

REDDING AREA BUS AUTHORITY SHORT RANGE TRANSIT PLAN

Final Report



Prepared for the
Redding Area Bus Authority



January 22, 2024



Prepared by LSC Transportation Consultants

Redding Area Bus Authority Short Range Transit Plan

Final Report

Prepared for

Redding Area Bus Authority
3333 S. Market Street
Redding, CA 96001

Prepared by

LSC Transportation Consultants, Inc.
2690 Lake Forest Road, Ste. C
Tahoe City, CA 96145
530-583-4053

and

Transportation Management and Design, Inc. (TMD)
2701 Loker Avenue West, Suite 110
Carlsbad, CA 92010
760-476-9600

January 22, 2024

REDDING AREA BUS AUTHORITY BOARD OF DIRECTORS

Mark Mezzano, Chair – Redding City Council
Justin Jones, Vice Chair – City of Shasta Lake
Michael Dacquisto – Redding City Council
Tenessa Audette – Redding City Council
Jack Muns – Redding City Council
Julie Winter – Redding City Council
Patrick Jones – Shasta County Board of Supervisors
Mike Gallagher – City of Anderson

REDDING AREA BUS AUTHORITY

Steve Bade – Executive Officer
John Andoh – Transit Manager
Yujin Copland – Management Analyst II

CONSULTANT TEAM

Gordon Shaw, PE, AICP
Selena McKinney
Justine Marmesh, AICP
Claire Hutchinson
Alex Silverman
Ari Keplinger
Ron Kilcoyne

REDDING AREA BUS AUTHORITY SHORT RANGE TRANSIT PLAN EXECUTIVE SUMMARY

*PREPARED BY LSC TRANSPORTATION CONSULTANTS, INC. & TMD, INC.
JANUARY 22, 2024*

The Redding Area Bus Authority (RABA) provides mobility services to a large percentage of Shasta County residents. The RABA Short Range Transit Plan (SRTP) presents a five-year operations plan that considers transit services throughout Shasta County that are sustainable, effective and meets the needs of the population while still considering the constraints of available resources. The RABA SRTP will serve as a “business plan” to ensure that RABA continues to meet the current and future mobility needs of the region.

Chapter 2 reviews characteristics of the region that drive transit demand, such as population growth, demographics, and economic factors. The population is growing at a modest rate and the proportion of senior residents is also growing, indicating a potentially growing need for transit services. This chapter also provides an evaluation of where transit needs are greatest within the service area.

Chapter 3 reviews the existing RABA services. RABA operations, similar to other transit programs, were significantly impacted by the COVID-19 pandemic during recent years. From Fiscal Year (FY) 2018-19 to FY 2020-21, fixed route ridership dropped by 43 percent and paratransit ridership dropped by 69 percent. From FY 2020-21 to FY 2022-23, however, ridership has begun to recover: fixed route ridership increased by 17 percent and paratransit ridership increased by 81 percent. The best performing RABA services in FY 2022-23 were Routes 11 and 14, while the worst performing services were Routes 12X, 17, and 299X.

Chapter 4 discusses public outreach efforts conducted for the RABA SRTP. Throughout the planning process, public comments were solicited through two public workshops, onboard passenger surveys, online surveys, and stakeholder interviews. The service improvements most requested included later service hours, Sunday service, more frequent service, reduced travel times, and improved bus stops.

Chapter 5 provides a detailed evaluation of the RABA system, including the areas served, the span of service (days and hours of service) and service frequency. In addition, the transit fleet, bus stops and transit centers are assessed, and the current fare structure reviewed.

Chapter 6 presents potential alternatives for RABA’s urban services. Alternatives analyzed include route realignments, the elimination of poor performing services, microtransit programs, combined microtransit and fixed route programs, and changes to the span of service.

Chapter 7 summarizes RABA’s existing rural services (Routes 19 and 299X) in detail, before presenting possible alternatives to expand RABA services throughout more areas of Shasta County. Types of service considered for these rural areas included deviated fixed route service, flex route service, and microtransit. Chapter 7 also presents recommendations on how RABA can better coordinate with neighboring transit systems (Trinity Transit, Sage Stage, and Tehama Area Express) to serve rural Shasta County residents.

Chapter 8 reviews RABA's current performance standards and makes recommendations for how standards should be modified to better assess operations post-pandemic. RABA performance from FY 2021-22 is then analyzed using the newly recommended performance standards.

Chapters 9 through 11 present fare, capital, and marketing recommendations. The discussions presented in these three chapters directly influenced the final recommendations made in Chapter 12.

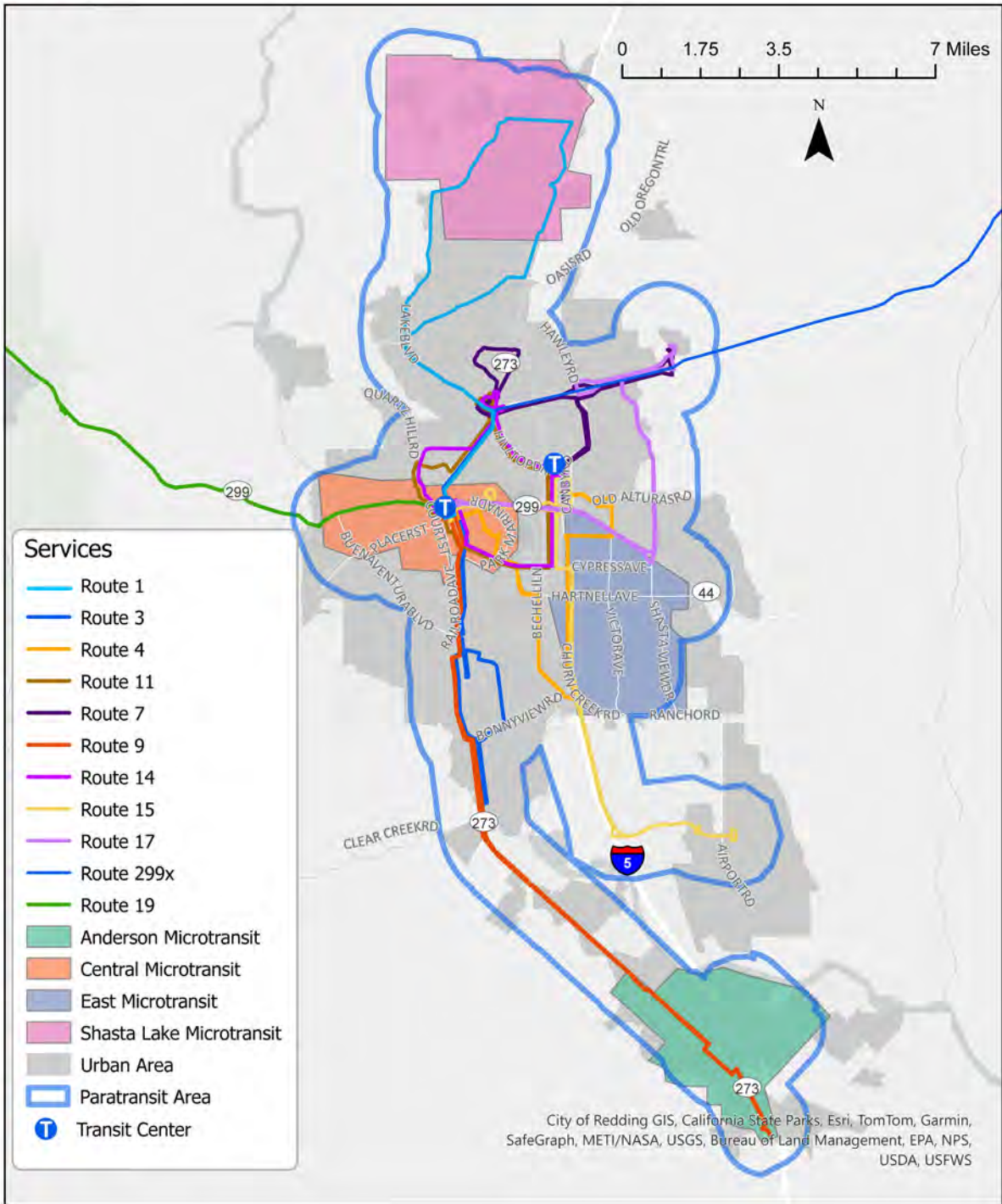
Finally, **Chapter 12** presents the RABA Short Range Transit Plan. A summary of these plan elements is shown in the attached two figures. The key elements of the Plan are as follows.

Urban Service Plan

- Extend Route 1 to the Downtown Transit Center (DTC) and replace existing service in northern Redding with revised Route 7 and replace existing service in northwest Shasta Lake with a Shasta Lake microtransit service.
- Replace Route 2 with a Central Microtransit service.
- Streamline and shorten Route 3, replacing service with microtransit service and an extension of Route 9.
- Combine Routes 4 and 5 and extend south to the new commercial center (Costco) near Bonneyview Road. Existing areas east of Churn Creek Road will instead be served by an East Microtransit service. This new combined route will be served every half hour.
- Eliminate Route 6 and replace it with a combination of revisions to Route 7, the revised Route 4/5 and the East Microtransit service.
- Revise Route 7 to serve the Canby Transit Center rather than the DTC and serve the stops along northern Churn Creek Road.
- Extend Route 9 to the DTC, eliminating the need to transfer for trips between Anderson and Redding and streamline the route in Anderson, replaced with microtransit service.
- Maintain existing Routes 11 and 14, except for minor schedule modifications to allow transfers while allowing the elimination of the Masonic Transit Center.
- Continue the recently initiated Flex Route 15/18 between the DTC and the Redding Regional Airport, branding it as a single route (Route 15).
- Modify Route 17 to operate five runs per school day between DTC and Shasta College via SR 44, Shasta View Drive, and the SR 299 frontage roads.
- Implement microtransit service in four zones: Central Redding, Shasta Lake, Anderson, and an East Redding zone south of SR 44 and east of Churn Creek Road.

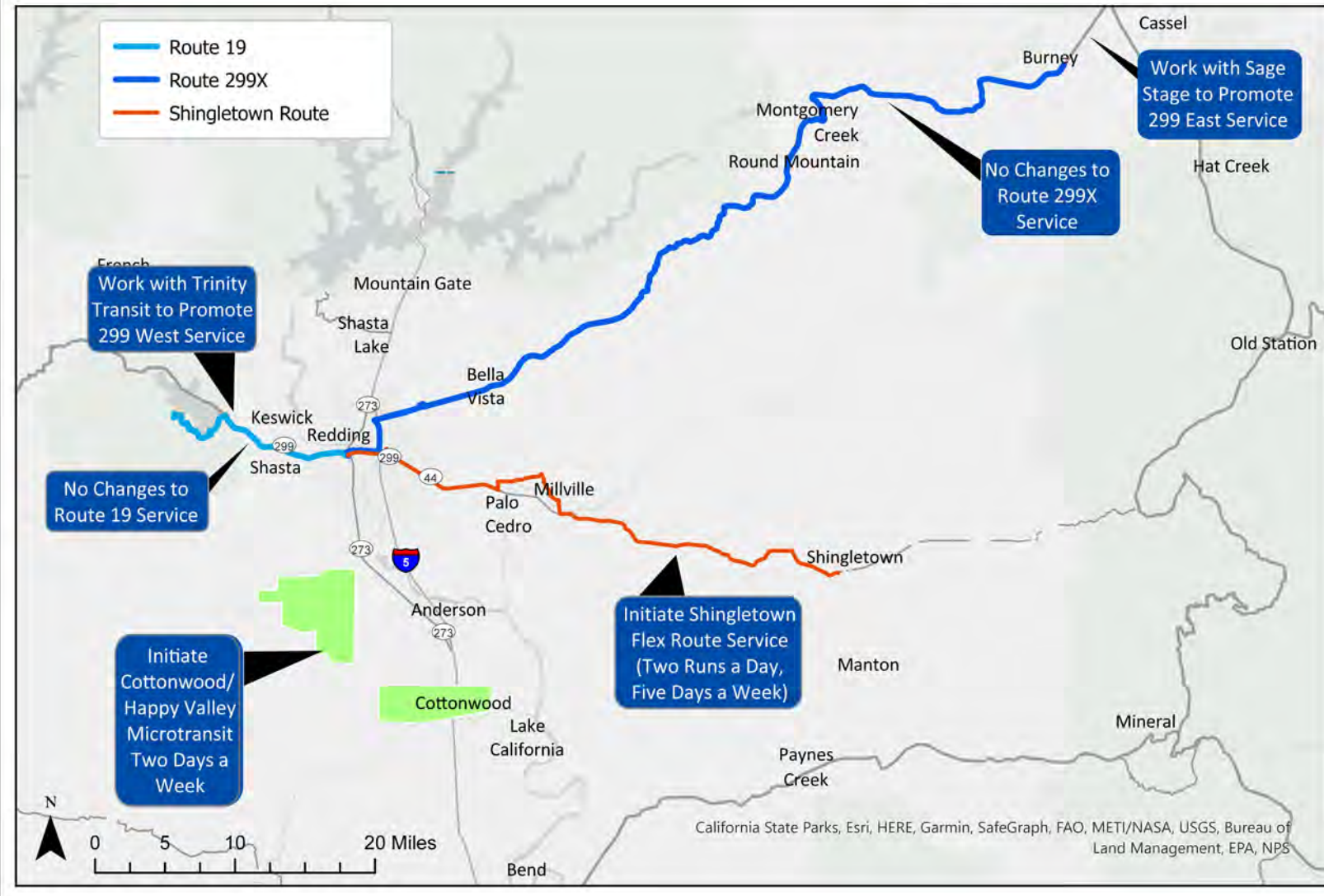


RABA Urban Services Plan





RABA Rural Services Plan



- Provide evening weekday microtransit service throughout the RABA paratransit service area from 6:00 PM to 9:00 PM. Trim back the hours of fixed route service to end at roughly 6:15 PM rather than 7:15 PM.
- Provide Sunday microtransit service between 8:00 AM and 4:00 PM throughout the RABA urban service area. This will replace the existing ShastaConnect Sunday service.
- Operate the reduced Saturday service plan on seven additional holidays per year.
- Extend the RABA paratransit area to provide service within 0.75 miles of the new Route 15.

Rural Service Plan

- Initiate weekday Flex Route service between Shingletown and Redding, consisting of a morning westbound run, one mid-day round trip and an evening eastbound run, on a demonstration basis.
- Also on a demonstration basis, initiate microtransit service in Cottonwood and Happy Valley two days a week, providing connections to other services in Anderson.
- Coordinate with Trinity Transit, Sage Stage and TRAX to improve transit options for Shasta County residents on the SR 299 West, SR 299 East, and Redding-Red Bluff corridors, respectively.

Capital Improvements Plan

- Purchase of a total of 31 zero emission transit vehicles to replace aging vehicles.
- Initiate microtransit services and shift to smaller and more efficient vehicles where appropriate.
- Transit technology improvements, including improved fare collection technology, real-time tracking and web information, automatic passenger counters on the transit vehicles, and advanced management tools.
- A demonstration micromobility program including vanpools, bikeshare/scooter rental programs and/or subsidy of transportation network company services for specific passenger trips.
- Make improvements to the DTC and Canby Transfer Center. Make improvements to other stops where warranted and remove bus stops and shelters/benches where no longer needed, including the Masonic Transit Center.
- Make improvements to the operations facility on South Market Street, including zero emission facilities and a hydrogen generation station.

Fare Plan

- Simplify the RABA urban fixed route fare system by raising the general public fixed route fare from \$1.50 to \$2.00 (\$1.00 for Seniors, Veterans, and persons with disabilities), but eliminating the current 3-zone system. These fares were last raised 18 years ago. Use technology to cap total fares for frequent riders.
- Replace existing punch passes with 1-day, 7-day and 30-day passes.
- Provide free-fare fixed route service for Youth ages 0 to 18.

- Simplify the long-distance fares at a flat \$4.00 one-way ride fare, with passes.

Management Plan

- Work towards integrating ShastaConnect services into RABA to increase overall efficiency. A detailed study should first be conducted, with the goal of integration over the next several years.
- Adopt updated goals and performance measures.

Marketing Plan

This plan includes recommendations regarding improvements to the online information, print materials, phone information, social media efforts and in-person outreach, focusing on providing a comprehensive source of county-wide transit/mobility information for both existing services and future enhancements.

Financial Plan

The financial plan takes advantage of expanded state and federal funding opportunities (as well as greater flexibility in state requirements) to fully fund the various enhancements while reducing the need for local transit support.

TABLE OF CONTENTS

<i>CHAPTERS</i>	<i>PAGE</i>
Chapter 1: Introduction	1
Chapter 2: Study Area Characteristics	3
Introduction	3
Geography	3
Population.....	3
Economy	10
Activity Centers.....	11
Chapter 3: Overview of Existing Transit Services	15
Introduction	15
RABA Organization.....	15
RABA Bus Service	15
RABA Demand Response	18
RABA Fare Structure	18
Changes to RABA in the Past Five Years.....	19
RABA Ridership	21
RABA Financial Overview	23
RABA Performance Analysis.....	26
RABA Quality of Service	28
RABA Capital Assets	31
RABA Contract Services.....	34
Other Transportation Services	35
Chapter 4: Public Outreach and Field Data Collection Efforts	39
Introduction	39
Public Outreach	39
RABA Field Data	45
Chapter 5: Evaluation of Existing RABA Public Transit System	49
Introduction	49
Assessment of RABA Services	49
Fare Structure	52
Overview of Capital Assets.....	54
Summary and Conclusions.....	55
Chapter 6: Urban Service Alternatives	57
Introduction	57

Fixed Route Service Alternatives Without Microtransit.....	57
Microtransit Alternatives	77
Combined Fixed Route / Microtransit Service Alternatives	84
Span of Service Alternatives	94
Performance Comparison of RABA Service Alternatives.....	97
Demand Response and Other Service Alternatives	106
Chapter 7: Rural Service Alternatives.....	109
Introduction	109
Demographic Analysis.....	109
Existing Services.....	111
Rural Outreach Efforts	118
RABA Rural Service Alternatives.....	118
Performance Analysis	130
Other Alternatives.....	133
Funding for Existing RABA Service in Rural Areas	136
Alternatives for Improved Coordination with Other Public Transit Services.....	136
Service Recommendations.....	139
Management Alternatives	140
Chapter 8: Review of Policies and Performance Standards	143
Introduction	143
Summary of RABA Goals and Standards	143
RABA Performance Review	144
Summary.....	148
Demand Response Performance	149
Chapter 9: Fare Policy Review and Recommendations	151
Existing Fare Structure.....	151
Best Practices.....	151
Fare Revisions	152
Other Recommended Changes to Fare Policies.....	155
Chapter 10: Capital Alternatives	159
Introduction	159
Vehicle Alternatives	159
Facility and Bus Stop Alternatives	161
Chapter 11: Marketing Strategies.....	165
Introduction	165
Marketing Objectives.....	165
Current RABA Marketing Activities	166
Marketing the Service Revisions Resulting from the Short Range Transit Plan.....	169

Chapter 12: RABA Short Range Transit Plan.....	171
Introduction	171
Service Plan.....	171
Capital Improvements.....	179
Fare Recommendations.....	185
Management Plan.....	185
Financial Plan	187

LIST OF TABLES

<i>TABLES</i>	<i>PAGE</i>
Table 1: Historic and Current Population.....	5
Table 2: Shasta County Population Projections by Age Category	5
Table 3: RABA Study Area Demographic Characteristics	7
Table 4: Redding Region Transit Needs Index.....	9
Table 5: Summary of RABA Services and Frequency.....	18
Table 6: RABA Fare Summary.....	19
Table 7: Bus and Paratransit RABA Ridership by Route, FY 2019 to FY 2023	22
Table 8: RABA Operating Expenses and Revenues.....	25
Table 9: RABA Performance FY 2021-22	27
Table 10: RABA Sample Trips: Travel Times, Frequency, and Transfers.....	30
Table 11: Comparison of RABA Bus Versus Auto Travel Times	31
Table 12: RABA Revenue Vehicles.....	32
Table 13: RABA Contract Services Schedules	34
Table 14: Top Boarding Locations.....	46
Table 15: Fare Structures of Peer Agencies	53
Table 16: Evaluation of RABA Route Running Time Reductions.....	58
Table 17: RABA Service Alternatives to Reduce Route Running Times	60
Table 18: RABA Service Alternatives – Route Realignments	73
Table 19: Microtransit Peer Review – Service Summary.....	79
Table 20: RABA Service Alternatives – Microtransit in Place of Fixed Routes.....	82
Table 21: RABA Service Alternatives – Fixed Route with Microtransit (1/2)	87
Table 22: RABA Service Alternatives – Fixed Route with Microtransit (2/2)	92
Table 23: RABA Service Alternatives – Span of Service	96
Table 24: Comparison of Service Alternatives – Shortened Fixed Routes.....	97
Table 25: Comparison of Service Alternatives – Route Realignments	101
Table 26: Comparison of Service Alternatives – Microtransit & Span of Service	104
Table 27: Existing and Potential Rural Service Area Demographics	109
Table 28: Existing and Potential Rural Service Area Transit Needs Index	111
Table 29: Route 299X Performance	114
Table 30: Route 19 Performance	118
Table 31: Rural Service Alternatives.....	119

Table 32: Rural Service Alternatives Ridership Analysis	120
Table 33: Example Reduced Route 299X Schedule	121
Table 34: Example Route 299X Schedule Extended to McArthur	123
Table 35: Example Shingletown Express Schedules	125
Table 36: Example Happy Valley Express Schedules	128
Table 37: Example Shasta/Keswick Express Schedules	128
Table 38: Example Cottonwood Express Schedules	129
Table 39: RABA Rural Service Alternatives Performance Analysis.....	130
Table 40: RABA Fixed Route Service in Rural Areas	138
Table 41: Other Rural Services in Shasta County	138
Table 42: Recommended RABA Safety and Service Area Goals and Standards	145
Table 43: Recommended RABA Quality and Effectiveness Goals and Standards.....	146
Table 44: Recommended RABA Cost Efficiency Goals and Standards.....	147
Table 45: RABA Demand Response Trip No-Shows and Cancellations.....	149
Table 46: RABA Fare Recommendations.....	154
Table 47: Impacts of Proposed RABA Fare Modifications.....	156
Table 48: RABA Existing Vehicle Replacement Schedule	160
Table 49: Analysis of RABA Vehicle Size Requirements.....	161
Table 50: RABA Bus Stops for Potential Removal.....	163
Table 51: RABA Marketing Strategy	170
Table 52: Vehicle Recommendations and Fleet Requirements	181
Table 53: RABA SRTP Vehicle Replacement Schedule Based on Useful Life.....	182
Table 54: RABA SRTP Vehicle Purchase Plan	183
Table 55: Analysis of RABA SRTP Vehicle-Hours and Vehicle-Miles of Service.....	188
Table 56: RABA Short Range Transit Plan Operating Costs	189
Table 57: Ridership Impact of Urban Service Plan	190
Table 58: RABA Short Range Transit Plan Ridership and Fare Revenue.....	191
Table 59: RABA SRTP Operating Financial Plan	193
Table 60: RABA SRTP Capital Plan	195

LIST OF FIGURES

<i>FIGURES</i>	<i>PAGE</i>
Figure 1: Study Area Site and Location Map	4
Figure 2: Transit Needs Index	8
Figure 3: RABA Study Area Activity Centers	12
Figure 4A: RABA Urban Fixed Route Services.....	16
Figure 4B: RABA Rural Fixed Route Services	17
Figure 5: RABA Bus and Paratransit Ridership by Year, FY 2011 to FY 2023	22
Figure 6: RABA Bus Ridership by Month, FY 2019 to FY 2023.....	23
Figure 7: RABA Bus Daily Ridership by Hour, FY 2022	24
Figure 8: RABA Passenger Trips per Revenue Hour FY 22-23.....	26

Figure 9: RABA Passenger Trips per Revenue Mile FY 22-23.....	28
Figure 10: RABA Marginal Operating Subsidy per Passenger Trip FY 22-23.....	29
Figure 11: ShastaConnect Service Area.....	36
Figure 12: RABA Onboard Survey Responses by Route.....	40
Figure 13: RABA Surveyed Passengers Round-Trip Travel Patterns	41
Figure 14: Passenger Opinions on RABA Service.....	42
Figure 15: Changes to RABA Services that Would Encourage Increased Ridership Among Shasta College Students	44
Figure 16: Impact of Potential Route 299X Service Improvements on Passengers’ Ridership	45
Figure 17: RABA On-Time Performance.....	47
Figure 18: RABA Alternatives to Reduce Running Time – Rt. 1 – No Service on Caterpillar Loop.....	59
Figure 19: RABA Alternatives to Reduce Running Time – Rt 1 – No Service on Lake Blvd N. of Oasis ..	61
Figure 20: RABA Alternatives to Reduce Running Time – Routes 2W, 2E and 3	63
Figure 21: RABA Alternatives to Reduce Running Time – Routes 4 and 5.....	63
Figure 22: RABA Alternatives to Reduce Running Time – Route 11	67
Figure 23: RABA Alternatives to Reduce Running Time – Route 14.....	68
Figure 24: RABA Alternatives to Reduce Running Time – Route 6	70
Figure 25: RABA Alternatives to Reduce Running Time – Route 7	71
Figure 26: RABA Alternatives to Reduce Running Time – Route 18.....	72
Figure 27: Revised Route 18 – No Service to Civic Center, Service to Target and Walmart.....	74
Figure 28: RABA Alternatives to Serve New Costco – Routes 3 and 9, and 4.....	76
Figure 29: Downtown Microtransit Zone with Shortened Routes	86
Figure 30: East Microtransit Zone with Combined Routes 4, 5, and 6 South.....	89
Figure 31: West Microtransit Zone	91
Figure 32: Anderson Microtransit Zone with Route 9 Express.....	93
Figure 33: Change in Annual Ridership of RABA Alternatives	99
Figure 34: Change in Annual Marginal Operating Cost of RABA Alternatives	100
Figure 35: Change in Operating Cost per Passenger Trip of RABA Alternatives.....	102
Figure 36: Change in Ridership per Vehicle Hour of RABA Alternatives.....	103
Figure 37: Public Opinion of High-Performing RABA Service Alternatives	105
Figure 38: Route 299X Ridership by Year	112
Figure 39: Route 299X Ridership by Month	113
Figure 40: Route 299X Average Daily Ridership by Month	113
Figure 41: Route 299X Average Boardings by Round Trip.....	114
Figure 42: Route 19 Ridership by Year	116
Figure 43: Route 19 Daily Ridership	116
Figure 44: Route 19 Ridership by Round Trip	117
Figure 45: Potential Extension of Route 299X and Service to Shingletown	124
Figure 46: Potential Rural Services to Cottonwood, Happy Valley, and Old Shasta/Keswick Areas	127
Figure 47: Change in Ridership per Passenger Hour of RABA Rural Alternatives.....	132
Figure 48: Change in Annual Marginal Operating Subsidy per Passenger Trip of RABA Rural Alternatives.....	134
Figure 49: Existing RABA Transit Services and Redding Urbanized Area.....	137

Figure 50: RABA Urban Services Plan 172
Figure 51: RABA Rural Services Plan 177

LIST OF APPENDICES

- Appendix A: Demographic Maps and Employment Data
- Appendix B: Route Profiles
- Appendix C: Community Workshop Presentations
- Appendix D: Detailed Onboard Survey Results
- Appendix E: Detailed Shasta College Survey Results
- Appendix F: Rural Outreach Summary
- Appendix G: Summary of Stakeholder Interviews
- Appendix H: Review of Relevant Reports
- Appendix I: RABA Microtransit Service Alternatives Analysis
- Appendix J: List of RABA Bus Stops to Remove After the Implementation of Microtransit

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.

This page intentionally left blank.

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 county, 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

Population estimates (as of 2023) are available through the US Census Bureau and the California Department of Finance (California DOF), as shown in Table 1. Population growth in Redding outpaced the growth rate in California from 1980 to 2010, slowing along with the rest of the state since 2010. The greatest period of growth in Redding 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 1 percent between 2010 to 2023 (0.0 percent annually). The City of Anderson, like Redding, grew the most between 1970 and 1980 (34 percent), but has continued to experience steady growth, experiencing 11 percent population growth from 2010 to 2023.

The California DOF also projects 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

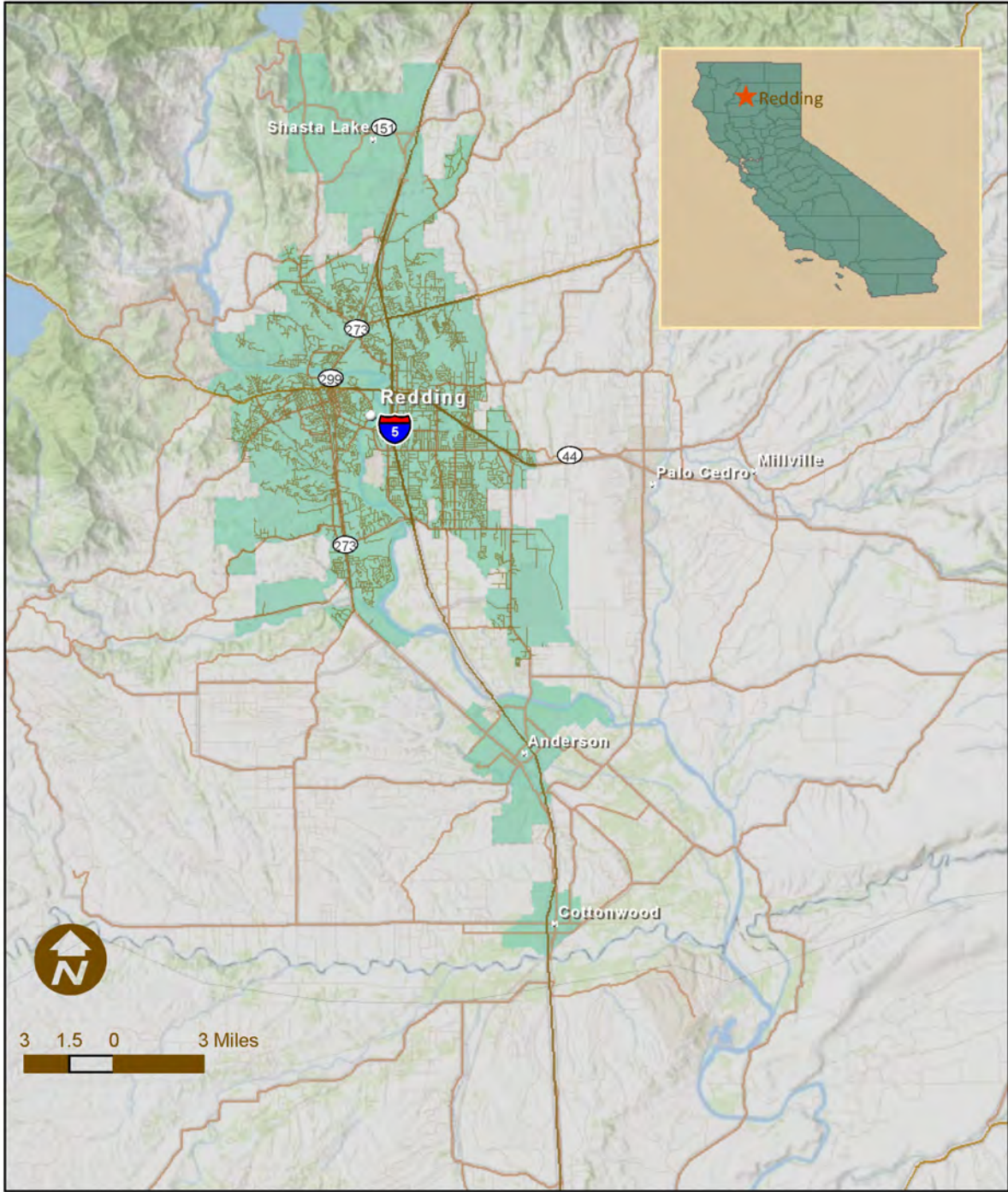


Table 1: Historic and Current Population

	1970	1980	1990	2000	2010	2023
City of Redding	16,659	41,995	66,462	80,865	89,861	92,465
Annual Percent Growth	-	15%	6%	2%	1%	0.2%
Over Previous 10 years ¹	-	152%	58%	22%	11%	3%
City of Shasta Lake ²				9,093	10,164	10,217
Annual Percent Growth	-	-	-	-	1%	0.0%
Over Previous 10 years ¹	-	-	-	-	12%	1%
City of Anderson	5,492	7,381	8,299	9,027	9,932	11,027
Annual Percent Growth	-	3%	1%	1%	1%	0.8%
Over Previous 10 years ¹	-	34%	12%	9%	10%	11%
Shasta County	77,640	115,715	148,606	163,256	177,277	181,893
Annual Percent Growth	-	5%	3%	1%	1%	0.2%
Over Previous 10 years ¹	-	49%	28%	10%	9%	3%
California	19,963,000	23,667,902	29,760,021	33,871,648	37,253,956	38,940,231
Annual Percent Growth	-	2%	3%	1%	1%	0.3%
Over Previous 10 years ¹	-	19%	26%	14%	10%	5%

Note 1: Growth over previous 13 years shown for time period covering 2010 to 2023.

Note 2: 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 Households	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

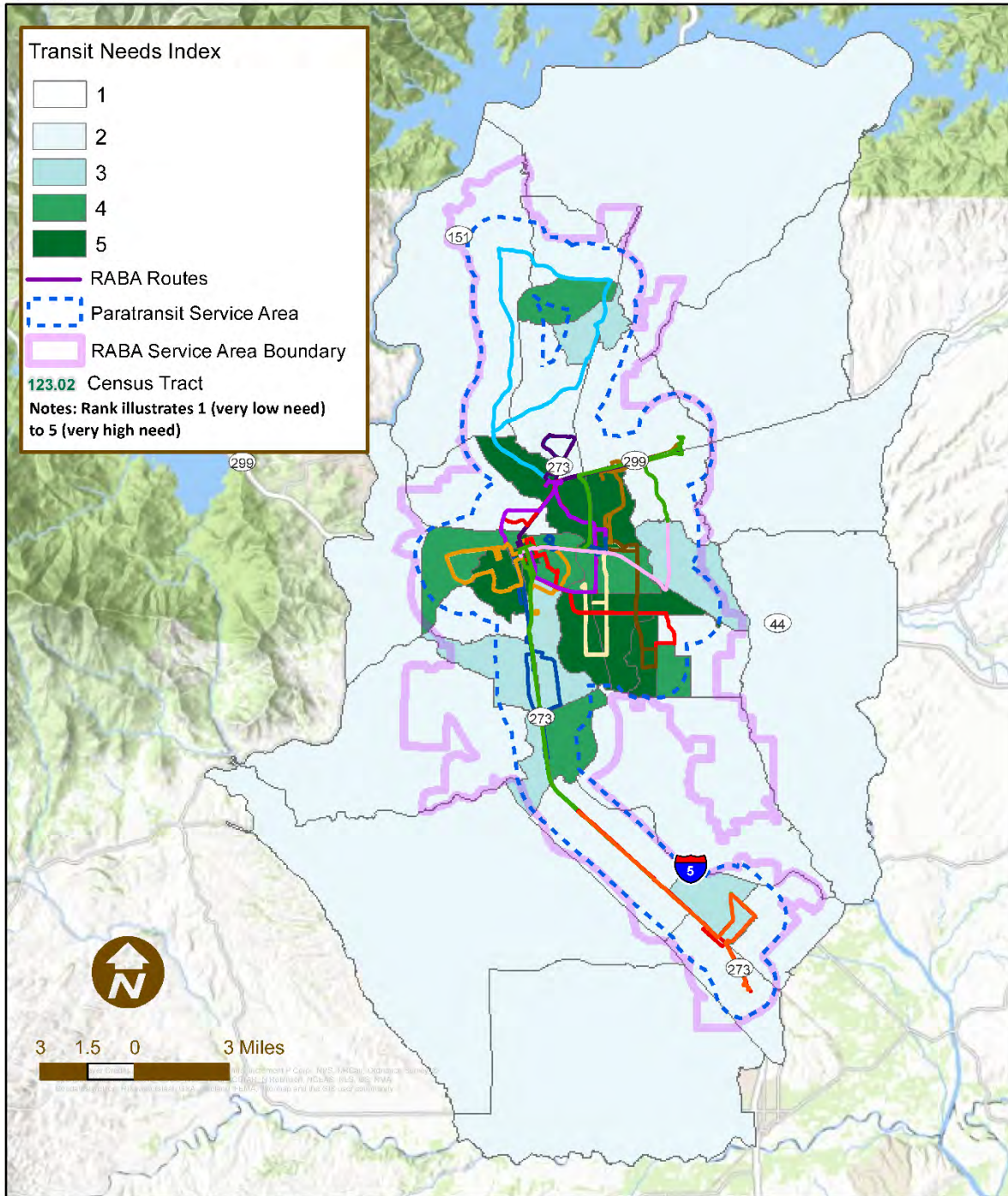


Table 4: Redding Region Transit Needs Index

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

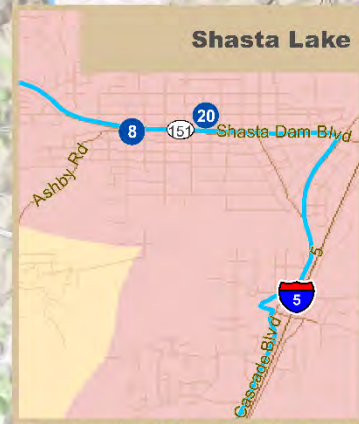
Major activity centers typically include areas where origin and destination transportation demands are high. There is no set formula that is used to derive a list of activity centers, but this typically includes cultural and tourist attractions, large commercial retail, public and private educational 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.

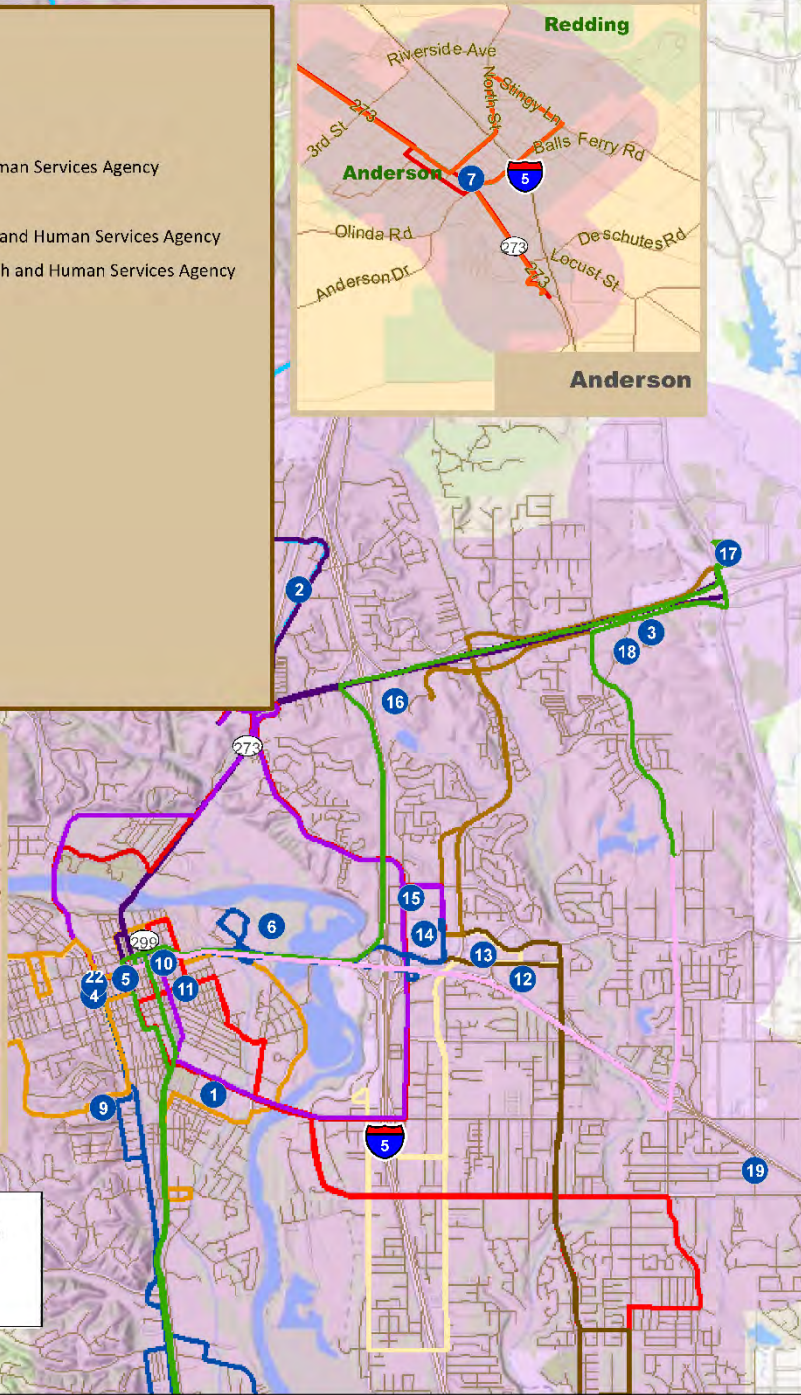


Figure 3
RABA Study Area Activity Centers

- 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



Paratransit Service Area
 RABA Routes



- *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.

This page intentionally left blank.

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 per the terms of the JPA.



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 5:35 AM to 7:15 PM weekdays and from 8:35 AM to 7:15 PM Saturdays. RABA does not operate on Sundays. Table 5 details RABA services as of October 2023.

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 five runs per weekday between Downtown Redding and Shasta College, with service to four schools during the day.
- Flex Route 15/18 operates between the east and west sides of Redding, serving the Downtown and Canby Transit Centers before heading south to serve the new VA Clinic and the Redding Regional Airport. Service is provided hourly.

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 information for the Burney Express is summarized in Tables 5 and 6. Chapter 7 discusses these rural services in detail.



Figure 4a
RABA Urban Transit Services

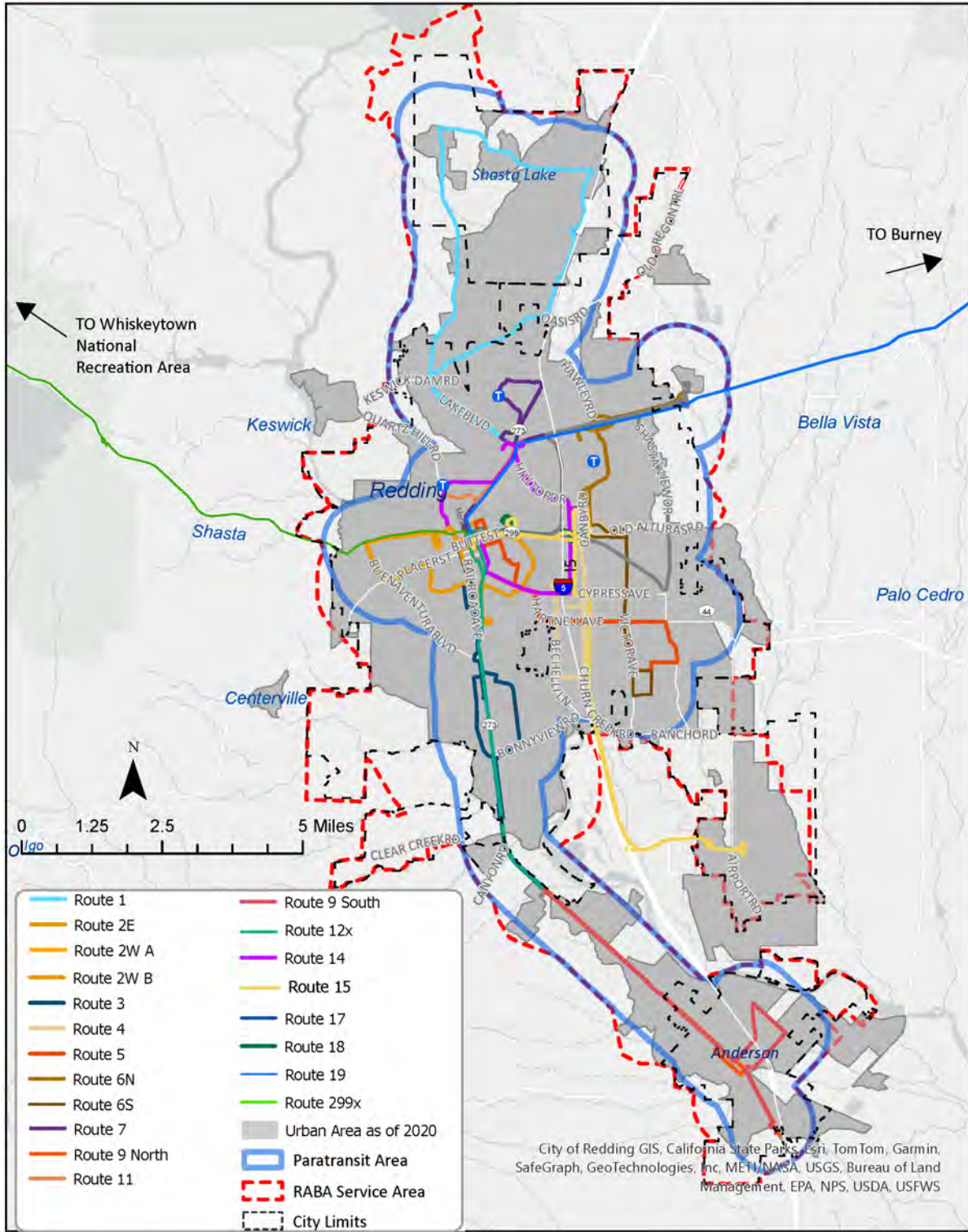




Figure 4B
RABA Rural Fixed Route Services

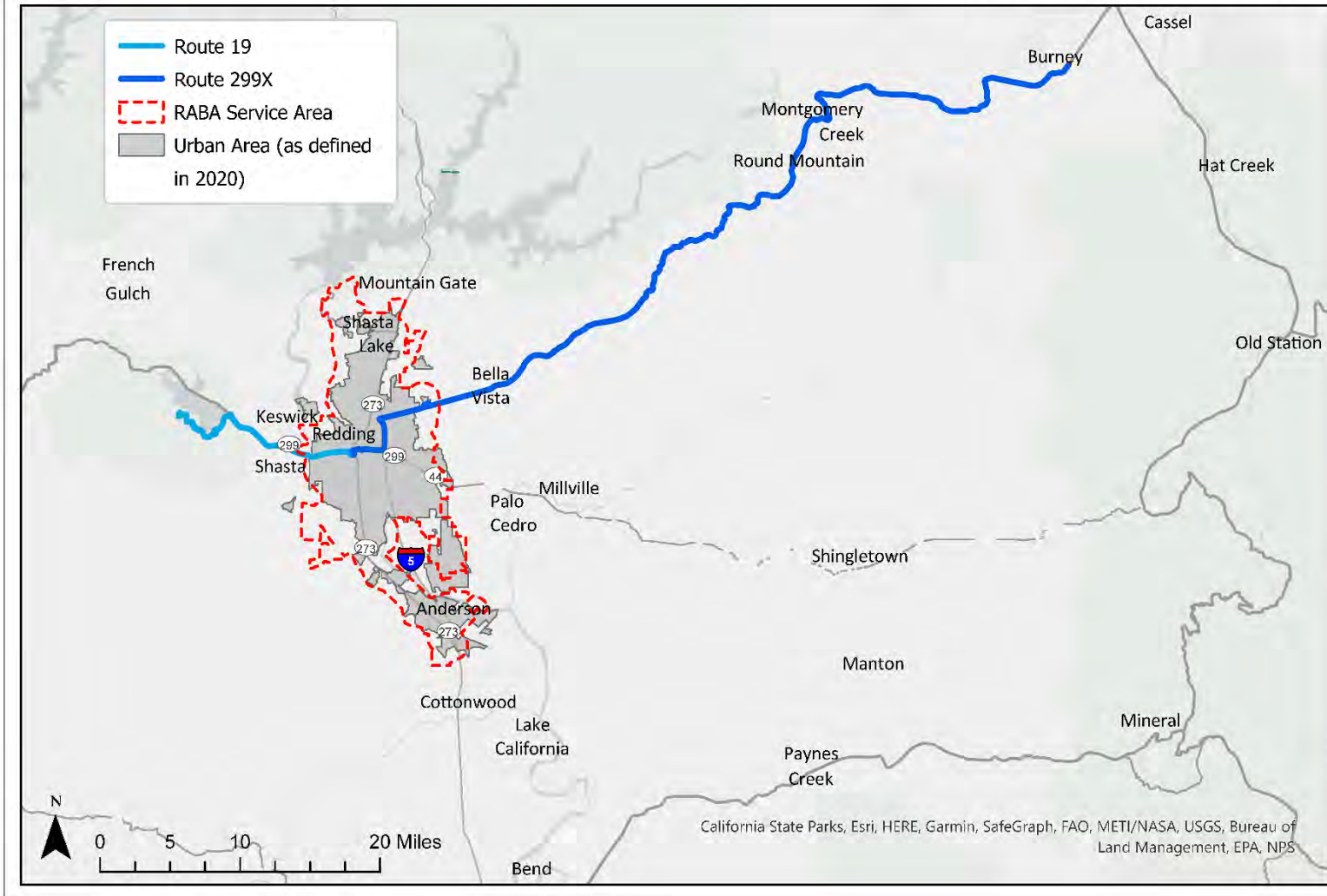


Table 5: Summary of RABA Services and Frequency

	Service Hours ¹						Weekday Service Frequency (Minutes)
	Weekday Service		Saturday Service		Start & End Locations		
	Start	End	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	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	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	9:20 AM	7:15 PM	Canby TC	Same as start	60
Route 14	6:20 AM	7:15 PM	9:30 AM	7:15 PM	Downtown TC	Same as start	60
Route 15	5:08 AM	8:15 PM	7:37 AM	8:15 PM	Canby TC	Same as start	60
Bus: Commuter Bus							
Route 12x	6:50 AM	8:15 AM	--	--	SR 273/Happy Valley	Walmart ⁴	1 Round Trip
Route 17 (AM) ³	7:30 AM	7:52 AM	--	--	Downtown TC	Shasta College	1 Round Trip
Route 17 (PM, Mon) ³	1:20 PM	1:50 PM	--	--	Shasta	Downtown TC	1 Round Trip
Route 17 (PM, Tues-Fri) ³	3:20 PM	3:50 PM	--	--	Shasta	Downtown TC	1 Round Trip
Route 18 ²	4:58 AM	8:32 PM	7:20 AM	8:32 PM	Turtle Bay Park	Downtown TC	60
Burney Exp. (Route 299x) WB⁵							
	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. (Route 299x) EB⁵							
	Depart Redding		Arrive Burney				
Trip 1	10:25 AM		11:50 AM		Downtown TC	Burney Sprt Goods	
Trip 2	2:25 PM		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).							
<p>Note 1: Summary accurate as of October, 2023. No service on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, or Christmas Day. No Sunday service.</p> <p>Note 2: TC - Transit Center</p> <p>Note 3: School Express operates during the school year only and not during school breaks.</p> <p>Note 4: Walmart at 5000 Rhonda Rd, Anderson</p> <p>Note 5: Route 299X is provided by the County of Shasta and operated by RABA. This service is outside of the RABA Service Area. Operated weekdays only.</p> <p>Source: RABA</p>							

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 the local fixed routes (i.e., Routes 1-18). 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		
	1 Zone	Additional Zone	Redding	Redding & Shasta Lake	Redding & Anderson
Passenger Type					
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			
	Shasta College/ Bella Vista	Round Mt/ Montg Creek	Burney	Redding
From				
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. The northern portion of Route 9 was eliminated and replaced by Route 3. Routing in Anderson was realigned.
- On Route 4, a 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 Route 17 to provide direct service between Shasta College and the Downtown Transit Center.
- 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.
- Route 18, previously the Crosstown Express, was added.
- A “Youth” fare was added to the monthly pass.
- Route 15 was created as a deviated fixed route to connect the Canby Transfer Facility, Hilltop Drive, Save Mart, VA Clinic, Redding Regional Airport, and Veterans Home.

Changes Due to COVID-19 Pandemic

As with public transit systems everywhere, RABA ridership was significantly impacted by the COVID-19 pandemic. Nonetheless, only the Route 17 bus route was temporarily eliminated during the pandemic. 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-19. 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-19, there were 11 to 12 paratransit vehicles in service at peak times. During COVID-19, this was reduced to just 2 to 3 paratransit vehicles, carrying lighter than normal passenger loads to maintain social distancing. Currently, between 7 and 8 vehicles are regularly operated, which is half of pre-COVID-19 operations.

RABA RIDERSHIP

Historical Ridership

RABA systemwide ridership from Fiscal Year (FY) 2010-11 through FY 2022-23 is presented in Figure 5. This data can be considered in three periods:

- Even prior to the start of COVID-19 (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-19 (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 2022-23, bus ridership increased by 17 percent (44,378), while paratransit ridership increased by 81 percent (12,399).

It should be noted that the drop in RABA ridership over the years prior to COVID-19 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-19 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 2022-2023 is shown in Table 7. Routes 11 and 14, which serve all three transit centers as a bi-directional pair, carry about 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. Route 17, Route 12X, Route 18, and Route 19 carried the fewest passengers, excluding the Airport Express, which was discontinued.

All services saw ridership losses over this five-year period. Excluding the eliminated Airport Express, the greatest proportionate ridership loss was on Route 17 (a 66 percent loss), followed by Route 12x (61 percent loss). The lowest proportionate loss was seen on Route 3 (27 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 2023

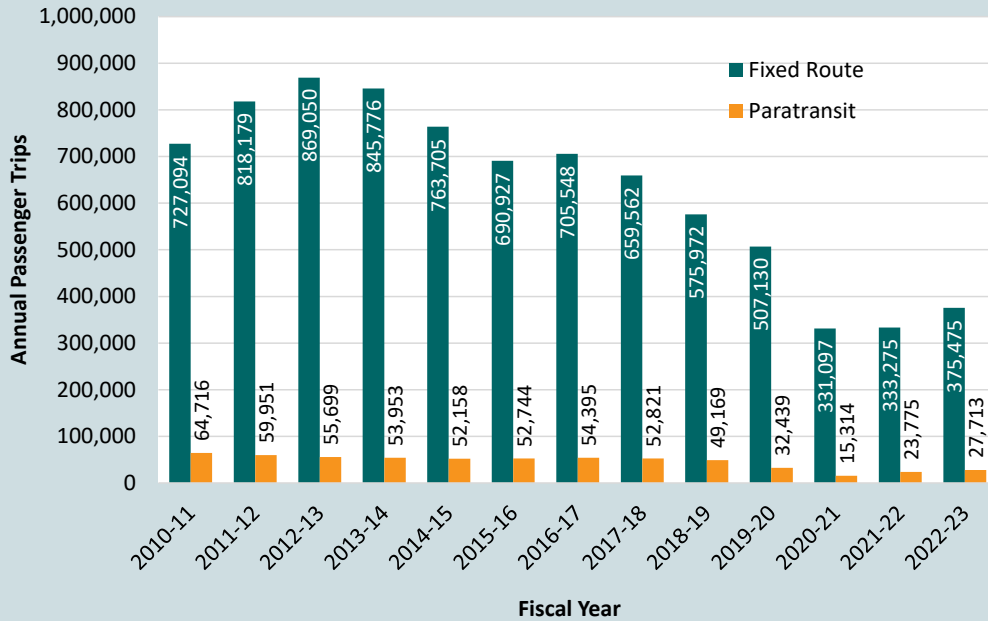
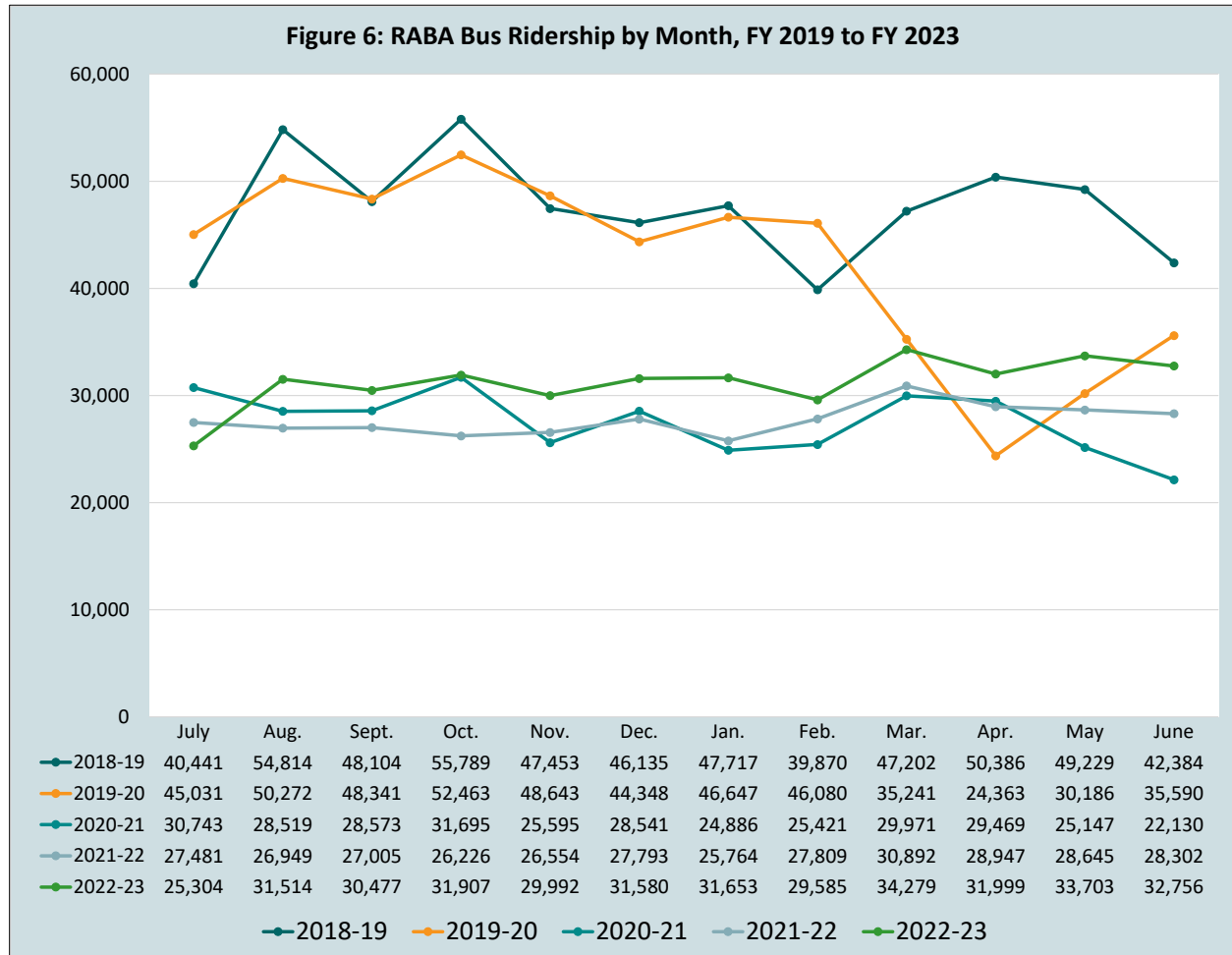


Table 7: RABA Bus and Paratransit Ridership by Route, FY 2019 to FY 2023

	Fiscal Year					% Change
	2018-19	2019-20	2020-21	2021-22	2022-23	FY 18-19 to 22-23
Bus: Fixed Route - Redding Only						
Route 2	55,015	50,445	29,822	31,965	38,039	-31%
Route 3	68,651	55,808	38,162	40,015	49,960	-27%
Route 4	53,750	47,838	30,601	32,251	30,857	-43%
Route 5	44,195	38,481	24,891	23,760	27,904	-37%
Route 6	52,157	43,325	21,844	23,952	29,336	-44%
Route 7	35,028	40,125	19,319	20,320	22,721	-35%
Route 11	79,686	74,036	53,399	51,395	55,321	-31%
Route 14	84,436	74,159	59,105	52,823	58,744	-30%
Route 19 ¹	-	-	407	908	372	--
Subtotal	472,918	424,217	277,550	277,389	313,254	-34%
Commuter Routes						
Route 1	58,789	53,571	32,582	34,829	38,672	-34%
Route 9	23,161	20,731	12,106	11,977	14,542	-37%
Route 12X	1,608	1,091	1,046	1,164	625	-61%
Subtotal	83,558	75,393	45,734	47,970	53,839	-36%
Express Routes						
Airport Express	4,770	0	0	0	0	-100%
Route 17	1,290	350	0	451	434	-66%
Route 18	11,927	7,065	7,813	7,465	7,948	-33%
Subtotal	17,987	7,415	7,813	7,916	8,382	-53%
<i>Free Trips & Misc.</i>	<i>1,509</i>	<i>105</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>-100%</i>
Total Bus	575,972	507,130	331,097	333,275	375,475	-35%
Total Paratransit	49,169	32,439	15,314	23,775	27,713	-44%
Contract Services						
Route 299X	4,981	5,224	2,759	2,697	3,292	-34%
<i>Source: RABA</i>						
<i>Note 1: Route 19 FY 2022-23 ridership only includes May and June of 2023.</i>						
<i>Note 2: Contract services not included in RABA ridership totals.</i>						

Ridership by Month

Fixed route ridership by month is shown in Figure 6. Ridership has typically been highest in summer and fall (August and October) and lowest in winter (December through February). Ridership dropped significantly in March and April of 2020, and monthly ridership has been more even in recent years. In FY 2022-23, ridership was highest in the last months of the year, or the spring.



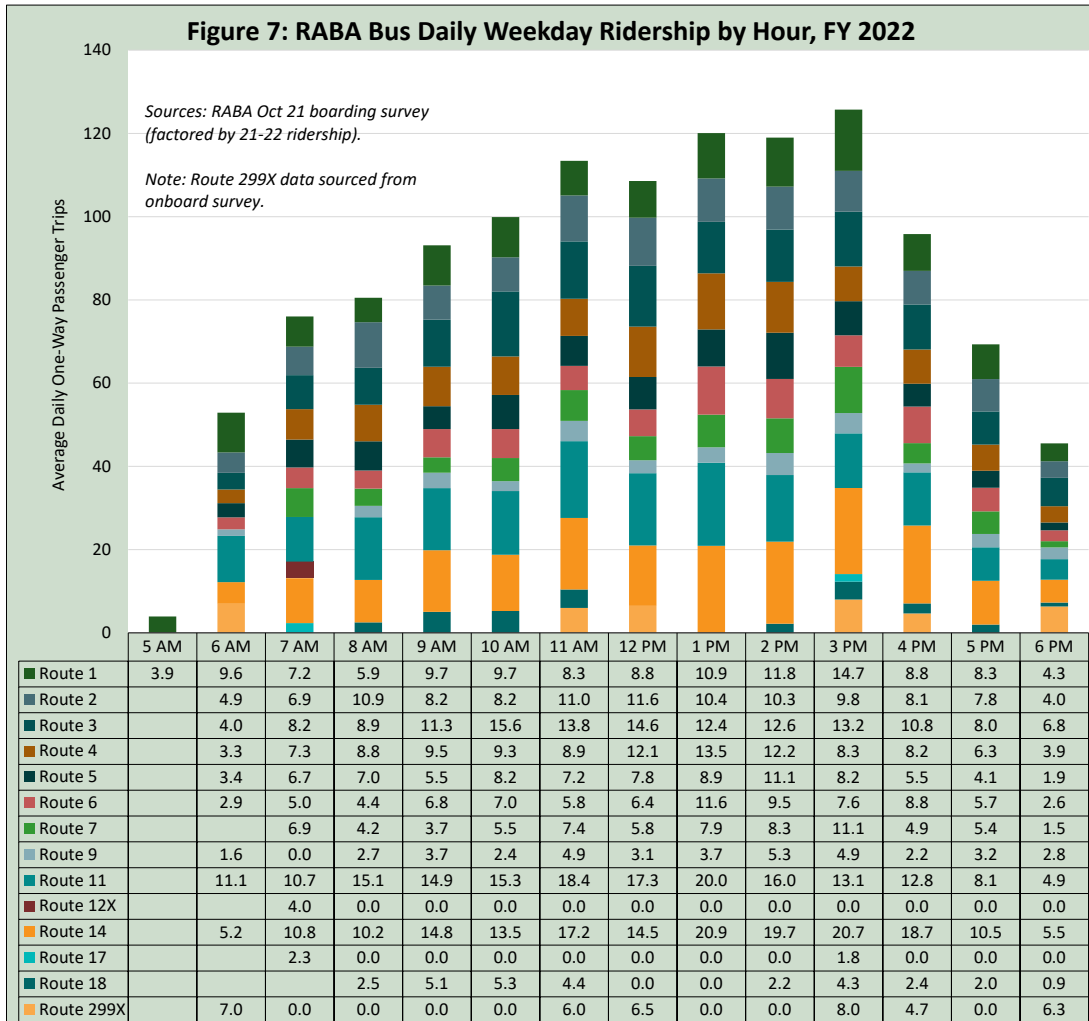
Boarding Data: Ridership by Time of Day

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).

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



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.

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), which includes Local Transportation Fund (LTF) and State Transit Assistance (STA); 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).

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

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.

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:

$$\text{RABA FY 2021-22 Marginal Operating Cost} = \\ \$34.61 \times \text{vehicle-hours of service} + \$1.86 \times \text{vehicle-mile of service}$$

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. The only routes for which the operating costs were determined without the cost model are Routes 19 and 299x, as these services are operated by RABA through contract; costs were determined based on billing reports.

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. One of the least efficient services, as is true with most public transit systems, was the paratransit service (which provides curb-to-curb service). Route 17 also saw poor efficiency in FY 2021-22, as ridership was heavily impacted by the pandemic. Overall, Route 299X carried the least passenger trips per hour (1.2).

