RABA service characteristics were driver courtesy (4.4), safety on the bus (4.4) and value received for fare (both 4.3). The lowest ranked factors were hours of operation and bus stop seating and shelters (both 3.6). These results are represented in Figure 14.



Desired Improvements

RABA passengers were asked to list desired improvements. Sunday service (26 percent) and later service hours (19 percent) were by far the two most popular improvements. Multiple people explained that these changes would allow them to ride the bus to work, as their shifts end later at night, or they work on Sunday. Improved bus stop amenities (14 percent) and more frequent service (13 percent) were the next two ideas with the most support. Several people asked for bus stops to be cleaner, more shaded, and have water available. Only 8 percent of passengers asked for the Study Area to be expanded; a quarter of these requests were for transit services to Cottonwood.

Unfortunately, passengers across multiple routes expressed disappointment with the courtesy of RABA drivers (though it should be noted this was the highest ranked service factor, and many of these passengers also acknowledged that they have had good experiences with other drivers). Of note is that one passenger requested that passengers be prevented from bringing knives onboard. It is important that passengers feel safe, and that drivers feel equipped to maintain a safe environment.

Compliments were submitted from riders on all routes, with many expressing high levels of gratitude for the services RABA provides. Some people complimented the RABA drivers, and one individual expressed thanks for the Beach Bus service.

Shasta College Online Survey

Due to the RABA onboard passenger survey being conducted during the summer when most students are out of school, an additional survey effort was developed to gather feedback specifically Shasta College students. An online survey was developed and distributed to Shasta College from September 20 to October 4, 2022. During this time, the survey information was posted to multiple platforms used by the college. The online survey was available through Survey Monkey and included a simple introduction, with 27 questions in multiple choice, short-answer, or comment format. Overall, 290 students and recent graduates participated. Detailed results are included in Appendix E.

Student Ridership Patterns

- Most students had never ridden RABA before (69 percent). Of those who had ridden, Routes 6 and 7 (both of which serve Shasta College) were the most utilized routes.
- About 40 students reported that they currently use RABA to get to Shasta College.
- The vast majority of the surveyed students get to RABA bus stops by walking (85 percent).
- Most students arrive at the Shasta College campus between 6:00 and 9:59 AM (65 percent). Most students then leave the campus between 2:00 and 5:59 PM (69 percent).

Student Opinions

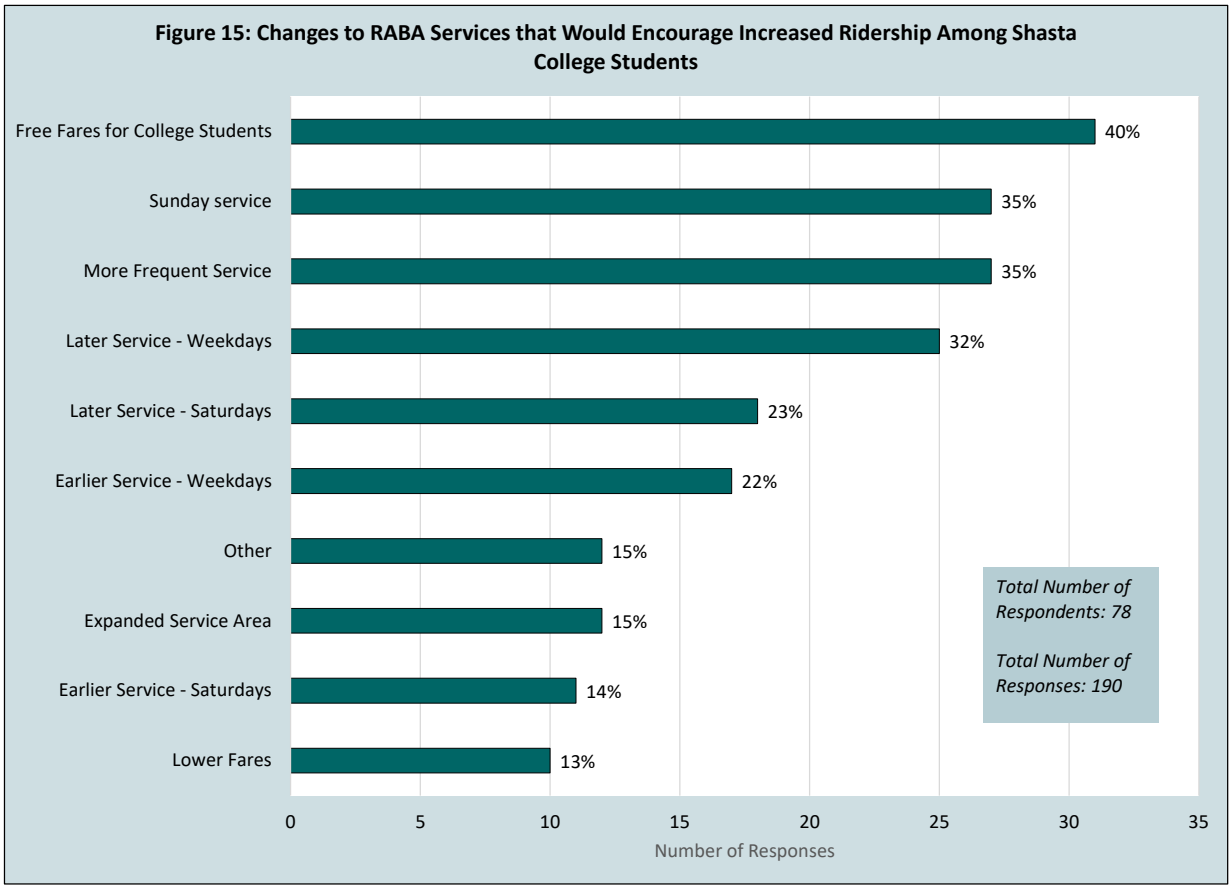
Similar to the RABA passenger survey, the Shasta College students were asked to rank various RABA service characteristics. Only those students who had ridden before were asked to evaluate the service. The students who had ridden RABA at some point overall thought highly of the service, giving it an average overall ranking of 4.3 out of 5. The students ranked driver courtesy (4.3), printed passenger information (4.1) and safety with other passengers (4.1) as the best RABA features.

Desired Improvements

Students who participated in the Shasta College online survey indicated that the service improvements that, if implemented, would encourage them to ride RABA more often would be free fares for college students (paid for by student fees) (40 percent), more frequent service (35 percent), Sunday service (35 percent), and later weekday service (32 percent). Other student suggestions were to improve RABA's digital and printed information and for RABA to initiate a new route to Red Bluff in Tehama County. Figure 15 summarizes the service improvements most likely to encourage Shasta College students to ride RABA more frequently.

Rural Shasta County Surveys

Two outreach efforts were conducted to gather input from rural Shasta County residents regarding their transit needs. In particular, these efforts were targeted towards residents living along State Route (SR) 299, including the communities of Burney, Montgomery Creek, Round Mountain, Bella Vista, and Johnson Park. As most of these communities are currently served by the Burney Express (Route 299X), the surveys discussed potential changes to the Burney Express.

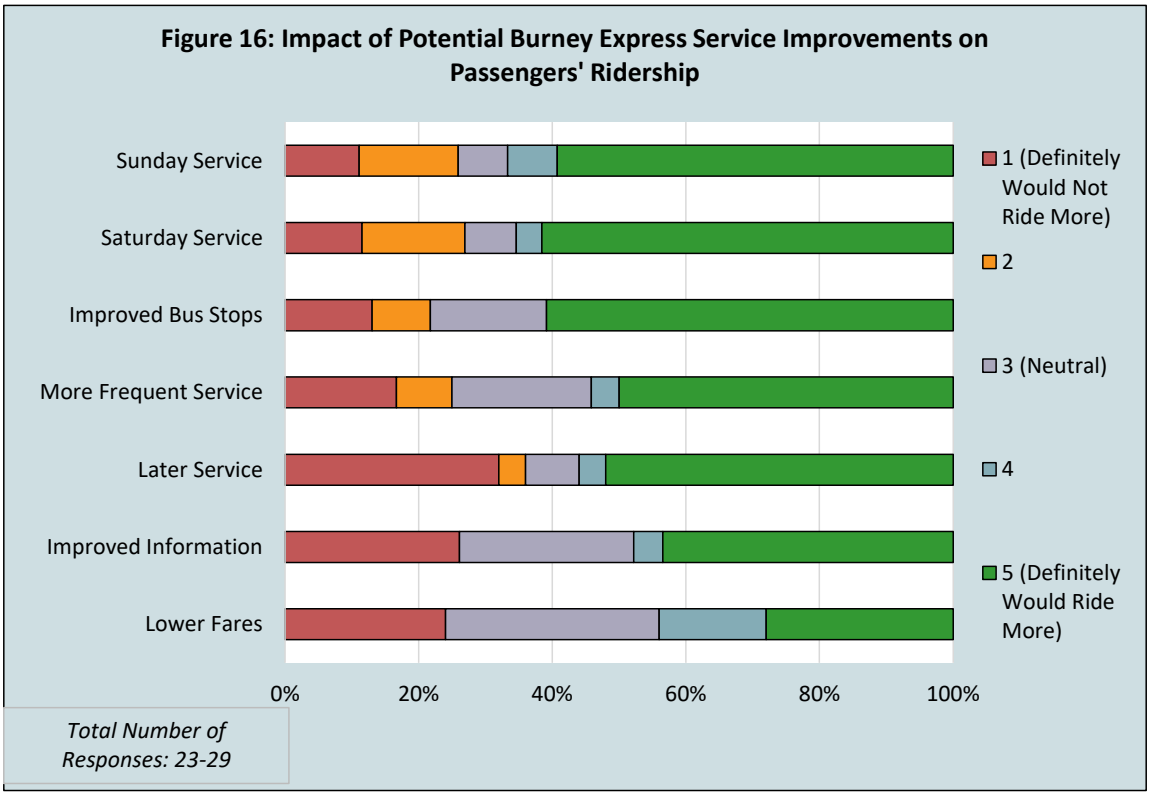


The first component of the rural outreach efforts consisted of an online community survey, which was available to residents from September 5 to September 29, 2023. The online community survey was advertised with flyers posted at key community centers and via stakeholder emails. The second component of the rural outreach effort consisted of a Burney Express passenger survey that was conducted by the operators from September 13 to September 29, 2023.

All rural outreach materials were developed in both English and Spanish. In all, seven residents participated in the rural community survey and 31 passengers completed the onboard survey. Detailed results of these efforts are discussed in Appendix F.

Desired Improvements

The final sections of both the rural online and the rural onboard surveys asked respondents about potential service improvements. The improvements most desired by the community survey respondents, who were not all regular transit riders, were Saturday service (3 respondents) and more frequent service (2 respondents). The onboard passengers ranked various service changes based on how it would impact their ridership, with 1 being "definitely would not ride more if the change was implemented" and 5 being "would definitely ride more if change was implemented." The service improvements most likely to encourage existing Burney Express passengers to ride more often are shown in Figure 16 and include Sunday and Sunday service (both 3.9) and improved bus stops (3.8).



Stakeholder Interviews

As presented fully in Appendix G, detailed interviews were held with 13 key "stakeholders" regarding transit services in the region. To summarize, RABA was generally held in high regard for the ability to make efficient use of available resources, with good governance and a professional staff and contractor. The key weakness of the system is seen to be the long travel time needed for many trips. Desired improvements largely focused on shorter travel time, trimming non-productive routes, and improving the public impact of transit.

RABA FIELD DATA

Boarding and Alighting Data

Ridership data by stop is tracked by RABA in an annual survey conducted by staff. LSC calculated the average daily ridership by stop and by route by using the weekday data for Fiscal Year 2021-22 and applying it to the proportion of ridership at each stop from the October 2021 onboard survey. This provided the data by time of day, presented in Figure 7 of Chapter 3, as well as detailed route-by-route boarding activity. A review of the data indicates which stops have the highest overall boardings, as shown in Table 14.

Key findings from the boarding survey indicate the following:

- The data shows the busiest stops, not surprisingly, are the transit centers, followed by the stop at Shasta College, and then those serve commercial centers.

Table 14: Top Boarding Locations	
Bus Stop	Average Weekday Ridership October 2021
Downtown Passenger Terminal	256.7
Canby Transfer Facility	147.5
Masonic Transfer Facility	131.0
Happy Valley Road	35.5
Shasta College	20.3
Market at Grange	14.0
Dana at Walmart	13.1
Cypress at Pine (Safeway)	13.0
El Reno and Westside	12.3
City Hall	11.1
Hilltop at Commerce	11.1
273 at Westwood	10.6
Jeffs Cattle Company	10.0
Northpoint at Lake Blvd	9.6
Court at 11th	8.9
Court at Shasta	8.5
Hartnell at Northwoods	8.4
Market at Benton	7.6
Parkview at Akard	7.6
Win River	7.0
Rhonda Rd	6.9
Old Alturas at Bradford	6.6
Galaxy at Meteor	6.0
Shasta Dam at Montana	5.6
Benton at Heritage Plaza	5.3
HHS(Breslaur and East Side	5.3
Court at Butte	5.1
Cascade at Rite Aide	4.7
Churn Creek at Cypress	4.7
Hilltop at Red Lion	4.5
Churn Creek at Echo	3.9
Lake at Keswick	3.6
Trinity at Liberty	3.5
Westside at El Reno	3.3
Hill at Summit City P.O.	3.2
Market at Ellis	3.2
Shasta Dam at Givan	3.2
Source: RABA, compiled by LSC Transportation Consultants, Inc.	

- Most routes show a pattern of high ridership at a few key stops (typically transit centers), and then low but steady ridership along the route. There is a total of 13 stops that generate 10 or more boardings per day.
- None of the routes have significant portions without boarding activity, with the possible exception of Route 2 along Marina Drive.

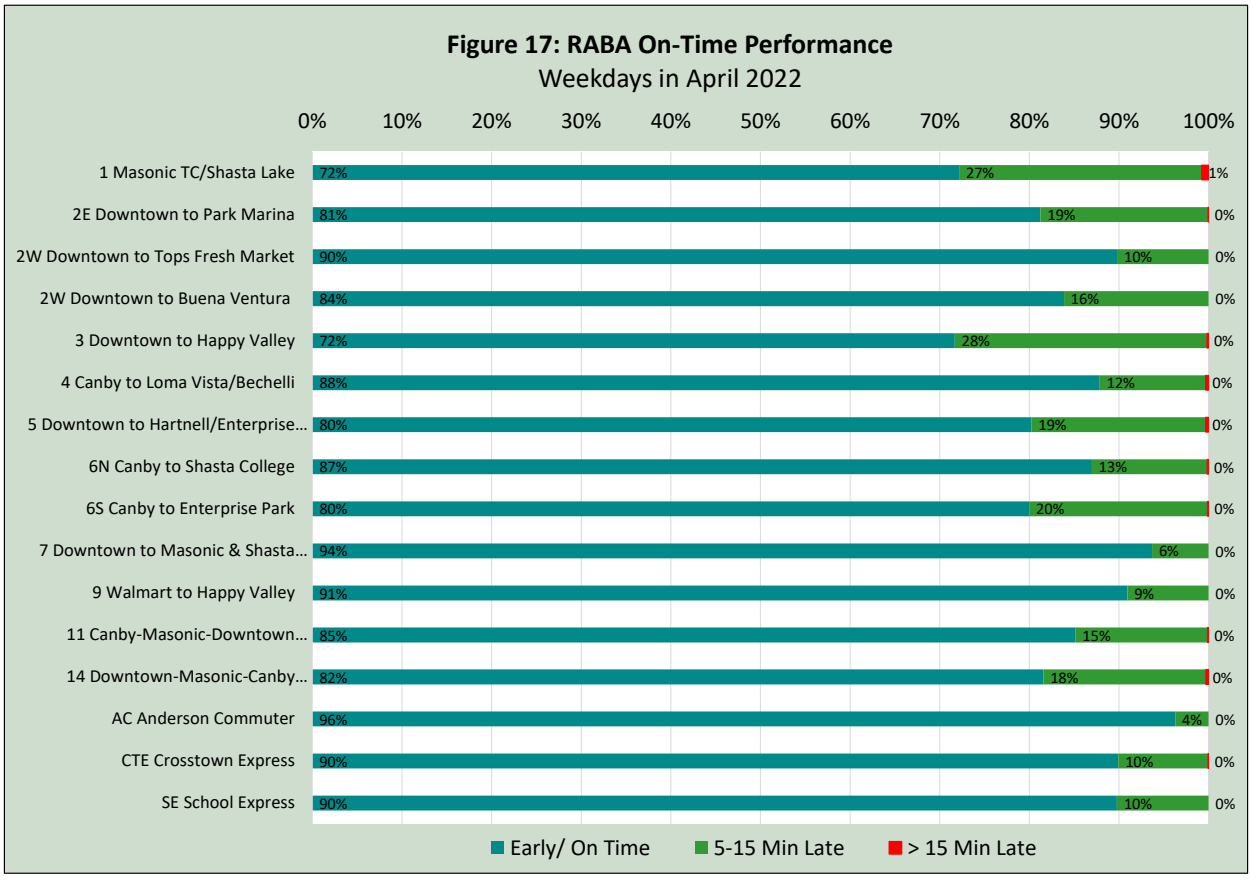
The data was mapped for each individual route, as presented in the Route Profiles in Appendix B.

RABA On-Time Performance

Providing dependable service is a particularly important factor in overall service quality. A review of actual running times and variation by time of day is useful in establishing realistic schedules. RABA's on-time performance was analyzed by route for all weekdays in April 2022. This data tracks actual service times at key scheduled stops along each route. A summary of on-time performance of each individual route is shown in Figure 17[2].

As the RABA standard for on-time service is less than 5 minutes late, this summary focuses on the proportion of all service times that are moderately late (5 to 15 minutes behind schedule) and severely late (more than 15 minutes late). A review of this data indicates the following:

- Over all routes, 86 percent of services were provided on time (or early), while 14 percent were served late. Only Route 1 was more than 15 minutes behind schedule for just 1 percent of trips.
- On-time performance is relatively good for the Redding area in general (83 percent on-time) and for the transit center circulators (84 percent), and excellent for the Commuter/Express routes (Anderson Commuter, Crosstown Commuter and School Express).



[2] Additional on-time performance summarized by direction of travel can be found in Tables B-1 in Appendix B.

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Chapter 5

EVALUATION OF EXISTING RABA PUBLIC TRANSIT SYSTEM

INTRODUCTION

Prior to developing this current RABA SRTP, RABA services provided basic coverage for the small urban region encompassing the Cities of Redding, Anderson, and Shasta Lake, as well as neighboring unincorporated communities of Shasta County. A summary of existing local and regional plans and reports which provide context for the RABA system is provided in Appendix H. This chapter provides a big-picture assessment of RABA services which lays the groundwork for further analysis of potential RABA service changes analyzed in later chapters.

ASSESSMENT OF RABA SERVICES

Service Area

As explained in Chapter 2, the low density and large area of the Study Area are major factors in the current alignment of the RABA network, which emphasizes coverage of the service area rather than service frequency. This is an important tradeoff given the limited operating funding and the large geographic service area. In the case of the Study Area, there are several areas that could potentially warrant enhanced transit service due to their high transit demand potential in tandem with potential reductions in coverage to increase service efficiency and control costs.

While the current RABA fixed route network is the most cost effective for areas and corridors with high transit demand potential, the addition and expansion of microtransit service, or a flexible transit service often using shared vans ordered on an app or by phone, is a possible option for several low-density areas. This service already exists in Shasta County on the ShastaConnect service.

ShastaConnect provides weekday curb to curb service for Shasta County's residents living throughout rural Shasta County, outside of the Study Area including the general public, riders who are seniors (60+ years of age) and mobility-impaired individuals (18 and over). ShastaConnect also provides a Sunday curb to curb service in much of the Study Area.

Upon review of the 22 largest activity centers within Redding, the majority include bus stops within a quarter mile walking distance. Two major activity centers are missing nearby bus services – Bethel Church, which includes the Iris Global, the largest employer of Redding, only receives bus access at the bottom of the hill at College View Drive. This means that churchgoers and employees, including the elderly and those with disabilities, must walk nearly a quarter mile uphill if taking the bus. Meanwhile, the nearest bus stop to Shasta Bible College is nearly three quarters of a mile away. Additionally, there are few bus stops within walking distance to many of the retail shopping centers located along Cypress Avenue. Closer service to these activity centers should be examined to determine the potential for increasing ridership and benefiting the local economy.

There are several ongoing and future developments that can impact the demand for transit service and should be considered in the development of this plan, including:

- Downtown Redding: The infill multifamily housing developments including Market Center and Block 7 are just a few of the many projects that are bringing new round-the-clock activity downtown, with dining, nightlife, employment and education centers, and housing. Better connections into and out of Downtown Redding are crucial for the Redding community.
- Redding Regional Airport (RDD) and Northern California Health Care System VA Center: The upcoming renovation of the Redding Regional Airport and potential expansion of flight activity may warrant an examination of renewed transit potential, including both fixed and microtransit alternatives. In FY2011-12, the Airport Road Corridor Route began its operations to serve the IASCO Flight Training Center and adjusted to serve additional locations nearby. The service was discontinued after the school stopped operations. Additionally, the VA clinic on Knighton Road is located near the airport, as well as a number of businesses located on Airport Road in southeast Redding. All of these destinations combined should be considered in the evaluation of potential transit recommendations, and the need to "re-establish Airport Road/Knighton Road fixed route service to the Veteran's Administration (VA) Clinic and Home on Knighton Road" was mentioned as an unmet transit need in the region's April 2022 Unmet Transit Needs Assessment that was conducted by SRTA. It was found the request did not meet the definition of an unmet need due to declining ridership overall, but that the request should be further explored in this Short-Range Transit Plan.
- Shasta College and Bethel Church of Redding Collyer Drive Campus Planned Development: The planned development of a 39.3-acre site in Northeast Redding, just west of the main Shasta College campus, and north of Simpson University, is a potential new major destination that may warrant improved transit connections for students, employees, and people attending religious events in the area.

Span of Service

On weekdays, the RABA fixed routes generally run from 6:20 AM to 7:15 PM. Meanwhile, Saturday service runs on a reduced schedule between 9:20 AM and 7:15 PM, and no RABA service is provided on Sundays or on six federal holidays.

These service times limit ridership for those who possibly work earlier or later in the evenings, or on weekends. For example, RABA buses may not be serving employees of major Redding employers such as Mercy Medical Center Redding (open 24 hours), Win-River Casino (open 24 hours), and the Walmart Supercenter (open 6:00 AM to 11:00 PM) that may require bus access to and from work before or after operating times/days.

Route Structure and Alignment

It is common for smaller transit operators design their service around routes that meet up, or "pulse," at a central transit hub, allowing riders to make transfers between routes to complete their trips, maximizing the number of destinations a customer can make using transit. Typically, the connecting services pulse at the central transit center at consistent times each hour, which offers riders the convenience of being able to learn the schedule easily, minimize waiting time, and to anticipate the next departure. The current RABA service is centered around three key hubs, the Downtown Transit Center, the Canby Transfer Center, and the Masonic Transfer Center.

At the Downtown Transit Center, passengers can make transfers between services provided by RABA and other transportation operators in California's North State region. At Canby and Masonic, riders can transfer between RABA services. In the RABA network, the inclusion of two additional hubs allows RABA to cover more territory across its large service area while maintaining this pulse schedule for most routes. For example, routes that are scheduled to depart at 0:20 after the hour will arrive back at the same transit hub at 0:15 after the hour to allow for drivers to layover and for passengers to make their transfers between routes operating on a similar pulse schedule.

Some routes operate as a one-way loop (e.g., Route 1, 2W) or have mid route one-way segments (e.g., Route 3) that discourage transit use due to the longer time it takes to make a round trip. To illustrate this, a trip on Route 1 between Masonic Transit Center and the bus stop at Oasis and Beltline takes 19 minutes in one direction and 36 minutes in the other for a 55-minute round trip. However, if the service were bidirectional the round trip would be 38 minutes.

Service Frequency

With a couple of exceptions, the current RABA network weekday headways are 60 minutes. These headways can be considered minimum service for a public transportation network. Anyone that has other options, including walking, biking, waiting to get a ride from a friend or family member, or paying for a ride on a taxi or ride hailing application (e.g., Uber and Lyft) will tend to choose that option instead of waiting for the bus. The only exception to hourly service is the Crosstown Express route which operates on 30-minute headways during the morning and afternoons, but it does not operate from 12:20-2:50 PM on weekdays and provides no service on weekends.

Frequency is widely recognized in the public transportation industry as the most important factor in improving the experience of transit riders. When routes that were formally operating on an hourly basis (i.e., with an hourly headway) are increased to 30-minute headways, passengers can make short stops for shopping and errands without having to wait a full hour for the next bus.

When route frequencies are increased to 15-minute headways or less, public transit riders do not have to rely on the posted schedule as much and instead can plan more spontaneous trips, with a maximum wait time at the bus stop of 15 minutes. Increasing service frequency within constrained resources may require reducing coverage or consolidating routes that could result in a longer walking distance for some customers.

Bus Stop Spacing

Locating bus stops is a balancing act that impacts access to the stop from the surrounding community, average bus speed and safety. Furthermore, the concerns of property owners adjacent to bus stops need to be addressed. As a rule, locating bus stops too close together reduces the walking distance and time for the customer to access the stop but results in slower running times for the bus that can increase operating costs and make the service less attractive. Fewer bus stops can result in faster running times but longer walks for the customer. Generally, locating four bus stops per mile for local service in developed areas provides a balance optimizing bus travel time and walk distance. This is based on the premise that customers will typically walk up to a quarter mile for local bus service.

Currently bus stop spacing varies throughout the RABA service area. For example, on Hartnell Avenue between Churn Creek Road and Victor Avenue (a distance of slightly over ¾ mile) there are four stops or one more than would be expected in this area. Conversely on Bechelli Lane between Hartnell Avenue and Loma Vista Drive (a distance of one mile), there are four northbound stops but only two southbound stops.

FARE STRUCTURE

Existing Fare Structure

Another key element of the RABA SRTP is the evaluation of the fare structure and related policies. This component of the SRTP is necessary to ensure that the fare system is effective and efficient for both the operations of RABA service and the customer experience of transit riders in the service area. The current fare structure for RABA bus services is shown in Table 6 (Chapter 3).

As presented previously in Table 6, the current fare structure of RABA service depends on the relative distance of the trip that a passenger travels; trips that are contained within a single zone (i.e., within Redding, Shasta Lake, or Anderson) cost $1.50, while trips that cross from Redding into either Shasta Lake or Anderson cost an additional $0.75. Fares for riders that are 62 years or older, people with disabilities, and persons on Medicare are reduced 50%: $0.75 for trips within a single zone and $0.35 for each additional zone.

The difference between the fares for local and intercity trips helps to address the cost to operate the service over longer distances, although RABA's farebox recovery ratio, according to the most recent available NTD data, is 10.46%. This suggests that both local and intercity fares are much lower than would be necessary to cover a sizable portion of the operational expenses associated with operating RABA service. This is standard for smaller agencies, and a 15% farebox recovery ratio is the Transportation Development Act (TDA) threshold, so RABA's fares did not exceed that mark. Additionally, transit operators meet this threshold by supplementing the revenue earned in fares with local funding, such as through the state Low Carbon Transit Operations Program (LCTOP) funding program.

Responses to the onboard survey demonstrate the importance of the transfer experience for many RABA transit riders. To complete a journey, riders transferred between a number of routes in the system, most commonly between Route 3 and Route 14, Route 11 and Route 1, and Route 2 and Route 11. According to the RABA Ride Guide, "If you need to switch buses to complete your 1-way trip, ask the driver for a transfer when you board. Transfers are free and valid for 30 minutes." While this may be a shared practice for small public transit agencies in California, the downside of the current management of transfers is that it requires unnecessary interactions between the driver and passengers who must request a physical transfer pass to continue to the next bus for free. This may become unsustainable as ridership increases, and overall is not considered a best practice because it will increase the time a driver spends at stops, the overall trip time for all passengers, and operating costs. The addition of a smartcard fare system would help to streamline and simplify the transfer experience for passengers.

Table 15: Fare Structures of Peer Agencies

Transit Operator	Standard One-Way Fare[1]	Reduced One-Way Fare[2]	Day Pass	Monthly Pass	Farebox Recovery Ratio[3]	Transfer Policy
Turlock Transit	Day Pass	Day Pass	$2.00 $1.00 (SDM) Free (0-18)	$30 $15 (SDM)	6.5%	Free (all day or month)
Stanislaus Regional Transit Authority (StanRTA)	Day Pass	Day Pass Free (0-18)	$2.00 $1.00 (SDM)	$40 $20 (SDM)	N/A	Free (all day or month)
Tulare County Area Transit (TCaT)	$2.00	$1.00 Free (0-6)	N/A	$55 (all operators)	N/A	No
Butte Regional Transit (B-Line)	L: $1.75 IC: $2.40	$0.85/$1.20 (SDM) $1.25/$1.75 (6-18) Free (0-6)	$5.00	$43.50 $21.50 (SDM) $31.25 (6-18)	15.5%	Free (for 1 - 2 hrs)
Visalia Transit	$1.75	$0.85 Free (0-6)	$3.50 $2.50 (SDM)	$50 $30 (SDM)	9.9%	No
The Bus Merced	L: $1.50 IC: $2.40	Free	$3.00/$6.00	$60 $45 (Student)	13.2%	No
Yuba Sutter Transit	$1.75	$0.75/$1.50 (SDM) $0.75/$1.50 (5-18) Free (0-4)	$3.00 $1.50 (SDM)	~~$30~~ $10 until 6/2024 ~~$15~~ $5 until 6/2024 (SDM & Student)	9.9%	No
Lake Transit	L: $1.25 IC: $2.25	$0.75/$1.50 (SDM) Free (0-5)	N/A	$40	17.1%	Free (to finish a trip)
Kings Area Rural Transit (KART)	L: $1.25 IC: $1.75	$0.60/$0.85 (SDM) Free (0-6)	$4.00/$5.50	$50/$60 $40/$50 (SDM)	11.7%	No
Lodi GrapeLine	$1.25	$0.60 (SDM) Free (K-12) Free (0-4)	$3.00 $1.50 (SDM)	$44 $22 (SDM)	N/A	Free (for 2 hrs)
Plumas Transit	L: $1.00 IC: $2.00 - $4.00	Half Fare (SDM) Free (0-7)	N/A	$25 - $100 Half Price (SDM)	14.9%	No
Lassen Rural Bus	L: $1.00 IC: $2.00 - $4.00	Half Fare (SDM) Half Fare (K-12) Free (0-6)	$3.00/$5.00 $1.50/$2.50 (SDM) Free (0-6)	$40/$90 $20/$45 (SDM)	17.3%	No
Trinity Transit	L: $1.00 IC: $2.50 - $10.00	$1.00 - $8.00 (SDM) $1.00 - $8.00 (6-18) $1.00 - $8.00 (0-6)	N/A	$20 - $60	9.7%	No
Sage Stage (Modoc County)	L: $1.00 IC: $2.00 - $4.00 Far IC: $6.00 - $50	Far IC: $4.50 - $38 (SDM) Far IC: $4.50 - $38 (0-12)	N/A	N/A	14.5%	No
STAGE (Siskiyou County)	$1.00 (Starting 9/6/2022)	N/A Free (0-4)	N/A	N/A	10.2%	No
Manteca Transit	$1.00	$0.50 (SDM) $0.75 (2-18) Free (0-1)	N/A	$35 $28 (SDM) $28 (2-18)	N/A	Free (for 1 hr)
Fresno Area Express (FAX)	$1.00	$0.50 (SDM) Free (0-12)	N/A	N/A (20 & 50 ride bulk discounts)	10.3%	Free (for 1.5 hrs)

Note 1: If applicable, local and intercity (or regional) fares are denoted: "L" (local) and "IC" (intercity/multi-zone) or "[local]/[intercity/multi-zone]."

Note 2: Reduced fares include special fares for seniors, people with Disabilities, and on Medicare (SDM).

Note 3: Farebox recovery data is provided from the Urban Integrated National Transit Database (Urban iNTD) and Rural Integrated National Transit Database (Rural iNTD) web platforms developed by the Florida Department of Transportation (FDOT) Transit Office. The most recent comprehensive data available is FY20 for the Urban iNTD and FY18 for the Rural iNTD.

Among transit operators of a comparable size in California, RABA fares are comparable or slightly higher than those of its peers. Table 15 presents the simplified fare structures of numerous small urban and rural transit operators in inland California.

The SRTP process is an opportunity to align the fare structure and policies of RABA with an established set of goals. In the 2019 report "A Fare Framework: How Transit Agencies Can Set Fare Policy Based on Strategic Goals," researchers from TransitCenter illustrate the importance of an agency defining the goals of its fare policy and using these principles to guide the fare structure. Recommended changes to the RABA fare structure and associated policies are discussed in Chapter 9.

OVERVIEW OF CAPITAL ASSETS

Transit Centers

Due to the likelihood that riders will be making transfers in order to reach their destination, devoting attention to the customer experience at the transit centers is key. The three current transit hubs are prime locations for bus stop improvements to improve the experience of transit riders as they wait between segments of their journeys.

The capital amenities available at the Downtown Transit Center include shelters with lighting, benches, printed schedules, a customer service office and ticket booth, and a restroom available with a token (during regular daytime business hours). The Downtown Transit Center is the most important facility in the RABA network—possibly in the entire North State region—due to the many interconnecting services that arrive and depart from this location every day.

The Masonic Transit Center does not have amenities including shelters and benches and there have been challenges to turning buses as noted in the field visit. Improving conditions for transit customers and vehicle operations at this location should be examined.

Zero-Emission Buses

Per the requirements of the California Innovative Clean Transit (ICT rule), RABA recently completed the *RABA Zero-Emission Bus Rollout Plan* (2023). This study includes important details regarding how RABA intends to convert its fleet to entirely zero-emission buses by 2040, including:

- An evaluation of battery electric and hydrogen fuel cell alternatives to determine the best options for RABA. The evaluation should factor in likely advances in both technologies (what makes sense today may not be the best option five years from now).
- Identification of infrastructure needs at the maintenance facility and at transit centers.
- Discussion of ability of energy providers to meet RABA needs. (e.g., electric grid upgrades, hydrogen sources)
- Expected impacts on operations including blocking, scheduling, and route design.
- Details on anticipated capital costs and sources of funding.

SUMMARY AND CONCLUSIONS

RABA has been experiencing a decline in ridership since FY 2012-13, which was furthered by the COVID-19 pandemic. While ridership has stabilized, it has not grown significantly since the onset of the pandemic. With a frequency of 60 minutes or less on all but one route, RABA is providing basic service to individuals who have limited mobility alternatives. Furthermore, as shown in Table 11, RABA is not competitive with the auto for most trips regarding travel time.

While a review of performance data and customer survey responses indicated that many of the qualitative aspects of RABA service (such as on time preference and driver courtesy) rank reasonably well; frequency, service span and condition or amenities at bus stops are areas that generate the most customer dissatisfaction. These are major factors in deciding whether transit is useful for particular trips. It should be noted that just because an individual does not have access to an auto or possess a driver's license that they will automatically use transit. They may not make the trip, get a ride from family or friends, walk, bike, or use taxis/Uber/Lyft even if these modes create financial hardship if transit service is not available or meet their mobility needs.

Despite these factors and limited resources available to significantly increase frequency and span of service, there are opportunities to grow ridership and provide more benefit to the Redding region. Growth of housing in downtown Redding where RABA is more competitive with driving to many destinations provides a market that RABA could exploit for ridership growth.

Focusing on improving service in neighborhoods with high transit propensity and deploying greater use of on demand microtransit service in lower density areas can be another opportunity for growing ridership. However, it should be noted that on demand service using state-of-the-art technology for booking trips and scheduling vehicles may still be less productive than even the existing local routes with the lowest productivity. Further route modifications eliminating one-way segments and providing more direct routes is another opportunity to grow ridership.

Key themes resulting from the evaluation of RABA services that influenced the development of the SRTP are as follows:

- Determine the appropriate type of service for various areas based on potential demand, including consideration of microtransit in areas that warrant transit service but are not likely to be productive with traditional fixed route service.
- Review the fixed-route service area to identify those areas not warranting service as well as potential new transit areas.
- Identify ways to streamline fixed route service to reduce customer travel time and improve network connectivity.
- Assess the current service hours of operation.
- Identify potential funding opportunities to enhance transit service and access to opportunities.
- Review fare policy to optimize ridership and revenue generation.
- Review bus stop policy in terms of bus stop spacing.
- Support the transition to ZEBs.
- Incorporate a sustainable capital plan to assure that assets remain in a state of good repair and accommodate future growth.

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Chapter 6
URBAN SERVICE ALTERNATIVES

INTRODUCTION

This chapter presents RABA service alternatives designed to meet the mobility needs of residents in the RABA service area and to improve the efficiency of RABA services. The service elements presented in this chapter are designed "a la carte." In other words, each alternative is evaluated as a stand-alone option, though when combined, the overall impacts may vary. The combined impacts of the elements included in the five-year operating plan are discussed in Chapter 12.

Ridership and operating cost impacts are estimated for each service alternative. Ridership estimates are based on historical ridership data and standard transit demand estimation models. Cost estimates are based on RABA's contracted hourly and fixed rates for the FY 2023-24 operating budget and beyond. Operating cost estimates, as presented in this chapter, assume an hourly cost of $44.09 plus an estimated cost of $1.52 per mile of service for fixed routes or $1.23 per mile for demand response or microtransit. The per mile costs were calculated by dividing the total amount budgeted for fuel and maintenance by the total number of service miles expected to be operated in FY 2023-24.

This chapter presents options for RABA fixed route service, potential "microtransit" service, and demand response service. Fixed route options, with no microtransit elements, are presented first. Next, options in which microtransit service replaces fixed route service are discussed. This is followed by hybrid alternatives in which fixed route services are modified and microtransit is provided. Then, alternatives regarding the span of service (days and hours of service) are discussed, which encompass both fixed route and microtransit options. Finally, alternatives for RABA demand response and other options focused on social service needs are discussed. All of the analyses presented assume no changes to the RABA holiday schedule; if RABA were to recognize additional holidays, the estimated number of service days, ridership, and operating costs for each alternative would decrease.

FIXED ROUTE SERVICE ALTERNATIVES WITHOUT MICROTRANSIT

This section first discusses alternatives intended to improve on-time performance by reducing route length and running time. This is followed by an analysis of other fixed route service alternatives.

Reduce Running Times on RABA Bus Routes To Improve Ontime Performance

RABA bus service operates on-time (within 5 minutes of the scheduled times) 86 percent of the time, based on weekday data collected in April 2022, as presented in Chapter 4. This is considered to be moderately good on-time performance. However, some of the routes -- and in particular, some specific route segments – are on-time for less than 80 percent of runs. To improve on-time performance and ensure consistent driver breaks, the on-time performance and current travel time and distance of each route were analyzed, as shown in Table 16. The table shows the distance each route would need to be shortened to reduce the running time by five minutes per hour (or 2.5 minutes per half hour). Based on the analysis shown, potential route length reductions are analyzed.

Table 16: Evaluation of RABA Route Running Time Reductions

RABA Route	Existing On-Time Performance [1]	Run Cycle Time (Minutes)	Run Length (Miles)	Scheduled Average Travel Speed	Mileage Reduction Needed per Run [2]
Route 1	72%	55	20.3	22.1	-2.0
Route 2 East	81%	27	6.3	14.0	-0.3
Route 2 West Even CW	90%	27	6.4	14.2	-0.5
Route 2 West Odd CCW	84%	27	6.4	14.2	-0.5
Route 3	72%	55	16.1	17.6	-1.6
Route 4	88%	55	13.3	14.5	-1.3
Route 5 [3]	80%	55	13.0	14.2	-1.3
Route 6	87%	57	17.9	18.8	-1.6
Route 7 [3]	94%	55	15.8	17.2	-1.6
Route 9 North	90%	27	9.6	21.3	-1.0
Route 9 South	92%	27	8.8	19.6	-0.9
Route 11	85%	55	10.5	11.5	-1.0
Route 14	82%	57	11.0	11.6	-1.0
Crosstown Express	90%	27	7.1	7.9	-0.6

Note 1: On-time performance averaged from all weekday runs in April 2022.

Note 2: Distance required to reduce the route by 5 minutes per hour (or 2.5 minutes per half hour).

Note 3: These routes have segments with low on-time performance suggesting a change in time points may be necessary rather than a reduction in distance.

Reduce Running Time on Route 1

Route 1 has an on-time performance of 72 percent. The route operates at a relatively high operating speed, so it would need to be shortened by 2.0 miles to cut five minutes from the schedule. Given boarding data and the existing route alignment, there are two options evaluated for shortening Route 1.

Eliminate Service on Redwood Blvd/Caterpillar Road/Twin View Blvd. (Caterpillar Loop)

Under this option, Route 1 would continue to serve Northpoint Drive in the northbound direction, but instead of continuing north on Redwood Blvd, the route would return south via Highway 273 to Lake Blvd westbound and then complete the remainder of the route as it is currently served (Figure 18). This would reduce the route to 17.9 miles and reduce the running time by 7 minutes per run. The eliminated segment carries 4.5 percent of the route's ridership. However, as Route 7 serves the same loop in a counterclockwise direction, it is expected that Route 7 would pick up approximately half of the previous Route 1 ridership, meaning this alternative is estimated to result in a net loss in ridership of only 750 passengers annually. Furthermore, Route 1's improved on-time performance and reduced travel time would be expected to increase ridership by an estimated 5 percent along other portions of the route for an estimated net gain of 900 passenger trips annually. The reduction in mileage would result in a $15,200 annual cost savings, as shown in Table 17.

Figure 18
RABA Alternatives to Reduce Running Time - Route 1 - No Service on Caterpillar Loop

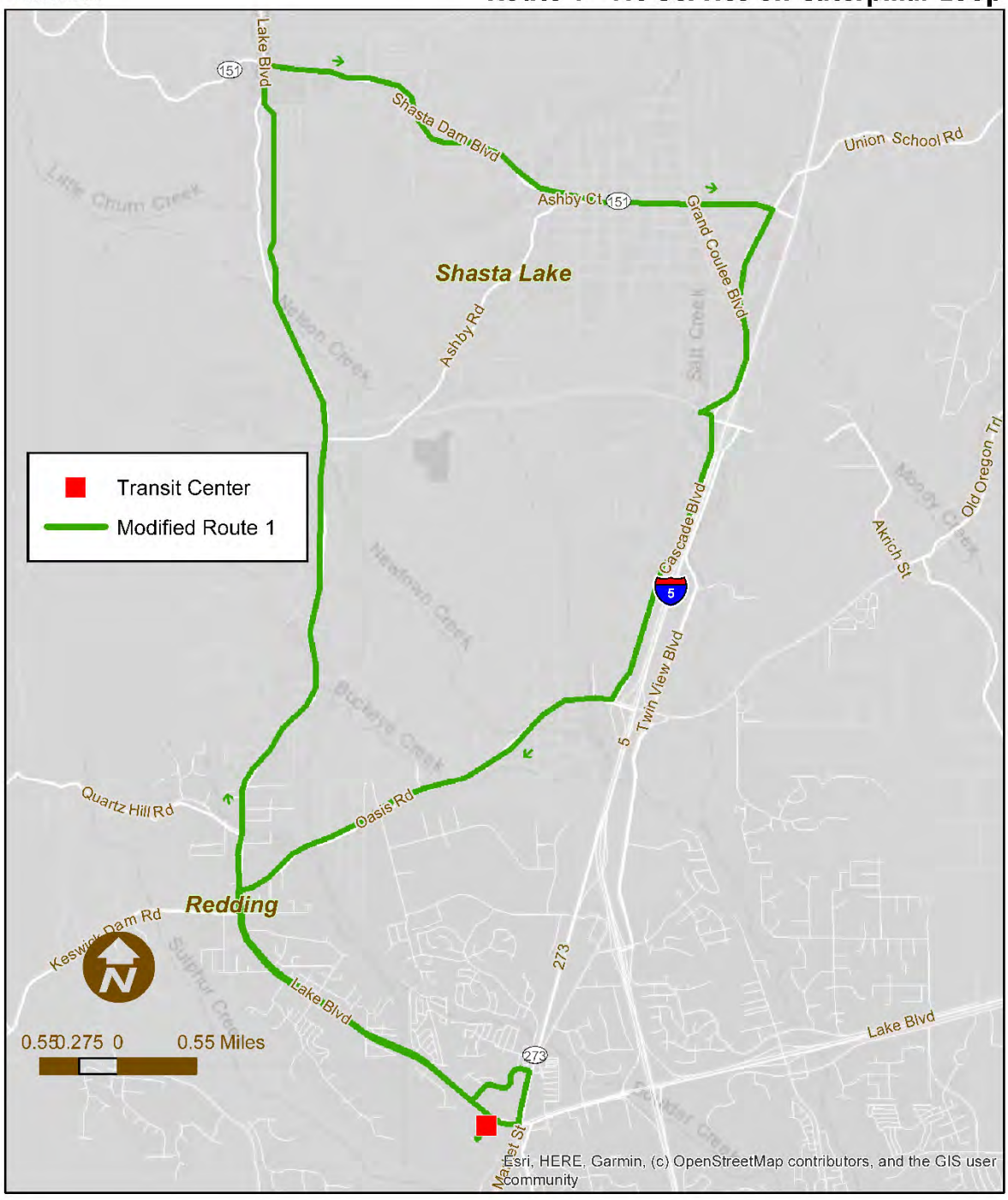


Table 17: RABA Service Alternatives to Reduce Route Running Times

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]
Status Quo [2]						
RABA Weekday Service						
Routes 2-7, 11, 14 & Crosstown Express	256	389,860	31,232	$1,970,595	995	254,700
Commuter Service (1, 9, AC)	256	114,117	5,888	$433,300	167	42,720
Paratransit Service	256	153,881	8,688	$617,344	91	23,300
Weekday Subtotal	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*
RABA Saturday Service						
Routes 2-7, 11, 14	52	52,540	3,950	$254,150	563	29,251
Routes 1&9	52	17,000	875	$64,462	101	5,250
Paratransit Service	52	8,259	558	$37,177	9	476
Saturday Subtotal	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*
Total	**308**	**746,626**	**50,316**	**$3,377,027**	**1,155**	**355,696**
Alternatives - Change from Status Quo						
Rt. 1: Eliminate Caterpillar Loop	308	-10,000	0	-$15,200	2.9	900
Rt. 1: Eliminate Lake Blvd north of Oasis Rd	308	-3,300	0	-$5,000	-6.5	-2,000
Rt. 2: West Clockwise Only, Reduced Diversion	308	-2,200	0	-$3,300	3.6	1,100
Rt. 2: West Clockwise, East Direct	308	-3,700	0	-$5,600	11.0	3,400
Rt. 3: Eliminate Loop East of Hwy 273	308	-3,500	0	-$5,300	0.0	0
Rt. 4: Remove Stop on Maraglia St.	308	-2,500	0	-$3,800	1.3	400
Rt. 4: Remove Maraglia, Return by Cypress	308	-14,000	0	-$21,300	5.8	1,800
Rt. 5: Return via Alta Mesa/Marlene/Victor	308	-6,200	0	-$9,400	0.3	100
Rt. 11: Stay on S. Market Street	308	-1,500	0	-$2,300	-1.0	-300
Rt. 14: Stay on Canby to Dana Drive	308	-3,100	0	-$4,700	-14.0	-4,300

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour and $1.52 per mile). Does not include fixed costs.

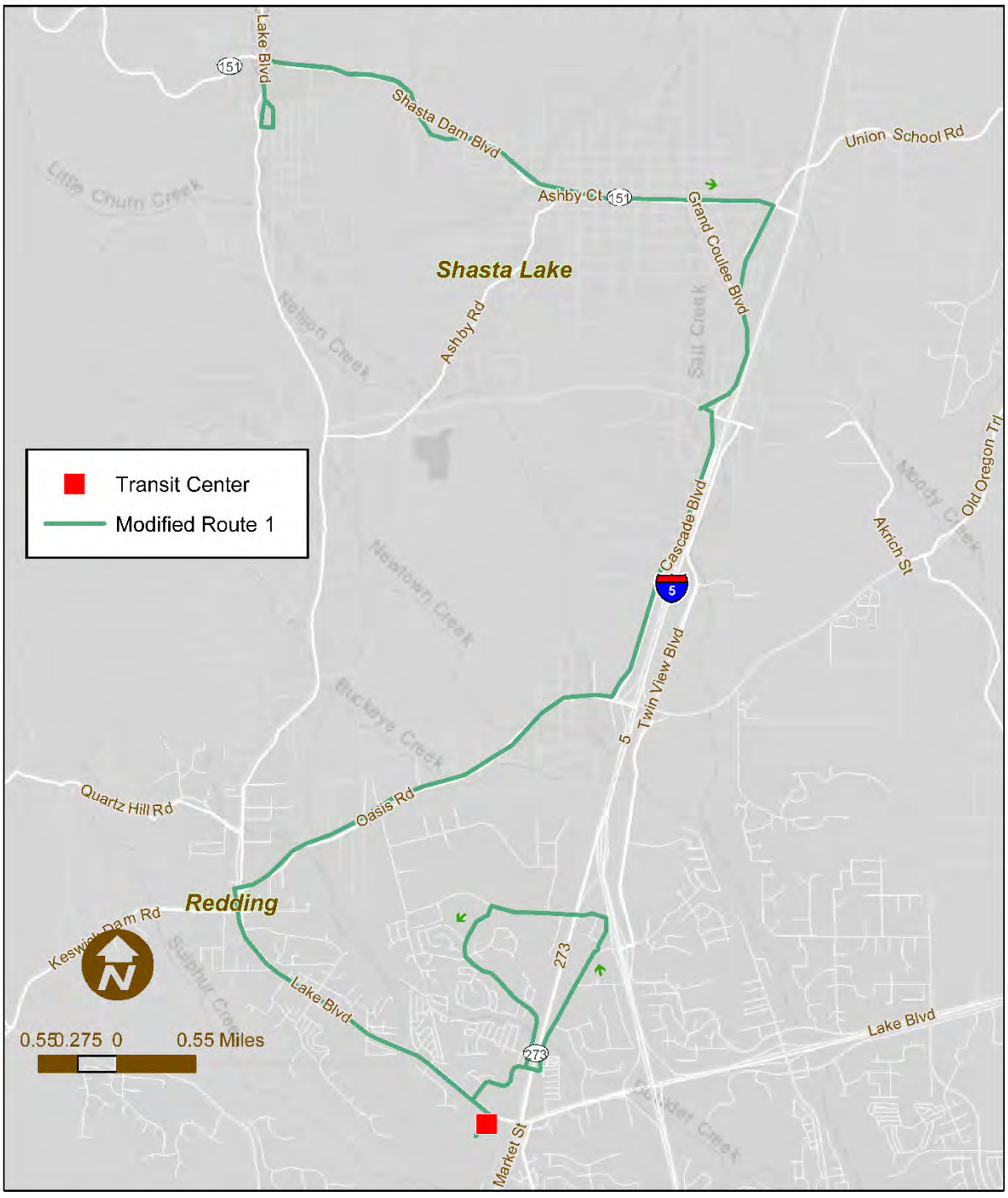
Note 2: Status quo is based on FY 2021-22 parameters and ridership, but with 2023-24 cost factors.

Eliminate Service on Lake Blvd North of Oasis Road

In the second option, the portion of Route 1 from Lake Blvd north of Oasis Road would be eliminated (Figure 19). In the northbound direction, at Oasis Blvd Route 1 would turn right (northeast), then left (northbound) onto Cascade Blvd, left (westbound) on Shasta Dam Blvd, and left (southbound) on Lake Blvd. The route would then turn left (eastbound) onto Toyon Avenue, terminating at Hill Blvd/Pine Avenue. The return would follow the same route until Cascade Blvd where it would take I-5 south, exiting at the 681B exit onto North Market Street. The route would turn right (southwest bound) onto Northpoint Drive to serve the Raley's stop, and then return to the Masonic Transfer Center. If implemented, Route 1 would end up serving this portion of the route counterclockwise, therefore Route 7 service should also be modified to serve the segment clockwise. This would reduce the route to 19.5 miles, and, because 4.5 miles would be freeway, it would reduce the time by 6 minutes.

This option has several pros and cons. On the positive side, instead of a large one-way loop on the north end of the route, Shasta Dam Road would be served bi-directionally. This would be a trade-off, as bi-directional service on Lake Blvd between the Masonic Blvd and Oasis Drive would instead be offered only in one direction. Furthermore, service would be eliminated to seven existing stops along Lake Boulevard north of Oasis Drive, including the Park Villa Mobile Home Park. While bi-directional service and improved running times are beneficial, the trade-offs are also significant. This option would save an estimated $5,000 annually due to the reduced mileage but would result in a loss of 2,000 annual passenger trips, as shown in Table 17.