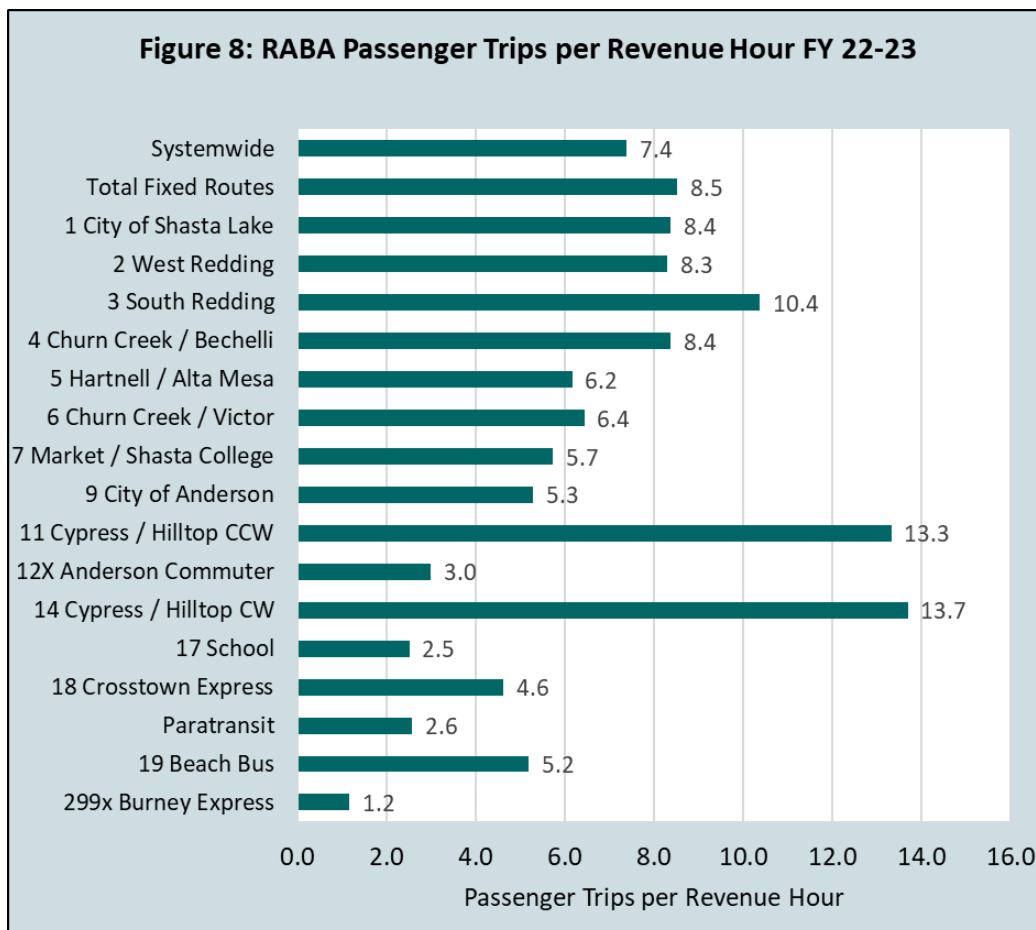


Table 9: RABA Performance FY 2021-22

Routes	Service Parameters					Service Performance				
	Pass. Trips	Revenue Hours	Revenue Miles	Fully Allocated Operating Costs	Marginal Operating Cost ¹	Fare Revenue	Passengers per...		Marginal Subsidy per Passenger Trip	Relative Farebox Ratio
							Hour	Mile		
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%
12X 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%
19 Beach Bus^{2,3}	908	175	4,230	-	\$20,467	-	5.2	0.21	\$22.54	-
299X Burney Express³	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%

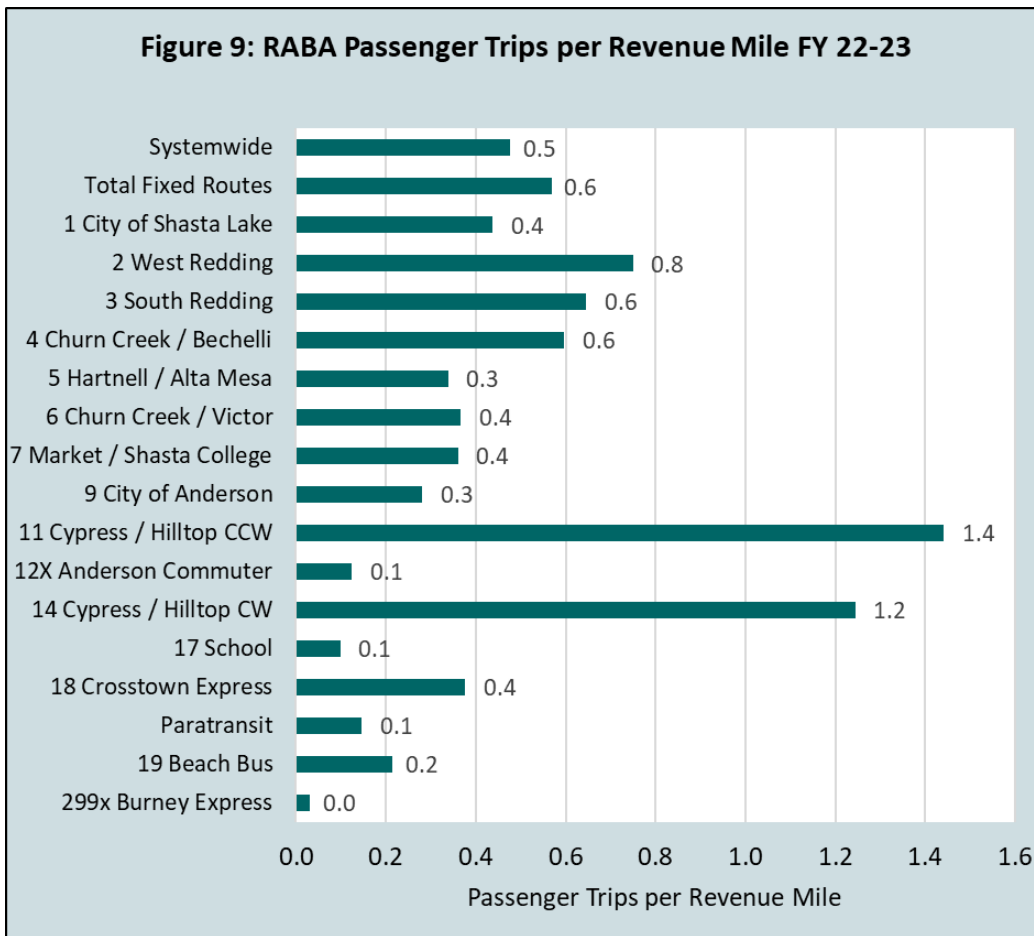
Note 1: Marginal operating cost for FY 2021-22 is based on contracted hourly cost (\$41.29) and vehicle costs per mile (fuel, parts, vehicle maintenance costs, divided by the miles operated = \$1.50 per mile). It does not include fixed costs.

Note 2: Beach Bus operations data represent totals for the summer of 2022 season, which extended from May through September 2022.

Note 3: The Beach Bus is a Shasta Regional Transportation Agency service and the Burney Express is a County of Shasta service. Both services are operated by RABA through contract, therefore the operations data is not included in the RABA systemwide totals.

Source: RABA, LSC

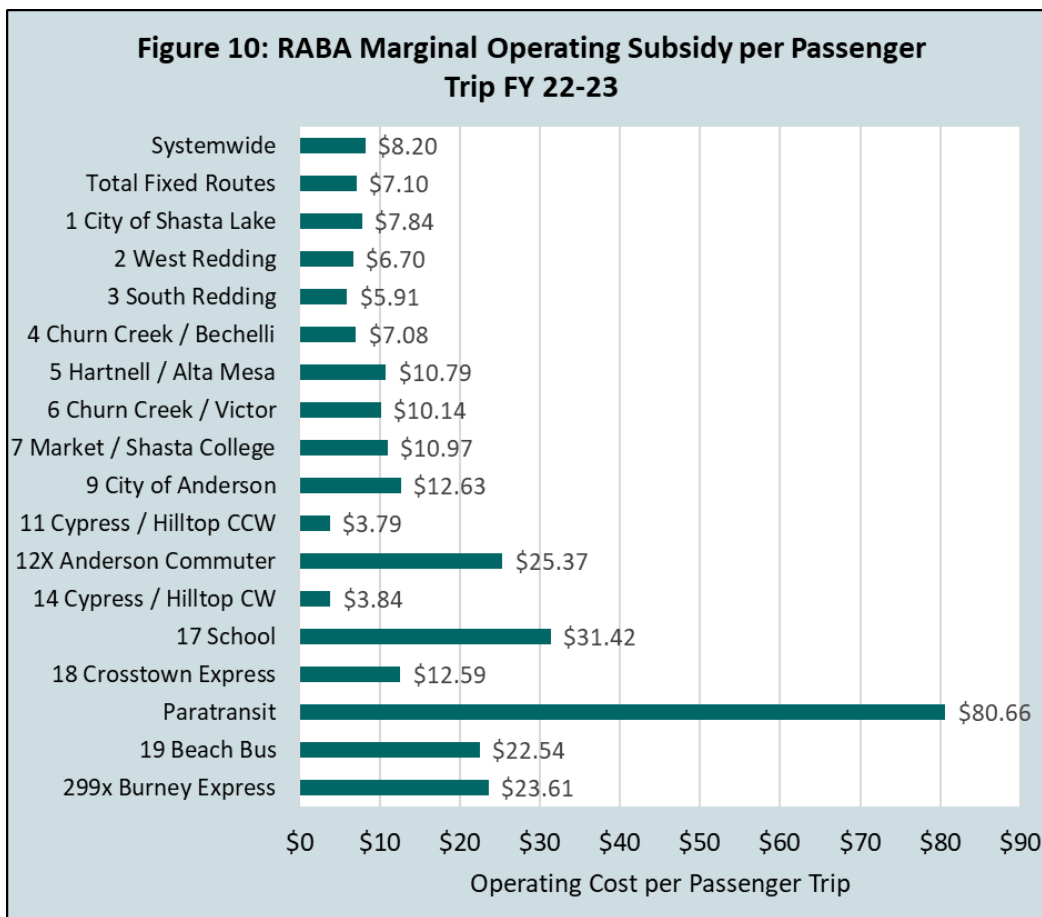
- Figure 9 shows the service effectiveness of RABA based on the number of passenger trips per revenue-mile. Overall, RABA carried 0.5 passengers per mile, with Routes 11 and 14 performing best (1.4 and 1.2, respectively). The least effective services per this measure were Route 12X, Route 17, Route 299X, and demand response (all with 0.1 or less 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 \$7.10. Routes 11 and 14 require just \$3.25 and \$3.32 in marginal subsidy per passenger trip, while Route 17 requires \$31.42. RABA paratransit requires the greatest subsidy per trip at \$80.66.

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:

- 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.

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 Routes 12X, 17, 19, and 299X as they are not regularly available throughout the day.
 Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).

- 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. 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.

Table 11: Comparison of RABA Bus Versus Auto Travel Times

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

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

RABA CAPITAL ASSETS

RABA Revenue Fleet

As shown in Table 12, the RABA revenue fleet consists of eighteen fixed route buses (numbered 48-66), eighteen paratransit vans (numbered 252-275), and two commuter vans (numbered 308 and 309). Table 12 also shows the age, size, and minimum useful life (UL) of each vehicle (as defined by the FTA). Of note, RABA has four vehicles set to be delivered in early 2024 that will replace vehicle numbers 252, 254, 256, and 261.

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 requirement was considered when developing the SRTP capital plan.

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 ⁴	2010	El Dorado Chevy GMT 600	Gas	8	2	21	118,909	2015	Paratransit
254 ⁴	2010		Gas	8	2	21	99,729	2015	Paratransit
256 ⁴	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 ⁴	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
308	2019	Glaval E450	Gas	12 or 6	2 or 4	24	23,597	2024	Burney Express ⁵
309	2019		Gas	12 or 6	2 or 4	24	40,108	2024	Burney Express ⁵

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: Four Replacement vehicles ordered set to be delivered in early 2024 to replace vehicle numbers 254, 256, and 261.
 Note 5: Vehicles used to operate Route 299X are owned by the County of Shasta.
 Source: RABA. Mileage as of July 2021

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.

RABA Passenger Amenities

RABA has approximately 340 bus stops. Of note, there are many benches and shelters at bus stops no longer served by RABA that will require relocation. RABA stops have the following amenities:

- 60 stops (18 percent) have one or more shelters. Of these, 7 are owned by RABA, 47 are owned by Lamar, and the remainder owned by others. In addition, there are 6 shelters owned by Lamar and 1 owned by RABA that are located at stops not currently served.
- 126 stops (37 percent) have one or more benches.
- 90 stops (28 percent) have lights.
- 278 stops (82 percent) have a sidewalk of at least four feet wide accessing the stop, with the average sidewalk width being 5.6 feet.
- 72 stops (21 percent) have an ADA landing pad, or an area that is clear of obstructions and measures eight feet by five feet.
- 48 stops (14 percent) are marked with red paint on the curb.
- 128 stops (38 percent) have bus turnouts.

RABA CONTRACT SERVICES

RABA operates both Routes 19 and 299x through contract. These services are discussed in more detail below. Schedule information for both services is presented in Table 13.

Table 13: RABA Contract Services Schedules						
Route 19						
Stop	Time					
Downtown Transit Center	10:20 AM	12:20 PM	3:20 PM	5:20 PM		
Buenaventura Blvd @ SR 299	10:27 AM	12:27 PM	3:27 PM	5:27 PM		
SR 299 @ 2nd St	10:32 AM	12:32 PM	3:32 PM	5:32 PM		
J. F. Kennedy Memorial Rd @ SR 299	10:35 AM	12:35 PM	3:35 PM	5:35 PM		
S. Shore Drive @ Brandy Creek Beach	10:45 AM	12:45 PM	3:45 PM	5:45 PM		
S. Shore Drive @ Brandy Creek Marina	10:50 AM	12:50 PM	3:50 PM	5:50 PM		
S. Shore Drive @ Paige Bar Road	10:59 AM	12:59 PM	3:59 PM	5:59 PM		
SR 299 at Buell Alley	11:05 AM	1:05 PM	4:10 PM	6:10 PM		
Buenaventura Blvd @ SR 299	11:10 AM	1:10 PM	4:10 PM	6:10 PM		
Downtown Transit Center	11:17 AM	1:17 PM	4:17 PM	6:17 PM		
Route 299X						
Westbound						
Runs	Burney	Montg Creek	Round Mtn	Bella Vista	Shasta Col.	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 Col.	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
Note: Schedule as of August 2021.						

Route 19 (Beach Bus)

The Beach Bus was initiated in 2016 and is funded by non-profits and others¹ 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).

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 (STA spillover) and fares (free fares via the regional Caltrans Low Carbon Transit Operations Program (LCTOP) allocation).

Route 299X (Burney Express)

Burney Express is a public transit service in Shasta County (i.e., outside of the RABA service area). Burney Express is provided by the County of Shasta and is operated by RABA. Three westbound and three eastbound trips are provided on weekdays. The current service schedule for the Burney requires two vans.

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 on the following pages.

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.

Greyhound/Flixbus

Greyhound and Flixbus 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 and Flixbus also offer two southbound trips departing Redding at 4:25 AM and 5:50 PM each day. The route follows I-5 as far as Portland, Oregon or Seattle, Washington to the north, and Sacramento, 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 and Flixbus.

Sage Stage

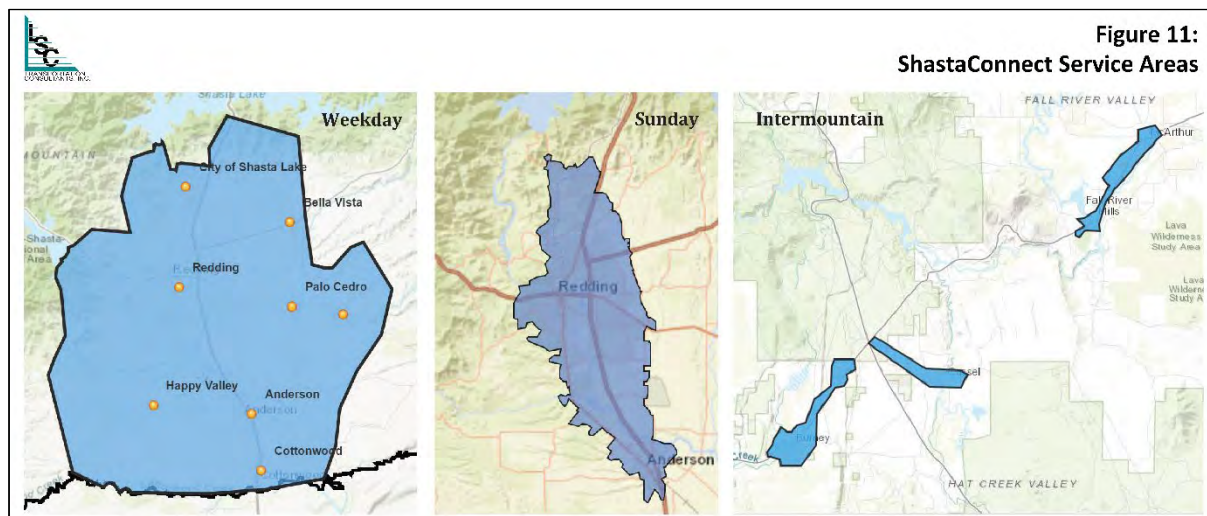
Sage Stage is a public transit service in Modoc County (northeast of Shasta County) and operates a route between Alturas and Redding on Tuesdays. The westbound run departs Alturas at 7:30 AM, stops in Burney at 9:10 AM and arrives at the RABA Downtown Transit Center at 10:30 AM. The eastbound run departs 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 specialized public transportation services, which includes 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 Article 4.5 of the TDA), outside of the RABA Service Area (e.g., the communities of Palo Cedro, Happy Valley, and Cottonwood) for over 20 years. Service has also been provided in Burney, Cassel, Fall River, and McArthur (the “Intermountain Area”)) for the last several 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. However, SRTA and DHCL are considering reintroducing fares in early 2024.

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. Figure 11 shows the ShastaConnect weekday, Sunday, and Intermountain service areas.



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, and it operates Monday through Saturday, stopping in Cottonwood as well.

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.

This page intentionally left blank

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.

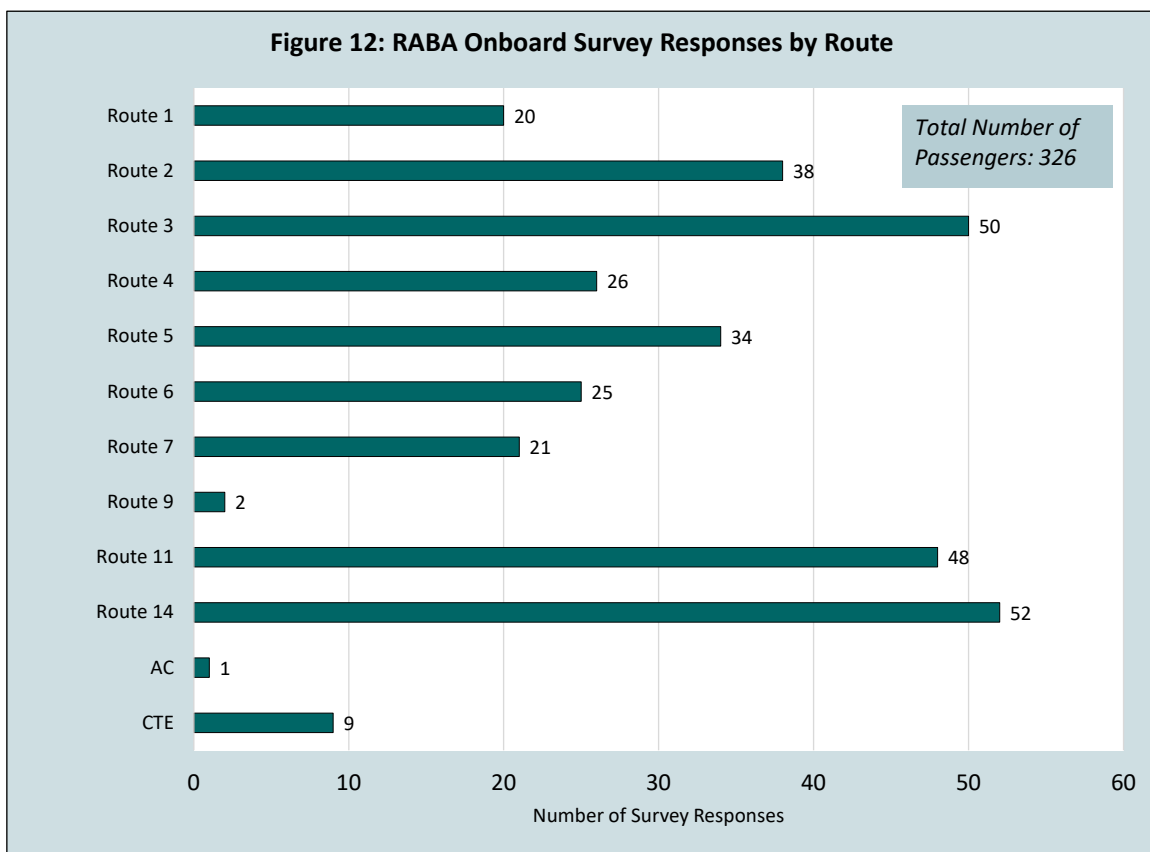
Passenger Profile

- 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.

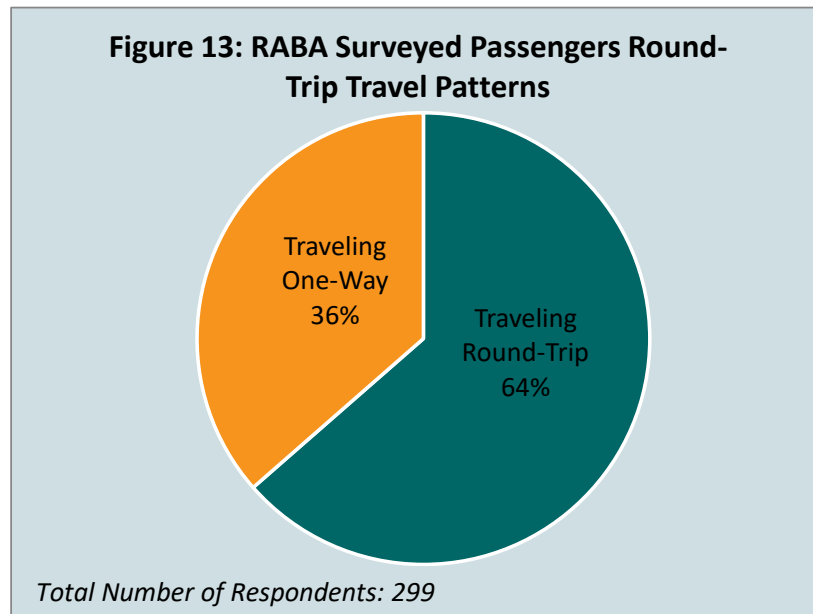
Trip Patterns

- 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).



- 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)
 - Mt. 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.



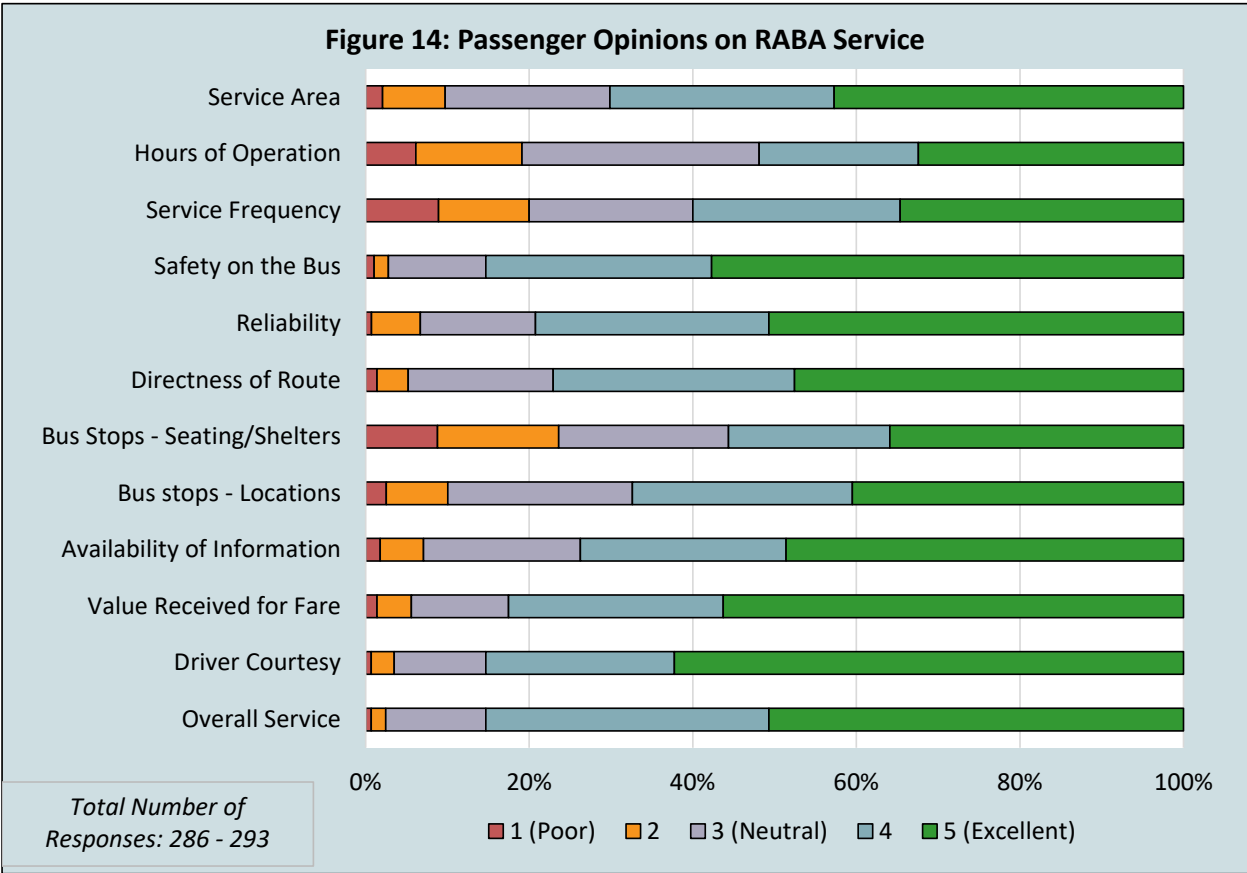
- Most passengers get to and from bus stops by walking (79 and 73 percent). The next most common mode to and from the bus stop was a bus transfer (15 and 21 percent).

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

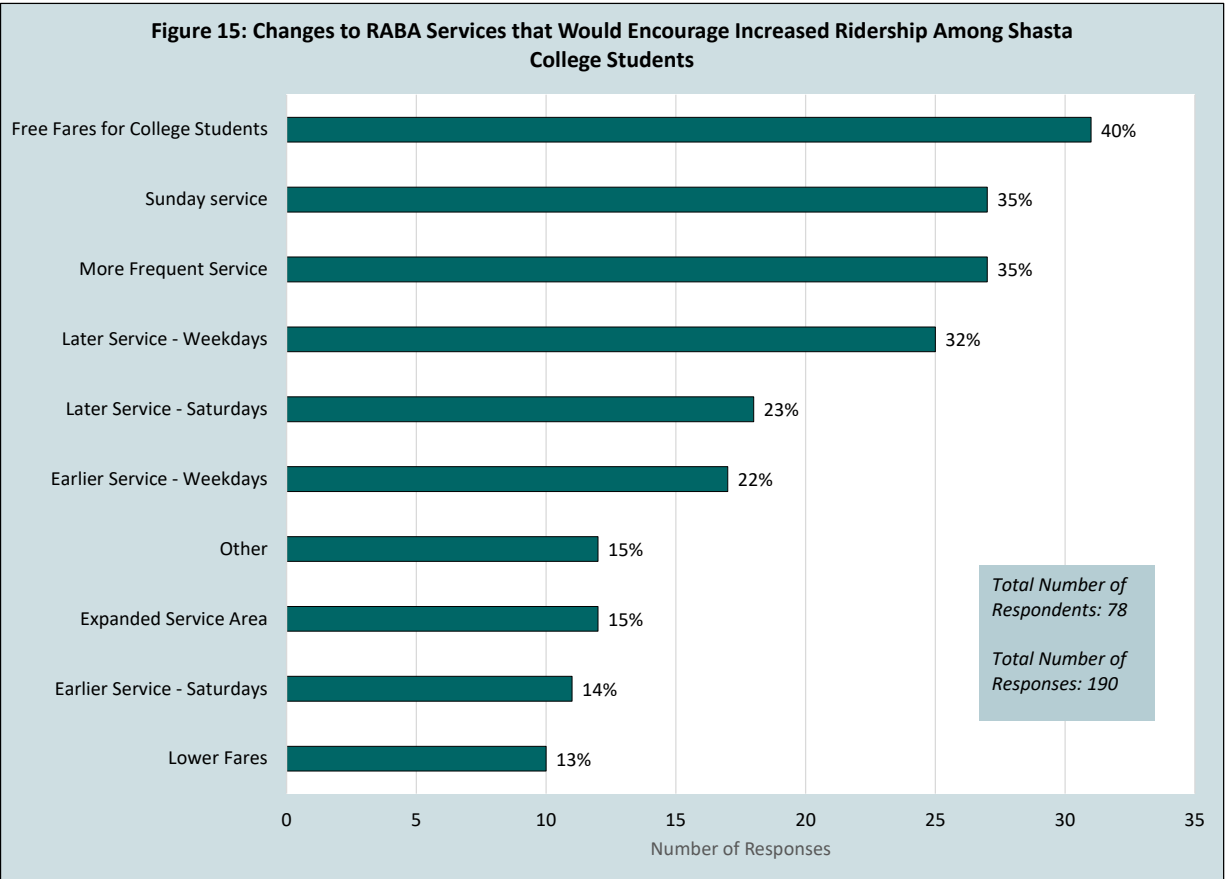
Similar to the RABA passenger survey, the Shasta College students were asked to rank various RABA service characteristics. Only those students who had ridden before were asked to evaluate the service. The students who had ridden RABA at some point overall thought highly of the service, giving it an average 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 Route 299X, the surveys discussed potential changes to Route 299X.

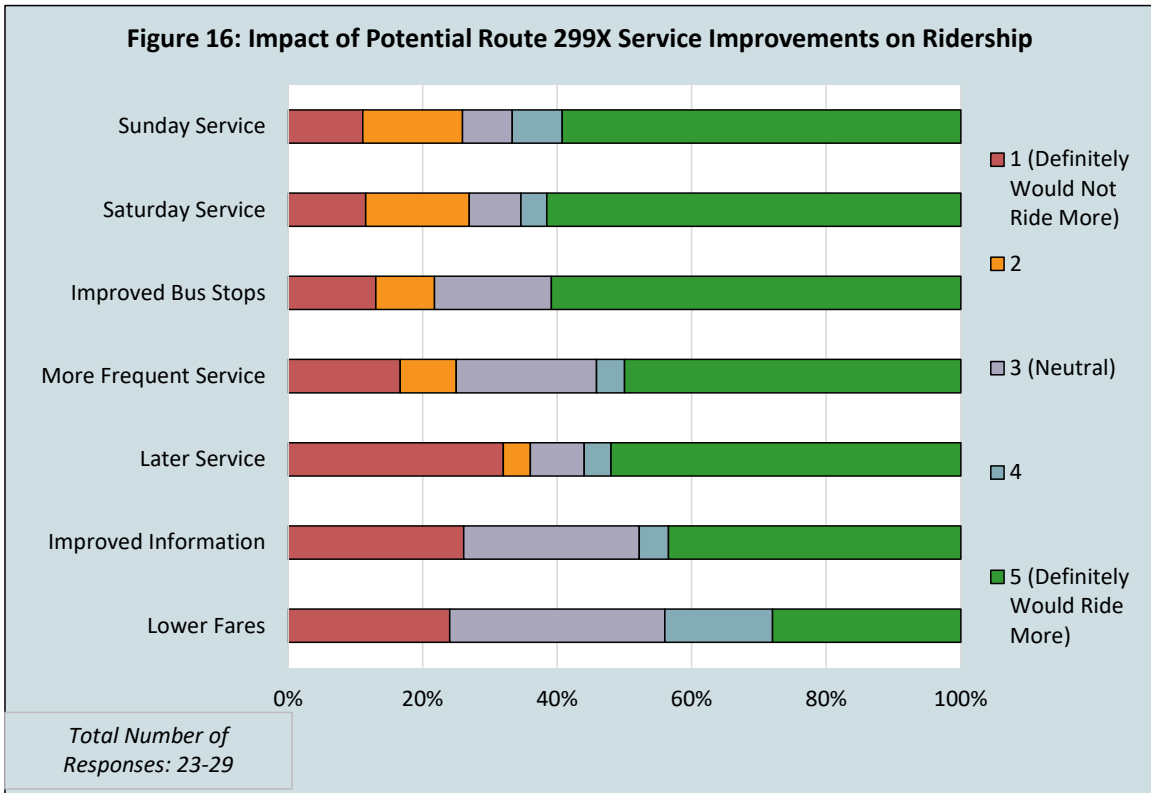


The first component of the rural outreach efforts consisted of an online community survey, which was available to residents from September 5 to September 29, 2023. The online community survey was advertised with flyers posted at key community centers and via stakeholder emails. The second component of the rural outreach effort consisted of a Route 299X 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 Route 299X 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
Jeffer's 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.

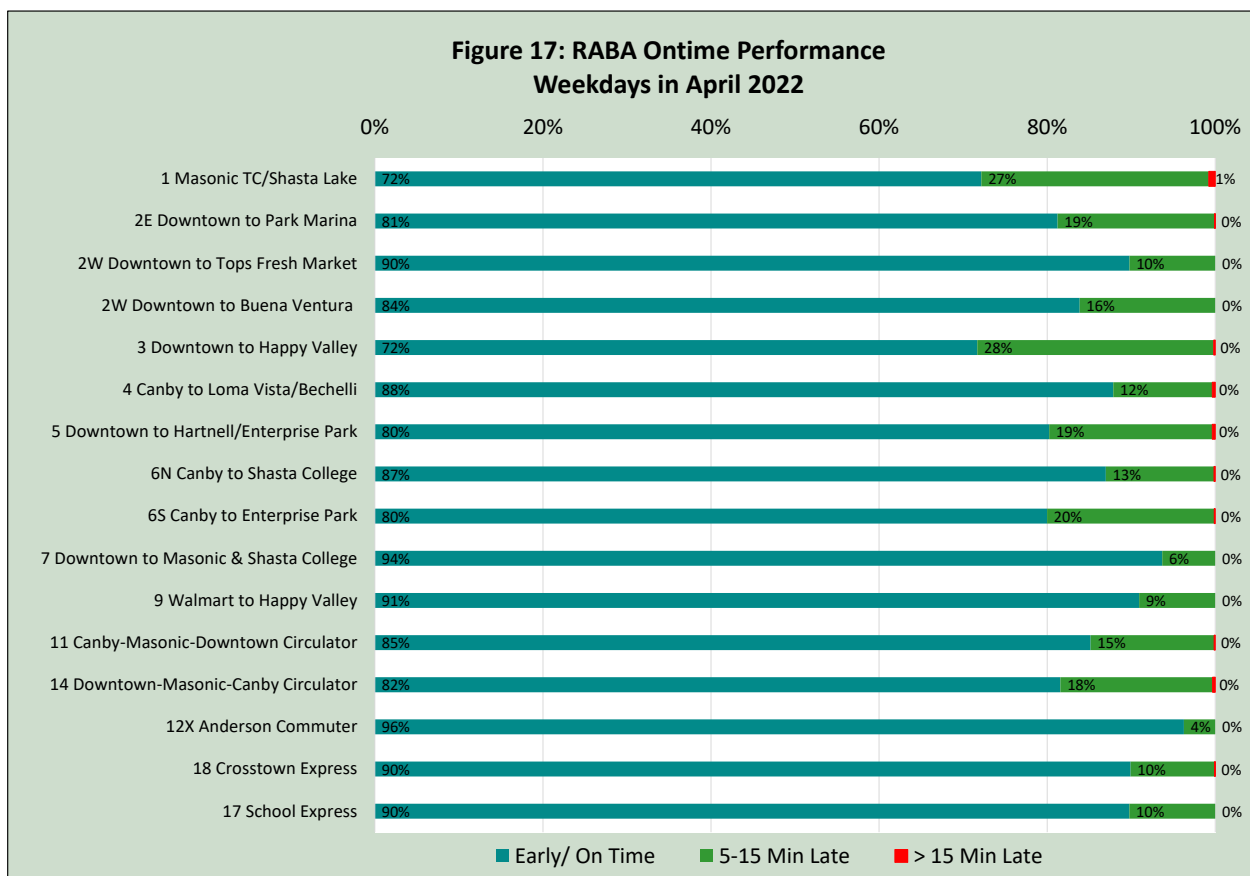
The data was mapped for each individual route, as presented in the Route Profiles in Appendix B.

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 17².

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 (Route 12X, Route 18, and Route 17).



² Additional on-time performance summarized by direction of travel can be found in Tables B-1 in Appendix B. Note that consistent data is not available regarding Routes 19 and 299X.

This page intentionally left blank.

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 RABA service 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 RABA service 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 RABA service 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 FY 2011-12, 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. In consideration of transit needs in this corridor, RABA initiated the new Route 15 deviated fixed route service on October 2, 2023.
- **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 5:35 AM to 7:15 PM. Meanwhile, Saturday service runs on a reduced schedule between 8:35 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, as well as on a more limited basis to Trinity Transit and Sage Stage. 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 Route 18 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 through September 30, 2023.

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 $\frac{3}{4}$ 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 percent: \$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 of operating service over longer distances. RABA's farebox recovery ratio was only 6.2 percent in FY 2021-22, per the performance analysis presented in Chapter 3, suggesting that both local and intercity fares are much lower than necessary to cover a sizable portion of the operational expenses associated with operating RABA service. However, transit operators can now meet farebox requirements by supplementing the revenue earned in fares with local and federal 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 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	Transfer Policy
Turlock Transit	Day Pass	Day Pass	\$2.00 \$1.00 (SDM) Free (0-18)	\$30 \$15 (SDM)	Yes (all day or month)
Stanislaus Regional Transit Authority (StanRTA)	Day Pass	Reduced Price Day Pass Free (0-18, Vets, Military)	\$2.00 \$1.00 (SDM)	\$48 \$24 (SDM)	Yes (all day or month)
Tulare County Regional Transit Authority (TCRTA)	\$2.00	\$1.00 Free (0-6)	N/A	\$55 (all operators)	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)	Free (for 1 - 2 hrs)
Visalia Transit	\$1.75	\$0.85 Free (0-6)	\$3.50 \$2.50 (SDM)	\$50 \$30 (SDM)	No
The Bus Merced	L: \$1.50 IC: \$2.40	Free	\$3.00/\$6.00	\$60 \$45 (Student)	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)	No
Lake Transit Authority	L: \$1.25 IC: \$2.25	\$0.75/\$1.50 (SDM) Free (0-5)	N/A	\$40	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)	No
Lodi Grapeline	\$1.25	\$0.60 (SDM) Free (K-12) Free (0-4)	\$3.00 \$1.50 (SDM)	\$44 \$22 (SDM)	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)	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)	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	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	No
STAGE (Siskiyou County)	\$1.00 (Starting 9/6/2022)	N/A Free (0-4)	N/A	N/A	No
Manteca Transit	\$1.00	\$0.50 (SDM) \$0.75 (2-18) Free (0-1)	N/A	\$35 \$28 (SDM) \$28 (2-18)	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)	Free (for 1.5 hrs)
City of Fairfield Transit (FAST)	\$2.00	\$1.75 (6-18) \$1.00 (SDM) Free (0-5)	N/A	\$80 \$70 (6-18) \$40 (SDM)	No
Vacaville City Coach	\$1.50	\$1.25 (6-18) \$0.75 (SDM) Free (0-5)	\$3.25 \$2.00 (SDM)	\$36 \$21 (6-18) \$18 (SDM)	No
Solano County Transit (SolTrans)	\$2.00	\$1.75 (6-18) \$1.00 (SDM) Free (0-5)	\$4.50 \$3.50 (6-18) \$2.25 (SDM)	\$60 \$46 (6-18) \$30 (SDM)	No
Vine Transit (Napa Valley Transit Authority)	\$1.60	\$1.10 (6-18) \$0.80 (SDM) Free (0-5)	\$6.50 \$4.50 (6-18) \$3.25 (SDM)	\$53 \$36 (6-18) \$26.50 (SDM)	Free

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).

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 signs, 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, or the facility could be eliminated entirely.

The 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, along with adjacent parking.

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 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.

This page intentionally left blank.

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 \$46.80 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					Mileage Reduction Needed per Run ²
RABA Route	Existing On-Time Performance ¹	Run Cycle Time (Minutes)	Run Length (Miles)	Scheduled Average Travel Speed	
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
Route 18	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

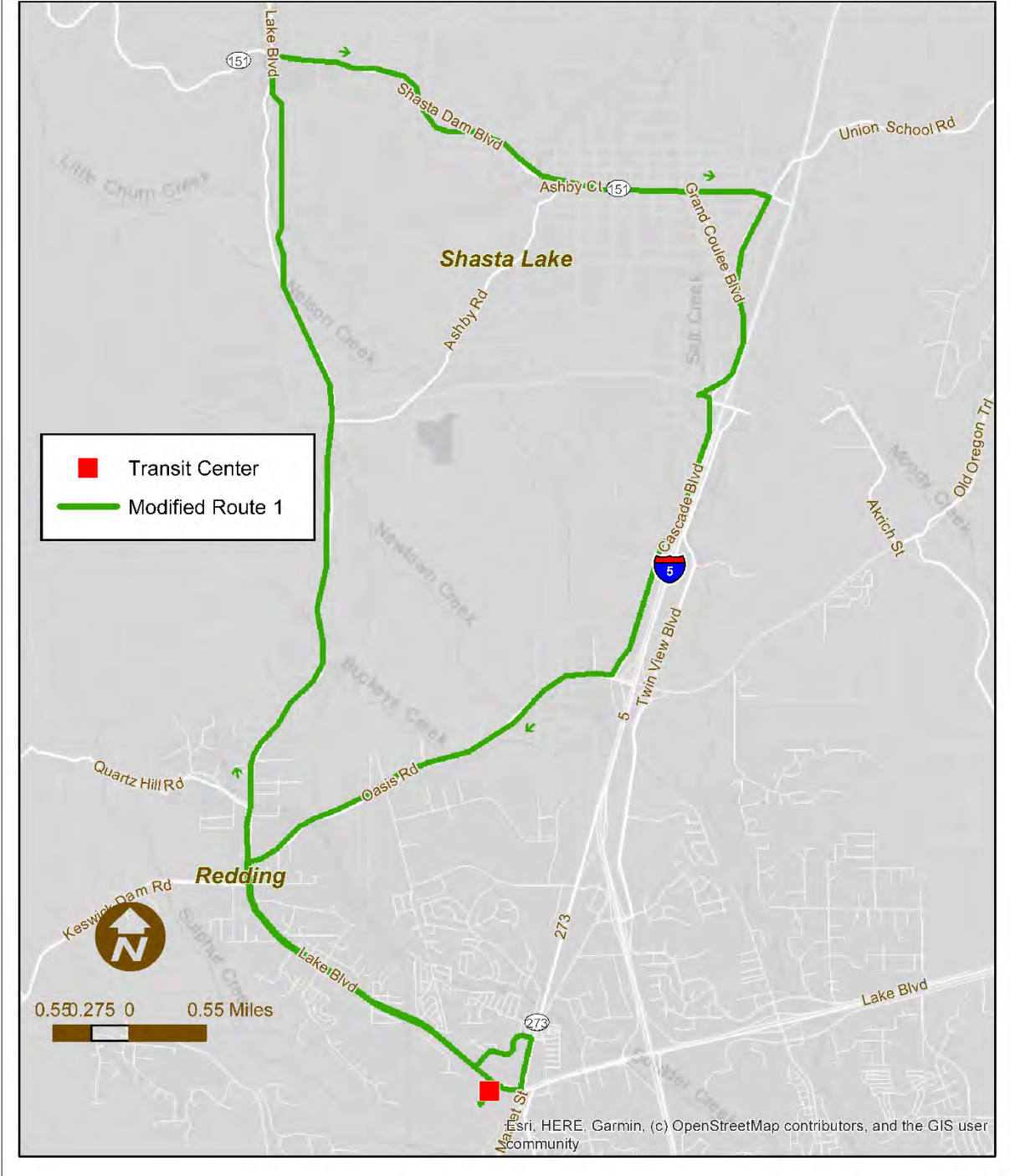


Table 17: RABA Service Alternatives to Reduce Route Running Times

Services	Operating Days	Annual		Operating Cost ¹	Ridership Impact (One-Way Trips)	
		Vehicle Service.. Miles	Hours		Daily	Annual ²
Status Quo²						
RABA Weekday Service						
Routes 2-7, 11, 14, & 18	256	389,860	31,232	\$2,055,234	995	254,700
Commuter Service (1, 9, 12X)	256	114,117	5,888	\$449,300	167	42,720
Paratransit Service	256	153,881	8,688	\$640,888	91	23,300
<i>Weekday Subtotal</i>	<i>256</i>	<i>657,858</i>	<i>45,808</i>	<i>\$3,145,422</i>	<i>1,253</i>	<i>320,720</i>
RABA Saturday Service						
Routes 2-7, 11, 14	52	52,540	3,950	\$264,854	563	29,251
Routes 1&9	52	17,000	875	\$66,833	101	5,250
Paratransit Service	52	8,259	558	\$38,689	9	476
<i>Saturday Subtotal</i>	<i>52</i>	<i>60,799</i>	<i>4,508</i>	<i>\$370,376</i>	<i>673</i>	<i>34,977</i>
Total	308	746,626	50,316	\$3,515,798	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 (\$46.80 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.						

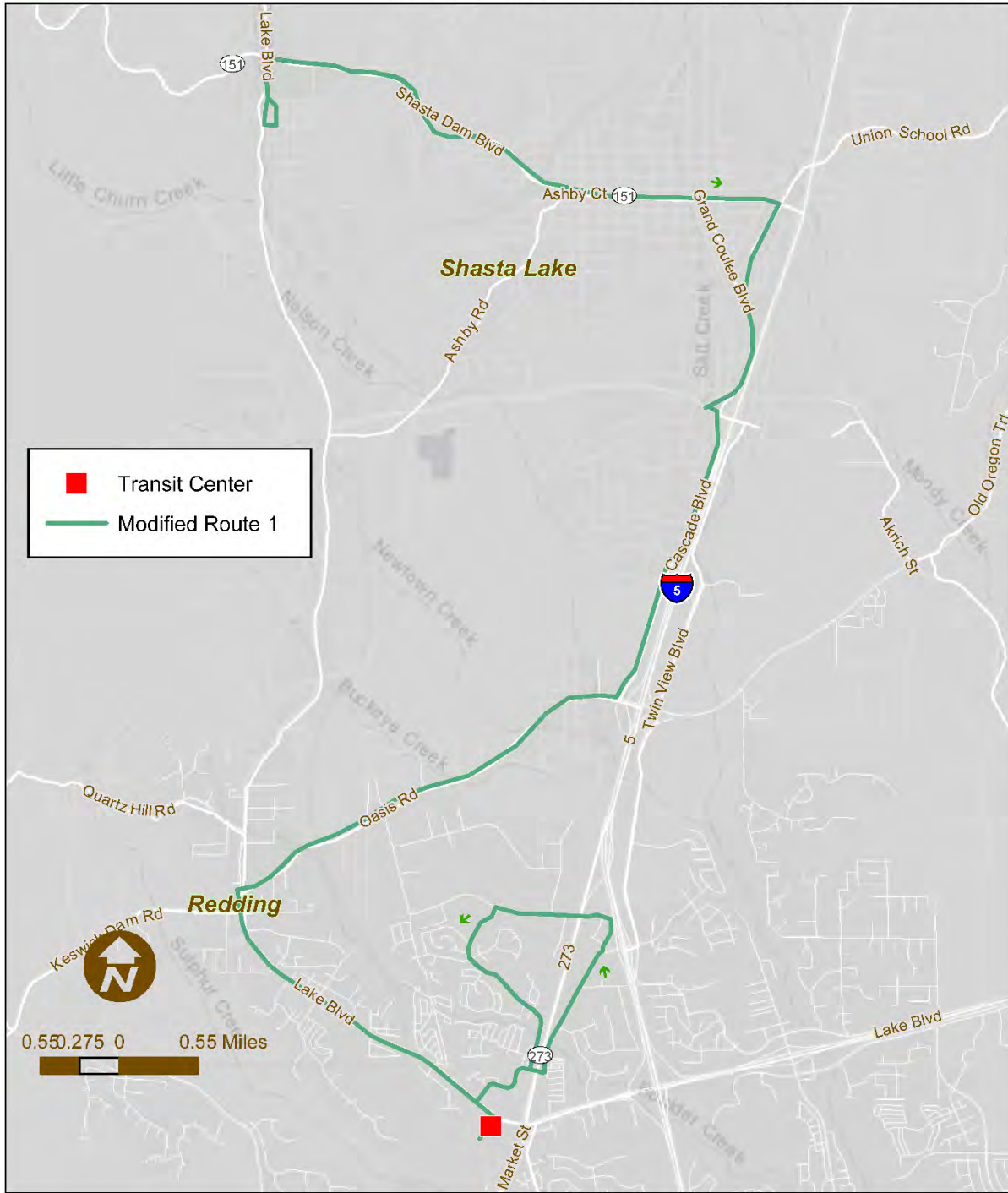
Eliminate Service on Lake Blvd North of Oasis Road

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

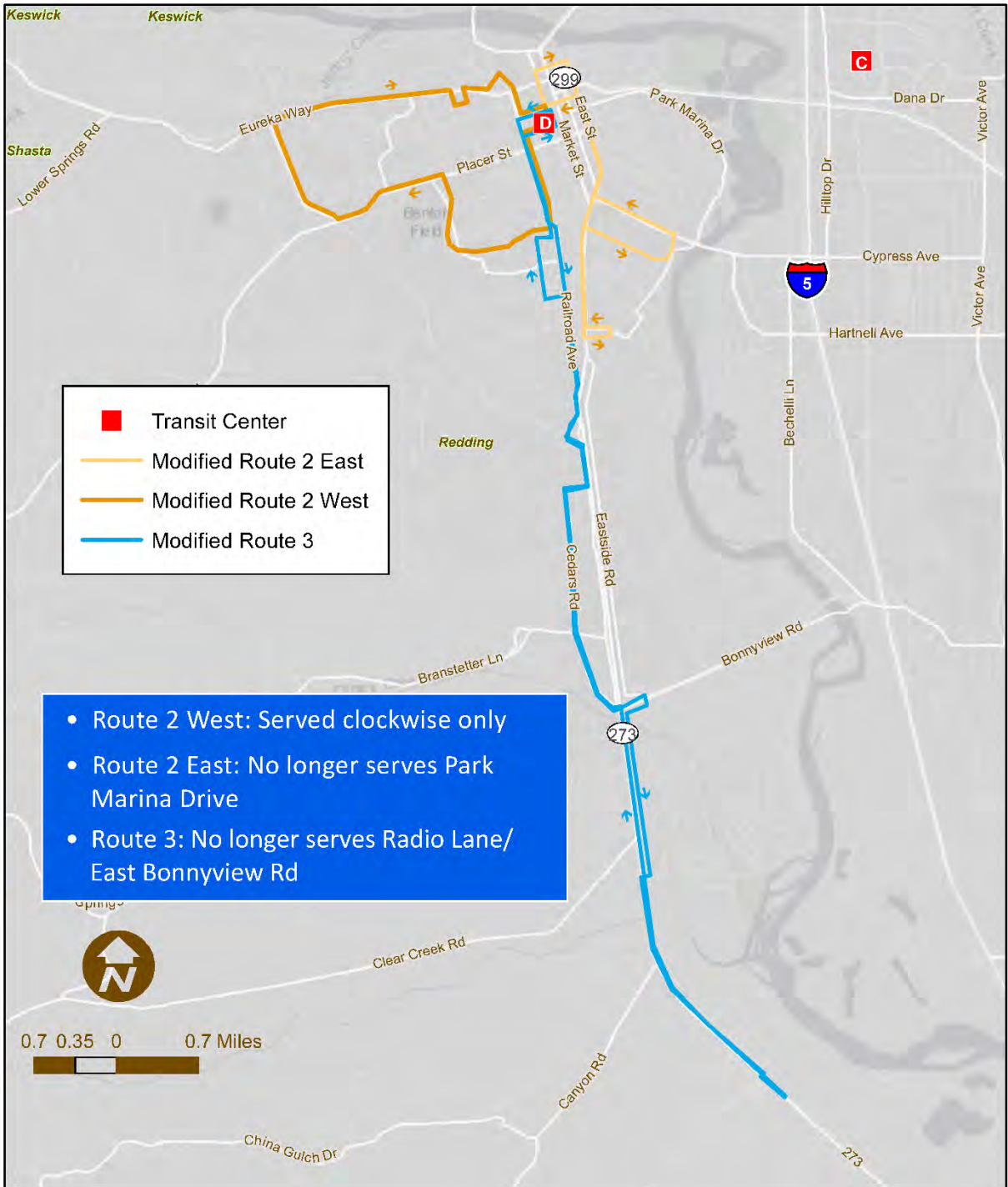
Another option to couple with the above change would be to revise Route 2 East to a more direct routing. Currently, Route 2 East is operated as a large counterclockwise loop, with very little ridership on the return portion along Park Marina Drive. The majority of Route 2 East boarding activity is at 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

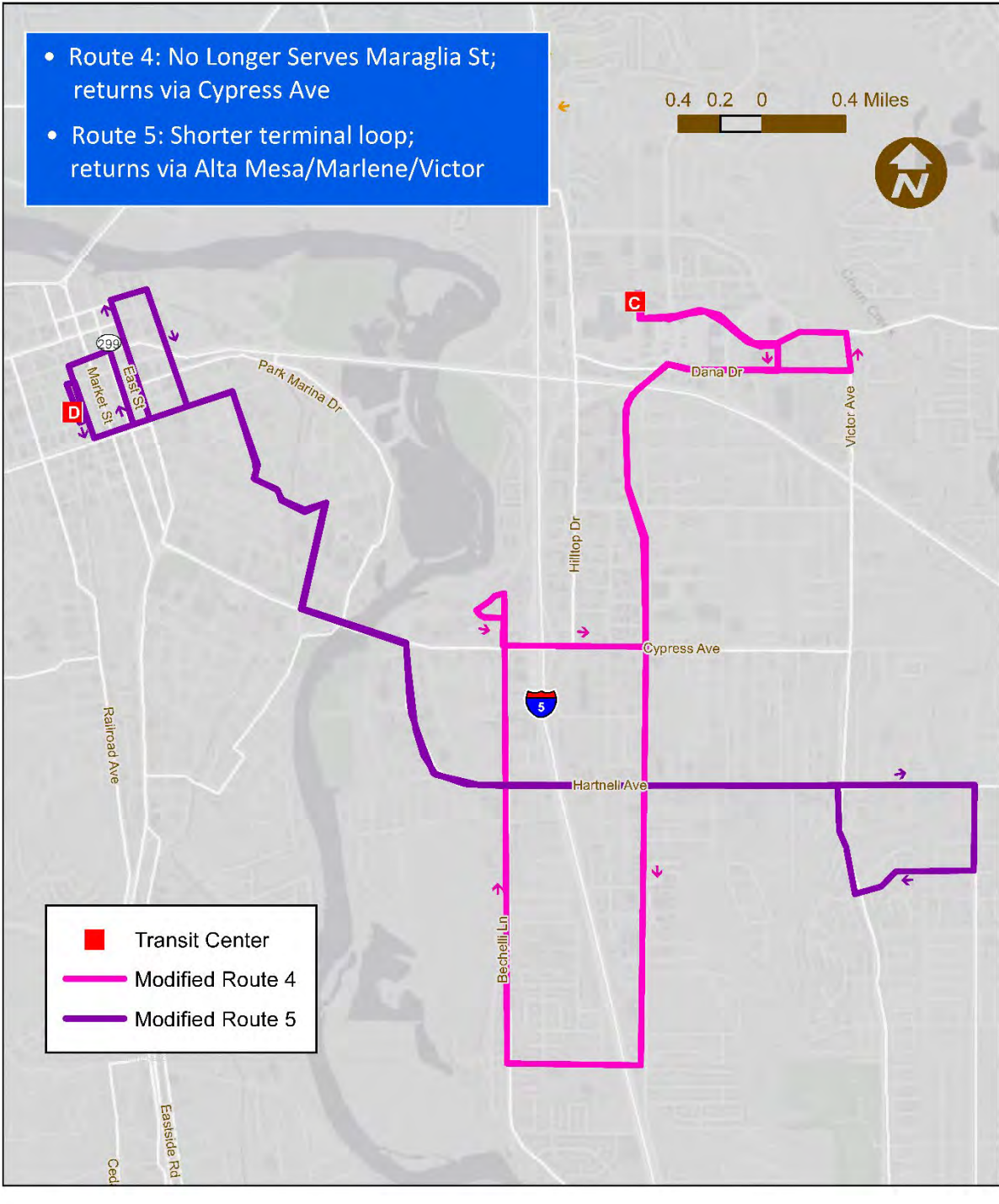
In the southbound direction only, Route 4 turns right onto Maraglia Street to serve the Cascade Station commercial center, adding 0.65 miles to the route. There are fewer than two boardings daily at the Maraglia Street stop. The stop is also just 0.22 miles (walking distance) from the stop on Churn Creek 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

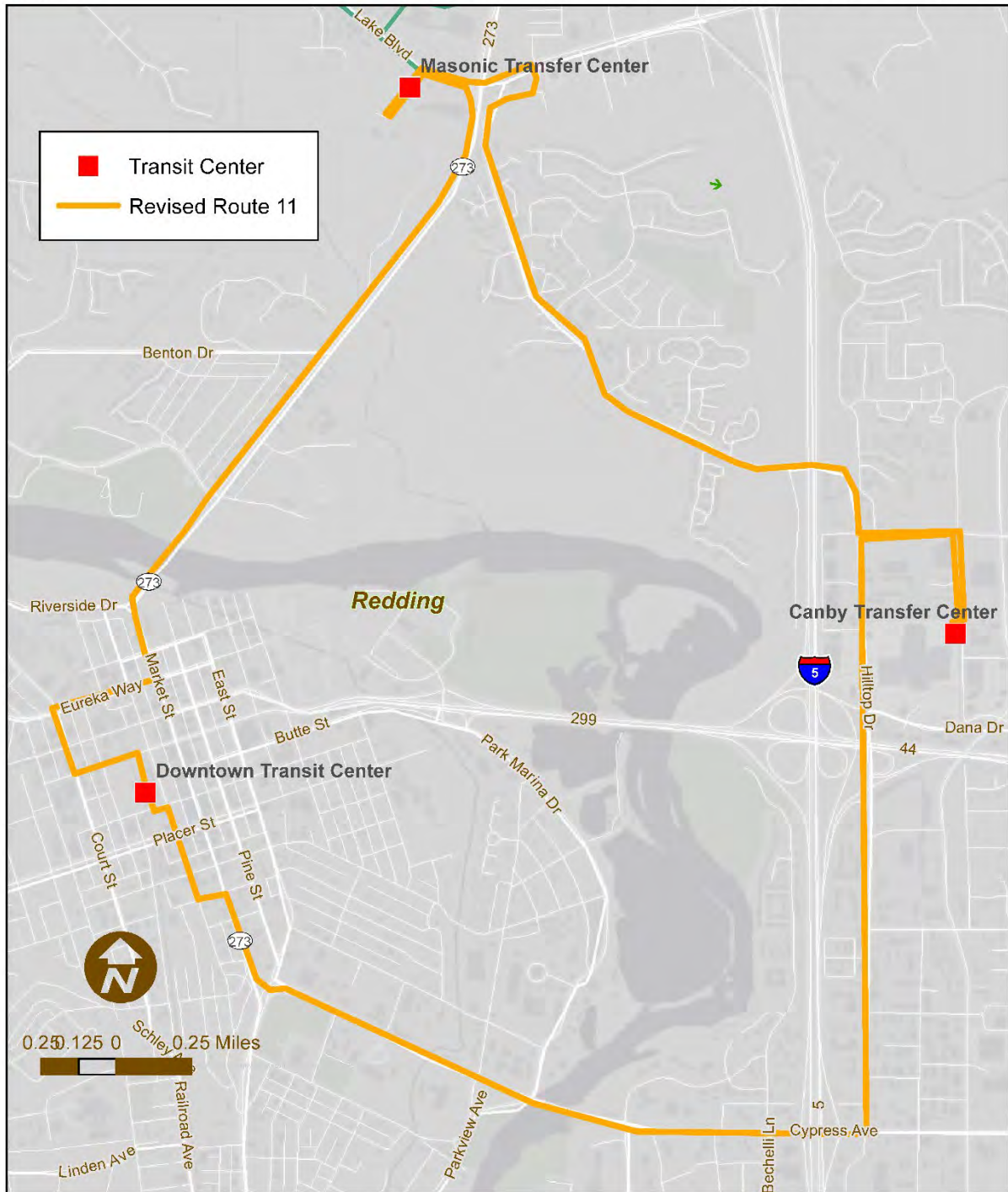
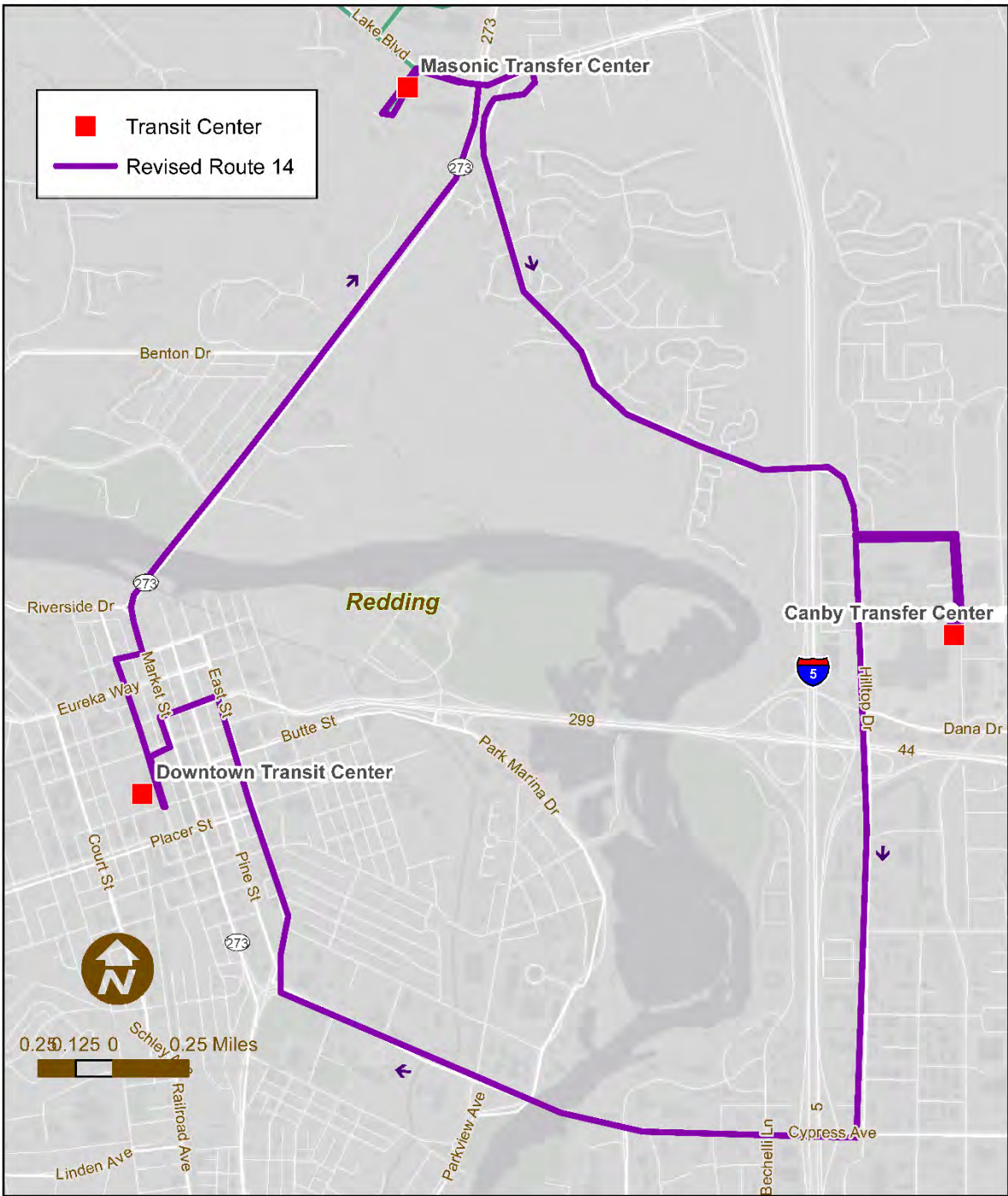




Figure 23

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.
- **Route 18:** 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.

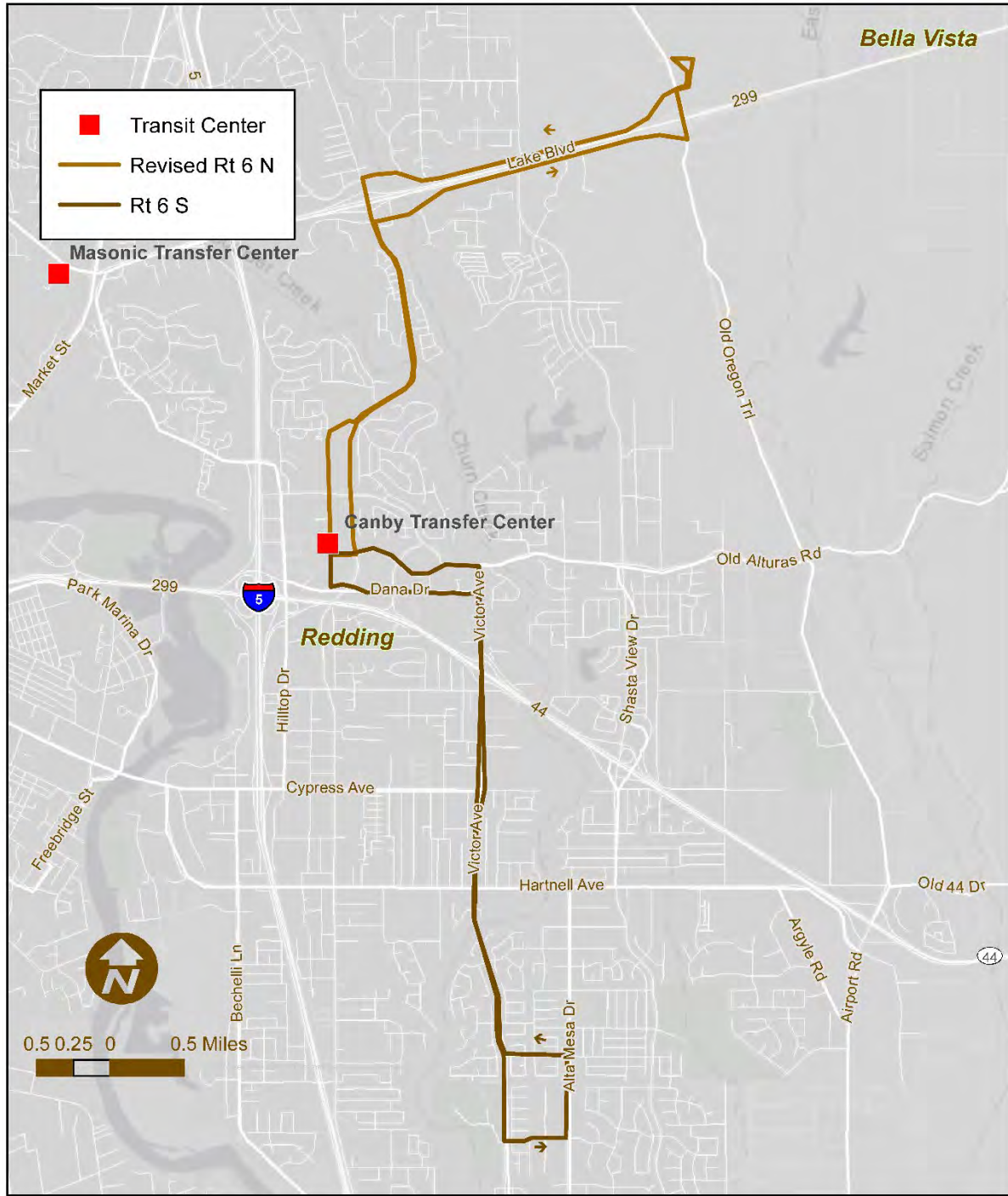
Additional Fixed Route Alternatives

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

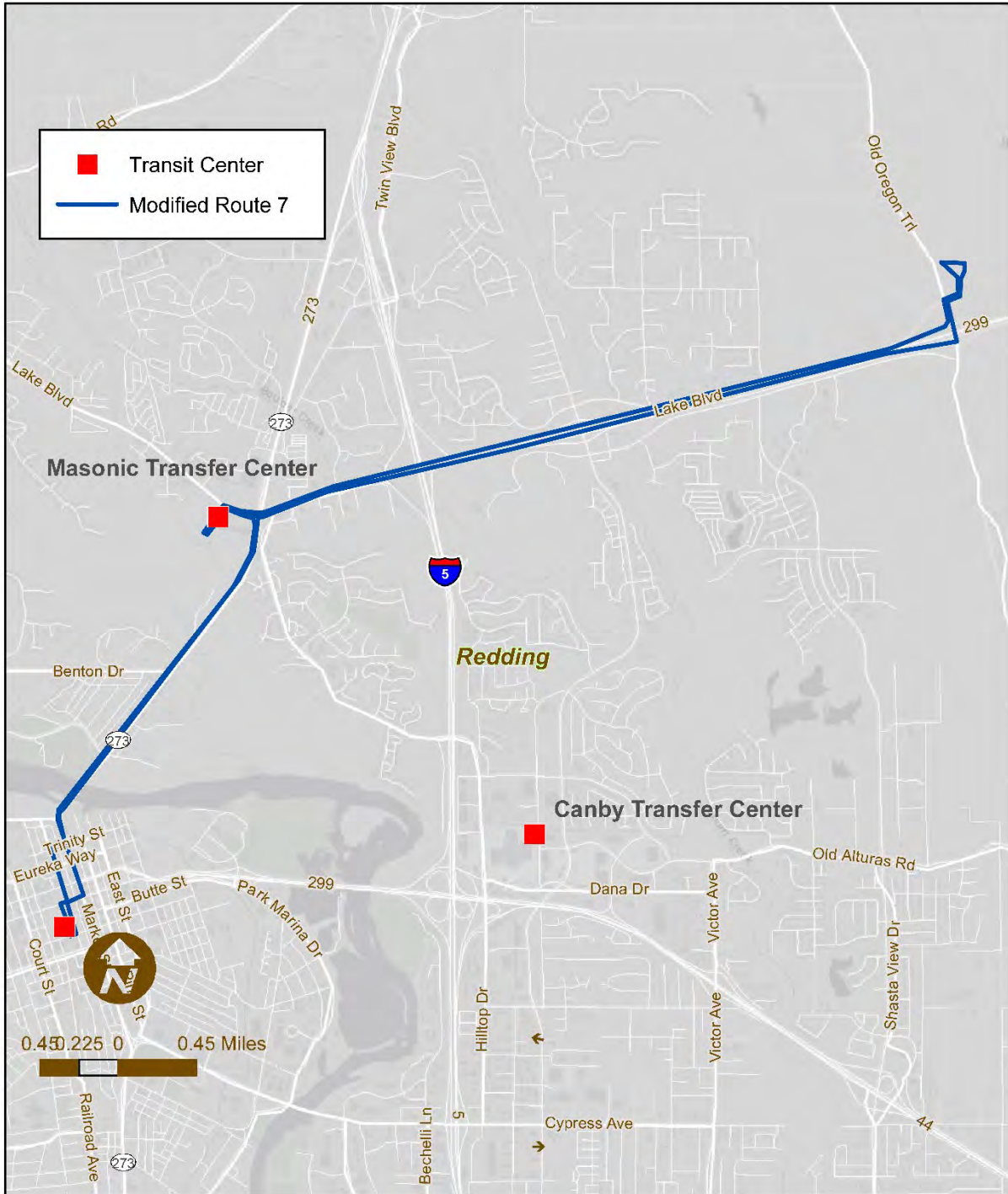
Route 18

The Crosstown Express, now known as Route 18, was introduced in 2016 to provide high-frequency service between downtown and east Redding. Route 18 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 Route 18 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 Route 18.

Figure 24
RABA Alternatives to Reducing Running Time - Route 6



RABA Alternatives to Reduce Running Time - Route 7



RABA Alternatives to Reduce Running Time - Route 18

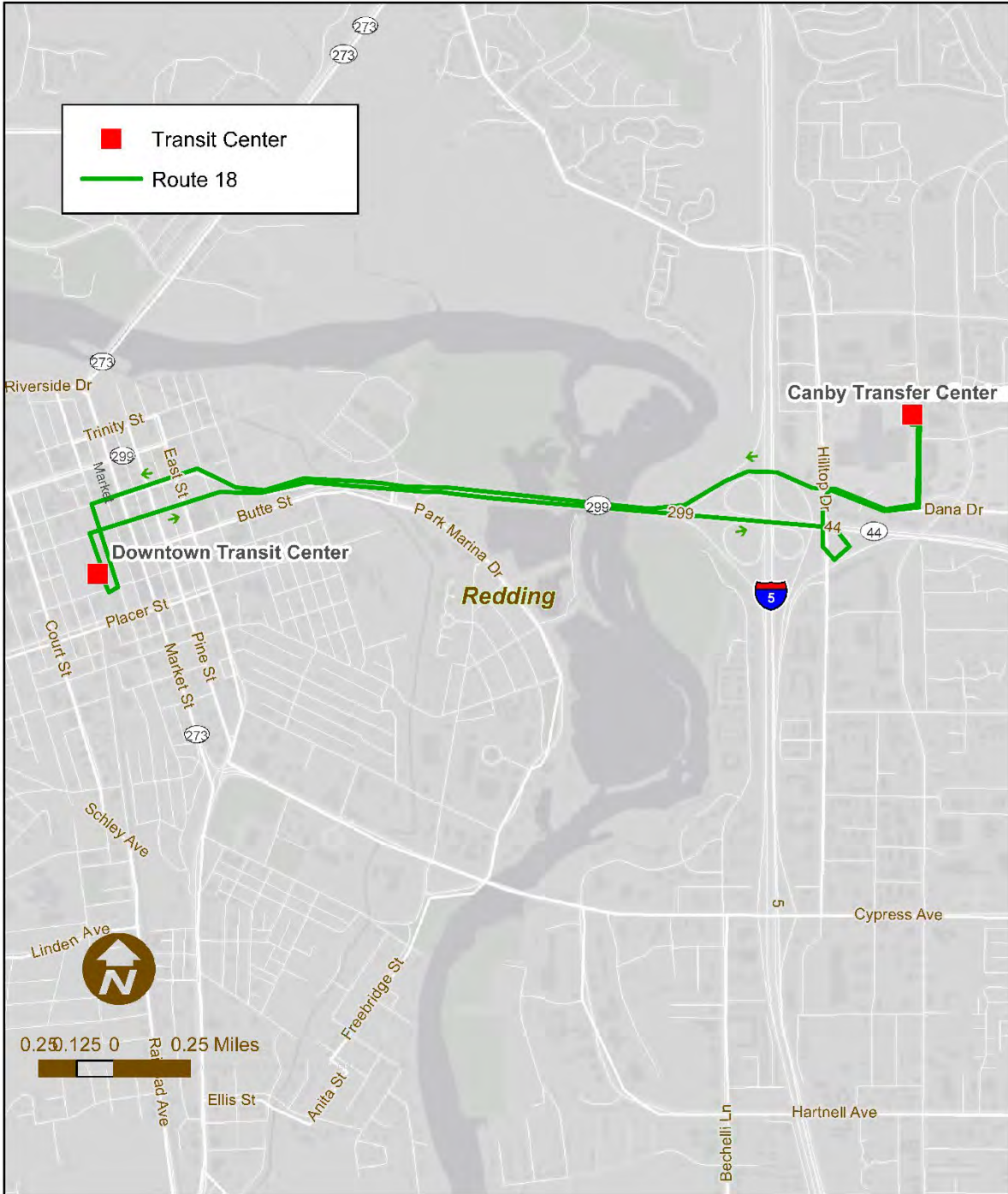


Table 18: RABA Service Alternatives - Route Realignment

Services	Annual			Operating Cost ¹	Ridership Impact (One-Way Trips)		Change in Number of Vehicles
	Operating Days	Vehicle Service Miles	Hours		Daily	Annual ²	
Status Quo²							
RABA Fixed Route Weekday Service	256	657,858	45,808	\$3,145,422	1,253	320,720	NA
RABA Fixed Route Saturday Service	52	60,799	4,508	\$370,376	673	34,977	NA
RABA Fixed Routes Total	308	718,657	50,316	\$3,515,798	1,925	355,696	NA
Route Alternatives - Change from Status Quo							
Route 18							
Eliminate Route 18	256	-29,200	-2,048	-\$140,300	-29.3	-7,500	-1
Extend Route 18 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	\$24,100	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	-\$8,700	7.1	2,200	0
Extend Route 3 to Costco; 9 hourly to Win River Mkt	308	50,200	1,241	\$134,500	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 Route 12X	256	-5,900	-384	-\$27,000	-3.5	-900	0
Note 1: Operating cost estimates represent marginal costs for FY 2023-24 (\$46.80 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 Route 18

A straight-forward solution to improving performance on Route 18 would be to eliminate the route. This would reduce the marginal operating cost by an estimated \$140,300 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 Route 18 to Serve Walmart and Target

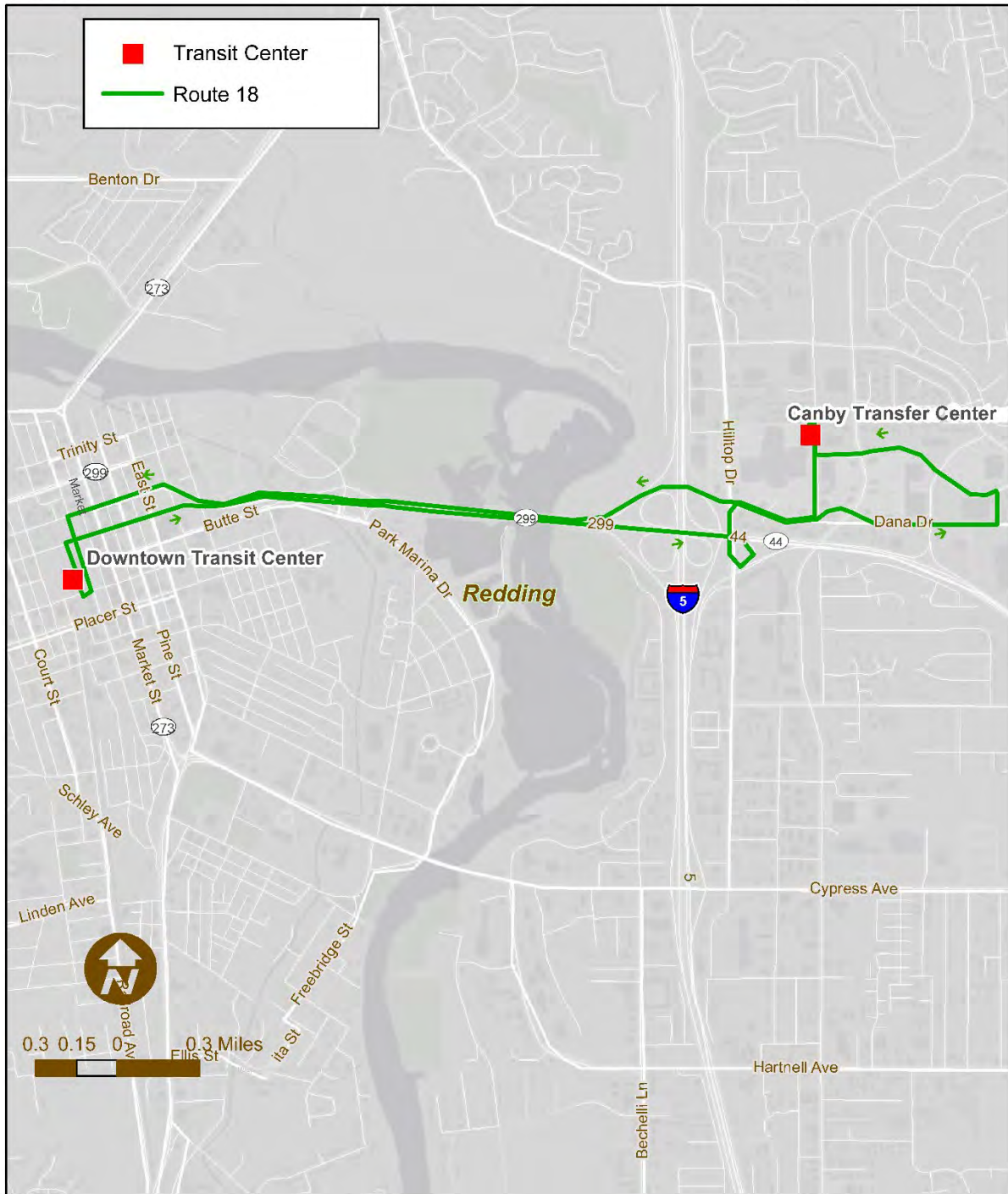
Under this option, the existing Route 18 would be extended to serve the Target and Walmart on Old Alturas Road and Dana Way, and the Civic Center would no longer be served (Figure 27). This would reduce the route distance by 0.65 miles per run, saving \$4,100 in operating costs. This would result in 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 Route 18 Hourly Weekdays

Route 2 (East and West loops) and Route 18 each require one vehicle. The two loops of Route 2 are served hourly with a 27-minute running time, and Route 18 is operated every half hour with a 27-minute running time. Under this option, Route 18 would be operated hourly instead of every half hour (and the stop at the Civic Center would be dropped), and the remaining Route 18 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 Route 18 or Route 2 West.



Figure 27
Revised Route 18 -
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 Route 18, adding \$24,100 in operating costs, as shown in Table 18. There would be a loss of ridership due to reduced frequency on Route 18 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

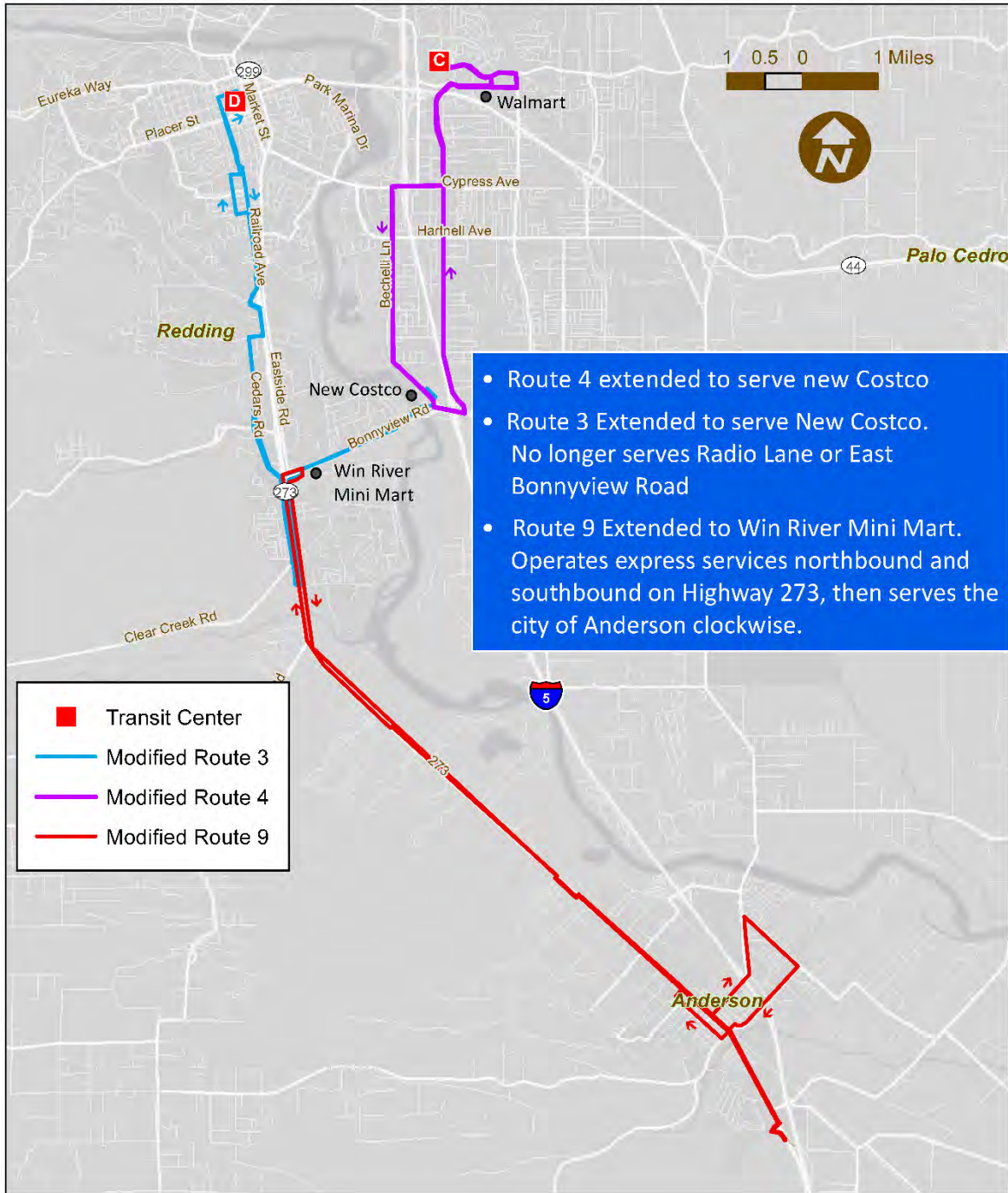
Route 3 has the third highest ridership after Routes 11 and 14. Most (53 percent) of the ridership originates at the Downtown Transit Center or Happy Valley, and another 15 percent is generated by the stops at SR 273/Westwood and El Reno/Westside. On Route 9, half of the ridership originates from its 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.

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 \$8,700, 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 \$134,500 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 Route 12X

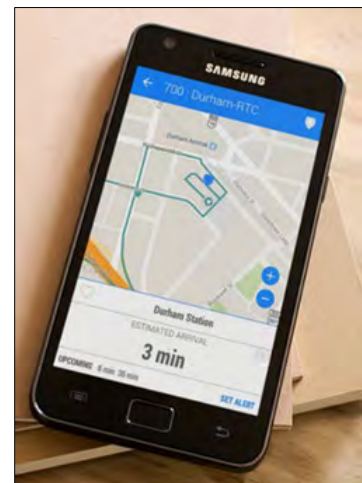
Route 12X consists of one morning round-trip each weekday and carries just 1,164 passengers annually (equivalent to 4.5 per day, or 3.0 per hour). Eliminating this service would result in a loss of an estimated 900 passenger trips (some passengers would take the first Route 9 northbound bus as an alternative), resulting in cost savings of \$27,000, 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 a competitive procurement 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 area³. 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	Passengers per Vehicle Revenue Hour
City of Napa On-Demand¹	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	2.2
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	2.3
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	3.9
SMART Ride⁵ (SacRT)											
Citrus Heights Zone	35.9	58,496	Partial	M - F: 6AM - 9PM	12,700	--	6	34,544	254	136.0	2.7
Franklin Zone	14.0	203,000	Partial	M - F: 7AM - 7PM	6,782	--	4	20,320	254	80.0	3.0
Gerber Zone	10.0	105,800	No	M - F: 7AM - 7PM	3,581	--	2	10,414	254	41.0	2.9
Rancho Cordova Zone	6.9	52,600	Partial	M - F: 7AM - 7PM	5,842	--	3	30,988	254	122.0	5.3
Downtown/ CSUS Zone	7.7	43,100	Yes	M - F: 6AM - 9PM	12,014	--	6	36,576	254	144.0	3.0
Natoma/N. Sac Zone	15.1	52,300	Yes	M - F: 7AM - 7PM	7,290	--	4	21,590	254	85.0	3.0
Arden/ Carmichael Zone	15.0	72,200	Partial	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40.0	2.8
Folsom Zone	27.9	72,900	Yes	M - F: 7AM - 7PM	4,775	--	3	16,002	254	63.0	3.4
Elk Grove Zone	26.4	76,100	No	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40.0	2.8
Peer Zone Average	15.5	65,351	NA	NA	7,455	133,201	4	22,636	277	82	3

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: Statistics are projections for Hanford Zone FY 2022-23 performance. Data sourced from Transit Manager.

Note 5: 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 areas⁴ 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 alternatives⁵. 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 20 cutaways and 18 fixed route vehicles. The peak number of vehicles in service is 8 cutaway vehicles for demand response, 5 cutaway vehicles for fixed route service, 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 \$46.80 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 \$1.91 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	Operating Days	Annual Vehicle Service..		Operating Cost ¹	Ridership Impact (One-Way Trips)		Change in Peak # of Vehicles
		Miles	Hours		Daily	Annual ²	
Status Quo ²							
RABA Fixed Route Weekday Service	256	657,858	45,808	\$3,145,422	1,253	320,720	NA
RABA Fixed Route Saturday Service	52	60,799	4,508	\$370,376	673	34,977	NA
RABA Fixed Routes Total	308	718,657	50,316	\$3,515,798	1,925	355,696	NA
RABA DAR Weekday Service	256	141,062	8,043	\$549,472	81	20,684	NA
RABA DAR Saturday Service	52	21,078	1,202	\$82,105	59	3,091	NA
RABA DAR Total	308	162,140	9,245	\$631,577	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	\$1,909,900	31	9,600	15
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Constrained)	308	263,700	16,700	\$827,500	-323	-99,400	0
Weekdays/Saturdays Microtransit in Off-Peak Hours	308	195,000	13,000	\$851,700	20	6,300	0
Saturdays 8:30 AM - 7:15 PM (Unconstrained)	52	85,100	5,200	\$332,900	65	3,400	3
Saturdays 8:30 AM - 7:15 PM (Constrained)	52	29,700	1,500	\$92,200	-398	-20,700	0
Sunday Microtransit ³	52	23,400	1,560	\$135,500	98	5,100	0
Weekday Evening Microtransit (6 PM - 9 PM) (Unconstrained)							
Microtransit	256	69,000	4,600	\$319,100	67	17,100	10
Eliminate Existing Fixed Route	256	-45,600	-3,200	-\$218,400	-21	-5,300	-11
Total		23,400	1,400	\$100,700	46	11,800	
Weekday Evening Microtransit (6 PM - 9 PM) (Constrained)							
Microtransit	256	42,240	2,816	\$202,800	40	10,300	5
Eliminate Existing Fixed Route	256	-45,600	-3,200	-\$218,400	-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	\$152,700	24	6,200	5
<p>Note 1: Operating cost estimates represent marginal costs for FY 2023-24 (\$46.80 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.</p> <p>Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.</p> <p>Note 3: Sunday and evening microtransit includes an additional \$50 per additional hour for dispatch and maintenance staff.</p> <p>Note 4: Detailed analyses of vehicle requirements and ridership estimates are included in Appendix G.</p> <p>Note 5: Constrained option assumed to consist of up to five microtransit vehicles in operation.</p>							

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 \$827,500. 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 \$851,700. 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 \$332,900 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 \$92,200, 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 57 passenger trips per service day during FY 2022-23 (2,990 total), operating an average of 25.6 hours per day. This equals an average of 2.2 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. In addition, fares can be integrated for a seamless passenger experience.

A reasonable operating plan would be to provide service with three vehicles over 8 hours per Sunday (8:00 AM to 4:00 PM). This would serve an estimated 5,100 passenger trips annually, based on the observed Saturday ridership, the ratio of Sunday to Saturday ridership in other systems, and the capacity of the service. Operating costs need to include salaries for a dispatcher and mechanic, as these are not currently available on Sundays. Adding an estimated \$67.00 per hour on top of the contract rate results in a total cost of \$135,500 annually.

While this is a significant total, the resulting cost per passenger trip would be \$26.57, which is significantly lower than ShastaConnect’s cost of \$70.00 per passenger trip. This RABA service would serve approximately 2,000 additional passengers per year but would cost \$67,200 less to operate.

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 was estimated based on evening ridership in similar transit systems, calibrated with existing RABA fixed route ridership in the 6 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. 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 \$319,100 but would reduce existing fixed route/paratransit costs by \$218,400, for a net cost increase of \$100,700. 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, this service alternative would still require a net increase in fleet size to ensure microtransit is available to those passengers who need rides as fixed route/paratransit services wind down.
- **Constrained Service from 6 PM to 9 PM** – Under this scenario, the number of microtransit vehicles would be limited to four. This would limit 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 \$152,700, 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 fixed route service. Microtransit might prove effective in areas of low demand or in concentrated areas with a diffuse pattern of trips. 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 new microtransit zones and simultaneously reducing fixed route service levels. Unless identified, each alternative assumes a span of service matching 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 (Figure 29). This 1.7 square mile zone would supply frequent, short-distance trips in lieu of the current fixed routes and would allow the fixed routes to travel more directly through the area while serving the Downtown Transit Center. The Downtown Zone would impact Routes 2, 3, and 5:

- 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 (8 stops) would no longer be served.
- 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 \$202,500 annually, and the Downtown Microtransit Zone (constrained) would add \$247,800, for a net increase in marginal operating costs of \$33,000 (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

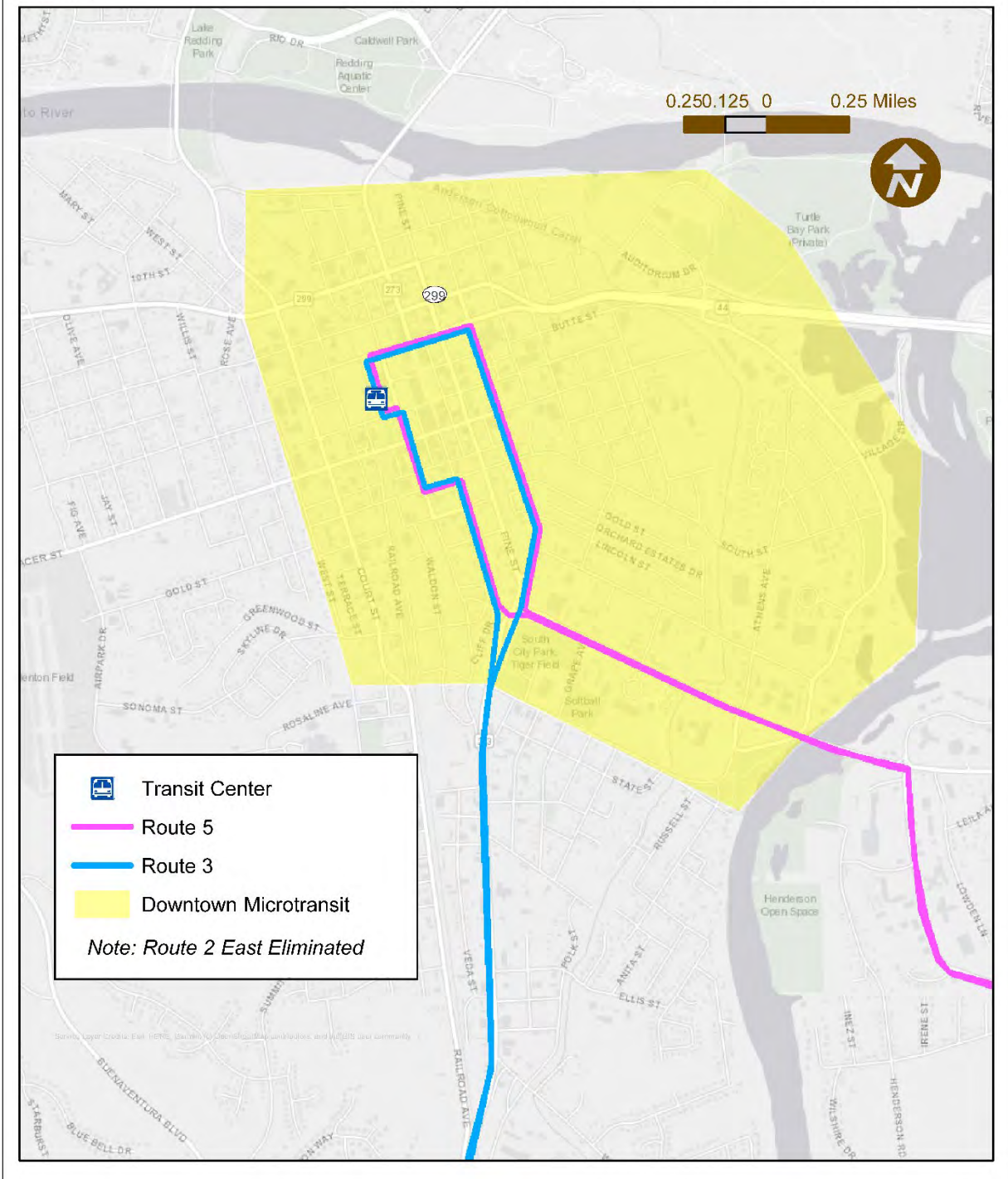


Table 21: RABA Service Alternatives - Fixed Route with Microtransit (1 of 2)

Downtown, North and East Microtransit Zones

Services	Annual			Operating Cost ¹	Ridership Impact (One-Way Trips)	
	Operating Days	Vehicle Service.. Miles	Hours		Daily	Annual ²
Status Quo ²						
RABA Weekday Service	256	657,858	45,808	\$3,145,422	1,253	320,720
RABA Saturday Service	52	60,799	4,508	\$370,376	673	34,977
RABA Fixed Routes Total	308	718,657	50,316	\$3,515,798	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	\$247,800	0.0	0
Eliminate 2E, Serve with Route 3	308	-28,500	-3,400	-\$202,500	-2.9	-900
Shortened Route 5	308	-8,100	0	-\$12,300	0.0	1,000
<i>Total</i>	<i>308</i>	<i>20,400</i>	<i>400</i>	<i>\$33,000</i>	<i>0.3</i>	<i>100</i>
Service Changes with North Microtransit Zone						
North Microtransit (same as FR hours)	308	57,000	3,800	\$247,800	46.1	14,200
Shorten Routes 1 and 7; Bethel On Demand	308	-20,800	0	-\$31,700	-33.1	-10,200
<i>Total</i>	<i>308</i>	<i>36,200</i>	<i>3,800</i>	<i>\$216,100</i>	<i>13.0</i>	<i>4,000</i>
Service Changes with East Microtransit Zone (Unconstrained)						
East Microtransit (same as FR hours)	308	69,000	4,600	\$299,900	64.6	19,900
Combine Routes 4 & 5, Eliminate 6S	308	-69,600	-3,300	-\$260,400	-61.0	-18,800
<i>Total</i>	<i>308</i>	<i>-600</i>	<i>1,300</i>	<i>\$39,500</i>	<i>3.6</i>	<i>1,100</i>
Service Changes with East Microtransit Zone (Constrained)						
East Microtransit (same as FR hours)	308	57,000	3,800	\$247,800	56.8	17,500
Combine Routes 4 & 5, Eliminate 6S	308	-69,600	-3,300	-\$260,400	-61.0	-18,800
<i>Total</i>	<i>308</i>	<i>-12,600</i>	<i>500</i>	<i>-\$12,600</i>	<i>-4.2</i>	<i>-1,300</i>
<p>Note 1: Operating cost estimates represent marginal costs for FY 2023-24 (\$46.80 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.</p> <p>Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.</p> <p>Note 3: The impacts are listed as the change in hours and miles of service, marginal operating costs, and projected ridership.</p> <p>Note 4: Detailed analyses of vehicle requirements and ridership estimates for microtransit zones are included in Tables F2-F6 in Appendix F.</p>						

Capacity Constrained Option

As the number of vehicles required to operate this service would not exceed the maximum, only the constrained option is considered⁶. 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 \$216,100 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 Ministry⁷), 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 annually⁸ and a marginal operating cost of \$299,900. The combined Routes 4 and 5 and elimination of Route 6S would save \$260,400 annually, therefore all the service changes together would result in a net annual increase in costs of only \$39,500, not including software support. Ridership would increase by a net of 1,100 passenger trips annually.

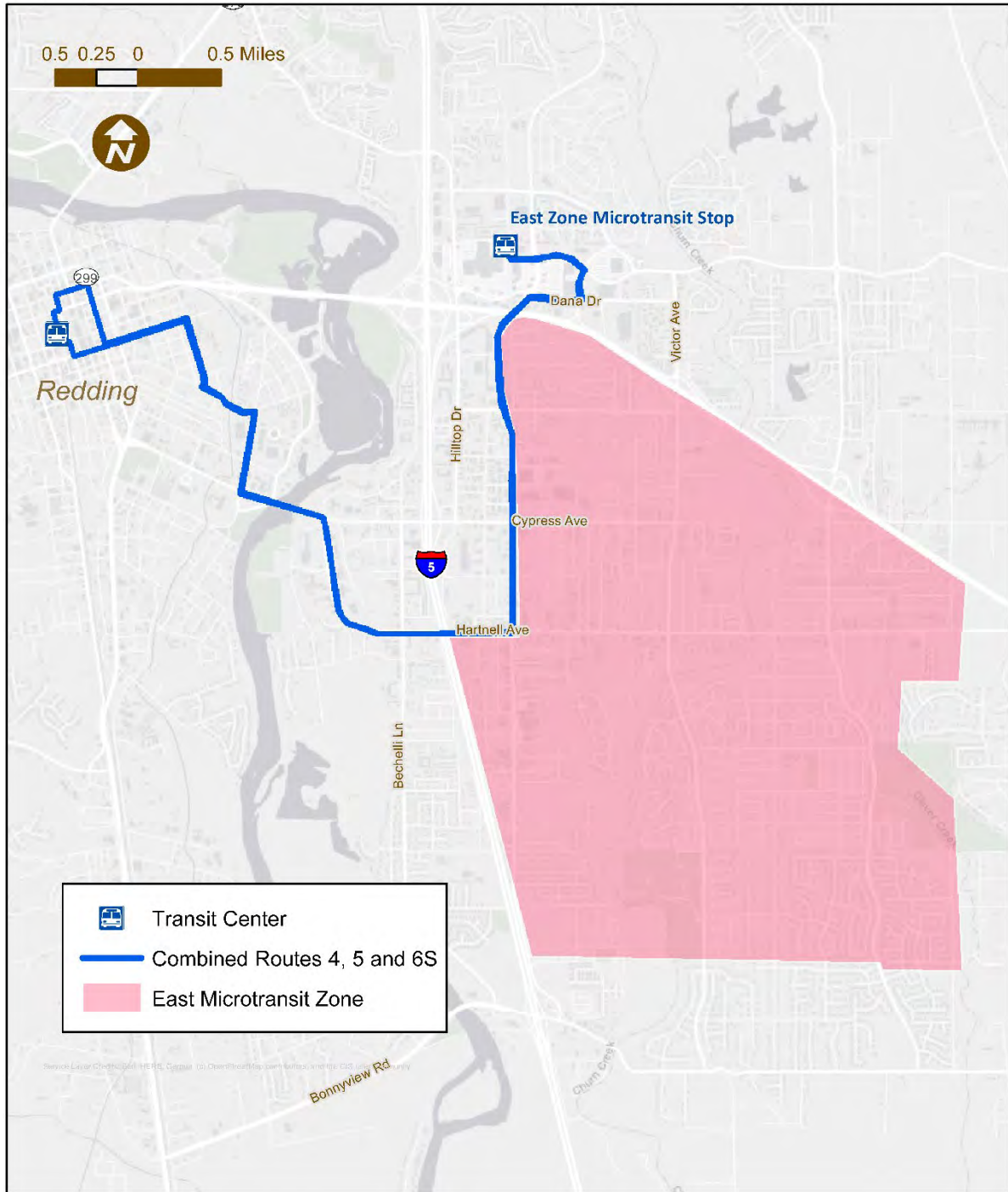
Capacity Constrained Option

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 \$247,800. The combined Routes 4 and 5 and elimination of Route 6S would save \$260,400 annually, for a net reduction of \$12,600 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 considered⁹. 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 \$5,400 (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 area¹⁰. 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 7:00 AM through 5:00 PM¹¹, 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 \$14,100 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 \$155,400 but would also result in a loss of 10,400 passenger trips annually, as shown in Table 22.

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

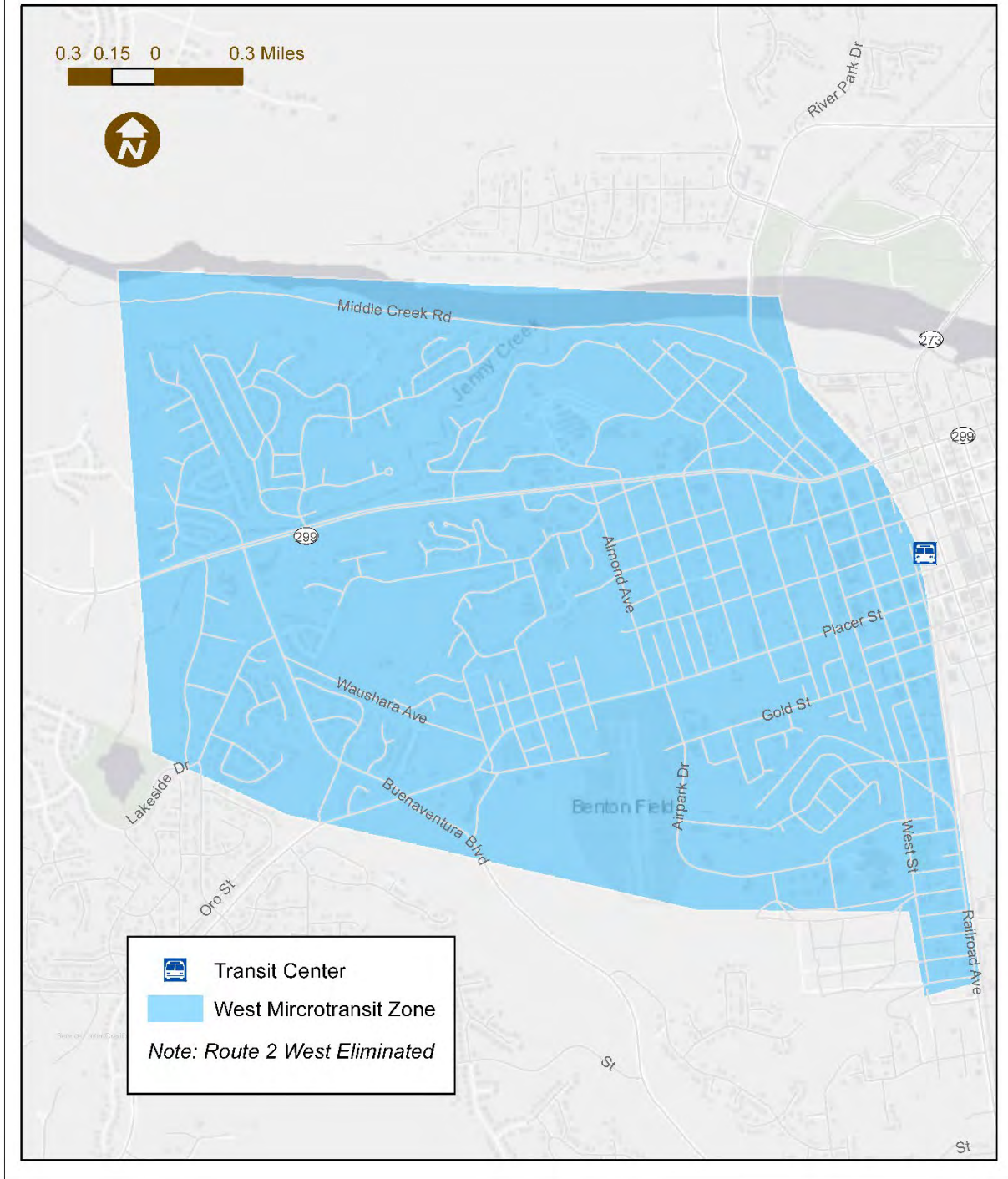


Table 22: RABA Service Alternatives - Fixed Route with Microtransit (2 of 2)

West, Downtown/West and Anderson Microtransit Zones

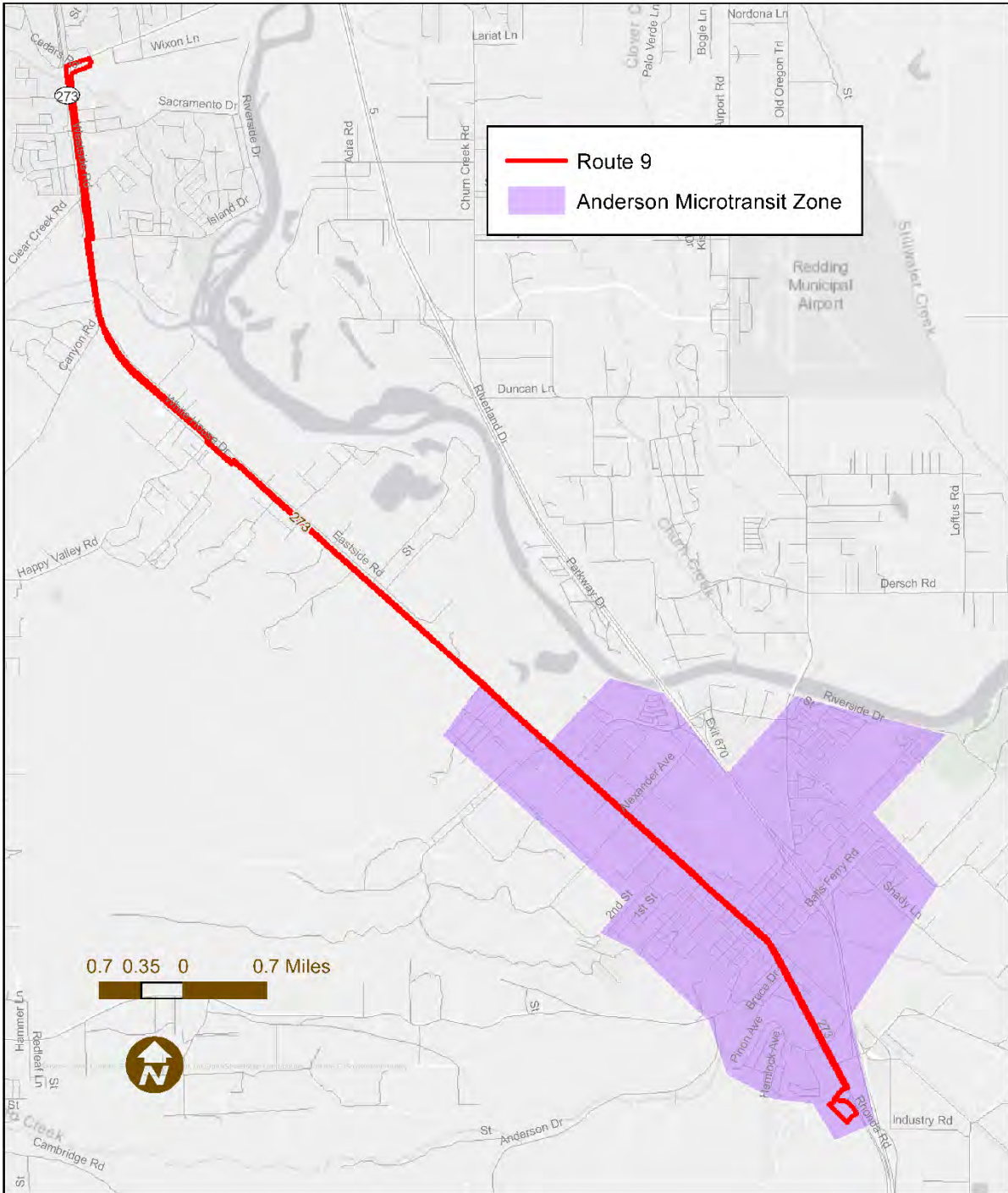
Services	Annual			Operating Cost ¹	Ridership Impact (One-Way Trips)	
	Operating Days	Vehicle Service Miles	Hours		Daily	Annual ²
Status Quo ²						
RABA Weekday Service	256	657,858	45,808	\$3,145,422	1,253	320,720
RABA Saturday Service	52	60,799	4,508	\$370,376	673	34,977
RABA Fixed Routes Total	308	718,657	50,316	\$3,515,798	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	\$247,800	50.3	15,500
Eliminate Route 2 West	308	-54,700	-3,400	-\$242,400	-47.7	-14,700
<i>Total</i>	<i>308</i>	<i>2,300</i>	<i>400</i>	<i>\$5,400</i>	<i>2.6</i>	<i>800</i>
Service Changes with Downtown/West Microtransit (Unconstrained)						
Downtown / West Microtransit	308	96,000	6,400	\$417,300	93.5	28,800
Eliminate 2W; Serve 2E with Route 3	308	-47,300	-6,800	-\$390,300	-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
<i>Total</i>	<i>308</i>	<i>40,200</i>	<i>-400</i>	<i>\$14,100</i>	<i>0.6</i>	<i>200</i>
Service Changes with Downtown/West Microtransit (Constrained)						
Downtown / West Microtransit	308	57,000	3,800	\$247,800	59.1	18,200
Eliminate 2E, Serve with Route 3	308	-47,300	-6,800	-\$390,300	-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
<i>Total</i>	<i>308</i>	<i>1,200</i>	<i>-3,000</i>	<i>-\$155,400</i>	<i>-33.8</i>	<i>-10,400</i>
Service Changes with Anderson Microtransit Zone (Unconstrained/Constrained)						
Anderson Microtransit (same as FR hours)	308	49,500	3,300	\$215,200	30.5	9,400
Convert Route 9/12X to Express Route	308	-7,400	-400	-\$30,000	-8.4	-2,600
<i>Total</i>	<i>308</i>	<i>42,100</i>	<i>2,900</i>	<i>\$185,200</i>	<i>22.1</i>	<i>6,800</i>
<p>Note 1: Operating cost estimates represent marginal costs for FY 2023-24 (\$46.80 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.</p> <p>Note 2: Status quo is based on FY 2021-22 parameters and ridership, rounded, but with 2023-24 cost factors.</p> <p>Note 3: The impacts are listed as the change in hours and miles of service, marginal operating costs, and projected ridership.</p> <p>Note 4: Detailed analyses of vehicle requirements and ridership estimates for microtransit zones are included in Tables F2-F6 in Appendix F.</p>						

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 Saturdays¹². 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 considered¹³. 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 \$30,000, as shown in Table 22. The microtransit service would add \$215,200 in operating costs, for a net increase of \$185,200. 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 ridership¹⁴.

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. 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 the total annual cost would be \$132,300.

Note that an option to provide Sunday service using microtransit is discussed above.

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 \$285,000 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 \$218,400 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 \$89,400 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 Cost ¹	Ridership Impact (One-Way Trips)	
	Operating Days	Vehicle Service.. Miles	Hours		Daily	Annual ²
Status Quo ²						
RABA Weekday Service	256	657,858	45,808	\$3,145,422	1,253	320,720
RABA Saturday Service	52	60,799	4,508	\$370,376	673	34,977
RABA Fixed Routes Total	308	718,657	50,316	\$3,515,798	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	\$38,300	100	5,200
Route 3	52	5,000	300	\$21,700	38	2,000
Route 4	52	4,100	300	\$20,300	31	1,600
Complementary Paratransit	52	5,300	300	\$20,500	3	800
Dispatcher & Mechanic Costs	52	0	630	\$31,500	--	--
<i>Total</i>		<i>9,700</i>	<i>1,200</i>	<i>\$132,300</i>	<i>169</i>	<i>9,600</i>
Fixed Routes Later Weekdays (Ending at 9:15 PM)						
Route 1	256	10,400	500	\$39,200	7.6	1,900
Route 2	256	3,300	500	\$28,400	7.1	1,800
Route 3	256	8,200	500	\$35,900	8.9	2,300
Route 4	256	6,800	500	\$33,800	6.1	1,600
Route 11	256	5,400	500	\$31,600	7.8	2,000
Route 14	256	5,600	500	\$31,900	9.6	2,500
Complementary Paratransit	256	8,800	500	\$34,200	3	1,300
Dispatcher & Mechanic Costs	256	--	1,000	\$50,000	--	--
<i>Total</i>	<i>256</i>	<i>12,000</i>	<i>3,000</i>	<i>\$285,000</i>	<i>52.3</i>	<i>13,400</i>
End Weekday Service at 6:15 PM						
Fixed Routes	256	-38,600	-2,400	-\$171,100	-19.5	-5,000
Paratransit	256	-7,000	-400	-\$27,300	-1.3	-300
Dispatcher & Mechanic Costs	256	--	-400	-\$20,000	--	--
<i>Total</i>	<i>256</i>	<i>-45,600</i>	<i>-3,200</i>	<i>-\$218,400</i>	<i>-20.8</i>	<i>-5,300</i>
Eliminate Routes 5 and 7 on Saturdays						
Route 5	52	-8,800	-700	-\$46,200	-38.5	-2,000
Route 7	52	-9,900	-600	-\$43,200	-34.6	-1,800
<i>Total</i>	<i>52</i>	<i>-18,700</i>	<i>-1,300</i>	<i>-\$89,400</i>	<i>-73.1</i>	<i>-3,800</i>

Note 1: Operating cost estimates represent marginal costs for FY 2023-24 (\$46.80 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 on 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 Cost¹	Operating Cost per Passenger Trip
Alternatives Meeting Standard Shown in Green²			
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 \$12.50 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 Realignment

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 Route 18 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 Route 18 reduces costs by \$140,300) and greatest cost increase (extending Route 9 and serving Route 9 hourly adds \$134,500), 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 Route 18 would result in a loss of 3.7 passengers for every hour reduced (Figure 36), while eliminating Route 12X 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 Route 12X and Route 18 would save the most per lost passenger trip (Table 25 and Figure 35).

The alternatives meeting the recommended standards are indicated by shading. Five 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 five options are as follows: eliminating Route 18, extending Route 18 to Walmart, extending Route 3 to Costco and peak-hour Route 9 to Win River Market, extending Route 4 to Costco, and eliminating Route 12X.

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 \$1.91 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

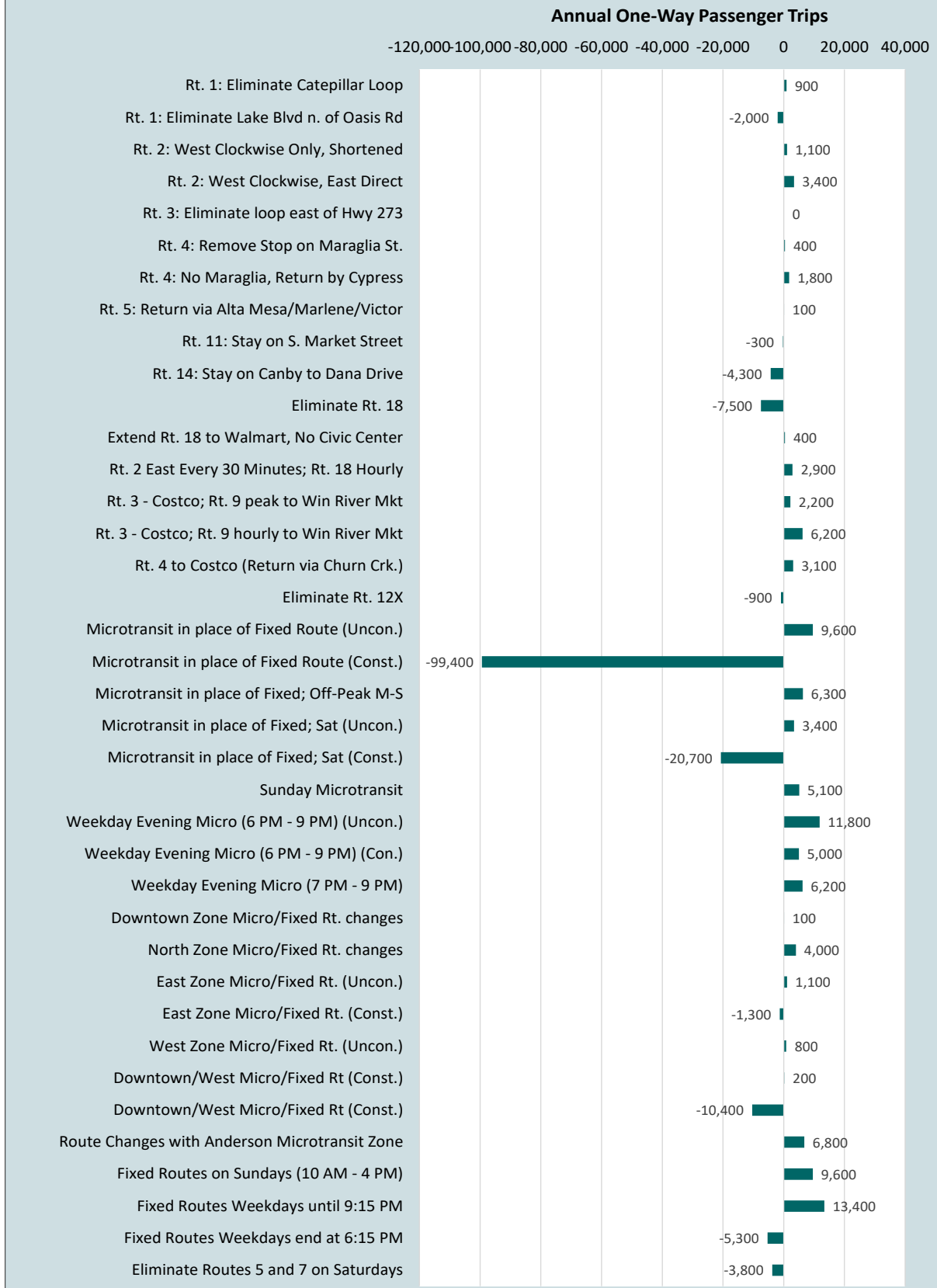


Figure 34: Change in Annual Marginal Operating Cost of RABA Alternatives

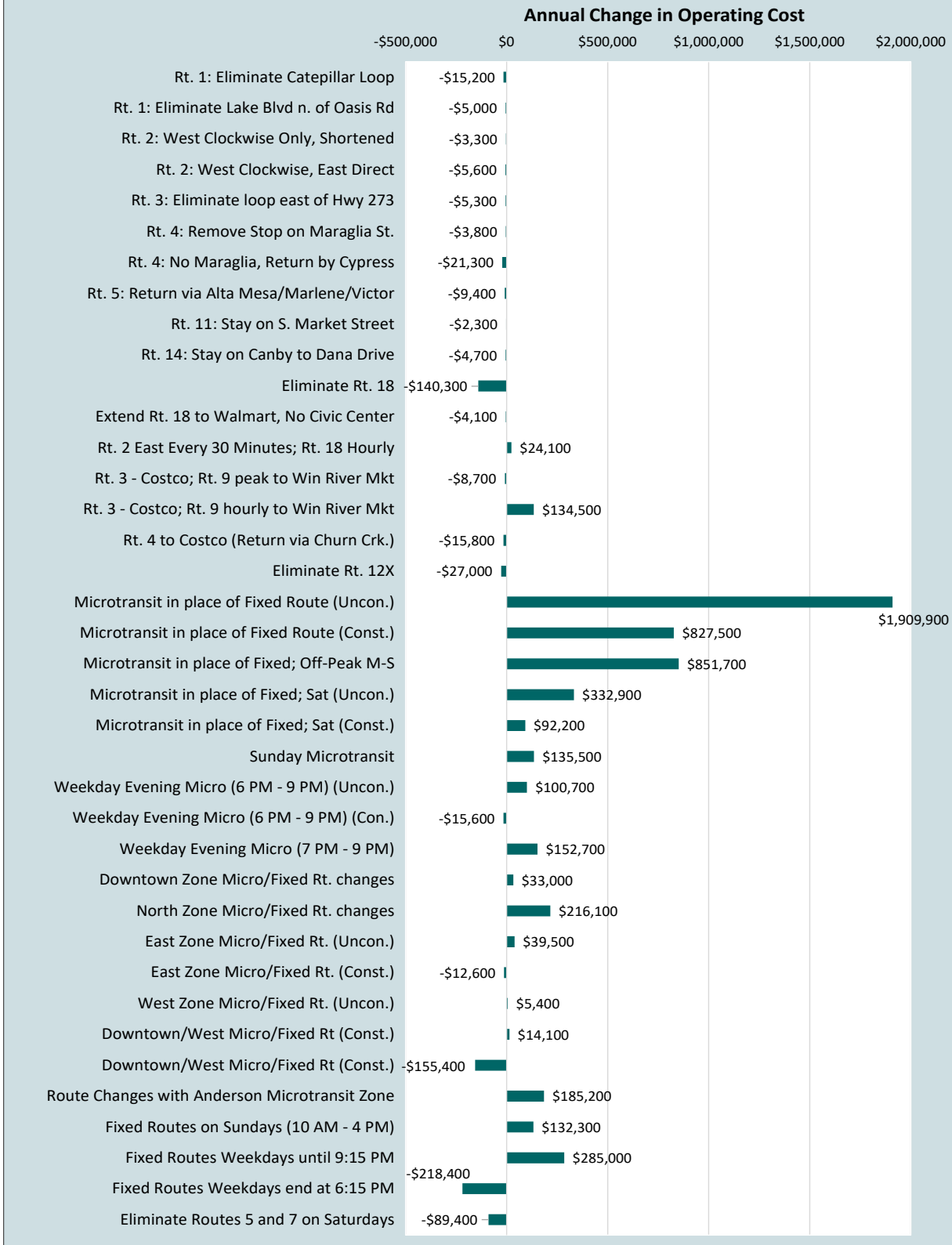


Table 25: Comparison of Service Alternatives - Route Realignment

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 Route 18	-7,500	-\$140,300	-3.7	-\$18.71
Extend Route 18 to Walmart, Drop Civic Center	400	-\$4,100	NA	-\$10.25
Rt 2 East Every 30 Minutes; Route 18 Hourly	2,900	\$24,100	NA	\$8.31
Extend Route 3 to Costco; Peak hrs 9 to Win River Mkt	2,200	-\$8,700	NA	-\$3.95
Extend Route 3 to Costco; 9 hourly to Win River Mkt	6,200	\$134,500	NA	\$21.69
Extend Route 4 to Costco (Return via Churn Creek)	3,100	-\$15,800	NA	-\$5.10
Eliminate Route 12X	-900	-\$27,000	-5.0	-\$30.00
Recommended Performance Standards >		Local Routes (2, 3, 4)	10.0	\$7.00
		Commuter (12X, 18)	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 \$330.00 generated per added passenger trip. The unconstrained, systemwide microtransit alternative would also have a high per-passenger cost (\$198.95).

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

- 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 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 \$26.00 per trip or less.
- A constrained West Zone provides additional ridership at only \$6.75 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 and fixed route passenger trips 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

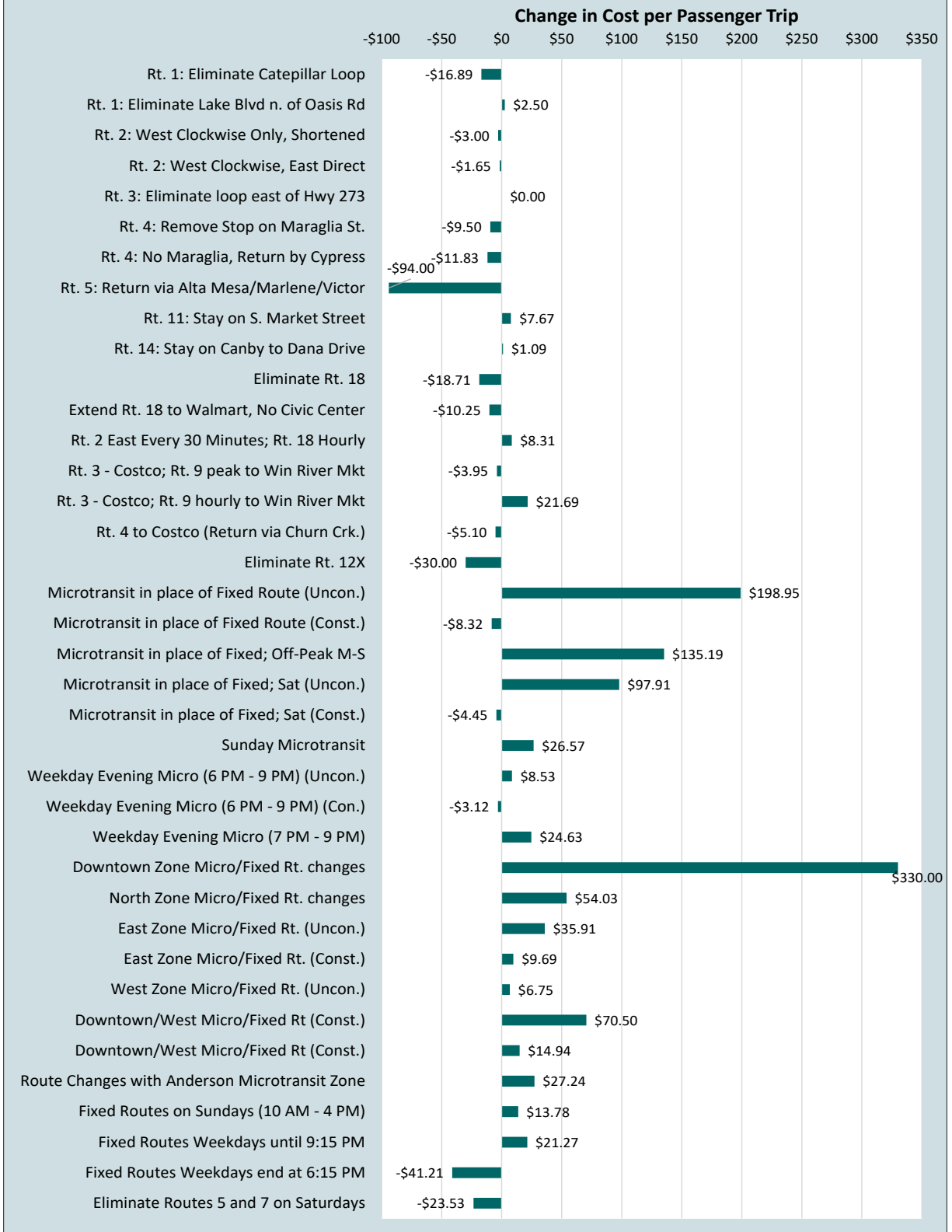


Figure 36: Change in Ridership per Vehicle Hour of RABA Alternatives

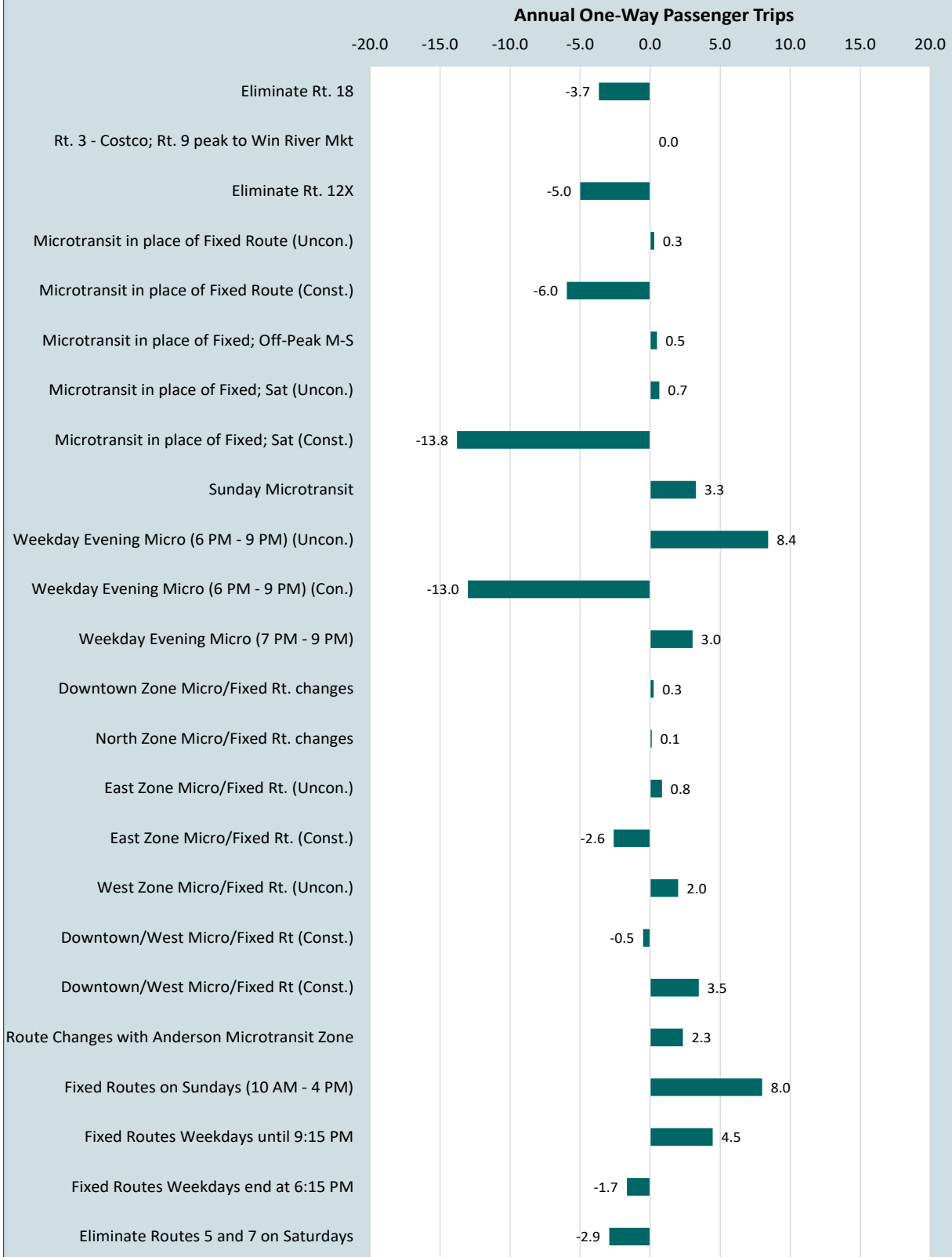


Table 26: Comparison of Service Alternatives - Microtransit & Span of Service

Alternatives	Annual Ridership	Annual Operating Cost	Passenger-Trips per Veh-Hour	Operating Cost per Passenger Trip
Alternatives Meeting Standard Shown in Green				
Microtransit Analysis of Full Fixed Route Replacement (from Table 20)				
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Unconstrained)	9,600	\$1,909,900	0.3	\$198.95
Weekdays (6 AM - 7 PM), Saturdays (8 AM - 7 PM) (Constrained)	-99,400	\$827,500	-6.0	-\$8.32
Weekdays/Saturdays Microtransit in Off-Peak Hours	6,300	\$851,700	0.5	\$135.19
Saturdays 8:30 AM - 7:15 PM (Unconstrained)	3,400	\$332,900	0.7	\$97.91
Saturdays 8:30 AM - 7:15 PM (Constrained)	-20,700	\$92,200	-13.8	-\$4.45
Sunday Microtransit Service	5,100	\$135,500	3.3	\$26.57
Weekday Evening Microtransit (6 PM - 9 PM) (Unconstrained)	11,800	\$100,700	8.4	\$8.53
Weekday Evening Microtransit (6 PM - 9 PM) (Constrained)	5,000	-\$15,600	-13.0	-\$3.12
Weekday Evening Microtransit (7 PM - 9 PM)	6,200	\$152,700	3.0	\$24.63
Microtransit Analysis by Zone (from Tables 21 & 22)				
Service Changes with Downtown Microtransit	100	\$33,000	0.3	\$330.00
Service Changes with North Microtransit Zone	4,000	\$216,100	0.1	\$54.03
Service Changes with East Microtransit Zone (Unconstrained)	1,100	\$39,500	0.8	\$35.91
Service Changes with East Microtransit Zone (Constrained)	-1,300	-\$12,600	-2.6	\$9.69
Service Changes with West Microtransit Zone (Constrained)	800	\$5,400	2.0	\$6.75
Service Changes with Downtown/West Microtransit (Unconstrained)	200	\$14,100	-0.5	\$70.50
Service Changes with Downtown/West Microtransit (Constrained)	-10,400	-\$155,400	3.5	\$14.94
Service Changes with Anderson Microtransit Zone (Unconstrained/Constrained)	6,800	\$185,200	2.3	\$27.24
Span of Service Alternatives (from Table 23)				
Fixed Routes on Sundays (10 AM - 4 PM)	9,600	\$132,300	8.0	\$13.78
Fixed Routes Later Weekdays (Ending at 9:15 PM)	13,400	\$285,000	4.5	\$21.27
End Weekday Service at 6:15 PM	-5,300	-\$218,400	-1.7	-\$41.21
Eliminate Routes 5 and 7 on Saturdays	-3,800	-\$89,400	-2.9	-\$23.53
<small>Note: Does not include fixed costs, except Sunday service includes \$67 per hour for additional dispatch and mechanics staff plus overhead. NA = Not applicable, as vehicle-hours do not change.</small>				

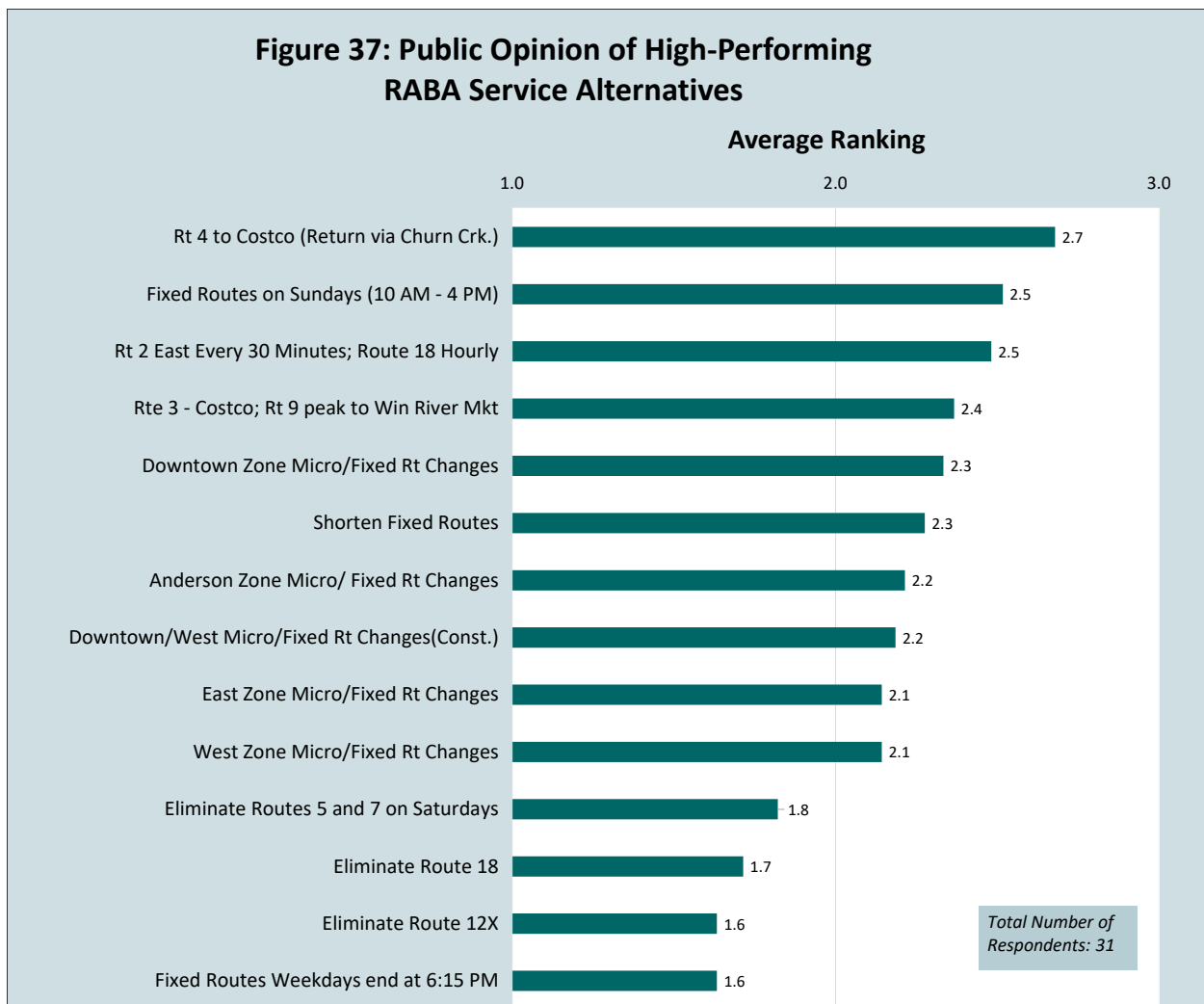
Comparison of Span of Service Alternatives

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 \$218,400 in operating costs—a reduction of \$41.21 per passenger trip. Offering fixed route service on Sundays would increase costs by \$132,300 at a cost of \$13.78 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, which would cost \$23.92 per additional trip. 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 Route 18 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.