Figure 19
RABA Alternatives to Reduce Running Time-
Route 1 - No Service on Lake Blvd North of Oasis



Reduce Route 2 Running Time

Operate Revised Route 2 West Clockwise Only

Route 2 is complicated, with a large one-way east loop operated every hour and a west loop which is served in opposite directions every other hour. Each loop is a 27-minute cycle. Only one bus is needed to serve the route. On-time performance on the east loop is 81 percent and on the west loop is 84 to 90 percent. Reducing the running time on either segment would improve the route's overall on-time performance. One alternative would be to operate Route 2 West only in the clockwise direction, having the bus always leave the transit center by way of Yuba Street to Court Street, and return by way of Court Street to Tehama, reducing the need to circle the block. Additionally, the diversion off of SR 299 on Orange Avenue would be shortened to return via North Street instead of Tehama, further reducing the route by 0.6 miles and 5 minutes. This option would reduce the annual mileage by 2,200 miles, saving an estimated $3,300 in operating costs. The new 2 West service would increase out-of-direction travel for some passengers, but the overall reduction in running time and improved simplicity would generate an estimated increase in ridership of 1,100 passenger trips annually, as detailed in Table 17. This alternative is shown in Figure 20.

Operate Revised Route 2 West Clockwise Only and Revised Route 2 East

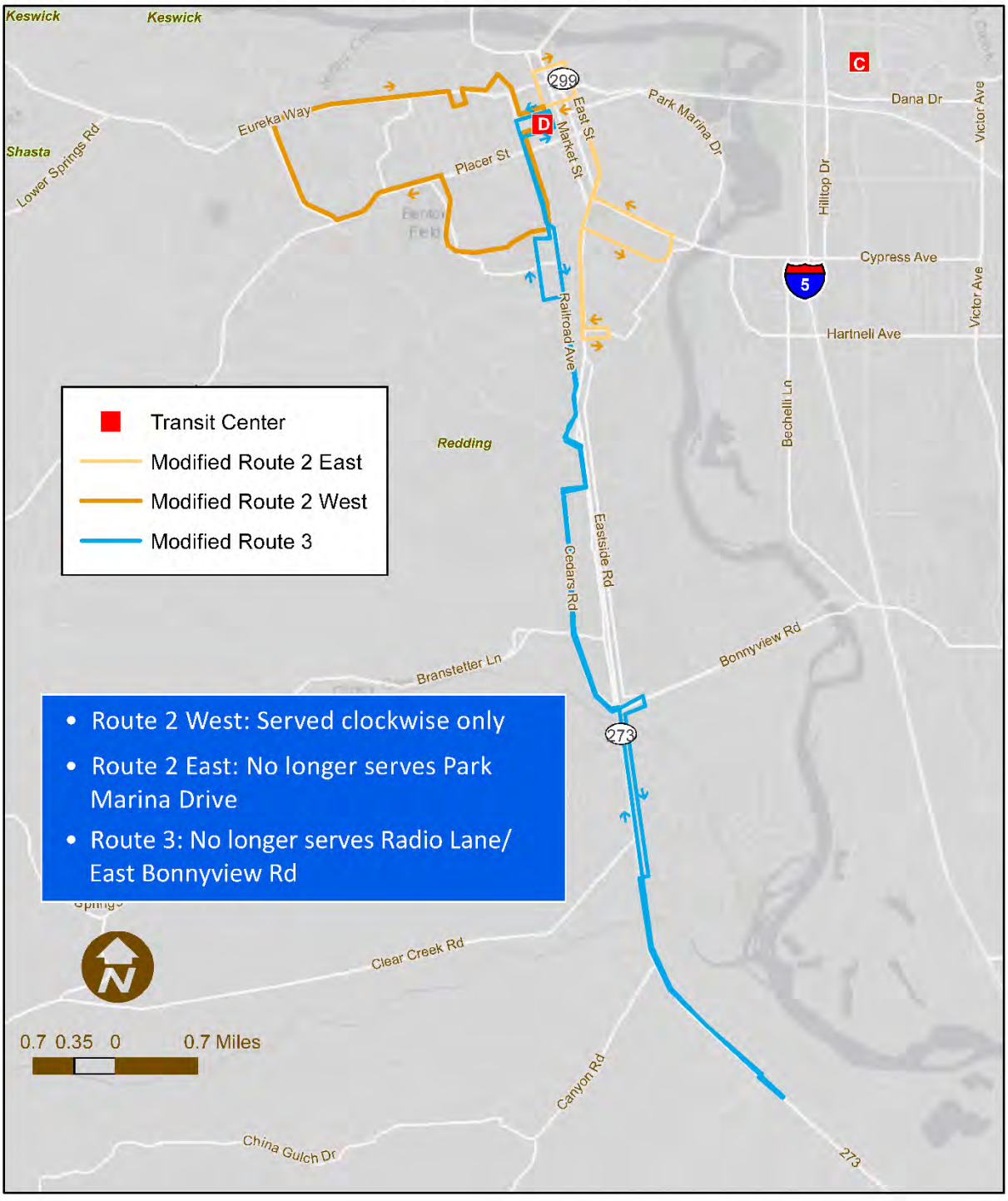
Another option to couple with the above change would be to revise Route 2 East to a more direct routing. Currently, Route 2 East is operated as a large counterclockwise loop, with very little ridership on the return portion along Park Marina Drive. The majority of Route 2 East boarding activity is at the Downtown Transit Center, Market at Grange (Rescue Mission), and Parkview at Akard Avenue. To better serve passengers and reduce travel time, Route 2 East would instead turn south from Trinity Street onto East Street (which becomes Market), return per the current route, then turn west (left) at Cypress Avenue, right on East Street, and return to the Downtown Transit Center via Tehama Street. Each run would be reduced by approximately 0.9 miles and 10 minutes of running time. This option would reduce the annual mileage by 3,700, saving an estimated $5,600 in operating costs. A small amount of ridership would be lost along Park Marina, but the improved travel time would increase ridership for a net gain of 3,400 passenger trips annually, as shown in Table 17. This alternative is also depicted in Figure 20.

Restructure Route 3 to Improve On-Time Performance

Route 3, like Route 1, has poor on-time performance of 72 percent. Furthermore, as Route 3 is interlined with Route 7, Route 7 on-time performance could also benefit from reduced running time on Route 3. The route would need to be shortened by 1.6 miles to cut five minutes from the schedule. Given boarding data and the existing route alignment, one option would be to eliminate the loop serving Radio Lane and East Bonnyview Road in the southbound direction, instead serving El Reno Lane and Cedars Roads as in the northbound direction (Figure 20). This would reduce the route length by 1.1 miles and almost 4 minutes per run. The busiest stop on the eliminated portion of the route is the stop at Breslauer Way at Eastside Rd, which serves the Shasta County Department of Public Health (SCPH) on the northeast corner. Passengers going to SCPH would need to walk from the stop at Westside Road and El Reno Lane on the west side of SR 273, which requires a walk of 0.17 miles (roughly 10 minutes) and crosses SR 273 at a signalized intersection.

Figure 20

RABA Alternatives to Reduce Running Time – Routes 2W, 2E and 3



Considering the loss of ridership on the eliminated route segment and the inconvenience of crossing SR 273 (both negatives) as well as the improved on-time performance and travel time (both positives), it is estimated the net ridership change would be negligible. However, the improved on-time performance would benefit driver schedules, including on Route 7. The reduction of mileage (3,500 annually) would offer cost savings of $5,300 annually (Table 17).

Reduce Running Time on Route 4

Route 4 operates on time 88 percent of runs. Nonetheless, there are portions of the route which are low performing. Two options that would reduce running time are presented below.

Remove Deviation on Maraglia Street

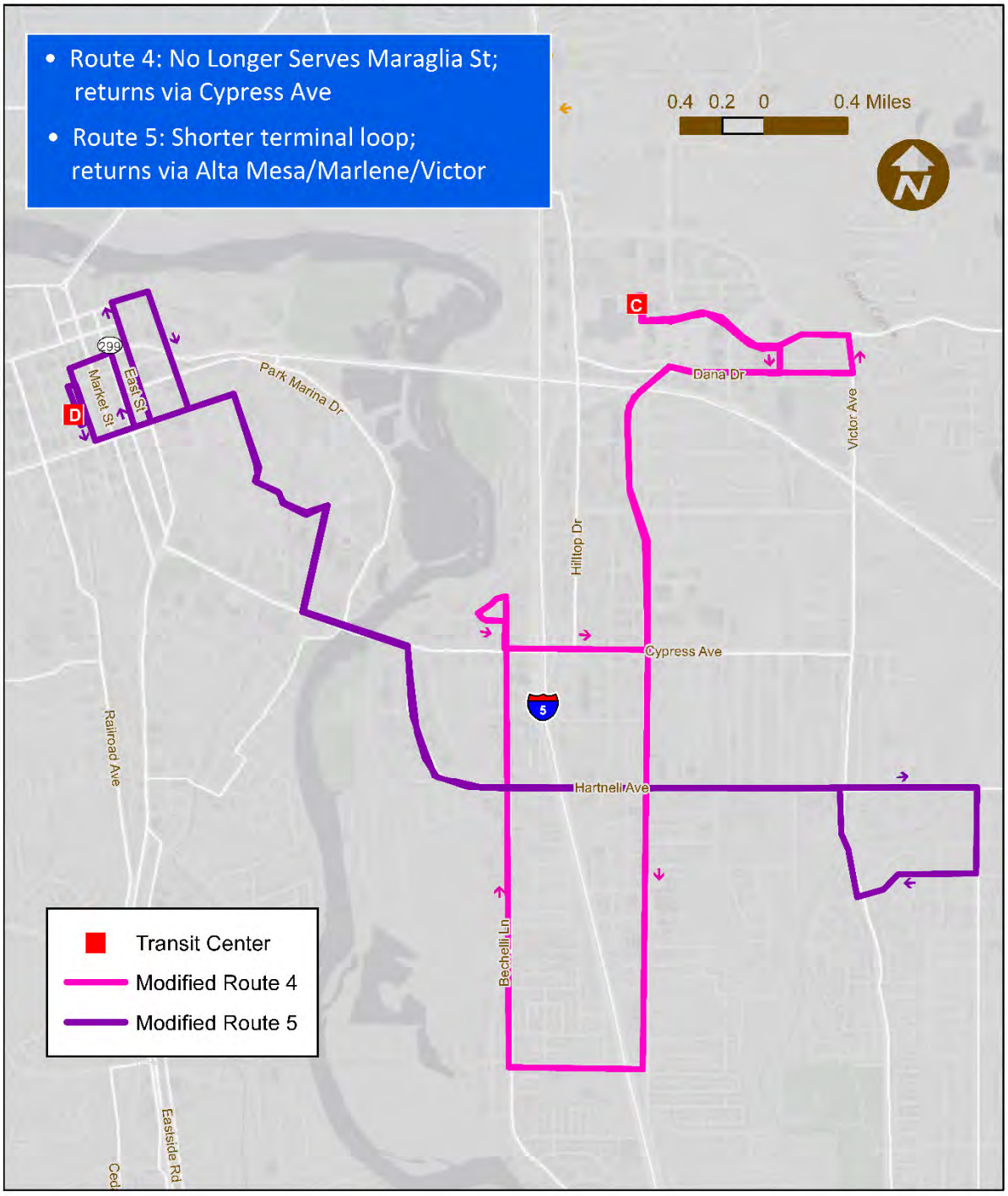
In the southbound direction only, Route 4 turns right onto Maraglia Street to serve the Cascade Station commercial center, adding 0.65 miles to the route. There are fewer than two boardings daily at the Maraglia Street stop. The stop is also just 0.22 miles (walking distance) from the stop on Churn Creek Road just north of Magalia Street. Removing this deviation (as shown in Figure 21) would redirect the majority of the 500 annual riders who board at Cascade station to the nearby stop on Churn Creek Road. The improved travel time would slightly boost ridership, generating an estimated 400 additional passenger trips annually, and cost savings of $3,800 due to the reduced miles.

Remove Stops Bechelli North of Cypress; Return on Cypress

Route 4 currently consists of a southbound 2.6-mile segment along Churn Creek Road, a westbound segment on Loma Vista Drive and a 1.7-mile northbound section along Bechelli Lane as far north as Hemsted Lane. The bus then returns along the same route. While large one-way loops are typically to be avoided, the portion of Route 4 south of Cypress Avenue is largely residential, suggesting that few passengers are traveling within the neighborhood and that they are more likely traveling to/from Mt. Shasta Mall area (and transfers to other routes).

Given this likely travel pattern, it would be feasible to convert the route south of Cypress Avenue to a large one-way clockwise loop. Under this alternative, after completing the current southbound run, the bus would head south on Bechelli Lane from Hemsted Lane, then turn left onto Cypress Avenue eastbound, then north on Churn Creek Road to regain the current route. This would reduce the route from 13.3 miles to just 9.7 miles, saving an estimated ten minutes per run, with $21,300 in annual cost savings. This option would add in-vehicle travel time for some passengers (such as those traveling to Canby Transfer Center from the stops along Churn Creek Road near Hartnell Avenue) but would reduce travel time for others (such as those traveling between the end of the existing loop and Mt. Shasta Mall). Overall, it is estimated this modification would increase ridership by 1,800 passenger trips annually. This option is shown in Figure 21.

Figure 21
RABA Alternatives to Reduce Running Time – Routes 4 and 5



Reduce Running Time on Route 5

Route 5 has an on-time performance of 80 percent, which is fair. However, this performance is not balanced throughout the route; Route 5 operates 67 percent on-time in the outbound direction, and 91 percent on-time inbound. The current schedule allows 17 minutes for the outbound trip (5.8 miles) and 35 minutes for the inbound trip (7.2 miles). This scheduled timing means the outbound speed is expected to be 20.5 miles per hour (mph) and inbound speed be 12.3 mph. There is a 3-minute layover at Hartnell in the middle of the route, so it is also possible that the return trip leaves Hartnell early (which is not counted in the performance data provided). In terms of productivity, Route 5 carries 6.2 passengers per hour on average, which is somewhat below the 8.5 average of the fixed routes.

To reduce running time on Route 5 and improve productivity, one option would be to shorten the terminal loop by returning to Hartnell Avenue on Alta Mesa Drive instead of serving Galaxy Way and Victor Avenue. This would reduce the return trip by 1.6 miles, reducing travel time by an estimated five minutes. By eliminating this route segment, it is expected annual ridership would be reduced by 1,300 passenger trips. On the other hand, the improved on-time performance and shorter travel time would be expected to increase ridership by a similar amount, resulting in a negligible change in ridership (100 passenger trips), but cost savings of $9,400 due to the reduced mileage (Table 17).

Reduce Running Time on Route 11

Route 11 has an on-time performance of 85 percent, which is relatively good. To ensure the route continues to stay on time and that drivers receive their breaks, one option would be to eliminate the Quartz Hill and Benton Drive portion of the route, which has low ridership, and stay on southbound South Market Street into downtown (Figure 22). This would reduce the route by 0.4 miles, saving two minutes of running time and reducing costs by $2,300 annually. The eliminated portion of the route (a total of two existing stops, assuming the stop at Quartz Hill and Delta Street could be moved around the corner to Delta Street and Del Mar) would result in an estimated loss of 1,000 passenger trips, while the improved on-time performance and shorter travel time would be expected to increase ridership by 700, for a net loss of 300 passengers annually.

Reduce Running Time on Route 14

Route 14 has an on-time performance of 82 percent, which is fair to good. To improve on-time performance further, one option would be to have the route depart downtown by way of California Street to Trinity Street to Market, eliminating the portion that serves Court Street and Benton Drive (Figure 23). This would reduce the route length by 0.8 miles, saving three minutes of running time. Based on existing ridership, eliminated this portion of Route 14 would be expected to reduce annual ridership by 5,300 passenger trips, and the improved on-time performance and shorter travel time would only increase ridership by about 1,000 passenger trips, for a net loss of 4,300 passenger trips annually (Table 17). The cost savings would be an estimated $4,700 per year.

Figure 22
RABA Alternatives to Reduce Running Time - Route 11

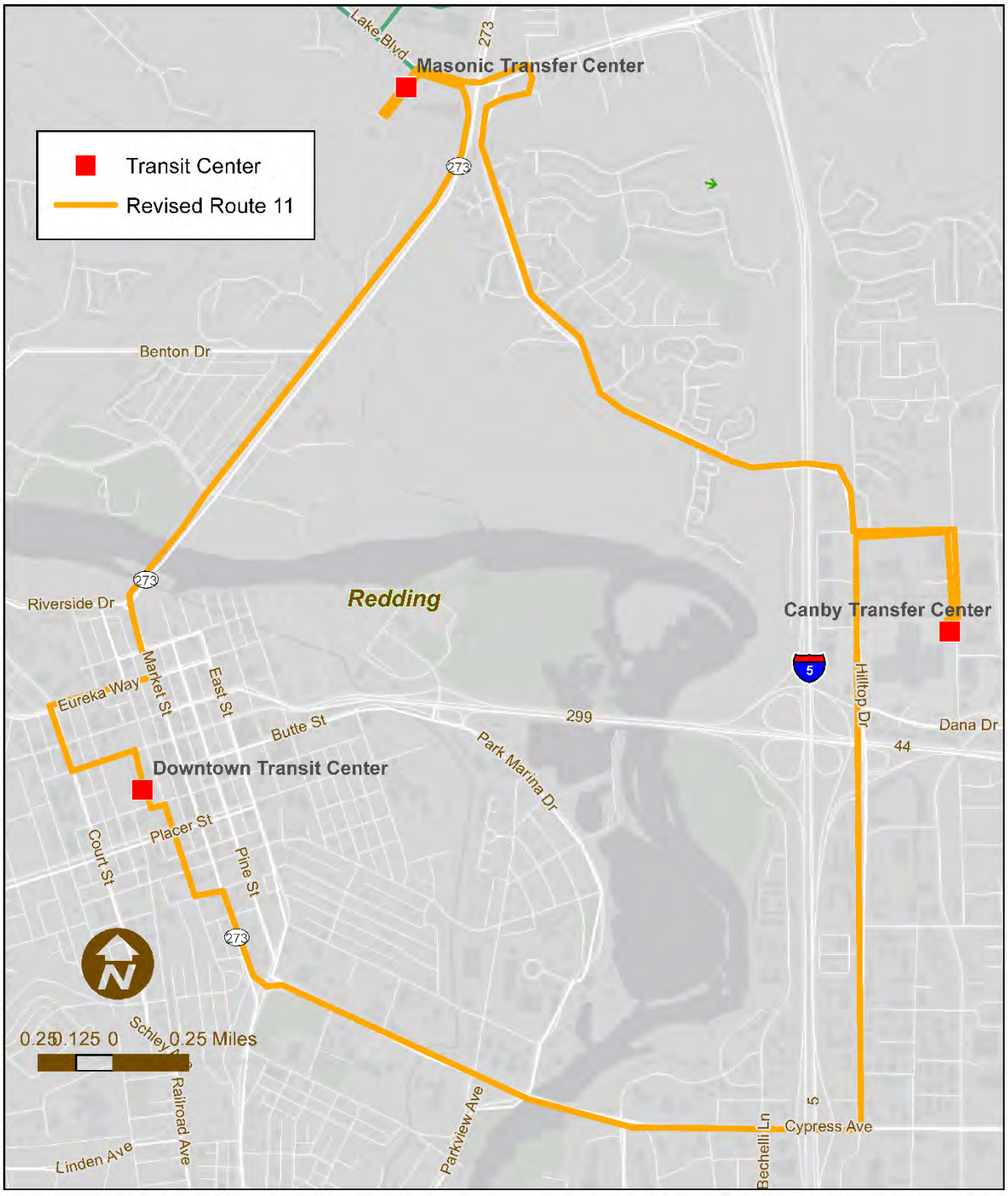
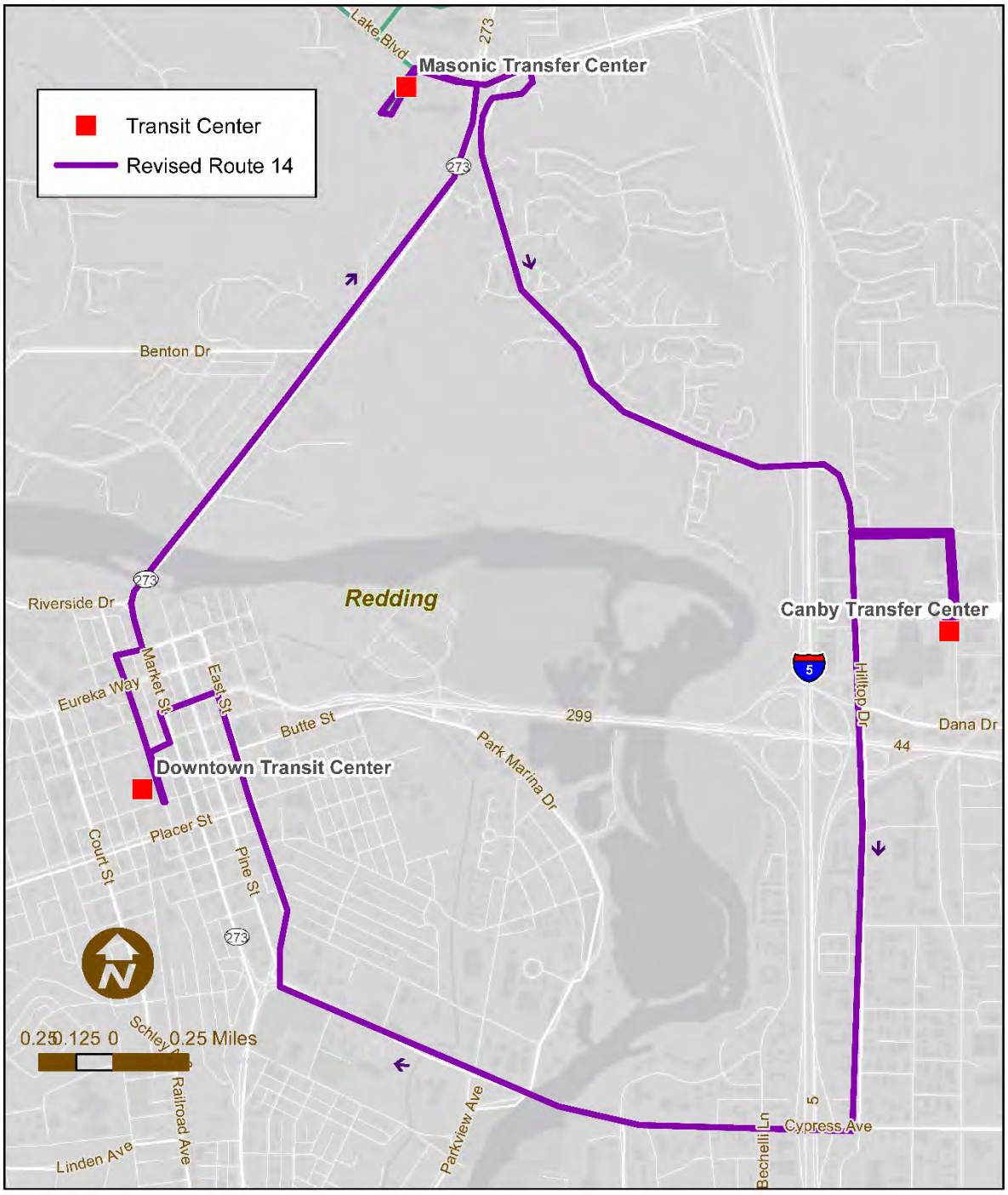


Figure 23
RABA Alternatives to Reduce Running Time - Route 14



Reduce Running Time on Additional Routes

The remainder of the routes operate over 87 percent on time. Nonetheless, to reduce running times so that driver breaks may be more easily accommodated, the following options were considered:

- Route 6: Eliminating the stop at Bethel College (which generates less than one passenger trip per day) would have a negligible reduction in existing ridership. but would reduce the overall route length by 1 mile (4 minutes in running time) (Figure 24). This would result in cost savings of $4,100, with negligible ridership loss, and potential gains from the improved convenience to remaining riders.
- Route 7: The Twin Blvd/Caterpillar Road/Redwood Blvd loop could be eliminated (like the Route 1 option) while still continuing to serve Masonic on the inbound and outbound trips (Figure 25). This reduces the route length by 3.1 miles per run and reduces running time by 10 minutes per run, resulting in an annual reduction in vehicle-miles of 11,800 and annual cost savings of $17,900. While the revised service would lose ridership (currently 4 percent of boardings are along the loop that would be eliminated), the improved convenience would result in a net gain of 700 passenger trips on Route 7 annually, largely due to an increase in Shasta College riders that would be provided with a trip to downtown that is 10 minutes quicker.
- Crosstown Express: Service to the Civic Center could be eliminated (Figure 26). This stop generates only 13 passengers per day on average but requires 5 minutes in running time on every half-hourly run. This change would reduce the distance operated by 6,700 miles annually and the running time by five minutes per round-trip, at an annual cost savings of $10,200. The change in ridership would be small, but slightly positive. An alternative to dropping the Civic Center stop would be to make the Civic Center an on-request stop. Passengers wanting to go to the Civic Center would simply inform the driver when boarding, while passengers desiring a pick-up at the Civic Center would need to call the dispatcher (or use an app) to request a ride at least 20 minutes prior to the desired scheduled pick-up time. Counts conducted for one week in October 2022 indicated that passengers boarded or alighted at the Civic Center on 19 of 160 runs, or 12 percent of the time.

Additional Fixed Route Alternatives

Other fixed route realignments that were evaluated are discussed below and presented in Table 18.

Crosstown Express

The Crosstown Express was introduced in 2016 to provide high-frequency service between downtown and east Redding. The Crosstown Express operates on weekdays on half-hourly headways, with a 2.5-hour break in service at midday. Despite the high frequency and connection of two major transit centers, ridership has been lackluster, averaging only 4.6 passengers per hour in FY 2021-22. All stops on the route are served by other routes except for the Civic Center, and that stop only generates 4.7 percent of the route's boardings and 12.8 percent of the route's alightings, despite being served four times per hour. Put another way, over the course of a weekday the Crosstown Express serves the Civic Center 32 times, but only 13 passengers boardings and 33 alight. In short, this route is not fulfilling its intended role, and is not efficient. On the following pages are options for addressing the poor performance of the Crosstown Express.

Figure 24
RABA Alternatives to Reducing Running Time - Route 6

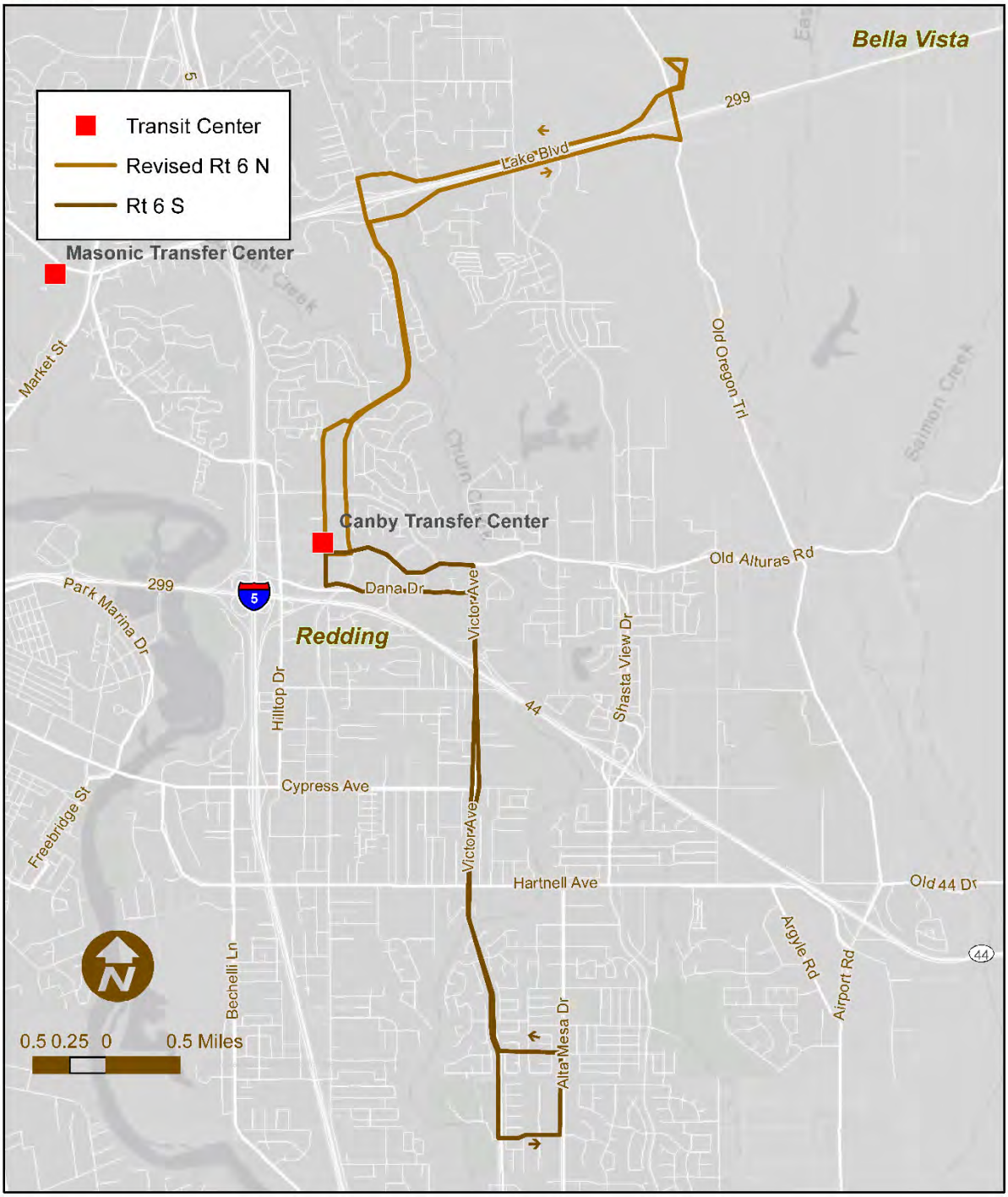


Figure 25
RABA Alternatives to Reduce Running Time - Route 7

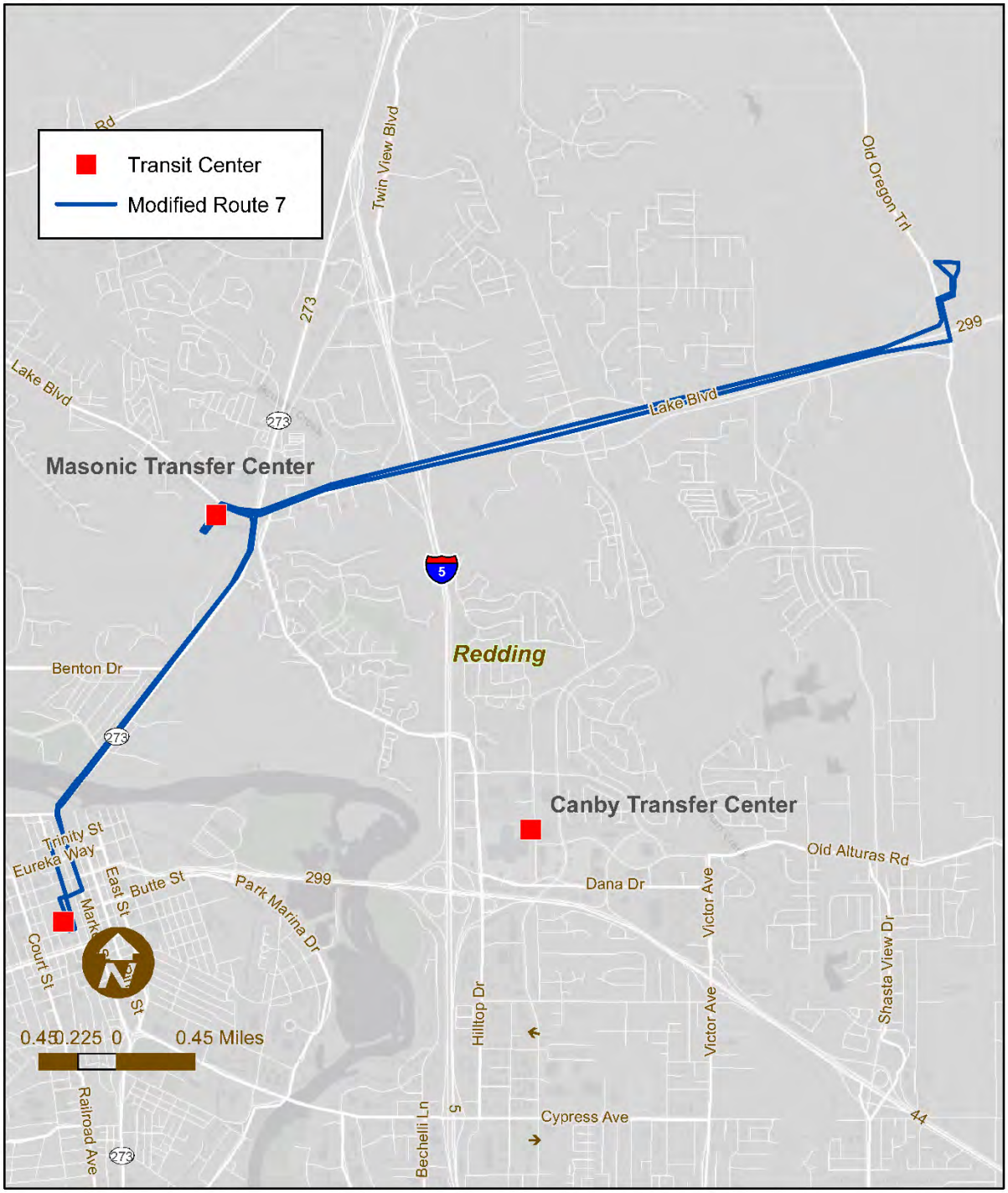


Figure 26
RABA Alternatives to Reduce Running Time - Crosstown Express

Table 18: RABA Service Alternatives - Route Realignments

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]	Change in Number of Vehicles
Status Quo [2]							
RABA Fixed Route Weekday Service	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*	*NA*
RABA Fixed Route Saturday Service	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*	*NA*
RABA Fixed Routes Total	**308**	**718,657**	**50,316**	**$3,377,027**	**1,925**	**355,696**	**NA**
Route Alternatives - Change from Status Quo							
Crosstown Express							
Eliminate Crosstown Express	256	-29,200	-2,048	-$134,800	-29.3	-7,500	-1
Extend Crosstown Express to Walmart, Drop Civic Center	256	-2,700	0	-$4,100	1.6	400	0
Route 2 Options							
Rt 2 East Every 30 Minutes; Crosstown Express Hourly	256	1,900	454	$22,900	11.3	2,900	0
Route 3/9 Options							
Extend Route 3 to Costco; Peak hrs 9 to Win River Mkt	308	-31,700	0	-$10,900	7.1	2,200	0
Extend Route 3 to Costco; 9 hourly to Win River Mkt	308	50,200	1,241	$131,100	20.1	6,200	0
Route 4 Options							
Extend Route 4 to Costco (Return via Churn Creek)	308	-10,400	0	-$15,800	10.1	3,100	0
Eliminate Anderson Commuter	256	-5,900	-384	-$25,900	-3.5	-900	0

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour and $1.52 per mile). Does not include fixed costs.
Note 2: Status quo is based on FY 2021-22 parameters and ridership, but with 2023-24 cost factors.

Eliminate Crosstown Express

A straight-forward solution to improving performance on the Crosstown Express would be to eliminate the route. This would reduce the marginal operating cost by an estimated $134,800 and ridership by 7,500 passenger trips each year, as seen in Table 18. The Civic Center is the only stop that would lose all transit service under this alternative. However, if Route 7 were shortened per the previous discussion, Route 7 could be redesigned to serve the Civic Center, adding 2.1 miles back onto the route, resulting in a net reduction of only 1.0 mile instead of 3.1. While this would ensure the Civic Center is still served by RABA fixed routes, this would increase the travel time.

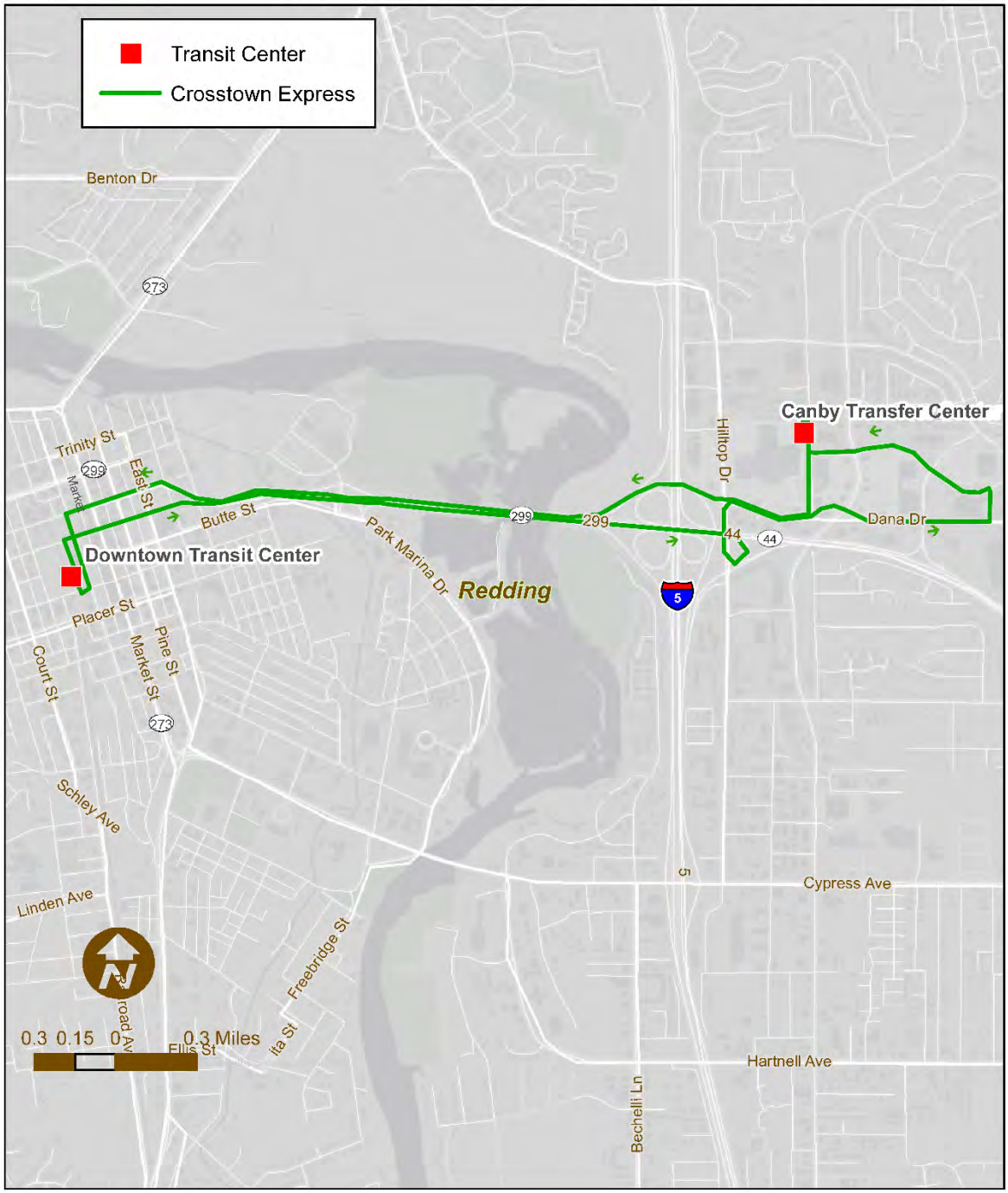
Revise Crosstown Express to Serve Walmart and Target

Under this option, the existing Crosstown Express route would be extended to serve the Target and Walmart on Old Alturas Road and Dana Way, and the Civic Center would no longer be served (Figure 27). This would reduce the route distance by 0.65 miles per run, saving $4,100 in operating costs. This would result in a loss of 600 passenger trips from the Civic Center annually, but an increase of 1,000 passenger trips with the new stop at Walmart and Target and the associated reduced travel time, for a net gain of 400 trips annually (shown in Table 18).

Route 2 – Serve East Loop Every 30 Minutes and Crosstown Express Hourly Weekdays

Route 2 (East and West loops) and the Crosstown Express each require one vehicle. The two loops of Route 2 are served hourly with a 27-minute running time, and the Crosstown Express is operated every half hour with a 27-minute running time. Under this option, the Crosstown Express would be operated hourly instead of every half hour (and the stop at the Civic Center would be dropped), and the remaining Crosstown Express running time would be used to operate the Route 2 East Loop (as modified to be more direct) every half hour. Route 2 West would be operated hourly in a clockwise direction, as described previously under the alternatives to reduce travel time. Route 2 East carries 6.6 passengers per hour on weekdays, compared with 3.6 on either the CTE or Route 2 West.

Figure 27
Revised Crosstown Express -
No Service to Civic Center, Service to Target and Walmart



This option would improve vehicle usage. However, this alternative would also generate an annual increase of 454 service and 1,900 service miles each year in order to close the midday gap in service on the Crosstown Express, adding $22,900 in operating costs, as shown in Table 18. There would be a loss of ridership due to reduced frequency on the Crosstown Express and elimination of the Civic Center stop, but increased ridership on Route 2 East due to the increased frequency. There would also be increased ridership on both routes due to the more direct service. It is estimated this option would increase annual ridership by 2,900 passenger trips.

Routes 3 and 9

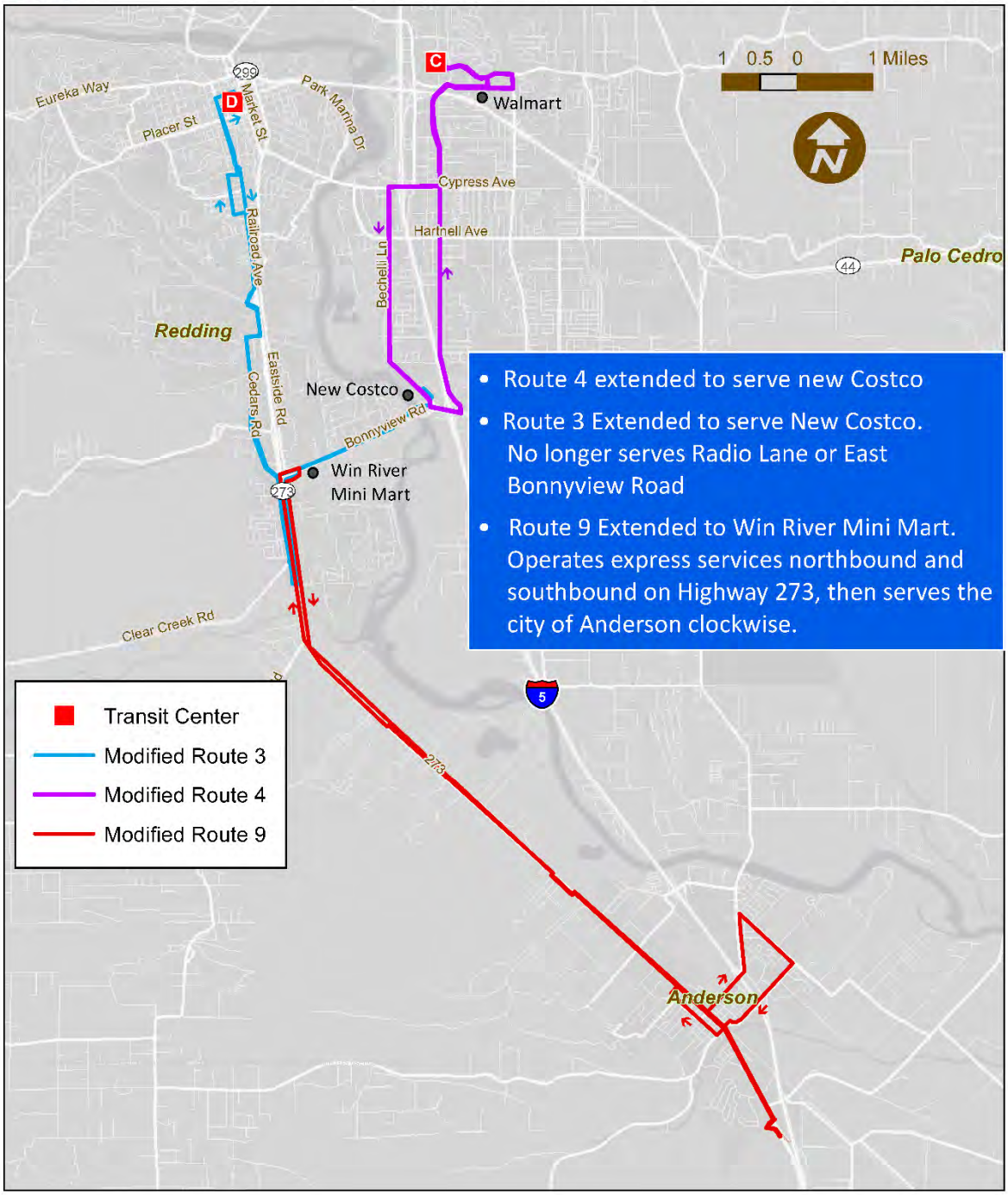
Route 3 has the third highest ridership after Routes 11 and 14. Most (53 percent) of the ridership originates at the Downtown Transit Center or Happy Valley, and another 15 percent is generated by the stops at SR 273/Westwood and El Reno/Westside. On Route 9, half of the ridership originates from its termini at Walmart and Happy Valley, with 15 percent generated at the Balls Ferry/Childress stop. In short, both routes primarily serve the long distances between downtown Redding, Happy Valley, and Walmart. Streamlining Routes 3 and 9 could improve travel times for most passengers on the routes, as described below.

Eliminate Route 3 Loop East of SR 273/Extend Route 3 to New Costco East of I-5/Extend Route 9 Northward

As with the option described for reducing running time on Route 3, the east loop would be eliminated. At Bonnyview Road, Route 3 would travel south to Clear Creek Road, travel along Westside Road and cross SR 273 at Girvan, and travel north on Eastside Road to Bonneyview Road. At S. Bonnyview Road, Route 3 would continue eastward across the Sacramento River and I-5, and then turn left (north) onto Bechelli Lane to serve the new Costco site. This would reduce Route 3 by 1.1 miles, and with higher travel speeds expected along Bonnyview Road, reduce travel time by 5 minutes. This change would be paired with an extension of Route 9 northward to the Bonnyview Road/Eastside Road intersection (Win River Minimart), which would become a timed transfer point between Route 9 and Route 3. The Route 3 bus would stop at the pullout just east of Eastside Road in the outbound direction, and west of Eastside Road in the inbound direction (requiring transfers to cross the street at a signalized intersection). This is depicted in Figure 28.

In addition to extending Route 9 northward to Bonnyview/Eastside, Route 9 would also operate from Walmart in Anderson, directly north to Bonnyview/Eastside, and back to Walmart, staying primarily on SR 273 in both directions. The route would then serve the Silver Street/North Street/Stingy Lane/Balls Ferry loop and return to Walmart so that this would be served once per run rather than twice. The extension would increase Route 9 from 18.5 miles to 24.9 miles, but the Walmart to Win River Minimart would be operated as an express service averaging 40 mph (28 minutes) while the local Anderson route would operate at an average of 15 mph (also taking 28 minutes), for a 56-minute round trip. Developing a schedule for this service would need to consider transfers between Routes 3 and 9 at Win River Market, as well as the interlining between Routes 3 and 7 which supplies a “one seat” trip for passengers going from Route 3 to the Shasta College campus. Specifically, Route 9 would be scheduled to make a direct transfer with the northbound Route 3 in the AM period, and with the southbound Route 3 in the PM period, in order to avoid long waits. Route 3 would be operated on weekdays and Saturdays, and Route 9 would be operated weekdays only.

Figure 28
RABA Alternatives to Serve New Costco – Routes 3, 9, and 4



This option would decrease operating miles by 31,700 per year, for an annual cost savings of $10,900, as shown in Table 18. Ridership would increase by an estimated 2,200 passenger trips annually. If this alternative were operated with Route 9 on an hourly schedule, this would increase the cost by $131,100 with an increase of 6,200 passenger trips annually.

Route 4 - Extend South on Churn Creek Road and Bechelli Lane

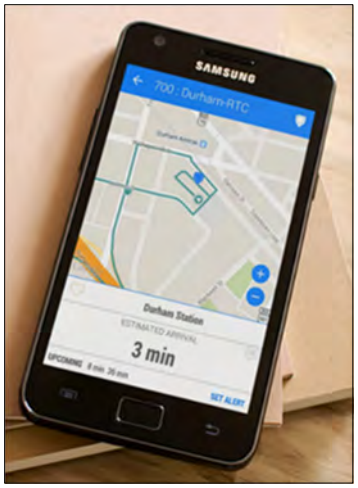
Route 4 travels 2.6 miles south before going west, and then 1.7 miles north. Boardings are highest at the Canby Transfer Center, but low, steady ridership exists throughout the route. One improvement would be to eliminate the service on Maraglia and operate as a loop south of Cypress, as discussed in the previous section. Two additional changes are also considered. First, Route 4 would extend to Bonnyview and Bechelli to serve the new Costco. Additionally, rather than serve Bechelli north of Cypress, the route would turn east on Cypress Avenue and continue back to the Canby Transit Center. This option would reduce the current route by 2.7 miles, saving ten minutes per run. Annually, this would result in cost savings of $15,800 and a projected ridership increase of 3,100. This is shown in Table 18 and Figure 28.

Eliminate Anderson Commuter Route

The Anderson Commuter consists of one morning round-trip each weekday and carries just 1,164 passengers annually (equivalent to 4.5 per day, or 3.0 per hour). Eliminating this service would result in a loss of an estimated 900 passenger trips (some passengers would take the first Route 9 northbound bus as an alternative), resulting in cost savings of $25,900, as shown in Table 18.

MICROTRANSIT ALTERNATIVES

The Concept of Microtransit



Over the last several years, the concept of "microtransit" has seen increasingly widespread application across the nation. The goal of microtransit service is to provide coverage over an area not served efficiently by fixed-route service with short response times, typically within 15 minutes of the request. It can also be an effective service option in areas with high demand for short trips.

Microtransit applies the app-based technology developed for transportation network companies (such as Uber and Lyft). With microtransit, passengers typically use an app downloaded on their smartphone or computer to request a ride, then a routing algorithm assigns the ride request to a specific driver/vehicle. The passenger is provided with an estimated service time, and fares are typically handled through the app. In addition, to ensure equitable accommodation, rides can also be requested over the phone. However, most trips are assigned without the need for manual dispatching. Unlike traditional dial-a-ride (DAR) services, there is no need for 24-hour or more advance reservations. Multiple passengers may ride in a microtransit vehicle at the same time.

Requirements of the Americans with Disabilities Act (ADA) may be met by ensuring that enough accessible vehicles are available to serve those who require extra accommodations.

Table 19 presents a summary of various existing microtransit services in Northern California and Nevada, including Napa, Bakersfield, Sacramento, and Reno. This review demonstrates the substantial ridership that can be served by microtransit, as well as the variation in service area size and level of service possible. Other jurisdictions that recently implemented microtransit include Woodland (Yolobus), Fairfield (FAST), and Placer County (Placer County Transit).

Microtransit has the potential to provide a higher quality demand response service (faster response times) than general public dial-a-ride. The increased convenience could lead to long-term increases in ridership, though there is not sufficient professional literature on which to base forecasts. Automated data collection and reporting could allow agencies to better allocate resources over time as well.

The cost of obtaining and maintaining software would be determined through the RFP process and is difficult to specify, but based on other microtransit programs, it is estimated there would be an annual cost of $25,000 for software and support, plus an additional $4,500 per active vehicle, and miscellaneous other fees, adding approximately $75,000 annually for 10 vehicles to $125,000 for 20 vehicles. This fixed cost estimate is not included in the service options below, which only show marginal operating costs, but is included in Chapter 12 where appropriate.

Analysis Procedures for Evaluating Microtransit Services

Microtransit is a relatively new transportation modality making it difficult to assess potential ridership. Several factors were considered in analyzing the potential for microtransit in the RABA service area. The overall number of trips by all modes was assessed using Replica, a map-based software program which finds travel demand based on "big data" and demographics of a given area[3]. Trips under 0.5 miles in length were filtered out, thus eliminating walking trips. Replica identified the total number of trips per area.

1. Peer transit systems with microtransit service were reviewed to identify patterns of use, including factors such as trips per square mile and trips per capita, but due to the limited data available (since microtransit is relatively new), no useful predictive patterns emerged.
2. Lacking predictive data, microtransit service options were evaluated based on the assumption that the maximum ridership carried would not exceed existing fixed route levels of ridership (1,233 per weekday systemwide in 2021-22). The demand for total trips and microtransit trips was also calculated by hour.

[3] Replica uses a variety of factors to estimate travel demand, including population, cell phone use, credit card use and other factors.