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-19.

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 Regional Center has indicated they are ramping up activities and expect to exceed pre-COVID-19 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

RABA had an agreement with the CTSA to allow them to serve the VA clinic with the ShastaConnect weekday demand response service through September 30, 2023. ShastaConnect carried an average of 2.6 passenger trips per day to the VA clinic, nonetheless, there is concern that unhoused Veterans 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 deviated fixed route service (Route 15) in October 2023 to serve the Redding Regional Airport, with a stop at the VA clinic and Veterans Home. 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.

This page intentionally left blank.

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 Route 299X 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 Route 299X corridor, the Route 299X 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 Households	Youth (17 Yrs and Younger)		Elderly (65+)		Persons with a Disability		Below Poverty Level		Zero Vehicle Households	
			#	%	#	%	#	%	#	%	#	%
Existing Route 299X	10,491	3,935	2,185	20.8%	2,557	24.4%	2,156	20.5%	1,572	15.0%	144	3.7%
Route 299X 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 Route 299X 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 Route 299X 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 Route 299X corridor, Route 299X extension, the Old Shasta/Keswick zone, and Cottonwood populations are **youth** ages 17 or younger. The existing Route 299X 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 Route 299X corridor, Happy Valley, and Old Shasta/Keswick populations are senior adults. The Route 299X 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 Route 299X and Route 299X extension zones. In Cottonwood, 19 percent of the population has a disability. An estimated 2,156 disabled persons live in the existing Route 299X 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 Route 299X, Route 299X 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 Route 299X 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 Route 299X 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 Route 299X 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 Route 299X and Route 299X 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 Route 299X 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 Route 299X Corridor	4.40	46,160	--	--
Route 299X 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 Route 299X 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, Route 299X extension zone is the only analysis area that would likely have a greater rate of transit use compared to the existing Route 299X zone (its per capita score was 102 percent of the existing Route 299X corridor’s score). As none of the five new zones are as populated as the existing Route 299X 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 Route 299X corridor’s total score, making it the most comparable.

EXISTING SERVICES

Route 299x (Burney Express)

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

Ridership

Route 299X's annual ridership from FY 2012-13 to FY 2022-23 is summarized in Figure 38. During this period, Route 299X 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 Route 299X 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.

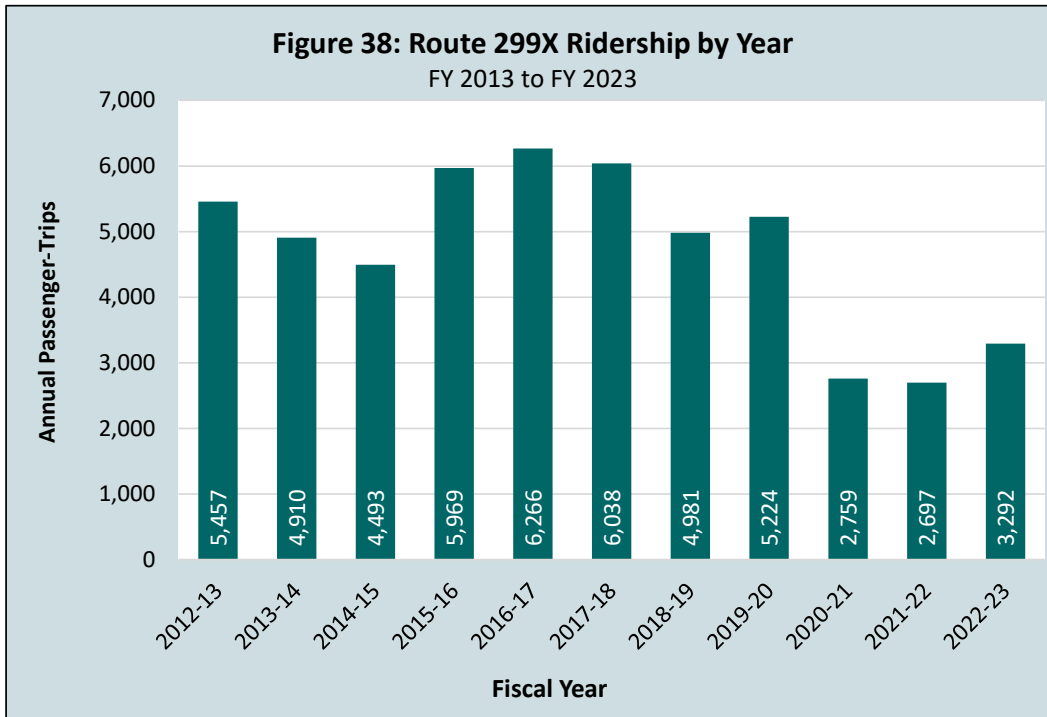


Figure 39 shows Route 299X ridership by month. Over the five years considered, Route 299X carried an average of 316 passenger trips per month. Except for FY 2019-20, which saw the onset of the pandemic, Route 299X ridership was highest during the summer and was lowest during the winter.

Route 299X's average daily ridership by month for FY 2022-23 is seen in Figure 40. Throughout FY 2022-23, Route 299X 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, Route 299X 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, Route 299X 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 Route 299X for FY 2019-20 through FY 2022-23. It should be noted that Route 299X, 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: Route 299X Ridership by Month
FY 2019 to FY 2023

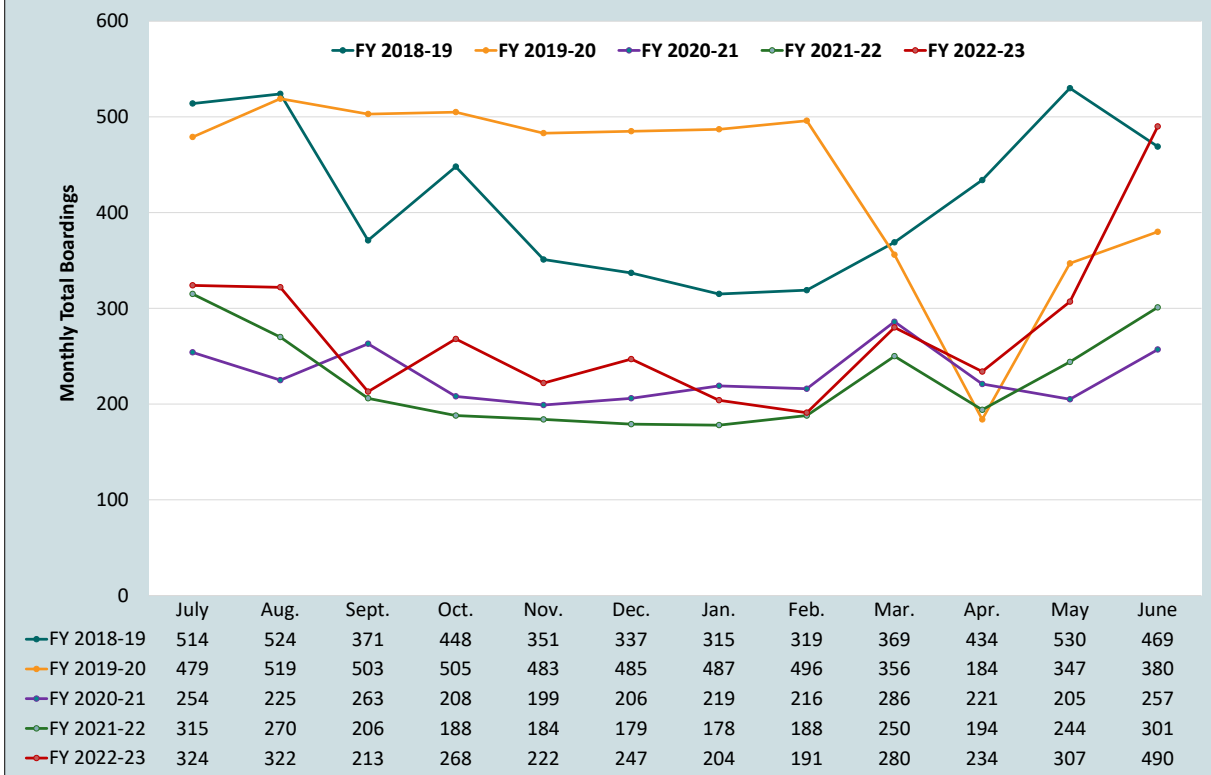


Figure 40: Route 299X Average Daily Ridership by Month
FY 2022-23

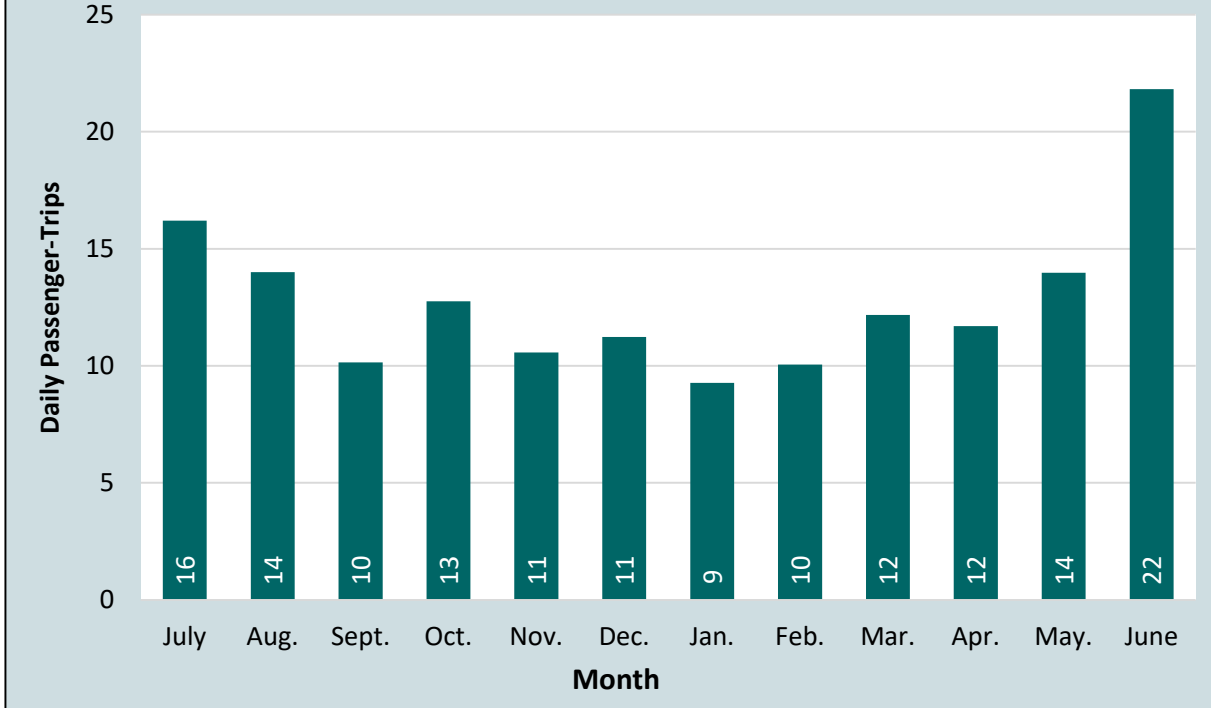


Figure 41: Route 299X Average Boardings by Round Trip

Sept. 13 - 27, 2023

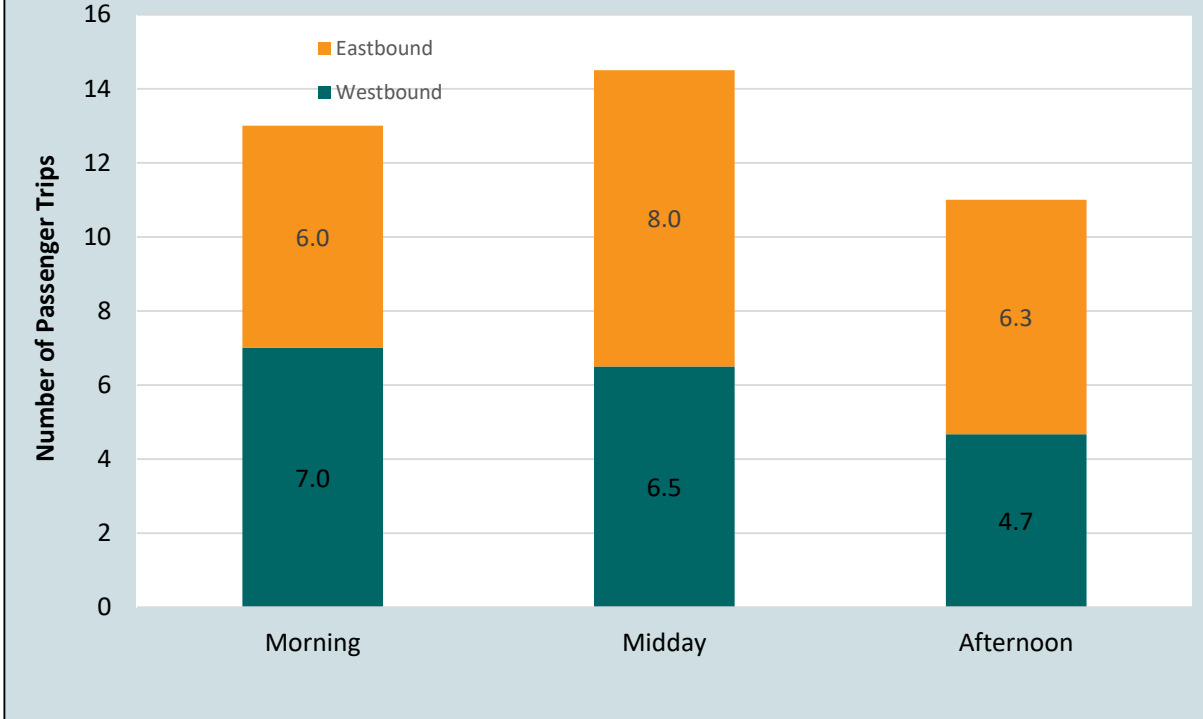


Table 29: Route 299X Performance

FY 2019-20 - 2022-23

Performance Data and Indicators	Fiscal Year				% Change FY 20 - FY 23
	FY 19-20	FY 20-21	FY 21-22	FY 22-23	
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%
<i>Cost per Passenger Trip</i>	\$52.60	\$114.82	\$141.53	\$87.15	66%
<i>Subsidy per Passenger Trip</i>	\$49.44	\$109.42	\$137.34	\$77.07	56%
<i>Farebox Return Ratio</i>	6%	5%	3%	12%	92%
<i>Passenger Trips per Hour</i>	2.3	1.2	1.2	1.4	-38%
<i>Passenger Trips per Mile</i>	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 Route 299X 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. Route 299X'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. Route 299X 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. Route 299X'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.

Route 19 (Beach Bus)

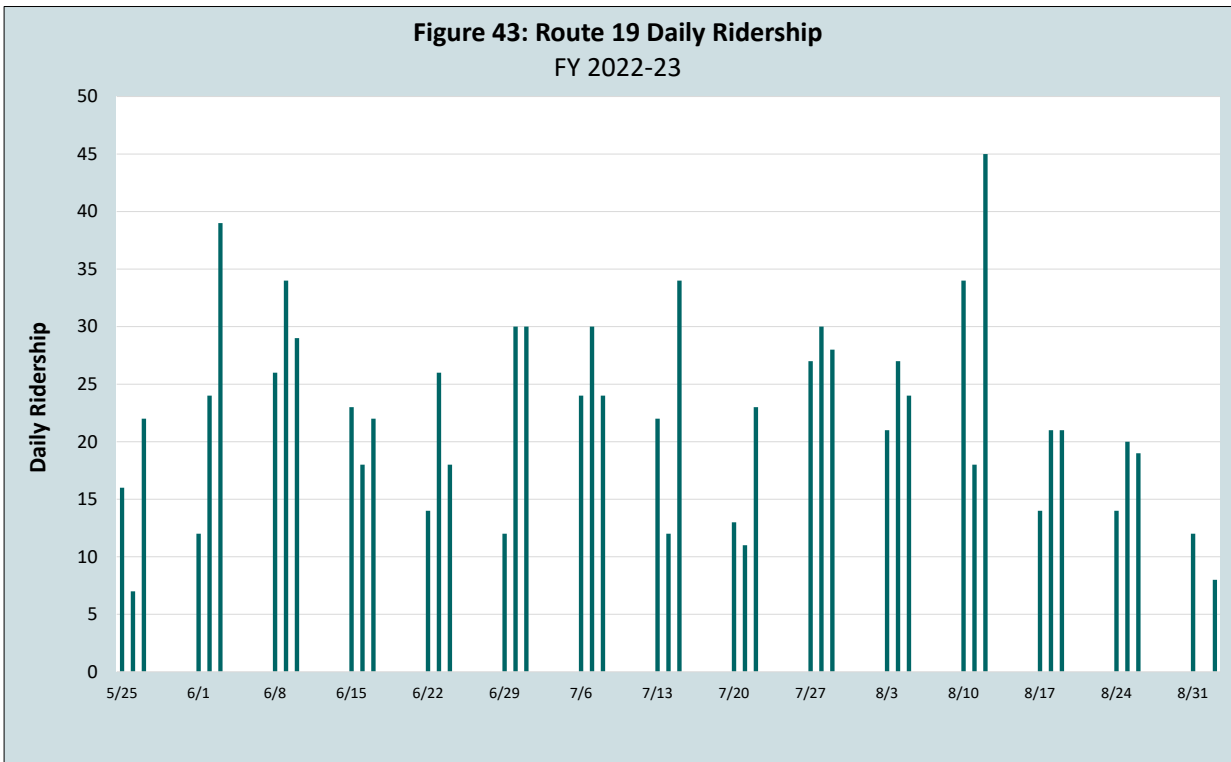
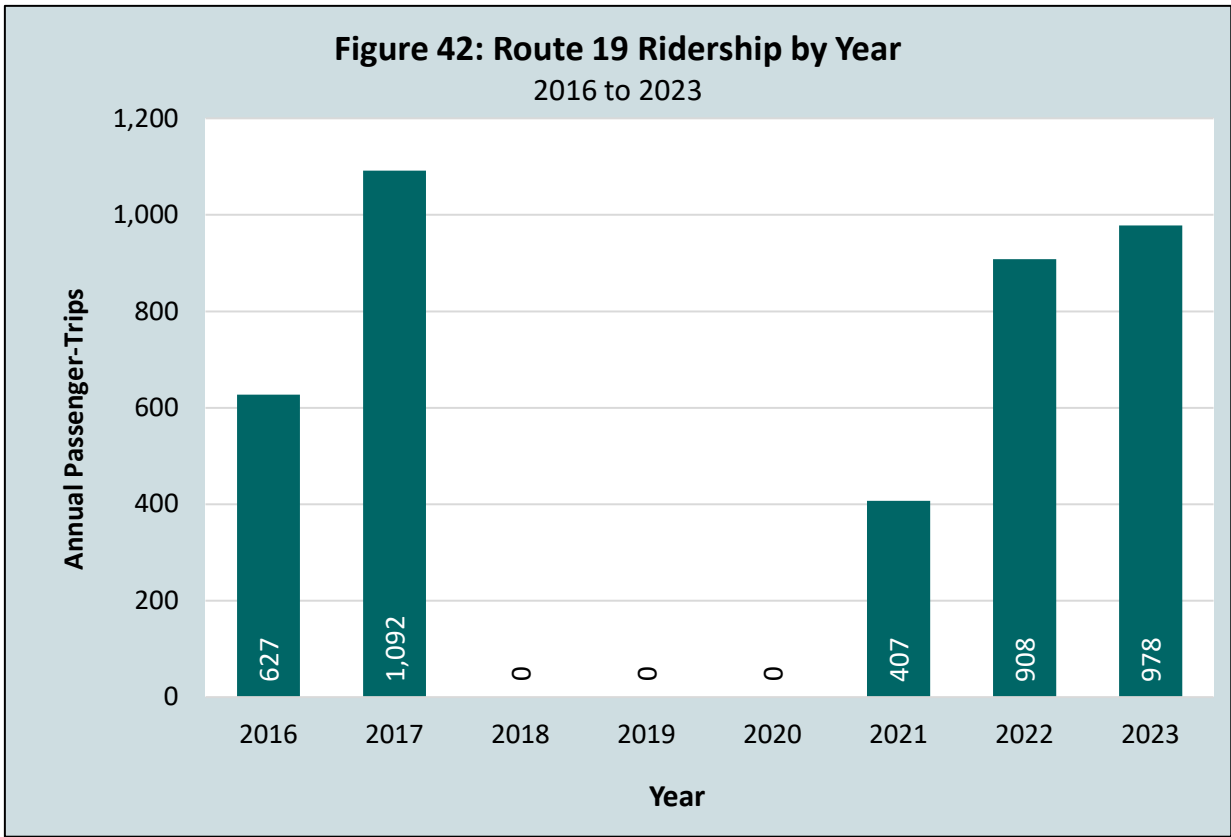
Route 19 is a seasonal transit service between the Downtown Transit Center in Redding and Whiskeytown National Recreation Area. The service operates four daily roundtrips on Thursdays, Fridays, and Saturdays, excluding holidays, from Memorial Day to Labor Day each year. This route is shown in Figure 4B in Chapter 3 (page 17).

Route 19 was initiated in the summer of 2016 to address an unmet transit need submitted to the SRTA. Route 19 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 Route 19 service to be suspended for another year. Route 19 service resumed in 2021 and has continued since.

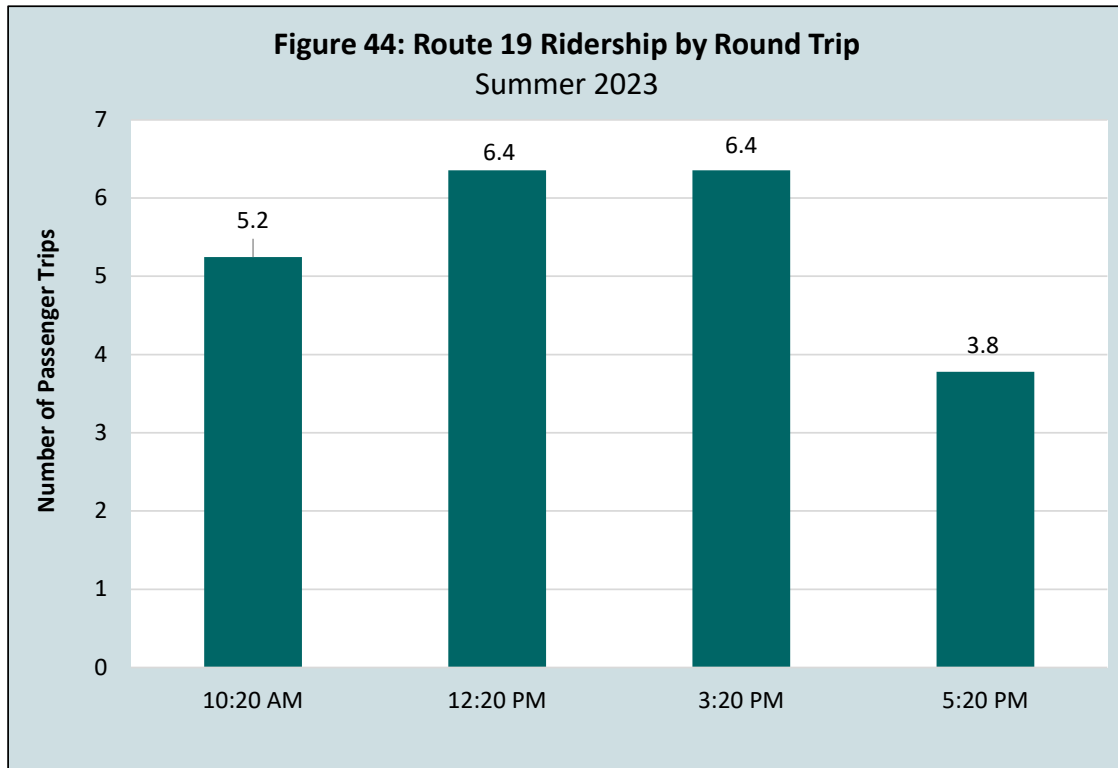
Ridership

Route 19 ridership by year is shown in Figure 42. Thus far in Route 19's history, ridership was greatest during the summer of 2017, when Route 19 carried 1,092 passenger trips. As previously mentioned, Route 19 did not operate from 2018 to 2020 for various reasons, thus there was no ridership. In 2023, Route 19 ridership carried 978 passenger trips, surpassing 2022 ridership by 73 passenger trips.

Figure 43 shows Route 19 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.



Route 19's average ridership by roundtrip during the 2023 season is shown in Figure 44. Ridership was highest on the two midday trips, during which Route 19 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 Route 19 for the summers of 2016 and 2017 and the summers of 2021, 2022, and 2023. As previously mentioned in the review of Route 299X, it should be noted when reviewing Route 19 that transit operations were significantly impacted by the COVID-19 pandemic during recent years. Route 19 was also reintroduced in 2021 after being discontinued for multiple years, meaning there was no regular ridership.

Route 19 does not require fares. Since 2016, various funding sources have been used to subsidize fares. Currently, Route 19 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 Route 19 performance analysis include:

- Operating Cost per Passenger Trip: The operating cost per Route 19 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: Route 19 Performance

2016 - 2023

Performance Data and Indicators	Calendar Year					% Change 16 - 23
	2016	2017	2021	2022	2023	
Passenger Trips	627	1,092	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	--	--	--	--	--	--
<i>Cost per Passenger Trip</i>	\$11.48	\$18.51	\$47.32	\$22.54	\$22.24	94%
<i>Passenger Trips per Hour</i>	7.7	4.8	2.3	5.2	5.4	-30%
<i>Passenger Trips per Mile</i>	0.91	0.56	0.10	0.21	0.23	-75%

Note: Route 19 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: Route 19'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 Route 19 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 an onboard survey of Route 299X 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 are 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 Route 299X 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 Route 299X corridor, then calibrated against the existing Route 299X 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		Round Trip Runs per Day	Service Days per Week	Annual Service Days ¹	Annual			Ridership		Annual Fare Revenue	Change in Annual			
	Vehicle-Hours	Vehicle-Miles				Vehicle-Hours	Vehicle-Miles	Marginal Operating Cost	Annual	Average Daily		Vehicle-Hours	Marginal Operating Cost	Subsidy	Ridership
Route 299X															
Existing Service	2.83	97	3	5	257	2,185	74,787	\$221,500	8,100	31.5	\$33,600	--	--	--	--
5 Days/Week, 2 Runs/Day	2.83	97	2	5	257	1,456	49,858	\$147,700	6,600	25.7	\$26,400	-728	-\$73,800	-\$66,600	-1,500
3 Days/Week, 3 Runs/Day	2.83	97	3	3	156	1,326	45,396	\$134,500	3,200	20.5	\$12,800	-859	-\$87,000	-\$66,200	-4,900
2 Days/Week, 3 Runs/Day	2.83	97	3	2	104	884	30,264	\$89,600	2,600	25.0	\$10,400	-1,301	-\$131,900	-\$108,700	-5,500
2 Days/Week, 2 Runs/Day	2.83	97	2	2	104	589	20,176	\$59,800	2,100	20.2	\$8,400	-1,595	-\$161,700	-\$136,500	-6,000
Saturday, 2 Runs/Day	2.83	97	2	1	51	289	9,894	\$29,300	700	12.8	\$2,800	289	\$29,300	\$26,500	700
Saturday, 3 Runs/Day	2.83	97	3	1	51	434	14,841	\$44,000	800	15.8	\$3,200	434	\$44,000	\$40,800	800
Route 299X Extension to McArthur															
5 Days/Week, 3 Runs/Day	3.67	133	3	5	257	2,827	102,543	\$295,900	9,900	38.5	\$39,600	642	\$74,400	\$68,400	1,800
5 Days/Week, 2 Runs/Day	3.67	133	2	5	257	1,885	68,362	\$197,300	8,100	31.5	\$33,600	-300	-\$24,200	-\$24,200	0
Shingletown															
5 Days/Week, 2 Runs/Day	2.00	68	2	5	257	1,028	34,952	\$103,900	4,600	17.9	\$18,400	1,028	\$103,900	\$85,500	4,600
3 Days/Week, 2 Runs/Day	2.00	68	2	3	156	624	21,216	\$63,000	1,900	12.2	\$7,600	624	\$63,000	\$55,400	1,900
2 Days/Week, 2 Runs/Day	2.00	68	2	2	104	416	14,144	\$42,000	1,500	14.4	\$6,000	416	\$42,000	\$36,000	1,500
1 Day/Week, 2 Runs/Day	2.00	68	2	1	52	208	7,072	\$21,000	1,100	21.2	\$4,400	208	\$21,000	\$16,600	1,100
Happy Valley															
5 Days/Week, 3 Runs/Day	1.17	32	3	5	257	900	24,672	\$81,500	1,600	6.2	\$6,000	900	\$81,500	\$75,500	1,600
5 Days/Week, 2 Runs/Day	1.17	32	2	5	257	600	16,448	\$54,300	1,000	3.9	\$3,800	600	\$54,300	\$50,500	1,000
3 Days/Week, 3 Runs/Day	1.17	32	3	3	156	546	14,976	\$49,400	600	3.8	\$2,300	546	\$49,400	\$47,100	600
2 Days/Week, 3 Runs/Day	1.17	32	3	2	104	364	9,984	\$33,000	500	4.8	\$1,900	364	\$33,000	\$31,100	500
1 Day/Week, 3 Runs/Day	1.17	32	3	1	52	182	4,992	\$16,500	400	7.7	\$1,500	182	\$16,500	\$15,000	400
Old Shasta/Keswick															
5 Days/Week, 3 Runs/Day	1.00	22	3	5	257	771	16,962	\$63,100	1,800	7.0	\$6,800	771	\$63,100	\$56,300	1,800
5 Days/Week, 2 Runs/Day	1.00	22	2	5	257	514	11,308	\$42,100	1,100	4.3	\$4,100	514	\$42,100	\$38,000	1,100
3 Days/Week, 3 Runs/Day	1.00	22	3	3	156	468	10,296	\$38,300	700	4.5	\$2,600	468	\$38,300	\$35,700	700
2 Days/Week, 3 Runs/Day	1.00	22	3	2	104	312	6,864	\$25,600	600	5.8	\$2,300	312	\$25,600	\$23,300	600
1 Day/Week, 3 Runs/Day	1.00	22	3	1	52	156	3,432	\$12,800	400	7.7	\$1,500	156	\$12,800	\$11,300	400
Cottonwood															
5 Days/Week, 3 Runs/Day	1.50	46	3	5	257	1,157	35,466	\$110,700	3,200	12.5	\$12,000	1,157	\$110,700	\$98,700	3,200
5 Days/Week, 2 Runs/Day	1.00	46	2	5	257	514	23,644	\$61,800	2,000	7.8	\$7,500	514	\$61,800	\$54,300	2,000
3 Days/Week, 3 Runs/Day	1.00	46	3	3	156	468	21,528	\$56,200	1,300	8.3	\$4,900	468	\$56,200	\$51,300	1,300
2 Days/Week, 3 Runs/Day	1.00	46	3	2	104	312	14,352	\$37,500	1,000	9.6	\$3,800	312	\$37,500	\$33,700	1,000
1 Day/Week, 3 Runs/Day	1.00	46	3	1	52	156	7,176	\$18,700	700	13.5	\$2,600	156	\$18,700	\$16,100	700
Microtransit Service, 2 Days/Wk	--	--	--	1	104	416	6,240	\$29,400	1,000	9.6	\$1,200	416	\$29,400	\$28,200	1,000
Microtransit Service, 1 Day/Wk	--	--	--	2	52	208	3,120	\$14,700	700	13.5	\$800	208	\$14,700	\$13,900	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 Route 299X	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
Route 299X 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

Route 299X Alternatives

Service Reduction Options

As discussed above, the Route 299X 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 Route 299X 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, Route 299X 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 Route 299X subsidy by \$136,500 per year compared to status quo service, but annual ridership would be reduced by 6,000 boardings (or 74 percent) compared to existing levels.

Table 33: Example Reduced Route 299X 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 Route 299X 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 Route 299X 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 Route 299X would increase ridership by 800 passenger trips and operating costs by \$44,000 (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 and increase operating costs by \$29,300 each year.

Flex Service

Another option would be to operate Route 299X 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 Route 299X onboard passenger survey.
- Operating Route 299X 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 Route 299X trips are made for purposes that have a set arrival time, such as school, work, medical appointments, and accessing intercity services.

On balance, converting Route 299X 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 Route 299X 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 Route 299X 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 Route 299X 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.

Table 34: Example Route 299X Schedule Extended to McArthur

						<i>Mid-Day Run With 2 Runs/Day</i>
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

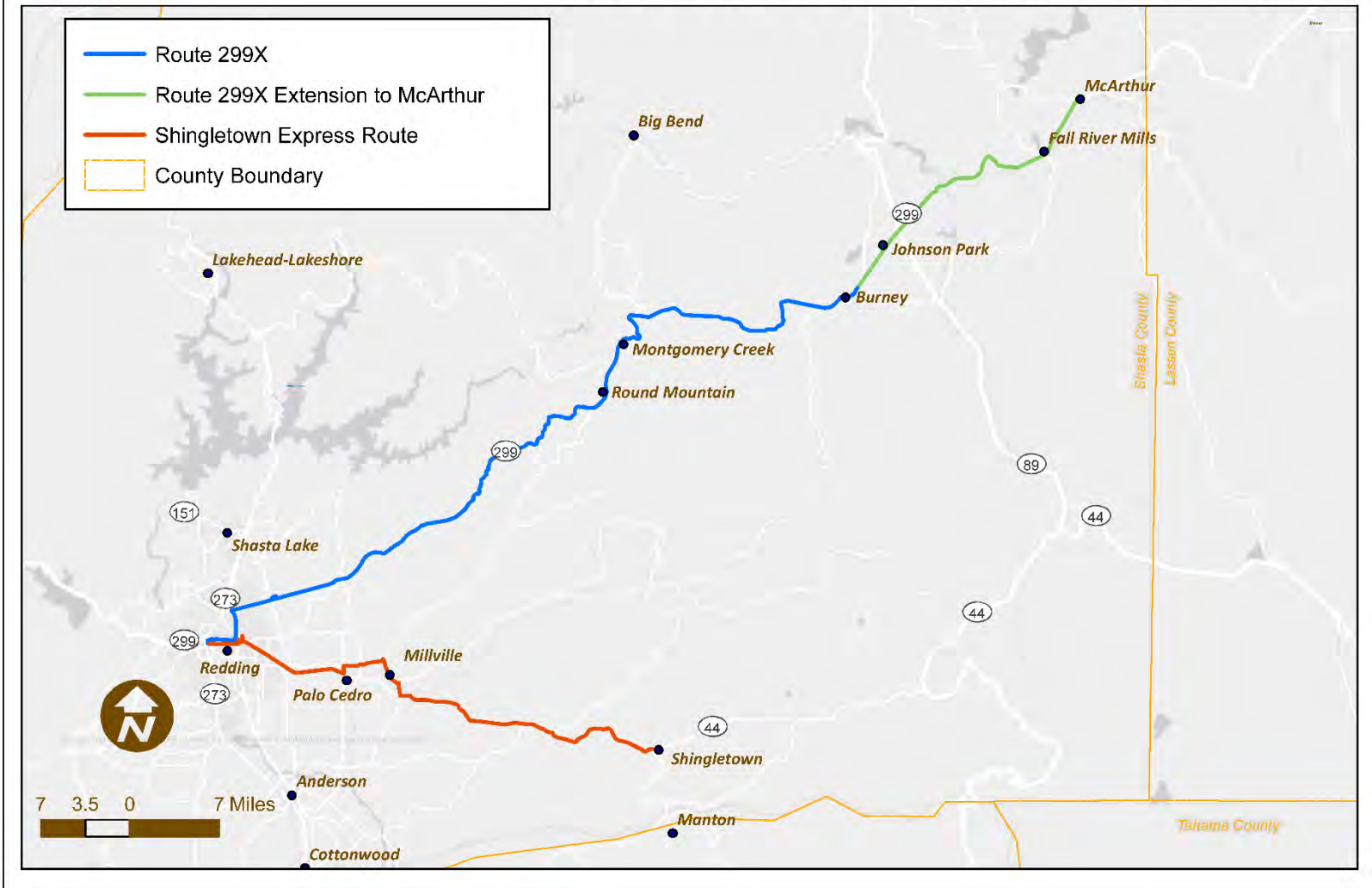
Source: LSC

Two service alternatives related to extending Route 299X 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 \$74,400 and ridership by 1,800 passenger trips per year. The second option considered would be to reduce the entire Route 299X 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 \$24,200. 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.



Figure 45
Potential Extension of Route 299X and Service to Shingletown



Subsidize Sage Stage Service in Shasta County

The Sage Stage service operated by Modoc County provides service on Tuesdays westbound from Fall River Mills at 9:20 AM and Burney at 9:40 AM, arriving at the Redding DTC at 11:00 AM, with eastbound service departing the DTC at 1:15 PM and serving Burney at 2:30 PM and Fall River Mills at 2:55 PM. Rather than extending Route 299X service, RABA could subsidize fares for travel within Shasta County to equal the RABA fares. At present, the fare from Burney to Redding on this service is \$12.00 for general public and \$9.00 for children, seniors, and persons with disabilities. A marketing effort regarding the Sage Stage service targeted towards Shasta County residents would also be beneficial. While the benefit of this strategy would be limited by the one-day-a-week schedule and limited time available in Redding for round-trips made within one day, it would provide at least some reduced cost mobility for residents of the Fall River Mills area.

Shingletown Flex Route 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 could be implemented in the SR 44 corridor, serving the communities of Shingletown, Millville, and Palo Cedro, as shown in Figure 45. In these areas, the service could flex to serve residences within 1 mile of the route. In Redding, the Shingletown 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 stays of 4 hours and 5 minutes in the morning and 4 hours and 15 minutes in the afternoon.

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				

Various alternatives for the possible Shingletown flex route 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. Including an additional 15 minutes of vehicle-time for flex service, operating costs would range from \$21,000 for one day a week service to \$103,900 for five days a week service. Based on the ridership estimates shown in Table 32, it is estimated that ridership would range from 1,100 to 4,600 passenger trips per year.

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.

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 \$16,500 (for three daily runs on one day per week) up to \$81,500 (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 \$12,800 for three runs, one day per week to \$63,100 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 implemented¹⁵.

¹⁵ While another option would be for Trinity Transit to expand service beyond the 299W corridor to serve Keswick, this would extend travel times for Trinity County residents and Trinity Transit management indicates that the service does not have the additional driver time available.



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

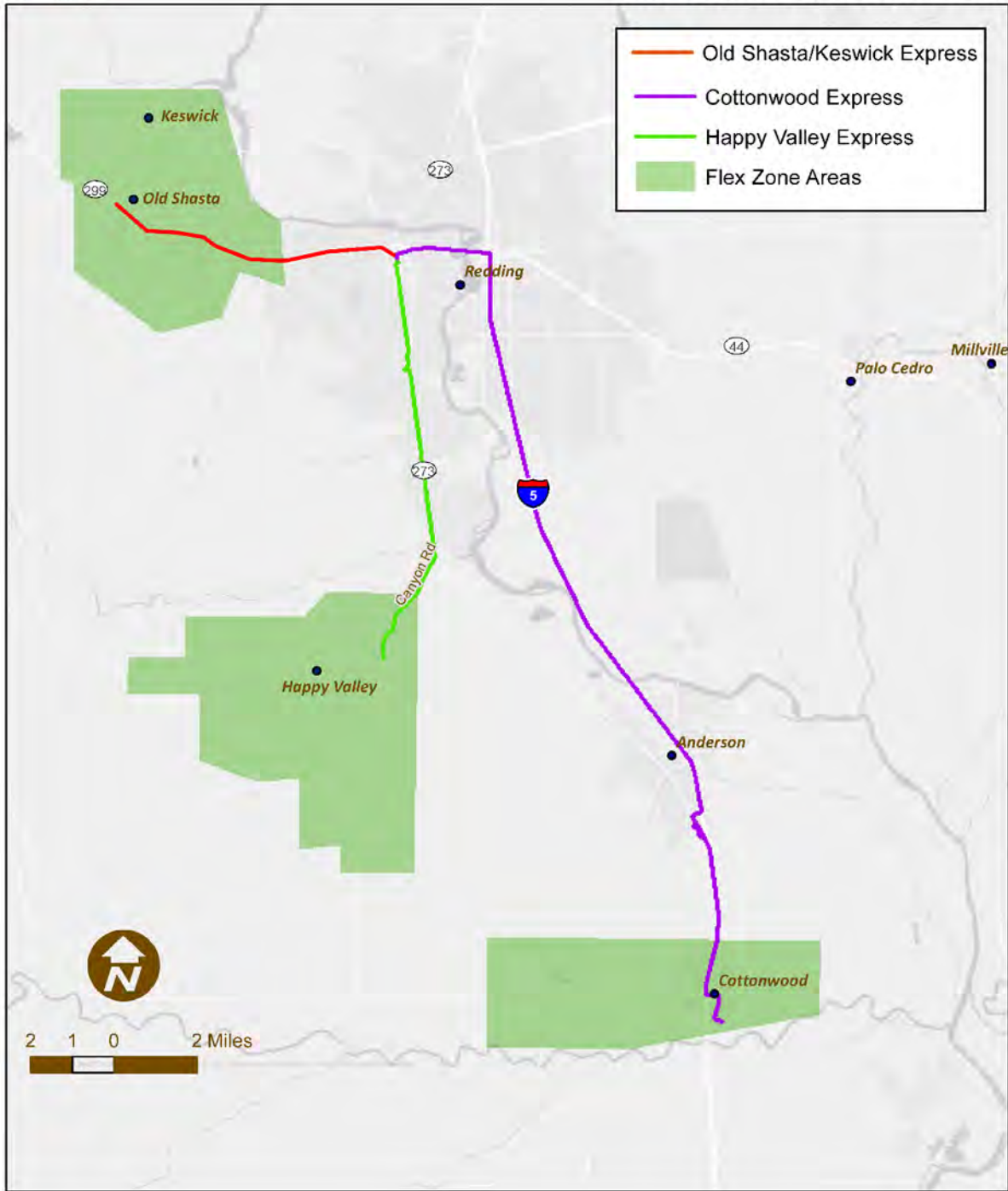


Table 36: Example Happy Valley Express Schedules

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
<i>On Demand Service in Happy Valley Zone</i>	<i>Start Time</i>	6:25 AM	11:40 AM	5:40 PM
	<i>End Time</i>	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
<i>On Demand Service in Happy Valley Zone</i>	<i>Start Time</i>	8:25 AM	11:40 AM	4:40 PM
	<i>End Time</i>	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

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
<i>On Demand Service in Shasta/Keswick Zone</i>	<i>Start Time</i>	6:25 AM	11:30 AM	5:30 PM
	<i>End Time</i>	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
<i>On Demand Service in Shasta/Keswick Zone</i>	<i>Start Time</i>	8:25 AM	11:30 AM	4:30 PM
	<i>End Time</i>	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.

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
<i>On Demand Service in Cottonwood Zone</i>	<i>Start Time</i>	6:15 AM	11:50 AM	5:50 PM
	<i>End Time</i>	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
<i>On Demand Service in Cottonwood Zone</i>	<i>Start Time</i>	8:15 AM	11:50 AM	4:50 PM
	<i>End Time</i>	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				

Operating costs would range from a low of \$18,700 per year for three runs, one day a week service up to \$110,700 per year for three daily runs, five days a week service. Ridership would range from 700 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.

This service would add approximately 4 vehicle-hours per day of service, resulting in a cost of \$14,700 per year for one day a week service and \$29,400 for two days a week service. Ridership would be

similar to the express/deviation services discussed above, totaling 700 rides per day for one day a week service and 1,000 riders per day for two days a week service.

Route 19 Alternatives

During the 2023 season, Route 19 ridership was significantly lower on the final daily run, as shown previously in Figure 44. To reduce operating costs, Route 19 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.

Table 39: RABA Rural Service Alternatives Performance Analysis							
<i>Shaded Values Reflect Reduction in Passengers and Reduction in Cost or Subsidy</i>							
<i>Other Values Reflect Increase in Passengers and Increase in Cost or Subsidy</i>							
Service Alternative	Annual Change		Performance Measure				
	Ridership	Subsidy	Psgr-Trips per Vehicle- Hour	Psgr-Trips per Vehicle- Mile	Operating Cost per Psgr- Trip	Subsidy per Psgr-Trip	
<i>Existing Burney Express</i>			3.7	0.11	\$27	\$23	
Route 299X - 5 Days/Week, 2 Runs/Day	-1,500	-\$66,600	2.1	0.13	\$49	\$44	
Route 299X - 3 Days/Week, 3 Runs/Day	-4,900	-\$66,200	5.7	0.07	\$18	\$14	
Route 299X - 2 Days/Week, 3 Runs/Day	-5,500	-\$108,700	4.2	0.09	\$24	\$20	
Route 299X - 2 Days/Week, 2 Runs/Day	-6,000	-\$136,500	3.8	0.10	\$27	\$23	
Route 299X - Saturday 2 Runs/Day	700	\$26,500	2.4	0.07	\$42	\$38	
Route 299X - Saturday 3 Runs/Day	800	\$40,800	1.8	0.05	\$55	\$51	
Route 299X to McArthur - 5 Days/Wk, 3 Runs/Day	1,800	\$68,400	2.8	0.10	\$41	\$38	
Route 299X to McArthur - 5 Days/Wk, 2 Runs/Day	0	-\$24,200	NA	0.12	NA	NA	
Shingletown - 5 Days/Week, 2 Runs/Day	4,600	\$85,500	4.5	0.13	\$23	\$19	
Shingletown - 3 Days/Week, 2 Runs/Day	1,900	\$55,400	3.0	0.09	\$33	\$29	
Shingletown - 2 Days/Week, 2 Runs/Day	1,500	\$36,000	3.6	0.11	\$28	\$24	
Shingletown - 1 Day/Week, 2 Runs/Day	1,100	\$16,600	5.3	0.16	\$19	\$15	
Happy Valley - 5 Days/Week, 3 Runs/Day	1,600	\$75,500	1.8	0.06	\$51	\$47	
Happy Valley - 5 Days/Week, 2 Runs/Day	1,000	\$50,500	1.7	0.06	\$54	\$51	
Happy Valley - 3 Days/Week, 3 Runs/Day	600	\$47,100	1.1	0.04	\$82	\$79	
Happy Valley - 2 Days/Week, 3 Runs/Day	500	\$31,100	1.4	0.05	\$66	\$62	
Happy Valley - 1 Day/Week, 3 Runs/Day	400	\$15,000	2.2	0.08	\$41	\$38	
Old Shasta/Keswick - 5 Days/Week, 3 Runs/Day	1,800	\$56,300	2.3	0.11	\$35	\$31	
Old Shasta/Keswick - 5 Days/Week, 2 Runs/Day	1,100	\$38,000	2.1	0.10	\$38	\$35	
Old Shasta/Keswick - 3 Days/Week, 3 Runs/Day	700	\$35,700	1.5	0.07	\$55	\$51	
Old Shasta/Keswick - 2 Days/Week, 3 Runs/Day	600	\$23,300	1.9	0.09	\$43	\$39	
Old Shasta/Keswick - 1 Day/Week, 3 Runs/Day	400	\$11,300	2.6	0.12	\$32	\$28	
Cottonwood - 5 Days/Week, 3 Runs/Day	3,200	\$98,700	2.8	0.09	\$35	\$31	
Cottonwood - 5 Days/Week, 2 Runs/Day	2,000	\$54,300	3.9	0.08	\$31	\$27	
Cottonwood - 3 Days/Week, 3 Runs/Day	1,300	\$51,300	2.8	0.06	\$43	\$39	
Cottonwood - 2 Days/Week, 3 Runs/Day	1,000	\$33,700	3.2	0.07	\$38	\$34	
Cottonwood - 1 Day/Week, 3 Runs/Day	700	\$16,100	4.5	0.10	\$27	\$23	
Cottonwood - Microtransit Service, 2 Days/Wk	1,000	\$28,200	2.4	0.16	\$29	\$28	
Cottonwood - Microtransit Service, 1 Day/Wk	700	\$13,900	3.4	0.22	\$21	\$20	
Route 19 - 3 Days/Week, 3 Runs/Day	-110	-\$5,400	2.4	0.10	\$49	\$49	

As shown, the ridership impacts of the various alternatives range from a reduction of 6,000 passenger trips per year (by reducing the Route 299X service to two days a week and two round-trips a day) to an increase of 4,600 passenger trips per year (by operating a new Shingletown flex route service five days a week and two round-trips a day). Subsidy impacts would range from a reduction of \$136,500 per year for reducing Route 299X service to two days a week and two round-trips a day to an increase of \$98,700 per year, for operating a Cottonwood express service five days per week and three round-trips per day. Three performance measures were evaluated, as discussed below.

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 Route 299X to McArthur three runs per day (2.8) and Saturday Route 299X 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 Route 19 service from four to three runs per day would eliminate 2.4 passenger trips per vehicle-hour.

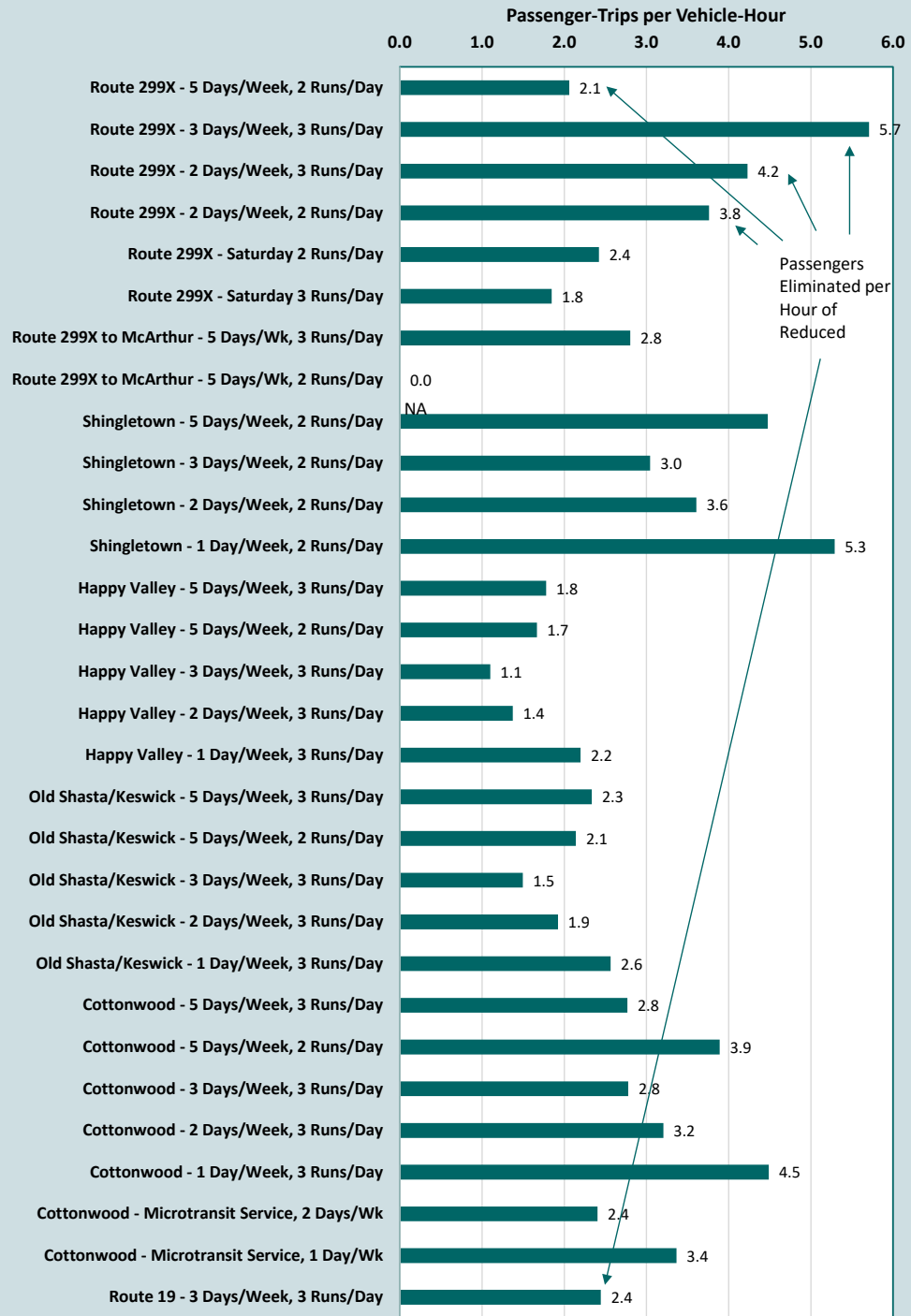
For the options reducing existing service, a lower value reflects a “better” alternative in that it results in less ridership loss for every hour of service eliminated. Out of the options considered that would reduce Route 299X service levels, the best alternative is to reduce the number of daily runs 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 Route 299X to McArthur and simultaneously reducing the number of daily runs from three to two causes no net change in ridership, therefore it cannot be evaluated by this metric.

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 Route 299X 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 Route 299X runs a day but cutting service to three days a week only saves \$17 for every passenger trip lost.

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



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 Route 299X 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 Route 299X 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:

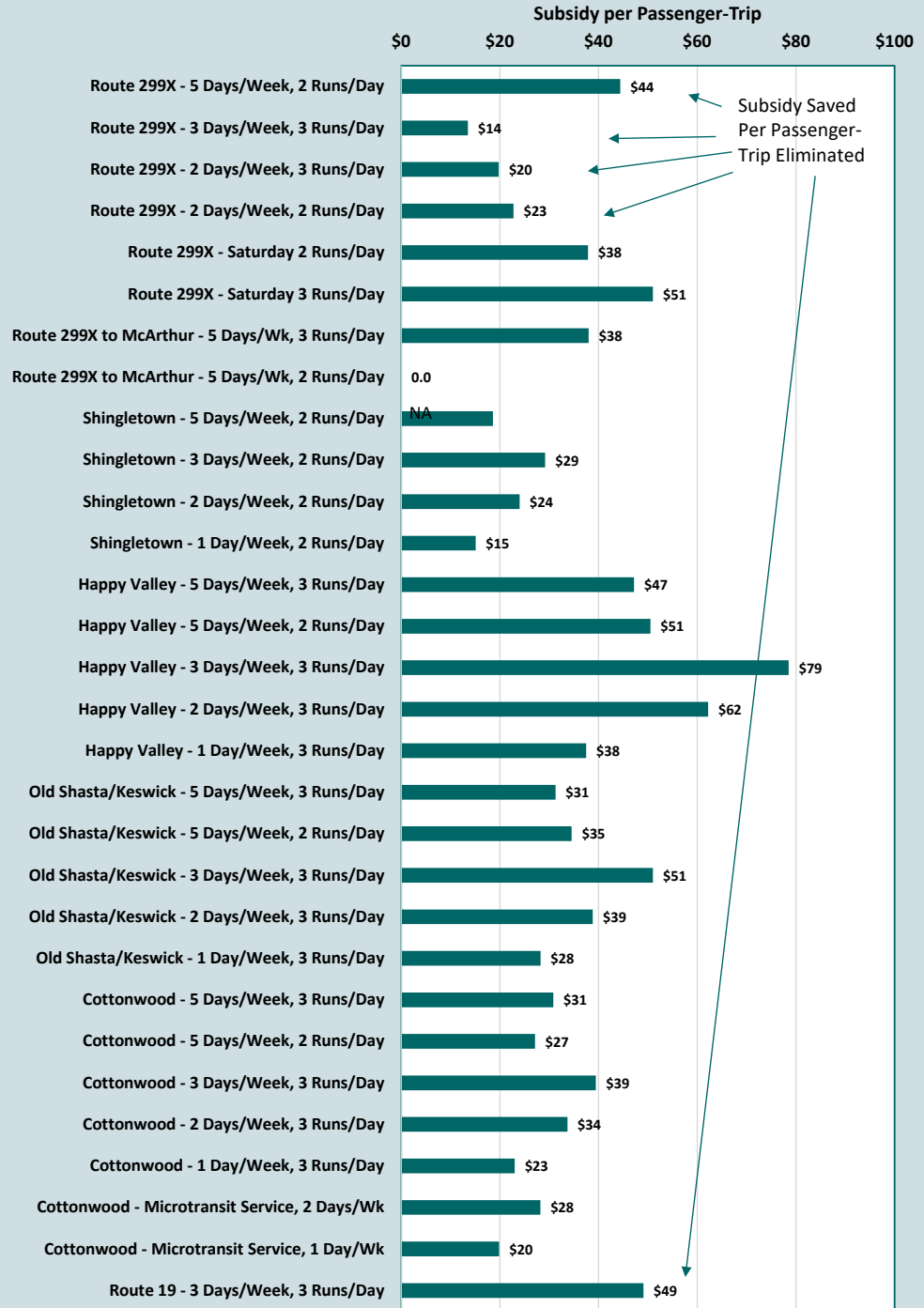
- Based on the three performance measures evaluated, the relatively best options are service to Shingletown and Cottonwood. Of the various alternatives analyzed for each zone, the best options are for either one day a week (which tends to concentrate ridership within fewer hours of service) or five days a week service (which would serve regular work or school trips).
- 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 Route 299X 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 Route 299X 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 Route 299X, 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:

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



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 Section 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 Route 299X 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 Route 299X 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 Route 299X 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 Route 299X. 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, 12X, 15, 17, and 19) 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.

In addition to the aforementioned fixed routes, RABA also provides Demand Response service beyond the urban area boundaries. As shown in Figure 49, there are many areas where demand response is provided outside the urban area, including southwest and southeast Redding, northwest Shasta Lake, along SR 273 and along Shasta View Drive. These areas include approximately 1.5 percent of the population of the paratransit service area, indicating that 1.5 percent of paratransit costs are expended outside of the urban service area.

In total, RABA operates 44,426 vehicle-miles of service and 2,131 vehicle-hours of service in rural areas each year, expending \$375,500 in operating costs.

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.

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 of students who reside in Shasta County. Given limited transit funding and the end of COVID-19-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 by stop is not available, Trinity Transit indicates that ridership at the stops west of Redding in Shasta County is very low. Trinity Transit's route could be better marketed 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.

Table 40: RABA Urban 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
12X Anderson Commuter	387	5,888	\$65,637	13	3.3	25%	98	1,495	\$16,700
15 Airport/Churn Creek	3,070	77,182	\$567,880	25.9	6.7	26%	794	19,966	\$146,900
17 School	184	2,840	\$31,270	17	1.2	7%	13	200	\$2,200
19 Beach Bus	180	4,230	\$32,692	25.4	20.4	80%	145	3,397	\$26,300
Paratransit	9,245	162,140	\$1,304,929	--	--	2%	139	2,432	\$19,600
TOTAL							2,131	44,426	\$375,500

Excludes 299X service currently funded through rural sources.

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

Annual Performance Data and Indicators	Service		
	TRAX Shasta-Tehama Connection	Sage Stage Alturas-Redding Route	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	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.

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 Route 299X 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.

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 Route 299X 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 Route 299X eastward to McArthur.
- If subsidy savings are needed to fund expansions, the best strategy would be to cut the existing Route 299X 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 Route 19 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, 19, and 299X, as well as Demand Response service.

MANAGEMENT ALTERNATIVES

Transit services in Shasta County have long been split between services in the urban area and nearby non-urban areas (under the RABA umbrella) and rural services (managed by SRTA)¹⁶. 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. While there would always be a management function for SRTA as the direct recipient of some grants, there is a potential for consolidating positions.
- While current practices meet applicable grant and legal requirements, 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 but cannot serve trips wholly within the 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

¹⁶ The exception is the Route 299X Burney Express service operated by RABA under a separate contract.

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 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 institutional arrangement, as evidenced by the transit programs in Butte, Tehama, Glenn, Yolo, Yuba/Sutter, El Dorado, Lassen, Modoc, Siskiyou, Lake, Mendocino, Del Norte, and Nevada Counties.

In this alternative, RABA would assume responsibilities of Route 299X from Shasta County as well as responsibilities of ShastaConnect from SRTA. RABA would also be designated as the CTSA for Shasta County, upon approval by the SRTA Board of Directors.

It is envisioned that SRTA would assign the current contract with Dignity Health Connected Living and associated funding to RABA to be able to streamline demand response service in Shasta County.

Changing institutional arrangements is a complicated issue, encompassing modifications in intergovernmental agreements, grant application processes, personnel allocations, service contracts and financial arrangements. This is likely a multiyear effort for full implementation.

This page intentionally left blank

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, 9, and 19)
 Note 3: Commuter services include Routes 12X, 299x.

Source: RABA 2014 SRTP, RABA performance data.

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	Current Status
	Minimum	
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	Current Status
	Minimum	
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, 9, and 19)
 Note 5: Commuter services include Routes 12X, 299x.

Source: RABA 2014 SRTP, RABA performance data.

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	Current Status
	Maximum	
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.

- 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.
- 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.

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.

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

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.

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).

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 \$4 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.

Table 46: RABA Fare Recommendations				
Fixed Route / Microtransit / Route 19				
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	--	--
Route 299X and Future Commuter Services				
	2 Hours ²	1 Day Pass	5 Day Pass	30 Day Pass
All Passengers	\$4.00	\$10.00	\$50.00	\$100.00
<p>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).</p> <p>Note 2: 2 Hour passes on both RABA fixed routes and Route 299X would include transfers.</p>				

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.
- 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 (FNRC) 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 Route 19 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)			FY 2022-23 Annual Revenue (2)			Existing Fare Per Boarding		Fare Per Boarding with Plan			Ridership With Plan			Change in Annual Ridership With Plan			Change in Annual Revenue With Plan					
			1 Zone	W Addl Zone	Total	1 Zone	W Addl Zone	Total	1 Zone	W Addl Zone	1 Zone	W Addl Zone	Elasticity	1 Zone	W Addl Zone	Total	1 Zone	W Addl Zone	Total	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	\$0.00	-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		3,400	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																
Percent Change																							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																						19%			
Route 299X		\$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%		
Route 19		Free	\$4.00			978			\$0	\$0.00		\$3.80					792			-186		\$3,000			
																						-19%	--		
TOTAL																							-4,605		\$26,700
Percent Change																							-1%		3%
<p>Note 1 - Source: GFI farebox data</p> <p>Note 2 - Source: Stratagen and accounting data. Paratransit revenues include punch card use.</p> <p>Note 3 - Ridership factored up to adjust for the percentage of boardings with unclassified revenues (22 percent).</p> <p>Note 4 - Assuming no change in FNRC contract monthly pass costs and no change in FNRC ridership.</p>																									

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.

This page intentionally left blank.

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 20 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-19. 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 emission¹⁷.

¹⁷ 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.

Vehicle Parameters		Plan Period (by Fiscal Year) ²					5-Year Plan Total
		23/24	24/25	25/26	26/27	27/28	
Estimated Current Cost of Vehicles							
Electric - 30/32 psgr	\$900,000						
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
Estimated Current Cost of Vehicles							
Electric - 16 psgr	\$240,000						
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 month¹⁸. 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.

¹⁸ For Route 19, 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 GLFloor17
37	Gillig G27/D102

Route ²	Average Weekday Passenger Load at Peak Location on the Route ¹			Peak Month to October Ratio	Peak Run to Avg Daily Run Ratio	Passenger Load at Peak Location on Peak Run in Peak Month			Recommended Vehicle Size (Seating Capacity)
	2019	2021	2022			2019	2021	2022	
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	12
2 West A	1.5	0.7	1.1	1.20	1.34	2.3	1.1	1.8	
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
18	4.3	1.2	1.4	1.27	1.99	11.0	3.0	3.4	12
12X	0.2	0.1	0.1	1.00	1.00	0.2	0.1	0.1	12
17	5.1	1.6	1.4	1.00	3.18	9.0	5.0	5.0	12
299X	--	2.6	2.4	1.00	2.73	--	7.0	6.0	12
19	--	--	--	--	--	--	22.0	21.0	30

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

Note 2: Route 15 boarding ridership data not included as the service was initiated in October 2023. Route 15 currently uses a cutaway vehicle that is shared with Route 18.

As indicated, RABA services can largely be operated with smaller vehicles than what are currently used. Only three routes (11, 14, and 19) 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.

Increase 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
<i>Source: LSC</i>				

This page intentionally left blank.

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 quite easy to navigate and does not require extensive searching to find the information desired. When reviewed in January 2024, the RABA home page has six drop down menus on the top – Fares, Resources, Getting Around, Services, Transit Centers, and Connect. The home page also has six quick links, as well as a bulletin for service updates.

The Fares page 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 Route 299X fares there are hyperlinks to each respective service page. Paying Your Fare describes how to pay with different fare media and where to purchase passes and punch tickets. Fare Programs describes the two existing youth programs.

The Resources tab includes six hyperlinks: About RABA, RABA Board of Directors and Public Meetings, Advertising on RABA, RABA Board of Directors Policies and Civil Rights, Planning for the Future, Employment Opportunities, and Procurement Opportunities. Plans and studies that have been adopted for RABA are listed under the About RABA tab. Currently, the Planning for the Future tab includes information on the RABA SRTP. This page can be updated in the future for other planning efforts.

The Getting Around page includes trip planning information. The page presents a Google Maps trip planner, as well as links to three other pages – Real-Time Map, Download the Transit App, and the Need-A-Ride Guide. The information on the Getting Around Page is helpful for both new and existing passengers and can be used to plan specific trips as well as to learn more about other transportation services in the Shasta region.

The Services page includes five subpages for the various RABA services – Bus (local fixed route), Paratransit, Beach Bus (Route 19), Burney Express (Route 299X), and Sunday Transit. The Bus page includes links to schedules for each fixed route and commuter service. Each route’s schedule lists all of the daily trips and includes a complete stop list. The real-time map, ride guide, and interactive map are linked at the bottom of the Bus page. The Route 19, Route 299X, Paratransit, and Sunday Transit pages each include information on the service timing, eligibility, and fares.

The Transit Centers page details the locations and amenities of the three RABA transit centers (Downtown, Canby, and Masonic). Information is also provided about other transportation services available at each location, such as Amtrak, Sage Stage, and Trinity Transit.

The Connect tab includes the RABA office phone number and location, as well as staff contact information. There are also links to RABA social media, how to submit a public records request, and other related government websites.

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 is high quality due to its accessibility, navigability, and extensive information.

Recommendations

Improvements to the website include:

- Include information for Sunday on-demand service provided by SRTA in the RABA service area as well as links to the ShastaConnect website (until the recommended future consolidation of services is realized).
- 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.

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.
- Redesign the RABA Ride Guide to make it easier to read and follow.

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 – 8:30 AM to 5:30 PM, Monday through Saturday.

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 its website.

The City of Redding Communications Division provides some support to RABA efforts on its website, and they share pertinent information and events on the City of Redding’s social channels. The Communications Division 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 RABA 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	<ul style="list-style-type: none"> ✓ 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 ✓ Redesign RABA Ride Guide to make it easier to read and follow ✓ 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	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> ✓ 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	<ul style="list-style-type: none"> ✓ 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

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.¹⁹ 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.²⁰ Areas where fixed route service is eliminated will instead be served by microtransit, as discussed in later sections.

Route 2E/2W

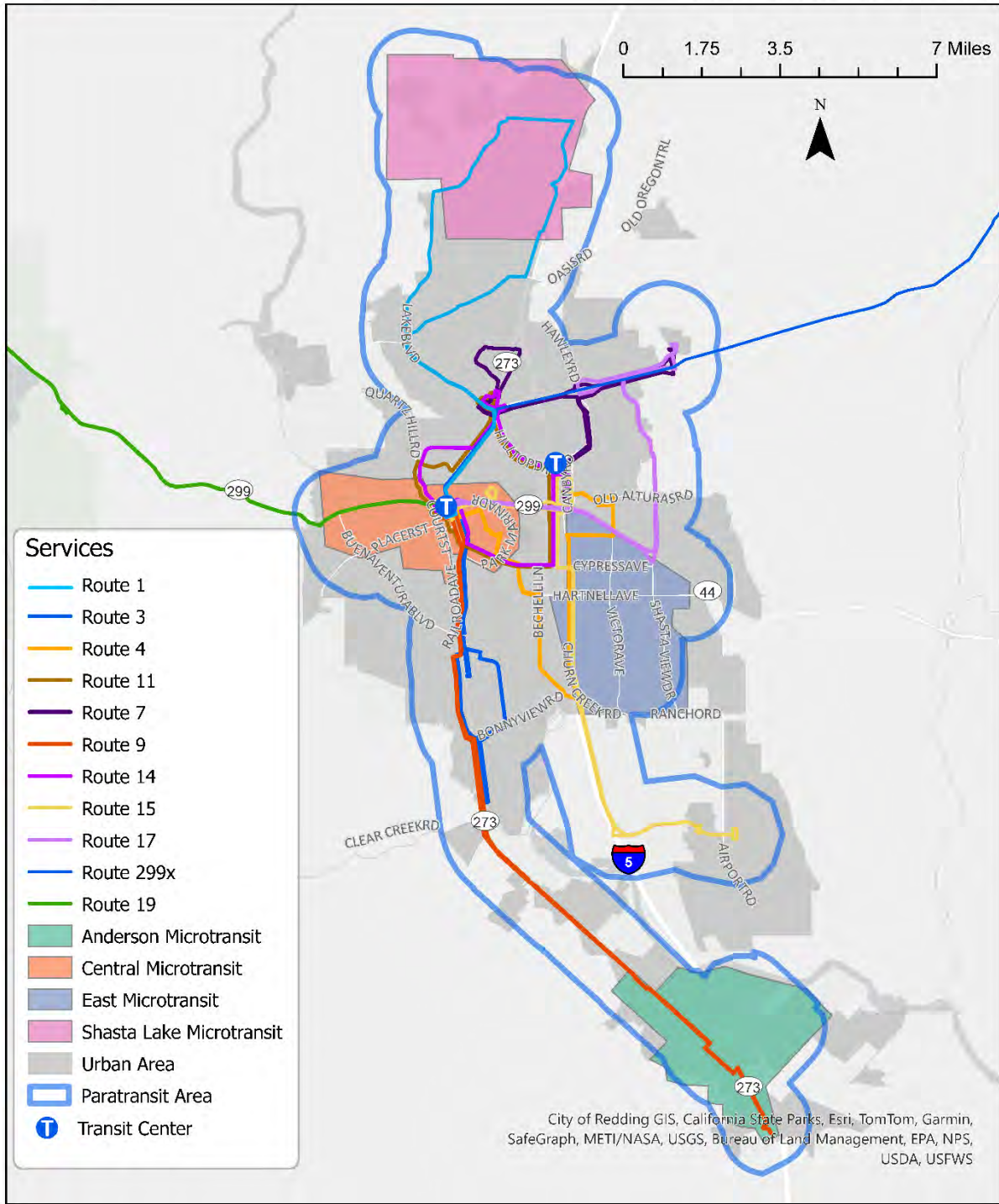
Route 2 will be replaced with a Central Microtransit service, discussed later in this chapter.

¹⁹ This loop will still be served by Route 7.

²⁰ 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 1-5 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 Shasta 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 Route 18 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. Fares will be equal to the fixed route fares.

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.

Initiate Sunday RABA Microtransit Service

RABA should provide Sunday general public microtransit service throughout the RABA urban service area, using the weekday microtransit van fleet. This should replace the existing ShastaConnect Sunday service, which has been useful in introducing Sunday transit service to the region but has been limited by limited public awareness of this other public transit option. To serve religious services, service should start at 8:00 AM. The hours of service should end at 4:00 PM, reflecting the lower overall demand on Sundays. Three vehicles should be in operation, and a relatively lenient performance standard of serving 90 percent of requests within one hour should be applied. Providing Sunday service is an important element of serving households without a vehicle. By replacing the existing ShastaConnect Sunday service, this strategy will yield a net reduction of \$67,000 in operating costs while increasing ridership by an estimated 2,000 boardings per year.

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.

RABA Demand Response Service Area

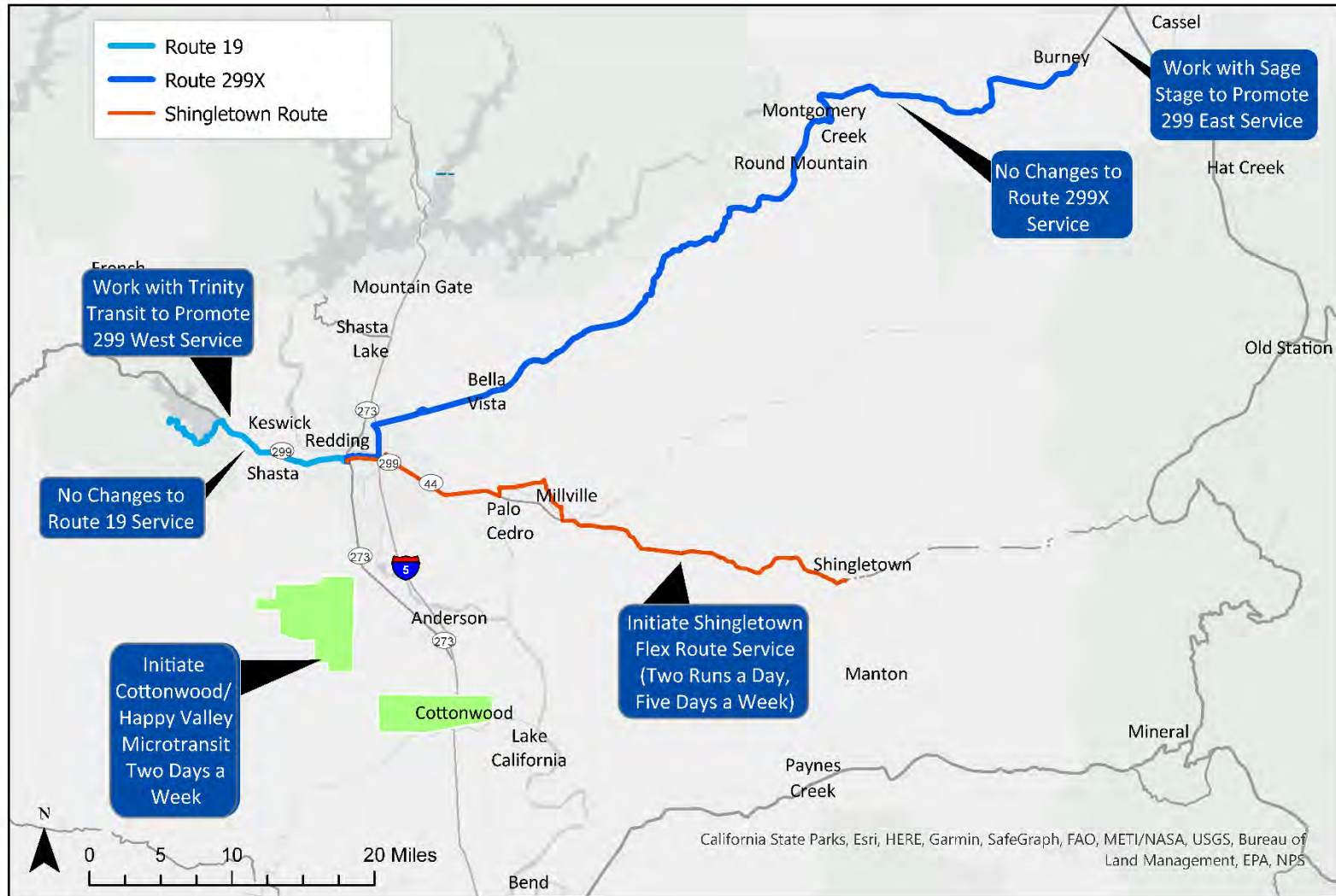
The RABA demand response service area has been expanded to provide paratransit coverage within 0.75 miles of the new Route 15 service (Figure 50). While the introduction of microtransit would allow RABA to reduce the paratransit service area, no reductions are recommended at this time.

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.



Figure 51
RABA Rural Services Plan



Initiate Shingletown Flex Route 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. Service should also be provided on demand to specific locations within 1 mile of the corridor in rural areas. 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, Route 299X 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 flex route 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.

Initiate Cottonwood/Happy Valley Microtransit Service Two Days a Week on a Demonstration Basis

With 7,700 residents and relatively high proportions of residents with disabilities or low income, Cottonwood and Happy Valley have a substantial transit need but also are difficult to serve with traditional fixed route transit. The area's proximity to the Anderson Microtransit Zone provides the opportunity to serve Cottonwood and Happy Valley with microtransit by expanding the Anderson service two days a week (such as Mondays and Thursdays). In addition to serving trips within the microtransit, 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 Other Regional Public Transit Systems

RABA should explore opportunities to coordinate services with the three regional transit services coming into Shasta County, as follows:

- 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.

- Sage Stage provides limited service along the SR 299 East corridor as part of the Tuesday-only²¹ round trip between Alturas and Redding. While Sage State management indicates that there is no capacity to expand service, there is potential to better serve residents of the communities in Shasta County east of Burney by subsidizing fares for travel within Shasta County to equal the RABA fares. At present, the fare from Burney to Redding on this service is \$12.00 for general public and \$9.00 for children, seniors, and persons with disabilities. Similar to Trinity Transit, a marketing effort regarding the Sage Stage service targeted towards Shasta County residents would also be beneficial.
- In addition, the TRAX route operates five runs between Red Bluff and Anderson on weekdays and three runs on Saturdays. RABA should consider future opportunities to coordinate transit services to provide direct service between Redding (and Shasta College) and Red Bluff via Anderson and Cottonwood, perhaps as part of a larger Amtrak Thruway connection.

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 public transit technology 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 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), 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 and a vanpool subsidy program to serve long-distance commute trips (particularly from rural areas). A typical subsidy for vanpools is on the order of \$500 per month per van.

²¹ While service is provided only when a Modoc County residents request it, the service runs virtually all Tuesdays.

Transit Fleet Improvements

Vehicle Requirements

The RABA Capital Plan includes funding for replacement vehicles²². 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 11 full-sized buses and 17 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), 17 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 14 full-sized buses and 21 cutaway vehicles for operations. Based on the current RABA fleet, no additional vehicles will be necessary in the immediate future to implement the SRTP. Ultimately, RABA will need a fleet of 7 full-sized buses, 21 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 18 cutaway vehicles over the next five years. While the cutaways used to operate the Route 299X 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 Route 299X. A total of 8 vans (approximately 8 to 10 passengers including a wheelchair position) will also need to be purchased for microtransit service.

²² Note that this plan includes vehicles for Route 299X currently provided by Shasta County.

Table 52: Vehicle Recommendations and Fleet Requirements

Route or Service	Existing Service			Plan Service				
	Peak Vehicle Needs			Peak Vehicle Needs			Recommended Vehicle Types	
	Weekday	Saturday	Vehicle Type	Weekday	Saturday	Sunday	Interim (Existing Fleet)	Ultimate (New Fleet)
1	1.0	1.0	35 Foot Bus	1	1	0	Bus	Cutaway
2 E/W	1.0	1.0	35 Foot Bus	0	0	0	--	--
3	1.0	1.0	35 Foot Bus	1	1	0	Bus	Bus
4	1.0	1.0	35 Foot Bus	3	3	0	Bus	Cutaway
5	1.0	1.0	35 Foot Bus	0	0	0	--	--
6 N/S	1.0	1.0	35 Foot Bus	0	0	0	--	--
7	1.0	1.0	35 Foot Bus	1	1	0	Bus	Cutaway
9	0.9	1.0	35 Foot Bus	1	1	0	Bus	Cutaway
11	1.0	1.0	35 Foot Bus	1	1	0	Bus	Bus
12 (AC)	0.1	0.0	35 Foot Bus	0	0	0	--	--
14	1.0	1.0	35 Foot Bus	1	1	0	Bus	Bus
15 (New Airport)	1.0	1.0	Cutaway	2	2	0	Cutaway	Cutaway
17 (School)	1.0	0.0	35 Foot Bus	1	0	0	Bus	Bus
18 (CTE, Folded into 15)	1.0	0.0	35 Foot Bus	0	0	0	--	--
Central Microtransit	0.0	0.0	--	2	1	0	Cutaway	Van
Shasta Lake Microtransit	0.0	0.0	--	1	0	0	Cutaway	Van
East Microtransit	0.0	0.0	--	2	1	0	Cutaway	Van
Anderson Microtransit	0.0	0.0	--	1	0	0	Cutaway	Van
Weekday Evening Microtransit					Note 1		--	--
19 (Beach)	1.0	1.0	Cutaway	1	1	0	Bus	Bus
299X (Burney)	1.0	0.0	Cutaway	1	0	0	Cutaway	Cutaway
RABA Demand Response	8.0	3.0	Cutaway	8	3	0	Cutaway	Cutaway
Sunday Microtransit	0.0	0.0	--		Note 1		--	--
Total Vehicles by Type in Peak Service								
	Existing Wkday	Existing Wkday		Interim Wkday	Interim Sat.	Interim Sun.	Interim ²	Ultimate ³
30' or 35' Bus	12	10		11	9	--	11	5
Cutaway	3	2		17	7	--	17	17
Van	--	--		--	--	--	0	6
Total	15	12		28	16	--	28	28
Total Fleet Requirements by Type (Including Spares) ⁴							Interim ²	Ultimate ³
30' or 35' Bus	--	--		--	--	--	14	7
Cutaway	--	--		--	--	--	21	21
Van	--	--		--	--	--	0	8
Total	--	--		--	--	--	35	36
<p>Note 1: The weekday evening and Sunday microtransit services will use the same vans used for the weekday daytime microtransit services.</p> <p>Note 2: Using existing RABA fleet of 18 buses and 18 cutaways plus 3 cutaways owned by Shasta County used for Route 299X.</p> <p>Note 3: Using newly purchased vehicles.</p> <p>Note 4: Spare vehicle requirements defined as the maximum of 20 percent of peak vehicles or a minimum of two by vehicle type.</p>								

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 ³	2010	El Dorado Chevy GMT 600	8	2015	Paratransit	--	
259	2010		10	2015	Paratransit	2024	
260	2011	El Dorado Ford Aerotech 240	16	2016	Paratransit	2025	
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	
308	2019	Glaval E450	12 or 6	2024	Route 299X ²	--	
309	2019		12 or 6	2024	Route 299X ²	--	

Note 1: Useful Life Benchmark per Federal Transit Administration: 12 years for buses, 5 years for vans.

Note 2: Vehicles used to operate Route 299X are owned by the County of Shasta.

Note 3: 4 new cutaways/vans are purchased for delivery in 2024.

Source: RABA.

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 needed to replace existing vehicles as they reach replacement age are identified, 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 54: RABA SRTP Vehicle Purchase Plan			Plan Period (by Fiscal Year) ²					5-Year Plan Total	
			23/24	24/25	25/26	26/27	27/28		
Estimated Current Cost of Vehicles			Full Size Buses (30-35 Psgr Electric)						
Electric - 30/32 psgr	\$1,184,000		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
Estimated Current Cost of Vehicles			Cutaways (16 Psgr Electric)						
Electric - 16 psgr	\$331,000		Number of Buses						
			Total Number of Vehicles	0	5	6	6	0	17
			Total Cost (In Thousands) ¹	\$0	\$1,696	\$2,097	\$2,160	\$0	\$5,953
Estimated Current Cost of Vehicles			Vans (9 Psgr Electric)						
Electric - 9 psgr	\$331,000		Number of Vans						
			Total Cost (In Thousands) ¹	\$0	\$2,714	\$0	\$0	\$0	\$2,714
			Total Costs (In Thousands)	\$0	\$5,624	\$4,597	\$4,735	\$2,652	\$17,608
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 benches and shelters to other remaining stops with higher passenger activity and along arterial roadways. Based on the proposed service plan, approximately 99 stops will need to be removed. These stops are listed in Appendix J.

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 that passengers will have alternative stops within a reasonable walking distance. Of these, 6 stops (along Routes 2, 3, and 5) are planned for elimination due to the shift to microtransit, leaving 12 additional stops warranting removal (including 2 with shelters). In all, there are 14 stops with shelters that will need to be relocated are as follows:

- Buenaventura Boulevard at Eureka Way
- Eureka Way at Magnolia Avenue
- Eureka Way at Walnut Avenue
- Placer Street at San Francisco Street
- Airpark Drive at Gold Street
- Airpark Drive at Rosaline Avenue
- Park Marina and Athens Avenue
- Hartnell Avenue at Northwoods Way
- Hartnell Avenue at Arcade Way
- Hartnell Avenue at Robert Court
- Hartnell Avenue at Shasta View Drive
- Hartnell Avenue at Victor Avenue
- Churn Creek Road at Cypress Avenue
- Hilltop Drive at Browning Street

Considering all 122 stops, a reasonable budget for the removal and relocation of amenities is \$100,000. Additionally, bus benches and shelters along routes discontinued prior to this SRTP should be removed to limit public confusion regarding where services are available.

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 Transfer Center Improvements

Security enhancements and facility upgrades are warranted at the Canby Transfer 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 and Senate Bill 125) made several changes to the original TDA PUC Codes and now allows Federal funds to be counted as farebox revenue, bringing RABA's farebox return ratio to over 50 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. RABA paratransit services are also precluded from serving nearby additional passengers just outside the service boundary that would be more efficient to serve on existing paratransit trips. Integrating the services would also provide greater opportunities to serve urban area passengers more quickly. While cost savings would vary day by day depending on specific rider service requests, a reasonable estimate is that a 15 percent savings in Shasta Connect service (excluding the Intermountain service) could be achieved if a joint scheduling platform is implemented, or approximately \$77,000 in savings annually.
- 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 RABA, SRTA, and the region as a whole over the longer term. A detailed study of CTSA consolidation should first be conducted, followed by implementation by the beginning of Fiscal Year 2025/26.

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 11,029, or 20 percent. This total change reflects an increase of 17,309 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:

$$\text{Operating Costs} = \$46.80 \times \# \text{ Vehicle-Hours of Service} + \\ \$1.45 \times \# \text{ Vehicle-Miles of Service}$$

- Service modifications (including shifting of ShastaConnect to RABA management) are assumed to occur on October 1, 2024. Note that some modifications may occur later, which would reduce costs from those assumed in this plan.
- 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.
- In total, inflation is forecast to increase operating costs by \$1,268,700, 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 \$1,915,200 in costs, or 23 percent, to the base urban services cost. Excluding the inclusion of ShastaConnect services in RABA (and including \$10,000 in annual fare subsidy for service on Trinity Transit and Sage Stage within Shasta County), the rural service expansion will add \$148,400 in operating costs, or a 53 percent increase over the current costs, by the last year of the planning period.
Considering all plan elements (including absorbing ShastaConnect within RABA), the urban and rural plans increase annual operating costs by \$2,506,200 over the five years, or 27 percent over base costs.

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

Excludes Shasta Connect

Route or Service	Existing Service ¹										Plan Service										Change in Vehicle-Hours	Change in Annual Vehicle-Miles
	Service Span				Daily Vehicle-Hours		Days per Year		Annual Vehicle-Hours	Annual Vehicle-Miles	Service Span				Daily Vehicle-Hours		Days per Year		Annual Vehicle-Hours	Annual Vehicle-Miles		
	Weekday		Saturday		Wkdy	Sat/ Holiday	Wkdy	Sat/ Holiday			Weekday		Saturday		Wkdy	Sat/ Holiday	Wkdy	Sat/ Holiday				
	Start	End	Start	End					Start	End	Start	End	Start	End					Start	End		
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
12X	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	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	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	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	0	9:00 AM	4:00 PM	--	--	7.00	0.00	247	0	1,729	25,900	1,729	25,900
Weekday Evening Microtransit	--	--	--	--	--	--	--	--	0	0	6:00 PM	9:00 PM	--	--	11.00	0.00	247	0	2,717	40,800	2,717	40,800
Sunday Microtransit	--	--	--	--	0.00	0.00	--	--	0	0	Sunday >	8:00 AM	4:00 PM	0.00	24.00	0	52	1,248	21,900	1,248	21,900	
Subtotal: RABA Fixed Route/Microtransit									42,383	613,800									51,983	786,700	9,600	173,800
																			Percent Change	23%	28%	
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/Happy Valley Microtransit	--	--	--	--	--	--	--	--	9:00 AM	4:00 PM	--	6.00	0.00	104	0	624	624					
Total	--	--	--	--	--	--	2,339	124,600									3,768	1,429	61%	38,643		
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			26,554	17,309	187%				
Grand Total					196.51	127.90			53,967	900,540					225.36	125.83			64,996	11,029	20%	

Note 1: Including recent start of Route 15 service and Route 17 modifications. Route 15 includes previous CTE 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					
<i>Urban</i> ²	\$ 7,788.1	\$ 8,011.0	\$ 8,331.5	\$ 8,664.7	\$ 9,011.3
<i>Rural</i>	\$ 274.5	\$ 284.4	\$ 295.8	\$ 307.6	\$ 319.9
<i>Total</i>	\$ 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	\$ 367.7	\$ 508.8	\$ 528.1	\$ 548.1
Change in Vehicle Maintenance and Fuel Costs	\$ 0.0	\$ 196.0	\$ 271.7	\$ 282.6	\$ 293.9
Transit Operating Subtotal	\$ 0.0	\$ 563.7	\$ 780.6	\$ 810.7	\$ 842.0
Microtransit Software	\$ 0.0	\$ 100.0	\$ 100.0	\$ 100.0	\$ 100.0
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	\$ 1,113.7	\$ 1,280.6	\$ 1,310.7	\$ 1,342.0
Urban Costs With Plan	\$ 8,438.1	\$ 9,124.7	\$ 9,612.0	\$ 9,975.4	\$ 10,353.3
Plan Costs - Rural Service					
Shingletown Express - 2 Runs/Day, 5 Days/Week	\$ 0.0	\$ 70.9	\$ 98.3	\$ 102.3	\$ 106.3
Cottonwood/Happy Vly Microtransit -- 2 Days/Week	\$ 0.0	\$ 21.4	\$ 29.6	\$ 30.8	\$ 32.1
Subsidy of Fares on Sage Stage and Trinity Transit	\$ 0.0	\$ 10.0	\$ 10.0	\$ 10.0	\$ 10.0
CTSA Shasta Connect Service ³	\$ 0.0	\$ 464.0	\$ 643.4	\$ 669.2	\$ 695.9
CTSA Coordination Startup	\$ 0.0	\$ 500.0	\$ 0.0	\$ 0.0	\$ 0.0
Total Rural Service Plan Costs	\$ 0.0	\$ 1,066.3	\$ 781.4	\$ 812.2	\$ 844.3
Total Rural Costs With Plan	\$ 274.5	\$ 1,350.7	\$ 1,077.2	\$ 1,119.9	\$ 1,164.2
Total Operating Cost	\$ 8,712.6	\$ 10,475.4	\$ 10,689.2	\$ 11,095.3	\$ 11,517.5

Note 1: Base Case costs based upon FY 2023-24 Budget, excluding capital. Includes Route 15 costs. 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. Excludes Sunday service costs. Includes service consolidation efficiency gain.

Source: LSC Transportation Consultants, Inc.

- 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 are 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 42,700 passenger trips per year, based on existing ridership and elasticity analyses. Overall, urban ridership will be increased by 57,100 passenger trips, or a 15 percent increase over current ridership once all plan elements are implemented.
- 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 165,100 annual boardings over the five-year SRTP period, or 38 percent, across all urban, rural, and paratransit services. On the urban fixed route/microtransit services, ridership is forecast to increase by 140,000, or 33 percent. Excluding the ShastaConnect ridership, rural service ridership is forecast to increase by 6,800 boardings or 84 percent. If the ShastaConnect ridership is included, the rural ridership increases by 25,100 or 309 percent.

Table 57: Ridership Impact of Urban 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
Sunday Microtransit	5,000
<i>Net Change</i>	42,700
<i>Percent Change</i>	11%
<u>Service Recently Implemented</u>	
Route 15 (Service to Redding Airport & VA)	15,800
Reduced Route 18 service	-1,900
Route 17 Expansion	500
<i>Total</i>	14,400
<i>Percent Change</i>	4%
Total - All Changes	57,100
Percent Change	15%
Note 1: Net increase including reduction in fixed route ridership.	

- 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 and inclusion of the ShastaConnect service will increase fares by \$333,600 per year (\$236,200 in urban service fare revenues and \$97,400 in rural service fare revenues), or 51 percent over the base case fares.

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.

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	35.3	49.4	51.9	54.5
<u>Impact of Fare Modifications</u>					
Fixed Routes	0.0	-3.1	-4.4	-4.6	-4.8
Paratransit	0.0	-0.6	-0.8	-0.9	-0.9
Total	423.4	476.1	511.0	536.5	563.4
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	2.2	3.8	4.2	4.2
Cottonwood/Happy Vly Microtransit -- 2 Days/Week	0.0	0.5	0.9	1.0	1.0
Impact of Fare Modifications	0.0	-0.1	-0.1	-0.1	-0.1
ShastaConnect	0.0	11.8	16.6	17.4	18.3
Total	8.1	22.9	30.0	31.8	33.2
Total Annual Ridership	431.5	499.1	541.0	568.4	596.5
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	\$ 43.0	\$ 60.2	\$ 63.2	\$ 66.4
<u>Impact of Fare Modifications</u>					
Fixed Routes	\$ 0.0	\$ 6.1	\$ 8.6	\$ 9.0	\$ 9.4
Paratransit	\$ 0.0	\$ 13.5	\$ 18.9	\$ 19.8	\$ 20.8
Total	\$ 647.6	\$ 742.6	\$ 801.6	\$ 841.7	\$ 883.8
Fare Revenues -- Rural Services					
Route 299X	\$ 11.9	\$ 12.5	\$ 13.1	\$ 13.8	\$ 14.5
Shingletown Express - 2 Runs/Day, 5 Days/Week	\$ 0.0	\$ 8.8	\$ 15.1	\$ 16.8	\$ 16.8
Cottonwood Microtransit - 2 Days/Week	\$ 0.0	\$ 0.6	\$ 1.1	\$ 1.2	\$ 1.2
ShastaConnect	\$ 0.0	\$ 47.3	\$ 66.2	\$ 69.5	\$ 73.0
Impact of Fare Modifications	\$ 0.0	\$ 3.31	\$ 3.47	\$ 3.65	\$ 3.83
Total	\$ 11.9	\$ 72.5	\$ 99.0	\$ 104.9	\$ 109.3

Note 1: Fixed Routes include Route 19

Source: LSC Transportation Consultants, Inc.

- FTA Section 5311 (Rural Program) funding 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.
- 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. In future years, this source will fund the youth free fare program.

- In FY 2024-25 and beyond, a 10 percent reduction in overall Transportation Development Act (TDA) revenues is assumed, reflecting the cost benefits of rural/urban service consolidation as well as the ability to spend the existing federal funding and state funding sources.
- 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 \$16.8 Million in TIRCP funding that can be used for service enhancements as well as capital improvements through the end of FY 2026-27. Of this, \$12.1 Million is allocated to operating funding. 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 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, expanded state funding will probably continue to provide a positive balance. If not, lessons learned over the coming years will provide input on how to best balance funding and needs. The resulting positive balances could be used to increase TDA carryover or could reduce the amount of TDA allocated to transit.

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 weekday 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 Route 299X operating costs. Annual applications to Caltrans are required.
- 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 \$988,600 in Coronavirus Response and Relief Supplemental Appropriate Act (CRRSAA) funding that must be expended by June of 2026. These funds are allocated equally between FY 2024-25 and FY 2025-26.
- SB 125 funding for CTSA transit operations is assumed to shift to RABA starting in FY 2025/26.
- There is also a total of an additional \$200,700 in accumulated FTA 5311(f) funding that must be expended by December of 2026. These funds are allocated to the FY 2026-27 operating budget.

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

Table 59: RABA SRTP Operating Financial Plan						Notes
All Numbers in Thousands						
	FY23-24	FY24-25	FY25-26	FY26-27	FY 27-28	
Urban Services						
<u>Fare Revenue</u>						
Fixed Route (2)	\$ 578.0	\$ 656.0	\$ 706.0	\$ 741.3	\$ 778.4	Reflects service enhancements, fare changes, 5% annual background growth.
Paratransit	\$ 69.6	\$ 86.6	\$ 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	\$ 475.9	\$ 487.8	
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	\$ 3,477.3	\$ 3,530.1	\$ 3,845.0	\$ 3,986.3	10 Percent Reduction in Total TDA Required From FY 24-25 to FY 27-28
LCTOP	\$ 75.0	\$ 15.1	\$ 15.9	\$ 16.6	\$ 17.5	For free fares
SRTA Funding for Beach Bus	\$ 25.4	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	Note Route 19 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
<u>TIRCP SB 125 Funding</u>						
Service Enhancements	\$ 0.0	\$ 3,272.9	\$ 3,172.9	\$ 3,172.9	\$ 3,172.9	Per SB 125 Finance Plan Table. Assumes continuing State funding after FY 2026/27.
Technology Enhancements Program	\$ 500.0	\$ 500.0	\$ 150.0	\$ 150.0	\$ 135.0	
Micromobility Program	\$ 75.0	\$ 200.0	\$ 200.0	\$ 200.0	\$ 200.0	
TOTAL	\$ 8,585.2	\$ 11,641.4	\$ 11,428.1	\$ 11,789.3	\$ 11,918.5	
<i>Net Balance</i>	<i>\$147.11</i>	<i>\$2,516.62</i>	<i>\$1,816.10</i>	<i>\$1,813.92</i>	<i>\$1,565.23</i>	
Rural Services						
<u>Fare Revenue</u>						
Burney, Shingletown and Cottonwood Services	\$ 11.9	\$ 72.5	\$ 99.0	\$ 104.9	\$ 109.3	See Table 58
Shasta Connect	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	\$ 0.0	Assumes it remains free fare
LTF 5% CTSA Allocation	\$ 0.0	\$ 0.0	\$ 454.4	\$ 472.6	\$ 491.5	For ShastaConnect, assuming program shifts to RABA in FY 25/26
SB 125 Funds for Transit Operations	\$ 0.0	\$ 0.0	\$ 75.0	\$ 75.0	\$ 75.0	Per SB 125 Finance Plan Table. Assumes continuing State funding after FY 2026/27.
Low Carbon Transit Operations Program	\$ 0.0	\$ 392.1	\$ 407.8	\$ 424.1	\$ 441.0	For ShastaConnect 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 Route 299X
TIRCP SB 125 for CTSA Coordination Startup	\$ 0.0	\$ 500.0	\$ 0.0	\$ 0.0	\$ 0.0	Per SB 125 Finance Plan Table.
5311 (f) ARPA	\$ 0.0	\$ 0.0	\$ 0.0	\$ 200.7	\$ 0.0	\$ 200.7 Total Available After 2022/23, must be spent by Dec 2026
CRRSAA	\$ 0.0	\$ 494.3	\$ 494.3	\$ 0.0	\$ 0.0	\$ 988.6 Total available, all for rural service. Must be spent by June 2026
TOTAL	\$ 286.8	\$ 1,740.7	\$ 1,819.4	\$ 1,573.5	\$ 1,420.5	
<i>Net Balance</i>	<i>\$12.3</i>	<i>\$854.0</i>	<i>\$742.2</i>	<i>\$453.6</i>	<i>\$256.2</i>	
Total Urban and Rural Services						
<i>Net Balance</i>	<i>\$8,871.98</i>	<i>\$13,382.09</i>	<i>\$13,247.48</i>	<i>\$13,362.80</i>	<i>\$13,339.02</i>	
	<i>\$159.40</i>	<i>\$3,370.67</i>	<i>\$2,558.28</i>	<i>\$2,267.54</i>	<i>\$1,821.47</i>	
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						

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 is a total of \$20,603,600 in capital expenditure 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 \$2.1 million, or 10 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 54
Bus Stop Modifications	\$325.0	\$100.0	\$0.0	\$0.0	\$0.0	\$425.0	
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	\$5,649.9	\$6,785.0	\$4,734.6	\$2,652.3	\$20,603.6	
REVENUES							
5339a Federal Bus & Bus Facilities	\$138.0	\$0.0	\$0.0	\$0.0	\$0.0	\$138.0	
5339c Federal Lo-No	\$0.0	\$2,520.9	\$3,677.4	\$3,787.7	\$2,254.5	\$12,240.4	
State of Good Repair	\$310.0	\$68.6	\$65.3	\$63.3	\$52.8	\$560.1	
Transit & Intercity Rail Capital Program	\$0.0	\$2,250.6	\$0.0	\$502.8	\$0.0	\$2,753.4	
Zero Emission Transit Capital Program	\$0.0	\$0.0	\$2,449.6	\$0.0	\$0.0	\$2,449.6	
Low Carbon Transit Operations Program	\$89.1	\$265.0	\$0.0	\$0.0	\$0.0	\$354.1	
Transportation Development Act	\$244.7	\$544.9	\$592.6	\$380.8	\$345.1	\$2,108.0	
Total	\$781.8	\$5,649.9	\$6,785.0	\$4,734.6	\$2,652.3	\$20,603.6	
BALANCE	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0		

This page intentionally left blank.

DEMOGRAPHIC MAPS AND EMPLOYMENT DATA

DEMOGRAPHIC MAPS

The attached demographic maps are a supplement to the information provided in Chapter 2 of this RABA Short Range Transit Plan. They identify categories of potentially transit dependent populations, including:

- Figure A-1, Youths under 18 years of age – who are often unable to drive and may not have a parent available to transport them.
- Figure A-2, Elderly population ages 65 and older – who often begin to incur more frequent medical needs and decreased ability to drive.
- Figure A-3, The population living below the poverty level –who often lack the means of acquiring or maintaining a private automobile. This population is defined by several factors including household income and the number of dependent children.
- Figure A-4, Individuals with a disability – who may have limited abilities to drive.
- Figure A-5, Households without a vehicle available – as they are most likely to need an alternative means of transportation.

EMPLOYMENT STATISTICS

Additionally, data on the largest employers, the labor force, and commute patterns are included in Tables A-1 to A-5. These are supplement the discussion on economics in Chapter 2.

- Table A-1: Major Employers in the City of Redding
- Table A-2: Shasta County Employment Statistics
- Table A-3: City of Redding Commuter Patterns
- Table A-4: Anderson Commuter Patterns
- Table A-5: Shasta Lake Commuter Patterns

**Figure A-1
Youth Population Density (17 Years and Younger)**

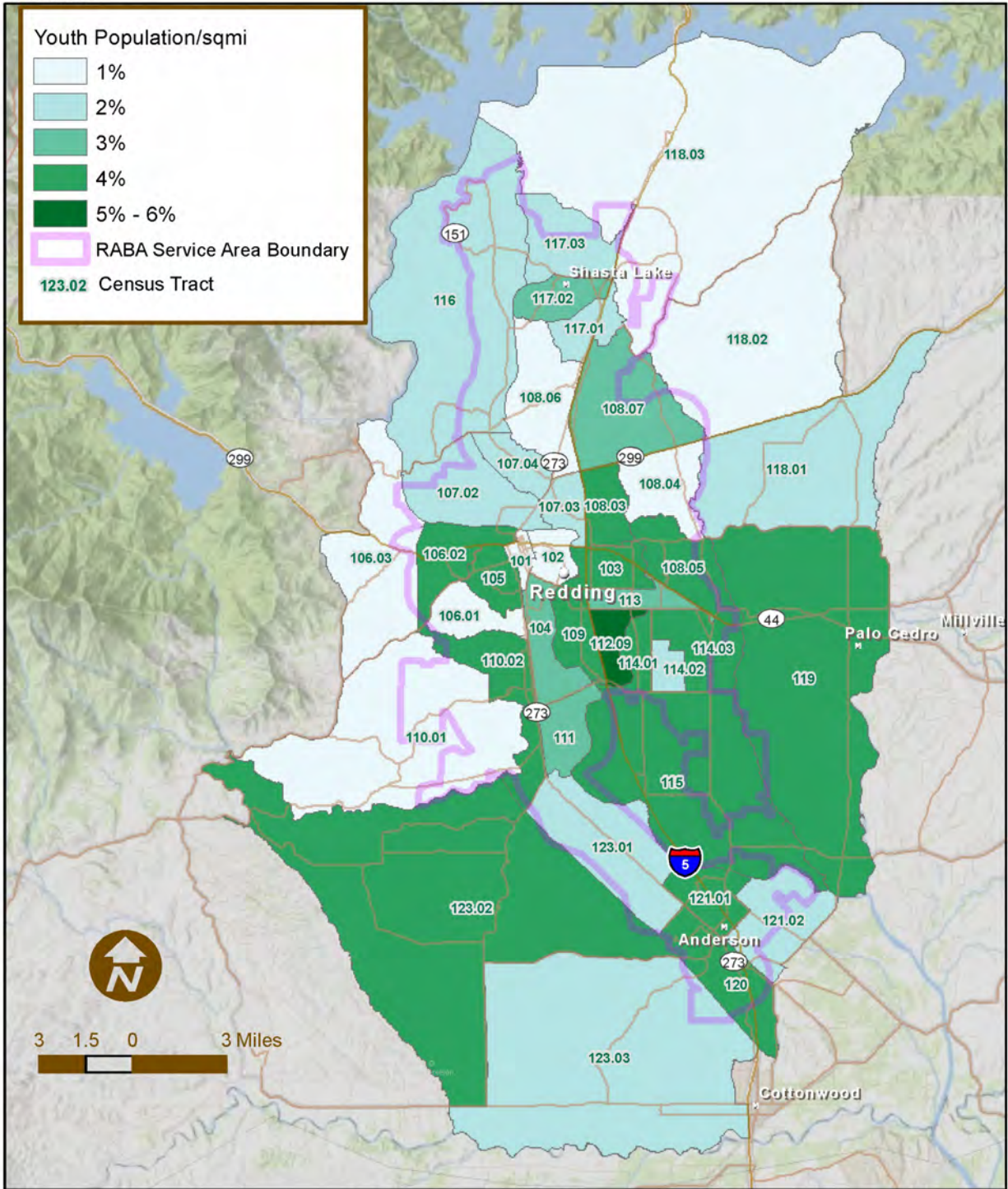
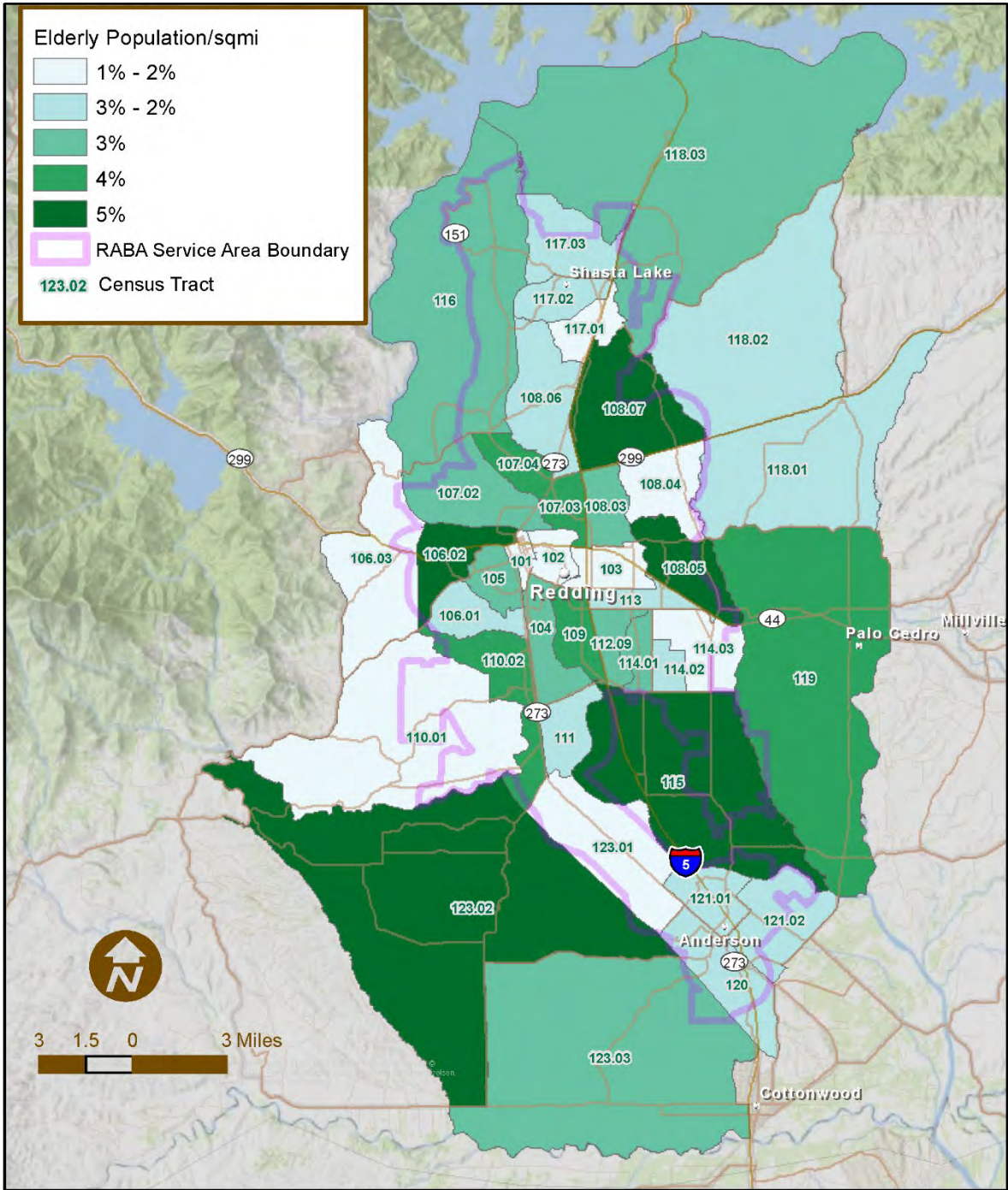
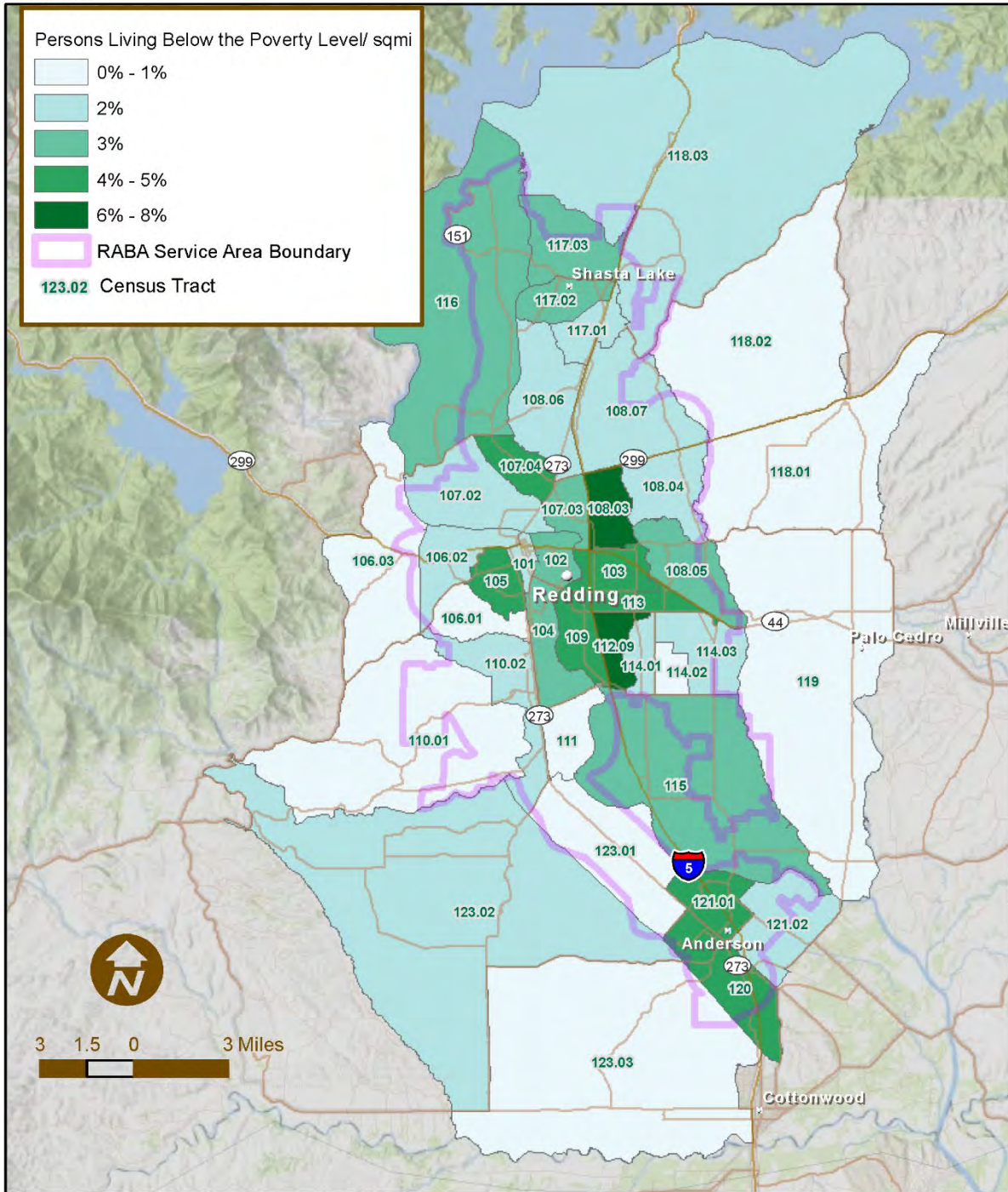


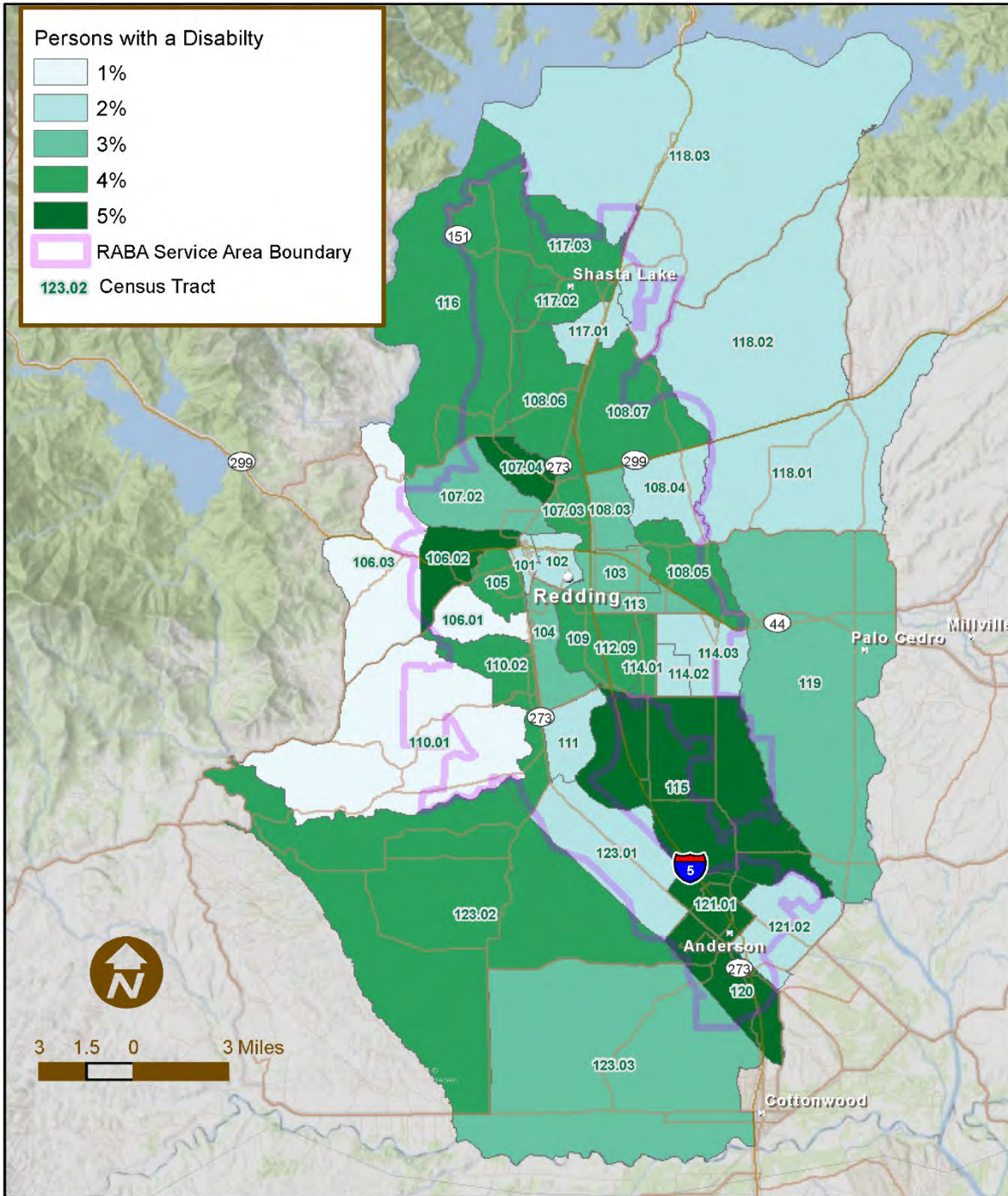
Figure A-2
Elderly Population Density (Ages 65 Years and Older)



**Figure A-3
Population Density of People Living Below the Poverty Line**



**Figure A-4
Population Density of Persons Living with a Disability**



**Figure A-5
Zero Vehicle Household Density**

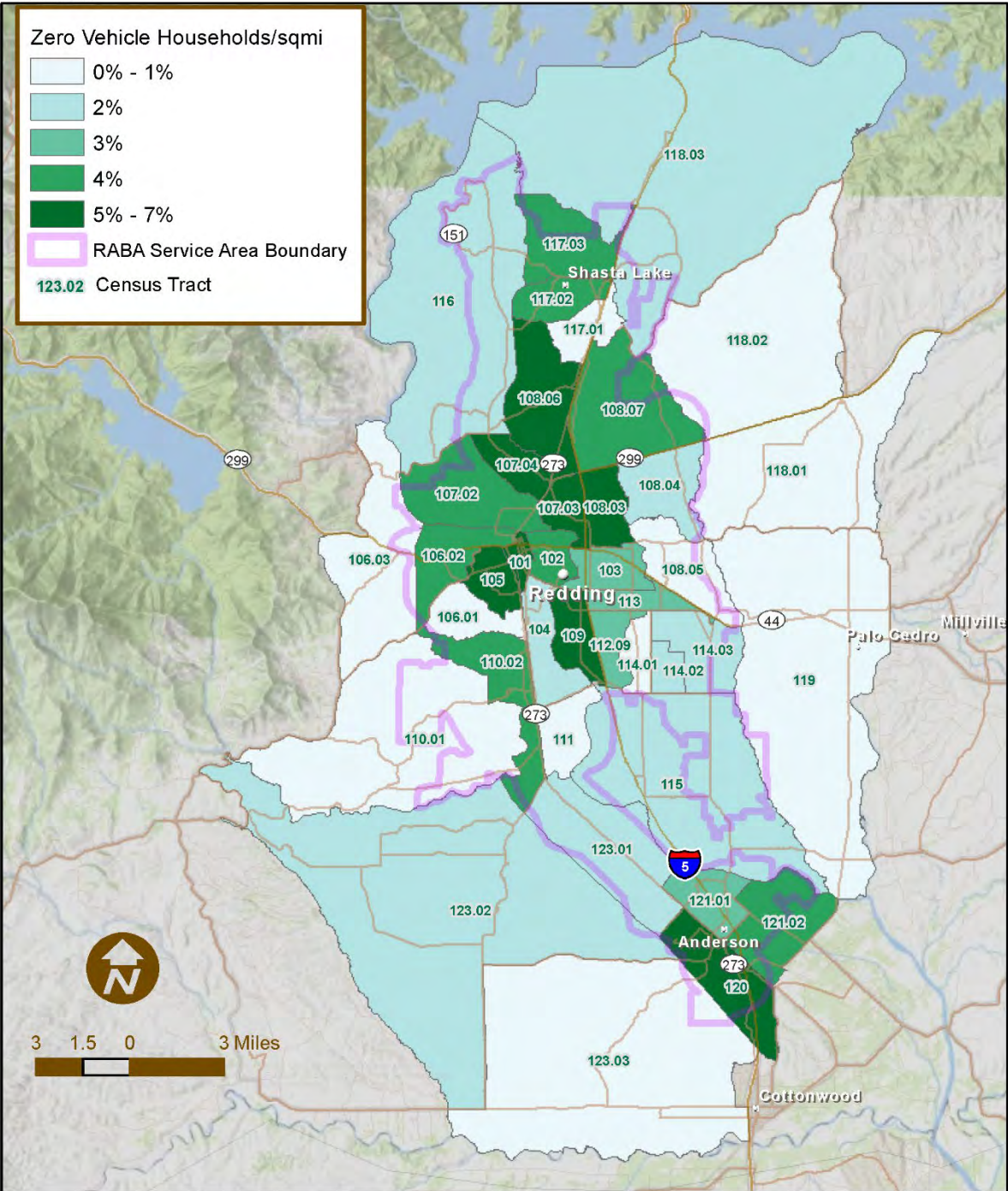


Table A-1: Major Employers in the City of Redding

Employer	Industry	# Employed
Iris Global	Organizations	1,000-4,999 Employees
Mercy Medical Ctr Redding	Hospitals	1,000-4,999 Employees
Shasta County Admin Office	Government Offices-County	1,000-4,999 Employees
Bethel Church	Churches	500-999 Employees
Blue Shield-California	Insurance	500-999 Employees
Dignity Health Mercy Oncology	Health Related Facilities	500-999 Employees
Shasta Regional Medical Ctr	Hospitals	500-999 Employees
Walmart Supercenter	Department Stores	500-999 Employees
Shascade Community Svc	Social Service & Welfare Organizations	250-499 Employees
Transportation Department	Government Offices-State	250-499 Employees
USPS	Post Offices	250-499 Employees
Win-River Casino	Casinos	250-499 Employees
Bridge Bay At Shasta Lake	Resorts	100-249 Employees
Costco Wholesale	Wholesale Clubs	100-249 Employees
County of Shasta	Government Offices-County	100-249 Employees
Forest Service	Fire Departments	100-249 Employees
Home Depot	Home Centers	100-249 Employees
Marquis Shasta	Nursing & Convalescent Homes	100-249 Employees
Redding Lumber Transport Inc	Trucking	100-249 Employees
Shasta Community Health Ctr	Clinics	100-249 Employees
Veterans Home of California	Veterans' & Military Organizations	100-249 Employees
Vibra Hospital of Northern CA	Hospitals	100-249 Employees

Source: Employment Development Department, www.labormarketinfo.edd.ca.gov, Accessed June 2022

Table A-2: Shasta County Employment Statistics

Census Tract	Population Over 16 yrs	Civilian Labor Force		Employed		Unemployed	
		Number	Percent	Number	Percent	Number	Percent
101	1,561	650	42%	571	88%	79	12%
102	2,079	1,235	59%	1,125	91%	110	9%
103	3,320	1,730	52%	1,655	96%	75	4%
104	3,696	2,303	62%	2,173	94%	130	6%
105	4,216	2,615	62%	2,440	93%	175	7%
106.01	2,027	1,077	53%	1,026	95%	51	5%
106.02	4,111	2,595	63%	2,508	97%	87	3%
106.03	1,088	541	50%	514	95%	27	5%
107.02	2,507	1,387	55%	1,299	94%	88	6%
107.03	3,172	1,905	60%	1,829	96%	76	4%
107.04	3,028	1,408	46%	1,292	92%	116	8%
108.03	4,448	2,734	61%	2,657	97%	77	3%
108.04	2,062	992	48%	964	97%	28	3%
108.05	4,427	2,425	55%	2,380	98%	45	2%
108.06	2,800	1,777	63%	1,563	88%	214	12%
108.07	3,757	1,788	48%	1,732	97%	56	3%
109	3,184	1,581	50%	1,498	95%	83	5%
110.01	1,357	791	58%	764	97%	27	3%
110.02	3,959	2,443	62%	2,211	91%	232	9%
111	2,426	1,353	56%	1,162	86%	191	14%
112.09	4,709	2,980	63%	2,764	93%	216	7%
113	3,968	2,527	64%	2,402	95%	125	5%
114.01	3,177	1,923	61%	1,792	93%	131	7%
114.02	2,473	1,506	61%	1,420	94%	86	6%
114.03	2,312	1,370	59%	1,304	95%	66	5%
115	4,496	2,319	52%	2,181	94%	138	6%
115.01	1,869	1,008	54%	1,002	99%	6	1%
115.02	2,366	836	35%	762	91%	74	9%
116	3,183	1,759	55%	1,607	91%	152	9%
117.01	2,342	1,300	56%	1,267	97%	33	3%
117.02	2,534	1,507	59%	1,386	92%	121	8%
117.03	2,382	1,097	46%	1,040	95%	57	5%
118.01	2,255	1,268	56%	1,187	94%	81	6%
118.02	2,209	1,249	57%	1,140	91%	109	9%
118.03	2,095	984	47%	942	96%	42	4%
119	3,812	1,950	51%	1,913	98%	37	2%
120	3,550	1,876	53%	1,796	96%	80	4%
121.01	3,475	2,156	62%	2,034	94%	122	6%
121.02	1,776	855	48%	801	94%	54	6%
122	4,140	2,243	54%	2,209	98%	34	2%
123.01	2,157	1,168	54%	1,079	92%	89	8%
123.02	4,913	2,620	53%	2,384	91%	236	9%
Total Population	125,418	69,831	55.7%	65,775	94.2%	4,056	5.8%

Source: American Community Surveys, 2020

X% bolded = double-digit unemployment

Table A-3: City of Redding Commuter Patterns

Where Redding Residents Work			Where Redding Employees Live		
Redding	21,294	63.0%	Redding	21,294	46.2%
Anderson	932	2.8%	Shasta Lake	2,308	5.0%
Chico	643	1.9%	Anderson	1,783	3.9%
Red Bluff	586	1.7%	Red Bluff	579	1.3%
Shasta Lake	552	1.6%	Bella Vista	521	1.1%
Sacramento	377	1.1%	Cottonwood	431	0.9%
Palo Cedro	232	0.7%	Chico	391	0.8%
San Francisco	181	0.5%	Lake California	351	0.8%
Weaverville	147	0.4%	Palo Cedro	243	0.5%
Mount Shasta	137	0.4%	Shingletown	232	0.5%
Santa Rosa	122	0.4%	Sacramento	230	0.5%
Cottonwood	117	0.3%	Shasta	224	0.5%
Eureka	113	0.3%	Mountain Gate	156	0.3%
Yuba City	109	0.3%	Yreka	121	0.3%
Petaluma	101	0.3%	Paradise	119	0.3%
<i>Other Locations</i>	<i>8,137</i>	<i>24.1%</i>	<i>Other Locations</i>	<i>17,149</i>	<i>37.2%</i>
Total Residents Jobs	33,780		Total Jobs in Redding	46,132	

Source: LEHD Data, 2019

Table A-4: Anderson Commuter Patterns

Where Anderson Residents Work			Where Anderson Employees Live		
Redding	1,783	44.7%	Redding	932	26.1%
Anderson	557	14.0%	Anderson	557	15.6%
Red Bluff	118	3.0%	Red Bluff	111	3.1%
Chico	71	1.8%	Shasta Lake	101	2.8%
Shasta Lake	55	1.4%	Cottonwood	95	2.7%
Sacramento	41	1.0%	Lake California	62	1.7%
Cottonwood	31	0.8%	Corning	32	0.9%
Palo Cedro	25	0.6%	Bella Vista	28	0.8%
San Francisco	22	0.6%	Chico	26	0.7%
Corning	20	0.5%	Shingletown	17	0.5%
Roseville	16	0.4%	Orland	16	0.4%
Eureka	14	0.4%	Susanville	16	0.4%
Weaverville	14	0.4%	Yuba City	15	0.4%
Burney	13	0.3%	Burney	13	0.4%
Santa Rosa	13	0.3%	Palo Cedro	11	0.3%
<i>All Other Locations</i>	<i>1,192</i>	<i>29.9%</i>	<i>All Other Locations</i>	<i>1,544</i>	<i>43.2%</i>
Total Residents Jobs	3,985		Total Jobs in Anderson	3,576	

Source: LEHD Data, 2019

Table A-5: Shasta Lake Commuter Patterns

Where Shasta Lake Residents Work			Where Shasta Lake Employees Live		
Redding	2,308	57.5%	Redding	552	33.6%
Shasta Lake	326	8.1%	Shasta Lake	326	19.8%
Anderson	101	2.5%	Anderson	55	3.3%
Chico	67	1.7%	Mountain Gate	29	1.8%
Sacramento	47	1.2%	Red Bluff	23	1.4%
Mountain Gate	41	1.0%	Bella Vista	15	0.9%
Red Bluff	40	1.0%	Cottonwood	15	0.9%
San Francisco	26	0.6%	Burney	13	0.8%
Eureka	18	0.4%	Shasta	11	0.7%
Cottonwood	16	0.4%	Lake California	10	0.6%
Mount Shasta	15	0.4%	Shingletown	10	0.6%
Weaverville	14	0.3%	Chico	8	0.5%
Yuba City	14	0.3%	Corning	7	0.4%
Palo Cedro	12	0.3%	Mount Shasta	7	0.4%
San Jose	12	0.3%	Yreka	7	0.4%
<i>All Other Locations</i>	<i>958</i>	<i>23.9%</i>	<i>All Other Locations</i>	<i>555</i>	<i>33.8%</i>
Total Residents Jobs	4,015		Total Jobs in Shasta Lake	1,643	

Source: LEHD Data, 2019

Route Profiles

The attached route profiles provide a summary of services for each route, as well as a recent performance review of hours, passenger trips and cost. This data is derived from reports provided by RABA. Additionally, a list of strengths and challenges are listed for each route, based on observations and performance. Some of the observations are subjective.