Table 19: Microtransit Peer Review - Service Summary

Providers	Service Area (Sq. Mi.)	Service Area Population	Fixed Routes in Microtransit Zone?	Hours of Operation	Vehicle Revenue Hours	Vehicle Revenue Miles	Peak Vehicles in Operation	Ridership	Operating Days	Average Daily Ridership
Napa Valley Transit Authority [1]	6.0	16,200	Yes	M - F: 7AM - 5:30PM Sat: 7:30AM - 5:30PM	11,867	113,367	6	25,787	308	83.7
FlexRide - Washoe RTC										
North Valleys Zone [2, 3]	13.3	40,564	No	M - F: 5:30AM - 11PM Sat - Sun: 6:20AM - 9PM	8,038	133,932	5	18,837	365	51.6
Somersett Verdi Zone [2, 3]	9.8	35,200	No	M - F: 5:30AM - 11PM Sat - Sun: 6AM - 10:30PM						
Sparks-Spanish Springs Zone [2]	13.1	21,100	No	M - F: 5:30AM - 11PM Sat - Sun: 6AM - 10:30PM	9,410	152,305	5	36,256	365	99.3
SMART Ride[4] (SacRT)										
Citrus Heights Zone	35.9	58,496	Partial	M - F: 6AM - 9PM	12,700	--	6	34,544	254	136.0
Franklin Zone	14.0	203,000	Partial	M - F: 7AM - 7PM	6,782	--	4	20,320	254	80.0
Gerber Zone	10.0	105,800	No	M - F: 7AM - 7PM	3,581	--	2	10,414	254	41.0
Rancho Cordova Zone	6.9	52,600	Partial	M - F: 7AM - 7PM	5,842	--	3	30,988	254	122.0
Downtown/ CSUS Zone	7.7	43,100	Yes	M - F: 6AM - 9PM	12,014	--	6	36,576	254	144.0
Natoma/N. Sac Zone	15.1	52,300	Yes	M - F: 7AM - 7PM	7,290	--	4	21,590	254	85.0
Arden/ Carmichael Zone	15.0	72,200	Partial	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40.0
Folsom Zone	27.9	72,900	Yes	M - F: 7AM - 7PM	4,775	--	3	16,002	254	63.0
Elk Grove Zone	26.4	76,100	Yes	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40.0
Peer Zone Average	15.5	65,351	NA	NA	7,455	133,201	4	22,636	277	82

Note 1: FY 2021-22 data. Data sourced from Napa Short Range Transit Plan 2023-2028 and staff. Per staff, with fixed route ridership returning, hoping to reduce peak vehicles to 4 in FY 2022-23.

Note 2: Data sourced from RTC Washoe staff.

Note 3: North Valleys and Somersett Verdi Zones marketed separately, but internally managed with shared vehicles and drivers. Operating statistics include both.

Note 4: SmaRT Ride is a service provided by Sacramento Regional Transit. Data sourced from SacRT Short-Range Transit Plan FY 2022-2027 and SacRT staff.

3. It was assumed that a maximum of 4.0 passenger trips would be carried each hour of service on each vehicle for the comprehensive area-wide alternatives and a maximum of 5.0 for smaller individual zones (reflecting that longer trips result in lower potential productivity than shorter trips). These are reasonable averages based on peers. While overall peer microtransit systems carried 2.9 passengers per average, these peers served larger areas[4] than the zones developed for RABA, and the peers with smaller areas served as high as 5.3 passengers per hour (Table 19). The intent of this assumption is not to limit the possible trips, but to evaluate the number of vehicles that would be needed each hour given this maximum.

4. Services were evaluated under two planning assumptions: "unconstrained" under which the number of microtransit vehicles is allowed to increase to accommodate the demand, and "constrained" under which the ridership per hour is capped at that which can be served with a specific limited number of vehicles. Given that RABA currently has a maximum of 21 vehicles in service, this was used as the limiting factor for area-wide alternatives[5]. On Saturdays, a maximum of 12 vehicles are in operation. For service limited to individual zones, the capacity was constrained to that provided by a single vehicle in each zone. In effect, the unconstrained analyses answer the question "What would be the costs and ridership if all necessary funding could be provided?" while the constrained analyses answer the question "What would be the ridership that can be served within a limited budget?." In service options where the optimal number of vehicles is not expected to meet potential demand, the unmet demand is quantified.

5. For each scenario, no additional vehicles were included if the demand warranted the additional vehicle for just one hour, as this is not practical for scheduling purposes. For example, if 9 vehicles were warranted at 11:00 AM, but only 8 at 10:00 AM and at 12:00 PM, only 8 vehicles would be included in the planned service. Furthermore, additional vehicles were not added if the ridership in any one hour was only 1 or 2 additional riders over the capacity (even under the unconstrained scenarios) as it would not be cost effective to operate an additional vehicle for only a few passengers.

6. Microtransit also has the potential to generate additional ridership beyond that of existing fixed route services, to the degree that the service zone includes areas not currently within a convenient quarter mile (five minute) walk of a bus route. For each area, a factor was applied reflecting the proportion of additional potential transit demand generated by these new service areas.

[4] The peer zones are all significantly larger than those identified for RABA (an average of 15.6 square miles for peers and an average of 3.4 square miles for RABA zones).

[5] The current RABA fleet consists of 18 cutaways and 18 fixed route vehicles. The peak number of vehicles in service is 8 DAR vehicles and 13 fixed route vehicles. Depending on the microtransit alternative selected, additional vehicles might need to be purchased to meet demand and have an adequate spare ratio. Fixed route vehicles are not practical for microtransit service.

7. The variable operating cost of microtransit is $44.09 per hour of microtransit service (per the Transdev contract for FY 2023-24), and $1.23 per-mile cost is assumed to cover variable maintenance and fuel costs.

8. Microtransit options would require the purchase and support of scheduling software similar to what is used for Uber or Lyft. The cost of obtaining and maintaining the software would be determined through the RFP process and is difficult to specify, but based on other microtransit programs, it is estimated there would be a $25,000 annual software fee, plus $4,500 per active vehicle. As an example, ten vehicles would cost approximately $75,000 annually, and twenty vehicles would be in the range of $125,000 annually. These are fixed costs that are not included in the individual alternative analyses but are considered in the final financial plan presented in Chapter 12.

With these assumptions identified, numerous microtransit options were evaluated. Tables which show the ridership demand by hour, and the number of hours and vehicles required to meet the demand (both for unconstrained and constrained scenarios), are included in *Appendix I: RABA Microtransit Service Alternatives Analysis.*

Replace Fixed Route with Microtransit Systemwide Weekdays and Saturdays

In this first alternative, RABA fixed route service would be discontinued in the existing service area (Redding, Shasta Lake, and Anderson) and would be replaced with microtransit from 6:00 AM to 7:00 PM weekdays and 8:00 AM to 7:00 PM Saturdays. It is assumed all existing fixed route and ADA paratransit ridership would use the replacement microtransit as long as capacity was available. Microtransit would be provided for the general area served by existing fixed routes (including an additional quarter mile outside of each route), except the large area within Route 1 would not be served beyond a quarter mile from the existing route. This slightly expanded service area is estimated to increase overall demand by 10 percent. Details of the analysis (vehicle requirements, vehicle hours of service, and ridership impacts) are included in Table I-1 of Appendix I.

Capacity Unconstrained Option

If services were provided to accommodate all demand every hour of service, 35 vehicles would be required on weekdays and 24 on Saturdays (this is shown in Appendix I, Table I-1). It is expected 325 vehicle-hours would be operated on weekdays and 187 on Saturdays. In total, this would increase RABA annual service hours by 33,300 and service miles by 512,700, adding $1.82 million in additional operating costs (without even considering the cost of software), as shown in Table 20. Despite the high costs, this service option would only generate an additional 9,600 passenger trips per year. The conclusion of this analysis is that trying to replace the existing fixed route service with microtransit is not viable and would far exceed RABA's current resources.

Table 20: RABA Service Alternatives - Microtransit in Place of Fixed Routes

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]	Change in Peak # of Vehicles
Status Quo [2]							
RABA Fixed Route Weekday Service	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*	*NA*
RABA Fixed Route Saturday Service	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*	*NA*
RABA Fixed Routes Total	**308**	**718,657**	**50,316**	**$3,377,027**	**1,925**	**355,696**	**NA**
RABA DAR Weekday Service	*256*	*141,062*	*8,043*	*$527,675*	*81*	*20,684*	*NA*
RABA DAR Saturday Service	*52*	*21,078*	*1,202*	*$78,848*	*59*	*3,091*	*NA*
RABA DAR Total	**308**	**162,140**	**9,245**	**$606,523**	**93**	**23,775**	**NA**
Service Alternatives with Microtransit - Change From Status Quo [3,4]							
Microtransit in Redding, Shasta Lake & Anderson							
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Unconstrained)	308	512,700	33,300	$1,821,900	31	9,600	15
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Constrained)	308	263,700	16,700	$784,600	-323	-99,400	0
Weekdays/Saturdays Microtransit in Off-Peak Hours	308	195,000	13,000	$816,600	20	6,300	0
Saturdays 8:30 AM - 7:15 PM (Unconstrained)	52	85,100	5,200	$318,800	65	3,400	3
Saturdays 8:30 AM - 7:15 PM (Constrained)	52	29,700	1,500	$88,100	-398	-20,700	0
Sunday Microtransit[3]	52	23,400	1,560	$131,300	98	5,100	0
Weekday Evening Microtransit (6 PM - 9 PM) (Unconstrained)							
Microtransit	256	69,000	4,600	$306,700	67	17,100	10
Eliminate Existing Fixed Route	256	-45,600	-3,200	-$210,800	-21	-5,300	-11
Total		23,400	1,400	$95,900	46	11,800	
Weekday Evening Microtransit (6 PM - 9 PM) (Constrained)							
Microtransit	256	42,240	2,816	$195,200	40	10,300	5
Eliminate Existing Fixed Route	256	-45,600	-3,200	-$210,800	-21	-5,300	-11
Total		-3,360	-384	-$15,600	19	5,000	
Weekday Evening Microtransit (7 PM - 9 PM)	256	30,720	2,048	$147,200	24	6,200	5

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour, $1.52 per mile on fixed route, and $1.23 per mile on DAR or microtransit). Does not include fixed costs or microtransit software costs.

Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.

Note 3: Sunday and evening microtransit includes an additional $50 per additional hour for dispatch and maintenance staff.

Note 4: Detailed analyses of vehicle requirements and ridership estimates are included in Appendix G.

Note 5: Constrained option assumed to consist of up to five microtransit vehicles in operation.

Constrained Option

An analysis was also conducted to show the impact of converting RABA services to microtransit, constrained by RABA's existing fleet size (21 vehicles maximum). The details of this analysis are also provided in Table I-1 of Appendix I and summarized in Table 20. The constrained option would require 251 vehicle service hours on weekdays, and 116 on Saturdays, increasing annual vehicle service hours by 16,700 and the marginal operating cost by $784,600. However, this service option would also carry 99,400 fewer passengers annually, meaning there would be higher costs but less passengers served. Therefore, as with the unconstrained option, this option is not viable.

Replace All RABA Fixed Routes with Microtransit in Off-Peak Hours Weekdays and Saturdays

In this alternative, RABA fixed route services would operate weekdays from 8:00 AM to 5:00 PM, and Saturdays from 9:00 AM to 5:00 PM. Microtransit service would operate during off-peak hours—weekdays from 6:00 AM to 8:00 AM, and both weekdays and Saturdays from 5:00 PM to 7:00 PM. Details of the analysis are included in Table I-1 of Appendix I.

Capacity Constrained Option

If services were supplied to accommodate all demand in off-peak hours, up to 21 vehicles would be required to be in operation on weekdays from 6:00 to 8:00 AM, along with 19 vehicles on weekdays from 5:00 to 7:00 PM, and 10 vehicles on Saturdays from 5:00 to 7:00 PM. In total, this option would increase vehicle hours by 13,000 and vehicle miles by 195,000, for an increased annual cost of $816,600. An additional 6,300 passenger trips would be generated annually, as shown in Table 20. Because the number of vehicles required at peak is less than the number of available vehicles, the unconstrained option is no different than the constrained option.

Replace All Saturday Fixed Route Service with Microtransit

Another option considered was replacing all RABA Saturday services with microtransit, as discussed below. Details of the analysis are included in Table I-1 of Appendix I.

Unconstrained Option

Under the unconstrained option, a minimum of 10 and maximum of 24 vehicles would be required to operate Saturday service, for a total of 187 revenue vehicle hours per Saturday. The marginal operating cost would be $607,700, representing an annual increase of $318,800 over the existing costs, but passenger trips would increase by just 3,400 annually. Furthermore, this option would require three additional vehicles in peak service.

Capacity Constrained Option

This option would require a minimum of 10 and maximum of 12 vehicles in service, for a total of 116 revenue vehicle hours per Saturday. RABA's marginal operating cost for Saturday service would increase by $88,100, but 20,700 fewer passenger trips would be served.

Sunday Microtransit

Currently, ShastaConnect provides a Sunday on-demand service from 6:30 AM to 7:30 PM throughout the RABA service area (and beyond). As the Sunday service is a microtransit service, passengers can arrange rides through an app or by phone call. The ShastaConnect Sunday service generated an average of 81 passenger trips per service day during the first half of 2022 (2,106 total), operating an average of 31 hours per day. This equals an average of 2.6 passenger trips per hour. That ShastaConnect operates the service rather than RABA may be a barrier to ridership for some people, as they are likely less familiar with the brand. Operating Sunday microtransit under the RABA banner, in conjunction with other microtransit offerings, would improve visibility and familiarity, likely boosting ridership.

Assuming ridership would improve by 25 percent, ridership would total 5,100 passenger trips annually, as shown in Table 20. Operating costs need to include salaries for a dispatcher and mechanic, as these are not currently available on Sundays, therefore adding an estimated $50.00 per hour on top of the $44.09 contract cost, for a total cost of $131,000 annually. While this is a significant total, the resulting cost per passenger trip would be $25.75, which is significantly lower than ShastaConnect's cost of $70.00 per passenger trip.

Weekday Evening Microtransit Service

Microtransit service could also be implemented on weekday evenings. It was assumed a weekday, evening microtransit service would cover the existing RABA urban service area. Ridership demand for such service was estimated based on evening ridership in similar transit systems, calibrated with existing RABA fixed route ridership in the 6:00 PM hour. The number of vehicles needed to serve demand assumes vehicles could carry a maximum of 4 passenger trips per service hour. Cost estimates include an additional $50 per clock hour for the additional span of service. Three different scenarios were evaluated as shown in Table 20 and detailed in Table I-9 of Appendix I:

- Unconstrained Service from 6 PM to 9 PM – Under this option, fixed route and paratransit service would be eliminated after 6:15 PM, saving existing operating funding. The peak hourly demand (in the first hour of microtransit service) would be 39 passengers, requiring ten microtransit vehicles, though the number of required vehicles would then drop in later hours. The new service would cost $306,700 but would reduce existing fixed route/paratransit costs by $210,800, for a net cost increase of $95,900. 17,100 passenger trips would be served by the microtransit service, more than offsetting the loss of 5,300 fixed route riders, resulting in a net increase of 11,800. While there would be eleven less fixed route/paratransit vehicles in service after 6:15 PM under this option, this service alternative would still require a net increase in fleet size to ensure microtransit is available to those passengers who need rides as the fixed route/paratransit services wind down for the day.
- Constrained Service from 6 PM to 9 PM – Under this scenario, the number of microtransit vehicles would be limited to four. This would cap the capacity of the microtransit service to approximately 16 passenger trips per hour, meaning that net ridership would be reduced in the 6:00 PM hour, but new ridership would then be added in the following two hours. Annually, this alternative would result in a net increase of 5,000 passenger trips. The savings in existing fixed route/paratransit costs would largely offset the new costs for microtransit service, yielding a relatively modest cost savings of $15,600 per year.
- Service from 7 PM to 9 PM – Under this option, no change would be made to existing fixed route/paratransit service schedules. Five microtransit vehicles would be operated in the 7:00 PM hour, and then three would be operated in the 8:00 PM hour. Total annual operating costs would increase by $147,200, and an additional 6,200 passenger trips would be served.

COMBINED FIXED ROUTE / MICROTRANSIT SERVICE ALTERNATIVES

Another direction for RABA to consider is the introduction of microtransit service in combination with existing fixed routes. Microtransit might prove effective in areas of low demand (i.e., low density neighborhoods) or in concentrated areas with a diffuse pattern of trips (such as downtowns). RABA fixed routes could be revised to complement the new microtransit services, potentially improving RABA's overall efficiency and effectiveness. The following alternatives consider establishing a new microtransit service zone and simultaneously reducing fixed route service levels. Unless identified, each alternative assumes a span of service matching the existing schedule as of March 2023.

Downtown Microtransit Zone with Streamlining of Fixed Routes

A Downtown Microtransit Zone would serve the area east of West Street, south of Riverside Drive/Sacramento River, west of the Sacramento River and Park Marina Drive, and north of Parkview Avenue, as shown in Figure 29. This 1.7 square mile zone would supply frequent, short-distance trips in lieu of the fixed routes serving the area. This would allow fixed routes to travel more directly into and out of the area while serving the Downtown Transit Center. The Downtown Zone would affect the following routes:

- Route 2 East could be eliminated, and Route 3 realigned to serve the South Market corridor. This would eliminate service to the five stops on Route 3 between Railroad Avenue/Sheridan Street and Canyon Creek Road/Buenaventura Boulevard, which represent 4 percent of the Route 3 boardings, but would also allow the elimination of half a vehicle. All the stops on Route 2 from Parkview at Arkard to Trinity at California would no longer be served (an elimination of 8 stops).
- Route 5 would travel directly to Cypress Street (inbound and outbound), reducing the roundtrip length of the route by 2.3 miles. Stops on Athens, South Street, Sequoia, and Placer would no longer be served (eliminating 8 stops).

Details of the Downtown Microtransit Zone analysis are presented in Table 21 and Appendix I.

Capacity Constrained Option

As the number of vehicles required to operate the Downtown Zone would not exceed the maximum currently operating in the area, only the constrained option is considered. Given the current operating schedule, the above-mentioned fixed route service reductions would result in a combined cost savings of $205,600 annually, and the Downtown Microtransit Zone (constrained) would add $237,500, for a net increase in marginal operating costs of $31,900 (not including annual software costs). The shortened routes would provide better opportunities for driver breaks and shorter travel times for most passengers. There would be a net increase of 100 passenger trips annually due to ridership from the existing fixed routes shifting to microtransit, increased ridership on Route 5 due to the improved running time, and a small loss of ridership from Route 2 East, as shown in Table 21.

North Microtransit Zone with Modified Fixed Routes

A North Microtransit Zone could be established in the Caterpillar Road, Redwood Boulevard and Twin View Boulevard area. This area is currently served by Routes 1 and 7, but if microtransit was implemented, the two fixed routes could be realigned to eliminate this loop and provide more direct service. This would shorten Route 1 by 2.4 miles (and approximately 10 minutes) and Route 7 to by 3.3 miles (approximately 12 minutes). While these shortened routes would make it easier to accommodate driver breaks and improve on time performance, it is not enough of a reduction to eliminate a fixed route vehicle. However, with a shortened Route 7, the Bethel School of Supernatural Ministry could be served on Route 7 as an on-demand stop by request. Passengers could ask for this detour when boarding or call dispatch within half an hour prior to service to request a pick-up. The Bethel School would no longer be served on Route 6 North, improving on-time performance, and minimally impacting ridership, as less than one passenger per day is served at this stop on average.

Figure 29
Downtown Microtransit Zone with Shortened Routes

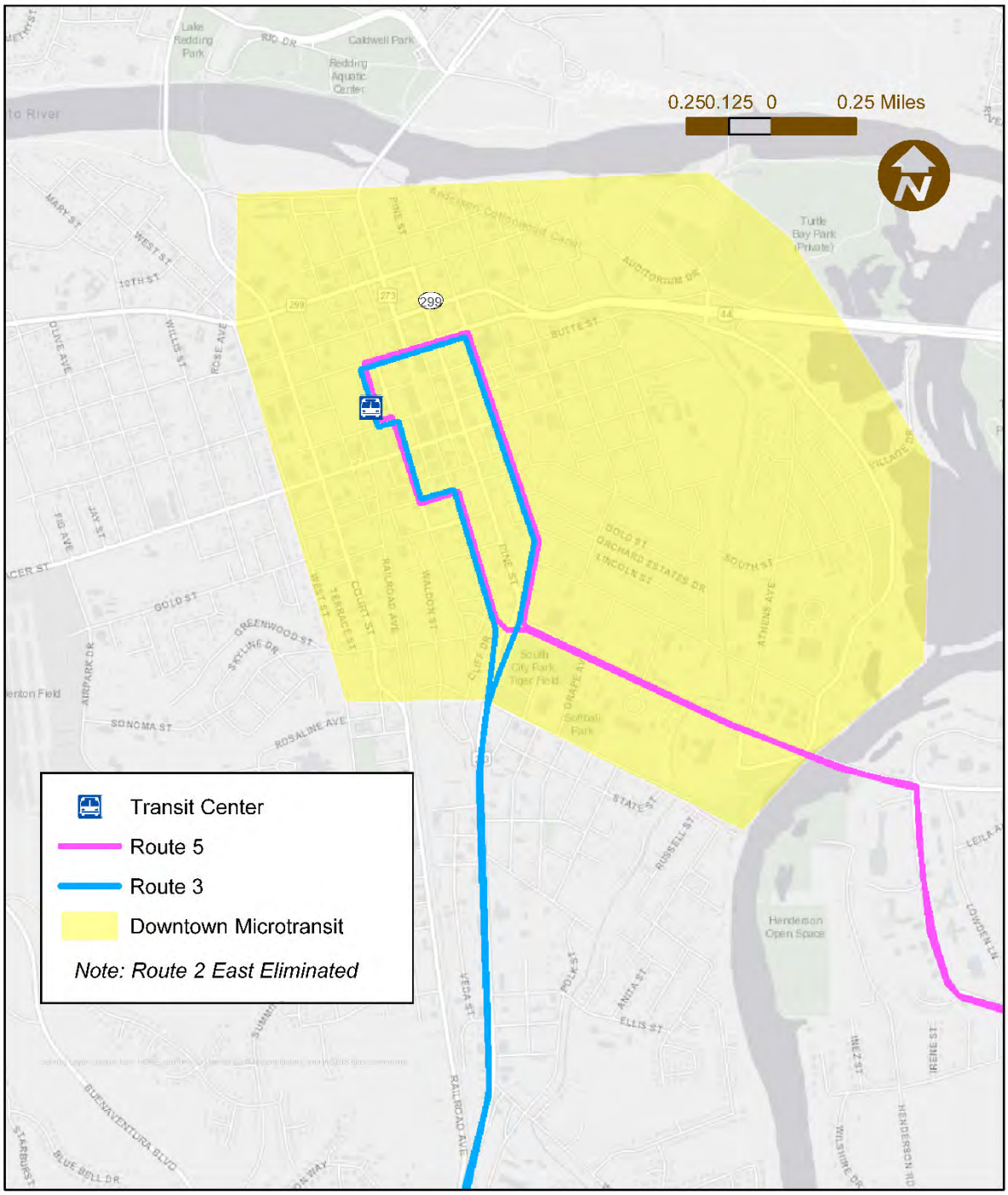


Table 21: RABA Service Alternatives - Fixed Route with Microtransit

Downtown, North and East Microtransit Zones

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]
Status Quo [2]						
RABA Weekday Service	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*
RABA Saturday Service	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*
RABA Fixed Routes Total	**308**	**718,657**	**50,316**	**$3,377,027**	**1,925**	**355,696**
Service Alternatives with Microtransit - Change from Status Quo [3, 4]						
Service Changes with Downtown Microtransit						
Downtown Microtransit (same span as FR)	308	57,000	3,800	$237,500	0.0	0
Eliminate 2E, Serve with Route 3	308	-28,500	-3,400	-$193,300	-2.9	-900
Shortened Route 5	308	-8,100	0	-$12,300	0.0	1,000
Total	*308*	*20,400*	*400*	*$31,900*	*0.3*	*100*
Service Changes with North Microtransit Zone						
North Microtransit (same as FR hours)	308	57,000	3,800	$237,500	46.1	14,200
Shorten Routes 1 and 7; Bethel On Demand	308	-20,800	0	-$31,700	-33.1	-10,200
Total	*308*	*36,200*	*3,800*	*$205,800*	*13.0*	*4,000*
Service Changes with East Microtransit Zone *(Unconstrained)*						
East Microtransit (same as FR hours)	308	69,000	4,600	$287,500	64.6	19,900
Combine Routes 4 & 5, Eliminate 6S	308	-69,600	-3,300	-$251,500	-61.0	-18,800
Total	308	*-600*	*1,300*	*$36,000*	*3.6*	*1,100*
Service Changes with East Microtransit Zone *(Constrained)*						
East Microtransit (same as FR hours)	308	57,000	3,800	$237,500	56.8	17,500
Combine Routes 4 & 5, Eliminate 6S	308	-69,600	-3,300	-$251,500	-61.0	-18,800
Total	308	*-12,600*	*500*	*-$14,000*	*-4.2*	*-1,300*

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour, $1.52 per mile on fixed route, and $1.23 per mile on DAR or microtransit). Does not include fixed costs or microtransit software costs.

Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.

Note 3: The impacts are listed as the change in hours and miles of service, marginal operating costs, and projected ridership.

Note 4: Detailed analyses of vehicle requirements and ridership estimates for microtransit zones are included in Tables G2-G6 in Appendix G.

Capacity Constrained Option

As the number of vehicles required to operate this service would not exceed the maximum, only the constrained option is considered[6]. The North Zone microtransit service would add 57,000 miles and 3,800 hours of service annually, but the reduced Routes 1 and 7 would shorten mileage by 20,800, so the net annual impact would be an overall increase of 36,200 miles and 3,800 hours of service. This increase in service levels would generate $205,800 in additional operating costs. The North Microtransit Zone would generate 14,200 passenger trips per year, but 10,200 of those would be existing ridership on Routes 1 and 7 switching to the new service, therefore the net increase would be only 4,000 passenger trips annually, as shown in Table 21.

[6] Detailed analysis of the North Microtransit Zone is presented in Appendix I.

East Microtransit Zone with Modified Fixed Routes

An East Microtransit Zone could be established to serve the area generally south of SR 44, east of Churn Creek Road, west of Goodwater Road, and north of Arizona Street, as shown in Figure 30. Microtransit service to/from the Canby Transfer Center would also be provided to allow for direct transfers to fixed routes, even though this location is not within the proposed East Microtransit Zone. The East Zone would allow Routes 4 and 5 to be combined and Route 6S to be eliminated. The combined Route 4/5 eastbound would depart from the Downtown Transit Center then turn south from Cypress onto Hartnell, south on Bechelli Lane, east on Loma Vista, north on Churn Creek Road, and west on Old Alturas to the Canby Transit Center. Westbound, the same route would be served in reverse. This route would be 14.3 miles and could operate in 55 minutes.

Route 6 North would start at the Canby Transit Center, serve the Dana Drive/Victor Avenue/Old Alturas commercial loop in a counterclockwise direction, return to the Canby Transit Center, and then operate a run to Shasta College (without serving the Bethel School of Supernatural Ministry[7]), return and make a clockwise loop on Old Alturas/Dana Drive/Victor Ave, return to the Canby Transit Center, and layover for ten minutes. If the new Route 6 were interlined with the new Route 4/5, this would assure an adequate driver break every other hour for both drivers.

Unconstrained Option

This alternative would be operated on weekdays and Saturdays under the current span of service. In the unconstrained scenario, the East Zone would require two vehicles over three, peak mid-day hours on weekdays and one vehicle at all other times, resulting in a total of 69,000 hours of service annually[8] and a marginal operating cost of $287,500. The combined Routes 4 and 5 and elimination of Route 6S would save $251,500 annually, therefore all the service changes together would result in a net annual increase in costs of only $36,000, not including software support. Ridership would increase by a net of 1,100 passenger trips annually.

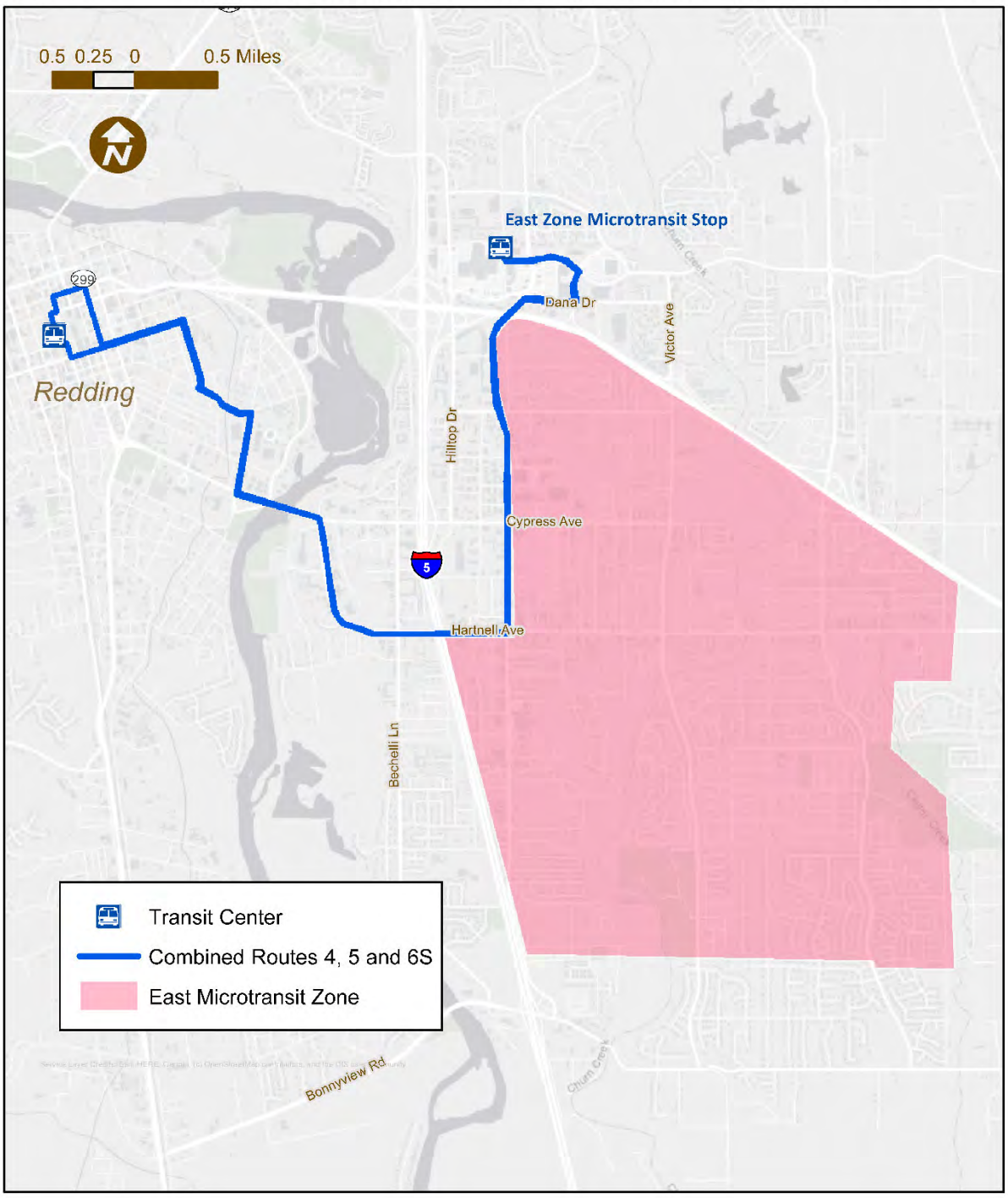
Capacity Constrained Option

In the capacity constrained option, one vehicle would be operated at all times, generating 3,800 hours of service annually, for a marginal operating cost of $237,500. The combined Routes 4 and 5 and elimination of Route 6S would save $251,500 annually, for a net reduction of $14,000 annually, not including software support. There would be a net loss of 1,300 passenger trips annually, also shown in Table 21.

[7] The Bethel School of Supernatural Ministry could be served on demand on Route 7 in conjunction with a North Microtransit Zone or could be eliminated or made on-demand due to low ridership.

[8] Details of the analysis for the East Microtransit Zone are included in Appendix I.

Figure 30
East Microtransit Zone with Combined Routes 4, 5, and 6 South



West Microtransit Zone with Reduced Route 2

Another potential microtransit zone would be the West Microtransit Zone, roughly encompassing the existing Route 2 West service area, as shown in Figure 31.

Capacity Constrained Option

As the number of vehicles required to operate this service would not exceed the maximum, only the constrained option is considered[9]. The West microtransit service would add 57,000 miles and 3,800 hours of service, but the elimination of Route 2 West would reduce mileage by 54,700 and hours by 3,400, so the overall impact would be an increase of 2,300 miles and 400 hours of service annually at an increased cost of $4,300 (not including software). This is shown in Table 22. Ridership would be increased (due to the provision of service to a larger area) by an estimated 800 boardings per year.

Combined Downtown/West Microtransit Zone with Route 2 Eliminated

Another option would be to operate the Downtown Zone and West Zone as a combined service area[10]. Given the larger microtransit service area, the following fixed route changes could be made:

- Routes 2 East and 2 West could be eliminated, reducing the need for one bus (Figure 31).
- Route 3 could be realigned to serve the southern portion of current Route 2 East (as shown previously in Figure 29).
- Route 5 could be streamlined entering and exiting Downtown Redding (Figure 30).

Unconstrained Option

Under the unconstrained option, two vehicles would be required on weekdays from 7 AM through 5 PM[11], and one vehicle during the earlier/later weekday hours and on Saturdays. The introduction of microtransit, elimination of Route 2, and streamlining of the other downtown routes would result in a cost increase of $15,200 and a ridership increase of just 200 passenger trips, as shown in Table 22.

Capacity Constrained Option

Under the constrained option, one vehicle would be operated at all times. The new microtransit service, elimination of Route 2, and streamlining of the other downtown routes would result in cost savings of $147,200 but would also result in a loss of 10,400 passenger trips annually, as shown in Table 22.

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[9] Detailed analysis of the West Microtransit Zone is shown in Appendix I.

[10] It may also be desirable to maintain the two zones if later evening service is provided only within the downtown area.

[11] Detailed analysis of the combined Downtown and West Microtransit Zones is shown in Appendix I.

Figure 31
West Microtransit Zone

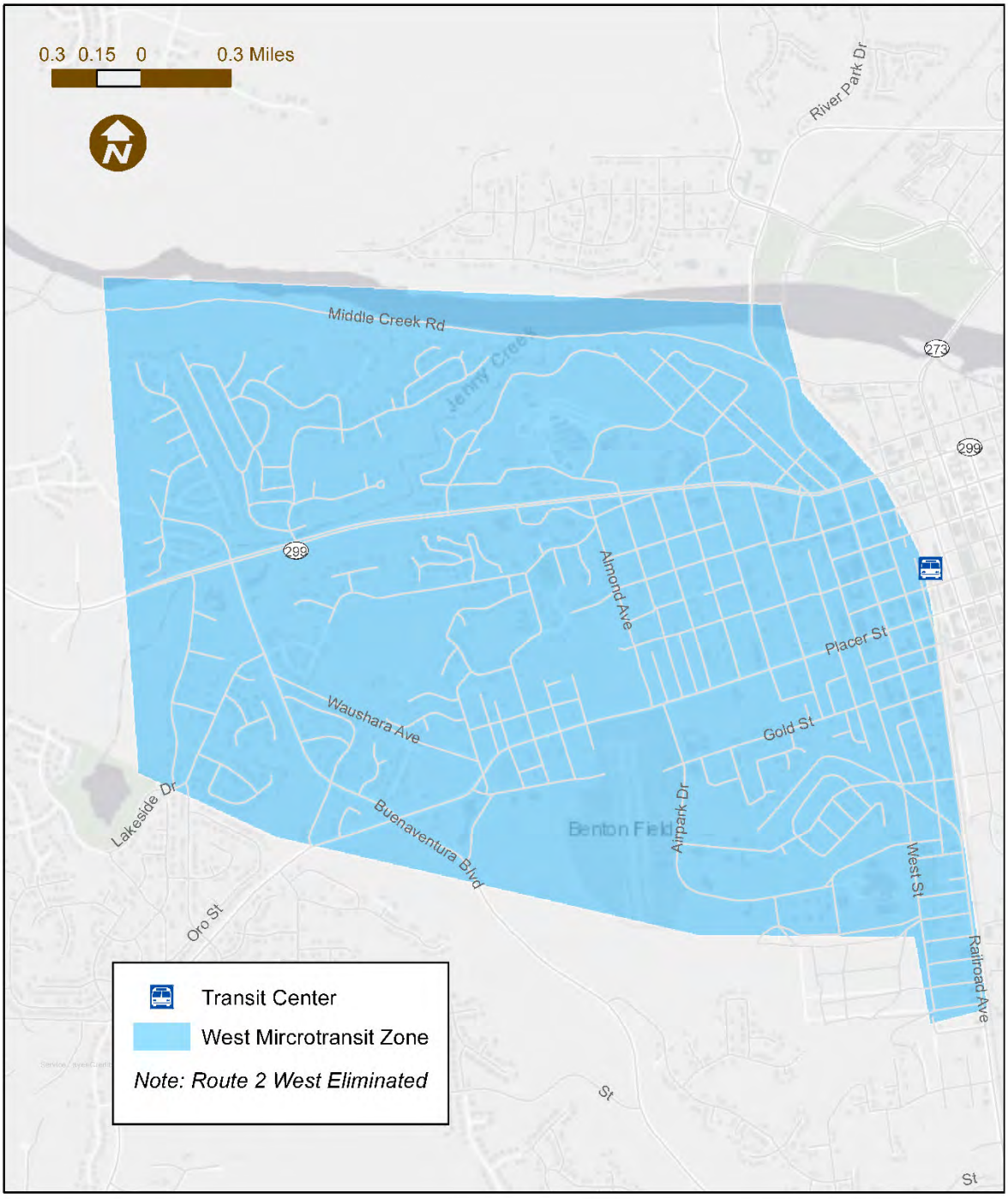


Table 22: RABA Service Alternatives - Fixed Route with Microtransit

West, Downtown/West and Anderson Microtransit Zones

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]
Status Quo [2]						
RABA Weekday Service	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*
RABA Saturday Service	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*
RABA Fixed Routes Total	**308**	**718,657**	**50,316**	**$3,377,027**	**1,925**	**355,696**
Service Alternatives with Microtransit - Change from Status Quo [3, 4]						
Service Changes with West Microtransit Zone (Constrained)						
West Microtransit (same as FR hours)	308	57,000	3,800	$237,500	50.3	15,500
Eliminate Route 2 West	308	-54,700	-3,400	-$233,200	-47.7	-14,700
Total	*308*	*2,300*	*400*	*$4,300*	*2.6*	*800*
Service Changes with Downtown/West Microtransit (Unconstrained)						
Downtown / West Microtransit	308	96,000	6,400	$399,900	93.5	28,800
Eliminate 2W; Serve 2E with Route 3	308	-47,300	-6,800	-$371,800	-92.9	-28,600
Shortened Route 5	308	-8,100	0	-$12,300	0.0	0
Shortened Route 14	308	-400	0	-$600	0.0	0
Total	308	*40,200*	*-400*	*$15,200*	*0.6*	*200*
Service Changes with Downtown/West Microtransit (Constrained)						
Downtown / West Microtransit	308	57,000	3,800	$237,500	59.1	18,200
Eliminate 2E, Serve with Route 3	308	-47,300	-6,800	-$371,800	-92.9	-28,600
Shortened Route 5	308	-8,100	0	-$12,300	0.0	0
Shortened Route 14	308	-400	0	-$600	0.0	0
Total	308	*1,200*	*-3,000*	*-$147,200*	*-33.8*	*-10,400*
Service Changes with Anderson Microtransit Zone (Unconstrained/Constrained)						
Anderson Microtransit (same as FR hours)	308	49,500	3,300	$206,200	30.5	9,400
Convert Route 9/AC to Express Route	308	-7,400	-400	-$28,900	-8.4	-2,600
Total	*308*	*42,100*	*2,900*	*$177,300*	*22.1*	*6,800*

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour, $1.52 per mile on fixed route, and $1.23 per mile on DAR or microtransit). Does not include fixed costs or microtransit software costs.

Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.

Note 3: The impacts are listed as the change in hours and miles of service, marginal operating costs, and projected ridership.

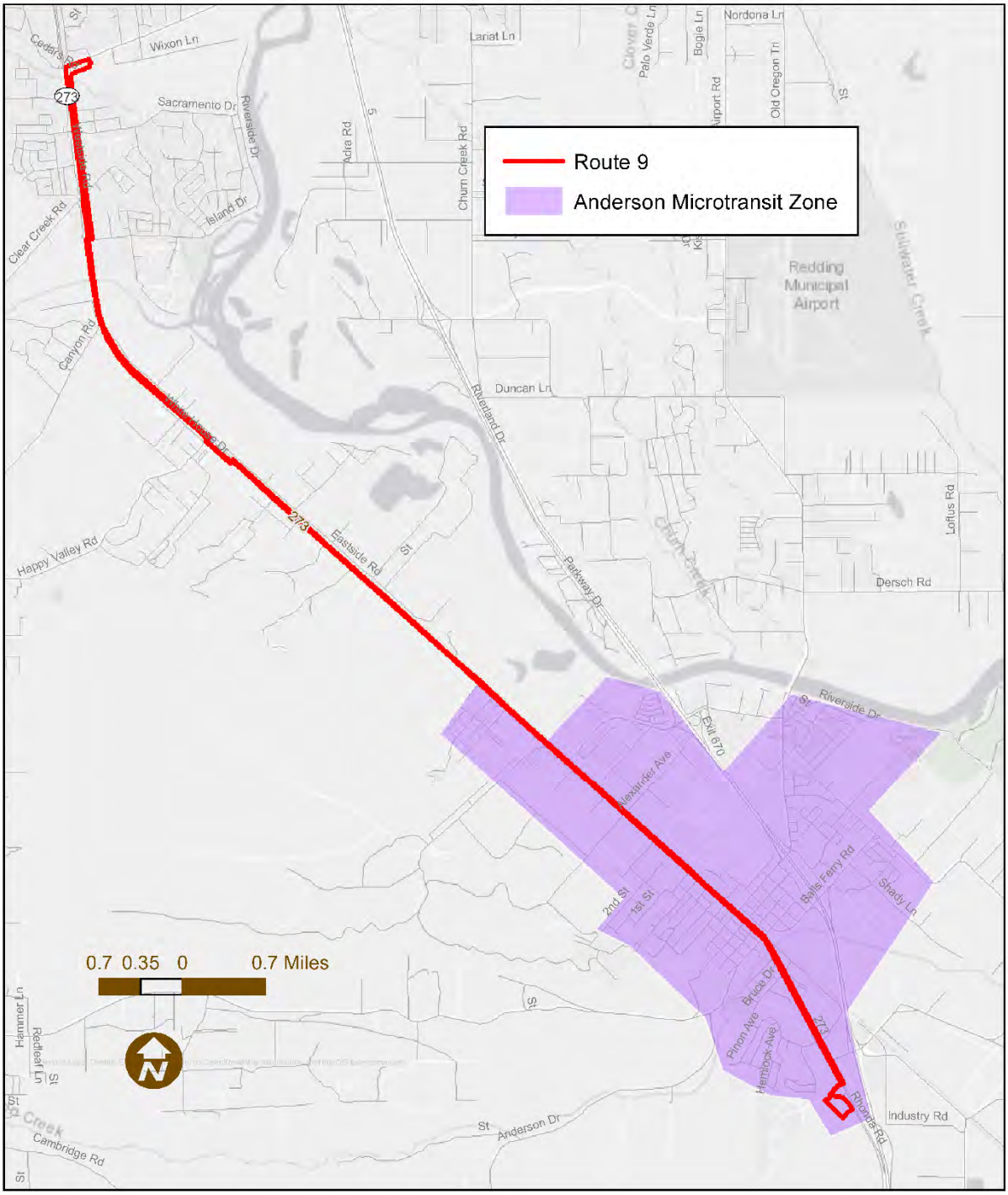
Note 4: Detailed analyses of vehicle requirements and ridership estimates for microtransit zones are included in Appendix G.

Fixed Route Options with an Anderson Microtransit Zone

An Anderson Microtransit Zone, as shown in Figure 32, could be combined with regular fixed route runs to serve both microtransit and Route 9 trips. One van would be used to alternate between two services:

- The fixed service would be timed to meet the inbound Route 3 in the morning (to serve Anderson passengers going to the Downtown Transit Center and/or Shasta College) and timed to meet the outbound Route 3 in the afternoon.
- A fixed route (Route 9) would run between Walmart and the Win River Mini Mart at Bonnyview and Eastside Road (with a revised Route 3).

Figure 32
Anderson Microtransit Zone with Route 9 Express



This would operate as a 40-minute express round trip served every two hours beginning at 6:40 AM with the last run at 6:00 PM weekdays, and 9:50 AM to 6:00 PM Saturdays[12]. The vehicle would then be available to provide microtransit service in the Anderson zone for 1 hour and 10 minutes of every two-hour period (with the remaining 10 minutes provided for a driver break). The microtransit service would also be available 15 minutes prior to the first run and after the last run to allow passengers to access the fixed runs.

- For 4.5 hours of the day on weekdays, the vehicle would operate in fixed route service, and for 7.5 hours, the vehicle would operate as a microtransit vehicle. A one-hour driver break would be scheduled for midday. In scheduling a ride, the fixed route times would be blocked from microtransit service. On Saturdays, the service would operate in fixed service for 3.5 hours and in microtransit for 5.5 hours, also with a midday break.
- The fixed service would be timed to meet the inbound Route 3 in the morning (to serve Anderson passengers going to the Downtown Transit Center and/or Shasta College) and timed to meet the outbound Route 3 in the afternoon.

Constrained Option

As the number of vehicles needed to operate this service would not exceed the maximum, only the constrained option is considered[13]. This alternative would replace the current Route 9 and the Anderson Express with a partial day fixed route for a fixed route cost savings of $28,900, as shown in Table 22. The microtransit service would add $206,200 in operating costs, for a net increase of $177,300. The new service would have a net increase of 6,800 passenger trips annually.

SPAN OF SERVICE ALTERNATIVES

Changes in the hours and days of service are another dimension of transit service that warrants consideration. Surveys of current passengers indicated the most desired improvements are Sunday service (cited by 25 percent of surveyed passengers) and later weekday service (cited by 19 percent of surveyed passengers). In addition, a review of current ridership by hour indicates relatively low ridership in the last hour of existing weekday service. Potential modifications to the existing span of service are discussed below. The analysis of these alternatives is summarized in Table 23.

Sunday Service

Sunday service on public transit systems typically generates a quarter of the ridership seen on weekdays, and Saturdays typically generate half of weekday ridership[14].

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[12] One-way is approximately 16-18 minutes, allowing 5 minutes layover at Win River Mini Mart to facilitate transfers.

[13] Detailed analysis of the Anderson Microtransit Zone is shown in Appendix I.

[14] NTD data from 2021 was reviewed for 11 California transit systems with an annual ridership between 174,000 and 516,000 and which operated daily service. Saturday ridership averaged 49 percent of weekday ridership, and Sunday ridership averaged 28 percent of weekday ridership.

RABA Saturday ridership follows this trend, being 51 percent of average weekday ridership. This varies by route, however; Saturday ridership on Route 9 equals 67 percent of weekday ridership, while Route 5 sees just 39 percent of weekday ridership.

Though Sunday ridership would likely be substantially less than that generated on weekdays, there can be benefits to operating a limited Sunday service, as this may be the only option some residents have for mobility. Residents who work on Sundays (common for retail or hospitality positions, for example), who only have Sunday available for errands, or who wish to attend Sunday religious services could all benefit from public transit being available. Given weekday versus Saturday ridership patterns, only Routes 3, 4, 11 and 14 generate enough ridership to be considered for Sunday service. These routes carry between 7.4 to 12.4 passengers per hour on Saturdays.

Under this alternative, Routes 3, 4, 11, and 14 would be operated from 10:00 AM to 4:00 PM on Sundays. This would add 9,700 miles and 1,200 hours of service annually at an increased marginal cost of $96,700. Assuming ridership would be 28 percent of weekday ridership, this would add 9,600 passenger trips annually, or 169 each Sunday. However, as this would be a new service, complementary paratransit service would be required and additional dispatch staff added, therefore costs would increase by an additional $31,500, for a total cost of $128,200 annually.

Weekday Service Until 9:15 PM

Later weekday service was the most requested improvement after Sunday service during public outreach. Currently, RABA fixed routes operate until 6:47 PM to 7:30 PM, with most routes ending around 7:15 PM. RABA ridership peaks between 1:00 and 3:00 PM, with a sharp decline after 5:00 PM. Later service would generate a small proportion of day-time ridership, and might be best served by microtransit, as discussed previously. If fixed route service were extended into the evening, only the more productive routes should be considered, such as Routes 1, 2, 3, 4, 11, and 14. Extending fixed route service hours means that complementary paratransit service, dispatch, and mechanic staff hours would also need to be added. Based on these factors, this alternative would add 3,000 hours of service (and 1,000 hours of dispatcher and mechanic time) at a cost of $275,600 per year. It is estimated evening ridership would generate 60 percent of the hourly ridership averaged over the last two hours of the day, therefore an estimated 13,400 passenger trips would be added annually.

End Weekday Service at 6:15 PM

As a potential cost savings option, the span of service could be reduced by one-hour on weekdays, making the 5:20 PM departures the last departure of the day. This would reduce ridership by 5,300 boardings per year, but also reduce operating costs by $210,800 per year.

Eliminate Route 5 and Route 7 Service on Saturdays

Routes 5 and 7 are relatively poor performing routes. In particular, Route 7 serves Shasta College, which has limited activity on Saturdays. Saturday ridership on other routes is too high to justify eliminating service, therefore, under this alternative, only Routes 5 and 7 would be eliminated. This would reduce the marginal operating cost by $85,800 annually, with a loss of just 3,800 passenger trips. Shasta College would still be served on Saturdays by Route 6N.

Table 23: RABA Service Alternatives - Span of Service

Services	Annual Operating Days	Annual Vehicle Service.. Miles	Annual Vehicle Service.. Hours	Annual Operating Cost [1]	Ridership Impact (One-Way Trips) Daily	Ridership Impact (One-Way Trips) Annual [2]
Status Quo [2]						
RABA Weekday Service	*256*	*657,858*	*45,808*	*$3,021,239*	*1,253*	*320,720*
RABA Saturday Service	*52*	*60,799*	*4,508*	*$355,788*	*673*	*34,977*
RABA Fixed Routes Total	**308**	**718,657**	**50,316**	**$3,377,027**	**1,925**	**355,696**
Span of Service Alternatives - Change from Status Quo						
Fixed Routes on Sundays (10 AM - 4 PM)						
Routes 11 and 14	52	6,700	600	$36,700	100	5,200
Route 3	52	5,000	300	$20,800	38	2,000
Route 4	52	4,100	300	$19,500	31	1,600
Complementary Paratransit	52	5,300	300	$19,700	3	800
Dispatcher & Mechanic Costs	52	0	630	$31,500	--	--
Total		*9,700*	*1,200*	$128,200	*169*	*9,600*
Fixed Routes Later Weekdays (Ending at 9:15 PM)						
Route 1	256	10,400	500	$37,900	7.6	1,900
Route 2	256	3,300	500	$27,100	7.1	1,800
Route 3	256	8,200	500	$34,500	8.9	2,300
Route 4	256	6,800	500	$32,400	6.1	1,600
Route 11	256	5,400	500	$30,300	7.8	2,000
Route 14	256	5,600	500	$30,600	9.6	2,500
Complementary Paratransit	256	8,800	500	$32,800	3	1,300
Dispatcher & Mechanic Costs	256	--	1,000	$50,000	--	--
Total	*256*	*12,000*	*3,000*	*$275,600*	52.3	*13,400*
End Weekday Service at 6:15 PM						
Fixed Routes	256	-38,600	-2,400	-$164,600	-19.5	-5,000
Paratransit	256	-7,000	-400	-$26,200	-1.3	-300
Dispatcher & Mechanic Costs	256	--	-400	-$20,000	--	--
Total	*256*	*-45,600*	*-3,200*	*-$210,800*	*-20.8*	*-5,300*
Eliminate Routes 5 and 7 on Saturdays						
Route 5	52	-8,800	-700	-$44,300	-38.5	-2,000
Route 7	52	-9,900	-600	-$41,500	-34.6	-1,800
Total	*52*	*-18,700*	*-1,300*	-$85,800	-73.1	*-3,800*

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 ($44.09 per hour and $1.52 per mile). Does not include fixed costs.
Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded. Projected ridership excludes ridership generated by microtransit.
Note 3: This table includes fixed route operations intended to be supported with microtransit. The microtransit options are included in subsequent tables.

PERFORMANCE COMPARISON OF RABA SERVICE ALTERNATIVES

To evaluate the relative performance of the alternatives above, key impacts of each alternative were compared. The performance analysis considers impacts to ridership, marginal operating costs, the number of passengers carried per vehicle hour, and marginal operating cost per passenger. This evaluation gives insight regarding the relative benefits of the various alternatives.