Service frequency:

Based on current (Spring 2022) service parameters.

- High frequency or good frequency is that which is offered every 30 minutes or more.
- Moderate frequency is that which is offered at 30 to 60 minutes.
- Relatively infrequent would be less than hourly.

Route Productivity:

Data for 2021-22 was considered.

- Average productivity is 8.5 passenger trips per hour
- Poor productivity is 2.0 to 4.5 psgrs/hr
- Moderately poor productivity is 4.6 to 6.0 psgrs/hr
- Moderate productivity is 6.1 to 8.5 psgrs/hr
- Above average productivity is 8.6 to 10.4 psgrs/hr
- Relatively high or good productivity is 10.5 to 15.0 psgrs/hr

On-Time Performance:

Weekday, April 2022 data was analyzed. Ranges include:

- Very good: late 5% of the time or less
- Good: late 5-15% of the time
- Fair: late 15-20% of the time
- Poor: late 20-30% of the time
- Very poor: late 30% of the time or more

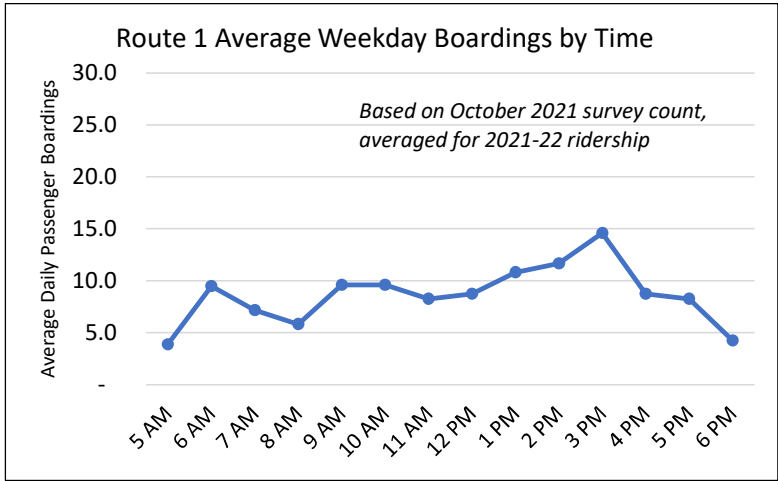
Additionally, on-time performance by route and direction of travel is included in this appendix as Table B-1.

ROUTE 1 Route Profile

Masonic Transfer Center	Redwood/Caterpillar	Lake/Aarly	Hill/Pine	Shasta Dam/Montana	Cascade/Shasta Dam	Lake/Keswick Dam	Masonic Transfer Center	
M 5:35 AM Sat: 8:35 AM		A :40	:50	:00	:05	:07	C :15	:30
THEN EVERY HOUR UNTIL LAST BUS AT:								
6:35 PM	6:40	6:50	7:00	7:05	7:07	7:15	7:30 PM	



ROUTE 1 - SHASTA LAKE		2018-19	2019-20	2020-21	2021-22
Length = 12 miles Cycle Time = 55 minutes	Annual Boardings	58,789	53,571	32,582	34,829
	Hours	4,067	4,153	4,141	4,162
	Boardings / Vehicle Hour	14.5	12.9	7.9	8.4



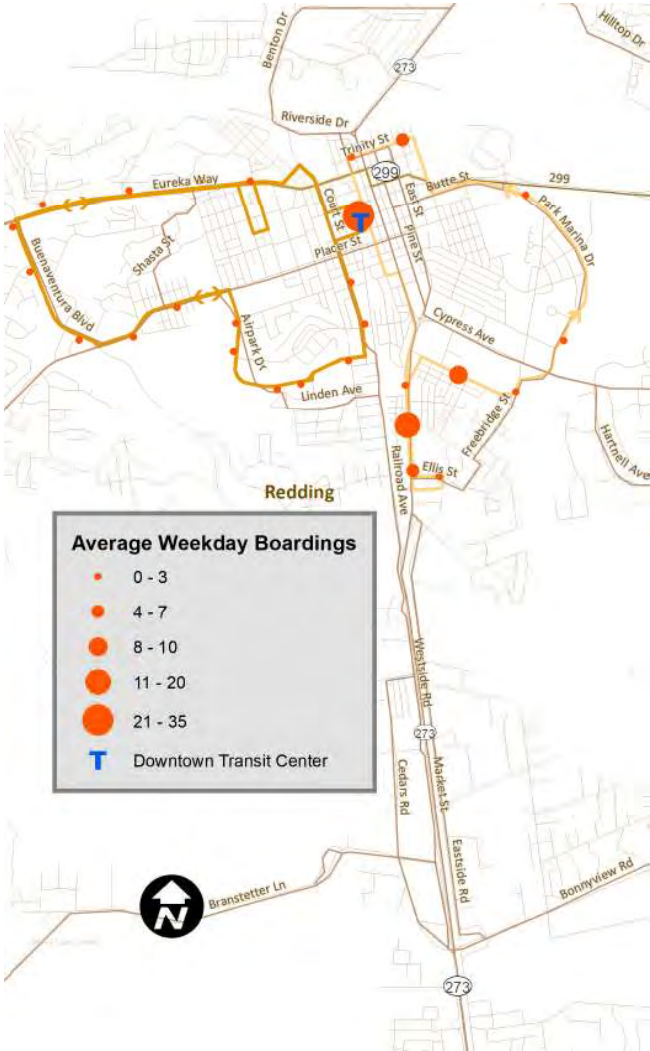
STRENGTHS

- Early start time
- Ridership showing some recovery from COVID.
- Moderate productivity
- Good coverage

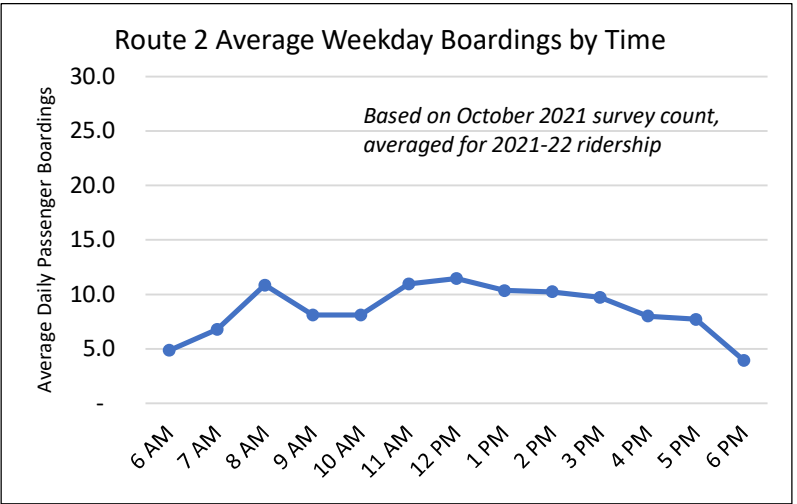
WEAKNESSES

- Poor on-time performance
- Large one-way loop results in long travel time for some trips
- Requires transfers for trips to many major destinations

ROUTE 2 EAST Route Profile				ROUTE 2 WEST CLOCKWISE (EVEN HOURS)			
Downtown Transit Center D	S. Market/Grange	S. Market/Ellis A	Park Marina/Locust B	Downtown Transit Center D	Airpark/Rosaline C	Eureka/Walnut	Downtown Transit Center
6:20 AM Sat: 9:20 AM	:24	:30	:35	6:50 AM	6:55	7:05	7:17 AM
ROUTE 2 WEST COUNTERCLOCKWISE (ODD HOURS)				Downtown Transit Center D	Eureka/Pioneer	Airpark/Rosaline C	Downtown Transit Center
				7:50 AM Sat: 9:50 AM	8:00	8:10	8:17 AM
THEN EVERY HOUR UNTIL LAST BUS AT							
6:20 PM	6:24	6:30	6:35	6:50	6:55	7:05	7:17 PM



ROUTE 2 - WEST REDDING		2018-19	2019-20	2020-21	2021-22
Length = Cycle Time = 71 minutes (3 loops)	Annual Boardings	55,015	50,445	29,822	31,965
	Hours	3,778	3,845	3,835	3,854
	Boardings / Vehicle Hour	14.6	13.1	7.8	8.3



STRENGTHS

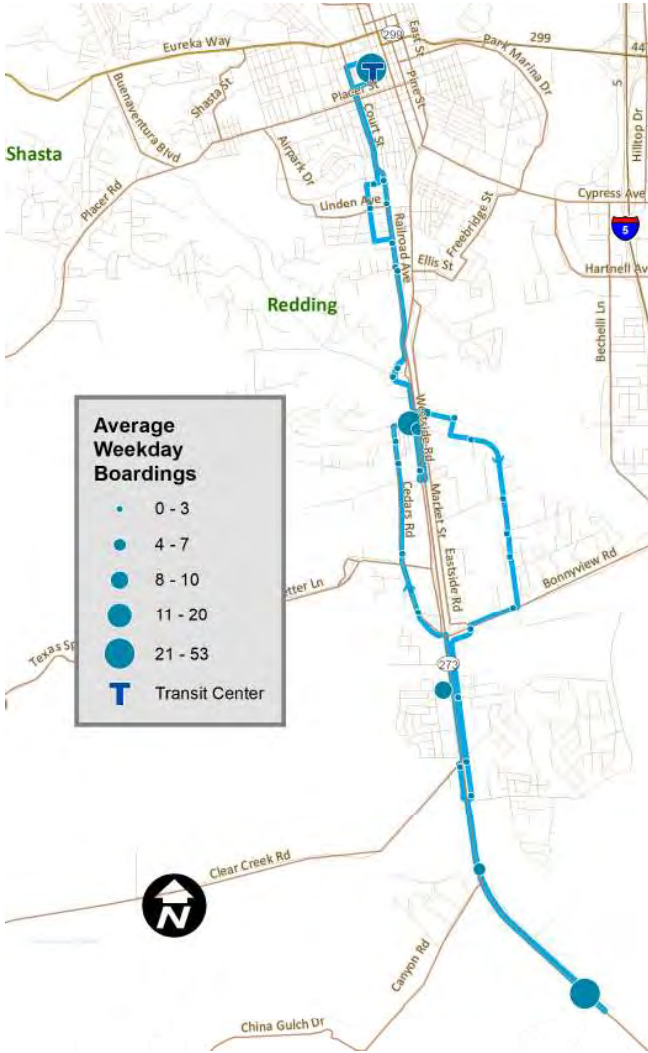
WEAKNESSES

- Good coverage
- Moderate productivity
- Ridership showing some recovery from COVID

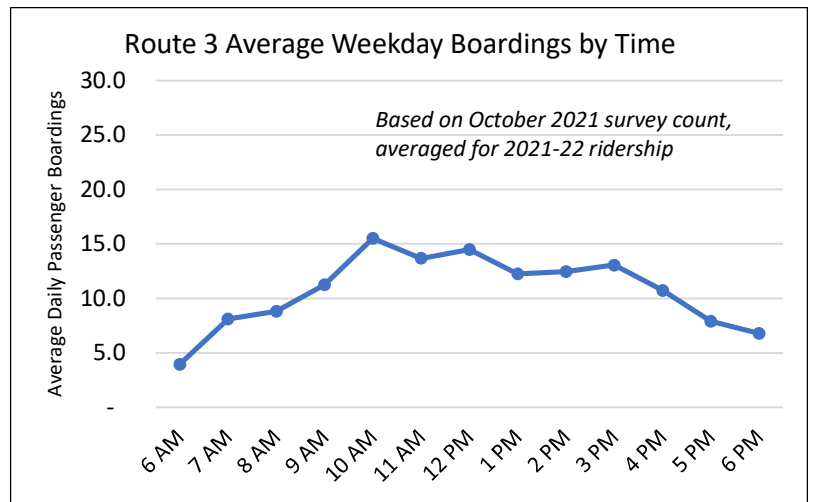
- Fair on-time performance
- Confusing Schedule
- Large one-way east loop results in long travel time for some trips

ROUTE 3 Route Profile

Downtown Transit Center	Westside/ El Reno	Breslauer/ Veterans	S. Bonnyview/ E. Bonnyview	SR 273/ Happy Valley	El Reno/ Westside	Sheridan/ Court	Downtown Transit Center
D		A		B		C	
6:20 AM Sat: 9:20 AM	:30	:35	:45	:50	:55	:05	:15
THEN EVERY HOUR UNTIL LAST BUS AT:							
6:20 PM	6:30	6:35	6:45	6:50	6:55	7:05	7:15 PM



ROUTE 3 - SO. REDDING		2018-19	2019-20	2020-21	2021-22
Length = Cycle Time = 55 minutes	Annual Boardings	68,651	55,808	38,162	40,015
	Hours	3,778	3,846	3,864	3,854
	Boardings / Vehicle Hour	18.2	14.5	9.9	10.4



STRENGTHS

CHALLENGES

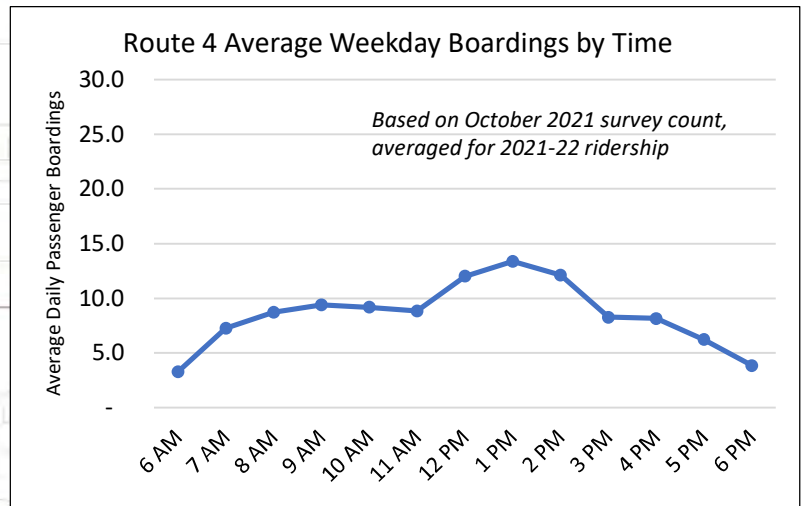
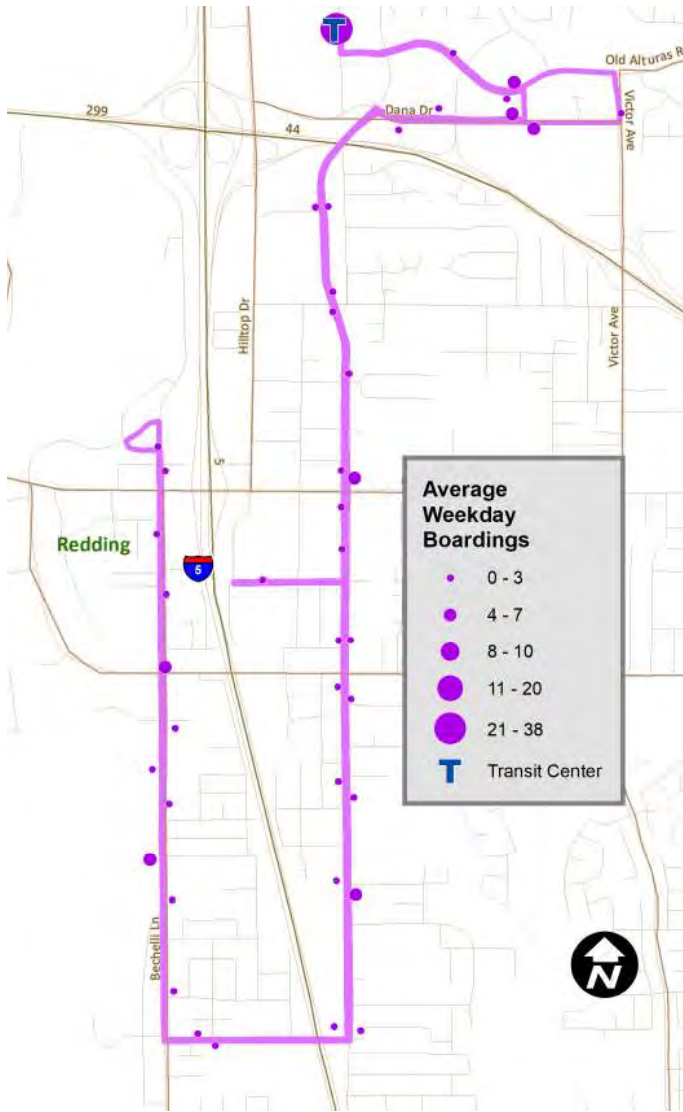
- Good Productivity
- Efficient out-and-back route.
- Ridership showing some recovery from COVID
- Serves growing outlying area

- Poor on-time performance
- Mid-route one-way section requires long out of direction travel for some

ROUTE 4 Route Profile

Canby Transfer Center	Maraglia/Hilltop	Loma Vista/Traverse	Bechelli/Knollcrest	Loma Vista/Traverse	Churn Crk/Cypress	Dana/Bradford	Canby Transfer Center
6:20 AM Sat: 9:20 AM	A :35	:40	B :45	:55	C :00	:10	:15
6:20 PM	6:35	6:40	6:45	6:55	7:00	7:10	7:15 PM

ROUTE 4 - CHURN CREEK/BECHELLI		2018-19	2019-20	2020-21	2021-22
Length = Cycle Time = 55 minutes	Annual Boardings	53,750	47,838	30,601	32,251
	Hours	3,778	3,845	3,835	3,854
	Boardings / Vehicle Hour	14.2	12.4	8.0	8.4



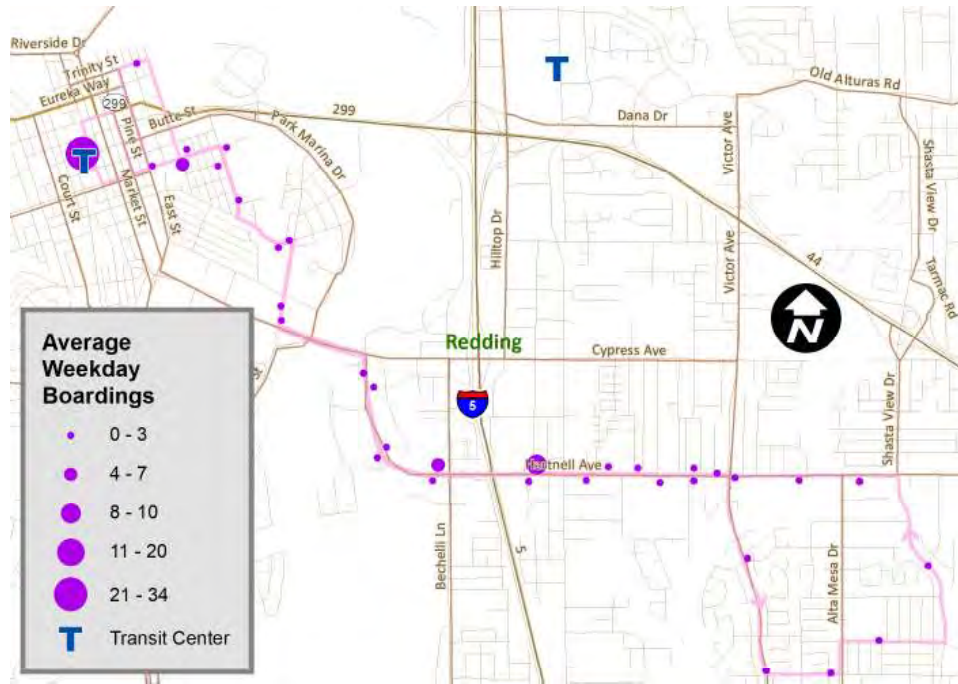
STRENGTHS

WEAKNESSES

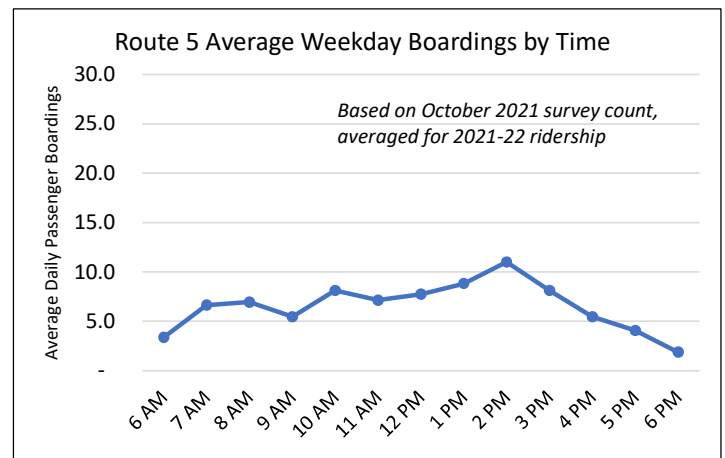
<input checked="" type="checkbox"/> Good on-time performance	<input checked="" type="checkbox"/> None
<input checked="" type="checkbox"/> Ridership showing some recovery from COVID.	
<input checked="" type="checkbox"/> Moderate productivity	

ROUTE 5 Route Profile

Downtown Transit Center	Hartnell/Shotwick	Hartnell/Shasta View	Galaxy/Meteor	Hartnell/Robert	Hartnell/Shotwick	Placer/East	Downtown Transit Center
D	A	B			C		
6:20 AM Sat: 9:20 AM	:35	:40	:45	:50	:00	:10	:15
THEN EVERY HOUR UNTIL LAST BUS AT:							
6:20 PM	6:35	6:40	6:45	6:50	7:00	7:10	7:15 PM



ROUTE 5 - HARTNELL/ALTA MESA		2018-19	2019-20	2020-21	2021-22
Length = Cycle Time = 55 minutes	Annual Boardings	44,195	38,481	24,891	23,760
	Hours	3,779	3,845	3,835	3,854
	Boardings / Vehicle Hour	11.7	10.0	6.5	6.2



STRENGTHS

- ✓ Moderate productivity
- ✓ Efficient out-and-back route.

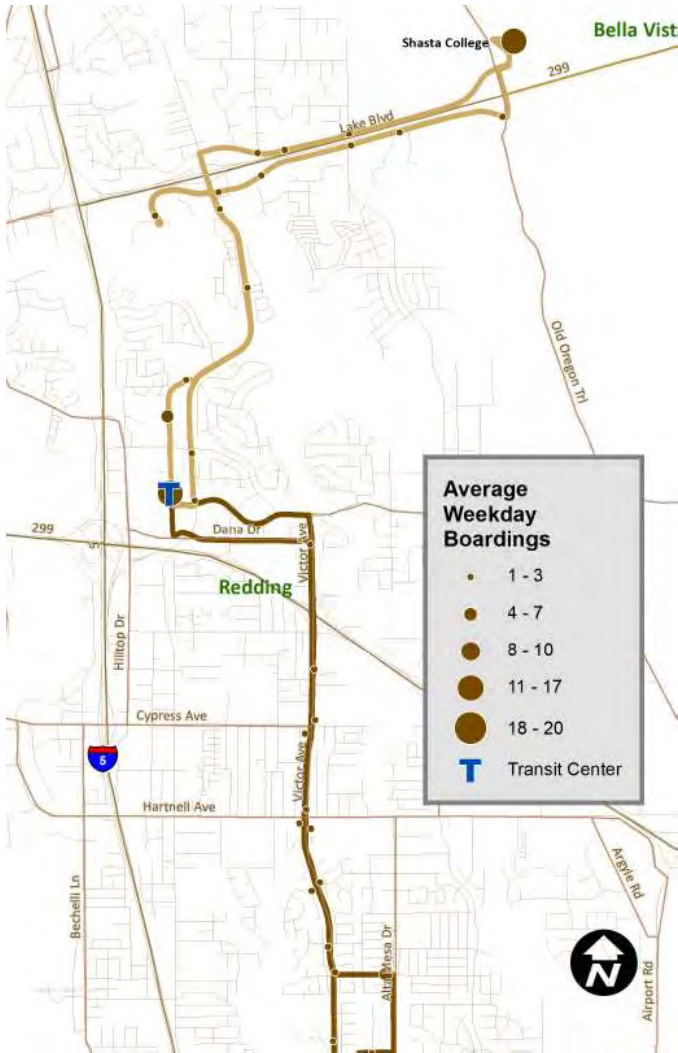
WEAKNESS-

- ✗ Poor on-time performance
- ✗ Big ridership decline due to COVID, no sign of recovering.

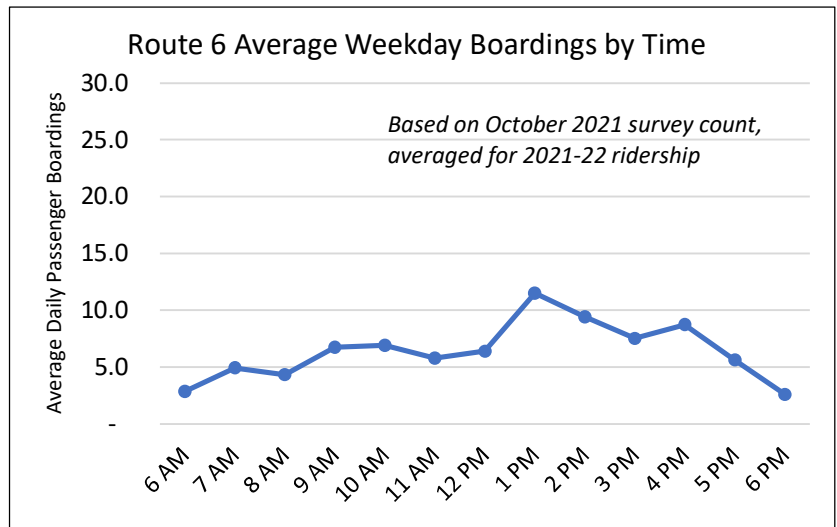
ROUTE 6 SOUTH Route Profile

ROUTE 6 NORTH Route Profile

Canby Transfer Center	Victor/ E. Cypress	Victor/ El Vista	Old Alturas/ Bradford	Canby Transfer Center	Shasta College	College View/ Bethel	Canby Transfer Center
C		A		C	B		
6:50 AM Sat: 9:50 AM	:56	:02	:13	:20	:33	:40	:47
THEN EVERY HOUR UNTIL LAST BUS AT:							
6:50	6:56	7:02	7:13 PM	6:20 PM	6:33	6:40	6:47



ROUTE 6 CHURN CREEK/VICTOR		2018-19	2019-20	2020-21	2021-22
Length = Cycle Time = 57 minutes	Annual Boardings	52,157	43,325	21,844	23,952
	Hours	3,655	3,717	3,708	3,723
	Boardings / Vehicle Hour	14.3	11.7	5.9	6.4



STRENGTHS

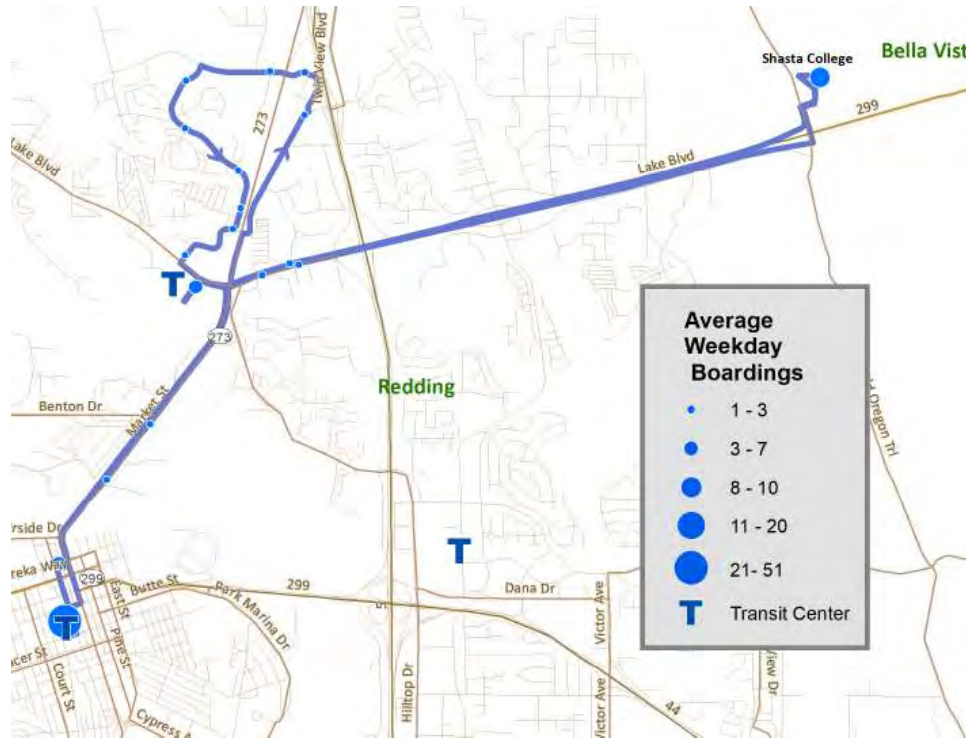
- ✓ Moderate productivity on both north and south loops.
- ✓ Starting to show recovery from COVID.
- ✓ Good transfer opportunities.

CHALLENGES

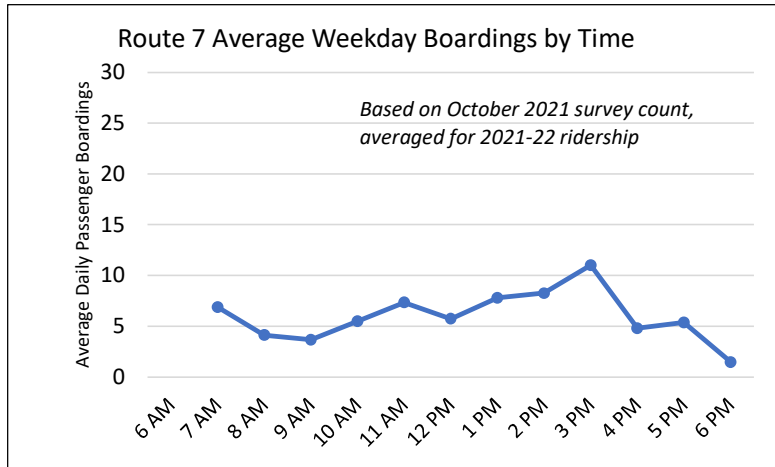
- ✗ Big ridership decline due to COVID
- ✗ Fair on-time performance.

ROUTE 7 Route Profile

Downtown Transit Center D	N. Market/Quartz Hill	Masonic Transfer Center M	Shasta College A	Twin View/Midway B	Masonic Transfer Center M	N. Market/Quartz Hill	Downtown Transit Center
7:20 AM Sat: 10:20 AM	:26	:35	:45	:54	:05	:10	:15
THEN EVERY HOUR UNTIL LAST BUS AT:							
6:20 PM	6:26	6:35	6:45	6:54	7:05	7:10	7:15 PM



ROUTE 7 - MARKET/SHASTA COLLEGE		2018-19	2019-20	2020-21	2021-22
Length = * miles Cycle Time = 55 minutes	Annual Boardings	35,028	40,125	19,319	20,320
	Hours	3,495	3,590	3,506	3,546
	Boardings / Vehicle Hour	10.0	11.2	5.5	5.7



STRENGTHS

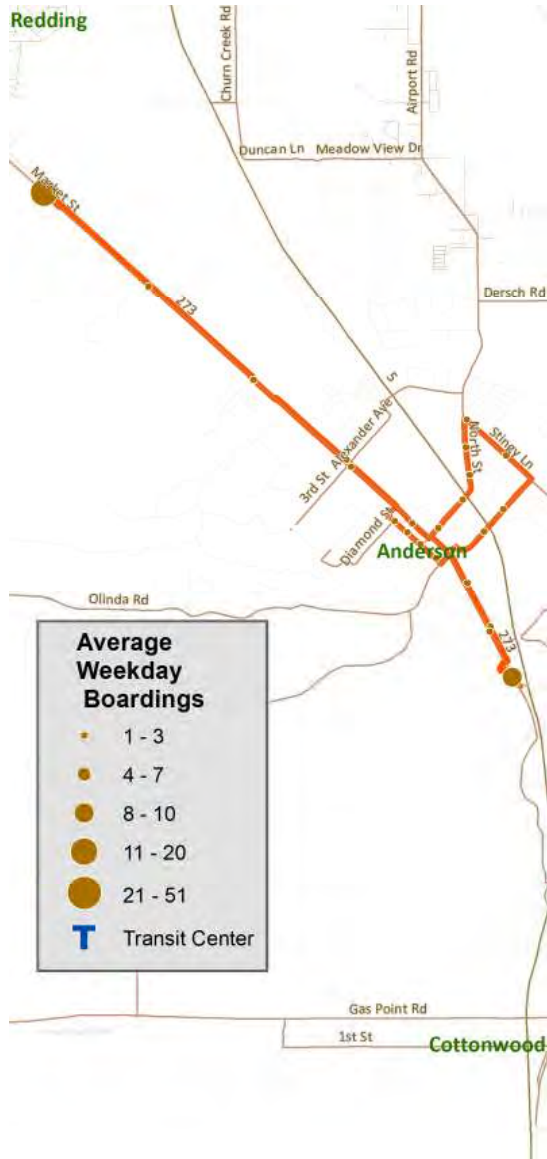
- ✓ Good on-time performance
- ✓ Good transfer opportunities
- ✓ Serves Shasta College

WEAKNESSES

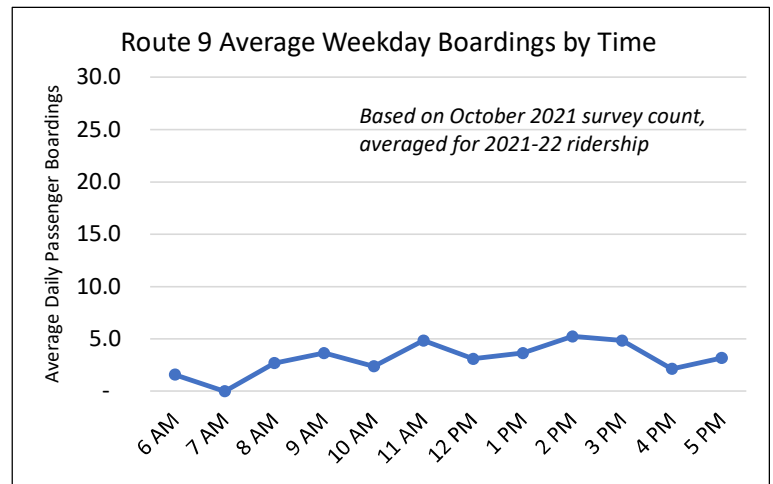
- ✗ Moderately poor productivity

ROUTE 9 Route Profile

5000 Rhonda Rd	Stingy/Daisy	SR 273/ Happy Valley Rd	SR 273/ Happy Valley Rd	Stingy/Daisy	5000 Rhonda Rd
:20	:30	:50	:50	:05	:20



ROUTE 9 - ANDERSON		2018-19	2019-20	2020-21	2021-22
Length = * miles Cycle Time = 54 minutes	Annual Boardings	23,161	20,731	12,106	11,977
	Hours	2,214	2,256	2,251	2,262
	Boardings / Vehicle Hour	10.5	9.2	5.4	5.3



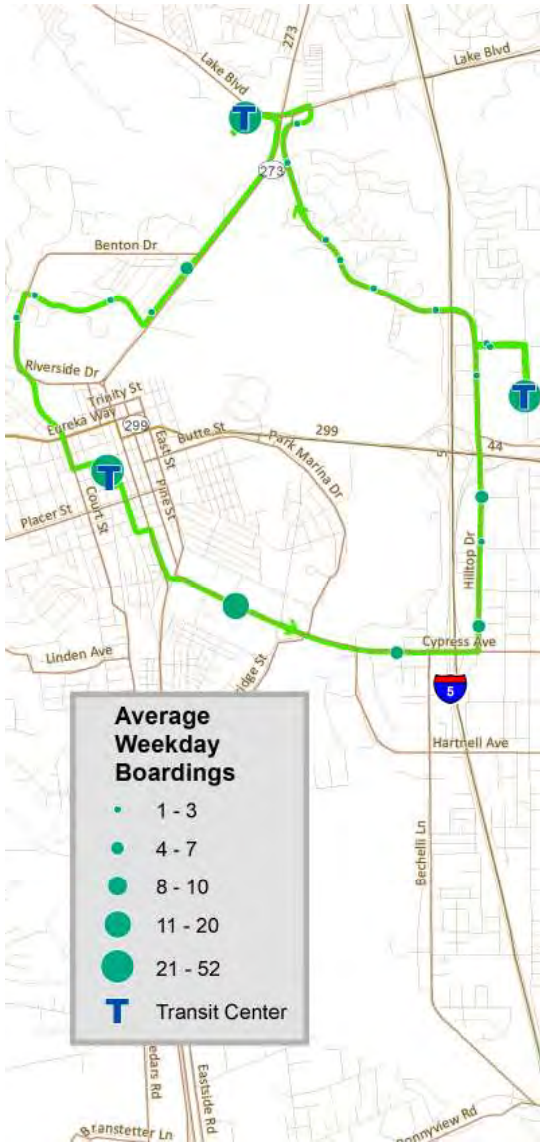
STRENGTHS

CHALLENGES

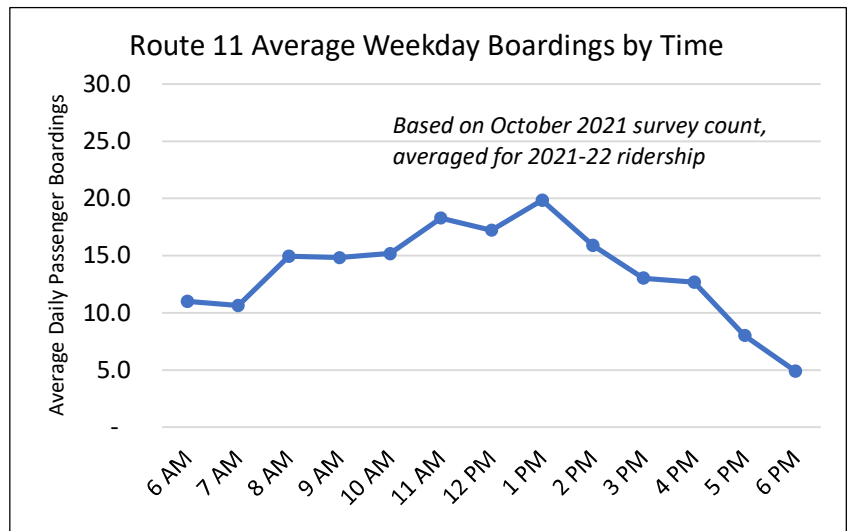
<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Good on-time performance <input checked="" type="checkbox"/> Good transfer opportunities 	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Moderately poor productivity
---	--

ROUTE 11 Route profile

Canby Transfer Center	Hilltop/Mercedes	Masonic Transfer Center	Benton/Quartz Hill	Downtown Transit Center	Cypress/Civic Center	Hilltop/Commerce	Canby Transfer Center
C 6:20 AM Sat: 9:20 AM		M		D			
	:25	:35	:39	:50	:55	:00	:15
6:20 PM	6:25	6:35	6:39	6:50	6:55	7:00	7:15 PM



ROUTE 11 - CYPRESS/HILLTOP CCW	2018-19	2019-20	2020-21	2021-22
Length = * miles				
Cycle Time = 55 minutes				
Annual Boardings	79,686	74,036	53,399	51,395
Hours	3,778	3,845	3,835	3,854
Boardings / Vehicle Hour	21.1	19.3	13.9	13.3



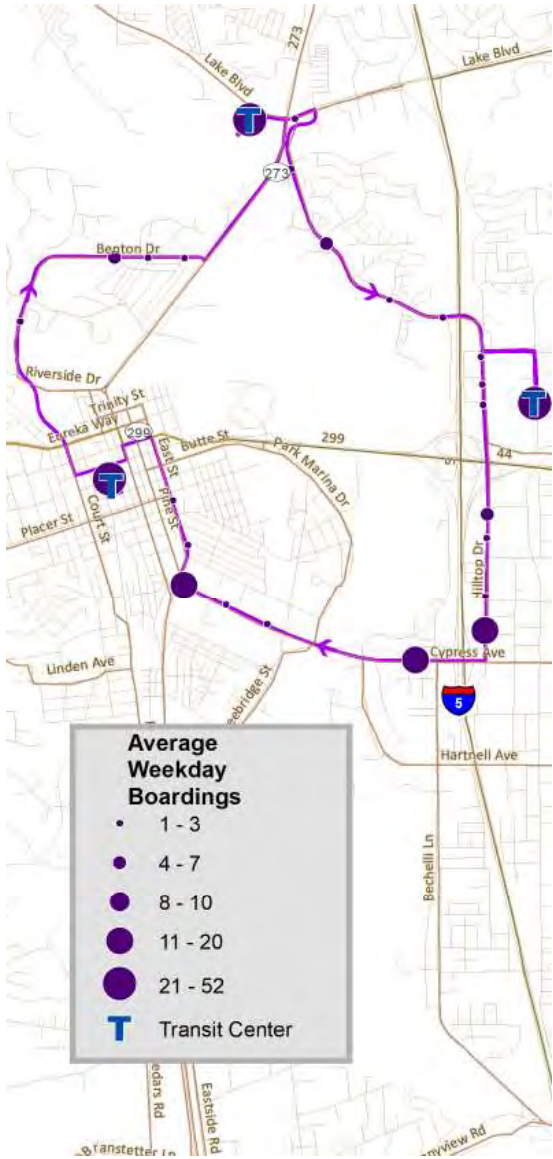
STRENGTHS

CHALLENGES

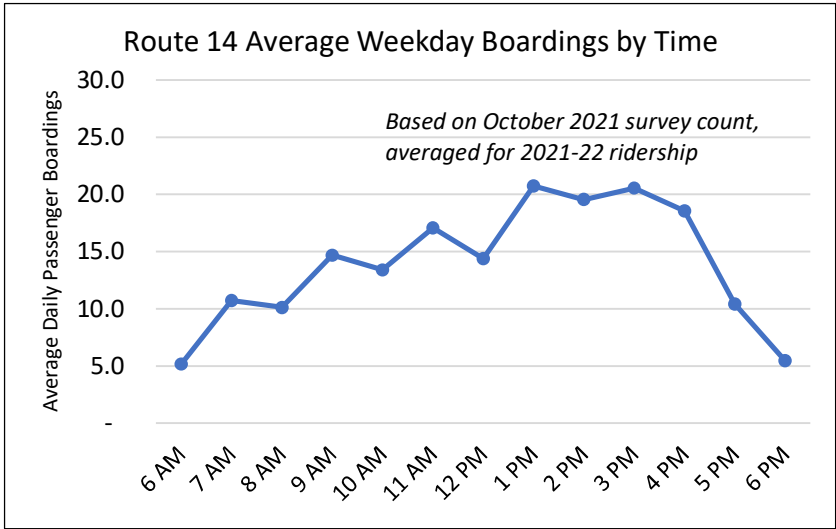
<ul style="list-style-type: none"> ✓ Good on-time performance ✓ Good productivity ✓ Good transfer opportunities - Serves all 3 transit centers ✓ Bi-directional service with Route 14 	<ul style="list-style-type: none"> ✗ Not showing recovery from COVID
---	---

ROUTE 14 Route Profile

Downtown Transfer Center	Benton/Quartz Hill	Masonic Transfer Center	Hilltop/Mercedes	Canby Transfer Center	Hilltop/Commerce	Cypress/Pine	Downtown Transfer Center
D		M		C			
6:20 AM Sat: 9:20 AM	:26	:35	:43	:50	:02	:08	:17
THEN EVERY HOUR UNTIL LAST BUS AT:							
6:20 PM	6:26	6:35	6:43	6:50	7:02	7:08	7:17 PM



ROUTE 14 - CYPRESS/HILLTOP CW		2018-19	2019-20	2020-21	2021-22
Length = * miles Cycle Time = 57 minutes	Annual Boardings	84,436	74,159	59,105	52,823
	Hours	3,778	3,846	3,863	3,854
	Boardings / Vehicle Hour	22.3	19.3	15.3	13.7

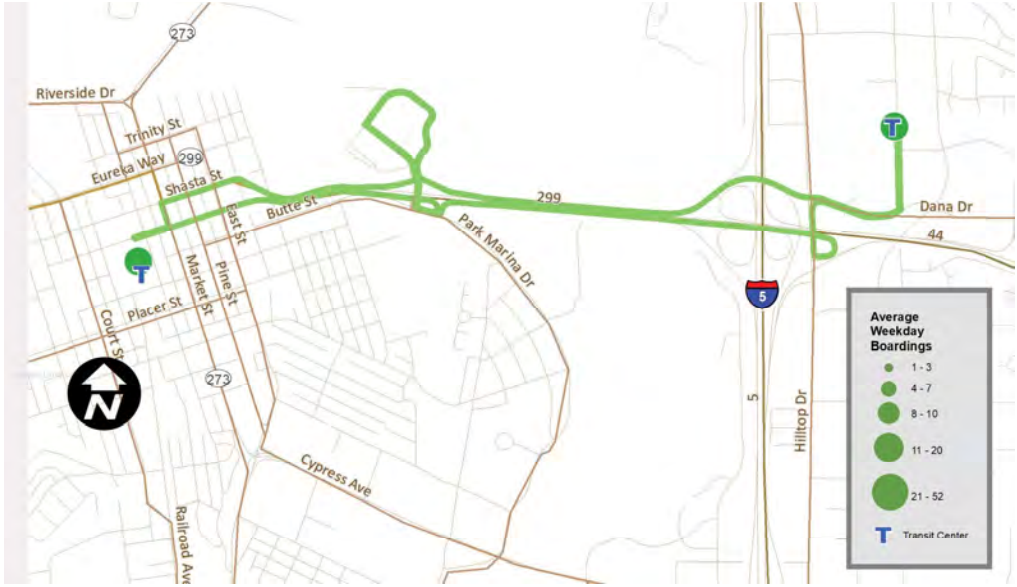


STRENGTHS

CHALLENGES

<ul style="list-style-type: none"> ✓ Most productive route ✓ Bi-directional service with Route 11 ✓ Good transfer opportunities - Serves all 3 transit centers 	<ul style="list-style-type: none"> ✗ Not showing recovery from COVID
---	---

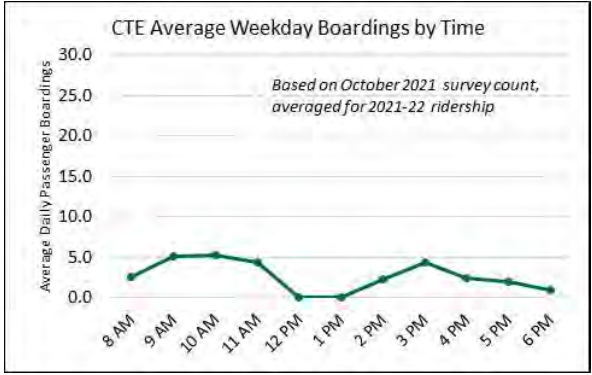
CROSSTOWN EXPRESS (CTE) Route Profile			
Canby Transfer Center C	Redding Civic Auditorium	Downtown Transit Center D	Redding Civic Auditorium
8:20 AM 8:50 AM	:25 :55	:35 :05	:40 :10
THEN EVERY 1/2 HOUR* UNTIL LAST BUS AT:			
6:20 PM	6:25	6:35	6:40
* No service from 12:20 - 2:50 PM			



Service Summary

- 1 Peak Bus to Operate
- Late 10% of runs

ROUTE 18 - CROSSTOWN EXPRESS		2018-19	2019-20	2020-21	2021-22
Cycle Time = 27 minutes	Annual Boardings	11,927	7,065	7,813	7,465
	Hours	1,571	1,596	1,601	1,613
	Boardings / Vehicle Hour	7.6	4.4	4.9	4.6



STRENGTHS

- ✓ Good on-time performance
- ✓ Good transfer opportunities
- ✓ Frequent service

CHALLENGES

- ✗ Moderately poor productivity

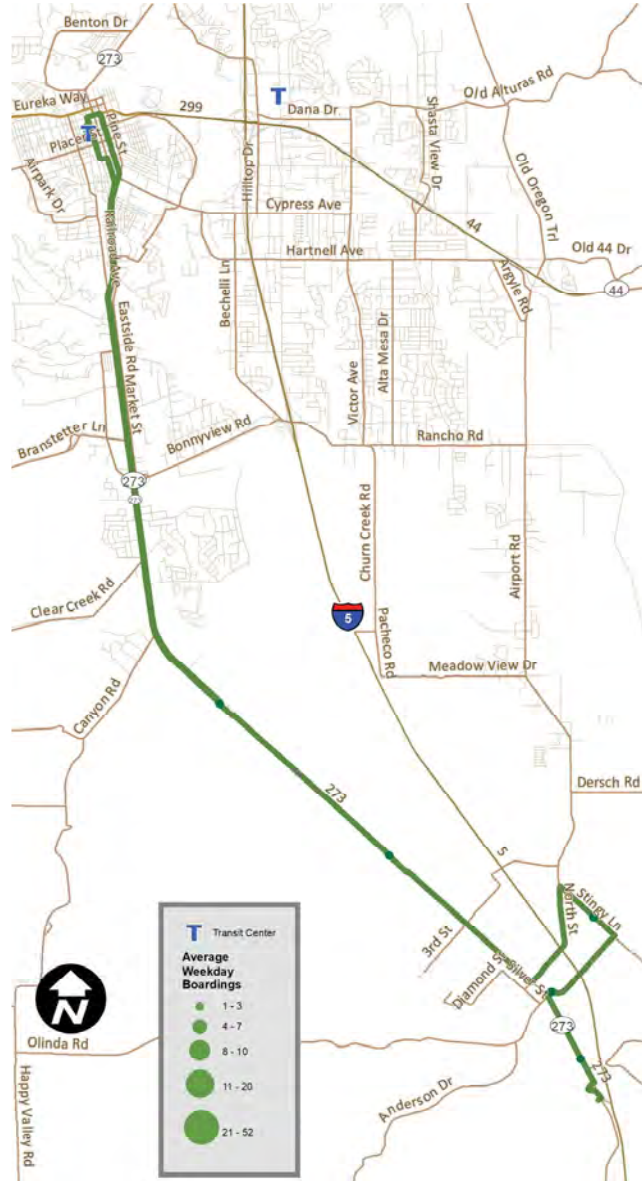
ANDERSON COMMUTER (AC)* Route Profile

SR 273 at Happy Valley Rd	Downtown Transit Center	Downtown Transit Center	SR 273 at Happy Valley Rd	5000 Rhonda Rd
	D	D		
6:50 AM	7:10	7:20	7:40	8:15

* Only timed stops are shown. See list and/or schedule for all stops.

Service Summary

- 1 Peak Bus to Operate
- Late 4% of runs



ROUTE 12 - ANDERSON COMMUTER		2018-19	2019-20	2020-21	2021-22
Cycle Time = 57 minutes	Annual Boardings	1,608	1,091	1,046	1,164
	Hours	377	383	382	389
	Boardings / Vehicle Hour	4.3	2.8	2.7	3.0

STRENGTHS

- Very good on-time performance
- Combined with Route 9, serves Anderson

CHALLENGES

- Poor productivity
- Limited Service

SCHOOL EXPRESS (SE)* Route Profile

AM

	Downtown Transit Center	Shasta View/Tarmac	Shasta View/Inspiration	Shasta View/Hemingway	Shasta View/Simpson	College View/Shasta View	College View/Mercy Oaks	College View/Old Oregon Trail	Shasta College	Downtown Transit Center**
Mon-Fri	7:30 AM	7:37 AM	7:40 AM	7:42 AM	7:44 AM	7:46 AM	7:48 AM	7:50 AM	7:52 AM	—

PM

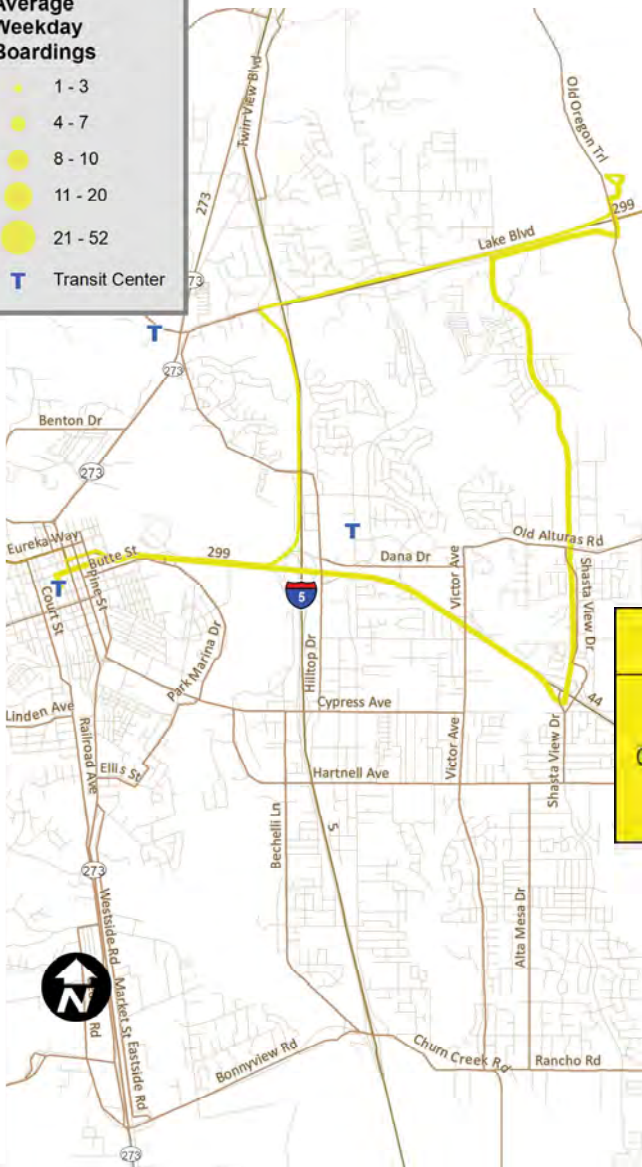
Mon	—	—	1:20 PM	1:22 PM	1:24 PM	1:26 PM	1:28 PM	1:30 PM	1:32 PM	1:50 PM
Tues-Fri	—	—	3:20 PM	3:22 PM	3:24 PM	3:26 PM	3:28 PM	3:30 PM	3:32 PM	3:50 PM

* Service during the school year only; ** Arrival (not departure) time
 — = NO SERVICE

Average Weekday Boardings

- 1 - 3
- 4 - 7
- 8 - 10
- 11 - 20
- 21 - 52

T Transit Center



Service Summary

- School Express AM, 7:30 AM - 7:53 AM
- School Express Monday PM, 1:20- 1:50 PM
- School Express T-F Pm, 3:20 - 3:50 PM
- 1 Peak Bus to Operate
- Late 10% of runs

ROUTE 17 - SCHOOL EXPRESS		2018-19	2019-20	2020-21	2021-22
Cycle Time = 22 to 30 minutes	Annual Boardings	1,290	350	0	451
	Hours	182	136	0	180
	Boardings / Vehicle Hour	7.1	2.6	--	2.5

STRENGTHS

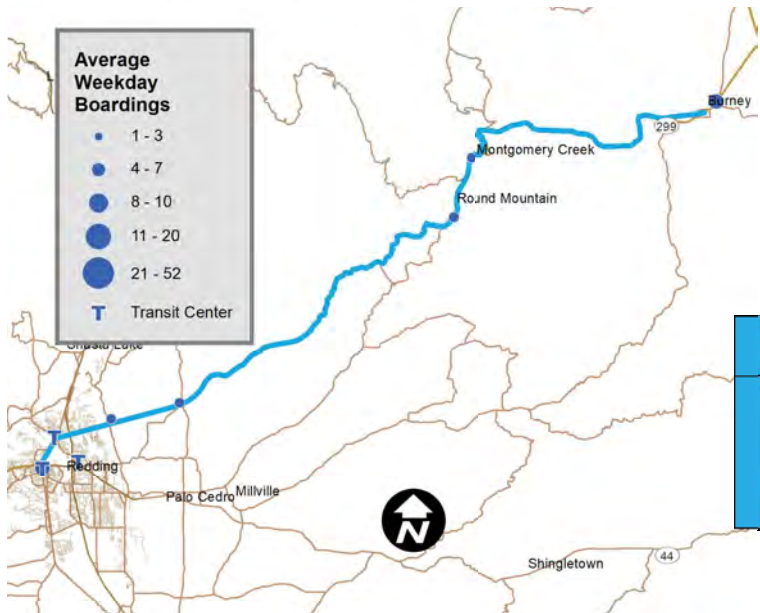
Good on-time performance

CHALLENGES

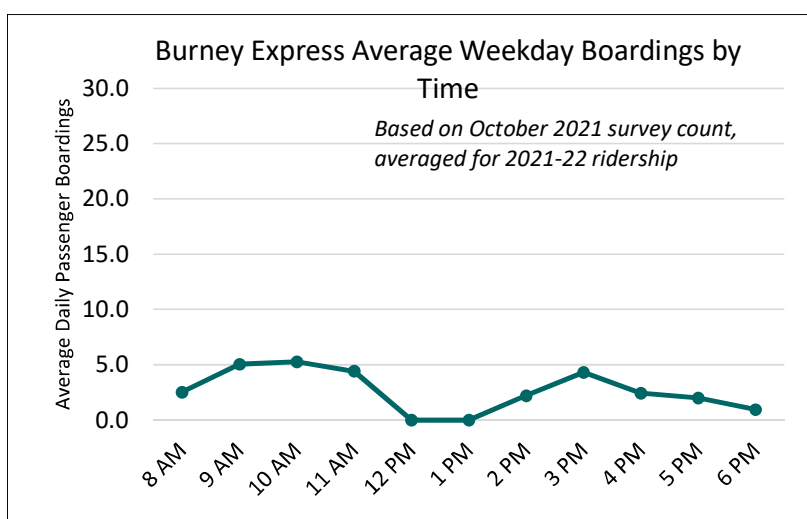
- Highest percentage of ridership decline due to COVID
- Least productive route

BURNEY EXPRESS (BE)*Route Profile						
WEST						
	Burney (@ Burney Sporting Goods)	Montgomery Creek (@ Montgomery Creek Library)	Round Mountain (@ Round Mtn Store / Café)	Bella Vista (@ My-T Fine Foods)	Shasta College	Redding (@ Downtown Transit Center)
Mon-Fri	5:50 AM	6:15 AM	6:25 AM	6:55 AM	7:05 AM	7:15 AM
Mon-Fri	11:50 AM	12:15 PM	12:25 PM	12:55 PM	1:05 PM	1:15 PM
Mon-Fri	3:50 PM	4:15 PM	4:25 PM	4:55 PM	5:05 PM	5:15 PM
EAST						
	Redding (@ Downtown Transit Center)	Shasta College	Bella Vista (@ My-T Fine Foods)	Round Mountain (@ Round Mtn Store / Café)	Montgomery Creek (@ Montgomery Creek Library)	Burney (@ Burney Sporting Goods)
Mon-Fri	10:25 AM	10:35 AM	10:45 AM	11:15 AM	11:25 AM	11:50 AM
Mon-Fri	2:25 PM	2:35 PM	2:45 PM	3:15 PM	3:25 PM	3:50 PM
Mon-Fri	5:35 PM	5:45 PM	5:55 PM	6:25 PM	6:35 PM	7:00 PM

* Fares: Burney to Round Mountain/Montgomery Creek is \$2.00; Burney to Bella Vista/Shasta College is \$3.50; Burney to Redding is \$5.00
 Redding to Burney is \$5.00; Redding to Round Mountain/Montgomery Creek is \$3.50; Redding to Shasta College/Bella Vista is \$2.00



BURNEY EXPRESS		2018-19	2019-20	2020-21	2021-22
Cycle Time = 170 minutes	Annual Boardings	4,981	5,224	2,759	2,698
	Hours	2,270	2,320	2,304	2,329
	Boardings / Vehicle Hour	2.2	2.3	1.2	1.2



<input checked="" type="checkbox"/> Provides service to SR 299 corridor	<input checked="" type="checkbox"/> Very poor productivity
	<input checked="" type="checkbox"/> Limited service

Table B1: Summary of RABA On-Time Performance

Weekdays in Month of April, 2022

Route	North/West Bound				South/East Bound				Loop/Extra Route				Total			
	Early/ On Time	5-15 Min Late	> 15 Min Late	Total Late	Early/ On Time	5-15 Min Late	> 15 Min Late	Total Late	Early/ On Time	5-15 Min Late	> 15 Min Late	Total Late	Early/ On Time	5-15 Min Late	> 15 Min Late	Total Late
1 Masonic/Shasta Lake	-	-	-	-	-	-	-	-	72%	27%	1%	28%	72%	27%	1%	28%
2E Downtown to Park Marina	-	-	-	-	-	-	-	-	81%	19%	0%	19%	81%	19%	0%	19%
2W Downtown to Buenaventura/Mercy Medical (CW)	-	-	-	-	-	-	-	-	90%	10%	0%	10%	90%	10%	0%	10%
2W Downtown to Buenaventura/Mercy Medical (CCW)	-	-	-	-	-	-	-	-	84%	16%	0%	16%	84%	16%	0%	16%
3 Downtown to Happy Valley	52%	47%	0%	48%	86%	14%	0%	14%	-	-	-	-	72%	28%	0%	28%
4 Canby to Loma Vista/Bechelli	89%	11%	0%	11%	87%	13%	1%	13%	-	-	-	-	88%	12%	0%	12%
5 Downtown to Hartnell/Enterprise Park	91%	9%	0%	9%	67%	32%	0%	33%	-	-	-	-	80%	19%	0%	20%
6N Canby to Shasta College	84%	16%	0%	16%	90%	10%	0%	10%	-	-	-	-	87%	13%	0%	13%
6S Canby to Enterprise Park	90%	10%	0%	10%	69%	31%	0%	31%	-	-	-	-	80%	20%	0%	20%
7 Downtown to Masonic and Shasta College	88%	12%	0%	12%	97%	3%	0%	3%	-	-	-	-	94%	6%	0%	6%
9 Walmart to Happy Valley	90%	10%	0%	10%	92%	8%	0%	8%	-	-	-	-	91%	9%	0%	9%
11 Canby-Masonic-Downtown Circulator	-	-	-	-	-	-	-	-	85%	15%	0%	15%	85%	15%	0%	15%
14 Downtown-Masonic-Canby Circulator	-	-	-	-	-	-	-	-	82%	18%	0%	18%	82%	18%	0%	18%
12X Anderson Commuter	96%	4%	0%	4%	96%	4%	0%	4%	-	-	-	-	96%	4%	0%	4%
18 Crosstown Express	91%	9%	0%	9%	89%	11%	0%	11%	-	-	-	-	90%	10%	0%	10%
17 School Express	96%	4%	0%	4%	85%	15%	0%	15%	-	-	-	-	90%	10%	0%	10%
Subtotal: Redding Routes	83%	17%	0%	17%	83%	17%	0%	17%	82%	18%	0%	18%	83%	17%	0%	17%
Subtotal: Transit Center Circulators	-	-	-	-	-	-	-	-	84%	16%	0%	16%	84%	16%	0%	16%
Subtotal: Commuter/Crosstown	93%	7%	0%	7%	91%	9%	0%	9%	-	-	-	-	92%	8%	0%	8%
TOTAL: All Routes	88%	12%	0%	12%	87%	13%	0%	13%	83%	17%	0%	17%	86%	14%	0%	14%

COMMUNITY WORKSHOP PRESENTATIONS

RABA SRTP COMMUNITY WORKSHOPS

Two community workshops were held during the development of the Redding Area Bus Authority (RABA) Short Range Transit Plan (SRTP). The first workshop was held on November 21, 2022, and presented results from the existing conditions analysis presented in Chapters 1 through 3 of the main report. The second workshop was held on May 8, 2023, and presented the alternatives analysis presented in Chapters 6 through 11. Both workshops were held at Redding City Hall. The following pages contain condensed versions of the two community workshop presentations.

Redding Area Bus Authority Short Range Transit Plan

Presentation of Existing Transit Conditions



Your communities

Who lives in the Redding area?
 What drives mobility needs?



Your transit services

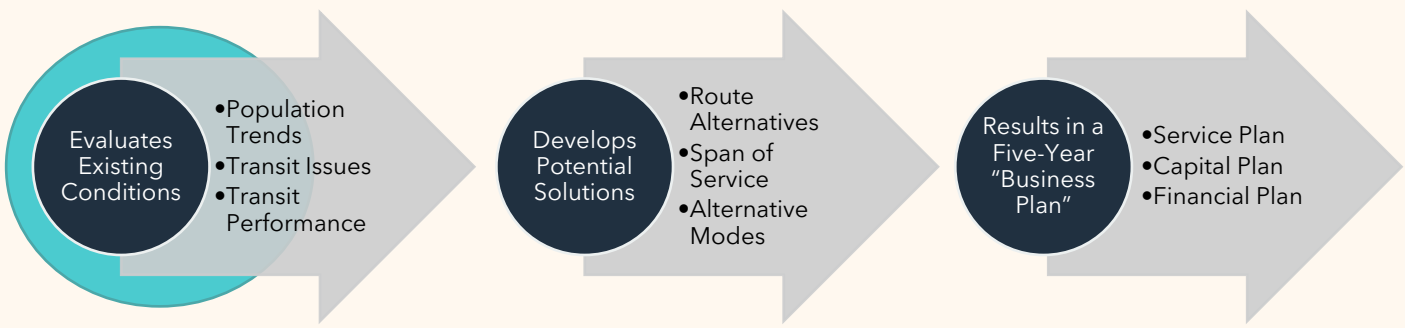
What services are available to get around?
 How is RABA performing?