Comparison of Service Alternatives that Shorten Fixed Routes

Table 24 and Figures 33 to 36 show the relative performance of the service alternatives which reduce route length, with the intention to improve on-time performance. As shown in Table 24 and Figure 33, ridership impacts range from a loss of 4,300 passenger trips by shortening Route 14, to a gain of 3,400 passengers by serving Route 2 in the westbound direction only and making Route 2 East more direct. All of the options would generate cost savings simply by reducing the mileage served, even though there are no reductions in vehicle hours (Figure 34). The biggest savings would be by revising Route 4 to remove service from Maraglia and instead return by Cypress. The relative cost savings can also be evaluated by dividing the reduction in operating costs by the change in annual ridership. Based on this metric, the best performing option is the change to Route 5 (essentially reducing the terminal loop) (Table 24 and Figure 35). This performs well because the reduction in mileage saves $9,400, but ridership increases slightly, therefore $94 are saved for every passenger trip gained.

Table 24: Comparison of Service Alternatives - Shortened Fixed Routes

Alternatives *(from Table 17)*	**Annual Ridership**	**Annual Operating Cost[1]**	**Operating Cost per Passenger Trip**
	Alternatives Meeting Standard Shown in Green[2]		
Rt. 1: Eliminate Caterpillar Loop	900	-$15,200	-$16.89
Rt. 1: Eliminate Lake Blvd north of Oasis Rd	-2,000	-$5,000	-$2.50
Rt. 2: West Clockwise Only, Reduced Diversion	1,100	-$3,300	-$3.00
Rt. 2: West Clockwise, East Direct	3,400	-$5,600	-$1.65
Rt. 3: Eliminate Loop East of Hwy 273	0	-$5,300	NA
Rt. 4: Remove Stop on Maraglia St.	400	-$3,800	-$9.50
Rt. 4: Remove Maraglia, Return by Cypress	1,800	-$21,300	-$11.83
Rt. 5: Return via Alta Mesa/Marlene/Victor	100	-$9,400	-$94.00
Rt. 11: Stay on S. Market Street	-300	-$2,300	-$7.67
Rt. 14: Stay on Canby to Dana Drive	-4,300	-$4,700	-$1.09
Recommended Performance Standards >	Local Routes (Routes 2, 4, 5, 11, 14)		$7.00
	Commuter (Route 1)		$12.50

Note 1: Does not include fixed costs NA = Not applicable, as vehicle-hours do not change.

Note 2: Meets standards by reducing costs per passenger more than the standard, or by increasing ridership while decreasing costs.

Table 24 indicates (with shading) those alternatives that are consistent with the operating cost per passenger trip standard. Some of these (such as eliminating service to Caterpillar Loop on Route 1) meet the standard by reducing costs by more than the recommended maximum standard (in this case, by reducing costs by $16.89 per passenger trip eliminated, while the standard cost is $10.00 per passenger trip.) Other alternatives meet the standard by reducing operating costs and either increasing or not impacting the ridership. Of note, only two of these alternatives (Route 1: Eliminate Lake Boulevard North of Oasis Road, and Route 14: Stay on Canby to Dana Drive) are not consistent with the standard.

Comparison of Service Alternatives for Route Realignments

Table 25 and Figures 33 to 36 show the relative performance of the service alternatives wherein routes are realigned or eliminated. As evidenced by Table 25 and Figure 33, the change in ridership ranges from a loss of 7,500 passenger trips by eliminating the Crosstown Express to a gain of 6,200 by extending Route 3 to Costco and Route 9 hourly to Win River Market. These two options also have the greatest cost decrease (eliminating the Crosstown Express reduces costs by $134,800) and greatest cost increase (extending Route 9 and serving Route 9 hourly adds $131,100), respectively. Only some of the alternatives can be evaluated in terms of the change in passengers per hour, as this does not apply if the number of service hours stays the same. Of those that can be compared, eliminating the Crosstown Express would result in a loss of 3.7 passengers for every hour reduced (Figure 36), while eliminating the Anderson Commuter would reduce ridership by 5.0 passengers for each reduced hour. Table 25 also indicates that extending Route 3 to Costco with hourly service on Route 9 would add a cost per passenger trip of $21.15, but if Route 9 was only served in peak hours, there would be savings of $4.95 per passenger trip. Eliminating the Anderson Commuter and Crosstown Express would save the most per passenger trip (Table 25 and Figure 35).

The alternatives meeting the recommended standards are indicated by shading. Four of the options meet the applicable standards, either by increasing ridership and reducing costs or by eliminating a service element that does not meet standards. These four options are as follows: eliminating the Crosstown Express, extending the Crosstown Express, extending Route 3 to Costco and peak-hour Route 9 to Win River Market, and eliminating the Anderson Commuter.

Comparison of Microtransit Service Alternatives

Table 26 and Figures 33 to 36 show the relative performance of the microtransit service alternatives. As shown in Table 26 and Figure 33, the change in ridership ranges from a loss of 99,400 passenger trips (by converting all existing fixed route services to microtransit with a limit of 21 vehicles) to an increase of 11,800 passengers by running unconstrained, systemwide microtransit weekday evenings from 6:00 to 9:00 PM. In terms of cost, not surprisingly, switching to only microtransit service for all service days, unconstrained, is the most expensive option and would add $1.8 million in operating costs, without even considering the increased need for software and vehicles. The microtransit option that would yield the worst ridership impacts per hour of service would be offering a constrained Saturday microtransit service, which would reduce ridership by 13.8 passengers per hour of service. The best performing option per hour of service would be to offer an unconstrained weekday evening microtransit service from 6:00 to 9:00 PM.

Figure 33: Change in Annual Ridership of RABA Alternatives

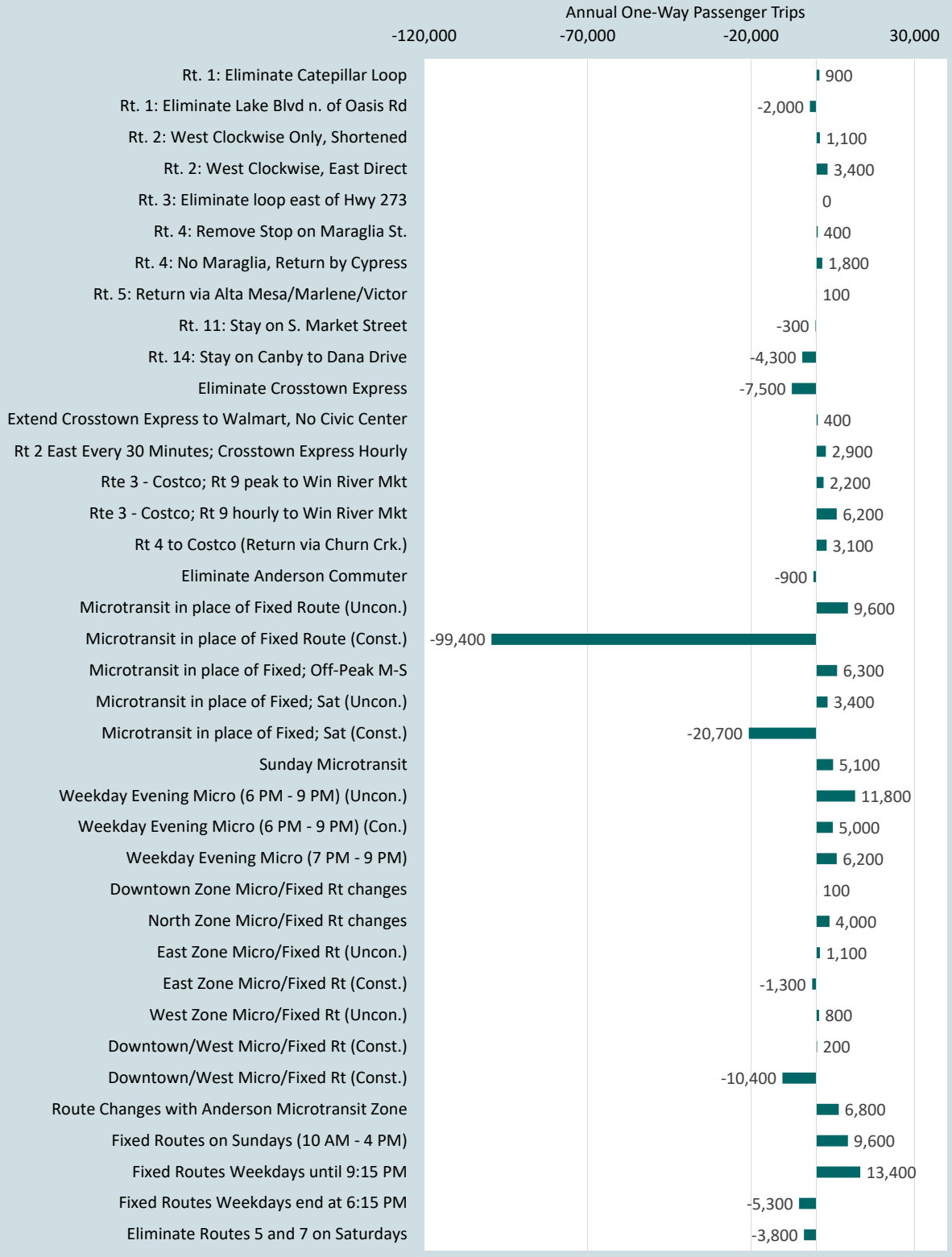


Figure 34: Change in Annual Marginal Operating Cost of RABA Alternatives

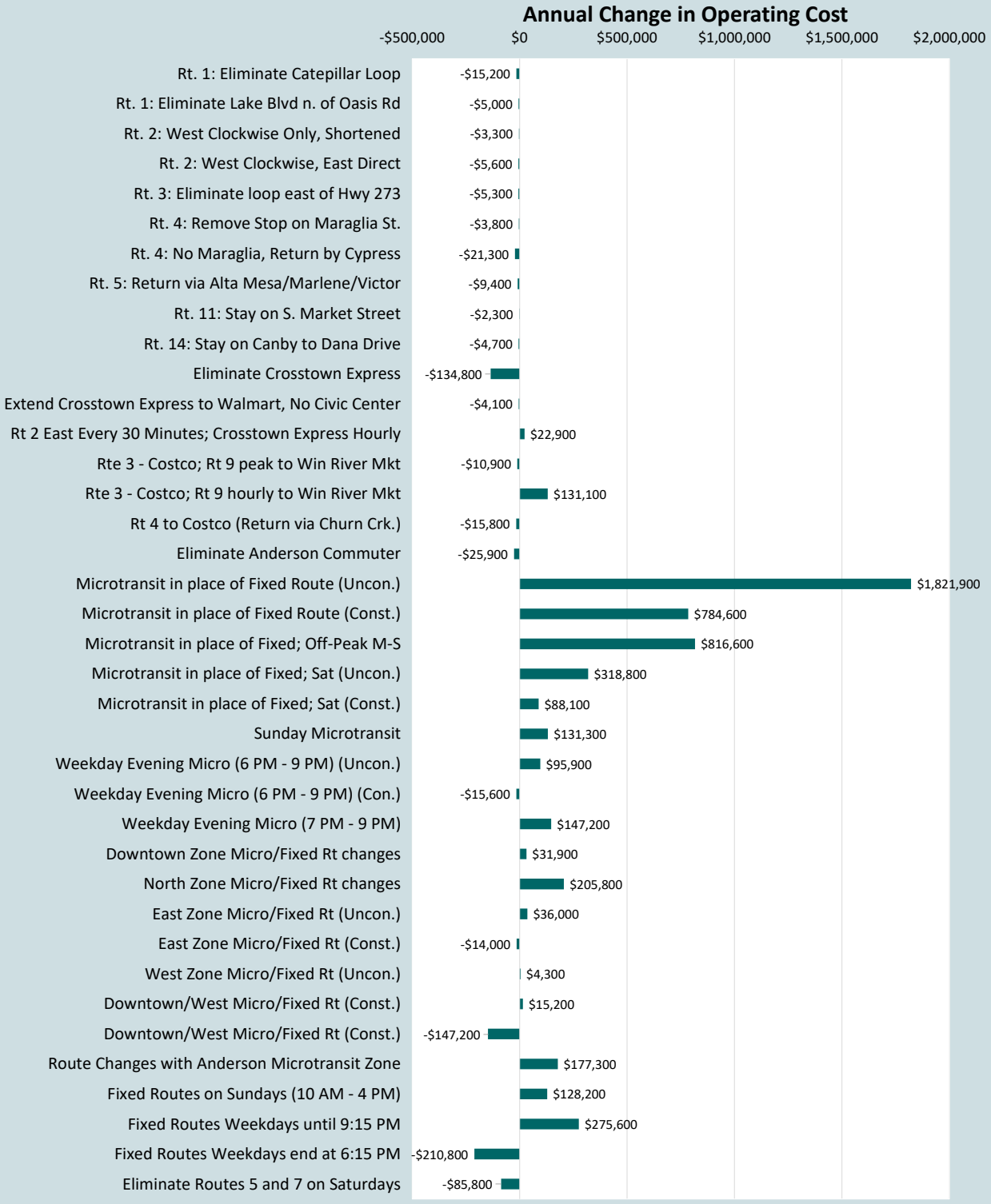


Table 25: Comparison of Service Alternatives - Route Realignments

Alternatives *(from Table 18)*	Annual Ridership	Annual Operating Cost	Passenger-trips per Veh-Hour[1]	Operating Cost per Passenger Trip
	Alternatives Meeting Standard Shown in Green[2]			
Eliminate Crosstown Express	-7,500	-$134,800	-3.7	-$17.97
Extend Crosstown Express to Walmart, Drop Civic Center	400	-$4,100	NA	-$10.25
Rt 2 East Every 30 Minutes; Crosstown Express Hourly	2,900	$22,900	NA	$7.90
Extend Route 3 to Costco; Peak hrs 9 to Win River Mkt	2,200	-$10,900	NA	-$4.95
Extend Route 3 to Costco; 9 hourly to Win River Mkt	6,200	$131,100	NA	$21.15
Extend Route 4 to Costco (Return via Churn Creek)	3,100	-$15,800	NA	-$5.10
Eliminate Anderson Commuter	-900	-$25,900	-5.0	-$28.78
Recommended Performance Standards >	Local Routes (2, 3, 4)		10.0	$7.00
	Commuter (CTE)		7.0	$12.50

Note 1: Does not include fixed costs

NA = Not applicable, as vehicle-hours do not change.

Note 2: Meets standards by eliminating a service not meeting the standard, or by increasing ridership while decreasing costs.

In terms of operating cost per passenger served, offering microtransit in the Downtown zone with service changes would result in $319.00 per added passenger trip. The unconstrained, systemwide microtransit alternative would also have a high per-passenger cost ($189.78).

Seven of the seventeen options in Table 26 would meet at least one performance standard. These alternatives consist of the following:

- Sunday microtransit service – the resulting operating cost per passenger trip meets the performance standard.
- Weekday evening microtransit from 6:00 to 9:00 PM, unconstrained – this evening service option would meet the standards for both productivity and cost effectiveness.
- Weekday evening microtransit from 6:00 to 9:00 PM, constrained – this option would surpass both standards considered by increasing ridership but reducing the number of service hours.
- Weekday, evening microtransit service from 7:00 to 9:00 PM – this option would meet the operating cost per passenger trip standard of $26 per trip or less.
- A constrained West Zone provides additional ridership at only $5.38 per trip, less than the $26.00 per passenger trip standard.
- An unconstrained, Downtown/West Microtransit Zone would add ridership while reducing the number of hours operated, meeting the productivity standards.
- A constrained, Downtown/West Microtransit Zone would eliminate service hours that do not meet the proposed standards, thus resulting in an overall positive effect on RABA performance.

Figure 35: Change in Operating Cost per Passenger Trip of RABA Alternatives

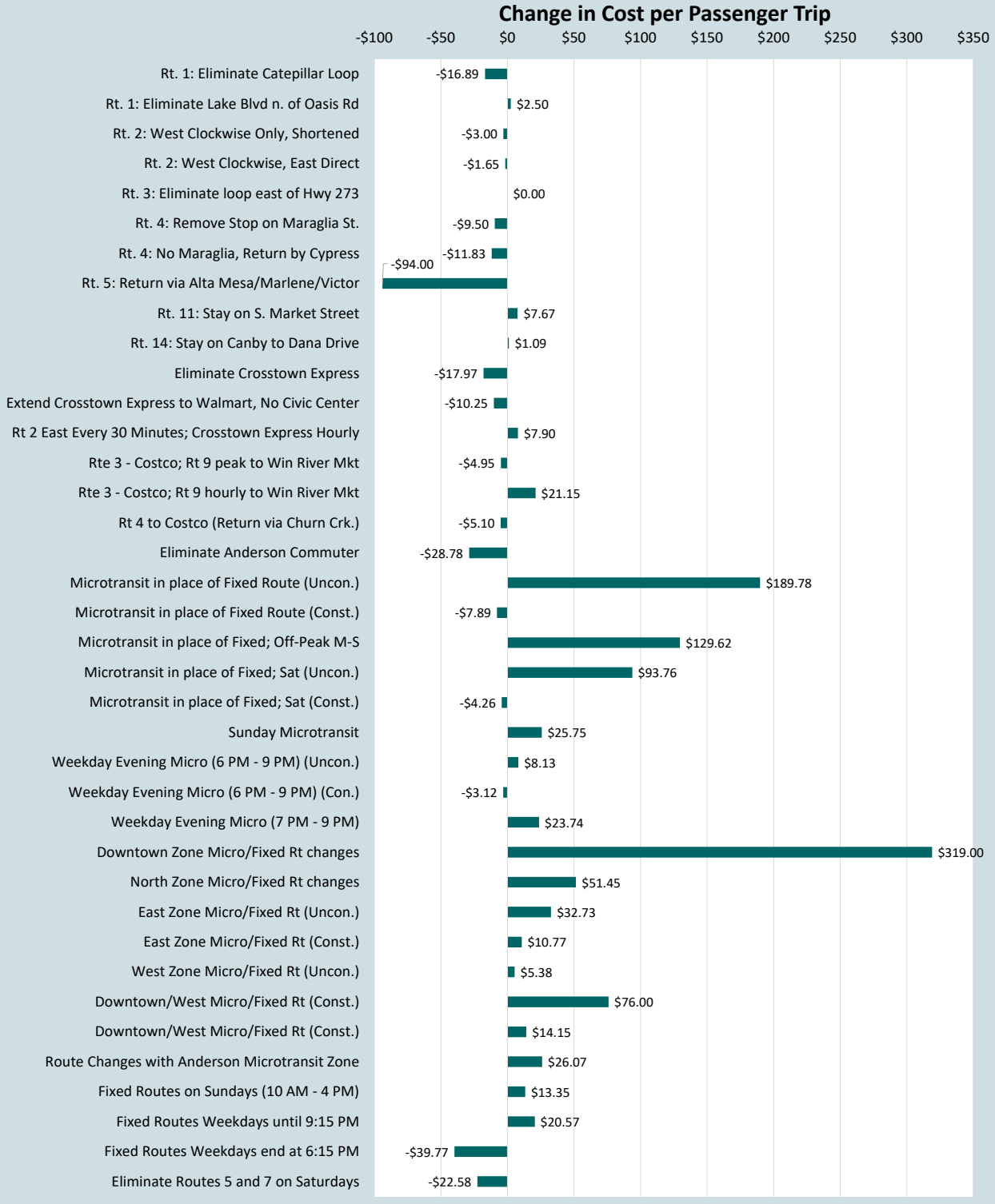


Figure 36: Change in Ridership per Passenger Hour of RABA Alternatives

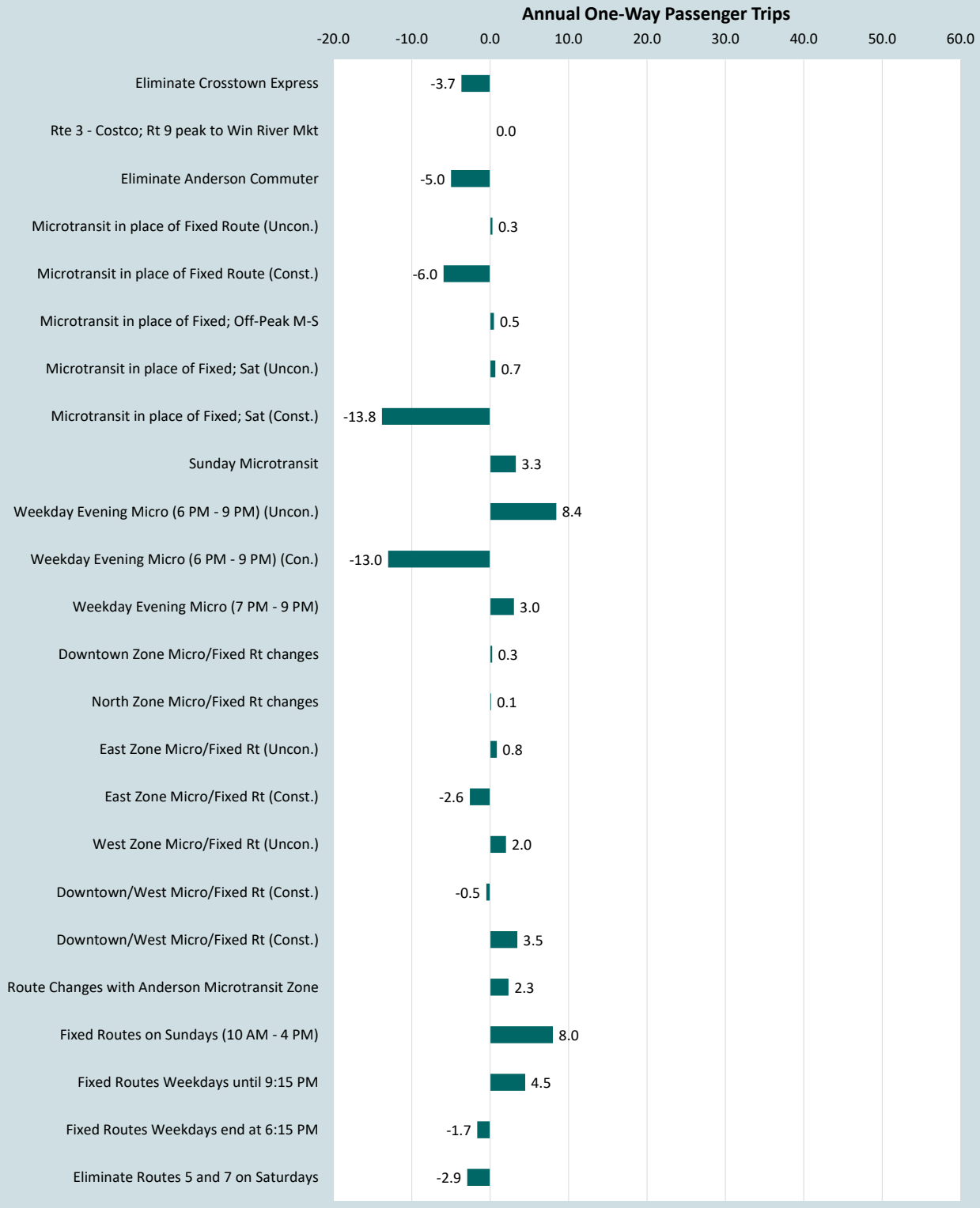


Table 26: Comparison of Service Alternatives - Microtransit & Span of Service

Alternatives	Annual Ridership	Annual Operating Cost	Passenger-Trips per Veh-Hour	Operating Cost per Passenger Trip
	Alternatives Meeting Standard Shown in Green			
Microtransit Anaylsis of Full Fixed Route Replacement *(from Table 20)*				
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Unconstrained)	9,600	$1,821,900	0.3	$189.78
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Constrained)	-99,400	$784,600	-6.0	-$7.89
Weekdays/Saturdays Microtransit in Off-Peak Hours	6,300	$816,600	0.5	$129.62
Saturdays 8:30 AM - 7:15 PM (Unconstrained)	3,400	$318,800	0.7	$93.76
Saturdays 8:30 AM - 7:15 PM (Constrained)	-20,700	$88,100	-13.8	-$4.26
Sunday Microtransit	5,100	$131,300	3.3	$25.75
Weekday Evening Microtransit (6 PM - 9 PM) (Unconstrained)	11,800	$95,900	8.4	$8.13
Weekday Evening Microtransit (6 PM - 9 PM) (Constrained)	6,900	$16,400	53.9	$2.38
Weekday Evening Microtransit (7 PM - 9 PM)	7,100	$147,200	3.5	$20.73
Microtransit Analysis by Zone *(from Tables 21 & 22)*				
Service Changes with Downtown Microtransit	100	$31,900	0.3	$319.00
Service Changes with North Microtransit Zone	4,000	$205,800	0.1	$51.45
Service Changes with East Microtransit Zone (Unconstrained)	1,100	$36,000	0.8	$32.73
Service Changes with East Microtransit Zone (Constrained)	-1,300	-$14,000	-2.6	$10.77
Service Changes with West Microtransit Zone (Constrained)	800	$4,300	2.0	$5.38
Service Changes with Downtown/West Microtransit (Unconstrained)	200	$15,200	-0.5	$76.00
Service Changes with Downtown/West Microtransit (Constrained)	-10,400	-$147,200	3.5	$14.15
Service Changes with Anderson Microtransit Zone (Unconstrained/Constrained)	6,800	$177,300	2.3	$26.07
Span of Service Alternatives *(from Table 23)*				
Fixed Routes on Sundays (10 AM - 4 PM)	9,600	$128,200	8.0	$13.35
Fixed Routes Later Weekdays (Ending at 9:15 PM)	13,400	$275,600	4.5	$20.57
End Weekday Service at 6:15 PM	-5,300	-$210,800	-1.7	-$39.77
Eliminate Routes 5 and 7 on Saturdays	-3,800	-$85,800	-2.9	-$22.58

Comparison of Span of Service Alternatives

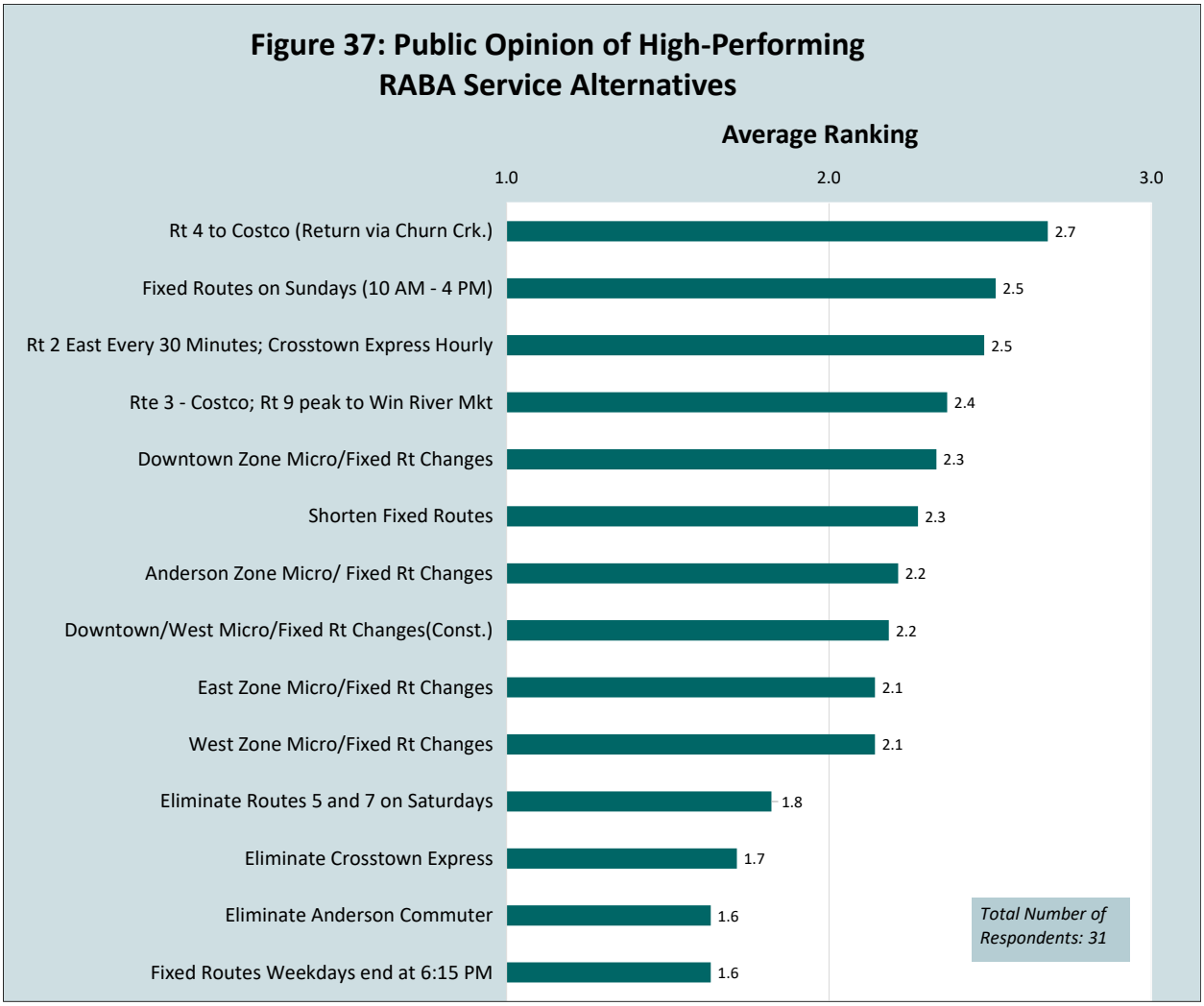
Table 26 also includes the performance analysis for the span of service alternatives. As shown, two of the alternatives expand service, and two reduce service. These different types of service changes are reflected in the projected performance. For instance, ending weekday service at 6:15 PM would reduce ridership by 5,300 passenger trips but would save $210,800 in operating costs—a reduction of $39.77 per passenger trip. Offering fixed route service on Sundays would increase costs by $128,200 at a cost of $13.35 per passenger trip, which is above the $7.00 standard. It should be noted, however, that offering Sunday fixed route service would be cheaper per passenger trip than offering Sunday microtransit. The two span of service alternatives that are consistent with the recommended performance standards are ending weekday service at 6:15 PM and eliminating Route 5 and Route 7 service on Saturdays, as both options would reduce services not currently meeting standards.

Public Input on Service Alternatives

The alternatives evaluated in this chapter were developed to address public and stakeholder concerns, as well as to improve transit performance. The alternatives were presented to the public at the community workshop held in May 2023, discussed in Chapter 4 and Appendix C. The public was able to provide feedback on which of the best-performing alternatives they would like to see implemented at the actual community workshop, as well as through an online survey that was available for two months after the workshop.

The survey asked residents to rank each alternative on a scale of 1 (do not like it) to 3 (like it). This initial feedback on the RABA service alternatives is summarized in Figure 37. Based on the input provided, the public was most supportive of extending Route 4 to service the new Costco, implementing Sunday fixed route service, and operating Route 2 East every 30 minutes and the Crosstown Express hourly. The alternatives with the least support were those which reduced service by either eliminating a service or reducing the number of hours a service is available.

Figure 37: Public Opinion of High-Performing RABA Service Alternatives



DEMAND RESPONSE AND OTHER SERVICE ALTERNATIVES

RABA's demand response program is guided by clear policies on cancellations, travel time and no-shows, and seems to operate smoothly. Ridership declined sharply with the onset of the COVID-19 pandemic but has seen a modest recovery since. Ridership went from over 49,169 in FY 2018-19, to 15,315 in FY 2020-21, with a modest recovery in 2021-22 (23,775). As of March 2023, only 8 vehicles are needed in service at peak times compared to 16 pre-COVID.

The lower ridership and reduced need for vehicles in peak service has led to a high "spare" ratio for RABA, and concerns with what to do with the extra vehicles. The vehicles could be retired over time (as discussed in the capital section) or could possibly be moved into microtransit if RABA chooses to implement this new type of service. Another consideration, however, is the level at which paratransit demand may return to RABA. In the past, demand was largely driven by clients of the Far Northern Regional Center. Far Northern has indicated they are ramping up activities and expect to exceed pre-COVID activity by the summer of 2024. If this is the case, it would have significant implications on passenger demand for the RABA demand response service.

Options for Service to the VA Clinic

Currently, RABA has an agreement with the CTSA to allow them to serve the VA clinic with the ShastaConnect weekday demand response service. ShastaConnect carries an average of 2.6 passenger trips per day to the VA clinic, nonetheless, there is concern that unhoused Vets may not be able to access needed transportation because they lack phones or computers necessary to make ShastaConnect reservations. Options to meet the transportation needs of VA clinic patients are presented below.

Limited Fixed Route Service to the VA Clinic

Fixed route service is often the preferred transit mode for unhoused individuals as they can use the service without reservations—a particular benefit for people without phones or computers. RABA initiated a new fixed route service (Route 15, or the Airport Express) in October 2023 to serve the Redding Regional Airport, with a stop at the VA clinic. Route 15 operates Monday through Saturday for approximately ten hours per day, with deviated fixed route service provided by reservation. RABA will operate Route 15 for one year. Service will be extended beyond the one-year pilot period if the following performance measures are achieved: 5 passenger trips carried per hour, a maximum $20.00 subsidy per passenger trip, and a farebox recovery ratio of 5 percent.

Volunteer Mileage Reimbursement Program

RABA could create a mileage reimbursement program to encourage volunteers to provide transportation to the VA clinic. Mileage reimbursement programs are common for rural and/or long-distance trips, especially for medical purposes. Tehama County, for example, operates the METS (Medical Transportation Service) in Tehama, Glenn, Butte and Shasta Counties, reimbursing mileage for passengers, as well as matching volunteer drivers to individuals who do not have medical transportation. Tehama County spends approximately $30 to $50 thousand annually on this service and serves 800 to 1,400 trips (roughly $40 per passenger trip).

RABA could implement a limited volunteer driver program to meet the needs of VA clinic patients if sufficient advocacy could be developed. Volunteer driver programs can be useful in serving rural areas where demand is so low and infrequent that regular service is not warranted or small urban areas with constrained budgets. There are many handbooks and resources available to help design and initiate volunteer driver programs. Once the program has started, there are several approaches:

1. True Volunteer Programs, where the driver provides transportation to passengers using their own vehicle with no or nominal reimbursement.
2. Driver Reimbursement Programs, where the passenger selects a driver of their choosing (either someone known to the passenger or someone from a list provided by the program), and the driver is reimbursed at a per-mile rate using their own vehicle.
3. Supported Volunteer programs, where volunteer drivers are recruited and/or vehicles are provided by a public or non-profit entity.

Relying strictly on volunteers to provide transportation as a community service using their own resources is a difficult task due to burnout, and the subsequent need to recruit more volunteers. This type of program has the most success in small, tight-knit communities with a strong advocate for the program. This type of grass-roots volunteer program requires a local advocate (such as the VA clinic) to organize and launch such an effort. RABA's role would be secondary to the organizer's and would primarily be to publicize the program and serve as an informational source to potential volunteers and passengers.

Driver reimbursement programs are often used by transit agencies or social programs to "fill in the gap" of transportation needs, particularly in rural areas, in post-transit hours, or for specific populations (such as the VA clinic patients, seniors, homeless or others with high transit needs). Such programs are sometimes supported by Area Agencies on Aging, social service programs, or hospitals. Support can be offered in terms of both financial (on a per-mile basis) and coordination. One of the advantages of a driver reimbursement program is that it tends to limit the liability of the sponsoring agency, as the agency has no say in assigning specific drivers to a passenger trip.

Finally, some volunteer driver programs are more substantial, and may include donated vehicles, ongoing financial support, and/or paid administrative support. Funding sources may come through CTSA funding, FTA Section 5310 grants, private donations, or other specialized grants. Sometimes a transit agency will donate a vehicle to a volunteer program.

One of the more well-known volunteer driver programs is the Independent Living Partnership: Transportation Reimbursement and Information Project (TRIP) program in Riverside County. This program sells software to organizations wishing to start similar programs. TRIP boasts over 115,000 trips provided annually, with $950,000 of funds to support mileage reimbursement and administration of the program.

For RABA, any of these approaches would be reasonable and helpful, but the driver reimbursement program is most appropriate. Establishing a pilot program for service to the VA Clinic, either through a homeless advocacy group or the VA clinic itself, would be particularly useful.

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Chapter 7
RURAL SERVICE ALTERNATIVES

INTRODUCTION

This chapter presents an evaluation of potential service alternatives for RABA that focus on providing transportation services in rural Shasta County. This analysis first reviews the demographics of rural areas of the county as well as the performance of existing rural services as a basis for assessing potential new rural services.

DEMOGRAPHIC ANALYSIS

To better understand the demographic characteristics of rural Shasta County, six analysis zones were identified. One of the zones, the existing Burney Express corridor, is already served by transit, while the other five zones are areas where RABA might implement new, expanded transit services. The six zones used in the demographic analysis were as follows: the existing Burney Express corridor, the Burney Express extension (areas along State Route (SR) 299 north of Burney), Happy Valley, the SR 44 corridor west of Redding (including Palo Cedro), Old Shasta and Keswick, and Cottonwood.

Table 27 details demographic data for each of the Shasta County rural analysis zones, including information on the demographic groups often found to be the most reliant on transit. Important findings from Table 27 are described below.

Table 27: Existing and Potential Rural Service Area Demographics

Service Area	Total Persons	Total House-holds	Youth (17 Yrs and Younger)		Elderly (65+)		Persons with a Disability		Below Poverty Level		Zero Vehicle Households	
			#	%	#	%	#	%	#	%	#	%
Existing Burney Express	10,491	3,935	2,185	20.8%	2,557	24.4%	2,156	20.5%	1,572	15.0%	144	3.7%
Burney Express Extension	2,233	572	498	22.3%	424	19.0%	510	22.9%	368	16.5%	24	4.2%
Happy Valley	2,828	1,001	409	14.5%	644	22.8%	416	14.7%	174	6.2%	22	2.2%
SR 44 Corridor	8,606	3,595	1,610	18.7%	2,656	30.9%	1,258	14.6%	342	4.0%	52	1.4%
Old Shasta / Keswick	2,785	1,061	563	20.2%	669	24.0%	435	15.6%	292	10.5%	29	2.7%
Cottonwood	4,906	1,851	1,278	26.0%	470	9.6%	935	19.1%	879	17.9%	42	2.2%

Source: US Census Bureau American Community Survey Five-Year Estimates (2021).

- The existing Burney Express corridor has the largest population out of the zones considered (10,491 residents). The next most populated zones are the SR 44 corridor (8,606 residents) and Cottonwood (4,906 residents). The number of households in each zone corresponds closely with the population size, with the existing Burney Express zone having the most households.

These factors are important to consider, as larger populations tend to generate more transit demand.

- One-fifth (20 percent) or more of the existing Burney Express corridor, the Burney Express extension, the Old Shasta/Keswick zone, and Cottonwood populations are youth ages 17 or younger. The existing Burney Express corridor and the SR 44 corridor are home to the greatest overall number of youths, with each home to over 1,600.
- Almost one-third of SR 44 corridor residents are senior adults ages 65 or older (31 percent). Between 22 to 24 percent of the Burney Express corridor, Happy Valley, and Old Shasta/Keswick populations are senior adults. The Burney Express corridor and the SR 44 corridor are home to the greatest overall number of seniors, with each home to over 2,500.
- People with a disability represent over 20 percent of the population in both the existing Burney Express and the Burney Express extension zones. In Cottonwood, 19 percent of the population has a disability. An estimated 2,156 disabled persons live in the existing Burney Express corridor, and 1,258 disabled persons live in the SR 44 corridor.
- A significant proportion of residents live below the federal poverty level in the existing Burney Express, Burney Express Extension, and Cottonwood zones; all three have poverty rates between 15 and 18 percent. In Happy Valley and the SR 44 corridors, only 4 to 6 percent of residents live below the poverty level. The existing Burney Express corridor is home to most people living below the poverty level (1,572) out of the zones considered.
- Overall, there are very few zero-vehicle households in any of the six analysis zones. The SR 44 corridor has the lowest frequency of zero-vehicle homes (just over 1 percent), and the Burney Express extension zone has the greatest (4 percent). All six analysis zones have lower prevalences of zero-vehicle households compared to Shasta County (6 percent) or the State of California (7 percent). In terms of actual counts, there are estimated to be 313 zero-vehicle households across the six zones, 144 of which are located in the existing Burney Express corridor and 52 of which are in the SR 44 corridor.

To compare the relative transit dependency of the rural zones, the demographic data presented in Table 27 was used to develop a transit needs index, shown in Table 28. To calculate the transit needs index scores, the first step was to assign weights to each of the transit-dependent subgroups based on how much that characteristic impacts one's need for transit services. Then, the weights were multiplied by the percentage of the zone's population that fell into each respective demographic category. The results for each of the five transit-dependent groups were then summed to generate an overall per capita score for each zone. The per capita scores represent the relative transit dependency of the six zones based on the proportion of transit-dependent residents living in the area. The per capita scores were then multiplied by the total population in the zone to calculate the total scores. The total scores represent the relative transit dependency of the analysis areas based on the total number of transit-dependent residents living in the zones.

As seen in Table 28, the existing Burney Express and the Burney Express extension zones have the greatest per capita need for transit services relative to the other areas. When the overall size of the transit-dependent population is considered in the total scores, the existing Burney Express corridor, the SR 44 corridor, and Cottonwood have the greatest need for transit services. Happy Valley has the least need for transit based on both the per capita and total transit needs index.

Table 28: Existing and Potential Rural Service Area Transit Needs Index

Service Area	Transit Need Index		Percent of Existing Burney Express Transit Needs Index	
	Per Capita	Total	Per Capita	Total
Existing Burney Express	4.40	46,160	--	--
Burney Express Extension	4.47	9,982	102%	22%
Happy Valley	3.13	8,852	71%	19%
SR 44 Corridor	3.47	29,863	79%	65%
Old Shasta / Keswick	3.69	10,277	84%	22%
Cottonwood	3.71	18,201	84%	39%

Source: US Census Bureau American Community Survey Five-Year Estimates (2021).

The transit needs index scores for the five potentially new service areas were compared to the existing Burney Express corridor to determine how transit ridership may compare between zones. This analysis is shown on the right side of Table 28. Based on the concentration of transit-dependent residents, the Burney Express extension zone is the only analysis area that would likely have a greater rate of transit use compared to the existing Burney Express zone (its per capita score was 102 percent of the existing Burney Express corridor's score). As none of the five new zones are as populated as the existing Burney Express corridor, none of the zones would be expected to generate as much total ridership; the SR 44 corridor's total score equaled 65 percent of the existing Burney Express corridor's total score, making it the most comparable.

EXISTING SERVICES

Burney Express (Route 299x)

The Burney Express (Route 299x) is a County of Shasta service operated by RABA. The Burney Express serves the SR 299 corridor, operating three roundtrips each weekday between Burney and Redding. A route map was shown in Figure 4B in Chapter 3 (page 17).

Ridership

The Burney Express's annual ridership from FY 2012-13 to FY 2022-23 is summarized in Figure 38. During this period, Burney Express ridership peaked in FY 2016-17 at 6,266 annual passenger trips. Ridership then began to decline, a trend that was exacerbated by the COVID-19 pandemic. FY 2021-22 saw Burney Express ridership reach an eleven-year low of only 2,697 annual passenger trips. Ridership recovered slightly in FY 2022-23, increasing to 3,292 passenger trips, or a 22 percent increase over FY 2021-22 levels.

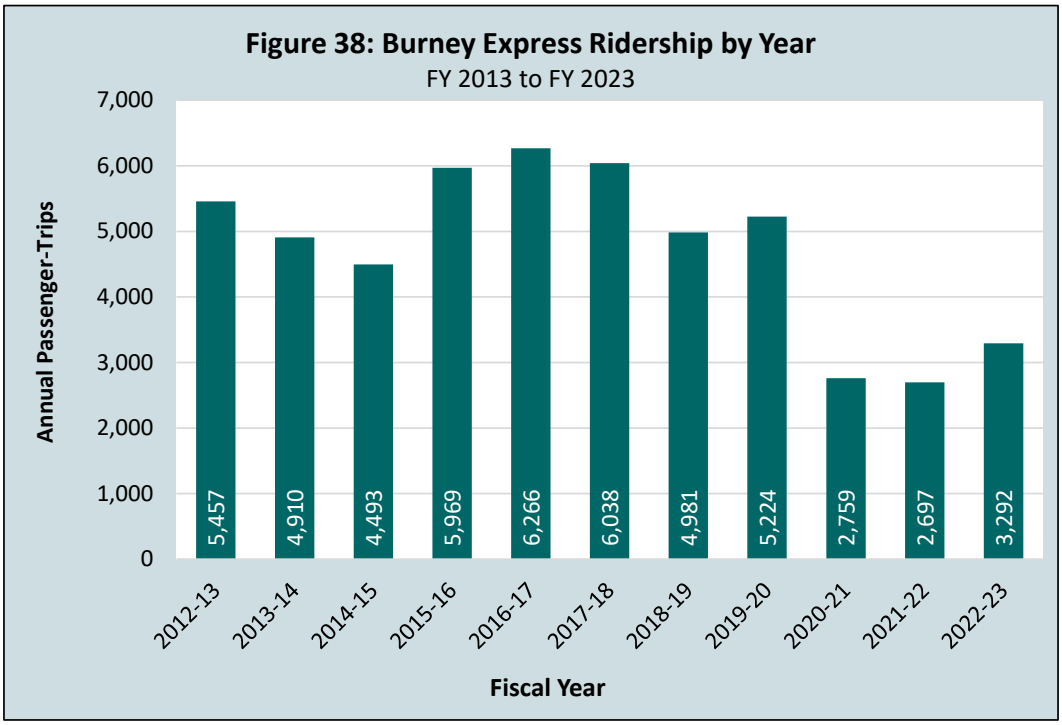


Figure 39 shows Burney Express ridership by month. Over the five years considered, the Burney Express carried an average of 316 passenger trips per month. Except for FY 2019-20, which saw the onset of the pandemic, Burney Express ridership was highest during the summer and was lowest during the winter.

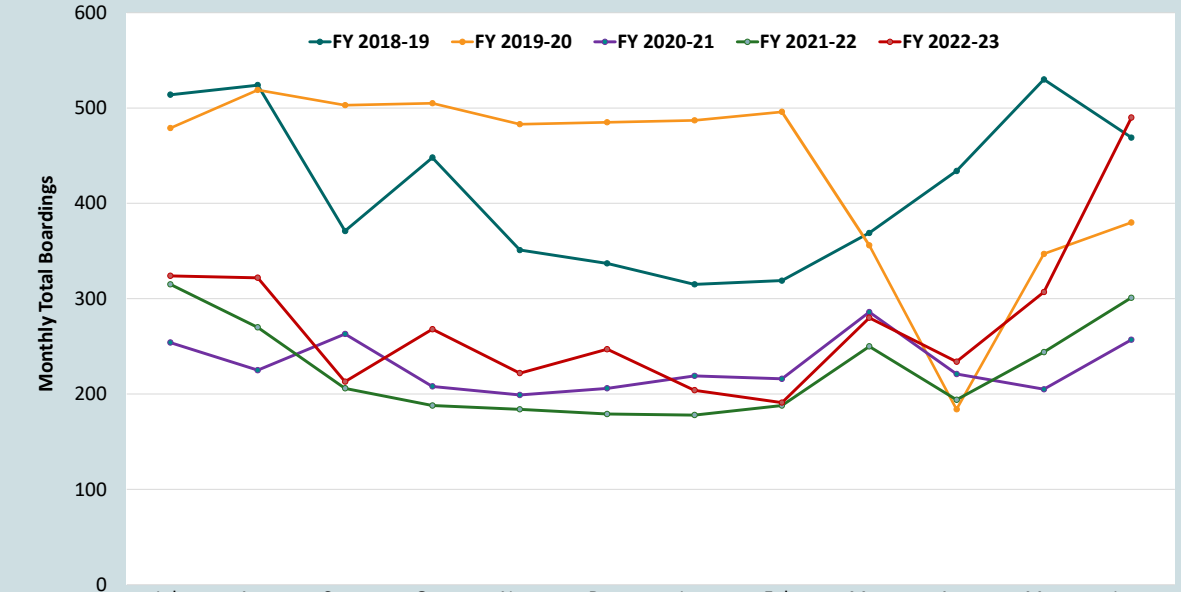
Burney Express's average daily ridership by month for FY 2022-23 is seen in Figure 40. Throughout FY 2022-23, the Burney Express carried an average of 13 passenger trips per day. Ridership followed the previously discussed monthly trend, peaking during the summer, and then lowering during the winter; June saw the greatest daily ridership (22 passenger trips) and January saw the lowest (9 passenger trips).

As previously mentioned, the Burney Express completes three roundtrips each weekday between Burney and Redding. Average daily ridership by roundtrip for September 13 through September 27, 2023, is shown in Figure 41. During this period, the Burney Express carried approximately 13 passengers per round trip or 38 passenger trips per day. On each trip, a similar number of passengers boarded in both the westbound and eastbound directions (between 6 to 7 passengers). Of note, this indicates a substantial 146 percent increase over average FY 2022-23 ridership. At this higher ridership level, annual ridership would be expected to be 8,100 passenger trips per year.

Performance

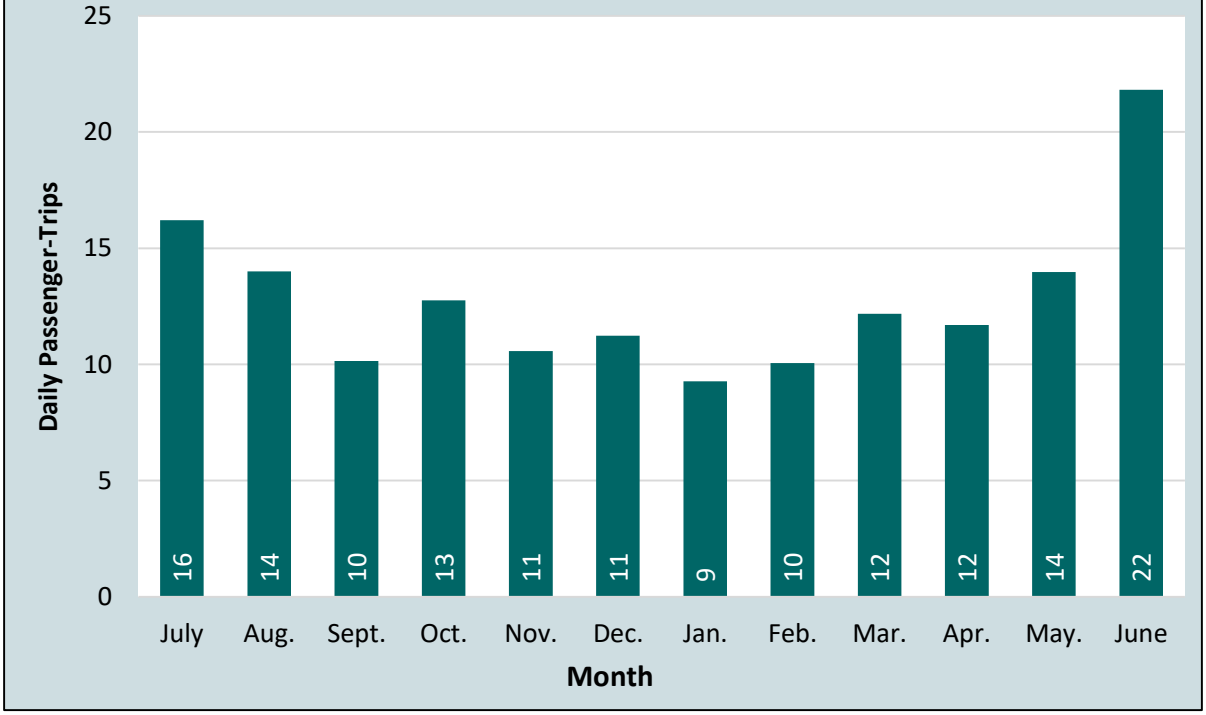
Table 29 presents a performance analysis of the Burney Express for FY 2019-20 through FY 2022-23. It should be noted that the Burney Express, like most transit systems, was significantly impacted by the onset of the COVID-19 pandemic in FY 2019-20. The pandemic not only caused ridership to decline but also triggered a multi-year period of high inflation rates that caused operating costs to increase. These impacts are evident in the performance analysis, presented below.