Your direction

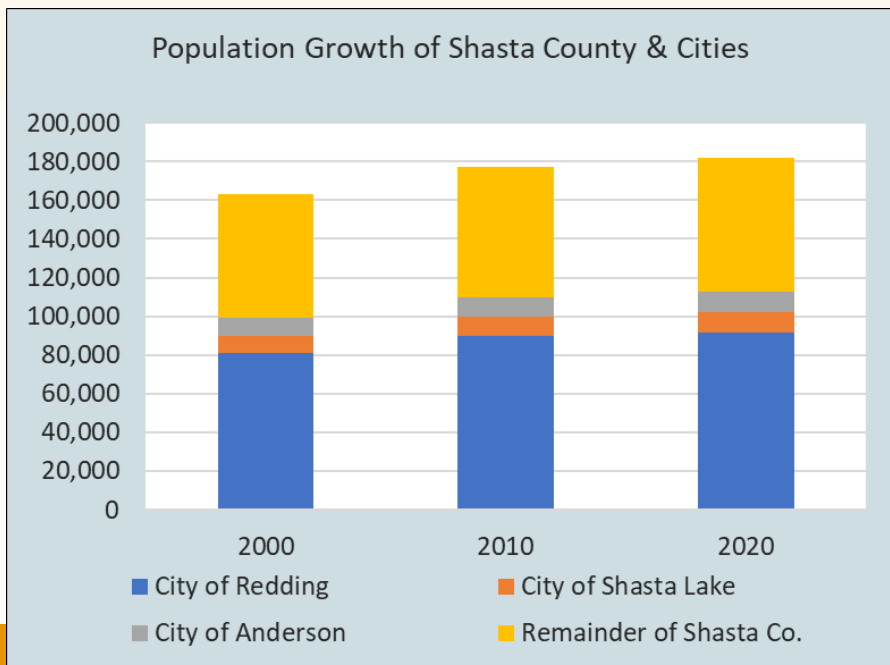
What have surveys told us?
 Where do we go from here?

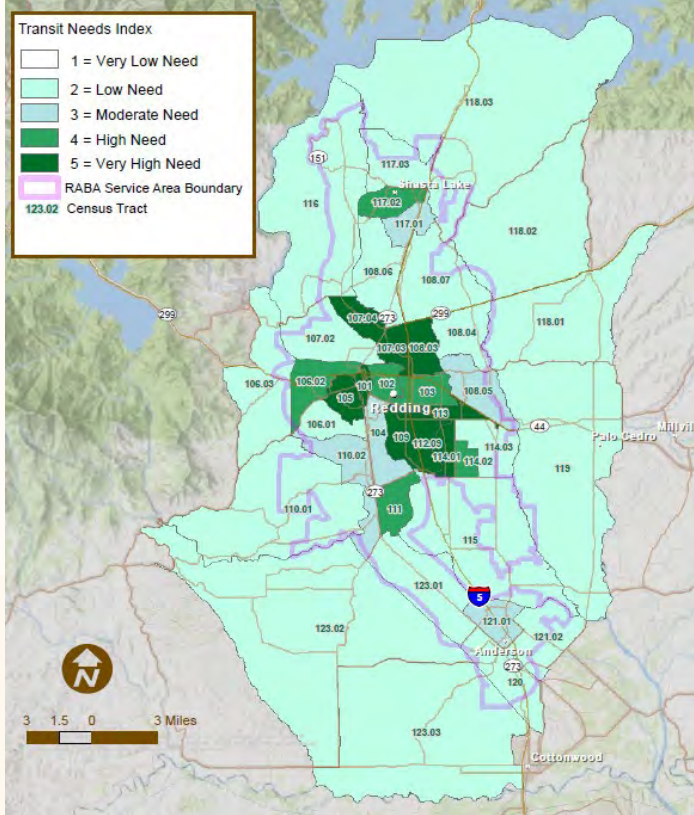
What is a Short Range Transit Plan?



Population Trends

- Shasta County’s population grew by just 0.3% annually in the last decade, and by 0.9% annually in the decade before that. The City of Redding grew at a similar rate.
- The City of Anderson grew by at the fastest pace in the last decade, followed by the City of Shasta Lake, but growth was slow in all areas.
- The Redding Area has a higher proportion of elderly, persons with disabilities, and persons in poverty compared to the rest of California





Transit Needs

The Transit Needs Index considers where people live who are elderly, young, have a disability, are low-income, or live in a household without a car available.

The map shows greater need in areas that are darkest.

Areas with the highest need are currently in the RABA service area.

Transit Issues

We heard from...

- Passengers
- Stakeholders
- College Students
- The Public

Options for Analysis

- Frequent Service
- Later Service
- More Weekend Service
- More Locations
- More Express
- Improved First Mile/Last Mile
- Cost Efficient
- Evaluate Frequency Vs. coverage



RABA Overview

Redding Routes

- 10 local routes
- Mostly hourly service
- Service 6:30 AM to 7:30 PM weekdays, 9:30 AM to 7:30 PM Saturdays, no Sunday service

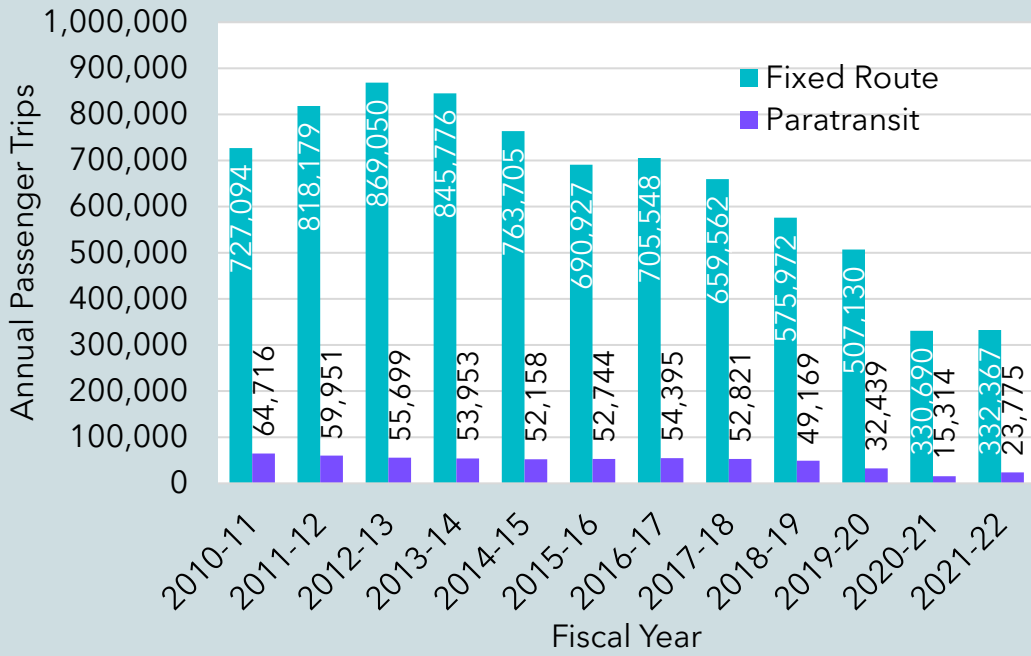
Commuter Routes

- Anderson Commuter, Cross Town Express and School Express

Paratransit

- Complements fixed route

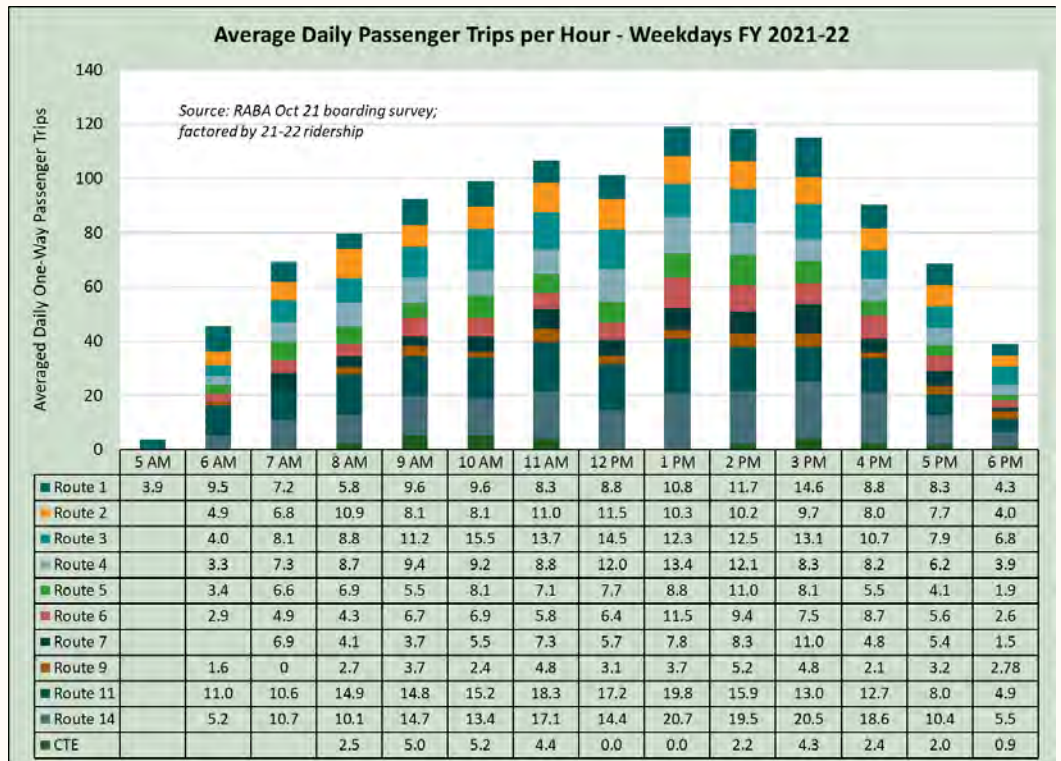
RABA Ridership by Year



- Fixed route ridership peaked in 2012-13 at 869,050 and dropped to 575,130 pre-COVID.
- During COVID, ridership has been just over 330,000.
- Ridership recovery has been slow.

- Ridership peaks midday and drops after 4 PM
- Routes 11 and 14 are the most efficient (highest number of passengers carried per hour)
- The Cross Town Express (CTE), Route 9, and Route 6 are least efficient.
- Route 6 ridership is tied to student use and has the potential to rebound

Average Daily Passenger Trips per Hour - Weekdays FY 2021-22



Where do we go from here? What will we evaluate?



Fixed Route Alternatives

- Revise or eliminate poor performing routes
- Streamline route alignments
- Combine routes (such as routes 3 and 9)
- Increase frequency on 11 & 14
- Evaluate service areas



Microtransit Alternatives

- Evaluate the potential for microtransit. May be coupled with fixed route changes.
- Seek first mile/last mile solutions.



Span of Service

- Weekdays to 9 PM or 10 PM, with combinations of microtransit and fixed route service
- Earlier Saturday service
- Eliminate Route 5 and 7 Saturdays

What is microtransit?

- Riders use an app on their phone (or call) to request a ride, like Uber or Lyft
- Service is available to all, within a specific zone and to/from a transit hub
- Service is typically provided within 15-30 minutes of a ride request
- Possible service areas: Anderson, West Redding, East Redding, North Redding



Stay Involved!

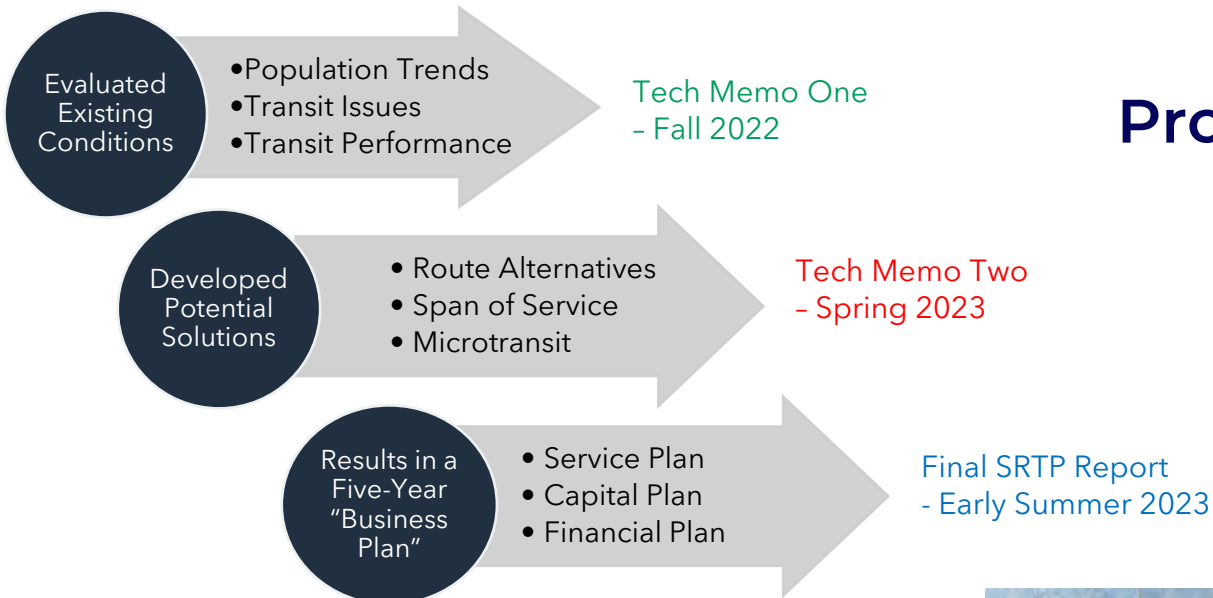
- Check the RABA website for updates and study reports
- Sign up to receive an invitation to the next workshop
- Spread the word!

Contact Selena McKinney of LSC Transportation Consultants, Inc. for more information at Selena@lsctrans.com



Redding Area Bus Authority Short Range Transit Plan

Presentation of Alternatives



Project to Date

- Surveyed passengers on buses (*Summer 2022*)
- Surveyed the community and Shasta College students online (*Fall of 2022*)
- Interviewed stakeholders (*Fall of 2022*)
- Presented TM1 findings at a pop-up event and at a community open house workshop (*November 2022*)
- Presented TM2 findings at a community workshop and to RABA Board (*May 2022*)

Contact **John Andoh** of RABA for more information at Jandoh@cityofredding.org



Project Engagement

Microtransit

How does it work?

- Riders use an app on their phone (or call) to request a ride, like Uber or Lyft
- Available to all, within a specific zone and to/from a transit hub
- Rides are typically provided within 15-30 minutes of a request.

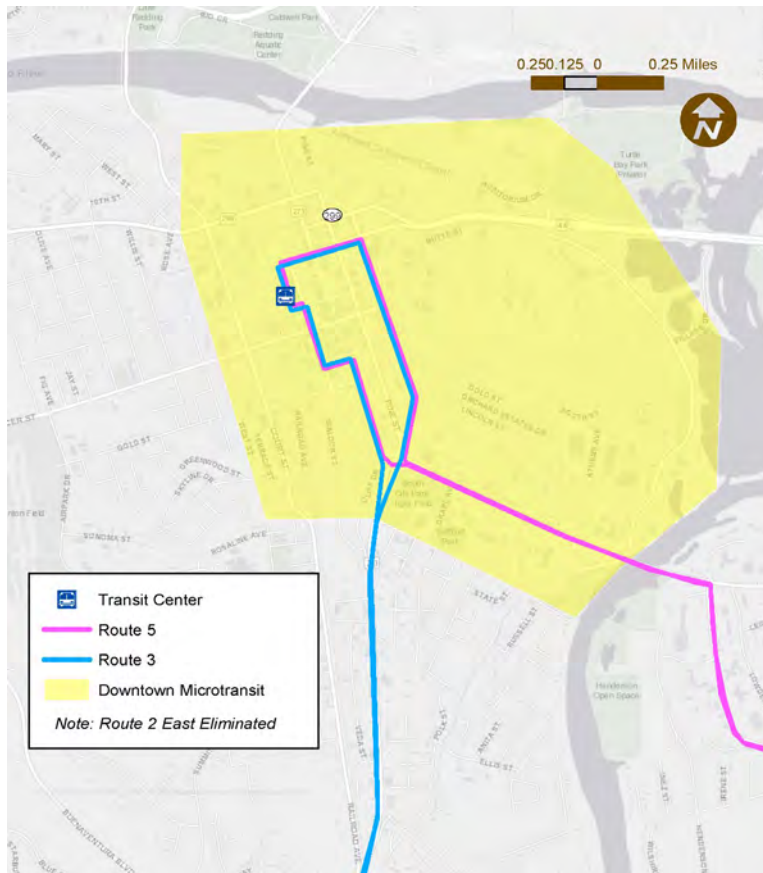
Five Zones were evaluated

- “Unconstrained” options tell what it would take to replace fixed routes.
- “Constrained” options tell how much service could be provided with current resources.

RABA SRTP Microtransit Zones



Fixed Routes & Microtransit



Downtown Microtransit Zone

Route 2E eliminated, served by Microtransit & Route 3

Route 5 travels directly to Cypress St

16 bus stops eliminated

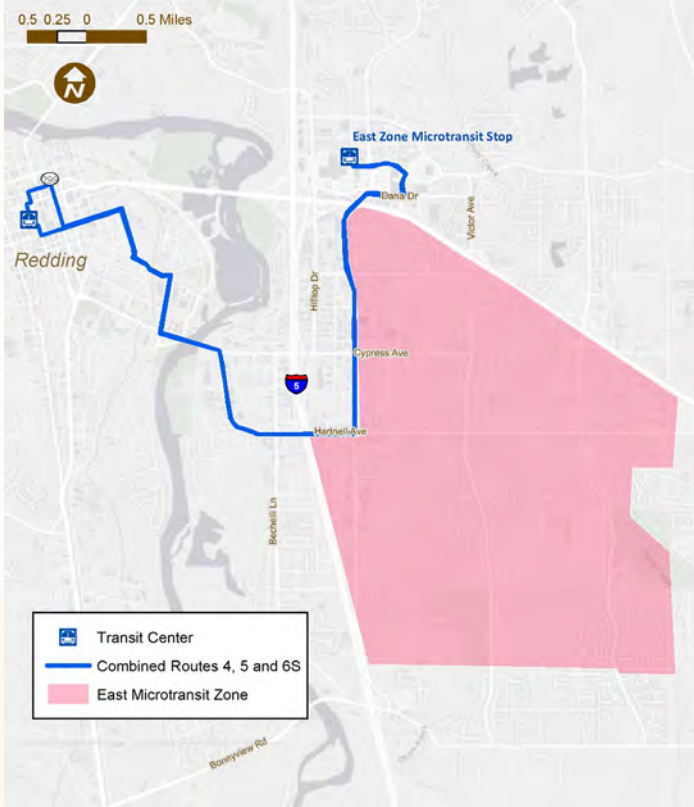
½ vehicle eliminated

+100 passenger-trips, +\$31,900 operating costs

North Microtransit Zone

- Microtransit same hours as fixed routes, with shortened Rts 1 & 7

- +4,000 passenger-trips, +\$205,800 operating costs



Fixed Routes/Microtransit

East Microtransit Zone

Routes 4 & 5 combined, 6S eliminated

Unconstrained Option

Two vehicles at peak service
 +1,100 passenger-trips, +\$36,000 operating costs

Constrained Option

One vehicle at peak service
 -1,300 passenger-trips, +\$14,000 operating costs

West Microtransit Zone

Route 2W eliminated
 +800 passenger-trips, +\$4,300 operating costs

Downtown & West Zones

Route 2W and 2E eliminated

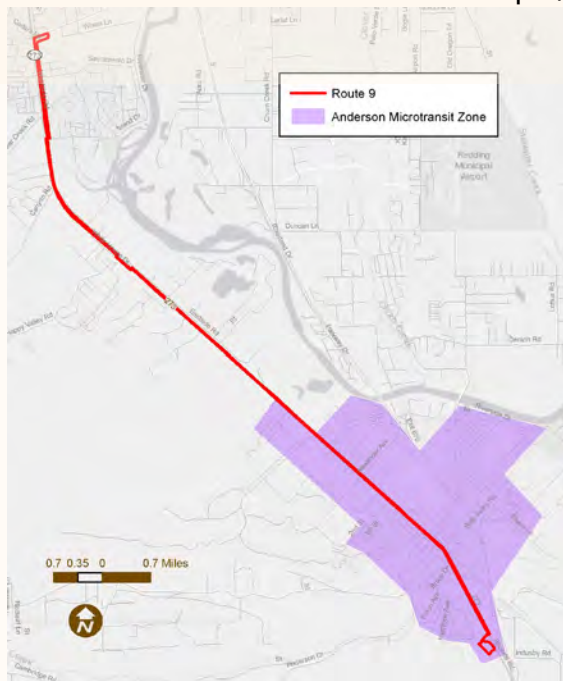
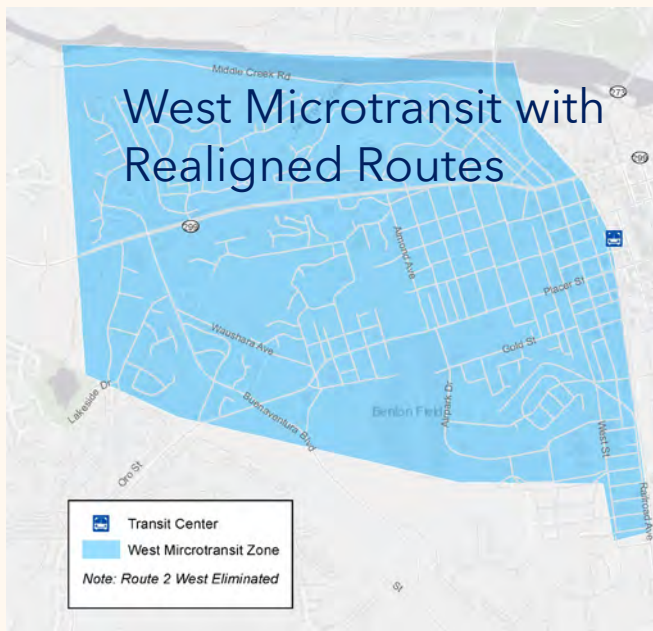
Routes 3 and 5 streamlined

Unconstrained

+ 200 passenger trips,
 + \$15,200

Constrained

-10,400 passenger trips,
 -\$147,200



Anderson Zone

One van alternating between Microtransit & Route 9

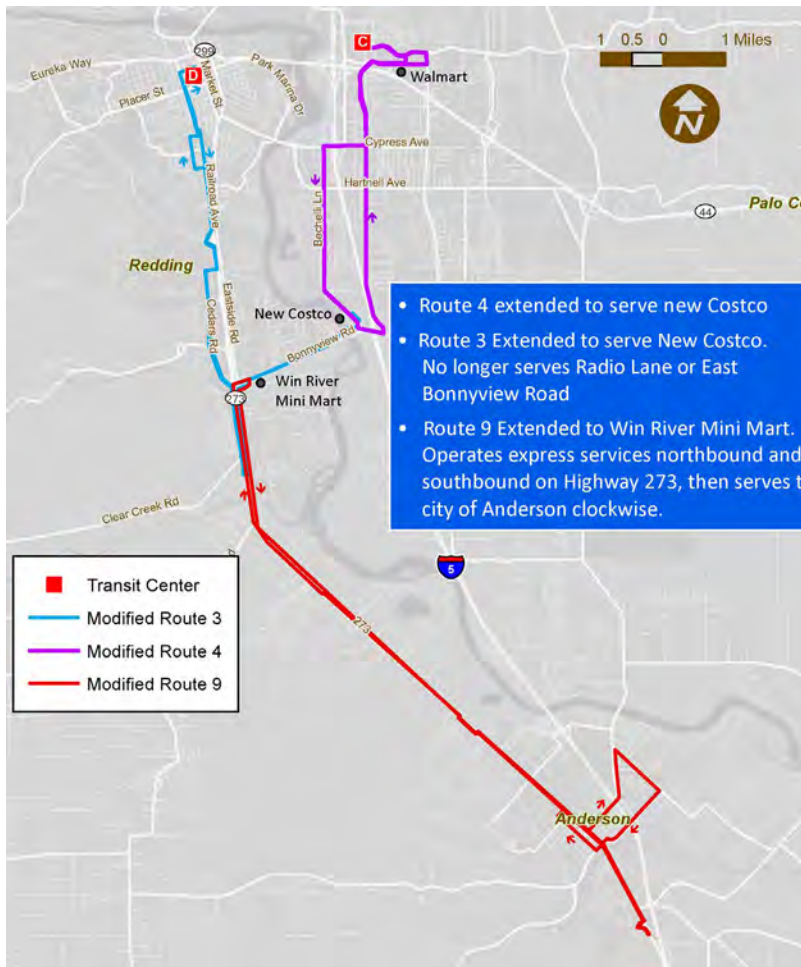
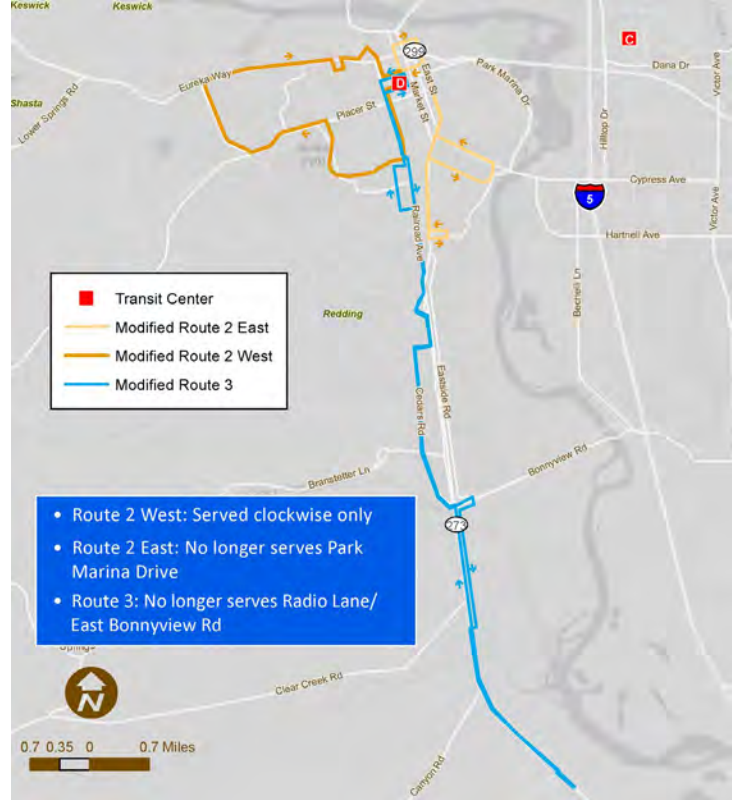
Route 9 - 40-minute express trip every 2 hours between Walmart and Win River Mini Mart

+6,800 passenger-trips, +\$177,300 in operating costs

Alternatives to Reduce Routes & Improve Performance

- Rt. 1: Eliminate Caterpillar Loop **
- Rt. 1: Eliminate Lake Blvd North of Oasis Rd
- Rt. 2: West Clockwise Only, Reduced Diversion **
- Rt. 2: West Clockwise, East Direct **
- Rt. 3: Eliminate Loop East of Hwy 273 **
- Rt. 4: Remove Stop on Maraglia St. **
- Rt. 4: Remove Maraglia, Return by Cypress **
- Rt. 5: Return via Alta Mesa/Marlene/Victor **
- Rt. 11: Stay on S. Market Street **
- Rt. 14: Stay on Canby to Dana Drive

** = meets performance standards



Other Potential Changes to Fixed Routes

- Eliminate Cross Town Express **
 - Extend Cross Town Express to Walmart **
 - Route 2 East every 30 minutes instead of CTE
 - Routes 3 & 9 - meet at Win River Mini Mart (Rt 9 hourly or peak hours**)
 - Extend Route 4 to Costco **
 - Eliminate Anderson Commuter **
- ** = meets performance standards

Span of Service Alternatives

Sunday Service (10 AM to 4 PM)

- Routes 3, 4, 11, 14 and paratransit

Later Weekday Service (To 9:15 PM)

- Routes 1, 2, 3, 4, 11, 14 and paratransit

End Weekday Service at 6:15 PM

- All fixed routes and paratransit **

Eliminate Routes 5 and 7 on Saturdays **

- ** = meets performance standards

This page intentionally left blank

DETAILED ONBOARD SURVEY RESULTS

RABA ONBOARD SURVEY RESULTS

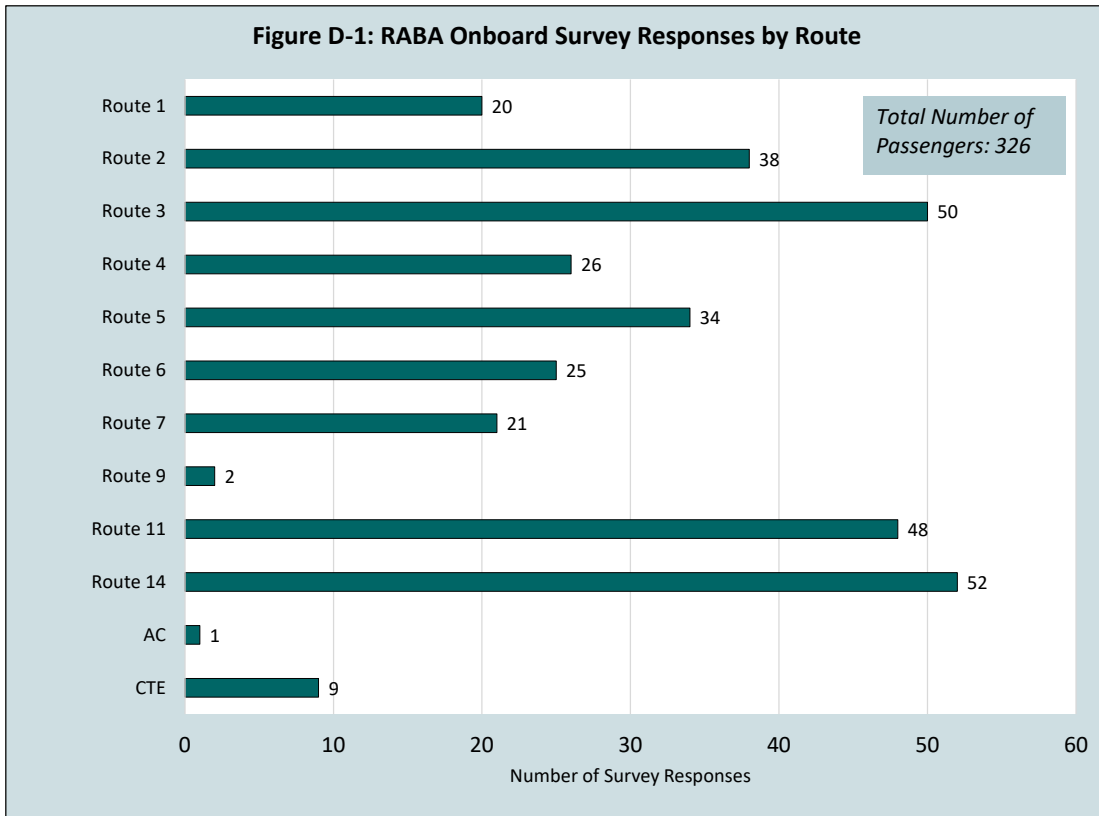
An onboard passenger survey was conducted as a part of the planning process for the Redding Area Bus Authority (RABA) Short Range Transit Plan (SRTP) from July 12 to July 16, 2022. Trained survey staff were onboard on all fixed routes except the Anderson Commuter Bus, the Burney Express, or the Beach Bus throughout the week to distribute and collect surveys, in addition to assisting passengers with any questions. Surveyors did not ride on the School Express due to it not being in operation at the time of the survey, and surveyors did not ride on any Dial-a-Ride vehicles. Passengers on every RABA service still had the opportunity to answer the survey virtually by scanning QR codes posted on flyers onboard.

The survey instruments 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 surveys included a simple introduction, with 17 questions in multiple choice, short-answer, or comment format. Most respondents did not answer every question, therefore the number of answers per question varies.

A total of 328 passengers participated in the survey; all but one of the respondents completed the survey in English. Detailed survey results by question are provided in this Appendix, with highlights provided in the main report.

Q1. Ridership by Route (326 Responses)

RABA passengers responded to the survey on every route where a surveyor was present as well as on the Anderson Commuter bus. The three most popular routes among survey respondents were Routes 14, 3, and 11 (46 percent of respondents). This data reflects overall ridership trends, as Routes 14 and 11 saw the greatest ridership in FY 2021-22 followed by Route 3 (Table 9 in Chapter 3). Passengers on Route 9, the Crosstown Express, and the Anderson Commuter bus constituted less than 5 percent of responses. The low rate of survey participation by passengers on those routes is in part due to lower ridership compared to other services, but on Route 9 in particular may also be due to schedule conflicts that prevented survey staff from being able to ride the Route 9 bus for a full day as well as effects of the Peter Fire on the local Anderson area during the week of surveying. Between 6 to 12 percent of survey participants were riding Routes 1, 2, 4, 5, 6, and 7. Complete results are shown in Figure D-1.



Q2. Boarding Times (265 Responses)

Table D-1 summarizes when RABA passengers boarded the bus by breaking the service day into seven two-hour periods. The greatest number of boardings occurred during midday and early afternoon, with 19 percent of survey respondents reporting to have boarded the bus between 11:30 AM to 1:29 PM and another 23 percent saying they boarded the bus between 1:30 PM to 3:29 PM. Very few respondents boarded during either the first two hours or the final two hours of service (12 percent).

Time	# of Participants	% of Participants
5:30 AM - 7:29 AM	19	7%
7:30 AM - 9:29 AM	41	15%
9:30 AM - 11:29 AM	41	15%
11:30 AM - 1:29 PM	51	19%
1:30 PM - 3:29 PM	60	23%
3:30 PM - 5:29 PM	40	15%
5:30 PM - 7:30 PM	13	5%
Total Responses	265	100%

Q3. Boarding and Alighting Locations (283 and 266 Responses)

Boarding and alighting information is valuable when making decisions about how to best use funds dedicated to maintaining and improving bus stops. Stops with the highest activity among the survey respondents are shown in Tables D-2 and D-3. Unclear answers are those that were either not legible or not specific enough to know which stop was being referred to.

Using the boarding and alighting information provided by respondents, origin and destination patterns were analyzed. Table D-4 shows the percentage of passengers that boarded from a specified location and then alighted at the labeled destination location. It should be noted that stops with only 1 boarding or 1 alighting are not shown in Table D-4. Darker green shades indicate an origin-destination pair that was more popular among the respondents. Most of the popular origin-destination pairs included either the Canby Transfer Center, Downtown Transit Center, Masonic Transfer Center, and Mount Shasta Mall, as these were the stops with the greatest overall number of boardings and alightings.

Table D-2: Top Boarding Locations		
Bus Stop	# of Participants	% of Participants
Downtown Transit Center	54	19%
Masonic Transfer Center	24	8%
Canby Transfer Center	14	5%
Mt. Shasta Mall	7	2%
Hartnell Ave	6	2%
SR 273 @ Happy Valley Road	6	2%
Trinity St @ Liberty St	6	2%
Lake Blvd	5	2%
Parkview Ave @ Akard Ave	5	2%
Bechelli Ln @ Layton Rd	4	1%
Hilltop Dr	4	1%
Old Alturas Rd @ Bradford Way	4	1%
S. Market St @ Grange St	4	1%
Bechelli Ln @ Hartnell Ave	3	1%
Cypress Ave @ Civic Center Dr	3	1%
Shasta College	3	1%
Unclear	22	8%
Other	109	39%
Total Responses	283	100%

Table D-3: Top Alighting Locations		
Bus Stop	# of Participants	% of Participants
Downtown Transit Center	52	20%
Canby Transfer Center	23	9%
Mt. Shasta Mall	13	5%
Masonic Transfer Center	11	4%
Dana Dr @ Bradford Way	7	3%
Hilltop Dr	6	2%
Cypress Ave @ Civic Center Dr	5	2%
Parkview Ave @ Akard Ave	5	2%
Shasta College	4	2%
SR 273 @ Westwood Ave	4	2%
Churn Creek Rd	3	1%
Hartnell Ave @ Arcade Way	3	1%
Lake Blvd	3	1%
Placer St @ Continental St	3	1%
SR 273 @ Happy Valley Rd	3	1%
Athens Ave @ Cypress Ave	2	1%
Unclear	24	9%
Other	95	36%
Total Responses	266	100%

Table D-4: Major Origin/Destination Pairs from Onboard Survey Results

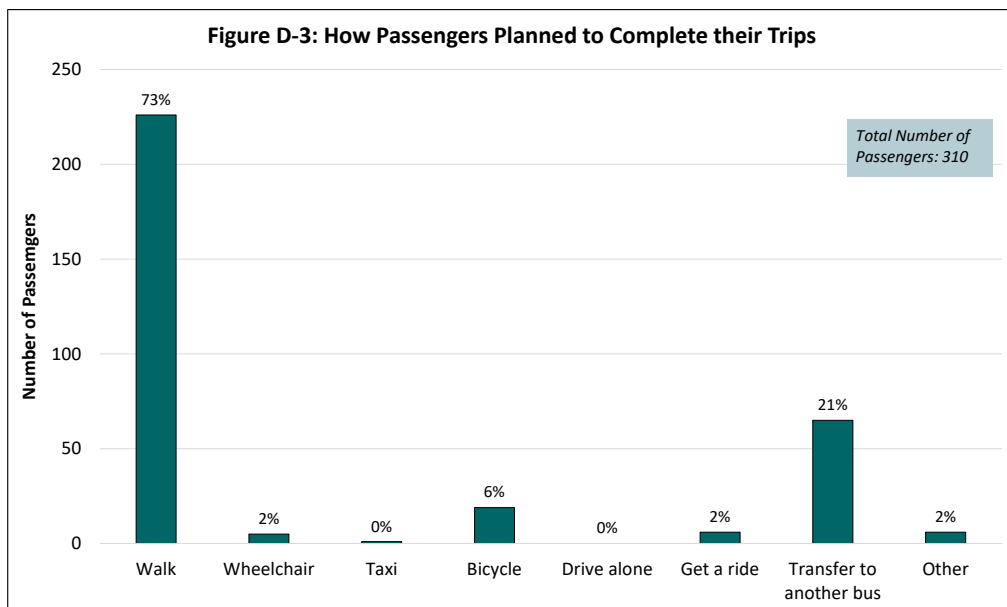
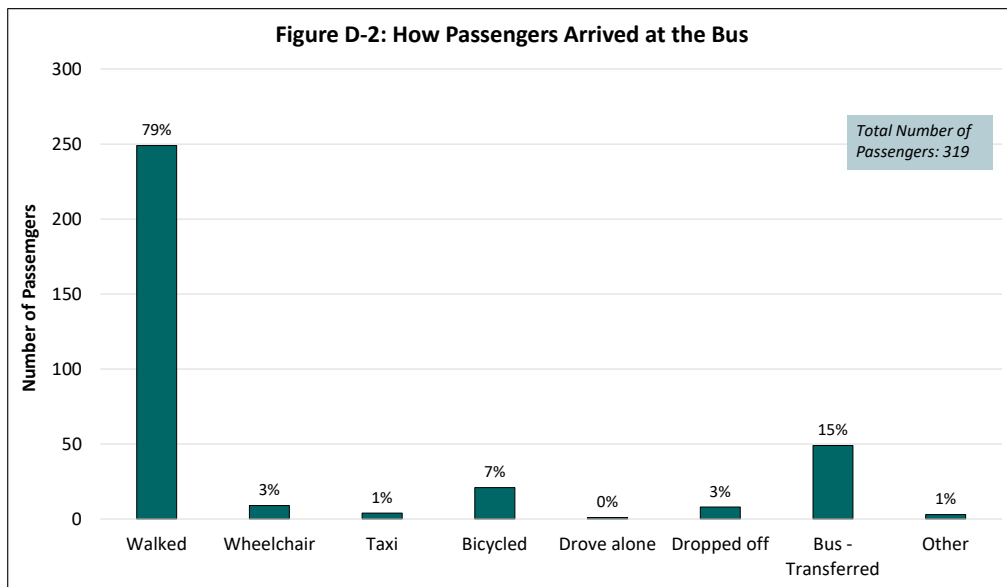
Excludes Stops with 1 Boarding or 1 Alighting

Boarding Stop	Destination Stop																											Total									
	Athens Ave @ Cypress Ave	Benton Dr w/o Delta St	Canby Transfer Center	Churn Creek Rd	Churn Creek Rd @ Hartnell Ave	Churn Creek Rd @ Parsons Dr	College View Dr @ Mercy Oaks Dr	Court St @ Gold St	Cypress	Cypress Ave @ Beverly Dr	Cypress Ave @ Civic Center Dr	Dana Dr	Dana Dr @ Bradford Way	Downtown Transit Center	Hartnell Ave @ Arcade Way	Hilltop Dr	Hilltop Dr @ Presidio St	Hilltop Dr @ St. Thomas Parkway	Lake Blvd	Masonic Transfer Center	Mt. Shasta Mall	Northpoint Dr @ Lake Blvd	Park Marina Dr	Parkview Ave @ Akard Ave	Placer St	Placer St @ Continental St	Railroad Ave @ Grandview		Redding Civic Auditorium	Shasta College	Shasta Dam Blvd	Shasta Dam Blvd @ Lake Blvd	SR 273 @ Happy Valley Rd	SR 273 @ Westwood Ave	Trinity St	Westside Rd @ Kenyon Ave	
Bechelli Ln @ Layton Rd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	
Benton Dr @ Delta St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Benton Dr @ Quartz Hill Rd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Canby Transfer Center	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	6%	
Cascade Blvd @ Riddle Rd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Cascade Blvd @ Shasta Dam Blvd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Cedars Rd @ Concord Ln	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Cedars Rd @ Kenyon Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Churn Creek @ Loma Vista	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Churn Creek Rd @ Cypress Ave	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
College View Dr @ Mercy Oaks Dr	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Cypress Ave @ Civic Center Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Dana Dr @ Bradford Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Downtown Transit Center	0%	0%	2%	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	2%	1%	1%	0%	0%	0%	2%	3%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	21%
El Reno Ln @ Westside Rd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Hartnell Ave	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	
Hartnell Ave @ Victor Ave	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Hilltop Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Hilltop Dr @ Rockaway Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Masonic Transfer Center	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	
Mt. Shasta Mall	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	
N. Market St @ Benton Dr	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Old Alturas Rd @ Bradford Way	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	
Parkview Ave @ Akard Ave	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	
Placer St @ Mesa St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Railroad Ave	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Redding Civic Auditorium	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Shasta College	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Shasta Dam Blvd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Shasta Dam Blvd @ Lake Blvd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Sheridan St @ Court St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
SR 273 @ Canyon Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
SR 273 @ Happy Valley Rd	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	
Trinity St @ Liberty St	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	
Total	1%	1%	10%	2%	1%	1%	1%	1%	1%	2%	1%	1%	21%	1%	3%	1%	1%	1%	6%	6%	1%	1%	2%	1%	1%	1%	1%	1%	1%	2%	1%	1%	1%	1%	1%	100%	

Note 1: Excluding stops with 1 boarding or 1 alighting.

Q4 & Q5. How Passengers Arrived at the Bus (319 Responses), and then Completed Their Journey After Alighting (310 Responses)

Respondents identified how they arrived at the bus as well as how they planned on completing their trip once they alighted (Figures D-2 and D-3). The vast majority of passengers walked to the bus (79 percent), and an almost equal number of passengers (73 percent) said they would walk to their final destination. The next most likely mode of transportation to the bus stop was a transfer from another bus (15 percent). Similarly, the second most likely way respondents traveled to their final destination was to transfer to another bus (21 percent). Very few people reported driving, bicycling, taxiing, or using a wheelchair to get to or from the bus stop. The fact that many of the survey respondents walk to from and the bus is supported by results to Question 9 where the majority of respondents said they do not have a personal vehicle available to them.



Q6. Routes and Services Used to Complete One-Way Trip (284 Responses)

It is essential that passengers are able to complete necessary transfers when traveling on the bus. Survey participants detailed all of the routes and services they planned on using to complete their one-way trip the day they answered the survey. Using this data, route transfer pairs were identified to help determine popular transfers among RABA passengers (Table D-5). The routes on which the passengers were surveyed are shown in the left column, while the additional routes they planned on taking are shown along the top row. Darker shades of green indicate a greater number of passengers who were planning on using that route transfer pair. As seen in Table D-5, the most popular transfer pairs among the RABA passengers surveyed were from Route 3 to Route 14 (14 individuals or 5 percent of route transfer pairs). Other popular transfer pairs were Route 11 to Route 1, Route 1 to Route 11, Route 2 to Route 11, and Route 7 to Route 1.

Q7. Roundtrip travel patterns (299 responses)

Nearly two-thirds of passengers (64 percent) indicated that they were planning to ride RABA buses roundtrip the day they were surveyed. The remaining 36 percent were only riding the bus one-way (Figure D-4).

Q8. Alternative Vehicle Availability (311 responses)

Whether or not someone has a personal vehicle available to them is often a contributing reason to why many passengers choose to ride public transit. The vast majority of RABA passengers surveyed reported that they did not have an alternative vehicle available (85 percent), as shown in Figure D-5.

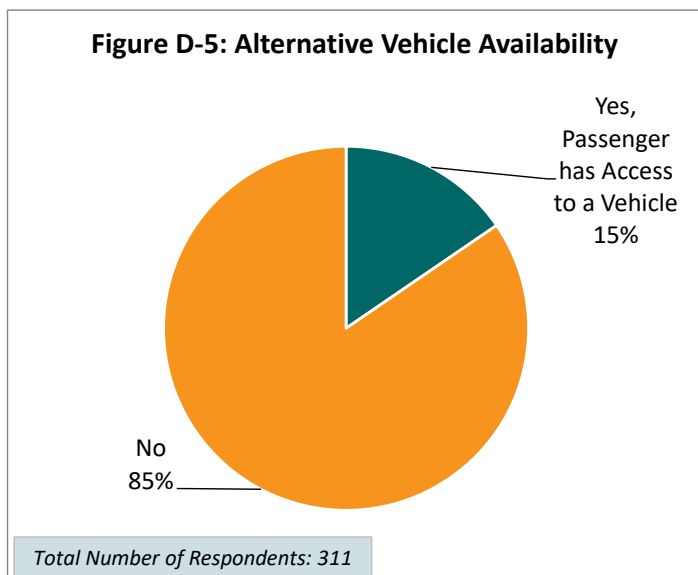
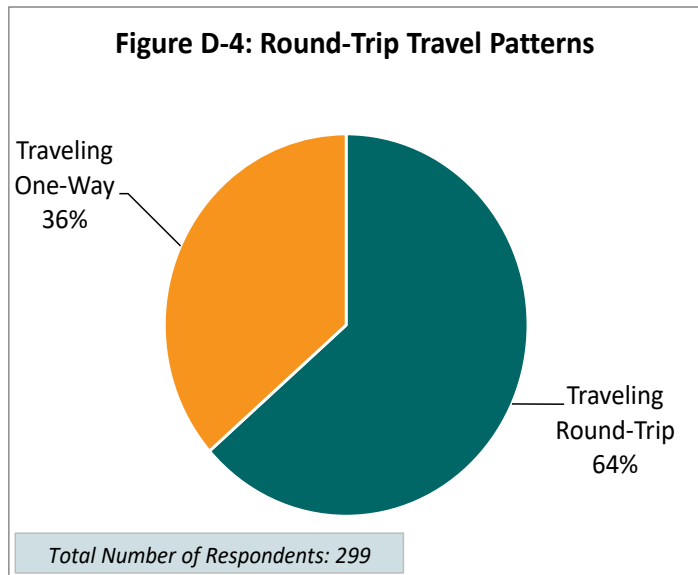
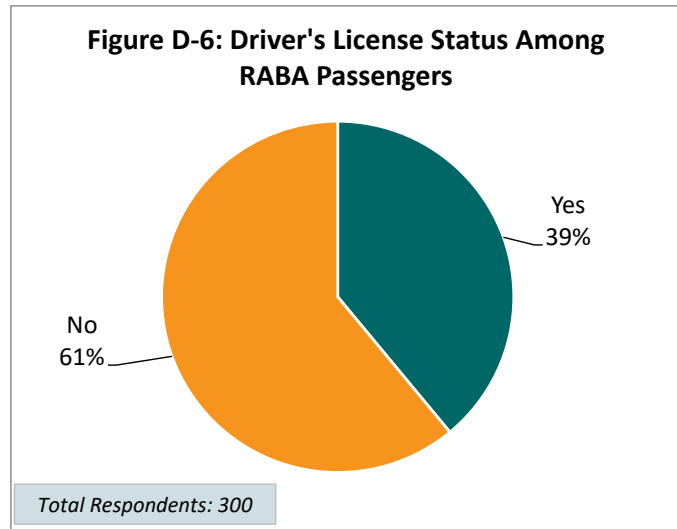


Table D-5: Route Transfer Patterns

Surveyed Route	Routes Included as Part of Planned Trip											Anderson Commuter	Crosstown Express	School Express	Burney Express	Beach Bus	Total
	1	2	3	4	5	6	7	9	11	14							
1		1	1	0	0	0	3	0	9	4	0	0	0	0	0	18	
2	1		5	1	2	2	2	0	8	3	1	0	1	1	1	28	
3	3	2		1	3	2	3	7	6	14	0	1	0	1	2	45	
4	4	2	1		2	5	0	0	3	6	1	0	0	0	0	24	
5	5	3	7	3		1	3	0	4	6	0	1	0	0	0	33	
6	0	2	0	5	2		0	0	4	2	0	3	0	0	1	19	
7	8	3	1	0	3	1		0	3	2	0	1	0	0	0	22	
9	0	0	1	0	0	0	0		0	0	0	0	0	1	0	2	
11	10	8	4	7	4	2	1	1		6	0	1	0	0	1	45	
14	5	3	4	7	5	4	3	0	5		2	1	0	2	0	41	
Anderson Commuter	0	0	1	0	0	0	0	0	0	0		0	0	0	0	1	
Crosstown Express	1	1	0	0	1	0	0	0	3	0	0		0	0	0	6	
Total	37	25	25	24	22	17	15	8	45	43	4	8	1	5	5	284	

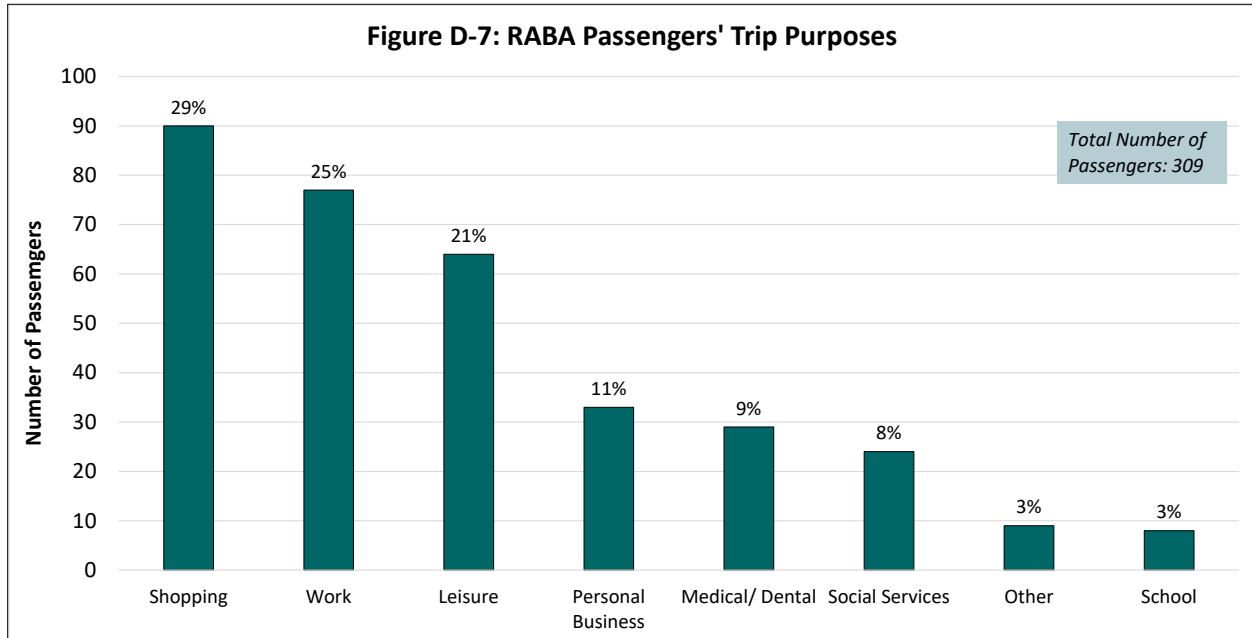
Q9. Driver's License Status Among RABA Passengers (300 responses)

One indicator of potential transit dependency is whether or not an individual has a driver's license. Over 60 percent of survey respondents reported that they did not have their driver's license (Figure D-6).



Q10. Trip purpose (309 responses)

To plan an effective transit service, it is especially important to know why people are traveling and using public transit. Participants were therefore asked the main purpose of their travels the day they completed the survey. Shared motivations for riding the bus among the RABA passengers surveyed were to go shopping (29 percent), to go to work (25 percent), and leisure (21 percent) (Figure D-7). The 11 percent of people out for personal business as well as the 17 percent of respondents who were going to medical/dental or social services appointments were primarily visiting medical facilities, banks, food banks, and other social programs across the City of Redding.



Q11. Age of Respondents (307 responses)

To better understand the demographics of RABA passengers, survey respondents were asked to identify their age (Table D-6). 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 younger than 18 years old and only 5 percent were college-aged adults (18 to 24 years old). The low number of school- and college-aged individuals may be due to the onboard survey being conducted during the month of July, when most schools are not in session.

Age	# of Participants	% of Participants
Younger than 18	2	1%
18 - 24 years	16	5%
25 - 40 years	80	26%
41 - 64 years	151	49%
65 - 74 years	47	15%
75 or Older	11	4%
Total Responses	307	100%

Q12. Employment Status of Respondents (303 responses)

The employment status of bus passengers provides context for when and where individuals may be seeking transit services. As shown in Table D-7, just over one-third of survey respondents were employed (34 percent). This statistic explains in part why only 25 percent of the respondents rode the bus to go to

Occupation Status	# of Participants	% of Participants
Employed	102	34%
Unemployed	74	24%
Retired	57	19%
Student	7	2%
Disabled	9	3%
Other	55	18%
Total Responses	303	100%

work. 46 percent of participants indicated that they were not working at the time of the survey, with 24 saying they were unemployed, 19 percent retired, and 3 percent unable to work due to a disability. Only 2 percent of respondents were students; of the students who replied to the survey, 6 were students at Shasta College and 1 was a student at College of the Siskiyous.

Q13. In-Person vs. Virtual Work Among RABA Passengers (129 responses)

The COVID-19 pandemic greatly altered workplace dynamics, with many roles switching from a fully in-person format to either a fully remote format or some hybrid of the two. These changes in turn affected transit ridership, as people who used to ride the bus to work began working from home. Respondents were asked whether they work in-person or remotely (Table D-8). Of the 129 participants who responded to this question, over two-thirds work in-person 4 to 7 days per week. Only two individuals who work in-person full-time also work virtually part-time. Less than 4 percent of respondents work remotely full-time. Over 15 percent of respondents said they are unemployed.

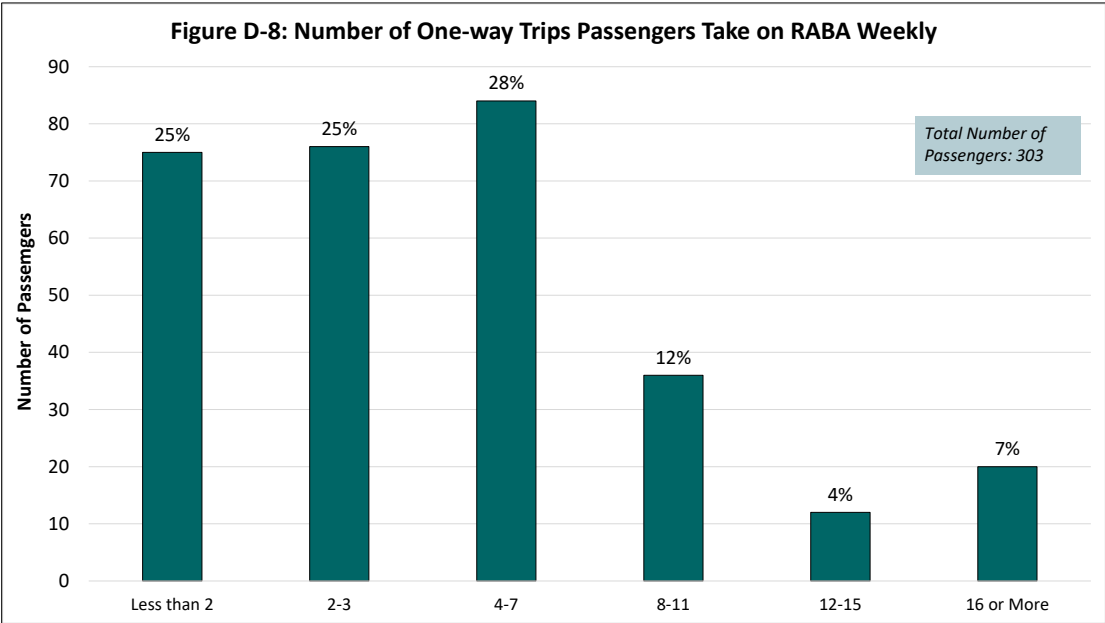
Table D-8: In-Person vs. Virtual Work Among RABA Passengers

		In-Person Work							
		0	Part-Time			Full-Time			
			1	2	3	4	5	5+	
Virtual Work	Number of Days	0	1	2	3	4	5	5+	
	Part-Time	0	20	1	3	8	10	59	17
		1	0	0	0	0	1	0	0
		2	0	0	1	0	0	0	
	Full-Time	3	0	0	0	3	1		
		4	0	0	0	0			
		5	4	0	0				
5+		1	0						

Total Respondents: 129

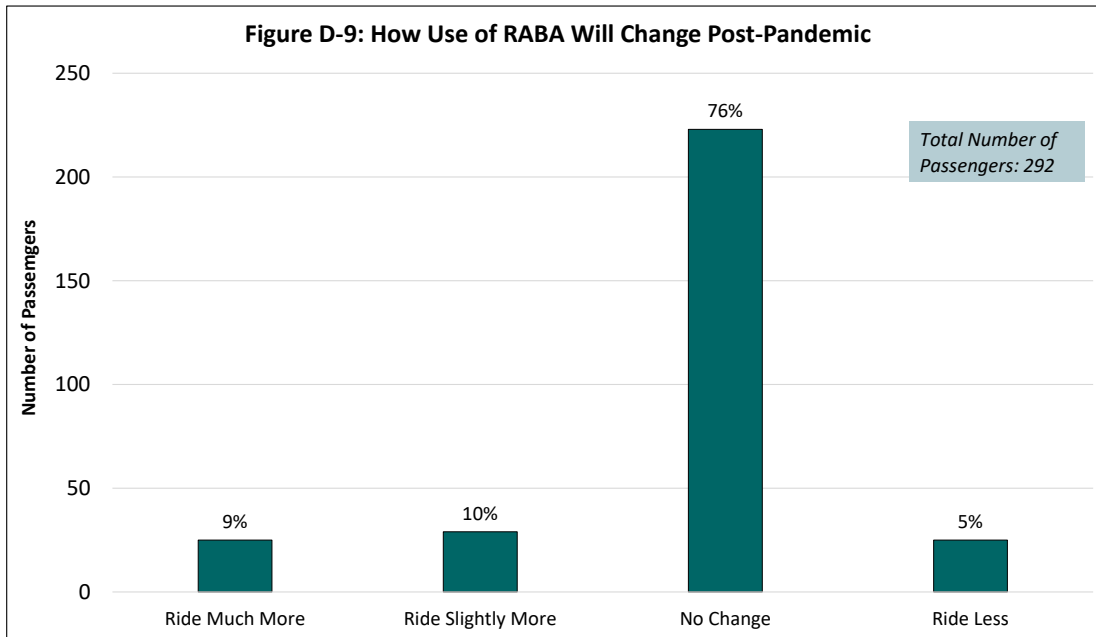
Q14. Number of One-Way trips Taken per Week on RABA (303 responses)

25 percent of survey participants take less than 2 one-way trips on RABA weekly, and another 25 percent complete either 2 or 3 one-way trips weekly (Figure D-8). 23 percent of participants said they ride the bus for more than 1 one-way trip daily (8 one-way trips or more weekly).



Q15. How Use of RABA will Change Post-Pandemic (292 responses)

As noted above, the COVID-19 pandemic impacted working habits which in turn impacted transit ridership. The COVID-19 pandemic also impacted transit ridership on a broader scale, as public health concerns and pandemic restrictions caused many people to stay home. The onboard survey, done in July 2022, asked passengers how they anticipated their use of RABA services would change once the pandemic is considered fully over. 19 percent of respondents said they will ride the bus more often, while 76 percent said they will ride about the same amount (Figure D-9).



Q16. Passenger Opinions on RABA Services (286-293 responses)

Passengers were asked to rank various components of RABA on a scale of 1 (poor) to 5 (excellent) (Figure D-10). Considering all the responses, 85 percent of answers were 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/shelters (both 3.6).

Q17. Desired Improvements to RABA (164 responses)

The final question of the survey provided passengers with the chance to describe any other service improvements that they would like to see implemented on RABA. Participants provided an array of input that ranged from compliments to improvement suggestions as well as complaints.

The most popular service improvements suggested are shown in Table D-9 by the route the passenger was surveyed on. The implementation of Sunday service, later service hours, improved bus stop amenities, and more frequent service all had high levels support among the surveyed passengers (Table D-9). Notably, Route 3 and Route 14 passengers wanted improved bus stop amenities more than Sunday service or later service hours. Expanding the RABA service area was not a common recommendation among respondents (6 percent), however if RABA services were to be expanded, service to Cottonwood was most recommended by participants (2 percent of total responses).

Figure D-10: Passenger Opinions on RABA Service

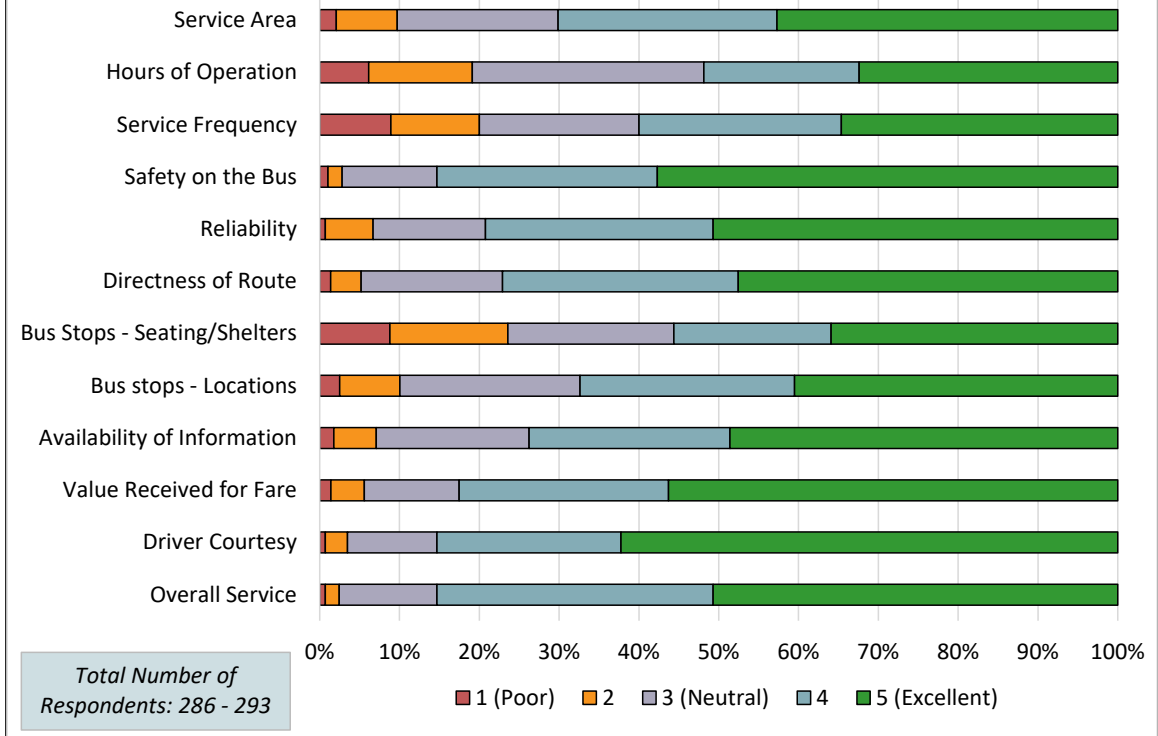


Table D-9: Recommended Service Improvements per Survey Comments

Route Surveyed	Service Improvement											Total
	Sunday Service	Later Service	Bus Stops - Amenities	More Frequent Service	Increased Hours	Expanded Service Area	Cleaner Buses	Bus Stops - New Locations	Service to Cottonwood	Better On-Time Performance	Earlier Service - Weekends	
Route 1	4	1	2	1	1	1	0	0	1	0	1	12
Route 2	6	2	0	2	1	1	1	1	1	0	1	16
Route 3	3	4	6	3	2	1	0	3	0	1	0	23
Route 4	7	1	1	3	2	2	1	1	0	0	0	18
Route 5	5	7	1	5	1	0	2	0	0	0	0	21
Route 6	1	1	1	2	1	0	2	1	0	0	0	9
Route 7	2	1	1	2	1	0	0	1	0	1	0	9
Route 9	0	0	0	0	0	0	0	0	0	0	0	0
Route 11	5	5	6	2	1	1	0	1	0	1	1	23
Route 14	8	6	3	3	2	2	1	0	1	1	0	27
Anderson Commuter	0	0	0	0	0	0	0	0	0	0	0	0
Crosstown Express	1	2	0	0	0	2	0	0	0	0	0	5
Total	42	31	21	23	12	10	7	8	3	4	3	164
Percent	21%	15%	10%	11%	6%	5%	3%	4%	1%	2%	1%	80%

Table D-10 shows complaints, compliments, and other specific suggestions left by passengers on their surveys. Sadly, across multiple routes there were a lot of complaints about bus drivers being judgmental, rude, and not knowledgeable about the routes. It is worth noting that most of these individuals who complained about the bus drivers pointed out that they did not experience rude behavior from every driver, and that many drivers are very friendly and pleasant. Specific suggestions for service improvements, some of which are summarized in Table D-9 as well, included cleaning up the Masonic Transfer Center, implementing schedule changes so that people who work later shifts and the weekends can ride the bus to work, and providing more shade and water to passengers waiting at the bus stops. One suggestion referenced that passengers should not be allowed to bring knives on the bus, implying that bus drivers may have failed to notice a passenger bringing a weapon onboard in the past. It is extremely important that passengers feel safe on the bus, and that bus drivers feel that they are able to maintain a safe space onboard. Compliments for RABA were received from passengers onboard every fixed route surveyed except the Anderson Commuter bus, with high levels of gratitude for the transit system expressed.