Figure 39: Burney Express Ridership by Month
FY 2019 to FY 2023



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
FY 2018-19	514	524	371	448	351	337	315	319	369	434	530	469
FY 2019-20	479	519	503	505	483	485	487	496	356	184	347	380
FY 2020-21	254	225	263	208	199	206	219	216	286	221	205	257
FY 2021-22	315	270	206	188	184	179	178	188	250	194	244	301
FY 2022-23	324	322	213	268	222	247	204	191	280	234	307	490

Figure 40: Burney Express Average Daily Ridership by Month
FY 2022-23



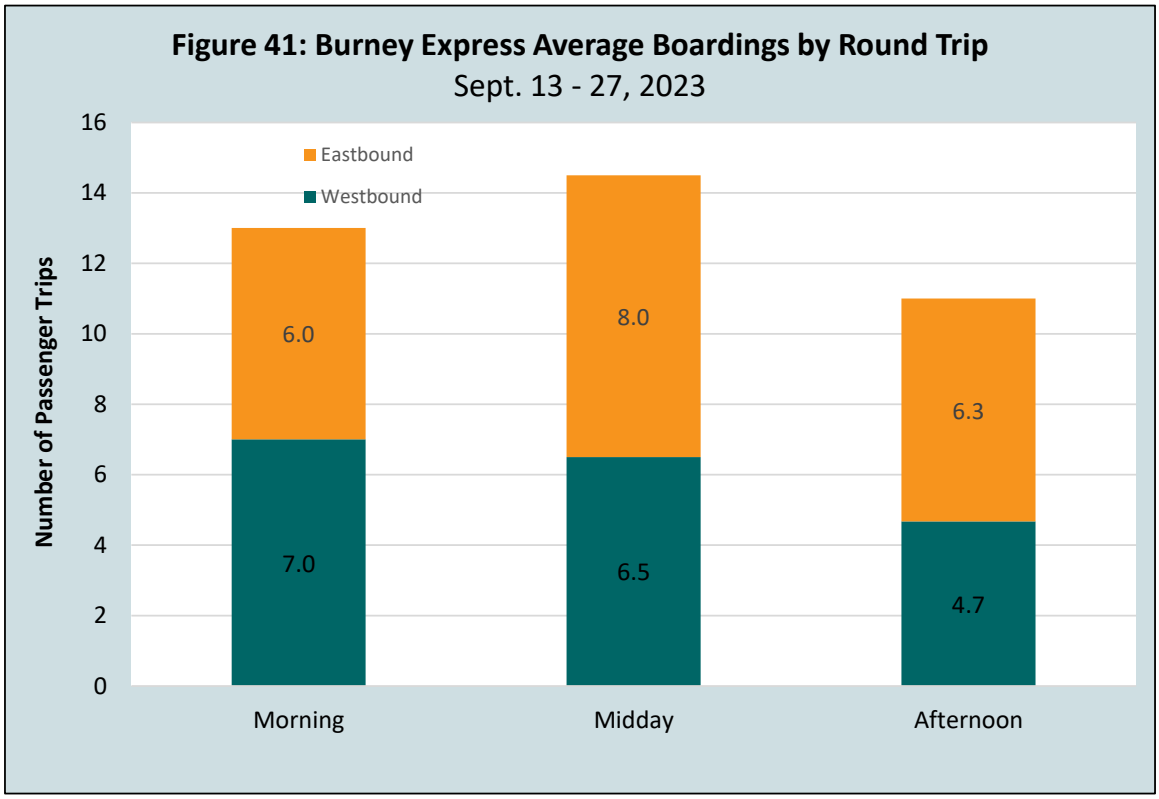


Table 29: Burney Express Performance

FY 2019-20 - 2022-23

Performance Data and Indicators	Fiscal Year FY 19-20	FY 20-21	FY 21-22	FY 22-23	% Change FY 20 - FY 23
Passenger Trips	5,224	2,759	2,697	3,292	-37%
Vehicle Service Miles	87,552	87,552	88,236	88,101	1%
Vehicle Service Hours	2,320	2,304	2,329	2,375	2%
Operating Costs	$274,790	$316,784	$381,708	$286,912	4%
Fare Revenues	$16,540	$14,887	$11,293	$33,214	101%
Operating Subsidy	$258,250	$301,897	$370,415	$253,698	-2%
Cost per Passenger Trip	$52.60	$114.82	$141.53	$87.15	66%
Subsidy per Passenger Trip	$49.44	$109.42	$137.34	$77.07	56%
Farebox Return Ratio	6%	5%	3%	12%	92%
Passenger Trips per Hour	2.3	1.2	1.2	1.4	-38%
Passenger Trips per Mile	0.06	0.03	0.03	0.04	-37%

Source: RABA FY 2021-22 Performance Report, RABA Monthly Performance Reports

- Operating Cost per Passenger Trip: The operating cost per passenger trip on the Burney Express was $87.15 in FY 2021-22. This represented a 66 percent increase from FY 2019-20, but a 38 decrease from the high operating cost per trip seen in FY 2021-22.
- Subsidy per Passenger trip: The subsidy per passenger trip represents the public's investment and is an excellent indicator of cost-effectiveness. The Burney Express's subsidy per passenger trip increased from $49.44 in FY 2019-20 to $77.07 in FY 2022-23 (+56 percent).
- Farebox Return Ratio: The farebox ratio is equal to the percentage of operating costs paid for by fare revenues. The Burney Express farebox ratio went from 6 percent in FY 2019-20 to only 3 percent in FY 2021-22. The farebox ratio then increased significantly to 12 percent in FY 2022-23, resulting in a net 92 percent increase over four years.
- Passenger Trips per Hour and Per Mile: The numbers of passenger trips carried per service hour and service mile indicate the relative productivity of transit service. The Burney Express's productivity decreased over the last four FYs; from FY 2019-20 to FY 2022-23, the number of passengers carried per vehicle service hour decreased by 38 percent to 1.4, and the number of passengers carried per mile decreased by 37 percent to 0.04.

Beach Bus (Route 19)

The Beach Bus is a seasonal transit service between the Downtown Transit Center in Redding and Whiskeytown National Recreation Area. The service operates four daily roundtrips on Thursdays, Fridays, and Saturdays, excluding holidays, from Memorial Day to Labor Day each year. This route is shown in Figure 4B in Chapter 3 (page 17).

The Beach Bus was initiated in the summer of 2016 to address an unmet transit need submitted to the SRTA. The Beach Bus was discontinued for the summer of 2018 due to changes in the National Park Service fee system. The service remained suspended for the summer of 2019 due to the Carr Fire, which had damaged the Whiskeytown National Recreation Area towards the end of the previous summer. The onset of the COVID-19 pandemic in early 2020 caused the Beach Bus service to be suspended for another year. Beach Bus service resumed in 2021 and has continued since.

Ridership

Beach Bus ridership by year is shown in Figure 42. Thus far in the Beach Bus's history, ridership was greatest during the summer of 2017, when the Beach Bus carried 1,092 passenger trips. As previously mentioned, the Beach Bus did not operate from 2018 to 2020 for various reasons, thus there was no ridership. In 2023, Beach Bus ridership carried 978 passenger trips, surpassing 2022 ridership by 73 passenger trips.

Figure 43 shows Beach Bus ridership by day during the summer of 2023. On average, ridership was lower on Thursdays (19 daily passenger trips) and higher on Saturdays (26 daily passenger trips). There is not a clear pattern indicated by the data, however, suggesting that there are other factors impacting ridership peaks and lows. A reason ridership was higher during the earlier summer may be school schedules, as many schools resume for the fall session in mid-to-late August or early September.

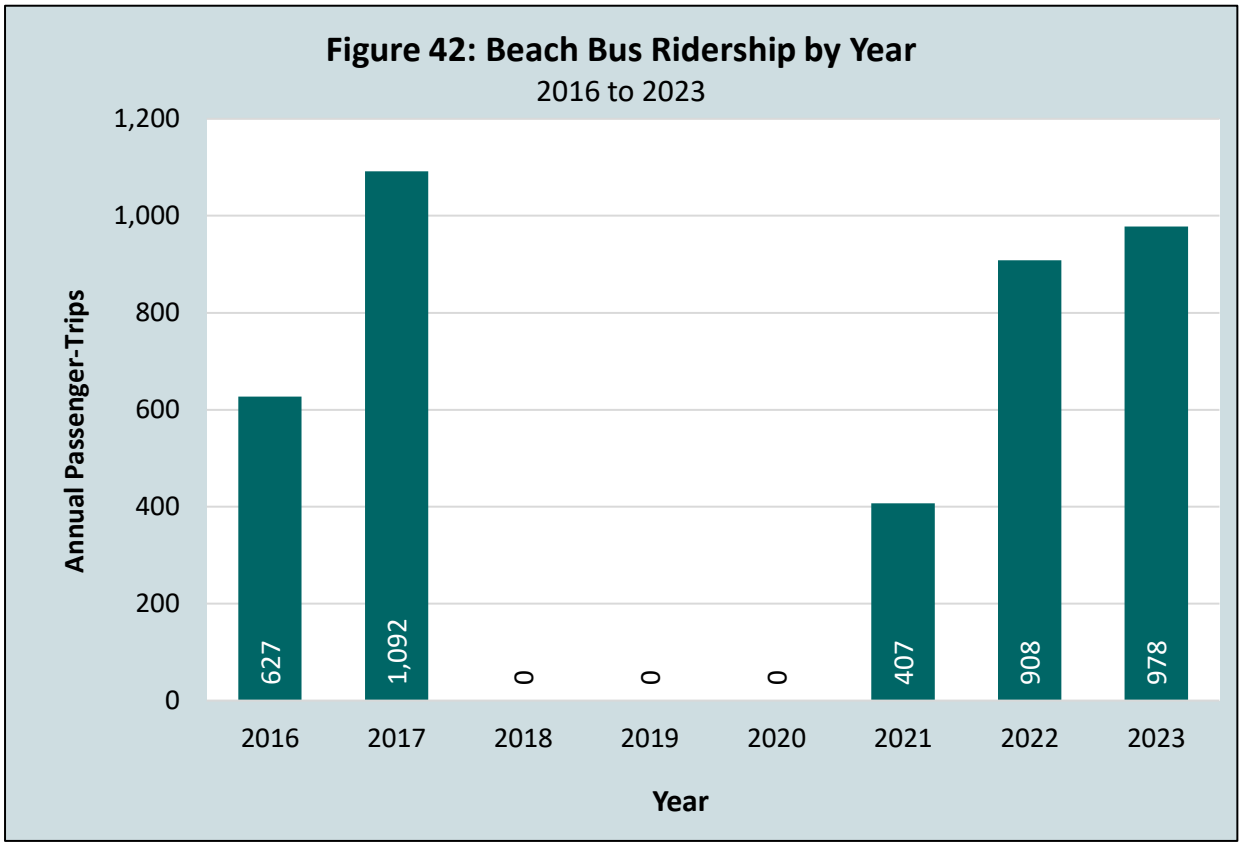


Figure 42: Beach Bus Ridership by Year
2016 to 2023
Annual Passenger-Trips
1,200
1,000
800
600
400
200
0
627
1,092
0
0
0
407
908
978
2016
2017
2018
2019
2020
2021
2022
2023
Year

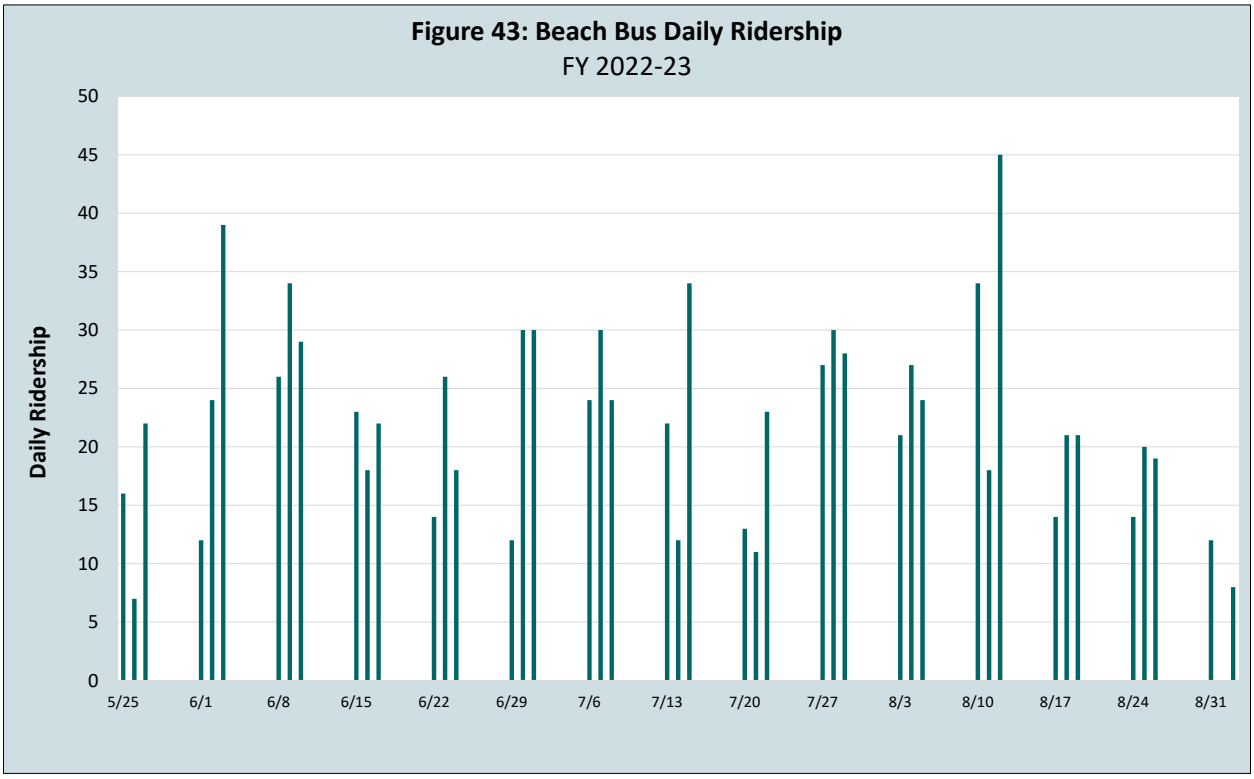
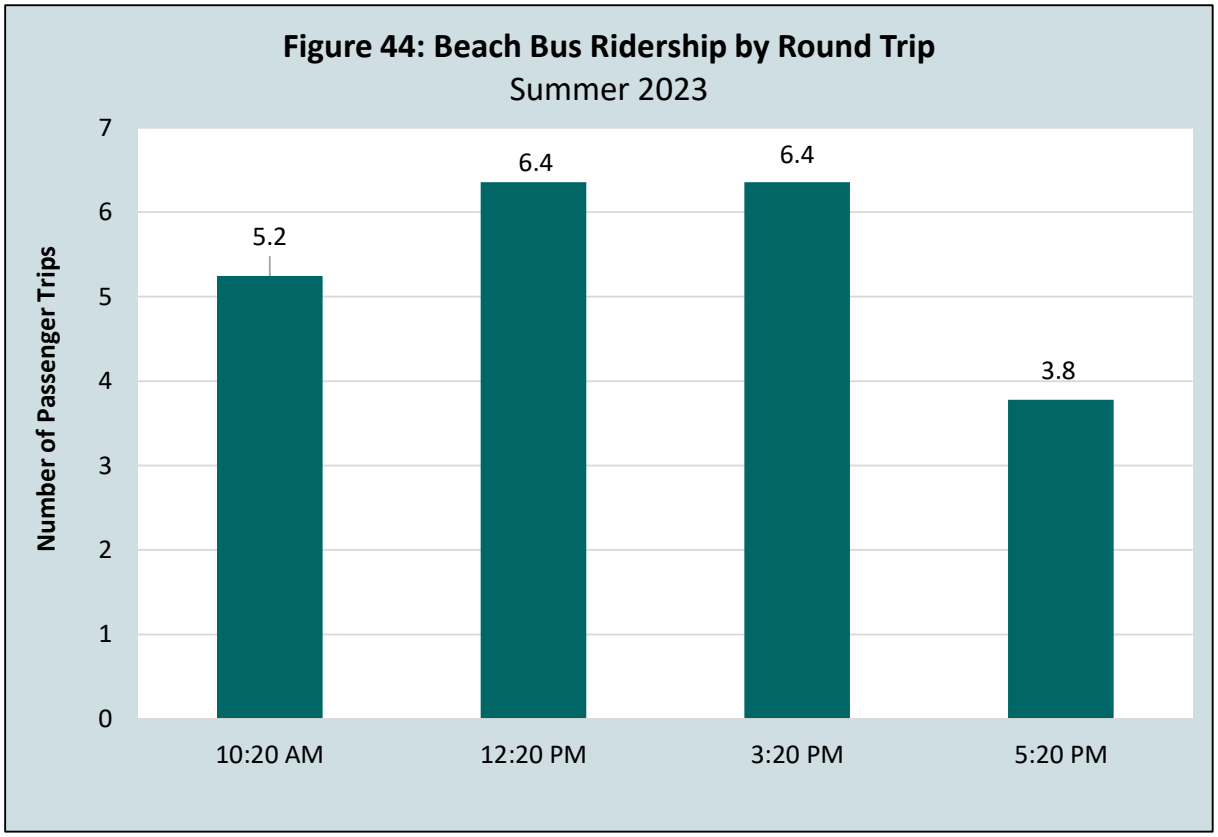


Figure 43: Beach Bus Daily Ridership
FY 2022-23
Daily Ridership
50
45
40
35
30
25
20
15
10
5
0
5/25
6/1
6/8
6/15
6/22
6/29
7/6
7/13
7/20
7/27
8/3
8/10
8/17
8/24
8/31

Beach Bus's average ridership by roundtrip during the 2023 season is shown in Figure 44. Ridership was highest on the two midday trips, during which the Beach Bus carried an average of 6.4 passengers per trip. Ridership was lowest (3.8 passengers) on the final round trip of the service day.



Performance

Table 30 presents a performance analysis of the Beach Bus for the summers of 2016 and 2017 and the summers of 2021, 2022, and 2023. As previously mentioned in the review of the Burney Express, it should be noted when reviewing the Beach Bus that transit operations have been significantly impacted by the COVID-19 pandemic during recent years. The Beach Bus was also reintroduced in 2021 after being discontinued for multiple years, meaning there was no regular ridership.

The Beach Bus does not require fares. Since 2016, various funding sources have been used to subsidize fares. Currently, Beach Bus fares are being paid for by SRTA with Low Carbon Transit Operations Program (LCTOP) funds. As there are no fares, there is no difference between the operating cost and the operating subsidy. Having no fares also makes it impossible to calculate performance metrics such as the subsidy per passenger trip or the farebox ratio.

Key takeaways from the Beach Bus performance analysis include:

- Operating Cost per Passenger Trip: The operating cost per Beach Bus passenger trip increased by 94 percent from 2016 to 2023. Over the last three summers, however, the operating cost per passenger trip dropped by 53 percent from $47.32 in 2021 to $22.24 in 2023. This decrease was due to ridership increasing at a far greater rate than operating costs post-pandemic.

Table 30: Beach Bus Performance
2016 - 2023

Performance Data and Indicators	Calendar Year 2016	2017	2021	2022	2023	% Change 16 - 23
Passenger Trips	627	1092	407	908	978	56%
Vehicle Service Miles	689	1,966	4,230	4,230	4,230	514%
Vehicle Service Hours	81	228	180	175	180	122%
Operating Costs	$7,200	$20,216	$19,261	$20,467	$21,749	202%
Fare Revenues	--	--	--	--	--	--
Cost per Passenger Trip	$11.48	$18.51	$47.32	$22.54	$22.24	94%
Passenger Trips per Hour	7.7	4.8	2.3	5.2	5.4	-30%
Passenger Trips per Mile	0.91	0.56	0.10	0.21	0.23	-75%

Note: Beach Bus service was suspended for the summers of 2018, 2019, and 2020.
Sources: RABA FY 2021-22 Performance Report, RABA Monthly Performance Reports, SRTA

- Passenger Trips per Hour and Per Mile: The Beach Bus's most productive summer was 2016, when the service carried 7.7 passenger trips per hour and 0.91 passenger trips per mile. Since the service was reintroduced in 2021, the productivity of the Beach Bus has increased progressively, as the number of passenger trips carried per service hour increased from 2.3 to 5.4 and the number of passenger trips carried per service mile increased from 0.10 to 0.23.

RURAL OUTREACH EFFORTS

In order to learn more about the transit needs of residents living in rural Shasta County, particularly residents living along SR 299, two targeted outreach efforts were conducted. The first was an online community survey, and the second was a survey of Burney Express passengers. These efforts are summarized briefly in Chapter 4 (pages 41 to 43). Detailed results are presented in Appendix F.

RABA RURAL SERVICE ALTERNATIVES

The following section presents possible RABA rural service alternatives. These alternatives were developed based on the demographic data, the existing RABA rural services performance, and the rural outreach efforts discussed in previous chapters and sections of this SRTP. The operating and cost impacts of the alternatives analyzed is presented in Table 31.

Ridership estimates for the various alternatives were based on a comparison of the demographics in potential service areas with those of the existing Burney Express service area, as shown in Table 28. This data was used to identify the relative transit need in each service area compared with the existing Burney Express corridor, then calibrated against the existing Burney Express ridership as shown in Table 32. Factors were then developed based on survey results to reflect changes in service levels and applied to estimate ridership for different service levels, including the number of service days per week and for varying numbers of runs per day of service.

Table 31: Rural Service Alternatives

	Round Trip					Annual			Ridership			Change in Annual			
	Vehicle-Hours	Vehicle-Miles	Round Trip Runs per Day	Service Days per Week	Annual Service Days[1]	Vehicle-Hours	Vehicle-Miles	Marginal Operating Cost	Annual	Average Daily	Annual Fare Revenue	Vehicle-Hours	Marginal Operating Cost	Subsidy	Ridership
Burney Express															
Existing Service	2.83	97	3	5	257	2,185	74,787	$209,100	8,100	31.5	$33,600	--	--	--	--
5 Days/Week, 2 Runs/Day	2.83	97	2	5	257	1,456	49,858	$139,400	6,600	25.7	$26,400	-728	-$69,700	-$62,500	-1,500
3 Days/Week, 3 Runs/Day	2.83	97	3	3	156	1,326	45,396	$126,900	3,200	20.5	$12,800	-859	-$82,200	-$61,400	-4,900
2 Days/Week, 3 Runs/Day	2.83	97	3	2	104	884	30,264	$84,600	2,600	25.0	$10,400	-1,301	-$124,500	-$101,300	-5,500
2 Days/Week, 2 Runs/Day	2.83	97	2	2	104	589	20,176	$56,400	2,100	20.2	$8,400	-1,595	-$152,700	-$127,500	-6,000
Saturday, 2 Runs/Day	2.83	97	2	1	51	289	9,894	$27,700	700	12.8	$2,800	289	$27,700	$24,900	700
Saturday, 3 Runs/Day	2.83	97	3	1	51	434	14,841	$41,500	800	15.8	$3,200	434	$41,500	$38,300	800
Burney Express Extension to McArthur															
5 Days/Week, 3 Runs/Day	3.67	133	3	5	257	2,827	102,543	$279,500	9,900	38.5	$39,600	642	$70,400	$64,400	1,800
5 Days/Week, 2 Runs/Day	3.67	133	2	5	257	1,885	68,362	$186,300	8,100	31.5	$33,600	-300	-$22,800	-$22,800	0
Shingletown Express															
5 Days/Week, 2 Runs/Day	1.75	66	2	5	257	899	33,924	$90,900	4,200	16.3	$16,800	899	$90,900	$74,100	4,200
3 Days/Week, 2 Runs/Day	1.75	66	2	3	156	546	20,592	$55,200	1,700	10.9	$6,800	546	$55,200	$48,400	1,700
2 Days/Week, 2 Runs/Day	1.75	66	2	2	104	364	13,728	$36,800	1,400	13.5	$5,600	364	$36,800	$31,200	1,400
1 Day/Week, 2 Runs/Day	1.75	66	2	1	52	182	6,864	$18,400	1,000	19.2	$4,000	182	$18,400	$14,400	1,000
Happy Valley															
5 Days/Week, 3 Runs/Day	1.17	32	3	5	257	900	24,672	$76,600	1,600	6.2	$6,000	900	$76,600	$70,600	1,600
5 Days/Week, 2 Runs/Day	1.17	32	2	5	257	600	16,448	$51,100	1,000	3.9	$3,800	600	$51,100	$47,300	1,000
3 Days/Week, 3 Runs/Day	1.17	32	3	3	156	546	14,976	$46,500	600	3.8	$2,300	546	$46,500	$44,200	600
2 Days/Week, 3 Runs/Day	1.17	32	3	2	104	364	9,984	$31,000	500	4.8	$1,900	364	$31,000	$29,100	500
1 Day/Week, 3 Runs/Day	1.17	32	3	1	52	182	4,992	$15,500	400	7.7	$1,500	182	$15,500	$14,000	400
Old Shasta/Keswick															
5 Days/Week, 3 Runs/Day	1.00	22	3	5	257	771	16,962	$59,200	1,800	7.0	$6,800	771	$59,200	$52,400	1,800
5 Days/Week, 2 Runs/Day	1.00	22	2	5	257	514	11,308	$39,500	1,100	4.3	$4,100	514	$39,500	$35,400	1,100
3 Days/Week, 3 Runs/Day	1.00	22	3	3	156	468	10,296	$35,900	700	4.5	$2,600	468	$35,900	$33,300	700
2 Days/Week, 3 Runs/Day	1.00	22	3	2	104	312	6,864	$23,900	600	5.8	$2,300	312	$23,900	$21,600	600
1 Day/Week, 3 Runs/Day	1.00	22	3	1	52	156	3,432	$12,000	400	7.7	$1,500	156	$12,000	$10,500	400
Cottonwood															
5 Days/Week, 3 Runs/Day	1.50	46	3	5	257	1,157	35,466	$104,300	3,200	12.5	$12,000	1,157	$104,300	$92,300	3,200
5 Days/Week, 2 Runs/Day	1.00	46	2	5	257	514	23,644	$58,600	2,000	7.8	$7,500	514	$58,600	$51,100	2,000
3 Days/Week, 3 Runs/Day	1.00	46	3	3	156	468	21,528	$53,300	1,300	8.3	$4,900	468	$53,300	$48,400	1,300
2 Days/Week, 3 Runs/Day	1.00	46	3	2	104	312	14,352	$35,500	1,000	9.6	$3,800	312	$35,500	$31,700	1,000
1 Day/Week, 3 Runs/Day	1.00	46	3	1	52	156	7,176	$17,800	700	13.5	$2,600	156	$17,800	$15,200	700
Microtransit Service, 2 Days/Wk	--	--	--	1	104	416	6,240	$27,400	1,000	9.6	$1,200	416	$27,400	$26,200	1,000
Microtransit Service, 1 Day/Wk	--	--	--	2	52	208	3,120	$13,700	700	13.5	$800	208	$13,700	$12,900	700

Note 1: For service alternatives operating less than 5 days a week, any holidays would be replaced with an additional day of service in the week.

Table 32: Rural Service Alternatives Ridership Analysis

Service Area	5 Days/Week 3 Runs/Day		5 Days/Week 2 Runs/Day		3 Days/Week 3 Runs/Day		3 Days/Week 2 Runs/Day		2 Days/Week 3 Runs/Day		2 Days/Week 2 Runs/Day		1 Day/Week 3 Runs/Day		1 Day/Week 2 Runs/Day	
	Annual	Daily	Annual	Daily	Annual	Daily	Annual	Daily	Annual	Daily	Annual	Daily	Annual	Daily	Annual	Daily
Existing Burney Express	8,100	31.5	6,600	25.4	3,200	20.5	2,600	16.7	2,600	25.0	2,100	20.2	1,900	36.5	1,600	30.8
Burney Express Extension	1,800	7.0	1,500	5.8	700	4.5	600	3.8	600	5.8	500	4.8	400	7.7	400	7.7
SR 44 Corridor	5,200	20.2	4,200	16.2	2,100	13.5	1,700	10.9	1,700	16.3	1,400	13.5	1,200	23.1	1,000	19.2
Happy Valley	1,600	6.2	1,000	3.8	600	3.8	400	2.6	500	4.8	300	2.9	400	7.7	300	5.8
Old Shasta/Keswick	1,800	7.0	1,100	4.2	700	4.5	500	3.2	600	5.8	400	3.8	400	7.7	300	5.8
Cottonwood	3,200	12.5	2,000	7.7	1,300	8.3	800	5.1	1,000	9.6	700	6.7	700	13.5	500	9.6

Burney Express Alternatives

Service Reduction Options

As discussed above, the Burney Express service currently serves only 1.4 passenger trips for every vehicle service hour. While FY 2022-23 ridership was up by 22 percent over the previous year, it was still down by almost half (48 percent) compared to FY 2016-17. Given these figures, it is appropriate to consider reducing the current service level, which consists of five days of service per week and three round trips per day.

- 5 Days/Week, 2 Runs/Day – This would reduce the usefulness of the Burney Express for passengers who want to make a short trip into Redding (such as for shopping or an appointment) more so than for those staying in Redding all day (such as to go to school or work) or to access intercity transportation services. Based on the current schedule, Burney Express passengers can stay in Redding for 3 hours and 10 minutes, 4 hours and 20 minutes, 5 hours and 10 minutes, or 10 hours and 20 minutes, depending on their needs. With a reduced schedule (as shown in Table 33), it would be possible to visit Redding for 4 hours and 5 minutes in the morning or 3 hours and 10 minutes in the afternoon, or passengers could visit for a full 10 hours and 5 minutes. Part-day trips would still be possible. This option would cause ridership to drop by an estimated 1,500 per year.
- 3 Days/Week, 3 Runs/Day – Alternatively, the number of daily runs could be maintained, and the number of days per week of service could be reduced. This would significantly reduce the number of vehicle service hours operated and in turn operating costs as well. Considering the number of passengers riding for school or work, this would have a larger impact on ridership, with an estimated annual loss in ridership of 4,900.
- 2 Days/Week, 3 Runs/Day – This option would result in significant cost savings but would further reduce ridership by an estimated 5,500 passenger trips per year.
- 2 Days/Week, 2 Runs/Day – The final reduction option considered would be to operate 2 runs per day only 2 days per week. This would reduce the required Burney Express subsidy by $127,500 per year, but annual ridership would be reduced by 6,000 boardings (or 74 percent) compared to existing levels.

Table 33: Example Reduced Burney Express Schedule

Eastbound	Redding	--	11:20 AM	5:20 PM
	Shasta College	--	11:30 AM	5:30 PM
	Bella Vista	--	11:40 AM	5:40 PM
	Round Mountain	--	12:10 PM	6:10 PM
	Mongomery Creek	--	12:20 PM	6:20 PM
	Burney	--	12:45 PM	6:45 PM
Westbound	Burney	5:50 AM	12:45 PM	--
	Mongomery Creek	6:15 AM	1:10 PM	--
	Round Mountain	6:25 AM	1:20 PM	--
	Bella Vista	6:55 AM	1:50 PM	--
	Shasta College	7:07 AM	2:02 PM	--
	Redding	7:15 AM	2:10 PM	--

Source: LSC

Saturday Service

A popular request during public outreach was for the Burney Express to operate on Saturdays. Ridership potential was evaluated by considering the ratio of average Saturday ridership to average weekday ridership on similar services:

- The Redwood Transit System, which provides service between Scotia and Trinidad in Humboldt County, carries 47 percent of weekday ridership on Saturdays.
- The Southern Humboldt Intercity service carries 52 percent of weekday service on Saturdays on its route between Benbow and Eureka in Humboldt County.
- The Lassen Rural Bus West County route, which operates between Chester and Susanville, carries 33 percent of weekday ridership on Saturdays.

Considering these factors and the level of interest indicated in the surveys, it is estimated that Saturday service on the Burney Express would generate about 16 passenger trips per day, or 50 percent of weekday ridership if the same three trips in each direction were provided. Annually, offering Saturday service on the Burney Express would increase ridership by 800 passenger trips and operating costs by $41,500 (Table 32). Another option would be to operate two runs per day in each direction (westbound in the morning, a midday round trip, and eastbound in the late afternoon). This would carry an estimated 700 passenger trips while reducing operating costs to $27,700 each year.

Flex Service

Another option would be to operate the Burney Express as a flex service, which would allow the vehicle to divert off of the current fixed route by up to 1 mile to serve requests at individual homes. This would increase the time required to operate the service (estimated 30 additional minutes per round-trip), and thus increase operating costs by an estimated $28,000 per year. This change would impact ridership in several ways:

- A flex service would be more convenient for passengers who currently have to get to and from a bus stop by walking, biking, or getting dropped off/picked up. This is supported by the fact that 45 percent of passengers surveyed indicated a flex service would make them more likely to ride during the Burney Express onboard passenger survey.
- Operating the Burney Express as a flex service would increase the travel time for those already on the bus as the bus diverts to serve other passengers. For instance, Burney passengers (who are a large majority) would be delayed as flex requests are served in Montgomery Creek. This factor largely explains why 24 percent of survey respondents indicated they would be less likely to ride.
- It would make arrival times less dependable, as trip times would vary based on flex requests. Almost half (47 percent) of Burney Express trips are made for purposes that have a set arrival time, such as school, work, medical appointments, and accessing intercity services.

On balance, converting the Burney Express to a flex service would have a negligible net impact on ridership, but would increase costs and make the service less dependable. For these reasons, this option is not considered further.

Service Extension to McArthur

Another option would be to extend the existing Burney Express route further east to serve the communities of Fall River Mills and McArthur, as shown in Figure 45. This would extend service to an additional 2,233 Shasta County residents (a 21 percent increase over the existing Burney Express corridor population outside of the urban area). This population, moreover, has a relatively high proportion of persons with disabilities and/or lack of access to a car. The modification would extend the Burney Express an additional 18 miles (or 36 miles per round trip). An example schedule is shown in Table 34 (assuming the existing three daily runs in each direction are extended). Based on the schedule shown, each round trip would require an additional 50 minutes to operate.

Two service alternatives related to extending the Burney Express were considered. First, extended service could be provided five days a week on all three existing trips in each direction. In terms of performance, annual operating costs would increase by $70,400 and ridership by 1,800 passenger trips per year. The second option considered would be to reduce the entire Burney Express service to two daily trips in each direction (with the number of midday trips reduced from two to one) and simultaneously extend all trips to McArthur. This would have the benefit of reducing the annual operating cost and subsidy by $22,800. The ridership gained by the extension would be offset by the loss of ridership associated with the reduced schedule, yielding no change in overall ridership.

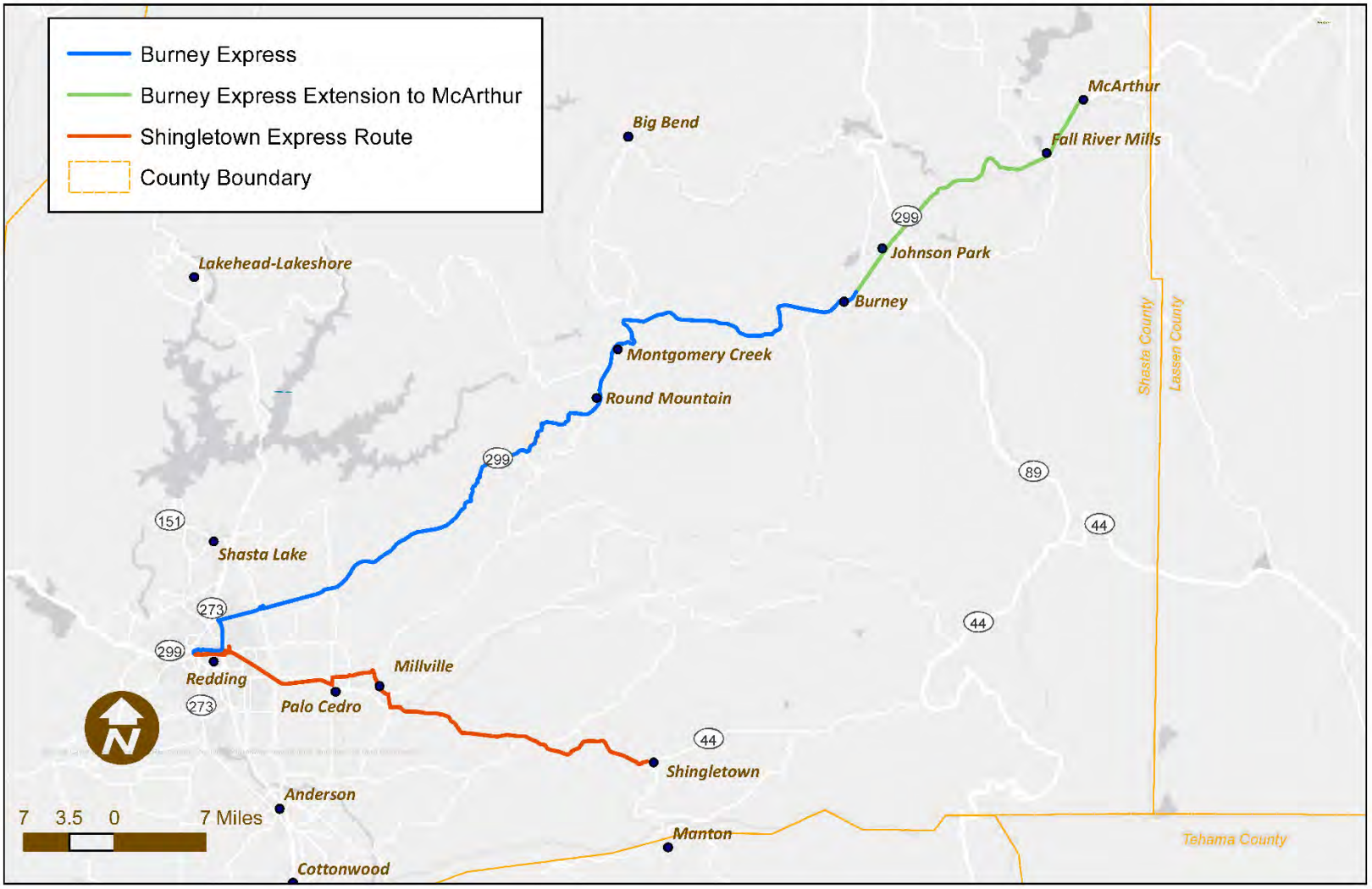
As an aside, extending service on only a few days a week is not recommended, as it would result in a differing schedule for the existing stops on these days. Given the proportion of ridership making regular trips for school or work, this would have a negative impact.

Table 34: Example Burney Express Schedule Extended to McArthur

						Mid-Day Run With 2 Runs/Day
Eastbound	Redding	--	9:20 AM	1:20 PM	5:20 PM	*11:20 AM*
	Shasta College	--	9:30 AM	1:30 PM	5:30 PM	*11:30 AM*
	Bella Vista	--	9:40 AM	1:40 PM	5:40 PM	*11:40 AM*
	Round Mountain	--	10:10 AM	2:10 PM	6:10 PM	*12:10 PM*
	Mongomery Creek	--	10:20 AM	2:20 PM	6:20 PM	*12:20 PM*
	Burney	--	10:45 AM	2:45 PM	6:45 PM	*12:45 PM*
	Johnson Park	--	10:50 AM	2:50 PM	6:50 PM	*12:50 PM*
	Fall River Mills	--	11:05 AM	3:05 PM	7:05 PM	*1:05 PM*
	McArthur	--	11:10 AM	3:10 PM	7:10 PM	*1:10 PM*
Westbound	McArthur	5:25 AM	11:10 AM	3:10 PM	--	*1:10 PM*
	Fall River Mills	5:30 AM	11:15 AM	3:15 PM	--	*1:15 PM*
	Johnson Park	5:45 AM	11:30 AM	3:30 PM	--	*1:30 PM*
	Burney	5:50 AM	11:35 AM	3:35 PM	--	*1:35 PM*
	Mongomery Creek	6:15 AM	12:00 PM	4:00 PM	--	*2:00 PM*
	Round Mountain	6:25 AM	12:10 PM	4:10 PM	--	*2:10 PM*
	Bella Vista	6:55 AM	12:40 PM	4:40 PM	--	*2:40 PM*
	Shasta College	7:07 AM	12:52 PM	4:52 PM	--	*2:52 PM*
	Redding	7:15 AM	1:00 PM	5:00 PM	--	*3:00 PM*

Source: LSC

Figure 45
Potential Extension of Burney Express and Service to Shingletown



Shingletown Express Alternatives

While the SR 44 corridor has a relatively low transit-dependent population compared to the SR 299 corridor, it is still home to a substantial number of elderly and persons with disabilities who may benefit from having a new public transit alternative. A service similar to the Burney Express could be implemented in the SR 44 corridor, serving the communities of Shingletown, Millville, and Palo Cedro, as shown in Figure 45. In Redding, the Shingletown Express service would stop at both the Canby Transit Center and the Downtown Transit Center to maximize connectivity with other RABA services. An example schedule is shown in Table 35. In addition to providing passengers with a full day in Redding, this schedule would also allow for stays of only 4 hours and 5 minutes in the morning and 4 hours and 15 minutes in the afternoon.

Various alternatives for the possible Shingletown Express service are shown in Table 31. Considering the relatively low potential ridership, options that provide 2 trips per day in each direction (one-way westbound in the morning, a mid-day round trip, and one-way eastbound in the evening, assuming the vehicle is "parked out" at Shingletown) were evaluated. Potential operating costs would range from $18,400 for one day a week service to $90,900 for five days a week service. Based on the ridership estimates shown in Table 32, it is estimated that ridership would range from 1,000 to 4,200 passenger trips per year.

Table 35: Example Shingletown Express Schedule

Eastbound	Redding DTC	--	11:20 AM	5:20 PM
	Canby TC	--	11:28 AM	5:28 PM
	Palo Cedro Holiday Mkt	--	11:39 AM	5:39 PM
	Millville Post Office	--	11:48 AM	5:48 PM
	Black Butte Market	--	12:01 PM	6:01 PM
	Shingletown Library	--	12:10 PM	6:10 PM
Westbound	Shingletown Library	6:25 AM	12:15 PM	--
	Black Butte Market	6:34 AM	12:24 PM	--
	Millville Post Office	6:47 AM	12:37 PM	--
	Palo Cedro Holiday Mkt	6:56 AM	12:46 PM	--
	Canby TC	7:07 AM	12:57 PM	--
	Redding DTC	7:15 AM	1:05 PM	--

Source: LSC

Shingletown Microtransit Alternative

Another service option for the Shingletown area would be to provide a rural microtransit service, such as over 8 hours a day one day a week. However, as there are few trip destinations within Shingletown most of the potential transit demand is for trips to/from urban services in the Redding area. Even a one-day-a-week microtransit service would incur an operating cost of approximately $24,000 but would serve very low ridership. This is reflected in the low existing demand for the existing ShastaConnect service in the area. The options discussed above would better meet potential demand in this area. As a result, this option is not considered further.

Happy Valley Express Alternatives

The Happy Valley area consists of a dispersed area of rural residential development to the southwest of Redding. An appropriate service strategy for this area would be to provide express service from the Downtown Transit Center to a central location in Happy Valley (such as the Happy Valley Market) as well as a constrained microtransit service within a defined area, as shown in Figure 46. Passengers would be able to access the bus at the Happy Valley market at scheduled times or to request a ride at their home during three 30-minute periods per service day, as shown in the example schedule presented in Table 36. A five-day-a-week schedule would be designed to serve commuters, while a schedule for fewer days would be designed to serve shoppers. Requests could be made either using an app (the same app used for the urban microtransit services) or by calling the dispatcher.

Table 36: Example Happy Valley Express Schedules

5 Days a Week Service				
Redding DTC		6:05 AM	11:20 AM	5:20 PM
Happy Valley Market		6:25 AM	11:40 AM	5:40 PM
On Demand Service in Happy Valley Zone	*Start Time*	*6:25 AM*	*11:40 AM*	*5:40 PM*
	End Time	*6:55 AM*	*12:10 PM*	*6:10 PM*
Happy Valley Market		6:55 AM	12:10 PM	6:10 PM
Redding DTC		7:15 AM	12:30 PM	6:30 PM
1 to 4 Days a Week Service				
Redding DTC		8:05 AM	11:20 AM	4:20 PM
Happy Valley Market		8:25 AM	11:40 AM	4:40 PM
On Demand Service in Happy Valley Zone	*Start Time*	*8:25 AM*	*11:40 AM*	*4:40 PM*
	End Time	*8:55 AM*	*12:10 PM*	*5:10 PM*
Happy Valley Market		8:55 AM	12:10 PM	5:10 PM
Redding DTC		9:15 AM	12:30 PM	5:30 PM

Source: LSC

A base microtransit fare of $3 to the fixed route stop is assumed for this service (as well as for the following two service areas discussed below), with an additional $1 to serve a deviation request. This provides an incentive for passengers to use the fixed route stop and thereby reduces operating costs.

A wide range of options were evaluated regarding different service spans and frequencies, as shown in Table 31. Operating costs could range from as little as $15,500 (for three daily runs on one day per week) up to $76,600 (for three daily runs five days a week). Annual ridership would range between 400 and 1,600 passenger trips depending on the level of service.

Shasta/Keswick Express Alternatives

Another potential rural service area is the Old Shasta and Keswick area northwest of Redding (Figure 46). Given the geography, this service would also be a combination express/rural microtransit service, with connections to the Downtown Transit Center and a scheduled stop at the Shasta Post Office.

A potential schedule for this service is shown in Table 37. As this area is relatively close to Redding, operating costs would be relatively low, ranging from $12,000 for three daily runs, one day per week to $59,200 for three daily runs, five days per week. The annual ridership impacts would range from 400 to 1,800 passenger trips depending on the level of service implemented.

Table 37: Example Shasta/Keswick Express Schedules

5 Days a Week Service				
Redding DTC		6:15 AM	11:20 AM	5:20 PM
J's Market		6:25 AM	11:30 AM	5:30 PM
On Demand Service in Shasta/Keswick Zone	*Start Time*	*6:25 AM*	*11:30 AM*	*5:30 PM*
	End Time	*6:55 AM*	*12:00 PM*	*6:00 PM*
J's Market		6:55 AM	12:00 PM	6:00 PM
Redding DTC		7:15 AM	12:20 PM	6:20 PM
1 to 4 Days a Week Service				
Redding DTC		8:15 AM	11:20 AM	4:20 PM
J's Market		8:25 AM	11:30 AM	4:30 PM
On Demand Service in Shasta/Keswick Zone	*Start Time*	*8:25 AM*	*11:30 AM*	*4:30 PM*
	End Time	*8:55 AM*	*12:00 PM*	*5:00 PM*
J's Market		8:55 AM	12:00 PM	5:00 PM
Redding DTC		9:15 AM	12:20 PM	5:20 PM

Source: LSC

Cottonwood Service Alternatives

Cottonwood Express

A final rural analysis zone considered is the Cottonwood area, including areas to the west of Gas Point Road as shown in Figure 46. This area has a substantial population (4,906 residents), with a relatively high prevalence of low-income as well as youth. The Cottonwood Express service would also be a combination express/rural microtransit option. Given that RABA vehicles are based out of the operations yard in Redding, it makes sense for this express route to begin and end at the Downtown Transit Center rather than requiring passengers to transfer to Route 9 in Anderson (though a stop would be made at the Anderson Walmart in each direction). An example schedule is provided in Table 38. Note that while Tehama Rural Area Express (TRAX) provides service between Cottonwood and Anderson, it only serves a single stop near the Bowman Road interchange (in Tehama County), so a new RABA service would significantly expand transit accessibility.

Operating costs would range from a low of $17,800 per year for three daily runs, one day a week service up to $104,300 per year for three daily runs, five days a week service. Ridership would range from 800 to 3,200 boardings per year, depending on the service level.

Cottonwood Microtransit Service

Cottonwood could also potentially be served by expanding the Anderson microtransit service one or two days per week. This would consist of serving Cottonwood (the area indicated in Figure 46) with the same parameters as that proposed for the Anderson Zone in Chapter 6, with service available from 9:00 AM to 4:00 PM and fares of $2.00 for a general public ride and $1 for Seniors, Veterans, and persons with disabilities. Passengers would be served anywhere within the combined Anderson/Cottonwood microtransit zone, including transfers to/from RABA Route 9 or TRAX.

Table 38: Example Cottonwood Express Schedules

5 Days a Week Service				
Redding DTC		5:45 AM	11:20 AM	5:20 PM
Anderson (5000 Rhonda)		6:05 AM	11:40 AM	5:40 PM
Cottonwood PO		6:15 AM	11:50 AM	5:50 PM
On Demand Service in Cottonwood Zone	*Start Time*	*6:15 AM*	*11:50 AM*	*5:50 PM*
	End Time	*6:45 AM*	*12:20 PM*	*6:20 PM*
Cottonwood PO		6:45 AM	12:20 PM	6:20 PM
Anderson (5000 Rhonda)		6:55 AM	12:30 PM	6:30 PM
Redding DTC		7:15 AM	12:50 PM	6:50 PM
1 to 4 Days a Week Service				
Redding DTC		7:45 AM	11:20 AM	4:20 PM
Anderson (5000 Rhonda)		8:05 AM	11:40 AM	4:40 PM
Cottonwood PO		8:15 AM	11:50 AM	4:50 PM
On Demand Service in Cottonwood Zone	*Start Time*	*8:15 AM*	*11:50 AM*	*4:50 PM*
	End Time	*8:45 AM*	*12:20 PM*	*5:20 PM*
Cottonwood PO		8:45 AM	12:20 PM	5:20 PM
Anderson (5000 Rhonda)		8:55 AM	12:30 PM	5:30 PM
Redding DTC		9:15 AM	12:50 PM	5:50 PM

Source: LSC

This service would add approximately 4 vehicle-hours per day of service, resulting in a cost of $13,700 per year for one day a week service and $27,400 for two days a week service. Ridership would be similar to the express/deviation services discussed above, totaling 800 rides per day for one day a week service and 1,000 riders per day for two days a week service.

Beach Bus Alternatives

During the 2023 season, Beach Bus ridership was significantly lower on the final daily run, as shown previously in Figure 44. To reduce operating costs, the Beach Bus service could be reduced to three daily round trips. The final daily round trip could instead be scheduled for 4:20 PM, meaning that existing passengers riding the 3:20 PM or the 5:20 PM departures would not have to change their schedules that drastically. It is estimated that this change would cause a loss of 110 passenger trips per year and annual cost savings of $5,400.

PERFORMANCE ANALYSIS

A performance analysis of the RABA rural service alternatives is presented in Table 39. As shown, the ridership impacts of the various alternatives range from a reduction of 6,000 passenger trips per year (by reducing the Burney Express service to two days a week and two round-trips a day) to an increase of 4,200 passenger trips per year (by operating a new Shingletown Express service five days a week and two round-trips a day). Subsidy impacts would range from a reduction of $127,400 per year to an increase of $92,300 per year, for the same two options. Three performance measures were evaluated, as discussed below.

Figure 46
Potential Rural Services to Cottonwood, Happy Valley, and Old Shasta/Keswick Areas

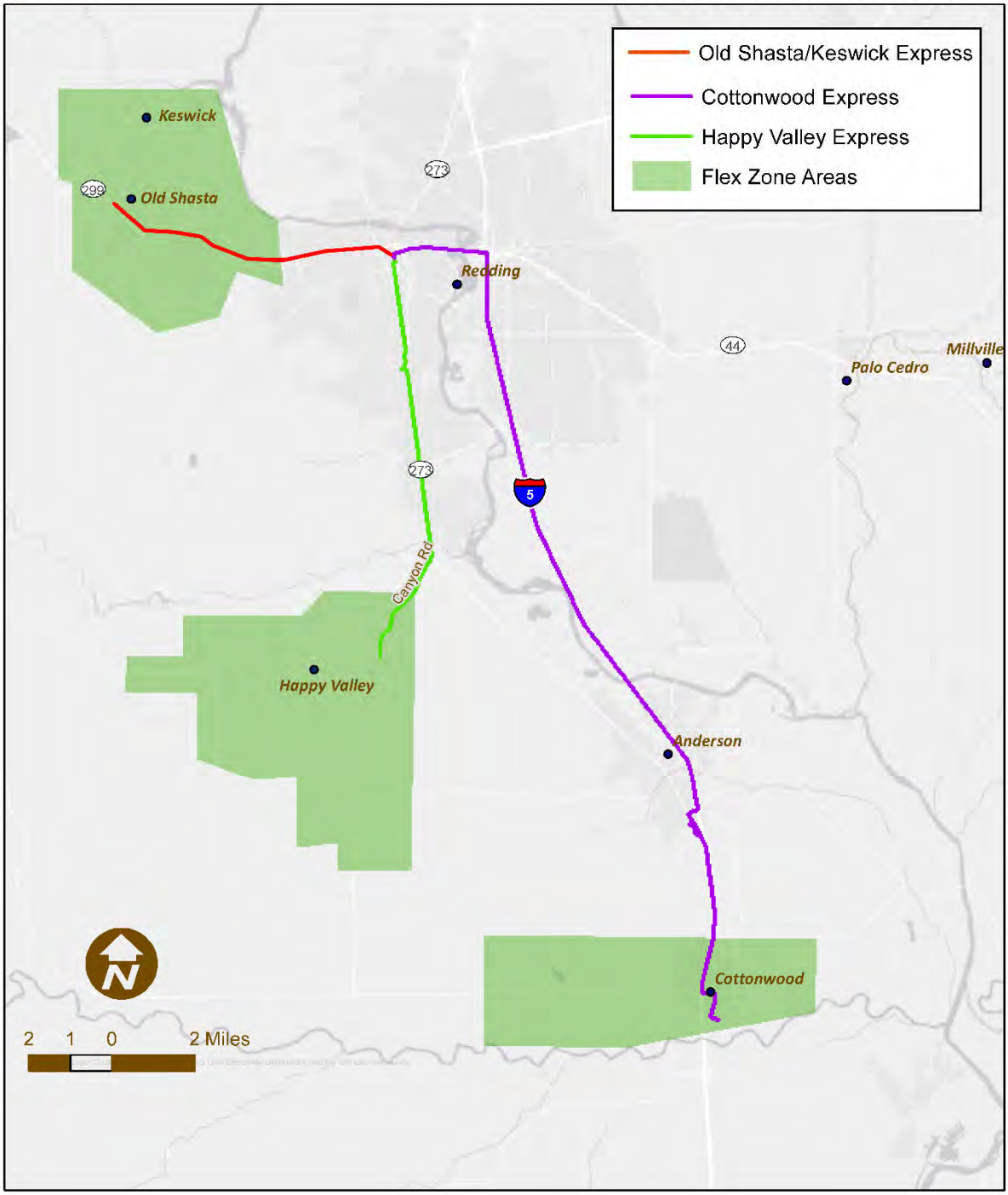


Table 39: RABA Rural Service Alternatives Performance Analysis

Shaded Values Reflect Reduction in Passengers and Reduction in Cost or Subsidy

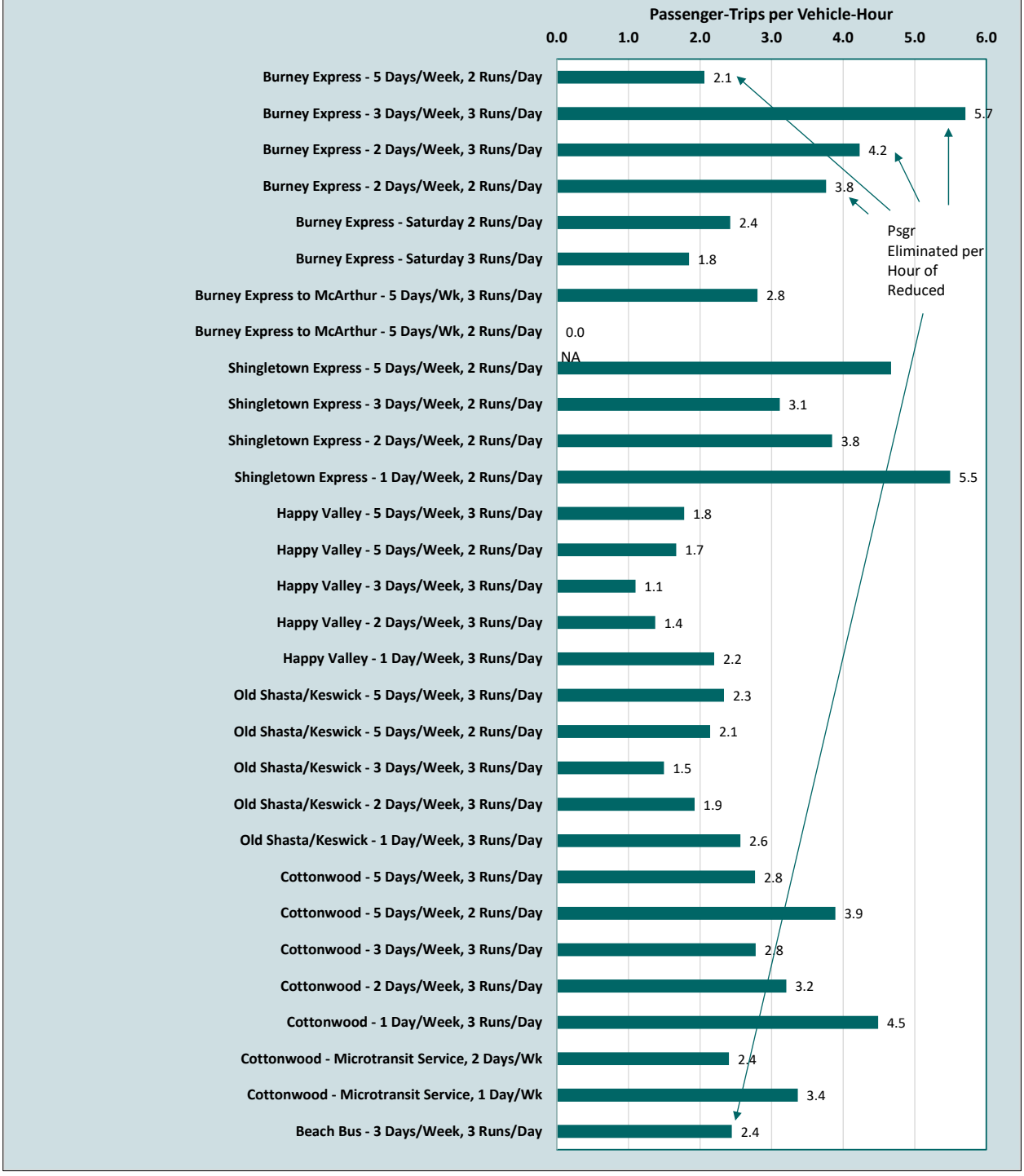
Other Values Reflect Increase in Passengers and Increase in Cost or Subsidy

	Annual Change		Performance Measure			
Service Alternative	Ridership	Subsidy	Psgr-Trips per Vehicle-Hour	Psgr-Trips per Vehicle-Mile	Operating Cost per Psgr-Trip	Subsidy per Psgr-Trip
Existing Burney Express			3.7	0.11	$26	$22
Burney Express - 5 Days/Week, 2 Runs/Day	-1,500	-$62,500	2.1	0.13	$46	$42
Burney Express - 3 Days/Week, 3 Runs/Day	-4,900	-$61,400	5.7	0.07	$17	$13
Burney Express - 2 Days/Week, 3 Runs/Day	-5,500	-$101,300	4.2	0.09	$23	$18
Burney Express - 2 Days/Week, 2 Runs/Day	-6,000	-$127,500	3.8	0.10	$25	$21
Burney Express - Saturday 2 Runs/Day	700	$24,900	2.4	0.07	$40	$36
Burney Express - Saturday 3 Runs/Day	800	$38,300	1.8	0.05	$52	$48
Burney Express to McArthur - 5 Days/Wk, 3 Runs/Day	1,800	$64,400	2.8	0.10	$39	$36
Burney Express to McArthur - 5 Days/Wk, 2 Runs/Day	0	-$22,800	NA	0.12	NA	NA
Shingletown Express - 5 Days/Week, 2 Runs/Day	4,200	$74,100	4.7	0.12	$22	$18
Shingletown Express - 3 Days/Week, 2 Runs/Day	1,700	$48,400	3.1	0.08	$32	$28
Shingletown Express - 2 Days/Week, 2 Runs/Day	1,400	$31,200	3.8	0.10	$26	$22
Shingletown Express - 1 Day/Week, 2 Runs/Day	1,000	$14,400	5.5	0.15	$18	$14
Happy Valley - 5 Days/Week, 3 Runs/Day	1,600	$70,600	1.8	0.06	$48	$44
Happy Valley - 5 Days/Week, 2 Runs/Day	1,000	$47,300	1.7	0.06	$51	$47
Happy Valley - 3 Days/Week, 3 Runs/Day	600	$44,200	1.1	0.04	$78	$74
Happy Valley - 2 Days/Week, 3 Runs/Day	500	$29,100	1.4	0.05	$62	$58
Happy Valley - 1 Day/Week, 3 Runs/Day	400	$14,000	2.2	0.08	$39	$35
Old Shasta/Keswick - 5 Days/Week, 3 Runs/Day	1,800	$52,400	2.3	0.11	$33	$29
Old Shasta/Keswick - 5 Days/Week, 2 Runs/Day	1,100	$35,400	2.1	0.10	$36	$32
Old Shasta/Keswick - 3 Days/Week, 3 Runs/Day	700	$33,300	1.5	0.07	$51	$48
Old Shasta/Keswick - 2 Days/Week, 3 Runs/Day	600	$21,600	1.9	0.09	$40	$36
Old Shasta/Keswick - 1 Day/Week, 3 Runs/Day	400	$10,500	2.6	0.12	$30	$26
Cottonwood - 5 Days/Week, 3 Runs/Day	3,200	$92,300	2.8	0.09	$33	$29
Cottonwood - 5 Days/Week, 2 Runs/Day	2,000	$51,100	3.9	0.08	$29	$26
Cottonwood - 3 Days/Week, 3 Runs/Day	1,300	$48,400	2.8	0.06	$41	$37
Cottonwood - 2 Days/Week, 3 Runs/Day	1,000	$31,700	3.2	0.07	$36	$32
Cottonwood - 1 Day/Week, 3 Runs/Day	700	$15,200	4.5	0.10	$25	$22
Cottonwood - Microtransit Service, 2 Days/Wk	1,000	$26,200	2.4	0.16	$27	$26
Cottonwood - Microtransit Service, 1 Day/Wk	700	$12,900	3.4	0.22	$20	$18
Beach Bus - 3 Days/Week, 3 Runs/Day	-110	-$5,400	2.4	0.10	$49	$49

Passenger Trips per Vehicle Service Hour

The number of passenger trips served per vehicle service hour is a key measure of the productivity of transit service. Figure 47 shows how each alternative varies based on this metric. For the alternatives that increase service levels and ridership, a larger value reflects better productivity. Out of the options considered that would provide this type of service, the most productive alternative would be one day a week service to Shingletown (5.5 passenger trips per vehicle service hour), followed by five days a week Shingletown service (4.7) and one day a week service to Cottonwood (4.5). The options serving Happy Valley perform relatively poorly (1.1 to 2.2), as do the options serving Old Shasta/Keswick (1.5 to 2.6). The extension of the Burney Express to McArthur three runs per day (2.8) and Saturday Burney Express service (1.8 to 2.4) are in the middle range, while the Cottonwood microtransit service options range up to 3.4. In addition, reducing the Beach Bus service from four to three runs per day would eliminate 2.4 passenger trips per vehicle-hour.

Figure 47: Change in Ridership per Passenger Hour of RABA Rural Alternatives



For the options reducing existing service, a lower value reflects a "better" alternative in that it results in less ridership loss for every hour of service eliminated. Out of the options considered that would reduce the Burney Express service levels, the best alternative is to reduce the number of daily runs from three to two while keeping five days a week service, as this would result in the loss of only 2.1 passenger trips per vehicle service hour. Dropping service to three runs a day on three days a week would have the worst impact on productivity, causing a loss of 5.7 passenger trips per vehicle hour.

Note that extending the Burney Express to McArther and simultaneously reducing the number of daily runs from three to two results in no net change in ridership, therefore it cannot be evaluated by this measure.

Operating Cost per Passenger Trip

A good measure of cost-effectiveness is the operating cost incurred for every additional passenger trip. For alternatives that increase operating costs, a lower value reflects a better alternative. Given this consideration, of the alternatives that increase operating costs, the best alternatives are the one day a week service options to Shingletown ($18 per additional passenger trip) and Cottonwood microtransit service one day a week ($20). Service options to Happy Valley have the highest cost per passenger trip ($39 to $78) followed by service to Old Shasta/Keswick ($30 to $51). For alternatives that reduce operating costs, the best option would be to reduce the Burney Express to two daily runs in each direction with five days a week service, which would save $46 in operating costs for every passenger trip lost. On the other end, maintaining the existing three Burney Express runs a day but cutting service to three days a week only saves $17 for every passenger trip lost.

Operating Subsidy per Passenger Trip

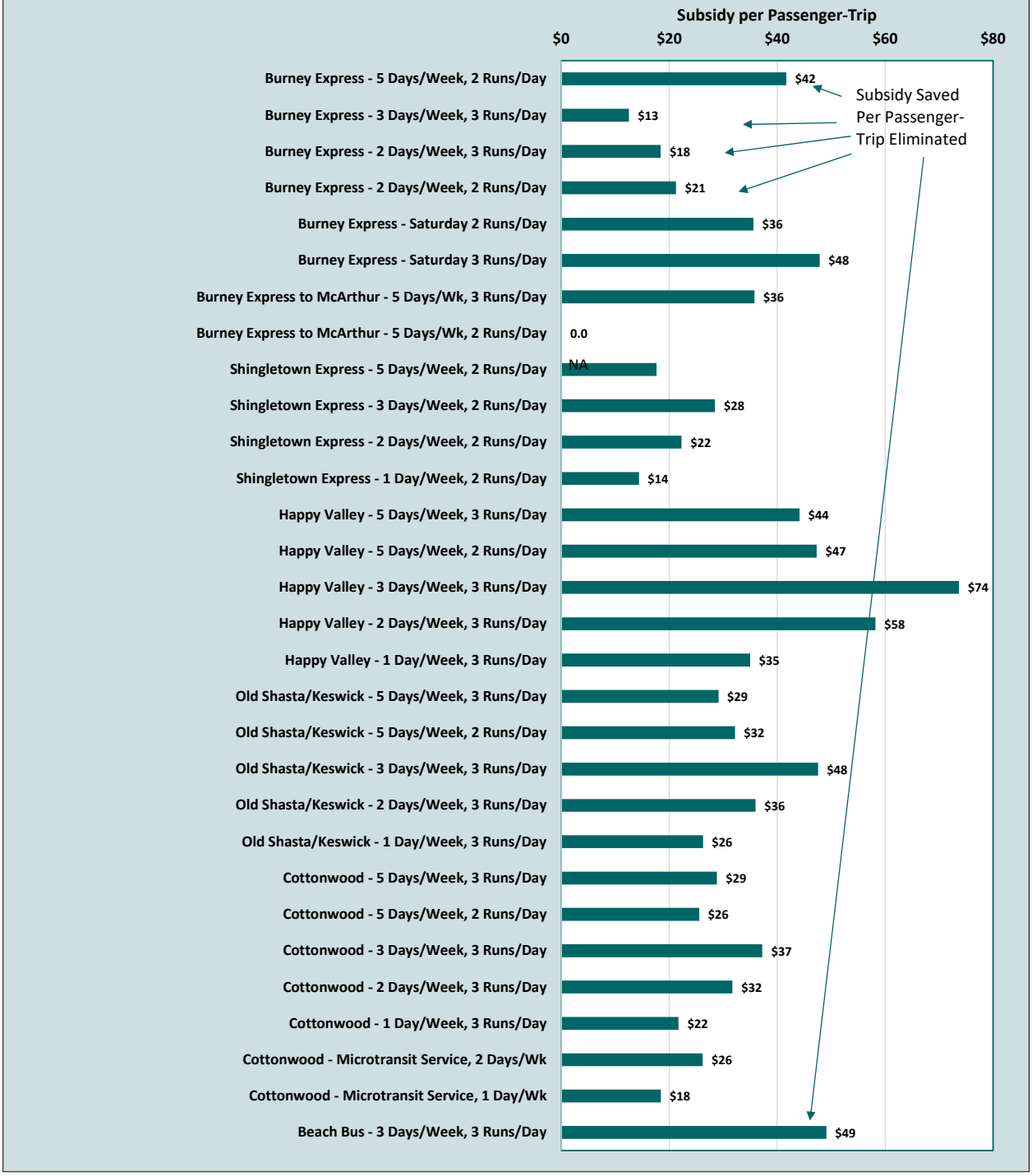
The best measure of financial efficiency is the operating subsidy per passenger trip, as it directly relates the key "input" to public transit (public operating funding) to the key "output" (ridership). Of the options that increase subsidy needs and ridership, it is better to have a lower additional subsidy per passenger trip. As shown in Figure 48, of the options that increase ridership, the operating subsidy per additional passenger trip would range from a low of $14 (one day a week service to Shingletown) to a high of $74 (3 days a week service to Happy Valley). One day a week of microtransit service in Cottonwood would also generate a relatively low subsidy per trip of only $18. For those options reducing Burney Express service, the best alternative would be to reduce the number of daily runs to two in each direction on five days a week, which would save $42 in operating subsidy per passenger trip lost. Reducing Burney Express to three daily runs, three days per week would yield the smallest amount of savings, only saving $13 per passenger trip lost.

Conclusions

The key conclusions of this performance review are as follows:

- Based on the three performance measures evaluated, the relatively best options are service to Shingletown and Cottonwood. Of the various alternatives analyzed for each zone, the best options are for either one day a week (which tends to concentrate ridership within fewer hours of service) or five days a week service (which would serve regular work or school trips).

Figure 48: Change in Annual Marginal Operating Subsidy per Passenger Trip of RABA Rural Alternatives



- The extension of microtransit service to Cottonwood one or two days a week is a relatively productive option that provides an opportunity to incrementally expand service, making it the best way (at this time) to provide service to Cottonwood.
- The poorest performing options are the alternatives that would provide service to Happy Valley or to Old Shasta/Keswick.
- The options to expand Burney Express service either by providing Saturday service or extending the route to McArthur are in the middle range of performance results.
- Extending service to McArthur while also reducing the daily runs to two in each direction has the benefit of reducing overall costs while resulting in no net change in ridership (though it would reduce some ridership among existing passengers between Burney and Redding).
- If there is a need to reduce Burney Express costs, it would be preferable to maintain the service five days a week and cut the number of daily runs to two in each direction, rather than cutting the number of service days.

OTHER ALTERNATIVES

Volunteer Driver/Transportation Reimbursement Program

Rather than modify the Burney Express, the service could be eliminated altogether and replaced with a volunteer driver program. Volunteer driver programs are often used by transit agencies to serve residents who require extra assistance or who live in hard-to-serve rural areas There are a few ways volunteer driver programs are typically structured:

1. True volunteer programs, where the driver provides transportation to passengers using their own vehicle with no or nominal reimbursement.
2. Transportation reimbursement programs, where the passenger selects a driver of their choosing (either someone known to the passenger or someone from a list provided by the program), and the driver is reimbursed at a per-mile rate using their own vehicle.
3. Supported volunteer programs, where volunteer drivers are recruited and/or vehicles are provided by a public or non-profit entity.

Considering the geography and distribution of communities in rural Shasta County, establishing a driver reimbursement program would be the most effective approach. By providing financial compensation to the volunteer drivers, those in need feel more comfortable asking for a ride and those who are volunteering feel more willing to commit. A benefit of driver reimbursement programs is that the sponsoring agency, in this case RABA, is not responsible for assigning drivers for specific trips. Having people use their personal vehicles for a reimbursement program also helps to avoid potential liability issues associated with untrained drivers using agency vehicles. Transportation Development Act funding or FTA 5310 grants could be used to sponsor a rural Shasta County driver reimbursement program.

Other nearby volunteer driver reimbursement programs include the Area 1 Agency on Aging Volunteer Driver Program in Humboldt County, the Tuolumne Trip Program in Tuolumne County, and the MyRides program in western Placer County.

A review of these three programs provides additional data that can be used to estimate how replacing the existing Burney Express with a volunteer driver program would impact ridership along SR 299. All three of the counties mentioned have volunteer driver reimbursement programs that have some sort of limitation on ridership, meaning that the programs are only available for senior adults, disabled, etc. Considering the programs' typical annual ridership before the COVID-19 pandemic and the total transit-dependent population living in each eligible service area, the three peer programs were found to have a ridership rate of 0.03 annual passenger trips per resident. Based on published budgets for the three programs, the average fully allocated operating cost per trip was $46.28.

Applying the per capita ridership figure to the total existing Burney Express corridor population reveals that if such a program were to be implemented, the estimated ridership would be 279 passenger trips per year. That estimate assumes the program would be available to all residents; if the program were limited to just the transit-dependent, it would serve less than 250 passenger trips annually. The total program cost for RABA, including reimbursement fees and administration, would be around $13,000 annually. While this would represent a substantial decrease in costs from the status quo fixed route service, the vast majority of existing ridership would be lost (-97 percent). Therefore, replacing the Burney Express with a volunteer driver reimbursement program is not recommended for further consideration.

FUNDING FOR EXISTING RABA SERVICE IN RURAL AREAS

There are multiple RABA services which operate outside of the 2020 urbanized area boundary in addition to the Burney Express and the Beach Bus. As such, the portion of these routes in non-urbanized areas could potentially be eligible for FTA Section 5311 Formula Grants for Rural Areas funding. Figure 49 shows RABA services in reference to the 2020 urbanized area boundary, and Table 40 presents an evaluation of the seven fixed routes (Routes 1, 3, 9, 12, 15, the Beach Bus, and the Burney Express) that operate outside the urban area boundary. For each of the routes, the proportion of the route operating in rural areas was measured and applied to the existing fully allocated operating cost. As indicated, in total RABA operates 120,229 vehicle-miles of service in rural areas each year, expending $784,000 in operating costs.

In addition to fixed route services, RABA currently provides Demand Response paratransit service beyond the urban area boundaries. As shown in Figure 49, there are many areas where this service is provided, including southwest and southeast Redding, northwest Shasta Lake, along SR 273 and along Shasta View Drive. While detailed data regarding the amount and cost of service into these non-urban areas is not available, this is further justification for allocating rural funds for RABA services.

ALTERNATIVES FOR IMPROVED COORDINATION WITH OTHER PUBLIC TRANSIT SERVICES

Several other public transit services provide service in Shasta County and thus provide a possibility for coordination opportunities to better serve rural Shasta County residents. This section summarizes opportunities for enhanced coordination that could benefit rural Shasta County residents. A summary of ridership and service levels is shown in Table 41.

Figure 49:
Existing RABA Transit Services and Redding Urbanized Area

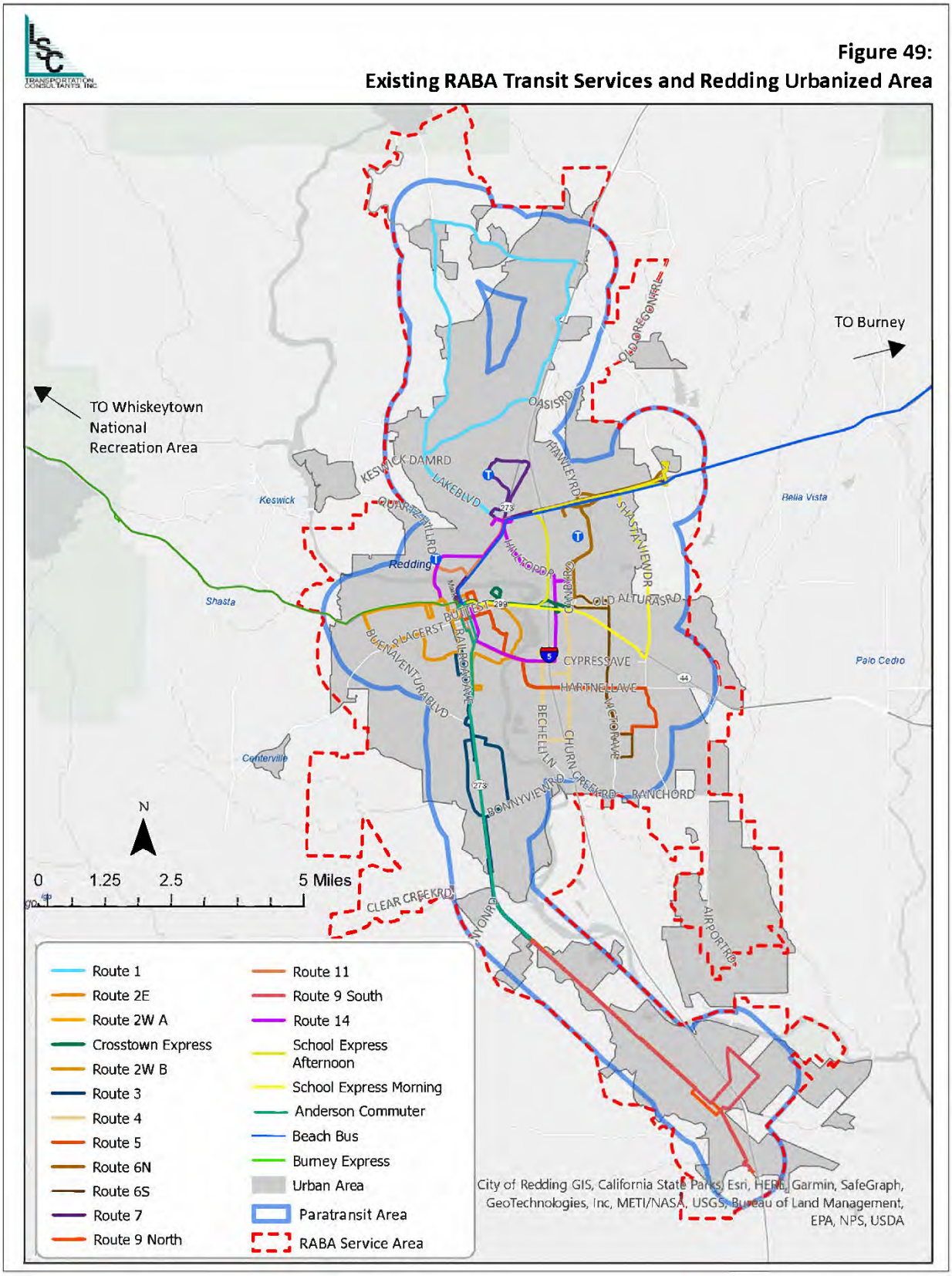


Table 40: RABA Fixed Route Service in Rural Areas

Route	Total Annual Service			Round-Trip Route Length			Annual Rural Service		
	Revenue Hours	Revenue Miles	Fully Allocated Operating Costs	Total	In Rural Area	% of Route in Rural Area	Revenue Hours	Revenue Miles	Fully Allocated Operating Costs
1 Shasta Lake	4,153	82,964	$734,997	20.4	1.5	7%	305	6,100	$54,000
3 South Redding	3,845	62,724	$658,670	16.3	2.0	12%	472	7,696	$80,800
9 City of Anderson	2,261	43,004	$396,800	27.4	2.0	7%	165	3,139	$29,000
12 Anderson Commuter	387	5,888	$65,637	13	3.3	25%	98	1,495	$16,700
15 Airport Express	3,070	77,182	$567,880	25.9	6.7	26%	794	19,966	$146,900
19 Beach Bus	180	4,230	$32,692	25.4	20.4	80%	145	3,397	$26,300
TOTAL							**1,979**	**41,793**	**$353,700**

Trinity Transit

Trinity Transit operates a service between Weaverville and Redding, referred to as the Redding Route. This consists of 2 roundtrips per day on weekdays only. Schedule times serve Shasta County residents along SR 299 West (including French Gulch and Old Shasta) traveling to and from Redding.

Currently, Trinity Transit pays for all student fares, including those students who reside in Shasta County. Given limited transit funding and the end of COVID-relief funding this fiscal year, Trinity Transit may no longer be able to pay for Shasta County students who rely on the Trinity Transit Redding Route to attend class. RABA could enter into a fare agreement with Trinity Transit to subsidize these students' fares ($4 per boarding). While ridership data at individual stops is not available, Trinity Transit indicates that ridership at the stops west of Redding in Shasta County is very low. In addition, this service could be better marketed within Shasta County as a means of serving the SR 299 corridor communities.

One other strategy considered for Trinity Transit was changing the schedule for the first AM arrival time at the Redding Downtown Transit Center (at 8:24 AM) to meet the RABA route pulse time at 8:20 AM. The Trinity Transit driver on this run is constrained by the schedule for a previous run and moving up this time is not possible. However, passengers have the option to be further carried to Canby Transit Center and Shasta College, so they have other options for connections to RABA routes.

Sage Stage

The Sage Stage Alturas – Redding service consists of a single westbound run from Alturas to Redding via SR 299 on Tuesday mornings, with a return trip in the afternoon. As the stay time in Redding is only 2 hours, it provides access to intercity services and overnight trips, but only limited usefulness for shopping, medical, or other one-day trips. It also is only operated if a ride request is received at least 24 hours in advance. Due to the limited one day a week service, the relatively high fare ($12 for a trip between Burney and Redding), and the availability of Burney Express service, this route has very limited usefulness to Shasta County residents. The long travel distance between the operating base in Alturas and Shasta County also makes it financially infeasible to expand service within Shasta County.

Table 41: Other Rural Services in Shasta County
FY 2022-23

Annual Performance Data and Indicators	Service: TRAX Shasta-Tehama Connection	Service: Sage Stage Alturas-Redding Route	Service: Trinity Transit Redding Route
Corridor	I-5 Cottonwood - Anderson	SR 299 East Redding - McArthur	SR 299 West Redding - French Gulch
Weekday Service	5 Round Trips per Day	1 Trip in Each Direction, Tuesdays Only, **On Request Only**	2 Round Trips per Day
Saturday Service	3 Round Trips per Day	--	None
Redding Arrival Times	--	11:15 AM	8:24 AM, 12:09 PM
Redding Departure Times	--	1:15 PM	10:15 AM, 3:30 PM
Anderson Arrival Times - Weekdays (1)	8:15 AM, 10:15 AM, 12: 15 PM, 4:15 PM, 6:15 PM	--	--
Anderson Arrival Times - Saturdays (1)	10:15 AM, 12:15 PM, 4:15 PM	--	--
Maximum Fare Within Shasta County	$2.50, Free for Children	$12, $9 for Seniors, Disabled, Children	$4, $3 for Seniors, Disabled, Children, Veterans
Annual Passengers	3,210	174	2,672
Annual Vehicle Service Miles	57,834	15,305	44,132
Annual Vehicle Service Hours	2,184	439	1,343
Passenger-Trips per Hour	1.5	0.4	2.0
Passenger-Trips per Mile	0.06	0.01	0.06

Sources: TRAX, Sage Stage, Trinity Transit
Note 1: Anderson departures 5 minutes after arrival times.

TRAX

The Tehama Regional Area Express (TRAX) service operates a route from Red Bluff to Anderson (Walmart) with a stop in Cottonwood just south of the Shasta/Tehama County line. Five runs a day are provided on weekdays in each direction and three runs on Saturdays. At present, this route provides very limited potential service for Shasta County residents, given the limited stops. Two options for expanding service were considered:

- Additional stops could be served in Cottonwood along the existing route corridor, such as stops at the library and the mobile home parks on the north side of town. This would add a few minutes of travel time to the existing schedule, which could be accommodated while still providing adequate driver breaks. TRAX may be open to this possibility, but it would require financial funding from Shasta County sources that would need to be determined through discussions.

- The TRAX service could be extended north of Anderson to provide an express service to the Canby Transfer Center and Shasta College three times per weekday. This could also provide express service to Shasta College for residents of Anderson and Cottonwood. This extension would require TRAX to operate an additional 756 service hours and 25,704 service miles annually, for an estimated operating cost of $72,100. However, TRAX management indicates that the organization currently does not have the driver staff needed for this additional service.

SERVICE RECOMMENDATIONS

Based on the analyses presented above, the following strategies have the highest potential:

- Shingletown Express service operated five days a week, with two round trips per day in each direction.
- Expansion of Anderson microtransit service to serve Cottonwood two days per week (such as Tuesdays and Fridays). If ridership is warranted, service could be expanded to other days of the week.
- Provision of Burney Express service on Saturdays (2 roundtrips per day) is "on the cusp", as it would generate only 2.4 passenger trips per vehicle-hour. It also may be difficult for the contractor to staff. Also on the cusp is the extension of the Burney Express eastward to McArthur.
- If subsidy savings are needed to fund expansions, the best strategy would be to cut the existing Burney Express service to two runs per day in each direction (essentially combining the two mid-day round trips) while keeping the service in operation five days a week. This could generate $62,500 in annual operating subsidy for other services at a modest (1,500 passengers) reduction in ridership. Cutting the Beach Bus to 3 roundtrips per day would also be a means of generating more savings ($5,400) with a modest impact on ridership (110).
- Expanding the marketing of the Trinity Transit services between the 299 West area and Redding as well as potentially subsidizing bus fares could be an effective means of increasing transit use in this corridor without the costs of adding RABA services. Coordinating with the TRAX service to add stops in the Cottonwood area (along with some level of financial support) could also cost-effectively expand ridership.
- Finally, consideration should be given to using 5311 funding to support the rural service areas served by RABA Routes 1,3, 9, 12, 15, the Beach Bus, and the Burney Express, as well as Demand Response service.

MANAGEMENT ALTERNATIVES

Transit services in Shasta County have long been split between urban services (under the RABA umbrella) and rural services (managed by SRTA). With ongoing growth in the rural areas and changes in existing funding programs, this is proving to be increasingly inefficient from a regional perspective. Specific issues resulting from the current institutional structure include:

- Transit grants management and reporting are tasks that require detailed knowledge and experience. Currently, there is a need to duplicate these positions at both RABA and SRTA.

- The current split complicates the annual claims process and requires additional contracting and reporting steps.
- The current division between "urban" Demand Response service (some of which is provided in rural areas) and the rural ShastaConnect services (which travel in and out of urban areas) precludes the consolidation of services to reduce overall costs and fleet needs.

An alternative would be to expand RABA to encompass all of Shasta County, allowing RABA to take on some of the functions currently required of SRTA. With consolidation of transit functions, RABA would be responsible for the following:

- Prepare all transit grant applications and claims, including Federal funding programs and state programs (including ZEB).
- Conduct all transit reporting to federal, state, and local agencies.
- Manage all required TDA audits

This strategy has the potential to reduce overall transit-related management and operating costs, while making the best use of federal and state funding sources. As a result, LTF funding available for local streets and roads uses could be maximized. Examples from around Northern California indicate that a comprehensive countywide transit organization provides the most effective overall institutional arrangement, as evidenced by the organizations managing the transit programs in Butte, Tehama, Glenn, Yolo, Yuba/Sutter, El Dorado, Lassen, Modoc, Siskiyou, Lake, Mendocino, Del Norte, and Nevada Counties.

Chapter 8

REVIEW OF POLICIES AND PERFORMANCE STANDARDS

INTRODUCTION

RABA is a public agency guided by its mission to "provide efficient and reliable service to the transportation disadvantaged while maximizing revenue through service to demand intensive origins and destinations and fostering partnerships with providers of basic human services" (RABA SRTP, 2014). As RABA receives public funding to achieve its mission, the agency's adopted goals and standards are an important tool for communicating to the public how effectively RABA is spending public funds.

Goals and performance standards are organizational tools often utilized by transit agencies to guide decision-making regarding potential policy or service changes. A transit agency's goals should reflect the local community's priorities and values. The associated performance standards for each goal can then be used to assess whether the transit agency is achieving said goals and serving the community well. Evaluating transit operations with performance standards can encourage conversations about whether policy or service changes are warranted.

It is important for a transit agency to regularly reevaluate its goals and standards. This is especially true in the wake of the COVID-19 pandemic, as standards may need to be modified to measure performance more appropriately. New standards may also be merited for any new services implemented in recent years. In this chapter, RABA performance is evaluated based on proposed performance standards, which were derived from those previously adopted in the 2014 SRTP.

SUMMARY OF RABA GOALS AND STANDARDS

2014 RABA Short-Range Transit Plan

The 2014 RABA SRTP described five goals and associated performance standards that were later adopted by RABA. The goals were adopted with the understanding that fiscal constraints may restrict RABA's ability to achieve each goal. Ongoing monitoring of RABA's performance in relation to each goal was encouraged. The five goals included in the 2014 SRTP were:

1. "Continue to provide safe transportation services to the residents of the RABA service area.
2. Provide convenient transit service in the RABA service area for employment, shopping, education, and social service trips, so long as service can be provided in a cost-effective manner and is affordable within available financial resources.
3. Ensure that all transit programs can be provided at a high quality of service. Quality of service is more important than expansion of service.
4. Provide an effective level of service in response to demonstrated community market needs.
5. Provide public transportation services that are financially sustainable within existing local, state, and federal funding programs and regulations in a cost-efficient manner."

The 2014 SRTP recommended both minimum and target performance standards for each of the respective goals, resulting in a range for what is considered good performance. In addition to systemwide standards, the 2014 SRTP also recommended specific performance standards for the local, intercity, special, and paratransit services. This 2023 SRTP recommends updating the standards from the 2014 SRTP.

RABA PERFORMANCE REVIEW

RABA performance, both systemwide and by service, was analyzed in Chapter 3. RABA's FY 2021-22 performance is considered in this section in reference to the newly proposed performance standards. The new performance standards are based off standards adopted in the 2014 SRTP and are therefore intended to measure RABA's progress towards the previously adopted goals. Some of the standards are unchanged from the 2014 SRTP. The standards which were updated were designed to better reflect the transportation setting post-pandemic, and to measure the performance of each of the different types of services more specifically.

This SRTP recommends only adopting minimum performance standards (rather than both minimum and target standards) to make monitoring easier. Microtransit standards are also included in case RABA implements new microtransit services during the planning period. Standards eliminated since the 2014 SRTP include the cost per vehicle service mile and farebox recovery ratio. These changes are in line with the State of California policy, which suspended Transportation Development Act (TDA) farebox requirements in 2020 during the pandemic. Tables 42, 43, and 44 compare RABA's FY 2021-22 performance with the newly proposed performance standards. The following is a brief overview of the data presented:

- An obvious aspect of providing a safe transit service is to minimize the number of total accidents. It is recommended RABA maintain the 2014 standard to operate a minimum of 100,000 miles between accidents. In FY 2021-22, RABA met this standard (Table 42).
- Another component of operating a safe transit service is to minimize the number of road calls. The recommended standard (now and previously) is to operate a minimum of 10,000 miles between road calls. RABA met the standard in FY 2021-22 (Table 42).
- To ensure that RABA operators are as capable and prepared as possible, RABA adopted a standard of 100% compliance with the employee section, drug testing, and training requirement included in the operator contract. It is recommended that RABA continue to maintain this standard for the training and safety plan. RABA was in 100% compliance with this standard in FY 2021-22 (Table 42).
- RABA service hours should include the times when people most often need to travel. It is recommended that RABA continue to provide service from 7 AM to 6 PM on weekdays to help people get where they need to go. RABA met this standard in FY 2021-22 (Table 42).
- Service frequency can either encourage or discourage people from riding the bus. This SRTP recommends RABA keep the 2014 SRTP standards for service frequency. As of FY 2021-22, RABA met the minimum standards for service frequency for the local, intercity, and commuter routes (Table 42).

Table 42: Recommended RABA Safety and Service Area Goals and Standards

Shading Indicates Does Not Meet Standard
Shading Indicates Meets Standard

1. PROVIDE SAFE PUBLIC TRANSIT SERVICE		
Total Accidents		
Service	**Proposed Standard**	**Current Status**
Systemwide	100,000 miles between accidents	Meets Standard

Road Calls		
Service	**Proposed Standard**	**Current Status**
Systemwide	10,000 miles between roadcalls	Meets Standard

Training and Safety Plan		
Service	**Proposed Standard**	**Current Status**
Systemwide	100% compliance with the employee selection, drug testing, and training requirement included in the operator contract.	Meets Standard

2. PROVIDE PUBLIC TRANSIT SERVICE TO ESSENTIAL AREAS AT ESSENTIAL TIMES		
Service Hours		
Service	**Proposed Standard**	**Current Status**
Systemwide	7 AM - 6 PM (Weekdays)	Meets Standard

Service Frequency		
Service	**Proposed Standard**	**Current Status**
Local[1]	60 minutes minimum	Meets Standard
Intercity[2]	60 minutes minimum	Meets Standard
Commuter[3]	Peak	Meets Standard

Note 1: Local services include routes operating within one city (ex. Route 6)
Note 2: Intercity services include routes operating between two cities (ex. Routes 1 and 9)
Note 3: Commuter services include the Anderson Commuter, School Express, and Crosstown Express services

Source: RABA 2014 SRTP, RABA performance data.

- On-time performance is an important indicator of service quality. It is recommended that RABA adopt a standard of 95 percent of fixed route buses being on time (leaving timepoints within 5 minutes of scheduled times). RABA should also maintain its on-time performance standard for paratransit of 90 percent of rides being served within the 30-minute pick-up window. Both recommendations are consistent with industry standards. If RABA implements microtransit, the paratransit on-time performance standard should be applied to microtransit. Based on FY 2021-22 operations, only 86 percent of the fixed routes were on-time (Table 43). On the other hand, 92 percent of the paratransit vehicles were on time, meeting the standard.

Table 43: Recommended RABA Quality and Effectiveness Goals and Standards

Shading Indicates Does Not Meet Standard
Shading Indicates Meets Standard

3. PROVIDE HIGH QUALITY PUBLIC TRANSIT SERVICE		
On-Time Performance		
Service	**Proposed Standard**	**Current Status**
Fixed Routes (All)	90% on time	86%
Paratransit/Microtransit[1]	90% on time	92%

Customer Satisfaction Survey		
Service	**Proposed Standard**	**Current Status**
Customer Satisfaction Survey[2]	3.5 on a scale of 1 to 5	4.3

4. PROVIDE EFFECTIVE PUBLIC TRANSIT		
Passenger-trips per Revenue Hour		
Service	**Proposed Standards** Minimum	**Current Status**
Local[3]	10.0	9.1
Intercity[4]	7.0	7.3
Commuter[5]	7.0	4.2
Paratransit	3.0	2.6
Microtransit	4.0	NA
Rural	3.0	3.7
Systemwide	10.0	7.4

Passenger-trips per Revenue Mile		
Service	**Proposed Standards** Minimum	**Current Status**
Local[3]	1.1	0.65
Intercity[4]	0.60	0.38
Commuter[5]	0.60	0.27
Paratransit	0.17	0.15
Microtransit	0.17	NA
Rural	0.10	0.11
Systemwide	0.60	0.48

Note 1: Microtransit standards included in case microtransit service is implemented after the adoption of the SRTP
Note 2: Passenger surveys should be conducted every other year and include ranking for overall satisfaction. Rankings are: 1 =
Note 3: Local services include routes operating within one city (ex. Route 6)
Note 4: Intercity services include routes operating between two cities (ex. Routes 1 and 9)
Note 5: Commuter services include the Anderson Commuter, School Express, and Crosstown Express services

Source: RABA 2014 SRTP, RABA performance data.

- RABA should continuously strive for high levels of customer satisfaction. Customer satisfaction can be assessed by surveying passengers. In surveys, RABA should strive for customers ranking the service an average of 3.5 out of 5, with 5 being "excellent." Based on the onboard survey effort conducted for this 2023 SRTP, passengers ranked the overall RABA service 4.3 out of 5, exceeding the minimum standard (Table 43). RABA should survey passengers every other year to continue monitoring customer satisfaction. The onboard survey is discussed in detail in Appendix D.

- Passenger trips per vehicle revenue hour measures a transit system's productivity. For this metric, it is recommended that RABA evaluate the local, intercity, commuter, and paratransit services separately, as well as consider the system as a whole. The newly proposed minimum standards for each service category are shown in Table 43. As evidenced by the table, neither the RABA system nor any of the specific RABA services, except for the intercity routes, met the minimum standards for passenger trips per revenue hour in FY 2021-22. This was primarily due to low ridership levels during the COVID-19 pandemic. The local routes carried the greatest number of passengers per vehicle revenue hour (Routes 2, 3, 4, 5, 6, 7, 11, and 14), followed by the intercity routes (Routes 1 and 9).
- Passenger trips per vehicle revenue mile is another way to measure transit productivity. RABA should evaluate the number of passengers per vehicle revenue mile by service category: local, intercity, commuter, and paratransit services. Table 43 shows the newly proposed standards for passengers per vehicle revenue mile. Once again, low ridership during FY 2021-22, primarily due to the pandemic, caused RABA to not meet the minimum systemwide standard for this metric. None of the services met their respective minimum standards either. The routes that carried the most passengers per vehicle revenue mile were also the local routes (Routes 2, 3, 4, 5, 6, 7, 11, and 14), followed by the intercity routes (Routes 1 and 9).
- Marginal operating cost per passenger trip is an indicator of how effectively transit funds are being utilized. The proposed standards for this metric are shown in Table 44. Both the local (Routes 2, 3, 4, 5, 6, 7, 11, and 14) and intercity routes (Routes 1 and 9) met their respective minimum standards, while the other service types did not.
- Marginal operating cost per vehicle revenue hour is a key indicator of a transit system's cost efficiency. Rather than compare RABA's performance to peers, as recommended in the 2014 SRTP, this SRTP proposed that RABA compare changes to the systemwide marginal operating cost per vehicle revenue hour to the California Consumer Price Index (CPI). RABA would be considered to meet the performance standard for this metric if the systemwide marginal operating cost per vehicle revenue hour increases at the same or a slower rate as the CPI.

SUMMARY

RABA met or exceeded almost all performance standards related to safety, service span and coverage, and service quality in FY 2021-22. This demonstrates that RABA is providing high quality and useful transit services for residents in the RABA service area. RABA has consistently prioritized providing productive and financially efficient services rather than expansive services, however, changing conditions for public transportation since the COVID-19 pandemic have negatively impacted transit ridership. This has made it challenging for many transit agencies, including RABA, to meet performance standards for metrics such as passenger trips per vehicle revenue hour, passenger trips per vehicle revenue mile, and farebox ratio.

The newly recommended performance standards included in this chapter consider the impacts of the COVID-19 pandemic on transit, but also suggest that RABA should continue to focus on recruiting riders to the bus system. The updated performance standards should be used throughout the five-year planning period to assess RABA's continued recovery from the COVID-19 pandemic and whether more service changes are needed in the future.

Table 44: Recommended RABA Cost Efficiency Goals and Standards

Shading Indicates Does Not Meet Standard
Shading Indicates Meets Standard

5. PROVIDE COST EFFICIENT SERVICES		
Marginal Operating Cost per Passenger Trip (Weekdays)		
Service	**Proposed Standards** Maximum	**Current Status**
Local	$7.00	$6.06
Intercity	$10.00	$9.59
Commuter	$12.50	$15.50
Paratransit	$26.00	$26.31
Microtransit	$26.00	--
Rural	$20.00	$30.00
Systemwide	$8.00	$8.75

Marginal Operating Cost per Vehicle Revenue Hour[1]		
Service	**Proposed Standard**	**Current Status**
Systemwide	Cost Increases at Same Rate or Slower than the CA Consumer Price Index	--

Note 1: The recommended standard for marginal operating cost per vehicle revenue hour is that the cost increases at the same rate as the California Consumer Price Index (CPI) or at a slower rate. This should be evaluated annually.

Source: RABA 2014 SRTP, RABA performance data.

DEMAND RESPONSE PERFORMANCE

RABA demand response is provided according to the requirements of the ADA. Eligible passengers call dispatch to schedule rides, then the passenger and dispatch negotiate a pick-up time. If a pick-up time is agreed upon, the trip will be scheduled, and passengers will be ready to get picked up within their 30-minute pick-up window.

The ADA requires transit agencies have no capacity constraints for ADA paratransit services, meaning there should be no operational practices or patterns that limit the availability of paratransit for eligible passengers. RABA has developed a thorough monitoring framework to minimize capacity constraints and to improve the quality of its paratransit service. For instance, RABA tracks on-time performance, call wait times, and the number of excessively long trips (trips more than 25 percent longer than comparable fixed route trips) to ensure the paratransit service is easy to use, timely, and able to serve as many passengers as possible.

Considering these metrics, RABA's paratransit service has performed well in recent years. Over 92 percent of trips were on-time (vehicles arrived within the 30 minutes pick-up window) in FY 2021-22, as discussed in Chapter 3. In 2020, over 95 percent of calls were taken within 180 seconds and only 0.2 percent of trips were considered excessively long. Other paratransit metrics monitored by RABA are shown in Table 45, which shows the final status of all paratransit trips requested in FY 2021-22.

According to the data, most requested paratransit trips (72 percent) were scheduled successfully with no additional issues.

Denials refer to trips that were unable to be scheduled within the rider's preferred pick-up window but still scheduled, trips that were able to be scheduled within the rider's preferred pick-up window but refused by the passenger, and trips that were unable to be scheduled at all due to capacity issues. RABA aims for less than 1 percent of total paratransit trips resulting in denials. In FY 2021-22, RABA met this standard, with only 0.5 percent of trips ending up as denials.

Over 17 percent of requested trips were cancelled by passengers in FY 2021-22. Unfortunately, 6 percent of the total requested trips in FY 2021-22 were "late cancels", or trips cancelled within one hour of the scheduled pick-up time. Late cancels negatively impact RABA's ability to provide paratransit services to as many people as possible. RABA monitors the number of trips considered to be late cancels for each customer, as well as the number of times the customer was a no-show for a trip. No-shows are when the passenger never arrived for their scheduled ride and never cancelled their ride with RABA. 5 percent of paratransit rides in FY 2021-22 were no-shows.

Table 45: RABA Demand Response Trip No-Shows and Cancellations
FY 2021-22

Trip Status	#	% of Total Requested Trips
Wait List	4	0%
Standby	12	0%
Cancels	5,435	17%
No-Fault Cancels	78	0%
Late Cancels	1,789	6%
No-Shows	1,430	5%
No-Show/No-Fault	17	0%
Client Denied/Refused		
Trip Overlap	51	0%
Refused Scheduled Ride	30	0%
Refused Negotiated Ride	21	0%
Trip Not Scheduled - 3/4 Mile Check Overridden	3	0%
Trip Not Within 3/4 Mile	15	0%
Capacity Failure	47	0%
Total Scheduled Trips	22,721	72%
Total Requested Trips	**31,486**	**100%**

Source: RABA, LSC

RABA should continue to enforce its Demand Response No-Show Policy to deter passengers from consistently no-showing or cancelling paratransit rides late. Currently, RABA maintains a database of paratransit rider information that staff regularly update with no-show/late cancel information. If a significant percentage of a passenger's total paratransit rides have resulted in either a no-show or late cancel status, then RABA notifies the passenger, and they may be penalized.

RABA has nine adopted strategies for reducing the number of no-shows, which should continue to be practiced in order to improve the capacity of the paratransit service. These strategies include:

1. Capture and record special pickup instructions and make sure they get to the driver.
2. Attempt to locate the rider rather than just waiting 5 minutes and pulling away.
3. Designate pickup locations at large facilities that can be used as meeting points.
4. Manage no-shows through dispatching process.
5. Track changes made on day-of-service, and adjust subsequent trips as needed.
6. Educate riders about pickup windows, wait time policy, importance of being ready and looking for vehicle, and need to cancel riders ASAP when plans change.
7. Consider rider call outs.
8. Work with riders to address causes of no shows.
9. Coordination with social service agencies (lack thereof is the leading cause of no-shows).

Chapter 9

FARE POLICY REVIEW AND RECOMMENDATIONS

EXISTING FARE STRUCTURE

The RABA SRTP includes an evaluation of the fare structure and related policies for RABA services to ensure that the fare system is effective and efficient for both the operations of RABA service and the customer experience of transit riders in the RABA Service Area. The current RABA fare structure was presented in Chapter 3.

BEST PRACTICES

The SRTP process is an opportunity to align the fare structure and policies of RABA with an established set of goals. In the 2019 report "A Fare Framework: How Transit Agencies Can Set Fare Policy Based on Strategic Goals," researchers from TransitCenter illustrate the importance of an agency defining the goals of its fare policy and using these principles to guide the fare structure. By establishing goals during the SRTP process, RABA can better achieve the desired performance outcomes for both operations of and the passenger experience. As the public transit industry is currently accepting new best practices associated to the fare policies and structure, RABA is able to adapt and incorporate the new policies for its own system without necessarily changing the stated objectives of the agency's fare policies.

Policies

i. Goals

Based on the results of the onboard survey as well as research conducted during the analysis phase of the SRTP, there are a number of proposed goals for RABA's revised fare policy. The new fare policies should:

a. Maintain affordable fare structure to encourage ridership.
b. Attract new riders that will continue to use the system throughout their lifetimes.
c. Be easy to understand.
d. Generate enough revenue to invest in improvements.
e. Guarantee fare payment and revenue collection is effective and efficient for the service.
f. Be tailored to the service changes as part of the latest SRTP and ensure that the types and levels are commensurate with quality or value of service.
g. Be forward-looking and position RABA to anticipate and adopt industry best practices and future technology.

ii. Policies

The goals above form the basis of the proposed list of policies that will govern the recommended fare structure for RABA:

1. Allow riders to make unlimited transfers over a two-hour period to complete their journeys.

2. Reduce unnecessary barriers to riding transit by removing passes that are unaffordable or confusing to riders.
3. Maintain and extend the existing free-fare programs.
4. Be able to adapt to advances in industry best practices and technology.

FARE REVISIONS

The RABA fare structure is currently based on a zone system consisting of three zones: Redding, Shasta Lake, and Anderson. As detailed in Chapter 3, the base fare is $1.50 per boarding within a zone. When trips go beyond one zone, each additional zone costs an additional $0.75. Seniors and persons with disabilities or on Medicare are charged $0.75 as a base fare plus $0.35 for additional zones. No discount is provided for youth, but children 5 years of age or less ride for free. Transfers are provided for free. Punch passes are available (that do not provide a fare discount). Monthly passes are also available. These fares were established in 2006.

The following factors were considered in defining modifications to the fare structure:

- Currently, there is a trend among transit systems to simplify fare structures and use fares to encourage connectivity between services. In particular, the zone system complicates RABA operations in several ways. The boarding process is slowed as passengers figure out the required fare, and the potential for conflict between passengers and drivers is increased. Tracking and accounting fares by zone requires additional staff time in the office. Finally, uncertainty regarding the required fares is another hurdle that may dissuade potential first-time transit riders. To eliminate the zone charges, it is recommended that the base fare be increased to $2.00 for the general public, and to $1.00 for persons eligible for a discount (seniors, persons with disabilities, Veterans, and Medicare recipients). It is important to note that RABA's base fare was last raised (to $1.50) in 2006. In the intervening 17 years, the impact of inflation (per the Bureau of Labor Statistics) has been to increase overall prices by 54 percent. At that rate, the RABA base fare would need to be $2.30 today to be equivalent to its $1.50 value in 2006.
- It is recommended that one-way fares transition into a two-hour timed pass, which includes the option for riders to make transfers to other routes and services (e.g., from one fixed route bus to another fixed route bus) in order to complete their entire journey. The receipt for paying the base fare would indicate the date and time of expiration. It will also enable customers to trip chain (e.g., get off one bus to pick up a child at daycare then take the next trip to complete their journey). The risk of fare evasion from the availability of transfers is minimal, and it will only deter riders from riding RABA. Additionally, making the drivers focus on explaining and enforcing the transfer policy to reduce fare evasion can be a distraction, both reducing safety and increasing trip times.
- It is recommended that RABA expand its fare structure to include a Day Pass option for riders, which should be equivalent to the cost of two one-way fares: the cost would be $4.00 for all trips within the RABA service area (and $2.00 for persons eligible for a discount). The Day Pass would also be a popular offering for tourists and visiting students in the community that would be easy to understand. Most of the peer agencies in inland California offer a Day Pass option for riders, and the cost of which is generally around two times the price of a one-way fare, with some agencies offering a small discount for Day Pass purchases to incentivize their use.

- Punch passes slow the boarding process and require additional handling and accounting staff time. It is recommended that punch pass be eliminated in favor of other fare options.
- RABA should change the current monthly pass (provided on a calendar month basis) to a 30-day pass program valid for a 30-day period from the date of purchase. The cost of the 30-day pass should remain close to the current $48.25 but rounded to $50 ($25 for discount passengers) for ease of payment, and to slightly offset the fact that the pass will be valid throughout the entire urban route system. This will encourage more use of the monthly pass by allowing all passengers to get a full 30 days' worth of fares regardless of when they make the purchase. Given the proposed increase in base fare to $2.00, it provides a greater incentive to use the monthly pass, offsetting the impact of the base fare increase on those passengers making more regular use of the system. Fare capping can also charge riders the cost of a one-way fare (or day pass) until the rider has paid the cost of a monthly pass, at which point riders are not charged any additional fares and they are eligible to ride free for the remainder of the 30-day period.
- Transit systems are increasingly using technology to provide "tap on" boarding. All major public transit operators and an increasing number of smaller transit operators in California have implemented electronic, smart fare payment systems instead of paper fare media comparable to what is offered by RABA. This allows for transfers to be eliminated and replaced with passengers simply tapping on with a smart phone or contactless payment credit card as they board each bus, including connecting buses. This in turn allows a fare system based on an overall travel time window. A nearby example is the Humboldt Transit Authority, which uses this technology to provide boardings within a 2-hour window from the time of the first tap for $2.00. A recommended strategy is for RABA to join with the statewide effort and procurement process under the California Integrated Travel Project (Cal-ITP). Caltrans is leading this effort to establish a statewide open-loop fare payment system that allows passengers to pay for transit services using their contactless payment systems on their credit cards or smartphones (for example, with Apple Pay) without requiring the purchase of an agency-specific card (such as the Clipper Card for BART or the TAP Card for LA Metro). Aligning the efforts of the agency with the Cal-ITP process, would be the most efficient and realistic way to meet the goal to "*be forward-looking and position RABA to anticipate and adopt industry best practices and future technology*."
- There is an increasing understanding that providing free transit services for youth (up to age 18) can have various benefits. It helps to encourage transit use to and from schools (which can help school bell traffic issues), encourages youth to start a transit-riding habit that can last into adulthood, and can help finances among families with children.
- Among those offering free rides for youth in California are the Orange County Transportation Authority (OCTA), Sacramento Regional Transit District (SacRT), San Francisco Municipal Railway (Muni), and the Stanislaus Regional Transit Authority (StanRTA). In the San Diego area, all riders 18 and under ride both San Diego Metropolitan Transit System (MTS) and North County Transit District (NCTD) bus, train, and light rail services for free.

- A flat fare of $5 per boarding (along with day and 30-day pass options) is recommended for regional services such as Burney Express, rather than the existing distance-based fare. This reflects the fact that the cost of providing the service is the same regardless of the length of a passenger's trip, and to reduce the costs of fare management.
- While the Beach Bus service did not require a fare in 2023, in the long run a fare would be appropriate in order to not provide additional subsidy for discretionary trips than for more necessary trips, as well as the relatively long trip length and high cost of the service. As riders typically use this service for a round-trip excursion, fare handling and boarding could be made easier by simply offering a day pass to be shown in the outbound direction, with free boarding for return trips from the beach. Based on these factors, it is recommended that the Beach Bus require the same day pass fare as other RABA fixed routes and potential microtransit services.

Given these considerations, the recommended fare plan is summarized in Table 46.

Analysis of Fixed Route Fare Impacts

The impacts of the recommended fare revisions on ridership and revenues were evaluated as follows:

- FY 2022-23 ridership by fare type was drawn from the RABA GFI data.
- For cash and punch card boardings, the fare per boarding by category was taken from the existing fare schedule. Note that the punch card does not provide a discount.
- For passengers boarding using passes, it was necessary to estimate the average revenue per boarding. Stratagen and other accounting revenue data provided by the City of Redding were used with the annual boardings to identify the average fare per pass boardings.
- An elasticity analysis was then conducted to assess the impact of the proposed fare changes on ridership. Typically, transit ridership has decreased at a rate equal to 30 to 35 percent of the percent increase in fare (an elasticity value of -0.30 to -0.35). Given the demographics of RABA passengers, a relatively low value of -0.25 was applied.
- To evaluate the impact of the elimination of youth fares, the onboard survey conducted as part of this SRTP were reviewed. This indicated a low (1 percent) proportion of ridership 18 years of age or less, other than those riding on the School Express. There have been a number of studies on fare elimination, including *A Review of Reduced and Free Transit Fare Programs in California* (University of California Institute of Transportation Studies, January 2020), and *Implementation and Outcomes of Fare-Free Transit Systems* (Transportation Research Board, 2012). However, the information on ridership impacts of free fares for youth are largely anecdotal and indicate a wide range of impacts. A reasonable factor to apply to RABA is a 50 percent ridership increase associated with elimination of youth fares. This factor was applied both to those youth currently boarding using a Youth Pass, as well as a proportion of those boarding using other fare instruments.

Table 46: RABA Fare Recommendations

Fixed Route / Microtransit / Beach Bus				
Passenger Type	2 Hours [2]	1 Day Pass	7 Day Pass	30 Day Pass
General Public	$2.00	$4.00	$25.00	$50.00
Senior (62+ years), Vets, Disabled/Medicare [1]	$1.00	$2.00	$10.00	$25.00
Youth (0 -18)	Free	Free	Free	Free

Demand Response	1-Way Trip	10 Ride Pass		
All Passengers	$4.00	$40.00	--	--

Burney Express	2 Hours [2]	1 Day Pass	5 Day Pass	30 Day Pass
All Passengers	$4.00	$10.00	$50.00	$100.00

Note 1: Seniors (62+ years), Veterans, persons with disabilities, and persons presenting a Medicare card are eligible for half fare with proof of eligibility (i.e., ID card or driver's license, RABA Disabled ID Card, and/or Medicare card).

Note 2: 2 Hour passes on both RABA fixed routes and the Burney Express would include transfers.

- Paratransit ridership level is relatively insensitive to modest changes in fare levels, reflecting that paratransit riders have fewer mobility options. In addition, a substantial proportion (35 percent) of existing paratransit riders are Far Northern Regional Center clients, who are not directly affected by a change in fares. It is assumed that FNRC ridership would not change with the change in paratransit fares.
- Studies have shown that transit riders making recreational trips are relatively insensitive to fare changes. This is due to the fact that an individual rider does not make a recreational trip on a regular basis (as they do for work, shopping, etcetera). The $4 day pass fare on the Beach Bus is estimated to result in a 20 percent reduction in demand.
- The ridership with the fare change was then multiplied by the average fare revenue per boarding with the fare change to yield the fare revenue by category with the fare change.

As shown in Table 47, the overall impact of the proposed fare modifications is an increase in fare revenue of $26,700 per year and a decrease in ridership of 4,605 boardings per year. Compared with FY 2022-23 totals, this reflects a fare revenue increase of 3 percent, compared with a ridership reduction of only 1 percent. On the fixed route system, there will be a reduction in ridership of 8,300 among 1-zone ridership, partially offset by an increase of 2,600 among multizone ridership traveling to/from Anderson or Shasta Lake.

OTHER RECOMMENDED CHANGES TO FARE POLICIES

Provide Free Boarding for Transit Staff

Many transit services allow their employees to ride for free. This is intended to encourage use of transit, to gain a better understanding of the passenger experience, and to give a small benefit in exchange for employee's service.

Table 47: Impacts of Proposed RABA Fare Modifications

Fare Category		Existing Fare	Proposed Fare	FY 2022-23 Annual Ridership (1) 1 Zone	W Addl Zone	Total	FY 2022-23 Annual Revenue (2) 1 Zone	W Addl Zone	Total	Existing Fare Per Boarding 1 Zone	W Addl Zone	Fare Per Boarding with Plan 1 Zone	W Addl Zone	Elasticity	Ridership With Plan 1 Zone	W Addl Zone	Total	Change in Annual Ridership With Plan 1 Zone	W Addl Zone	Total	Change in Annual Revenue With Plan 1 Zone	W Addl Zone	Total
Fixed Route																							
Cash (3)	General Public	$1.50 +$0.75 per zone, free transfers	$2.00 All Trips, 2 Hour Window	46,698	6,347	53,045	$70,046	$14,282	$84,328	$1.50	$2.25	$2.00	$2.00	-0.25	43,500	6,500	50,000	-3,200	200	-3,000	$17,000	-$1,300	$15,700
	Senior/ Disabled	$0.75 + $0.35 per addl zone	$1.00 All Trips, 2 Hour Window	67,914	7,290	75,204	$50,936	$8,019	$58,954	$0.75	$1.10	$1.00	$1.00	-0.25	63,200	7,500	70,700	-4,700	200	-4,500	$12,300	-$500	$11,800
Pass	General Public	$48.25 Redding, $82.00 with Shasta Lake or Anderson	$4/1 day, $25/7 Day, $50/30 day	17,141	2,008	19,149	$33,998	$6,768	$40,766	$1.98	$3.37	$2.06	$2.06	-0.25	17,000	2,300	19,300	-100	300	200	$900	-$2,000	-$1,100
	Senior/ Disabled	$24.00 Redding, $41.00 with Shasta Lake or Anderson	$2/1 day, $10/7 Day, $25/30 day	68,949	8,058	77,007	$95,090	$18,985	$114,075	$1.38	$2.36	$1.44	$1.44	-0.25	68,200	9,100	77,300	-700	1,000	300	$2,900	-$5,900	-$3,000
	Youth	$29.00 all or any zones	Free 0 to 18 Years	--	--	3,650	--	--	$11,049	$3.03		$0.00	$0.00	-0.25	--	--	5,500	--	--	1,900	0	0	-$11,000
Punch	General Public	$1.50 +$0.75 per zone, free transfers	Eliminate	9,083	23,102	32,185	$13,625	$51,980	$65,604	$1.50	$2.25	$2.00	$2.00	-0.25	8,500	23,800	32,300	-600	700	100	$3,400	-$4,400	-$1,000
	Senior/ Disabled	$0.75 + $0.35 per addl zone	Eliminate	1,187	1,293	2,480	$890	$1,422	$2,313	$0.75	$1.10	$1.00	$1.00	-0.25	1,100	1,300	2,400	-100	0	-100	$200	-$100	$100
Youth Not Using Youth Pass		$1.50 +$0.75 per zone, free transfers	Free	2,281	310	2,591	$3,400	$700	$4,100	$1.50	$2.25	$0.00	$0.00		3400	500	3,900	1,100	200	1,300	-$3,400	-$700	-$4,100
TOTAL				213,252	48,408	265,311	$267,984	$102,156	$381,189									-8,300	2,600	-3,800			$7,400
Percent Change																				-1%			6%
Paratransit																							
FNRC Cash (4)		$3.00 + $1.50 per zone	$4.00 All Trips	8,438	606	9,044	$25,314	$2,727	$28,041	$3.00	$4.50	$4.00	$4.00	-0.2	8,000	600	8,600	0	0	0	$6,700	-$300	$6,400
Non FNRC		$3.00 + $1.50 per zone	$4.00 All Trips	14,306	2,816	17,121	$42,917	$12,837	$55,754	$3.00	$4.56	$4.00	$4.00	-0.2	13,500	2,900	16,400	-800	100	-700	$11,100	-$1,200	$9,900
													TOTAL					-800	100	-700	$17,800	-$1,500	$16,300
													Percent Change							-3%			19%
Burney Express		$2.00 to $5.00 Depending on Length	$4.00			3,319			$13,627	$4.11		$4.00		-0.25			3,400			81			$0
																				2%			0%
Beach Bus		Free	$4.00			978			$0	$0.00		$3.80					792			-186			$3,000
																				-19%			--
TOTAL																				-4,605			$26,700
															Percent Change					-1%			3%

Note 1 - Source: GFI farebox data

Note 2 - Source: Stratagen and accounting data. Paratransit revenues include punch card use.

Note 3 - Ridership factored up to adjust for the percentage of boardings with unclassified revenues (22 percent).

Note 4 - Assuming no change in FNRC contract monthly pass costs and no change in FNRC ridership.

If implemented by RABA, free boardings would be provided to both RABA and contractor staff. Given the low numbers of total staff, the fare impact of this policy change would be minimal.

Create a Fare Donation Program

Some transit systems provide a modest annual level of free transit passes to non-profit community organizations as a means of ensuring that program participants have access to needed mobility. A good example is the fare donation program provided by the High Point Transit System in High Point, North Carolina. It provides up to $100 in transit passes to 501(c) (3) organizations, with a total program budget of $1,000 per year. This type of program is recommended for RABA.

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Chapter 10
CAPITAL ALTERNATIVES

INTRODUCTION

This chapter reviews RABA's capital needs (e.g., fleet, bus stop improvements, and infrastructure needs) in general, though the specific requirements will need to be determined once the preferred service alternatives are selected. RABA is currently evaluating its Zero Emission Vehicle requirements, and the direction for acquiring ZEVs will also vary depending on the direction of operations. In particular, if RABA decides to implement microtransit services, this will impact the choice of future vehicle procurements.

VEHICLE ALTERNATIVES

The RABA fleet consists of 18 fixed route vehicles and 18 cutaway buses. Though ridership declined significantly with the COVID-19 pandemic, the number of fixed route vehicles used has not changed significantly. The number of paratransit vehicles in service, however, has tended to be half of what was operated pre-COVID. Lower ridership, reduced paratransit demand, and potential to add microtransit indicates the vehicle replacement schedule should produce a fleet which can be fluid between service types.

Another consideration is that the State of California's Innovative Clean Transit (ICT) Regulation will go into effect during the current planning period. Beginning in 2026, the ICT regulation will require 25 percent of small fleet bus purchases to be zero-emissions buses (ZEBs). By 2029, this requirement will increase to 100 percent. To receive an exemption from the ICT regulation, a transit entity must demonstrate one of the following applies: there was an uncontrollable delay in construction of its ZEB infrastructure, current ZEB buses available on the market cannot meet daily mileage needs, or current ZEB buses do not have adequate gradeability performance. RABA will not likely qualify for these exemptions, unless it can sufficiently prove that ZEBs do not perform adequately in the extreme temperatures experienced in Redding. ZEBs are much more expensive than gas- or diesel-powered buses, therefore the ICT regulation also offers a financial exemption if transit agencies can demonstrate that purchasing ZEBs is not financially feasible. The ICT regulation applies to vehicles that weigh over 14,000 pounds—which is the case for RABA's current fleet.

Existing Vehicle Replacement Plan

RABA's plan for replacing its existing vehicles is shown in Table 48 and is based on the RABA ZEB Rollout Plan (2023). As shown 5 fixed route and 11 cutaway vehicles will need to be replaced in the next five years. While the ICT rule will not come into effect until FY 2026-27, RABA intends to purchase ZEBs in advance. All vehicles purchased after 2029 will need to be zero emission[15].

[15] Currently, no smaller Altoona-tested electric vehicles are available, but the replacement plan assumes vehicles will become available soon.

RABA plans to procure battery-electric buses until 2030, at which point RABA will also begin to procure fuel cell buses for its fleet as well.

The estimated cost for vehicle replacement in the next five years is $7.8 million, of which RABA will be responsible for $1.56 million in local match. This replacement schedule assumes 30/32-passenger vehicles will be procured for fixed route services, and 16-passenger vehicles will be procured for paratransit services. The replacement schedule does not account for any service changes implemented as a result of this SRTP. The schedule also does not consider the vehicle size analysis presented in the following section, however the analysis found that smaller vehicles are adequate for several of the fixed routes, meaning that RABA could be flexible in its choice of vehicles.

Table 48: RABA Existing Vehicle Replacement Schedule

Estimated Current Cost of Vehicles	
Electric - 30/32 psgr	$900,000

Estimated Current Cost of Vehicles	
Electric - 16 psgr	$240,000

Vehicle Parameters	Plan Period (by Fiscal Year) [2] 23/24	24/25	25/26	26/27	27/28	5-Year Plan Total
Full Sized Buses						
Number of Buses (30/32 psgr Electric)	0	0	0	1	4	5
Total Cost [1]	*$0*	*$0*	*$0*	*$978,700*	*$4,032,200*	$5,010,900
Cutaways						
Number of Buses (16 psgr Electric)	5	0	1	1	4	11
Total Cost [1]	*$1,200,000*	*$0*	*$253,400*	*$261,000*	*$1,075,200*	$2,789,600
Total Vehicle Needs	$1,200,000	$0	$253,400	$1,239,700	$5,107,400	$7,800,500

Note 1: All costs include 5.0 percent annual inflation in 2024/25, and 3.0 percent thereafter.

Note 2: Vehicles in 2023/24 have already been purchased. Beginning in 2026, 25% of new purchases must be ZEB. Beginning in 2029, 100% of bus purchases must be ZEBs.

Note 3: Presented schedule is based on the RABA ZEB Rollout Plan (2023). Future vehicle purchases are subject to change.

Source: LSC Transportation Consultants, Inc.

Vehicle Capacity and Size

Table 49 presents an analysis of the minimum vehicle size needed for the various RABA services. Passenger load data at the peak location along each route was analyzed for the last three years (a representative period in October of each year). This data was then factored both by the ratio of ridership in the peak month for each route to October ridership as a whole, as well as the most recent ratio of the peak ridership per run over the average ridership per run for each route. This yields the figures for ridership at the peak location on the peak run in the peak month[16]. This peak ridership data was then reviewed based on the considerations that transit vehicles appropriate for RABA typically are available with set passenger seating capacity of 12, 16, 30 and 37, that ridership may continue to rebound from the pandemic, and the desire to minimize transit vehicle size while still providing adequate seating capacity for the large majority of runs over the course of the year.

[16] For the Beach Bus, ridership by run by day was reviewed for 2022 and 2023.

Table 49: Analysis of RABA Vehicle Size Requirements

Assuming No Change in Services

RABA Fleet Seating Capacities

Capacity	*Example Model*
12	Glaval E450
16	El Dorado Ford Aerotech 240
30	Gillig GLFoor17
37	Gillig G27D102

Route	Average Weekday Passenger Load at Peak Location on the Route [1] 2019	2021	2022	Peak Month to October Ratio	Peak Run to Avg Daily Run Ratio	Passenger Load at Peak Location on Peak Run in Peak Month 2019	2021	2022	Recommended Vehicle Size (Seating Capacity)
1	6.2	3.0	4.2	1.29	1.69	13.4	6.6	9.1	16
2 East	4.2	2.4	3.1	1.20	1.34	6.7	3.9	5.0	
2 West A	1.5	0.7	1.1	1.20	1.34	2.3	1.1	1.8	12
2 West B	1.5	0.8	1.0	1.20	1.34	2.3	1.3	1.7	
3 A	6.4	3.0	4.2	1.17	1.45	10.8	5.1	7.1	16
3 B	7.6	3.9	4.8	1.17	1.45	12.8	6.6	8.2	
4	4.7	2.7	2.6	1.10	1.57	8.1	4.7	4.5	12
5	5.1	2.5	3.2	1.00	1.69	8.6	4.2	5.3	12
6 North	2.8	1.6	2.0	1.07	1.79	5.4	3.0	3.8	12
C South	4.0	1.6	1.8	1.07	1.79	7.6	3.0	3.5	
7	5.1	1.9	2.4	1.28	1.83	12.0	4.3	5.6	16
9 A	1.7	1.0	0.9	1.00	1.70	2.9	1.7	1.5	12
9 B	1.9	1.2	1.3	1.00	1.70	3.3	2.1	2.2	
11	8.5	3.3	4.5	1.19	1.46	14.8	5.8	7.8	30
14	9.3	4.0	5.7	1.53	1.49	21.1	9.1	12.9	30
Crosstown Express	4.3	1.2	1.4	1.27	1.99	11.0	3.0	3.4	12
Anderson Commuter	0.2	0.1	0.1	1.00	1.00	0.2	0.1	0.1	12
School Express	5.1	1.6	`.4	1.00	3.18	9.0	5.0	5.0	12
Burney Express	--	2.6	2.4	1.00	2.73	--	7.0	6.0	12
Beach Bus	--	--	--	--	--	--	--	22.0	21.0	30

Note 1: Based on data for all runs on 10 weekdays in October of each year.

As indicated, RABA services can largely be operated with smaller vehicles than what are currently used. Only three routes (11, 14 and the Beach Bus) are recommended to use 30 to 32 passenger buses. Three (Routes 1, 3 and 7) can be served using a 16-passenger bus. The remaining routes can be adequately served using 12-passenger vans. Note this analysis does not address any changes in the routes recommended in Chapter 12 (the RABA SRTP).

FACILITY AND BUS STOP ALTERNATIVES

Eliminate the Masonic Transfer Center

The RABA route structure serving Redding consists of a large loop formed by Routes 11 and 14, with other routes making connections at three key locations. Of these three locations, two (Downtown Transit Center and Canby Transfer Center) are in relatively good condition and functioning well. The third location – Masonic Transfer Center – has several substantial deficiencies:

- The current configuration consists of a curbside loading area along the southeast side of Masonic Avenue. It is provided with lighting and security cameras, but no shelters or benches. As Masonic Avenue has a 60 feet right-of-way width with only 10 feet of width between the curb and the southeast right-of-way line, there is little opportunity at this location for improvements.

- Buses must turn around at the end of Masonic Avenue, which currently is a court with multiple driveways and a gated entrance to a dirt road. Buses can easily turn around if the court is clear, but sometimes vehicles block the court and buses must complete multiple point turns.
- The area includes low-income housing as well as encampments of unhoused persons. Passengers have complained through outreach opportunities that they do not feel safe at the stop because of a high number of unhoused persons, public drug use, and poor security.

The ability to improve the current site is constrained by the limited space available. While it may be possible to install some half-shelters with vagrant-resistant seating, this does not address the other issues at the site regarding vehicle movement. A new location for a transfer center on an off-street parcel would therefore be needed if improvements are to be made, which would be very costly.

Another option would be to eliminate the need for the Masonic Transfer Center by revising routes. Specifically, extending Route 1 to the Downtown Transit Center could allow passengers on this route to transfer to other routes (actually increasing the number of other routes with a direct transfer possibility). New stops would be served on either side of Lake Boulevard near Northpoint Drive. Other routes could then be reconfigured to make a clockwise loop around Northpoint Drive and North Market Street, allowing passengers to make transfers to and from Routes 11 and 14 for trips to/from northeast Redding and Shasta College. These modifications would cost approximately $5,000 for the signage and vagrant-resistant seating but would cost far less than relocating the facility.

Eliminate Unused Stops

Reducing RABA fixed route services in lieu of microtransit would result in fewer bus stops being used. Initially, RABA will need to establish a small budget for removing stops. Long-term, having fewer stops will require the purchase of fewer bus stop amenities and reduce maintenance costs. However, since RABA advertises at bus stops, reducing the number of stops also reduces potential ad revenue. To address this, RABA will invest in moving benches and bus shelters from abandoned stops to other busier stops where physically feasible. This will ultimately increase the proportion of bus stops with amenities and reduce the costs needed for actual materials.

Reduce Stop Spacing

Bus stops require significant capital investments to make them a comfortable place for passengers to wait. RABA is responsible for installing new bus stop amenities, ensuring all existing amenities within its network are functional and good quality, and for addressing any instances of bus stop vandalism. These responsibilities cost RABA thousands of dollars annually; to install new amenities at one stop can cost well over $3,000 given that new bus stop signs costs upwards of $300, benches cost upwards of $600, and shelters cost over $12,000. Currently, RABA has a large number of bus stops within its network. Removing unnecessary bus stops from the RABA network would reduce bus stop maintenance costs and improve on-time performance.

Table 50 shows a list of potential bus stops that RABA could stop serving without greatly impacting ridership. These stops were selected based on their proximity to other bus stops, meaning that if they are eliminated passengers will not have to walk an unreasonable distance to access another stop.

For instance, removing the stop at Hartnell and Middleton would result in a new distance of 0.3 miles between stops, which is still easily walkable for the majority of fixed route passengers. This is also close to the industry standard of having bus stops spaced 0.25 miles apart in urban areas. Boarding information should also be considered, however, as it would negatively impact ridership to eliminate stops with high boarding activity. Additionally, it would not be the best use of existing resources to eliminate stops where RABA has already heavily invested in passenger amenities. Based on proximity to other stops, boarding activity, and existing amenities, the top bus stops for RABA to consider eliminating include: Hartnell and Middleton, Churn Creek and Golden Gate, Collyer and Sierra Oaks, and Hilltop and St. Thomas.

Table 50: RABA Bus Stops for Potential Removal

Route	Stop	New Distance Between Stops (miles)	Average Weekday Boardings	Amenities
Route 1	Twin View @ Midway	0.40	0.1	None
Route 2	Orange @ Shasta	0.30	0.9	Sign
Route 2	11th @ West	0.35	0.6	Sign
Route 3	Railroad @ Sheridan	0.35	0.5	None
Route 4	Churn Creek @ Rite Aid	0.2	1.6	Sign/Shelter/Bench
Route 5	Hartnell @ Middleton	0.3	0.1	Sign/Bench
Route 5	Hartnell @ Fairway	0.3	0.2	Sign/Shelter/Bench
Routes 5, 6	Victor @ Bramble	0.37	0.4	Sign
Route 6	Churn Creek @ Golden Gate	0.4	0.0	Sign
Route 6	College View @ Churn Creek	0.37	0.8	None
Route 6	Collyer @ Sierra Oaks	0.25	0.3	Sign
Route 7	Lake @ Hilltop	0.31	0.2	Sign
Route 7	Redwood @ Hardwood	0.31	0.3	Sign
Route 9	Silver @ School	0.3	0.7	Sign/Bench
Route 11	Hilltop @ St. Thomas	0.35	0.1	Sign
Route 14	Benton @ Delta	0.3	1.2	Sign
Route 14	Hilltop @ Best Buy	0.2	1.6	Sign/Shelter/Bench
Route 14	East @ Placer	0.35	1.2	Sign

Source: LSC

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Chapter 11
MARKETING STRATEGIES

INTRODUCTION

This chapter reviews RABA's existing marketing efforts and makes recommendations for improvements.

MARKETING OBJECTIVES

The following objectives should serve as the motivation for the RABA's marketing strategy:

- Maintain a loyal community of existing riders and encourage new riders to try RABA.
- Establish an image of RABA as an easy, dependable, and affordable transportation option, and build awareness of RABA by promoting its key benefits for riders and the communities served.

Marketing should be thought of as a two-way process, in which the agency can promote RABA to potential users while simultaneously collecting consistent feedback about the service for ongoing service improvements. This is a vital tool for any public-facing agency to communicate with the public, and by grounding RABA's marketing efforts in concrete objectives, it will be possible to measure the agency's progress.

Objective 1

Maintain a loyal community of existing riders and encourage new riders to try RABA

The most fundamental strategy for marketing RABA is to focus on current and potential public transit riders in the community and address their needs. For this objective, it is vital that RABA understands who rides transit, and what their travel options are.

For decades, public transit riders were classified into two categories: "choice riders" and "captive riders," as explained in "Who's On Board 2016: What Today's Riders Teach Us About Transit That Works" from TransitCenter. The framing suggests that, while middle- to high-income individuals have a "choice" regarding whether they will use transit or not, and demand "better service and luxe amenities" to entice them to use transit, low-income users do not have cars and thus are "'captive' to transit and will use it "regardless of service quality." This way of categorizing potential riders is outdated because every rider has a choice. If RABA ignores existing riders' needs and ideas for service improvements, riders will try to find another way to get around regardless of their income level—whether it's paying for more expensive rides on Uber and Lyft, organizing a ride from friends and family, adjusting their travel patterns, or getting a car loan, no matter whether they can afford it. If there truly are no other options, people will simply not make their trips at all. Transit offers riders an affordable, sustainable, and predictable way of getting around, but the service needs to be high quality and dependable in order for riders to continue to choose transit.

The "Who's On Board" report, which collected data from a "survey of 3,000 people who ride transit in 17 regions and through focus-group discussions with riders in three cities," organized users into the following groups: "occasional riders who take transit once in a while for specialized reasons,

commuters who take transit regularly but only for work, and all-purpose riders who take transit regularly for multiple purposes." It is important for this framework to guide marketing efforts for RABA, as all of these groups should be targeted when designing potential service improvements.

The report found that service frequency and travel time have the greatest impact on whether transit can maintain current riders and attract new ones. Knowing that these service factors are the most important to riders is essential to marketing RABA. For instance, some of the recommendations in this SRTP will improve travel times. These improvements should be marketed to the community to attract riders to RABA.

Additional factors that are important to riders, based on the TransitCenter report, are: "station and stop conditions, real-time information, and service reliability." Each of these concerns are also being addressed in the SRTP effort. Building a more reliable service is key for the recommended changes proposed in the SRTP; as stated in previous chapters, streamlined local routes that avoid critical bottlenecks and unnecessary deviations will result in a more reliable RABA service.

Objective 2

Establish an image of RABA as an easy, reliable, and affordable transportation option, and build awareness of RABA by promoting its key benefits for riders and the community

Traditional branding efforts and awareness campaigns are important as well. RABA services are attractive for a number of reasons: convenience, reliability, affordability, safety, and sustainability. These collectively make for a compelling narrative that should be pushed across traditional and new marketing channels from print, TV, and radio, to social media and pop-up events.

CURRENT RABA MARKETING ACTIVITIES

RABA has a dedicated annual marketing budget of between $67,000 to $90,000, which is just 1.5 percent of the operating budget. Even with limited funds, RABA has multiple ongoing marketing efforts. These efforts are described below.

Online Materials

The RABA website is provided on the City of Redding website domain. Although not its own website, searching for RABA using different descriptors (Redding Transit, Bus Service Redding, etc.) all direct the internet user to either the main RABA page or the RABA Services page. The website is quite easy to navigate and does not require extensive searching to find the information desired. When reviewed in July, 2023, the RABA home page has five drop down boxes on the left side – Services, Fares, How to Ride the Bus, About RABA, and Contact RABA. The center of the main home page includes an introduction to RABA and a trip planner. Testing it using business names only resulted in accurate information after verifying a manual review of stop locations and scheduled connections.

Also on the home page on the right-hand side are very visible hyperlinks to the Real Time Map, Ride Guide (PDF with maps and timetables showing all services), RABA Board Meetings, and the Title VI policy. Service alerts also appeared on the right side (on the date checked, these included an announcement about the Beach Bus and a reminder that RABA is fare free in the Summer of 2023).

On the left-hand side of the home page are news items (on the date checked the news items related to serving the new VA clinic, the RABA SRTP, and the fare free summer policy).

Clicking on the services drop down box on the left-hand side produces six tabs, four of which are for the services that RABA operates – Bus (local fixed route), Paratransit, the Burney Express, and the Beach Bus. When clicking on "Bus," the page that is displayed is also the page that some web searches directed to. This page has a prominently shown matrix listing each route with hyperlink for each route to a Google map that shows the bus stops and another hyper link to a schedule for that route. The Google maps should have shown RABA stop icons when zoomed in closer to the route, but when tested no icons appeared on the routes sampled. Each route's schedule lists all of the daily trips and includes a complete stop list. The other two tabs refer web visitors to Other Transportation Services or to ShastaConnect for Sunday Transit options. Above the matrix are hyperlinks to the Real Time Map, Ride Guide, and Interactive map.

The Fare Tab has three drop downs – Fare Structure, Paying Your Fare, and Fare Programs. The Fare Structure tab includes a simple matrix showing all local fares. For Paratransit and Burney Express fares there are hyperlinks to the service page for each of those services. Paying Your Fare describes how to pay with different fare media and where to purchase passes and punch tickets. Fare Programs describes two existing youth programs.

The How to Ride the Bus tab includes three tabs – Trip Planning, Bikes, etc., and Code of Conduct. The Trip Planning tab is somewhat redundant in that it primarily references other features of the website. However, it can be useful to first-time visitors who may not be certain which features are best suited to providing the information they need. The Bike, etc. tab provides directions on how to use bike racks on RABA and lists items that are allowed to be carried on board buses. The Code of Conduct tab describes in bullet points appropriate behavior on RABA buses.

The About RABA tab provides a concise history of RABA, lists the current Board Members, and provides recent Board Meeting Agendas and Minutes. Visitors can also navigate to the About RABA tab to find Notices, Policies, Reports, Careers, and Advertising on buses and at bus shelters. There is also a link to information on the RABA SRTP. This page can be updated in the future for other planning efforts.

The Contact RABA tab includes the RABA phone number and TTY number for hearing impaired, the office locations and hours, the Downtown Transit Center location and hours, and a listing of RABA holidays. There is also an online form to submit comments, compliments, and complaints. Another online form to order paper copies of the RABA Ride Guides is also available.

Overall, the website is easy to navigate and attractive with up-to-date information. It provides multiple ways to help customers determine how to use the system, including real time information, customer trip planning and static schedules, maps, and stop lists. The RABA website's accessibility, navigability, and extensive information makes it a high-quality public transit website.

Recommendations

Improvements to the website include:

- Include information for Sunday on-demand service provided by SRTA in the RABA service are as one the services under the Services tab.
- Include a link to the Interactive Map on the Home page alongside the links to the Real Time map and Ride Guide
- Make the hyperlinks for the Real Time Map, Ride Guide, and Interactive map more prominent on RABA Service page comparable the hyperlinks that appear on the Home Page.
- Make sure bus stops appear on the maps that appear for each route when clicking on the Stops hyperlink for each route on RABA Service page.

Print Materials

The RABA Ride Guide that is posted on the website as a PDF is also available in print at the Downtown Transit center kiosk, on buses, and at the RABA office on Market Street. The Ride Guide is printed in color on semi-glossy paper. Additionally, flyers are regularly posted on buses and at the kiosk and major stops to convey announcements such as changes in service or promotional activities.

Recommendations

- Include information for Sunday on-demand service provided by SRTA in the RABA service as part of the off hours.
- Ensure the kiosk and buses are regularly supplied with Ride Guides.

Phone Information

RABA customer service hours are 8 AM to 5 PM on weekdays and 9 AM to 5 PM on Saturdays. The recording received off hours indicates this and in addition to listing the customer service hours directs the caller to the website and identifies general hours the bus service is provided and the holidays in which no service is provided. As with the website there is no mention of the Sunday on-demand service available in the RABA service area on Sundays.

Recommendations

- Include information for Sunday on-demand service provided by SRTA in the RABA service as part of the off hours recording when describing service hours and days fixed route service is not available.

Information Kiosk

RABA operates an information kiosk at the Downtown Transit Center. It is open during normal service hours – 6:20 AM to 7:30 PM on weekdays and 9:20 AM to 7:30 PM on Saturdays.

Recommendations

- Information kiosks should be maintained and regularly updated at all three transit centers as well as key activity centers such as Shasta College.

Social Media

Social media has emerged as a powerful tool for communicating transit information to passengers, stakeholders, and the greater public. RABA recently established its own Facebook, Instagram, YouTube, and Twitter accounts. As all of these accounts are quite new, they do not have many followers at this time. RABA should consider investing in sponsored posts to increase awareness of its social media accounts. RABA should also link its social media more prominently on the home page of its website.

The City or Redding Communications Department supports RABA efforts on the website, and they share pertinent information and events on the City of Redding's social channels. The Communications Department also assists with design projects for RABA (posters, monthly passes, signage, Electric Bus design, logo, social media graphics, etc.). The RABA website currently provides links to the City's various social media accounts at the very bottom.

Studies have found that members of Generation Z (those born after 1996) are less likely to have Facebook compared to other social media; a 2022 study by the Pew Research Center found that only 32 percent of teenagers used Facebook compared to 95 percent who use YouTube, 67 percent who use TikTok, 62 percent who use Instagram, and 59 percent who use Snapchat.

Recommendations

- Utilize all available mainstream social media channels, including new channels as they develop to promote services and transit related events, seek input, and provide information to the community.
- Within RABA staff there should be at least two individuals – a primary person and a backup (so that if the primary person is not available social media postings do not suffer) who can either work with city staff or directly post content to make sure all social media platforms have up to date material.

Outreach Activities and Events

Now that pandemic restrictions have been lifted and in-person events are being held again, RABA has the opportunity to conduct in person public outreach at community events. Attending community events is an excellent way to meet people who represent new potential riders. Table 51 provides suggested target markets and strategies to reach out to these groups.

MARKETING THE SERVICE REVISIONS RESULTING FROM THE SHORT-RANGE TRANSIT PLAN

Any time a transit agency undertakes significant changes is an opportunity to market and advertise, no matter whether services are increased or decreased. Increased services are an opportunity to tout improvements, and service cuts are an opportunity to educate regarding the need for cuts. Table 51 includes strategies that can be used to promote service changes. In addition to the above items:

- Offer free rides during the first week of service.
- Schedule press events to promote service.

- Coordinate promotions with local businesses to provide discounts or free items to bus riders.

Following the free fare period, a direct mail campaign including free ride coupons targeting neighborhoods receiving new or significantly improved service alerting residents of the changes once any bugs have been worked out will further encourage new customers.

Table 51: RABA Marketing Strategy

Target Market	Strategy
Current Riders of RABA	✓ Understand the best way to market RABA is through improving service frequency and travel times; use marketing tools to promote these benefits that are addressed in the SRTP
	✓ Use social media posts on a frequent basis (e.g., Instagram, Twitter, and Facebook)
	✓ Continue to post rider alerts on social media
	✓ Continue to interact with comments on social media
	✓ Use a social media "Why I Ride RABA" campaign to build ownership of the system and inspire more people to try it
	✓ Establish an email news blast for monthly updates for current riders
College Students	✓ Publish GTFS-Real Time data for Google, Apple Maps, and Transit App to allow for accurate and up-to-date departure and arrival time predictions
	✓ Use paid social media posts to build the image of RABA to a wider audience
	✓ Coordinate workshops for on-campus groups to teach people how to use the system, and gather consistent feedback about the current service
	✓ Develop a Travel Training program for non-riders to get new audience familiar with RABA
	✓ Conduct outreach events at schools at the start of each semester to teach students how to ride the system
K-12 Students and Parents	✓ Publish GTFS-Real Time data for Google, Apple Maps, and Transit App to allow for accurate and up-to-date departure and arrival time predictions
	✓ Conduct outreach events at schools during the Fall to teach students how to ride the system
	✓ More consistent communication with parent teacher organizations and administrative offices at local schools
Seniors & People with Disabilities	✓ Publish GTFS-Real Time data for Google, Apple Maps, and Transit App to allow for accurate and up-to-date departure and arrival time predictions
	✓ Continue outreach events with senior centers, medical facilities, and providers to make people more familiar with the new routes and schedule
	✓ Promote the freedom that public transit provides to people who do not drive
	✓ Use the Travel Training program for targeted workshops to get new audience familiar with RABA
People Concerned with Sustainability	✓ Continue to promote the environmental benefits of riding RABA on social media campaigns
	✓ Direct outreach to sustainability organizations and foundations
	✓ Promote multimodal connections for people who ride bikes
	✓ Use the Travel Training program for targeted workshops to get new audience familiar with RABA
	✓ Continue to use paid social media posts around events like Earth Day and Bike to Work Day
Visitors	✓ Continue to use social media accounts to interact with large accounts focused on tourism in the Shasta region (e.g., National Park Service, Lassen National Park, Lake Shasta, etc.)
	✓ Continue to build on local events by tabling at festivals and fairs
	✓ Partner with tourism organizations to promote the destinations where RABA goes
Large employers	✓ Reach out to employers to promote the new bus routes
	✓ Use the Travel Training program for targeted workshops to get new audience familiar with RABA
	✓ Offer pamphlets with concise information about the system for employers to distribute and maintain communication links with these stakeholders
	✓ Promote reduced commuting cost for employees compared with driving or ride hailing

Source: TMD

Chapter 12
RABA SHORT RANGE TRANSIT PLAN

INTRODUCTION

The following RABA Short Range Transit Plan (SRTP) presents service programs, capital improvements, management recommendations, and financial strategies to enhance public transit services in the RABA Service Area. All plan elements presented consider the constraints of realistic funding projections. This chapter presents the individual plan elements in brief; all elements are based on the substantial discussions presented in previous chapters; therefore, the reader is encouraged to refer to previous chapters for additional background.

SERVICE PLAN

The recommended RABA service enhancements are shown in Figure 50 and described below.

Urban Routing Changes

Route 1

Route 1 will be extended to the Downtown Transit Center (directly via Market Street), to eliminate the need for passengers to transfer at the Masonic Transit Center. To improve travel times between downtown Redding and Shasta Lake, the existing service around the Northpoint Drive / Redwood Boulevard / Caterpillar Road / Twin View Boulevard loop will be eliminated.[17] In addition, the northwest corner of the route will be revised to use Ashley Road and Pine Grove Road rather than Lake Boulevard north of Pine Grove Road and Shasta Dam Boulevard west of Ashley Road. This reduces the length of the route and also provides direct service to Central Valley High School. The remainder of the route will remain unchanged.[18] Areas where fixed route service is eliminated will instead be served by microtransit, as discussed in later sections.

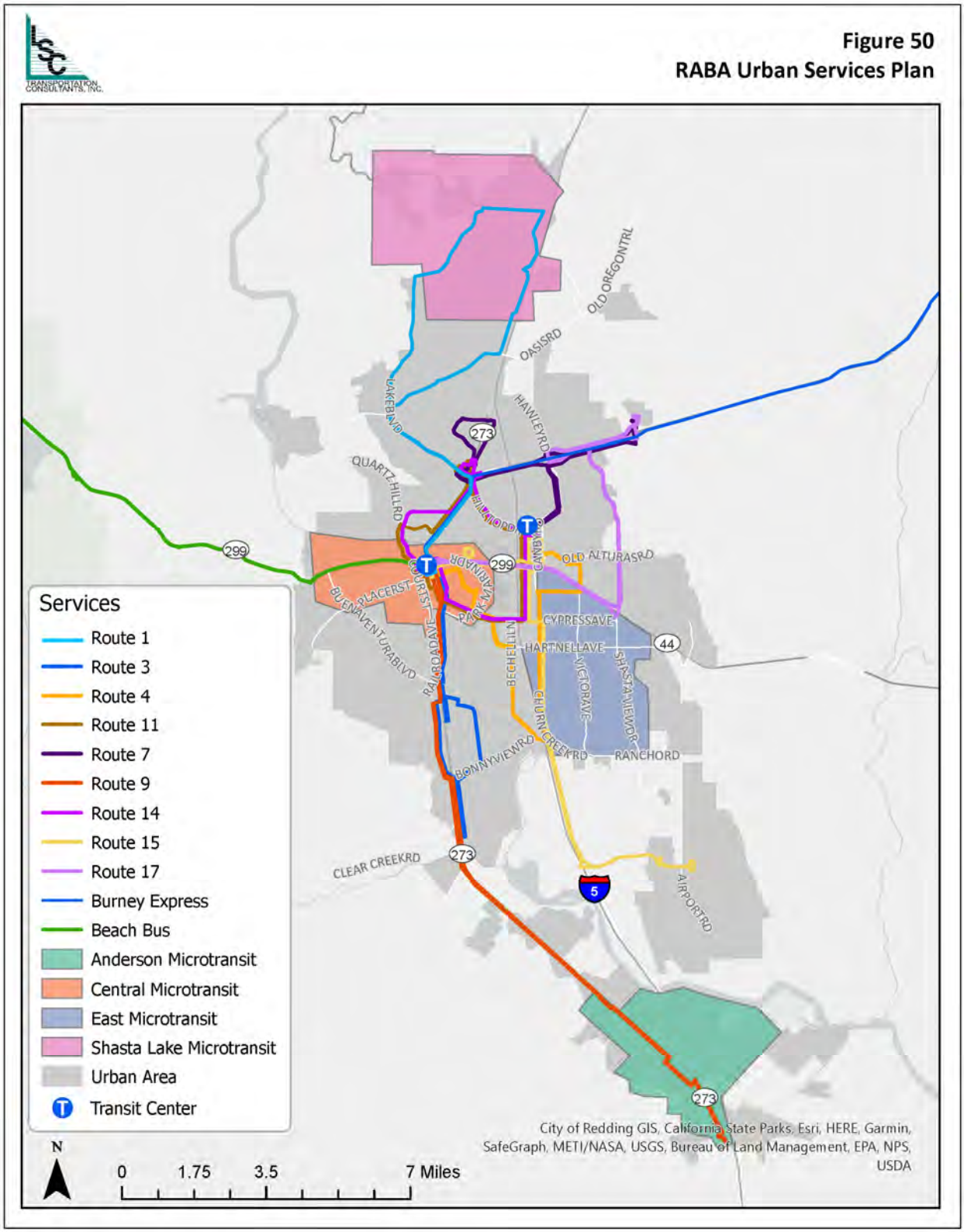
Route 2E/2W

Route 2 will be replaced with a Central Microtransit service, discussed later in this chapter.

[17] This loop will still be served by Route 7.

[18] Typically, large one-way loops like the northern portions of Route 1 are not advantageous, as passengers can be faced with long travel times when making some trips in the opposite direction. To consider this, various options of operating in both directions on one or the other of the existing sides of the loop as well as faster service using I-5 were evaluated. However, there is ridership along all sections of this existing loop, while most of the Shasta Lake transit ridership is bound to or from Redding. The possible route revisions were found to not substantially speed service for Shasta Lake residents along the Shasta Dam Boulevard corridor, while eliminating service to existing riders in southern Shasta Lake and northernmost Redding.

Figure 50
RABA Urban Services Plan



Route 3

In the downtown area, Route 3 will be streamlined by traveling along S. Market Street rather than Court Street, West Street, and Railroad Avenue to provide faster travel times. The existing service area west of the rail tracks will be served instead by the Central Microtransit Zone. Route 3 will still operate a clockwise southern loop, but the service will only extend as far south as the Girvan Road/Eastside Road intersection, in consideration of the northward extension of Route 9 (discussed below). Route 3 will continue to serve the moderately productive ridership area west of SR 273 along Cedar Road, as Route 9 would only provide service to Cedar Road every other hour.

Routes 4 and 5

Routes 4 and 5 will be combined and modified to extend to the new Costco near Bonneyview Road. It will follow a streamlined version of the existing Route 5 out of downtown to Hartnell Avenue, then turn south on Bechelli Lane, east on Bonneyview Road, and north on Churn Creek Road. It will then use Mistletoe Lane, Victor Avenue, and Old Alturas Road to terminate at Canby Transit Center before returning to the Downtown Transit Center along the same route. Existing stops in the downtown area that will no longer be served by the new route will instead be served by the Central Microtransit Zone, and existing stops east of Churn Creek Road will instead be served by the East Microtransit Zone. Existing stops on Route 4 north of Hartnell Avenue are low ridership stops, and passengers will all still be within a five-minute walk of the remaining stops served by Routes 11 and 14. In the midday periods from roughly 9:00 AM to 3:00 PM, when demand is highest, two additional buses will be used to operate the combined route every 30 minutes. This schedule is recommended because while increasing frequency is key in attracting new discretionary ridership, existing ridership is not sufficient to warrant all-day 30-minute service. As ridership increases, expanding the 30-minute service frequency can be considered.

Route 6

Route 6 will be eliminated, with the northern (Route 6N) service replaced by a revised Route 7 and the southern portion served by a combination of the revised Route 4/5 and the East Microtransit Zone.

Route 7

Route 7 will continue to serve Shasta College and the Caterpillar/Northpoint loop but will be revised to connect with the Canby Transit Center rather than the Downtown Transit Center. This will better serve Sierra College riders (who largely travel to/from Canby Transit Center rather than downtown) and also serve the stops along northern Churn Creek Road previously served by Route 6. Overall, the changes to Routes 6 and 7 will free up operating funds and drivers for other services.

Route 9

Route 9 will be extended northwards to the Downtown Transit Center, and the segments east of SR 273 (on North Street, Stingy Lane, and Balls Ferry Road) will be eliminated. The resulting route will be more direct, largely following SR 273 and Market Street and connecting the existing southern stop at 500 Rhonda Road (near Walmart) with downtown Redding.

It will divert from SR 273 to Silver Street between South and Briggs Streets to serve downtown and will also divert to Cedar Street between Bonneyview Lake and El Reno Lane to better serve that neighborhood. The eliminated stops will instead be served by microtransit, with passengers making transfers at the Rhonda Road terminal or in downtown Anderson. This route will require approximately 80 minutes to operate one round trip. Including 10 minutes for a driver break means the service will be operated every other hour. The 30 minutes of extra time every other hour will be available to provide additional microtransit service.

Routes 11 and 14

Route 11 and 14 will be largely unchanged. Rather than traveling along Masonic Avenue to serve the existing Masonic Transit Center, both routes will instead travel a clockwise loop around Lake Boulevard, Northpoint Drive, and North Market Street. This will not affect the overall running time.

Route 12X

The Anderson Commuter will be eliminated. The sole existing daily round-trip (connecting with other routes at the Downtown Transit Center at 7:20 AM) will be served by the revised Route 9, as discussed previously.

Route 15

Route 15 is a new route introduced in the fall of 2023 connecting the Downtown Transit Center and Canby Transit Center with the Redding Regional Airport. It uses SR 44, Dana Drive, and Canby Road between downtown and Canby, then uses Hilltop Drive, Churn Creek Road, I-5, and Knighton Road to access the airport. Along the way, it serves the VA Hospital and the Veterans Home, as well as various lodging properties. This route will replace the existing Crosstown Express Route and be designated as a single route to simplify the overall network.

Route 17

Route 17 (School Express) will be modified to operate five runs per school day between the Downtown Transit Center and Shasta College. It will travel along SR 44 and Shasta View Drive in both directions and will also operate along the SR 299 frontage roads (College View Drive and Collyer Drive) between Old Oregon Trail and Churn Creek Road.

Route 19

No changes are proposed to the routing structure or schedule of Route 19 (Beach Bus).

Changes to Urban Service Hours

The final hour of the current service day, from 6:15 to 7:15 PM, is the least used hour of the day, generating only 3.4 percent of total weekday boardings and 5 percent of Saturday boardings. This SRTP recommends the RABA fixed routes stop operating at 6:15 PM. Instead of an evening fixed route service, there will be an evening microtransit service, as discussed on the following pages, which will extend the overall RABA hours of service until 9:00 PM.

The only fixed route that will continue to operate until 7:15 PM will be Route 15 to serve arriving evening flights. On Route 1, the first hour (starting at 5:35 AM) on weekdays will also be eliminated due to low ridership (only 3.9 trips per day, on average).

Urban Microtransit

A key element of this plan is the introduction of microtransit service to the Redding region. As discussed in detail in Chapter 6, this new form of transit based on advanced scheduling technology is rapidly being adopted by many similar regions and is appropriate for expanding the geographic reach of RABA services.

Central Zone

This service area is bounded by the Sacramento River to the north and east, extends to Ridge Road to the west, and roughly to Parkview Avenue on the southeast and Placer Street, Airpark Drive, and Laurel Drive to the southwest (Figure 50). It encompasses all of downtown Redding, as well as Turtle Bay, City Hall, Mercy Medical Center, Dignity Health Center, Vibra Hospital, and Patients Hospital. This service will replace Route 2, will expand the convenience of transit by providing direct service to all areas, and will allow remaining routes to operate more directly to and from the Downtown Transit Center.

Service will be provided from 6:20 AM to 6:00 PM on weekdays and 9:20 AM to 5:15 PM on Saturdays. Two vans will be needed on weekdays to serve the forecast demand other than in the first and last hour of the day when only one van will be needed. One vehicle will be sufficient to serve Saturday ridership. The Downtown Transit Center will be the key transfer point for fixed route connections.

Shasta Lake City Zone

A microtransit service will be initiated in the City of Shasta Lake to expand the effective transit service area. This will encompass the entire city limits, except for the northernmost area along Lake Boulevard (north of Red Bud Lane) (Figure 50). Key locations for transfers to Route 1 will be at Rite Aid, Cascade Boulevard/Autumn Harvest Way.

To address the changes in fixed route service, a full span of service will be provided, from 6:30 AM to 6:00 PM on weekdays and from 9:20 AM to 6:00 PM on Saturdays. One van will be sufficient to serve the expected demand at all hours.

East Zone

Microtransit service will be provided in an East Zone, which encompasses the area generally south of SR 44, east of Churn Creek Road, west of Goodwater Road, and north of Arizona Street (Figure 50). Vans in this area will provide trips to/from the Canby Transfer Center to allow for convenient transfers to fixed routes. Service will be provided from 6:30 AM to 6:00 PM on weekdays and from 9:20 AM to 5:15 PM on Saturdays/holidays. One van will be sufficient on both weekdays and Saturdays, except that a second van will be needed between 1 PM and 4 PM on weekdays.

Anderson Zone

Microtransit service will be provided in Anderson between 9:00 AM and 4:00 PM on weekdays (Figure 50). This span encompasses the highest hours of demand as reflected in the existing Route 9 ridership. One microtransit vehicle will be sufficient to serve the demand at all hours. As noted above, the Route 9 vehicle will also be available at specific half-hourly times to provide additional capacity if needed.

Weekday Evening Microtransit Service

A weekday evening microtransit service will be initiated throughout the entire RABA paratransit service area from 6:00 PM to 9:00 PM. This will largely replace existing fixed route services that operate from 6:15 to 7:15 PM and will also provide an additional mobility option for residents who may have evening shift work trips, evening classes, and social activities that end between 7:00 PM and 9:00 PM. Up to 4 microtransit vehicles will be operated. This service will largely be funded by the cost savings of trimming the existing fixed route services and will use the same vehicles as those needed for the daytime microtransit services in the four zones discussed above.

Operate Saturday Schedule on Additional Holidays

RABA currently has a relatively limited number of observed holidays in comparison with other transit services in the region. Based on ridership, it is recommended that the list of days on which Saturday service plans are operated be expanded to include Dr. Martin Luther King Jr. Day, Presidents Day, Cesar Chavez Day, Juneteenth Day, Veterans Day, the day after Thanksgiving, and Christmas Eve.

Rural Service Plan

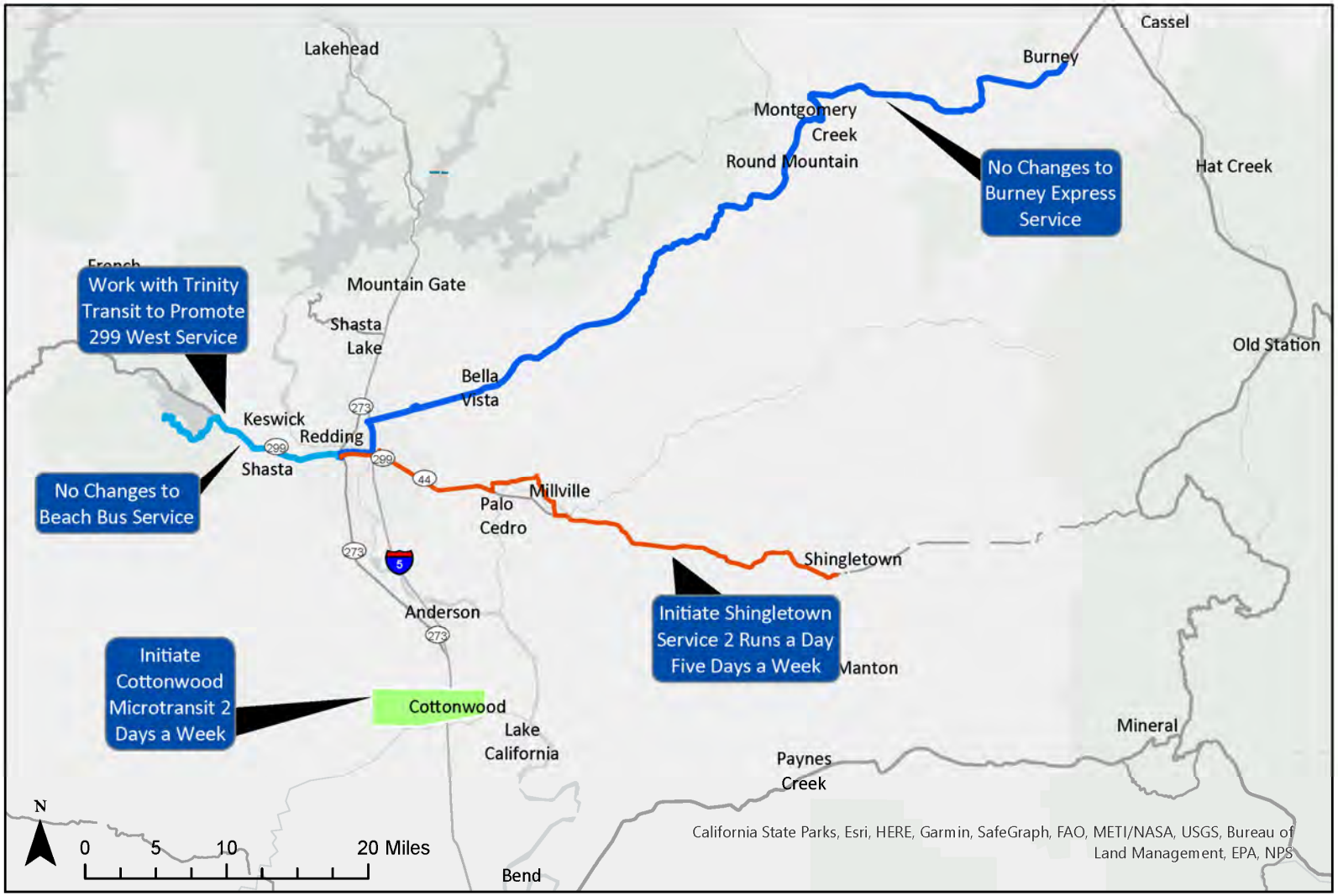
Figure 51 presents a map of the rural service plan. Note that a discussion of RABA management of the rural ShastaConnect services is included in the Management section, below.

Initiate Shingletown Express Service on a Demonstration Basis

Service should be initiated between Redding and Shingletown along the SR 44 corridor, serving the Downtown Transit Center, and Canby Transit Center as well as stops in Millville and Palo Cedro. Per the schedule shown in Table 35 in Chapter 7, a morning westbound run, mid-day round trip, and eastbound evening run should be operated five days a week. This will expand transit service to 8,600 additional Shasta County residents, of which 31 percent are elderly. In addition to providing better access to medical and other urban services, Burney Express survey data suggests that this will serve employees commuting to work as well as improve access to educational opportunities.

As discussed in the Financial Plan, there is a degree of uncertainty regarding long-term State of California funding availability after the end of FY 2026-27. Based on this uncertainty, the Shingletown Express should be implemented on a demonstration basis, as funding over the coming three fiscal years will provide adequate time for the effectiveness of this service to be determined. However, if ridership levels do not attain performance standards and/or long-term funding is not available, the service could be eliminated or modified based on conditions at that time.

Figure 51
RABA Rural Services Plan



Initiate Cottonwood Microtransit Service Two Days a Week on a Demonstration Basis

With 4,900 residents and relatively high proportions of residents with disabilities or low income, Cottonwood has a substantial transit need but also is difficult to serve with traditional fixed route transit. The area's proximity to the Anderson Microtransit Zone provides the opportunity to serve Cottonwood with microtransit by expanding the Anderson service two days a week (such as Mondays and Thursdays). In addition to serving trips within Cottonwood, this service will provide trips to and from Anderson, providing the opportunity for residents to connect with RABA Route 9. As with the Shingletown service, this service expansion should be operated on a demonstration basis with long-term provision dependent on ridership levels and funding availability.

Coordinate with Trinity Transit

Trinity Transit currently serves the SR 299 west corridor in Shasta County (including the communities of Shasta and French Gulch) as part of their service between Weaverville and Redding, with a schedule that is useful for Shasta County residents traveling into Redding for work, school, or shopping/appointments. RABA should consider a fare subsidy program on Trinity Transit to make fares equal to RABA fares for trips within Shasta County. In addition, a focused marketing effort to increase awareness of the Trinity Transit service among Shasta County residents would be beneficial.

CAPITAL IMPROVEMENTS

Transit services require ongoing capital investment in facilities and vehicles. Capital investments in both vehicles and passenger facilities can attract additional riders while improving the quality of service and safety of existing riders. Of note, California's Innovative Clean Transit regulation will go into effect during the plan period, requiring RABA to begin acquiring zero-emission buses (ZEBs).

Technology Enhancement Program

There have been many advances in technology associated with public transit in recent years that RABA has been unable to take advantage of due to limited funding. The new availability of Transit and Intercity Rail Capital Program (TIRCP) funding through Senate Bill 125 provides both capital and operating funding for technology improvements, such as fare enhancements (Token Transit app-based payment system, automatic open fare payment systems, and fare system support agreement), real-time tracking and information systems (Moovit, automatic passenger count technology, and general transit feed specification implementation for both fixed route and flexible services), and advanced planning/management tools (Optibus). RABA should use TIRCP funds to invest in these types of technologies when feasible.

Micromobility Program

Transit systems are increasingly providing a range of mobility options to better meet residents' needs. While outside the scope of this transit plan, RABA should pursue additional mobility options on a demonstration basis, including a bikeshare or scooter rental program (particularly for denser areas such as downtown Redding), as well as a subsidy program to reduce costs for Transportation Network Company (Uber or Lyft) service in periods (such as late night) when public transit is not effective.

Transit Fleet Improvements

Vehicle Requirements

The RABA Capital Plan includes funding for replacement vehicles[19]. The number and type of replacement vehicles needed were determined based on the vehicle size analysis presented in Chapter 10 and the service plan detailed in the first section of this chapter. Table 52 presents vehicle requirements by vehicle type in two phases: the first based on the current vehicle fleet (Interim) and the second phase once new vehicles have been purchased (Ultimate). As shown, in the interim period after service plan elements have been implemented but before RABA has procured new vehicles, the service plan (including spares) will require up to 12 full-sized buses and 20 cutaways in operation during peak weekday service. Once new vehicles have been procured, the service plan will require 5 full-sized buses (30- to 32 foot) in operation for Routes 3, 11, 14, 17 (the School Express), and 19 (the Beach Bus), 14 cutaways for Routes 1, 4, 7, 9, and 15 as well as Demand Response, and 6 passenger vans for the microtransit services.

In addition to the vehicles operated in peak service, it is also necessary to have spare vehicles to allow for maintenance or vehicles out of service. The bottom portion of Table 52 shows the total fleet requirements, including spare vehicles, for both the interim and ultimate planning scenarios. This assumes the industry standard 20 percent spare ratio as well as a minimum of two spare vehicles of each vehicle type. In the interim, RABA will need 12 full-sized buses and 20 cutaway vehicles for operations. As RABA currently owns 18 full-sized buses and 18 cutaways, no additional vehicles will be necessary immediately to implement the SRTP. Ultimately, RABA will need a fleet of 7 full-sized buses, 18 cutaways, and 8 passenger vans to operate the service plan and have adequate backup vehicles.

Vehicle Replacement and Purchase Plan

Table 53 details RABA's current fleet, including when each of the vehicles would require replacement would be needed as they reach or exceed their useful life. During the five-year planning period, only 1 full-sized bus will need to be replaced. Additional bus purchases are planned to advance the transition to a ZEB fleet.

RABA will also need to replace 16 cutaway vehicles over the next five years. While the cutaways used to operate the Burney Express service will be due for replacement during the next five years, there is an adequate fleet (with continuing replacement of RABA cutaways) to also operate the Burney Express service. A total of 8 vans (approximately 8 to 10 passengers including a wheelchair position) will also need to be purchased for microtransit service.

[19] Note that this plan includes vehicles for Burney Express, currently provided by Shasta County.

Table 52: Vehicle Recommendations and Fleet Requirements

Route or Service	Existing Service: Peak Vehicle Needs Weekday	Existing Service: Peak Vehicle Needs Saturday	Existing Service: Vehicle Type	Plan Service: Peak Vehicle Needs Weekday	Plan Service: Peak Vehicle Needs Saturday	Plan Service: Recommended Vehicle Types Interim (Existing Fleet)	Plan Service: Recommended Vehicle Types Ultimate (New Fleet)
1	1.0	1.0	35 Foot Bus	1	1	Bus	Cutaway
2 E/W	1.0	1.0	35 Foot Bus	0	0	--	--
3	1.0	1.0	35 Foot Bus	1	1	Bus	Bus
4	1.0	1.0	35 Foot Bus	2	2	Bus	Cutaway
5	1.0	1.0	35 Foot Bus	0	0	--	--
6 N/S	1.0	1.0	35 Foot Bus	0	0	--	--
7	1.0	1.0	35 Foot Bus	1	1	Bus	Cutaway
9	0.9	1.0	35 Foot Bus	1	1	Bus	Cutaway
11	1.0	1.0	35 Foot Bus	1	1	Bus	Bus
12 (AC)	0.1	0.0	35 Foot Bus	0	0	--	--
14	1.0	1.0	35 Foot Bus	1	1	Bus	Bus
15 (New Airport)	1.0	1.0	Cutaway	1	1	Cutaway	Cutaway
17 (School)	1.0	0.0	35 Foot Bus	1	0	Bus	Bus
18 (CTE, Folded into 15)	1.0	0.0	35 Foot Bus	0	0	--	--
Central Microtransit	0.0	0.0	--	2	1	Cutaway	Van
Shasta Lake Microtransit	0.0	0.0	--	1	0	Cutaway	Van
East Microtransit	0.0	0.0	--	2	1	Cutaway	Van
Anderson Microtransit	0.0	0.0	--	1	0	Cutaway	Van
Weekday Evening Microtransit				Note 1		--	--
19 (Beach)	1.0	1.0	Cutaway	1	1	Bus	Bus
299X (Burney)	1.0	0.0	Cutaway	1	0	Cutaway	Cutaway
RABA Demand Response	8.0	3.0	Cutaway	8	3	Cutaway	Cutaway

Total Vehicles by Type in Peak Service

	Existing Wkday	Existing Wkday	Interim Wkday	Interim Sat.	Interim [2]	Ultimate [3]
30' or 35' Bus	12	10	10	8	10	5
Cutaway	3	2	16	6	16	15
Van	--	--	--	--	0	6
Total	15	12	26	14	26	26

Total Fleet Requirements by Type (Including Spares) [4]

					Interim [2]	Ultimate [3]
30' or 35' Bus	--	--	--	--	12	7
Cutaway	--	--	--	--	20	18
Van	--	--	--	--	0	8
Total	--	--	--	--	32	33

Note 1: Uses microtransit vans also used in daytime service.

Note 2: Using existing RABA fleet of 18 buses and 18 cutaways plus 3 cutaways owned by Shasta County used for Burney Express

Note 3: Using newly purchased vehicles.

Note 4: Spare vehicle requirements defined as the maximum of 20 percent of peak vehicles or a minimum of two by vehicle type.

Table 54 presents the resulting annual RABA vehicle purchase plan for the next five years based on the previous analyses of vehicle requirements and the current fleet status. Vehicle purchases are identified that are needed to replace existing vehicles as they reach replacement age, as well as additional vehicles to advance the transition to a ZEB fleet. This plan reflects RABA's intention, as stated in the *RABA ZEB Rollout Plan*, to only purchase battery-electric buses as of FY 2023-24. RABA may purchase fuel-cell electric buses in the future, but those purchases would be after the five-year period considered in this plan. In total, RABA will need to invest $17.3 million in new vehicles throughout the planning period.

Table 53: RABA SRTP Vehicle Replacement Schedule Based on Useful Life

Vehicle Number	Year	Chassis & Make	Fixed Seats	Useful Life [1]	Primary Use	Required Replacement Date
48	2009	Gillig G27D102	37	2021	Fixed Routes	2024
49	2010		37	2022	Fixed Routes	--
51	2010		37	2022	Fixed Routes	--
52	2011		32	2023	Fixed Routes	--
53	2011		32	2023	Fixed Routes	--
54	2011		32	2023	Fixed Routes	--
55	2011		32	2023	Fixed Routes	--
56	2013	Gillig G27D103	32	2025	Fixed Routes	--
57	2013	Gilling G27D104	32	2025	Fixed Routes	--
58	2013	Gillig G27D105	32	2025	Fixed Routes	--
59	2015	Gillig G27B102N4	30	2027	Fixed Routes	--
60	2015		30	2027	Fixed Routes	--
61	2017	Gillig GLFoor17	30	2029	Fixed Routes	After 2028
62	2017		30	2029	Fixed Routes	After 2028
63	2017		30	2029	Fixed Routes	After 2028
64	2019	Proterra Catalyst E2	26	2031	Fixed Routes	After 2028
65	2020	Gillig GLFoor17	30	2032	Fixed Routes	After 2028
66	2020		30	2032	Fixed Routes	After 2028
252	2010	El Dorado Chevy GMT 600	8	2015	Paratransit	
254	2010		8	2015	Paratransit	2024
256	2010	El Dorado Chevy Aerotech 200	10	2015	Paratransit	2024
259	2010		10	2015	Paratransit	2024
260	2011	El Dorado Ford Aerotech 240	16	2016	Paratransit	2025
261	2011		16	2016	Paratransit	2024
264	2017		16 or 8	2022	Paratransit	
265	2017		16 or 8	2022	Paratransit	2025
266	2017		16 or 8	2022	Paratransit	2025
267	2017		16 or 8	2022	Paratransit	2025
268	2019	Glaval E450	12 or 6	2024	Paratransit	2025
269	2019		12 or 6	2024	Paratransit	2025
270	2021		12 or 6	2026	Paratransit	2026
271	2021		12 or 6	2026	Paratransit	2026
272	2021		12 or 6	2026	Paratransit	2026
273	2021		12 or 6	2026	Paratransit	2026
274	2021		12 or 6	2026	Paratransit	2026
275	2021		12 or 6	2026	Paratransit	2026
307	2014	Chevrolet G4500	10	2019	Burney Express [2]	--
308	2019	Glaval E450	12 or 6	2024	Burney Express [2]	--
309	2019		12 or 6	2024	Burney Express [2]	--

Note 1: Useful Life Benchmark per Federal Transit Administration: 12 years for buses, 5 years for vans.
Note 2: Vehicles used to operate the Burney Express are owned by the County of Shasta.
Note 3: Already purchased.
Source: RABA.

Table 54: RABA SRTP Vehicle Purchase Plan

Estimated Current Cost of Vehicles	
Electric - 30/32 psgr	$1,184,000

Estimated Current Cost of Vehicles	
Electric - 16 psgr	$331,000

Estimated Current Cost of Vehicles	
Electric - 9 psgr	$331,000

Vehicle Parameters	Plan Period (by Fiscal Year) [2] 23/24	24/25	25/26	26/27	27/28	5-Year Plan Total
Full Size Buses (30-35 Psgr Electric)						
Number of Buses						
For Replacement	0	0	1	0	0	
Advancing Fuel Transition	0	1	1	2	2	
Total	0	1	2	2	2	7
Total Cost (In Thousands) [1]	*$0*	*$1,214*	*$2,500*	*$2,575*	*$2,652*	$8,941
Cutaways (16 Psgr Electric)						
Number of Buses	0	4	6	6	0	16
Total Number of Vehicles	0	4	6	6	0	16
Total Cost (In Thousands) [1]	*$0*	*$1,357*	*$2,097*	*$2,160*	*$0*	$5,613
Vans (9 Psgr Electric)						
Number of Vans	*0*	8	0	0	0	8
Total Cost (In Thousands) [1]	*$0*	*$2,714*	*$0*	*$0*	*$0*	$2,714
Total Costs (In Thousands)	$0	$5,285	$4,597	$4,735	$2,652	$17,269

Note 1: All costs include 2.5 percent annual inflation.

Note 2: Presented schedule is based on the requirements of this Short Range Transit Plan and the RABA ZEB Rollout Plan (2023). Future vehicle purchases are subject to change. Funding opportunities may allow advancement in replacement of diesel vehicles with ZEB vehicles.

Source: LSC Transportation Consultants, Inc.

It is important to note that this vehicle purchase schedule reflects the minimum purchases needed to replace vehicles as they reach the end of their useful life, given the vehicle requirements under this plan. If funding opportunities allow, additional zero-emission vehicles can be purchased to advance the transition to a zero-emission fleet.

Investment in Facility and Passenger Amenities

Bus Stop Modifications

The replacement of fixed route services with microtransit will allow the elimination of fixed route stops, particularly along portions of Routes 1 through 6 and Route 9. It would be appropriate to remove stop signage and amenities, and then potentially relocate the benches and shelters to other remaining stops with higher passenger activity and along arterial roadways. Based on the proposed service plan, a total of approximately 110 stops will need to be removed.

In addition, Table 50 in Chapter 10 presents 18 stops that warrant removal to increase the speed of service and that are close enough to other existing stops to provide passengers with alternatives within a reasonable walking distance. Of these, six stops (along Routes 2, 3, and 5) are planned for elimination due to the shift to microtransit, leaving 12 additional stops warranting removal. Considering all 122 stops, a reasonable budget for the removal and relocation of amenities is $60,000.

Finally, bus stop signs need to be replaced to provide a consistent and updated public image of the transit system throughout the service area. This will require ongoing funding throughout the planning period.

Downtown Transit Center Improvements

The Downtown Transit Center is a key regional and intercity hub that is showing the effects of decades of use. The following improvements are warranted:

1. New benches
2. New trash/recycle bins
3. Repainting the facility
4. Passenger terminal building roof repairs and overall major maintenance
5. Improving pedestrian access to the Amtrak station
6. Improving bicycle parking facilities
7. Adding additional shelters next to the intercity bus bays
8. Security improvements

Canby Transit Center Improvements

Security enhancements and facility upgrades are warranted at the Canby Transit Center.

Maintenance Facility Improvements

As part of RABA's Zero Emission Bus program, modifications and improvements will be made to the operations facility at 3333 South Market Street. This will include the installation of a hydrogen generation station and fueling facilities on the Ellis Street side of the facility, as well as charging equipment for battery electric buses.

Bus Technology Improvements

As discussed above, there have been substantial advancements in transit technologies that many transit systems similar to RABA have benefitted from. In particular, RABA should purchase and implement Automatic Passenger Counters (APCs) to increase the accuracy and consistency of passenger counts needed for management and reporting purposes. APCs also have the benefit of reducing the stress involved with the bus driver role. RABA will also incur costs throughout the planning period to maintain the onboard Genfare fareboxes.

FARE RECOMMENDATIONS

Fare Structure

The changes to the fare structure recommended in Chapter 9 should be implemented as soon as practical. A simplified, progressive fare structure will benefit RABA ridership while maintaining fare revenues.

A recently passed law (Assembly Bill 149) made several changes to the original TDA PUC Codes and now allows FTA 5311 funds to be counted as farebox revenue, bringing RABA's farebox return ratio to over 40 percent. This policy change eliminates the need to try to recuperate revenues directly from riders' fare payments.

Fare Payment Systems

As discussed in Chapter 9, it is recommended that RABA establish an open-loop fare payment system that allows passengers to pay for transit services using contactless payment systems on their credit cards or smartphones. First, RABA should pursue an in-depth review of transitioning to a modern fare payment system, as it has many benefits both for the customer and the agency. While the costs may appear daunting, the analysis needs to consider savings in reduced or eliminated cash handling, reduced fare evasion, and the revenue associated with potential ridership increases. The California Integrated Travel Project (Cal ITP) can provide the technical support needed to make an informed decision and also simplify the acquisition of the needed technology.

MANAGEMENT PLAN

The RABA management plan consists of integrating the urban and rural transit services in the Shasta region, revisions to RABA service standards, and marketing strategies.

Integrate ShastaConnect Service into RABA

Public transit services throughout Shasta County would be benefited by merging the RABA and ShastaConnect/CTSA services into a single organization, for the following reasons:

- The traveling public's awareness of travel options is limited by the current split between RABA and ShastaConnect. Many RABA passengers, for instance, are unaware that Sunday service is available through ShastaConnect. Operating all services under one organization would expand the use of the existing Sunday and weekday CTSA services.
- Integration would allow greater productivity by increasing the number of passenger trips that can be served with each vehicle trip. At present, CTSA services traveling from outlying areas into the urban area also cannot pick up passengers making trips wholly within the urban area along the way. Integrating the services would also provide greater opportunities to serve urban area passengers more quickly.
- Vehicles could be shared between the services. This could significantly reduce the overall fleet needed for demand response services, as the total number of spare vehicles needed would be reduced. It could also open up the opportunity for shared or enhanced vehicle maintenance.
- Implementing new technologies will be more efficient for a single integrated program rather than for individual programs.
- Branding and marketing can be more effective for a single integrated program.

ShastaConnect should still be provided through Dignity Health as a contractor to RABA. This would incur some additional costs for RABA at the outset to establish new contracts and management systems but would provide cost savings for both the agency and the region over the longer term.

Adopt Updated Goals and Performance Measures

Chapter 8 presents a review of transit performance measures, including modifications to existing measures. The updated performance measures and standards should be used to monitor the effectiveness of RABA services over the coming five years.

Marketing Improvements

Chapter 11 presents a full discussion of existing marketing efforts and recommended improvements. These include improvements to the website, print materials, phone information, social media, and expanded in-person outreach. A focus should be placed on providing a comprehensive transit information source for all services in the region. The marketing recommendations presented in this SRTP could also serve as the basis for a more detailed marketing study.

FINANCIAL PLAN

The following methodology was utilized in developing the Financial Plan:

- First, the impact of the service plan on the quantities of service (vehicle-hours and vehicle-miles of service) was calculated, as shown in Table 55. Excluding ShastaConnect, this plan increases annual vehicle-hours of service by 10,821, or 20 percent. This total change reflects an increase of 17,101 vehicle-hours of demand response/microtransit service along with a decrease in fixed route service hours of 6,279.

- Next, forecasts of annual operating and administrative costs were developed, as presented in Table 56, for FY 2023-24 through FY 2027-28. "Base case" operating and administrative cost forecasts were estimated based on the existing RABA budget. These cost estimates also reflect the following:
    - Changes in RABA transit operating costs were based on a "cost model" developed from existing service quantities and costs and the current service contract. The FY 2023-24 cost model is described below:

      Operating Costs = $44.09 X # Vehicle-Hours of Service +

      $1.45 X # Vehicle-Miles of Service

    - Service modifications (including shifting of ShastaConnect to RABA management) are assumed to occur on July 1, 2024.
    - Technology enhancement and micromobility costs are based on the recent SB 125 grant application.
    - ShastaConnect service costs are drawn from the SRTA FY 2023-24 Comprehensive Budget, applying a 4 percent annual rate of inflation.

Table 55: Analysis of RABA SRTP Vehicle-Hours and Vehicle-Miles of Service

Excludes Shasta Connect

Route or Service	Existing Service [1] Service Span Weekday Start	Weekday End	Saturday Start	Saturday End	Daily Vehicle-Hours Wkdy	Daily Vehicle-Hours Sat/ Holiday	Days per Year Wkdy	Days per Year Sat/ Holiday	Annual Vehicle-Hours	Annual Vehicle-Miles	Plan Service Service Span Weekday Start	Weekday End	Saturday Start	Saturday End	Daily Vehicle-Hours Wkdy	Daily Vehicle-Hours Sat/ Holiday	Days per Year Wkdy	Days per Year Sat/ Holiday	Annual Vehicle-Hours	Annual Vehicle-Miles	Change in Vehicle-Hours	Change in Annual Vehicle-Miles
1	5:35 AM	7:30 PM	8:35 AM	7:30 PM	13.92	10.92	254	53	4,113	83,900	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	66,800	-635	-16,100
2 E/W	6:20 AM	7:17 PM	9:20 AM	7:17 PM	12.95	9.95	254	53	3,817	46,600	--	--	--	--	0.00	0.00	247	60	0	0	-3,817	-46,600
3	6:20 AM	7:15 PM	9:20 AM	7:15 PM	12.92	9.92	254	53	3,806	61,300	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	56,000	-328	-5,300
4	6:20 AM	7:15 PM	9:20 AM	7:15 PM	12.92	9.92	254	53	3,806	54,400	6:20 AM	6:15 PM	9:20 AM	6:15 PM	22.83	8.92	247	60	6,175	88,300	2,368	33,900
Rt 4 30 Minute Svc	--	--	--	--	--	--	--	--	--		9:50 AM	2:45 PM	--	--	9.83	0.00	247	60	2,429	34,700	2,429	34,700
5	6:20 AM	7:15 PM	9:20 AM	7:15 PM	12.92	9.92	254	53	3,806	47,200	--	--	--	--	0.00	0.00	247	60	0	0	-3,806	-47,200
6 N/S	6:50 AM	7:17 PM	9:50 AM	7:17 PM	12.45	9.45	254	53	3,663	65,600	--	--	--	--	0.00	0.00	247	60	0	0	-3,663	-65,600
7	7:20 AM	7:15 PM	10:20 AM	7:15 PM	11.92	8.92	254	53	3,499	53,200	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	52,900	-21	-300
9	6:20 AM	7:17 PM	9:50 AM	7:17 PM	7.20	6.30	254	53	2,163	40,600	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	65,300	1,316	24,700
11	6:20 AM	7:15 PM	9:20 AM	7:15 PM	12.92	9.92	254	53	3,806	40,300	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	36,900	-328	-3,500
12 (AC)	6:50 AM	8:15 AM	--	--	1.42	0.00	254	53	360	5,500	--	--	--	--	0.00	0.00	247	60	0	0	-360	-5,500
14	6:20 AM	7:17 PM	9:20 AM	7:17 PM	12.95	9.95	254	53	3,817	42,400	6:20 AM	6:15 PM	9:20 AM	6:15 PM	11.92	8.92	247	60	3,478	38,600	-338	-3,800
15 (New Airport)	5:10 AM	7:15 PM	5:10 AM	7:15 PM	15.88	16.25	254	53	4,896	54,100	5:10 AM	7:15 PM	5:10 AM	7:15 PM	15.88	16.25	247	60	4,898	54,100	3	0
17 (School)	4 Runs		--	--	3.27	0.00	254	53	830	18,700	5 Runs		--	--	3.75	0.00	247	60	926	20,900	97	2,200
Central Microtransit	--	--	--	--	0.00	0.00	--	--	0		6:30 AM	6:00 PM	9:20 AM	5:15 PM	22.00	8.00	247	60	5,914	88,700	5,914	88,700
Shasta Lake Microtransit	--	--	--	--	0.00	0.00	--	--	0		6:30 AM	6:00 PM	9:20 AM	6:00 PM	11.50	8.67	247	60	3,361	50,400	3,361	50,400
East Microtransit	--	--	--	--	0.00	0.00	--	--	0		6:30 AM	6:00 PM	9:20 AM	5:15 PM	12.00	8.00	247	0	2,964	44,500	2,964	44,500
Anderson Microtransit	--	--	--	--	0.00	0.00	--	--	0		9:00 AM	4:00 PM	--	--	7.00	0.00	247	0	1,729	25,900	1,729	25,900
Weekday Evening Microtransit	--	--	--	--	--	--	--				6:00 PM	9:00 PM	--	--	11.00	0.00	247	0	2,717	40,800	2,717	40,800
Subtotal: RABA Fixed Route/Microtransit									42,383	613,800									51,983	764,800	9,600	151,900
																		Percent Change			23%	25%
Rural Services Operated by RABA																						
19 (Beach)	4 Runs		4 Runs		4.00	4.00	30	15	180	4,600	4 Runs		4 Runs		4.00	4.00	30	15	180		0	0
299X (Burney)	3 Runs		--		8.50	0.00	254	0	2,159	120,000	3 Runs		--		8.50	0.00	247	60	2,100		-60	-3,308
Shingletown Express	--	--	--	--	--	--	--	--	--	--	2 Runs		--		3.50	0.00	247	0	864		864	32,592
Cottonwood Microtransit	--	--	--	--	--	--	--	--	--	--	9:00 AM	4:00 PM	--		4.00	0.00	104	0	416		416	6,240
Total	--	--	--	--	--	--	--	--	2,339	124,600									3,560		1,221	35,523
																					Percent Change	
Demand Response	5:35 AM	7:30 PM	8:35 AM	7:30 PM	40.39	12.50			9,245	162,140					40.39	12.50			9,245		0	0%
Subtotal: Fixed Route					156.12	115.40			44,722						126.47	82.67			38,443		-6,279	-14%
Subtotal: Demand Response/Microtransit					40.39	12.50			9,245						98.89	43.17			26,346		17,101	185%
Grand Total					196.51	127.90			53,967	900,540					225.36	125.83			64,788		10,821	20%

Note 1: Including recent start of Route 15 service and Route 17 modifications. Route 15 includes previous Crosstown Express service quantities.

Table 56: RABA Short Range Transit Plan Operating Costs

All Costs in Thousands

Plan Element	FY23-24	FY24-25	FY25-26	FY26-27	FY 27-28
Base Case Operating Cost [1]					
Urban [2]	$ 7,793.9	$ 8,017.1	$ 8,337.7	$ 8,671.3	$ 9,018.1
Rural	$ 268.7	$ 278.4	$ 289.5	$ 301.1	$ 313.1
Total	$ 8,062.6	$8,295.4	$8,627.3	$8,972.4	$9,331.2
Plan Costs - Urban Service					
Change in Contracted Service Costs	$ 0.0	$ 435.7	$ 453.1	$ 471.2	$ 490.1
Change in Vehicle Maintenance and Fuel Costs	$ 0.0	$ 228.4	$ 237.5	$ 247.0	$ 256.9
Transit Operating Subtotal	$ 0.0	$ 664.0	$ 690.6	$ 718.2	$ 746.9
Technology Enhancements Program	$ 500.0	$ 300.0	$ 250.0	$ 250.0	$ 250.0
Micromobility Program	$ 150.0	$ 150.0	$ 150.0	$ 150.0	$ 150.0
Total Urban Service Plan Costs	$ 650.0	$ 1,114.0	$ 1,090.6	$ 1,118.2	$ 1,146.9
Urban Costs With Plan	$ 8,443.9	$ 9,131.1	$ 9,428.3	$ 9,789.5	$ 10,165.0
Plan Costs - Rural Service					
Shingletown Express - 2 Runs/Day, 5 Days/Week	$ 0.0	$ 94.5	$ 98.3	$ 102.3	$ 106.3
Cottonwood Microtransit -- 2 Days/Week	$ 0.0	$ 28.5	$ 29.6	$ 30.8	$ 32.1
CTSA Shasta Connect Service [3]	$ 0.0	$ 903.9	$ 940.0	$ 977.7	$ 1,016.8
CTSA Coordination Startup	$ 0.0	$ 500.0	$ 0.0	$ 0.0	$ 0.0
Total Rural Service Plan Costs	$ 0.0	$ 1,526.9	$ 1,068.0	$ 1,110.7	$ 1,155.2
Total Rural Costs With Plan	$ 268.7	$ 1,805.3	$ 1,357.5	$ 1,411.8	$ 1,468.3
Total Operating Cost	$ 8,712.6	$ 10,936.4	$ 10,785.9	$ 11,201.3	$ 11,633.3

Note 1: Base Case costs based upon FY 2023-24 Budget, including Route 15 and excluding capital. Assumes inflation rates used in FY 2023-24 Budget.

Note 2: Allocating all fixed costs to urban services.

Note 3: Source: SRTA Comprehensive Budget FY 23/24. Assumes 4 percent annual inflation rate.

Source: LSC Transportation Consultants, Inc.

- In total, inflation is forecast to increase operating costs by $1,269,000, or 16 percent, over the five-year period even if no changes were implemented. By the last year of the planning period, the urban service improvements called for in this SRTP will add $1,721,000 in costs, or 20 percent, to the base urban services cost. Excluding the inclusion of ShastaConnect services in RABA, the rural service expansion will add $138,400 in operating costs, or a 44 percent increase over the current costs, by the last year of the planning period. In total (including absorbing ShastaConnect within RABA), this plan increases annual operating costs by $2,920,800 over the five years or 34 percent over base costs.
- Ridership impacts of the SRTP urban service elements were then estimated, as presented in Table 57. The recent implementation of Route 15 and 17 improvements is forecast to increase overall ridership by 14,900 passenger trips per year. In addition, the other planned changes to fixed routes and urban microtransit services are forecast to add 37,700 passenger trips per year, based on existing ridership and elasticity analyses. Overall, urban ridership will be increased by 52,100 passenger trips, or a 14 percent increase over current ridership once all plan elements are implemented.

Table 57: Ridership Impact of Urban Fixed Route Service Plan	Change in Annual Boardings
Rt 1 Service Direct to DTC	1,300
Start Rt 1 at 6:15 AM	-1,000
Reduced Rt 9 Service Times to Redding	-1,200
Faster Rt 9 Travel Time to Redding	500
Service to Bonneyview/I-5	3,100
New Route 4 30 Minute Midday Service	9,100
Expanded Route 17 Service	5,400
Reduced Weekday Evening Fixed Route Service	-5,300
Evening Microtransit Service	10,300
Shasta Lake Microtransit	7,400
Central Microtransit (Note 1)	200
East Microtransit (Note 1)	1,100
Anderson Microtransit (Note 1)	6,800
Net Change	37,700
Percent Change	10%
Service Recently Implemented	
Route 15 (Service to Redding Airport & VA)	15,800
Reduced Service Along Existing CTE	-1,900
Route 17 Expansion	500
Total	14,400
Percent Change	4%
Total All Changes	52,100
Percent Change	14%
Note 1: Net increase including reduction in fixed route ridership.	

- Total ridership forecasts for all RABA services are shown in the top portion of Table 58. This estimate includes a 5 percent annual growth in "base" ridership, based on current trends in the return of transit ridership post-pandemic. In addition to the urban plan element impacts, Table 58 includes ridership generated from rural service improvements, drawn from Tables 31 and 32 in Chapter 7. Also included is the impact of the fare modifications as shown in Table 47 in Chapter 9. Based on anticipated ridership due to the various service changes recommended as well as the impacts of modifying the RABA fare structure, RABA ridership is forecast to increase by 158,700 annual boardings over the five-year SRTP period, or 37 percent, across all urban, rural, and paratransit services. On the urban fixed route/microtransit services, ridership is forecast to increase by 133,600, or 32 percent. Excluding the ShastaConnect ridership, rural service ridership is forecast to increase by 6,900 boardings or 86 percent.
- Based on these ridership figures, the estimated farebox revenues are presented in the bottom portion of Table 58. By the end of the plan period, the service improvements will increase fares by $252,800 per year ($228,400 in urban service fare revenues and $24,400 in rural service fare revenues), or 38 percent over the base case fares.

Table 58: RABA Short Range Transit Plan Ridership and Fare Revenue
All Numbers in Thousands

	FY23-24	FY24-25	FY25-26	FY26-27	FY 27-28
Annual Ridership -- Urban Service					
Fixed Route Base (1)	394.3	414.0	434.7	456.4	479.2
Paratransit Base	29.1	30.5	32.1	33.7	35.4
Impact of Plan Service Elements	0.0	41.6	43.6	45.8	48.1
Impact of Fare Modifications					
Fixed Routes	0.0	-4.2	-4.4	-4.6	-4.8
Paratransit	0.0	-0.8	-0.8	-0.9	-0.9
Total	423.4	481.1	505.2	530.4	557.0
Annual Ridership -- Rural Service					
Burney Express	8.1	8.5	8.9	9.4	9.8
Shingletown Express - 2 Runs/Day, 5 Days/Week	0.0	2.9	3.8	4.2	4.2
Cottonwood Microtransit -- 2 Days/Week	0.0	0.7	0.9	1.0	1.0
Impact of Fare Modifications	0.0	-0.1	-0.1	-0.1	-0.1
Shasta Connect	0.0	15.8	16.6	17.4	18.3
Total	8.1	27.8	30.0	31.8	33.2
Total Annual Ridership	431.5	508.9	535.2	562.3	590.1
Fare Revenues - Urban Service					
Base Fixed Route	$ 578.0	$ 606.9	$ 637.2	$ 669.1	$ 702.6
Base Paratransit	$ 69.6	$ 73.1	$ 76.7	$ 80.6	$ 84.6
Impact of Plan Service Elements	$ 0.0	$ 50.6	$ 53.1	$ 55.8	$ 58.6
Impact of Fare Modifications					
Fixed Routes	$ 0.0	$ 8.2	$ 8.6	$ 9.0	$ 9.4
Paratransit	$ 0.0	$ 18.0	$ 18.9	$ 19.8	$ 20.8
Total	$ 647.6	$ 756.7	$ 794.6	$ 834.3	$ 876.0
Fare Revenues -- Rural Services					
Burney Express	$ 11.9	$ 12.5	$ 13.1	$ 13.8	$ 14.5
Shingletown Express - 2 Runs/Day, 5 Days/Week	$ 0.0	$ 11.8	$ 15.1	$ 16.8	$ 16.8
Cottonwood Microtransit -- 2 Days/Week	$ 0.0	$ 0.8	$ 1.1	$ 1.2	$ 1.2
Impact of Fare Modifications	$ 0.0	$ 3.31	$ 3.47	$ 3.65	$ 3.83
Total	$ 11.9	$ 28.4	$ 32.8	$ 35.4	$ 36.3

Note 1: Fixed Routes includes Beach Bus

Source: LSC Transportation Consultants, Inc.

Urban Services Operating Financial Plan

The results of Tables 55 through 58 were used to develop the Operating Financial Plan, as presented in Table 59, for each of the five years of the SRTP period. In addition to passenger fare revenues, the urban services operating financial plan incorporates the following funding sources:

- Farebox and advertising revenues.
- Miscellaneous revenues, including lease income, advertising revenue, vending revenues, low carbon fuel credits, interest income, and a small amount of charter revenue. FY 2023-24 revenues also include income from the sale of property.
- FTA Section 5311 (Rural Program) funding, as allocated through the Joint Powers Authority, is used to support the portion of urban services operating outside of the urban boundary.

This source is assumed to grow at the rate of inflation, except in the last two years of the plan period a portion of funding is shifted to support rural services (as discussed below).

- There is currently a balance of $501,500 in 5311(f) funds allocated through the American Rescue Plan Act (ARPA), which must be expended by December 2026. These funds are spread evenly for the period from July 2024 through December 2026.
- FTA Section 5310 (Enhanced Mobilities of Seniors and Persons With Disabilities) funding is allocated to urban services, growing at the rate of inflation.
- FTA Section 5307 (Urban Program) funds are used for operations and are assumed to grow at a rate equal to the nationwide allocation in future years through FY 2027-28, and flat for the final year after current authorization.
- For FY 2023-24, $75,000 in Low Carbon Transit Operations Program state funding is allocated to fund the free fare program. This is assumed to end after this year.
- The $4,115,300 in annual Transportation Development Act (TDA) allocated for operations is assumed to grow by the rate of inflation.
- State Transit Assistance funds (separate from those included in the previous item) are assumed to continue to fund Route 15 operations.
- California State of Good Repair funding is allocated for heavy vehicle maintenance, growing at the rate of inflation.
- The recent passage of California Senate Bill 125 has yielded $13,487,500 in TIRCP funding that can be used for service enhancements as well as capital improvements through the end of FY 2026-27. Of this, $9,628,800 is allocated to operating plan elements. For FY 2027-28, it is assumed that current efforts to increase long-term state funding for transit services will yield funds equal to the previous year.

Comparing total revenues with the costs presented above in Table 56, this financial plan yields a balanced operating budget for all of the five plan years. A substantial operating surplus is indicated for FY 2024-25 through FY 2026-27, due to the availability of accumulated funds that must be expended as well as the expanded TIRCP funding. Even after the accumulated funds are expended, ongoing expanded state funding will probably continue to provide a positive balance. If not, lessons learned over the coming years will provide the input needed to best balance funding and needs at that time.

Rural Services Operating Financial Plan

The financial plan for rural services, as shown in the bottom portion of Table 59, consists of the following:

- Rural fare revenues are drawn from Table 58. Note that the ShastaConnect service is assumed to remain free fare.
- Starting in FY 2024-25 with the shift in ShastaConnect management to RABA, the existing LTF Section 4.5 CTSA allocation as well as the LCTOP funding for this service are shifted to RABA. These funding sources are assumed to grow at the rate of inflation.
- FTA 5311(f) rural intercity funds are applied to fund Burney Express operating costs.

Table 59: RABA SRTP Operating Financial Plan *All Numbers in Thousands*	FY23-24	FY24-25	FY25-26	FY26-27	FY 27-28	Notes
Urban Services						
Fare Revenue						
Fixed Route (2)	$ 578.0	$ 665.7	$ 698.9	$ 733.9	$ 770.6	Reflects service enhancements, fare changes, 5% annual background growth.
Paratransit	$ 69.6	$ 91.1	$ 95.6	$ 100.4	$ 105.4	Reflects fare changes, 5% annual background growth
Miscellaneous Revenues (1)	$ 191.8	$ 196.3	$ 204.2	$ 212.4	$ 220.9	
5311 Funds (JPA)	$ 409.8	$ 420.1	$ 464.2	$ 327.1	$ 292.0	Reflects shift in allocation to rural services in last two years
FTA 5311 ARPA for Urban Fixed Route Service in Rural Areas	$ 0.0	$ 200.6	$ 200.6	$ 100.3	$ 0.0	Total of $702,200 that must be expended by December 2026, but $200,700 is 5311f so allocated to rural. Spread evenly.
FTA 5310	$ 220.9	$ 226.5	$ 238.9	$ 248.5	$ 258.4	Allocate all to urban services
FTA 5307	$ 2,000.0	$ 2,052.6	$ 2,095.0	$ 2,148.5	$ 2,148.5	Increasing per increase in total nationwide funding.
TDA Operating (LTF and STA)	$ 4,115.3	$ 4,279.9	$ 4,451.1	$ 4,629.2	$ 4,814.3	
LCTOP for Free Fare	$ 75.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	
SRTA Funding for Beach Bus	$ 25.4	$ 0.0	$ 0.0	$ 0.0	$ 0.0	Note Beach Bus included in urban services. Funded by 5311 starting FY 24/25
STA for Route 15	$ 90.0	$ 93.6	$ 101.2	$ 113.9	$ 133.2	Assumed to be allocated annually, with inflation
State of Good Repair	$ 234.4	$ 243.8	$ 253.5	$ 263.7	$ 274.2	For heavy vehicle maintenance
TIRCP SB 125 Funding						
Service Enhancements	$ 0.0	$ 2,500.0	$ 2,575.0	$ 2,653.8	$ 2,653.8	
Technology Enhancements Program	$ 500.0	$ 300.0	$ 250.0	$ 250.0	$ 250.0	Per SB 125 Fund Request Table. Assumes continuing State funding after FY 2026/27
Micromobility Program	$ 150.0	$ 150.0	$ 150.0	$ 150.0	$ 150.0	
TOTAL	$ 8,660.2	$ 11,420.1	$ 11,778.4	$ 11,931.5	$ 12,071.3	
Net Balance	$216.26	$2,289.06	$2,350.04	$2,141.99	$1,906.25	
Rural Services						
Fare Revenue						
Burney, Shingletown and Cottonwood Services	$ 11.9	$ 28.4	$ 32.8	$ 35.4	$ 36.3	
Shasta Connect	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 0.0	Assumes it remains free fare
LTF 5% CTSA Allocation	$ 0.0	$ 436.9	$ 454.4	$ 472.6	$ 491.5	For Shasta Connect, assuming program shifts to RABA in FY 24/25
Low Carbon Transit Operations Program	$ 0.0	$ 392.1	$ 407.8	$ 424.1	$ 441.0	For Shasta Connect expanded Sunday and weekday, assuming program shifts to RABA in FY 24/25.
5311(f) Funds	$ 274.9	$ 281.8	$ 288.9	$ 296.2	$ 303.7	For Burney Express
TIRCP SB 125 for CTSA Coordination Startup	$ 0.0	$ 500.0	$ 0.0	$ 0.0	$ 0.0	
5311 (f) ARPA	$ 0.0	$ 82.8	$ 83.2	$ 34.7	$ 0.0	$ 200.7 Total Available After 2022/23, must be spent by Dec 2026.
CRRSAA	$ 0.0	$ 83.3	$ 90.5	$ 0.0	$ 0.0	$ 988.6 Total Available. Must be spent by June 2026.
Shift in 5311 Allocation to Rural Services	$0.00	$0.00	$0.00	$148.84	$195.81	
TOTAL	$ 286.8	$ 1,805.3	$ 1,357.5	$ 1,411.8	$ 1,468.3	
Net Balance	$18.1	$0.0	$0.0	$0.0	$0.0	
Total Urban and Rural Services	$8,946.98	$13,225.45	$13,135.89	$13,343.28	$13,539.59	
Net Balance	$234.40	$2,289.06	$2,350.04	$2,141.99	$1,906.25	

Note 1: Includes DTC lease income, bus and shelter advertising revenue, low carbon fuel credit, vending revenues, charter revenue, sale of property and interest from cash accounts

- TIRCP funding available through SB 125 is allocated in FY 2024-25 to fund start-up management costs associated with the shift in ShastaConnect services to RABA.
- There is a total of an additional $200,700 in accumulated FTA 5311(f) funding that must be expended by December of 2026. These funds are spread evenly over the period from July 2024 through December 2026 until fully expended.
- There also is a total of $988,600 in Coronavirus Response and Relief Supplemental Appropriate Act (CRRSAA) funding that must be expended by June of 2026. These funds are used to balance the rural operating costs in FY 2024-25 and FY 2025-26. Note that this requires only a total of $173,800, leaving $814,770 available for other purposes.
- After the expenditure of the available ARPA and CRRSAA accumulated funds, in the last two fiscal years funding rural services will require a partial shift in 5311 allocations from urban services to rural services. As indicated, approximately $149,000 in reallocation will be needed in FY 2026-27 and $196,000 in FY 2027-28. This latter figure represents 40 percent of the estimated 5311 allocation.

With this financial plan, a balanced rural operating budget can be achieved for all of the SRTP Fiscal Years.

Capital Financial Plan

Table 60 presents the financial plan to implement the recommended capital improvements. This financial plan is based on RABA's current long-range financial and ZEB plans, as well as the analysis of vehicle fleet requirements developed as part of this SRTP. As indicated, there are a total of $20,563,600 in capital expenditures over the five-year planning period. Much of these funds are expected to come from FTA sources, including the 5339a and 5339c programs. State sources also generate a substantial proportion of the funding, including the TIRCP, ZETCP, LCTOP, and State of Good Repair programs. Local TDA funds are forecast to total approximately $1.9 million, or 9 percent of the five-year total funding needs.

Table 60: RABA SRTP Capital Plan
All Numbers in Thousands

Source	FY23-24	FY24-25	FY25-26	FY26-27	FY 27-28	5-Year Total	Notes
COSTS							
Vehicle Purchases	$0.0	$5,284.9	$4,596.7	$4,734.6	$2,652.3	$17,268.5	See Table 37
Bus Stop Modifications	$325.0	$60.0	$0.0	$0.0	$0.0	$385.0	
Downtown Transit Center Improvements	$78.0	$115.0	$0.0	$0.0	$0.0	$193.0	FY 24-25 for ZEB Charging
Canby Transit Center Improvements	$7.0	$0.0	$0.0	$0.0	$0.0	$7.0	
Operations Facility Improvements	$0.0	$150.0	$2,188.3	$0.0	$0.0	$2,338.3	Elements of ZEB Plan
Fare & Security Technology	$371.8	$0.0	$0.0	$0.0	$0.0	$371.8	
Total	$781.8	$5,609.9	$6,785.0	$4,734.6	$2,652.3	$20,563.6	
REVENUES							
5339a Federal Bus & Bus Facilities	$138.0	$0.0	$0.0	$0.0	$0.0	$138.0	
5339c Federal Lo-No	$0.0	$1,865.7	$3,677.4	$3,787.7	$2,254.5	$11,585.2	
State of Good Repair	$310.0	$40.0	$0.0	$0.0	$0.0	$350.0	
Transit & Intercity Rail Capital Program	$0.0	$2,368.0	$2,676.3	$502.8	$0.0	$5,547.1	
Zero Emission Transit Capital Program	$0.0	$682.0	$290.4	$0.0	$0.0	$972.4	
Low Carbon Transit Operations Program	$89.1	$0.0	$0.0	$0.0	$0.0	$89.1	
Transportation Development Act	$244.7	$654.2	$140.9	$444.1	$397.8	$1,881.9	
Total	$781.8	$5,609.9	$6,785.0	$4,734.6	$2,652.3	$20,563.6	
BALANCE	$0.0	$0.0	$0.0	$0.0	$0.0		