Table D-10: Survey Complaints, Compliments, and Suggestions

	Surveyed Route	Topic	Comments
Complaint	2	Driver	(Condensed) I think "some" of your drivers are rude, short with riders, and even disrespectful at times.
	4	Driver	Some drivers need a serious attitude adjustment. Most are friendly and professional.
	4	Driver	Another driver (on a different day) misinformed rider of location to return.
	6	Driver	Have drivers not judge people.
	11	Driver	Nicer drivers that know the job
	11	Schedule	Route 9 shuts down. Inconvenient.
	14	On-Time	Sometimes I have to wait an hour for the bus
	14	Driver	For some bus drivers not to take their bad day out on passengers and people in wheelchairs
Compliment	1	Gratitude	Keep knowing you're appreciated
	1	Gratitude	None RABA is great!!!
	2	Driver	None all drivers are great!
	3	General	They do well!
	3	General	Whatever RABA believes needs to be improved. As a customer, I am satisfied with [the service].
	4	Gratitude	Nothing, great to me!
	5	Areas Served	Thank you for the beach bus
	6	General	Good service
	6	General	I like RABA how it is
	7	Gratitude	RABA is amazing! No critiques.
	7	Gratitude	I have [ridden] the RABA since 1985 and have always been very appreciative of the bus. Thank you,
	9	General	None, very clean buses, great drivers [who] are very helpful.
	11	General	Perfect
	11	Driver	Three (3) survey respondents complimented the bus drivers on this route.
14	Gratitude	Thanks	
14	General	Fine as is	
Suggestion	1	Bus stop	(Condensed) Clean up the Masonic bus stop area
	1	Schedule	See the Anderson bus comes more often
	2	Bus	Music
	2	Passengers	More courteous patrons
	3	Bus stop	Shade and water fountains. Benches.
	3	Driver	Pay more attention to passengers trying to flag down buses at bus stops! Be more considerate about it!
	4	Bus stop	For the bus to Downtown to stop at SaveMart on Churn Creek
	5	Multiple	All day pass. Lake bus rides.
	5	Multiple	Enclosed bus stops. Bottled water
	5	Schedule	Later hours (at least 8 for last run). More frequent - 30 min
	6	Passengers	More smiles
	7	Area Served	Need to VA Clinic
	7	Multiple	Porta pottys and longer stops
	7	Schedule	(Condensed) I just wish there was transportation on Sundays...because I'm scheduled to work.
	11	Schedule	Later bus runs for severe weather
	11	Driver	Kindness matters!!!
	14	Schedule	I think that RABA should run until 2 AM for night shifters
	14	Bus	AC on buses
	14	Bus stop	Better shelter from sun and rain.
	14	Bus stop	One more stop at the end of Hilltop
	14	Passengers	Prevent people from bringing knives on the bus
	14	Policy	Allow for larger bags - Handcarts, dollies, luggage
	14	Driver	Customer service training on how to interact with passengers with various mental health conditions
	14	Schedule	More than one bus on routes for 14, 5, 3
	1, 11	Policy	Two (2) survey respondents asked for a change to drink policy onboard
	CTE	Information	Frequency signs at stops. QR code schedules and live maps.

DETAILED SHASTA COLLEGE SURVEY RESULTS

SHASTA COLLEGE SURVEY RESULTS

Thousands of students across Shasta, Trinidad and Tehama Counties attend one of the Shasta College campuses. Shasta College’s main campus is located in Redding and is recognized as an important activity center that generates high levels of transit activity. In this Appendix, all references to the Shasta College campus are referring to the Redding campus. Due to the demand for transportation services by staff and students, there are multiple Redding Area Bus Authority (RABA) services which serve the college: Route 6, Route 7, and the School Express, as well as paratransit. The Burney Express also serves Shasta College. It is important to understand whether or not these existing transit services are meeting the transportation needs of students in the post-pandemic era.

To gain a better understanding of how Shasta College students currently utilize and perceive public transit, an online survey was developed and distributed to the college from September 20 to October 4, 2022. Shasta College staff advertised the survey by posting the survey information 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.

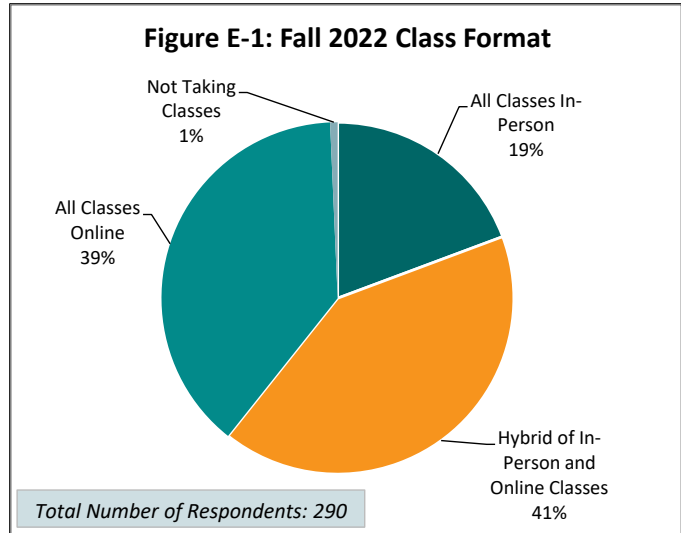
A total of 290 students and recent graduates participated in the survey. Most did not answer every question, therefore the number of answers per question varies. Detailed survey results by question are provided in this Appendix, with highlights of the survey being referenced in the main report of the RABA Short Range Transit Plan (SRTP).

Q1 & Q2. Enrollment Status & Enrollment by Class Format (326 Responses)

A student’s enrollment can indicate how often they may have to travel to campus to attend class. Shasta College considers students to be enrolled full-time if they are taking 12 units or more during the semester. As seen in Table E-1, nearly three quarters of the respondents were full-time students at Shasta College and 23 percent were part-time students.

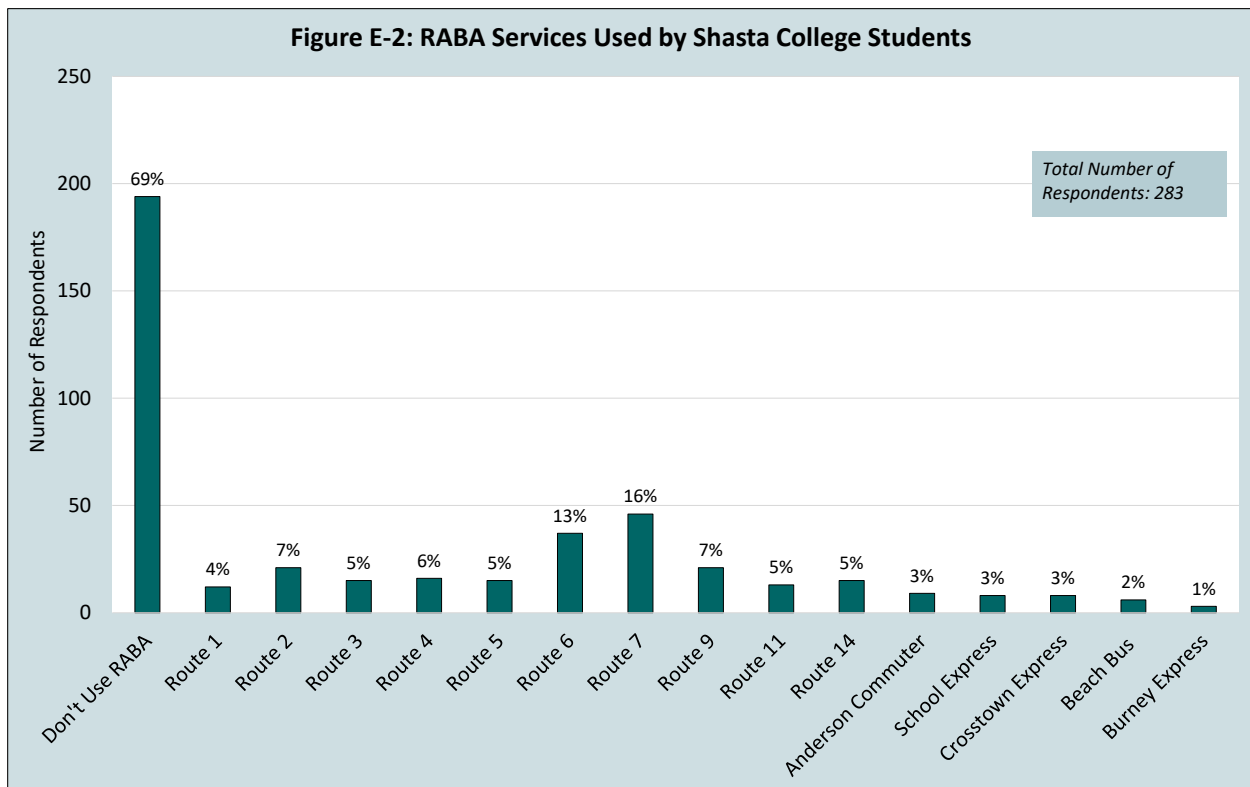
Table E-1: Enrollment Status at Shasta College			
Enrollment Level	# of Participants	% of Participants	
15+ Units	65		22%
12-14.5 Units	152		52%
7-11.5 Units	29		10%
1-6.5 Units	37		13%
Gateway to College Student	3		1%
Graduated	3		1%
Taking a Gap Year	1		0%
Total Responses	290		100%

In addition to enrollment status, whether or not a student is taking their classes in-person or remotely obviously impacts how often they travel to Shasta College. During the Fall 2022 semester, only 19 percent of students surveyed were taking all of their classes in-person (Figure E-1). The majority of students did not have to go to campus daily to attend class: 41 percent of students were enrolled in a hybrid of in-person and online classes, while 39 percent were taking exclusively online classes.



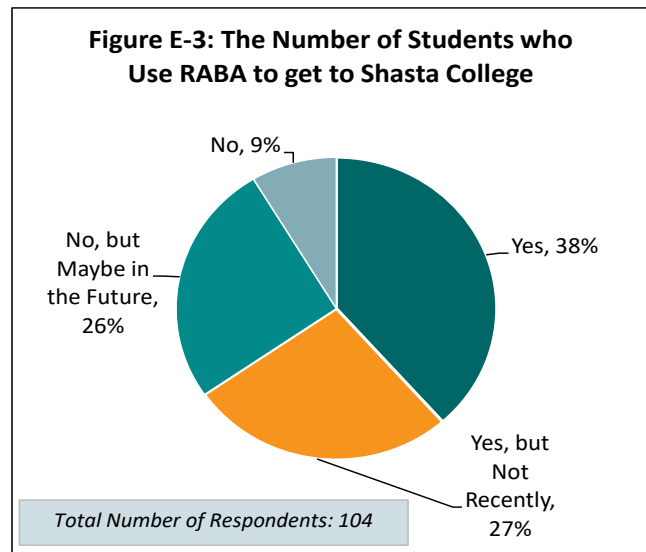
Q3. RABA Services Used by Shasta College Students (283 Responses)

Students were asked to identify which RABA services they either currently use or had used in the past (Figure E-2). Most students reported that they had never ridden RABA before (69 percent). While there was a small number of students who had ridden each RABA service, as well as the Burney Express, the most popular services were by far Routes 6 and 7, both of which go to Shasta College. Routes 2 and 9 were tied for being the second most popular RABA services among those surveyed.



Q4. Do Students Use RABA to go to Shasta College (104 Responses)

38 percent of respondents reported that they ride RABA to get to Shasta College (Figure E-3). 27 percent students said that they had used RABA in the past to get to the college, but not recently, likely because they are taking remote classes. 26 percent students indicated that although they had not used RABA in the past, they would consider it in the future. It can be presumed that many of the respondents who did not answer this question do not use RABA to get to Shasta College.



Q5. How Students Arrive at the Bus (319 Responses)

Students who had ridden the bus to campus before were asked how they typically get/got to the bus stop to catch their bus. 85 percent walked to their bus stop, with only a minimal number of people driving, carpooling, bicycling, getting a ride, or taking their wheelchair (Table E-2).

Table E-2: How Students Arrive at the Bus

Mode of Travel	# of Participants	% of Participants
Walk	52	85%
Drive Alone	2	3%
Carpool	1	2%
Bicycle	2	3%
Taxi	0	0%
Get a Ride	3	5%
Wheelchair	1	2%
Total Responses	61	100%

Q6 & Q8. Typical Boarding Times to get to Campus (54 Responses) and when Leaving Campus (52 Responses)

Most students who use RABA to get to Shasta College board the bus in the early to mid-morning and leave campus in the mid- to late afternoon. As shown in the adjacent tables, 65 percent of students board RABA buses to get to campus between 6:00 AM and 9:59 AM (Table E-3) and 69 percent of students leave campus on the bus between 2:00 PM and 5:59 PM (Table E-4).

Table E-3: Typical Boarding Times to get to Campus

Time	# of Participants	% of Participants
6:00 AM - 7:59 AM	16	30%
8:00 AM - 9:59 AM	19	35%
10:00 AM - 11:59 AM	10	19%
12:00 PM - 1:59 PM	3	6%
2:00 PM - 3:59 PM	3	6%
4:00 PM or Later	3	6%
Total Responses	54	100%

Table E-4: Typical Boarding Times When Leaving Campus

Time	# of Participants	% of Participants
Earlier than 10:00 AM	8	15%
10:00 AM - 11:59 AM	4	8%
12:00 PM - 1:59 PM	3	6%
2:00 PM - 3:59 PM	22	42%
4:00 PM - 5:59 PM	14	27%
6:00 PM or Later	1	2%
Total Responses	52	100%

Q7. Bus Stop/Intersection Where Students Typically Board RABA to get to Shasta College (51 Responses)

It is important to understand where students are traveling from when heading to Shasta College in order to plan regular transit services that they can rely on to get to class. The students who have ridden RABA to Shasta College at some point in the past boarded the bus primarily in the Cities of Redding and Anderson. Table E-5 shows the most popular boarding locations among the surveyed students, with the top three being Hartnell Ave and Shasta View Drive, the Masonic Transfer Center, and the Downtown Transit Center.

Table E-5: Bus Stop/Intersection Where Students Typically Board RABA to get to Shasta College

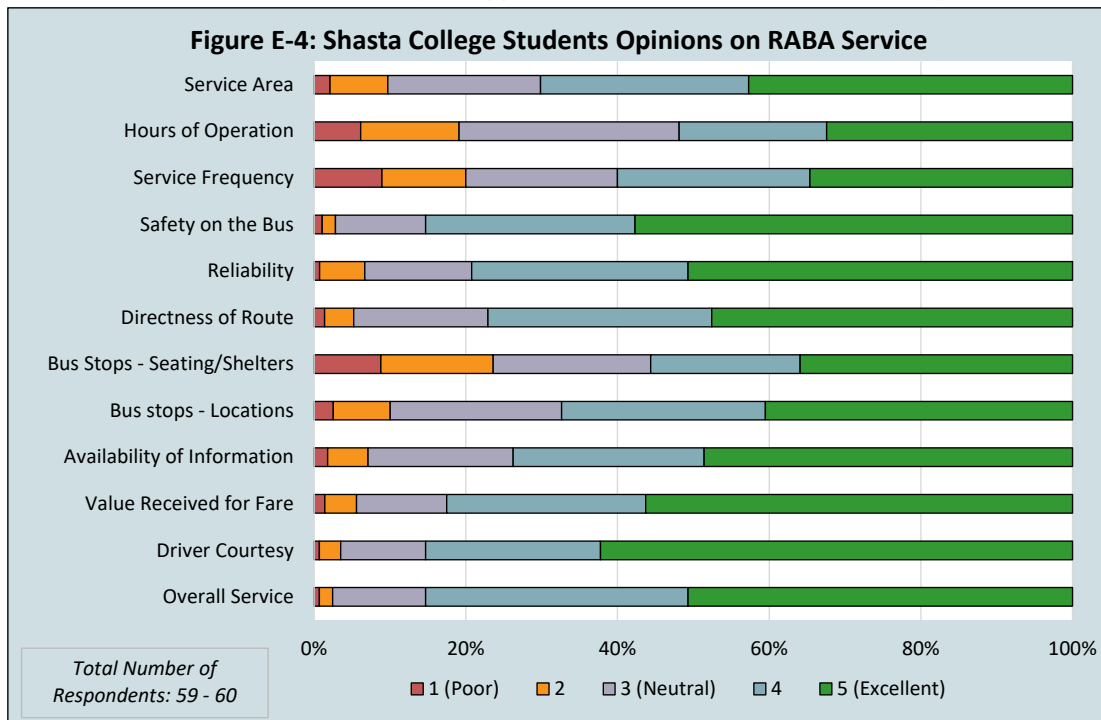
Bus Stop/Intersection	# of Participants	% of Participants
Hartnell Ave @ Shasta View Dr	3	6%
Masonic Transfer Center	3	6%
Transit Center	3	6%
Canby Rd @ Churn Creek Rd	2	4%
Canby Transfer Center	2	4%
Churn Creek Rd @ Loma Vista Dr	2	4%
Dana Dr @ Bradford Way	2	4%
Placer St @ San Francisco St	2	4%
Silver St @ Diamond St	2	4%
Trinity St @ California St	2	4%
Walmart (Anderson)	2	4%
Bechelli Ln @ Beagle Ln	1	2%
Bechelli Ln @ Layton Rd	1	2%
Cedars Rd @ Branstetter Ln	1	2%
Lake Blvd @ Hilltop Dr	1	2%
Other	22	43%
Total Responses	51	100%

Q9. Do Students Ride RABA Both to and from Shasta College (57 Responses)

Most of the students who use RABA to get to campus also ride the bus back home (54 percent). A quarter of students who ride the bus to campus also ride the bus home and to other locations. The remaining students (21 percent) only ride the bus one way between campus and their homes.

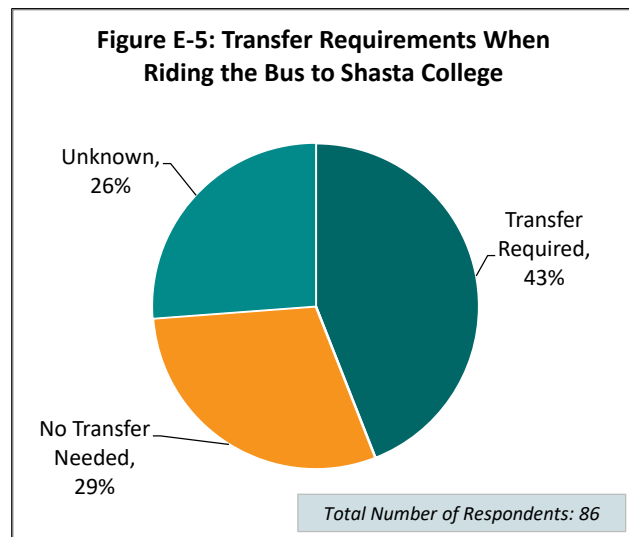
Q10. Shasta College Students Opinions on RABA Services (59-60 Responses)

As shown in Figure E-4, students were asked to rank various components of RABA on a scale of 1 (poor) to 5 (excellent). Overall, students had a high opinion of RABA service, with 51 percent giving RABA the highest score (5) and an additional 35 percent giving it the second-highest score (4). The overall average ranking was 4.3. The highest ranked service characteristics were driver courtesy (4.3), printed information and safety with other passengers (both 4.1), and service area (4.0). The lowest ranked features were the service start time (3.7), the service end time (3.8), and vehicle comfort (3.8). This indicates that students may struggle to use RABA due to the hours of operation.



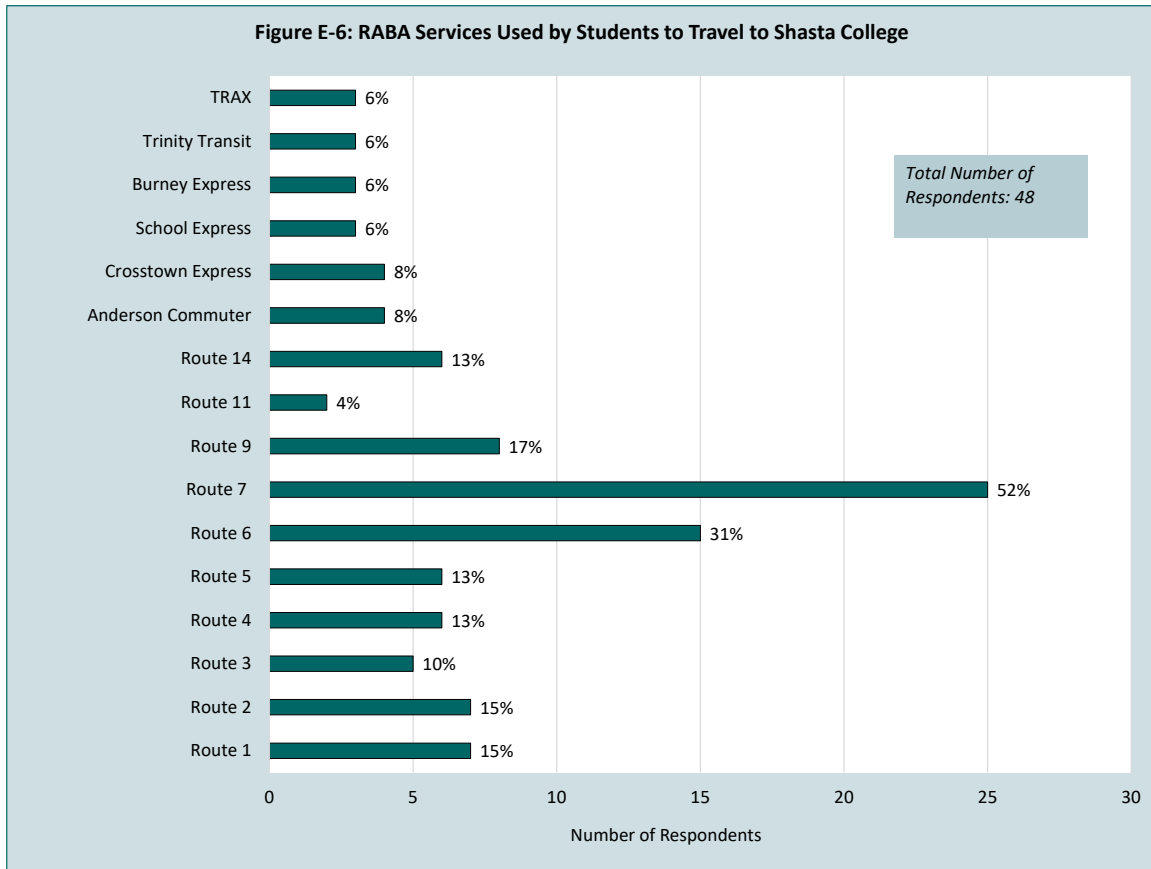
Q11. Transfer Requirements When Riding the Bus to Shasta College (86 Responses)

Passengers need to be able to make their transfer if they are going to rely on the bus system to get them to their final destination. Although RABA offers multiple services that serve Shasta College directly, not all students live near these services. 39 respondents said that if they were to take RABA to Shasta College, they would need to transfer between routes while 25 respondents said they do not need to transfer to get to the college (Figure E-5).



Q12. RABA Services Used by Students to Travel to Shasta College (48 Responses)

Survey participants were asked which RABA services they take on their way to Shasta College, including any transfers. Results are shown in Figure E-6. Similar to the results to Question 3, Routes 7 and 6 were by far the most commonly used by Shasta College students to get to campus. Behind those two services, 17 percent of students said they would need to ride Route 9 in order to get to campus and 15 percent of students said they would need to ride both Routes 1 and 2. The local Redding routes were overall more likely to be used by students to get to campus compared to the express routes or other out-of-county services.



Q13. Primary Source of Information on RABA (82 Responses)

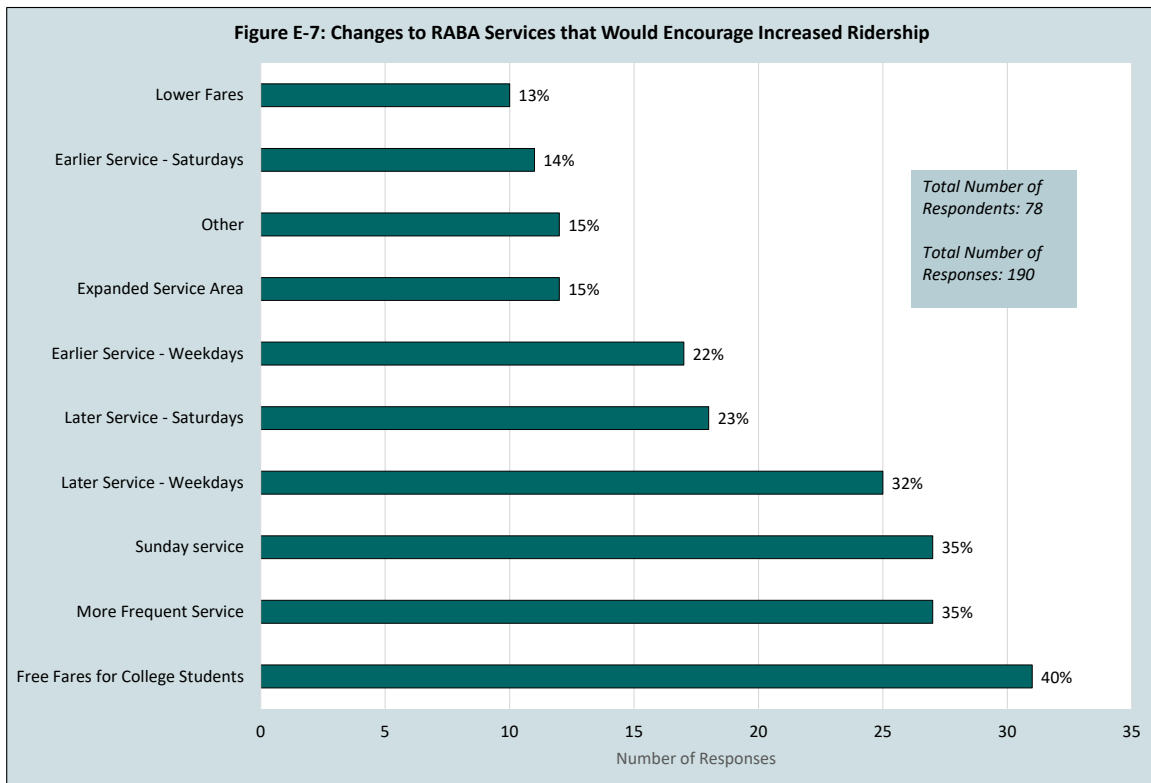
A significant number of students get information on RABA from Shasta College and the RABA website (Table E-6). It is possible that the 29 percent of students who said they get information on RABA via the phone meant that they use the internet on their smartphones instead of actually calling customer service. 36 percent of students get transit information through applications such as Google Maps, the Transit App, or Apple Maps.

Table E-6: Primary Source of Information on RABA

Source	# of Participants	% of Participants
Shasta College Info.	32	39%
RABA Website	28	34%
Phone	24	29%
Google Maps	20	24%
Family or Friends	16	20%
Printed Information	15	18%
Bus Operator	14	17%
Transit App	8	10%
Apple Maps	1	1%
Total Responses	82	100%

Q14. Service Changes to Increase Ridership (78 Responses)

There are potential service improvements that could result in increased RABA ridership among Shasta College students in the Redding area. As seen in Figure E-7, 40 percent of students said that they would be more likely to ride the bus if they didn't have to pay every time they boarded, instead paying for the transit service in their student fees. The other service improvements that received high levels of support were more frequent service (35 percent), Sunday service (35 percent), and later service on weekdays (32 percent).



Q15. Areas where Transit Service is Desired (17 Responses)

The students who answered that they would ride the bus more often if RABA expanded its service area were asked to identify where they would like to see new RABA services implemented. The most popular answers were locations in Anderson and Cottonwood.

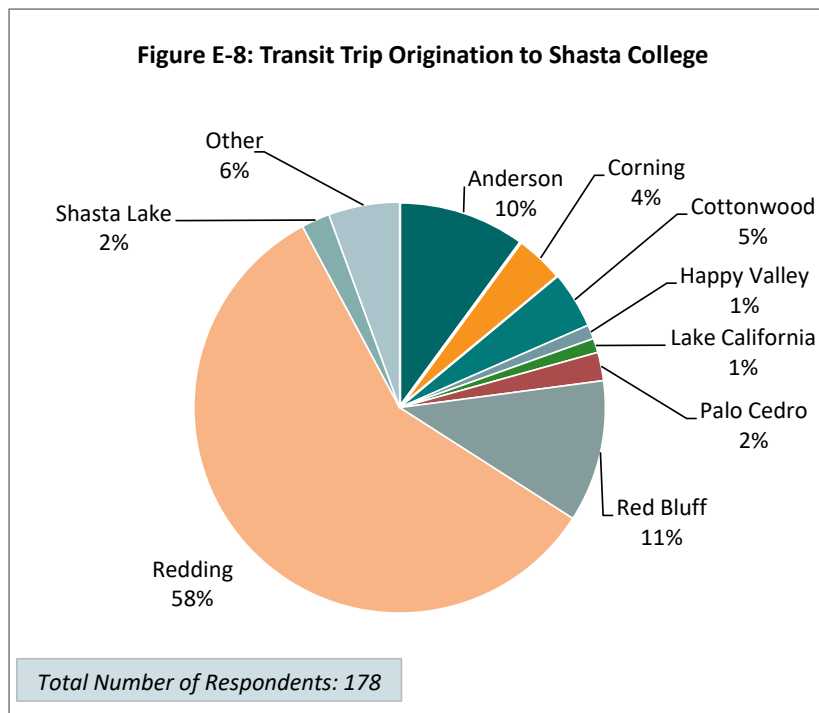
Q16. Primary Reasons for Not Riding RABA (257 Responses)

Understanding why students don't use RABA can help to identify potential service improvements that may result in increased ridership by Shasta College students. Most students said they don't ride the bus because they would rather drive their own car or carpool with friends (54 percent) (Table E-7). A large number of students indicated that it's either not possible or reasonable for them to take the bus to campus because they live too far from any RABA services (63 percent). This was especially true of students living in Tehama and Trinity Counties, who said they were interested, but it's impossible for them to make all the transfers. An almost equal number of students said that they either don't know enough to use the services or that taking the bus would take too much time (18 percent each).

Table E-7: Primary Reasons for Not Riding RABA		
Reason	# of Participants	% of Participants
Would Rather Drive or Carpool	140	54%
No Service Near my Home	63	25%
Don't Know RABA Services	47	18%
Takes too Much Time	46	18%
Already Use RABA Services	37	14%
Safety Concerns - Other Passengers	30	12%
Safety Concerns - COVID-19	22	9%
Need Later Service	16	6%
Bus Service is too Infrequent	16	6%
Can't Pay Electronically	14	5%
Would Rather Walk or Bicycle	12	5%
Need Earlier Service	9	4%
Fares are too Expensive	9	4%
Too Much Walking (Bus Stop & Classes)	7	3%
No Transfer Opportunities	3	1%
Classes are Online	8	3%
Live on Campus	1	0%
Total Responses	257	100%

Q17. Community where Students would Start their Trip to Shasta College (178 Responses)

Assuming that RABA was expanded, and every student was able to ride the bus from their home to campus, students were asked what community they would typically start their trip to Shasta College from. Over half of the survey respondents said they would start their trip to the campus from a location in Redding (58 percent). The next most likely communities of residence among the survey respondents were Red Bluff (11 percent) and Anderson (10 percent). Some communities mentioned by only one or two students included Burney, Centerville, Round Mountain, Shingletown, and Lake California, among others. Full results are shown in Figure E-8.



Q18 & Q19. Typical Arrival Times at (158 Responses) and Departure Times from (146 Responses) Shasta College

To better understand when Shasta College students need transportation services, they were asked what time they typically arrive at campus and then later leave during the typical semester. Table E-8 shows that, while students arrive all throughout the day, there is a large number of students who arrive at campus between 8:00 and 9:00 AM. There is less of a clear pattern of when students depart from campus, but Table E-9 shows that there are upticks in departures from campus specifically between 2:00 and 3:00 PM.

Table E-8: Typical Arrival Times at Shasta College

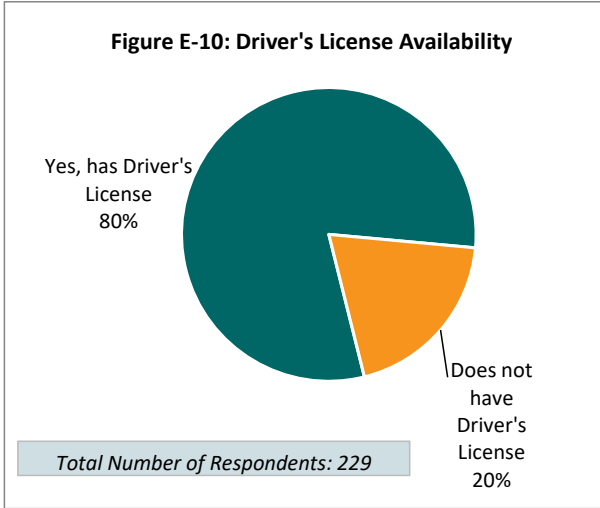
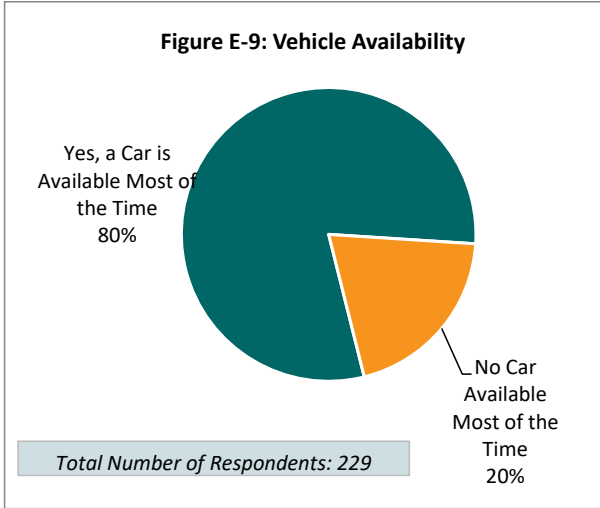
Time	Monday	Tuesday	Wednesday	Thursday	Friday	Total	Percent
Earlier than 7 AM	4	2	2	0	0	8	1%
7:00 AM	8	4	5	5	4	26	5%
7:30 AM	3	2	2	2	2	11	2%
7:45 AM	2	1	4	3	2	12	2%
7:50 AM	2	3	2	4	1	12	2%
8:00 AM	31	26	26	25	14	122	22%
8:15 AM	0	0	2	1	1	4	1%
8:30 AM	6	7	5	4	2	24	4%
8:45 AM	4	6	5	5	4	24	4%
9:00 AM	18	17	20	10	11	76	14%
9:15 AM	3	1	2	1	0	7	1%
9:30 AM	2	1	1	1	1	6	1%
9:50 AM	4	4	5	5	2	20	4%
10:00 AM	7	7	11	11	4	40	7%
10:30 AM	3	1	0	3	0	7	1%
10:45 AM	2	2	2	0	0	6	1%
11:00 AM	4	9	5	7	5	30	6%
11:30 AM	0	1	1	1	0	3	1%
11:45 AM	2	2	2	1	0	7	1%
12:00 PM	8	2	8	4	9	31	6%
12:15 PM	0	0	0	1	0	1	0%
12:30 PM	1	2	0	2	2	7	1%
1:00 PM	4	3	3	3	0	13	2%
1:30 PM	1	2	2	1	1	7	1%
2:00 PM	2	0	1	0	0	3	1%
Later than 2 PM	11	13	6	12	3	45	8%
Total	128	116	120	112	68	544	100%

Table E-9: Typical Departure Times from Shasta College

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Total	Percent
Before 12 PM	7	13	7	10	5	42	9%
12:00 PM	12	3	10	4	11	40	8%
12:30 PM	4	4	4	3	1	16	3%
12:45 PM	1	0	1	0	1	3	1%
1:00 PM	5	8	6	7	4	30	6%
1:15 PM	3	2	3	2	1	11	2%
1:30 PM	3	2	4	1	1	11	2%
1:45 PM	1	1	2	2	0	6	1%
2:00 PM	15	11	13	12	6	57	12%
2:15 PM	1	0	0	1	0	2	0%
2:30 PM	7	6	6	7	4	30	6%
2:45 PM	2	1	1	1	1	6	1%
3:00 PM	10	11	12	11	8	52	11%
3:15 PM	2	2	2	1	0	7	1%
3:30 PM	6	1	5	1	1	14	3%
3:45 PM	1	0	1	0	0	2	0%
4:00 PM	8	11	7	10	4	40	8%
4:15 PM	0	0	2	0	0	2	0%
4:30 PM	0	0	1	1	2	4	1%
5:00 PM	9	12	8	9	6	44	9%
5:15 PM	2	1	2	3	1	9	2%
5:30 PM	0	2	1	2	0	5	1%
6:00 PM	3	5	4	4	2	18	4%
6:30 PM	1	0	1	0	0	2	0%
6:45 PM	1	1	1	2	1	6	1%
7:00 PM	7	6	6	5	5	29	6%
After 7:00 PM	11	12	8	11	4	46	9%
Total	115	102	111	100	64	492	100%

Q21 & Q22. Alternative Vehicle Availability (229 Responses) and Driver’s License Status (229 Responses)

Whether someone has a car available to them or if they have their driver’s license are both indicators of potential dependency on public transit. Most of the surveyed Shasta College students said that they have a car available as well as their driver’s license (80 percent each), as shown in Figures E-9 and E-10. This signifies that it the majority of surveyed students are not dependent on the bus.



Q20, Q23, Q24, & Q26. Demographics of Survey Respondents (224-227 Responses)

Table E-10 summarizes the demographic information of the surveyed students. Overall, the respondents represent a range of ages, communities, incomes, and races.

Table E-10: Demographics of Survey Respondents					
	#	%		#	%
Age			Annual Household Income		
Younger than 18	12	5%	Under \$10,000	47	21%
18 - 24 Years	92	41%	\$10,000 - \$14,999	34	15%
25 - 34 Years	68	30%	\$15,000 - \$24,999	32	14%
35 - 64 Years	54	24%	\$25,000 - \$34,999	28	13%
65 Years or Older	13	6%	\$35,000 - \$44,999	15	7%
Total	227	100%	\$45,000 - \$54,999	13	6%
			\$55,000 - \$74,999	6	3%
Community of Residence			\$75,000 - \$99,999	6	3%
Redding	122	54%	\$100,000 or more	1	0%
Anderson	25	11%	Unsure	29	13%
Red Bluff	21	9%	Prefer not to say	11	5%
Cottonwood	11	5%	Total	222	100%
Shasta Lake	10	4%			
Corning	8	4%	Race/Ethnicity		
Palo Cedro	7	3%	Asian or Asian American	16	7%
Other Tehama County Location	6	3%	Black or African American	12	5%
Other Shasta County Locations	5	2%	Hispanic or Latinx	52	23%
Other Trinity County Locations	5	2%	Native American or Alaskan Native	27	12%
Other	4	2%	Native Hawaiian, Pacific Islander	6	3%
Total	224	100%	White or Caucasian	152	67%
			Other	11	5%
			Total	227	100%

Q26. Complaints, Compliments, and Suggestions (65 responses)

The surveyed Shasta College students were given the chance to list any other comments or suggestions they may have for RABA services. Table E-11 lists summarizes some of these comments. A large number of students provided compliments to RABA. A handful of these compliments were from students who don't even ride the bus but are just grateful that the service is there in case something was to happen to their personal vehicles.

Plenty of suggestions for potential improvements were also made, with the most common themes being to improve RABA's digital and printed information resources, clean the bus more, implement service to Red Bluff, have later hours, and improve on-time performance. The comments about clarifying information on the available services are particularly important, as there were a number of students who said they never use RABA because they simply don't know what bus to ride. These individuals represent an important sector of the population that RABA can target for increased ridership, as it is easier to attract new riders by improving information on the transit system versus implementing massive service changes.

Table E-11: Survey Complaints, Compliments, and Suggestions

	Topic	Comments
Complaint	Schedule	Takes too long to get to most places.
	Safety	I have taken the bus before and I've seen so many drugs and homeless people. I understand what the bus is used for but for me I just don't feel safe.
	Cleanliness	Most of the time these forms of transportation smell pretty often which indicates to me that they aren't properly cleaned.
Compliment	College Services	I heard they support college students, so keep it up, always good reviews here.
	College Services	I think it's awesome they come to the college
	General	I know a lot of people who would use this service, if it was available to them. It seems like a great way for people to be able to make it to school, without being late.
	General	I think it's a great opportunity for those in need.
	General	I think the buses are a great way to get around when needed
	General	I think the RABA is great provides people unable to get around a ride.
	General	Keep it up!
	General	You guys are nice and clean
	Gratitude	I don't use RABA but I have always appreciated when RABA helps with our homeless population...!
	Gratitude	love you guys
	Gratitude	You guys are doing great, thank you for your service
	Gratitude	Very nice ride and friendly, I wish I could still use it
	Gratitude	Thank you for all you do!
	Gratitude	Thank you for the amazing air conditioning during the summer!
	Gratitude	I love using the bus when I dont have a car!
Gratitude	Hello! I think that the opportunity for Shasta College students to ride the RABA is a wonderful one.	
Gratitude	I really like the service	
Suggestion	Bus Stops	Bathrooms on bus or more at stops.
	Bus Stops	More covered bus stops so standing in the side of the road is safer and protected from weather.
	Cleanliness	Keep it cleaner.
	Cleanliness	(Condensed) Wish the buses were a little cleaner, and maybe offering a hand sanitizer station.
	Cleanliness	Make the busses cleaner inside or at least sanitize for Covid.
	Climate	Could RABA consider using natural gas for its fuel source? Thanks for the opportunity to provide input.
	College Services	Please extend the coverage of the student IDs to work for the Burney Express.
	Fares	Less expensive rates.
	Fares	Lower the rates for disabled adults.
	Frequency	Instead of once an hour maybe have twice an hour pick ups in the busier bus routes.
	Frequency	More frequent pickups.
	Frequency	Buses to run past 6pm daily, stops on the half hour vs hour!
	Hours	Please have some buses in Redding and Anderson run a little later in the day.
	Information	Make routes more understandable. I dont use (RABA) because I dont know how.
	Information	(Condensed) I think RABA isn't marketed as widely as the public bus service is in other places.
	Information	Better way of teaching infrequent bus riders the bus or buses they need or would need to get to and from where they are going.
	Information	If more info about routes and times was more easily available riding RABA would be much easier.
	Multiple	Better security and availability of ride schedule would be beneficial.
	Multiple	Having buses run later and on Sundays would be a huge help.
	Multiple	For it to be on time and for the bus routes to be more organized when switching busses.
	Multiple	(Condensed) Being on time and service information accessible is essential for me to take a bus.
	Multiple	24-hr service and have busses wait for connecting route busses.
	Safety	Deny service to suspicious riders.
	Service Area	More locations would be appreciated.
	Service Area	It would be awesome to have even just one bus go from Lake California and return.
Service Area	More stops in Cottonwood that go to the Redding college campus.	
Service Area	You know how you have a bus to Anderson? Do one to Red Bluff!	
Service Area	An intercounty bus.	
Wifi	WiFi would be helpful for students who are on the bus for more than 15 minutes.	

This page intentionally left blank

RURAL OUTREACH EFFORTS

Two distinct outreach efforts were conducted during the development of the RABA Short Range Transit Plan (SRTP) 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. Most of these communities are currently served by the Burney Express (Route 299X), a County of Shasta service that is operated by RABA through a service contract.

The first component of the rural outreach effort consisted of an online community survey. The community survey was available to residents from September 5 to September 29, 2023, and was advertised with flyers posted at key community centers, such as the Intermountain Community Center, Burney Library, Fall River Valley Library, and local post offices, among others. The online survey information was also provided to local stakeholders via email two separate times. Stakeholders were asked to pass along the survey information to their respective patients/clients. The rural community survey was developed on Survey Monkey and consisted of 10 questions in various formats. All online community survey materials were developed in both English and Spanish. In all, seven residents participated in the rural community survey.

The second component of the rural outreach effort consisted of an onboard passenger survey that was conducted on the Burney Express from September 13 to September 29, 2023. During this period, the Burney Express operators took survey materials onboard with them for each of their respective shifts, encouraged passengers to participate, and collected any completed surveys. The onboard survey was available in both English and Spanish, and included 18 questions in multiple choice, short-answer, and comment formats. A total of 31 passengers completed the onboard survey.

This appendix summarizes both rural outreach efforts, emphasizing important takeaways regarding unmet transit needs along SR 299 and recommended improvements for the Burney Express. Highlights are referenced in the main report of the RABA SRTP when relevant.

Online Community Survey

Of the seven online community respondents, three live in Burney, two live in Fall River Mills, one lives in McArthur, and one lives in Redding. Figure F-1 shows how often the respondents travel to Redding per month for different trip purposes. The top reasons why the respondents travel to Redding are recreation or to visit friends and family; the respondents travel to Redding an average of three days per month for both of these respective purposes.

Most of the respondents had heard of the Burney Express service prior to taking the online survey (five respondents, or 71 percent), as seen in Figure F-2. Of these individuals, four had ridden the Burney Express in the past; two of the participants reported that they rode the Burney Express within the last two years, while the other two rode the Burney Express more than two years ago.

Figure F-1: Average Number of Days SR 299 Residents Travel to Redding per Month for Various Purposes

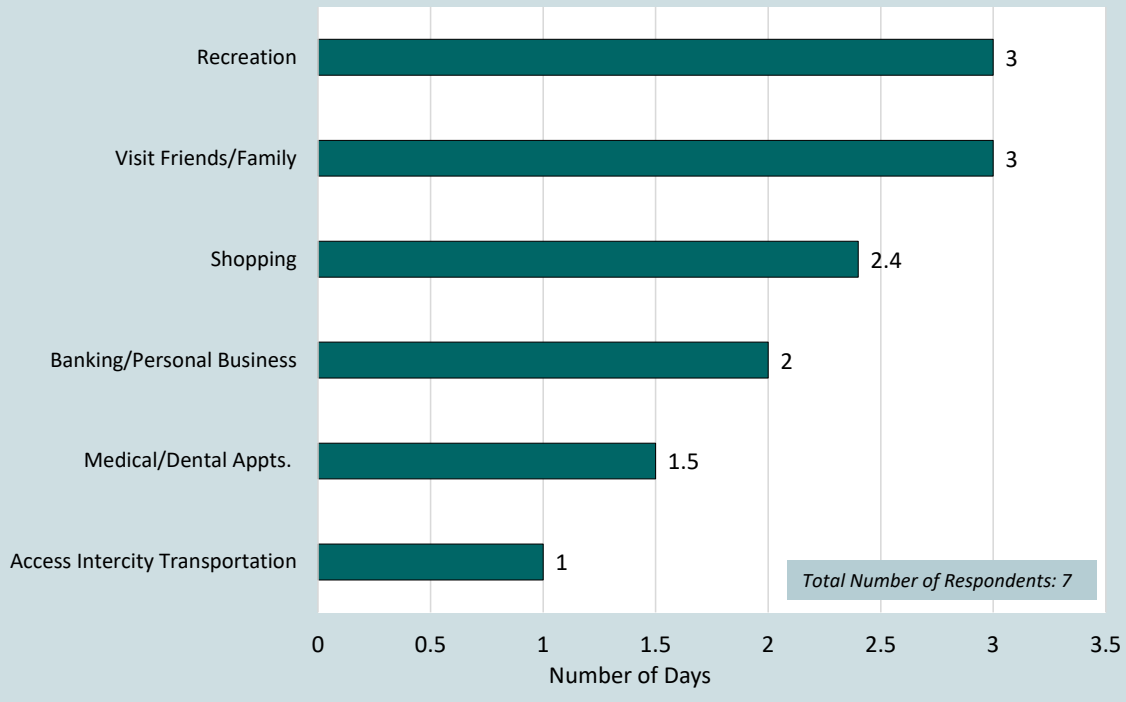
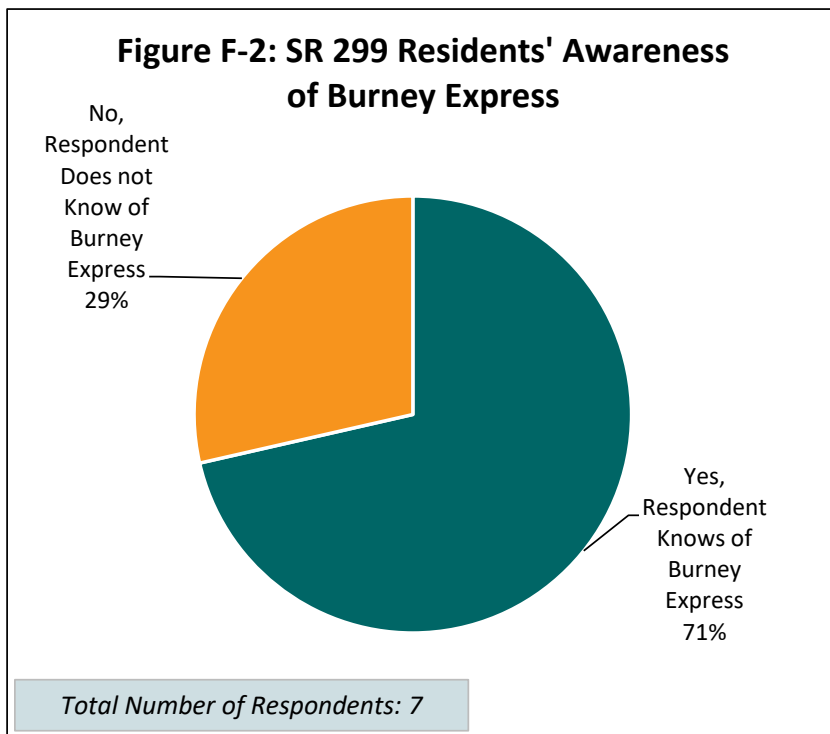
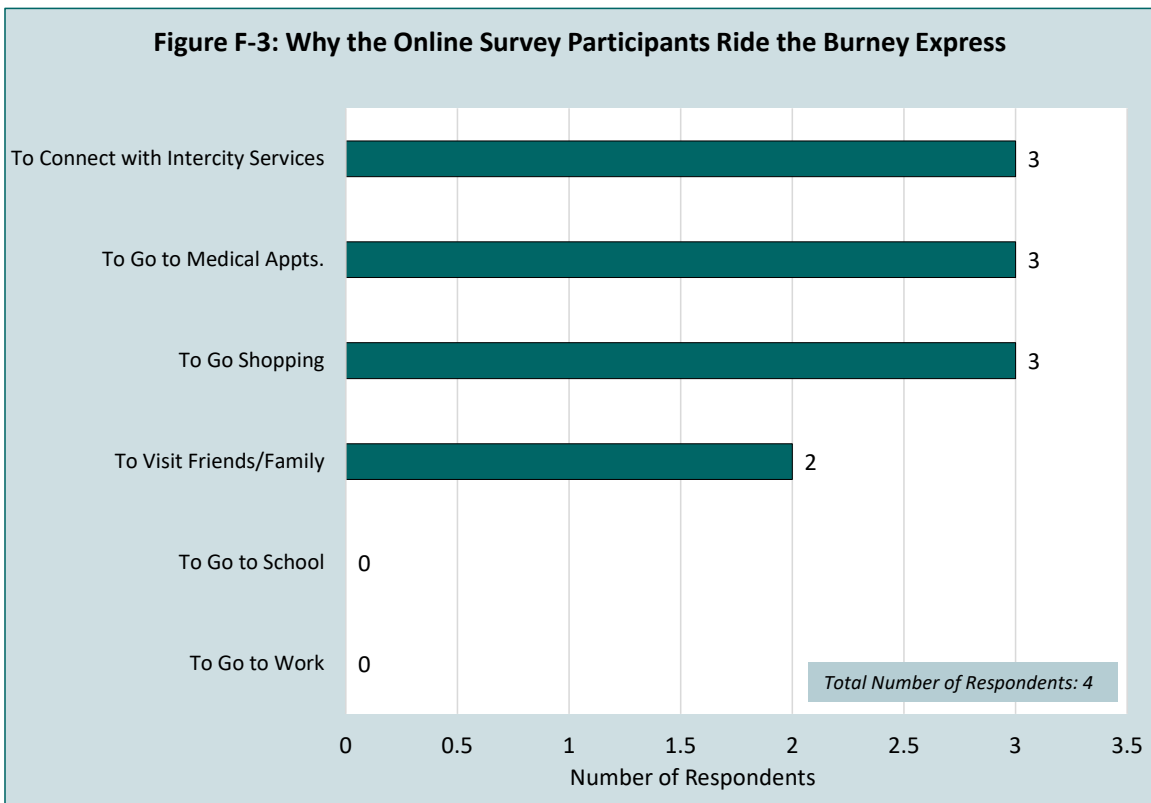


Figure F-2: SR 299 Residents' Awareness of Burney Express

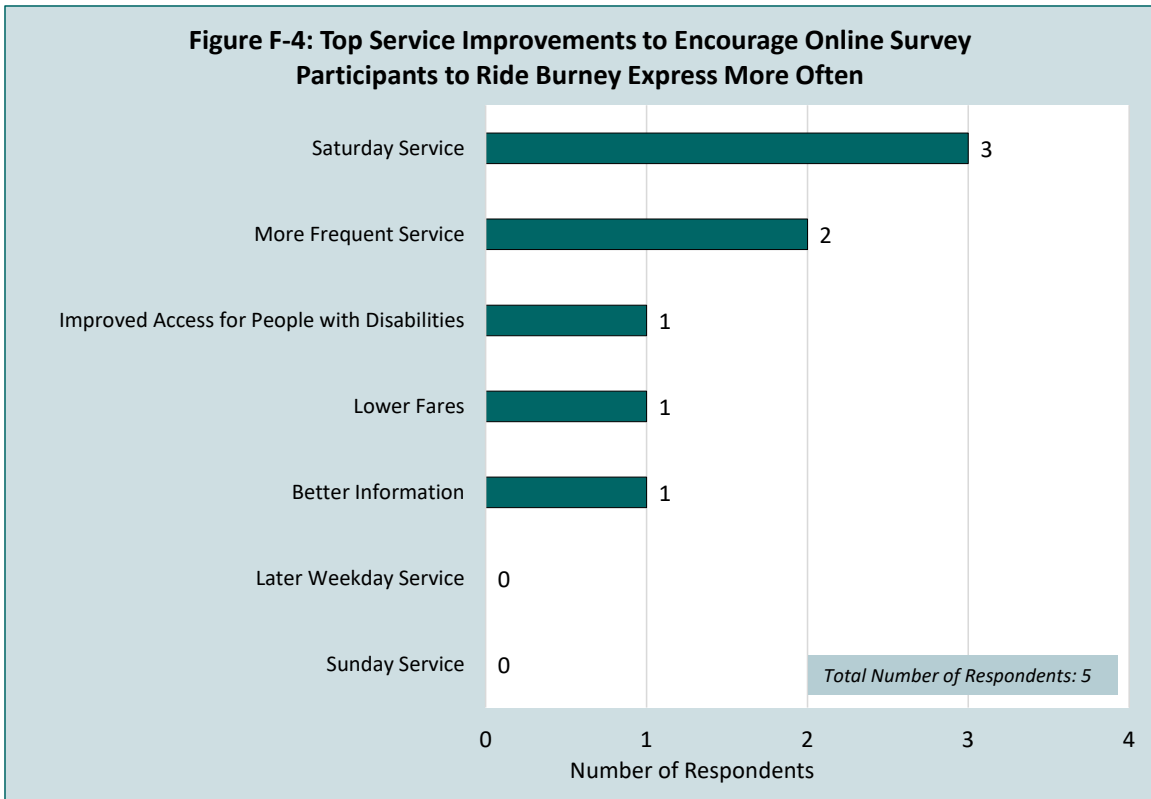


The online survey participants who had ridden the Burney Express at some point in the past ranked the overall service an average of 4.5 out of 5, with 5 equaling “very good.” The service characteristic viewed the most poorly by the online survey participants was the Burney Express service frequency, which received a neutral ranking of 3 out of 5.

The top reasons why the participants had ridden the Burney Express were to connect to other intercity services in Redding such as Greyhound, Amtrak, or airlines, to get to medical appointments, or to go shopping (Figure F-3). None of the respondents had ridden the Burney Express to get to work or school. The three respondents who had not ridden the Burney Express before said that this was the case because they have their own personal vehicles (three respondents) and that they were not aware of the service before taking the survey (one respondent).



Despite not necessarily having ridden the Burney Express in the past, six of the seven community survey respondents believe the Burney Express should continue to serve the SR 299 corridor (86 percent). The service improvements that the respondents reported would be the most likely to encourage them, and others, to ride the Burney Express more often were the addition of Saturday service and increased service frequency. Figure F-4 summarizes the improvement recommendations provided by the online community survey respondents.



Onboard Passenger Survey

Passenger Demographics

Passenger demographics are summarized in Table F-1. Most of the passengers who participated in the Burney Express onboard survey live in Burney (32 percent), Montgomery (23 percent), Round Mountain (10 percent), or Redding (10 percent). Of the three persons indicating “other”, two were out-of-area residents and one indicated they were homeless. Almost three quarters of the respondents were between 25 and 64 years old (71 percent). Only two individuals 24 or younger participated in the survey.

Over half of the surveyed passengers reported that they had their driver’s license (57 percent), but only 20 percent had access to a vehicle the day they completed the survey. Compared to RABA urban fixed route passengers, a greater proportion of Burney Express passengers have their driver’s license (57 percent versus 39 percent), and a similar proportion have access to a vehicle (20 percent versus 15 percent).

Trip Characteristics

The majority of the passengers completed the survey on the Burney Express’s first, morning round-trip (59 percent), which consists of the 5:50 AM departure from Burney and the 10:25 AM departure from Redding. About half of the surveyed passengers planned on traveling round-trip on the Burney Express, with most planning on taking either the midday or afternoon trips to get back to their origin.

Table F-1: Demographics of Survey Respondents

	#	%		#	%
Age			Vehicle Access		
Younger than 18	1	4%	Yes, Has Access to a Vehicle	6	20%
18 - 24 Years	1	4%	No Access to Vehicle	24	80%
25 - 34 Years	11	39%	Total	30	100%
35 - 64 Years	9	32%	Community of Residence		
65 Years or Older	6	21%	Burney	10	32%
Total	28	100%	Montgomery Creek	7	23%
Driver's License Status			Round Mountain	3	10%
Has Driver's License	13	57%	Redding	3	10%
Does Not Have Driver's License	10	43%	Johnson Park	2	6%
Total	23	100%	Fall River Mills	1	3%
			Palo Cedro	1	3%
			Anderson	1	3%
			Bella Vista	0	0%
			McArthur	0	0%
			Other	3	10%
			Total	31	100%

Table F-2 details where the passengers boarded and then planned to alight. The two top boarding locations were Burney Sporting Goods and the Downtown Transit Center in Redding, with 28 percent of the respondents boarding at each of the respective stops. Likewise, the same number of respondents planned to alight at these two stop locations (28 percent at each). The most popular origin/destination pairs, based on the survey data, were the Downtown Transit Center and Burney Sporting Goods (35 percent of total passengers), Burney Sporting Goods and Shasta College (10 percent), and the Burney-Elm Street stop and the Downtown Transit Center (10 percent).

This data can also be summarized to consider the proportion of trips reported between each community pair. Considering both the Downtown Transit Center and Shasta College as “Redding”, the trips made between various communities followed these proportions:

- Between Redding and Burney – 59 percent
- Between Redding and Montgomery Creek – 10 percent
- Between Redding and Round Mountain – 7 percent
- Between Redding and Bella Vista – 3 percent
- Between Bella Vista and Montgomery Creek – 3 percent
- Between Round Mountain and Burney – 3 percent
- Between Montgomery Creek and Burney – 10 percent
- Within Burney – 3 percent.

Based on these numbers, 79 percent of all trips were to or from Redding, while 21 percent were trips between stops from Bella Vista to Burney.

Table F-2: Top Origin/Destination Pairs from Burney Express Onboard Survey Results

Boarding Stop	Destination Stop							Total
	Downtown Transit Center	Shasta College	Bella Vista	Round Mountain	Montgomery Creek	Burney - Elm Street	Burney Sporting Goods	
Downtown Transit Center		0%	0%	0%	3%	3%	21%	28%
Shasta College	0%		0%	0%	3%	0%	0%	3%
Bella Vista	0%	3%		0%	0%	0%	0%	3%
Round Mountain	3%	3%	0%		0%	0%	0%	7%
Montgomery Creek	3%	0%	3%	0%		0%	3%	10%
Burney - Elm Street	7%	3%	0%	3%	3%		3%	21%
Burney Sporting Goods	14%	10%	0%	0%	3%	0%		28%
Total	28%	21%	3%	3%	14%	3%	28%	100%

Figures F-5 and F-6 show how the passengers arrived at the bus stop prior to boarding, and then how they planned to get to their final destination after alighting. Most of the surveyed passengers either walked or transferred from another bus in order to access the Burney Express (69 percent). Similarly, the majority of passengers planned to either walk or transfer to another bus in order to get to their final destinations (90 percent).

The top reasons why the passengers were riding the Burney Express were to go to recreational events/activities (8 respondents, or 26 percent) or to go to school (also 8 respondents) (Figure F-7). Only two individuals indicated that they were traveling either to or from their place of work (6 percent). While the passengers ride the Burney Express for varied reasons, most only use the service once or twice a week; 70 percent of the participants reported they make 10 or less one-way trip on the Burney Express each month, which is equal to five or less round trips.

Ideas for Service Improvements

The final section of the onboard survey asked passengers about potential improvements to the Burney Express. Figure F-8 shows how different possible service improvements would impact passengers’ ridership frequency. The surveyed passengers indicated that having the Burney Express available on Saturday and Sunday would have the greatest positive impact on how frequently they ride. This was reiterated in the comments, with many passengers asking for the Burney Express to be available seven days per week. Improved information and lower fares, per the surveyed passengers, would have the least impact on how frequently they ride the Burney Express.

Figure F-5: How Passengers Got to Burney Express Bus Stop

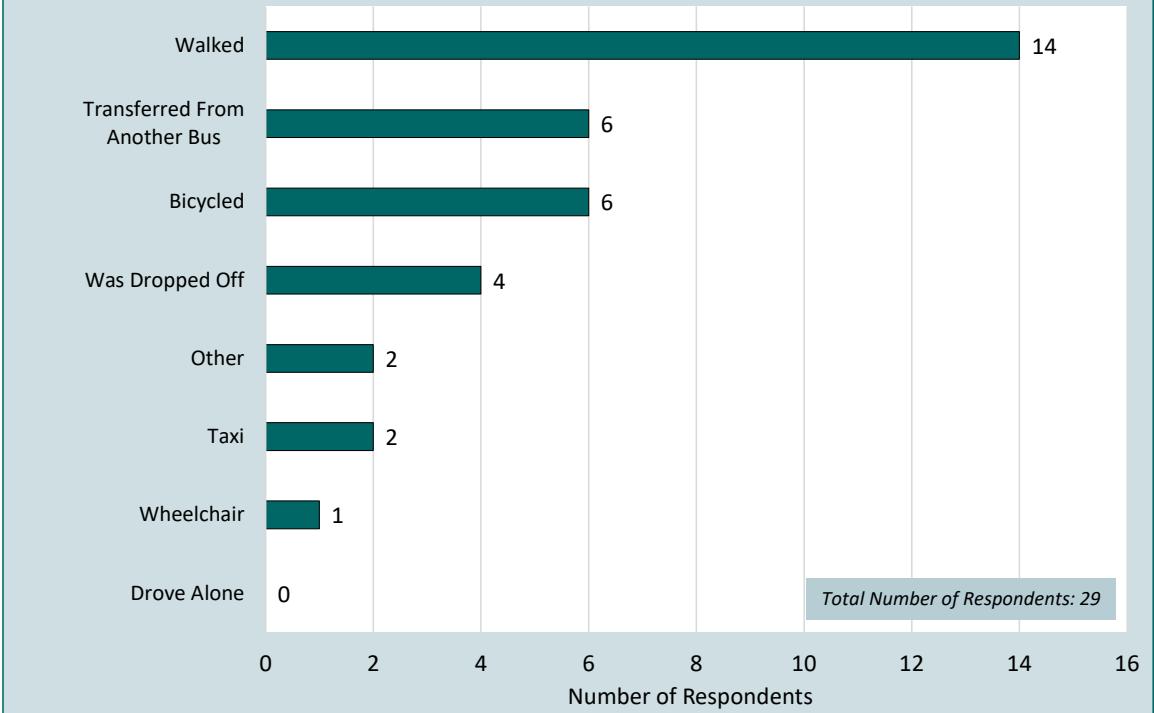


Figure F-6: How Passengers Planned to Get to Final Destination After Alighting

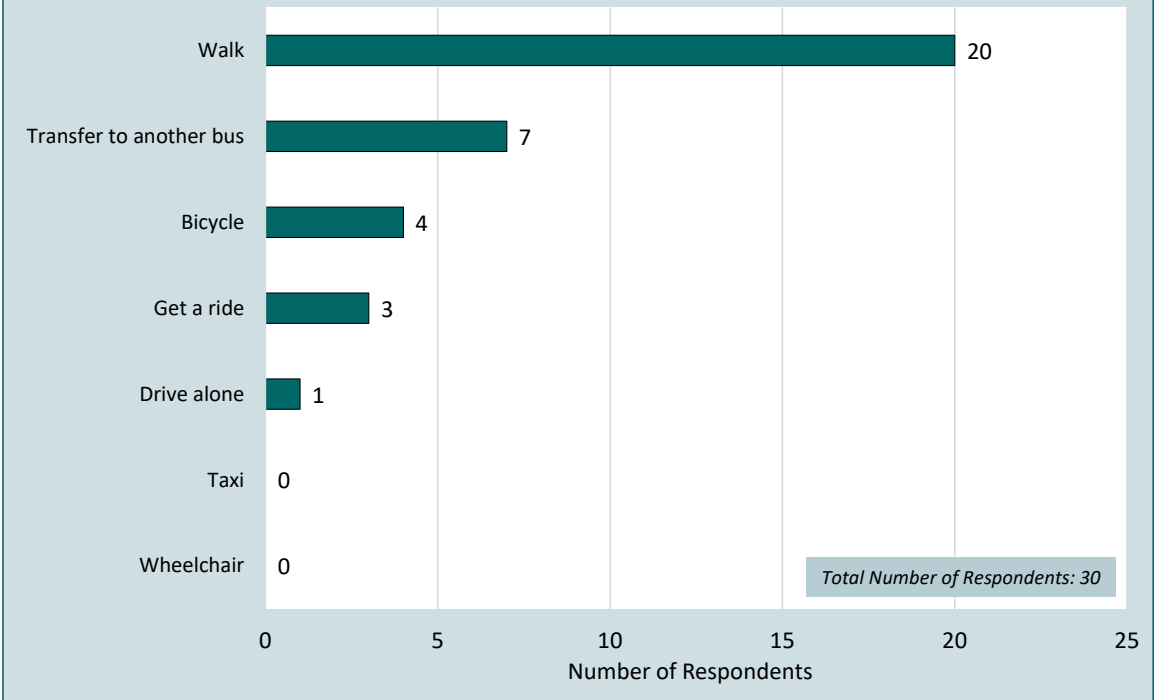


Figure F-7: Burney Express Passengers' Main Trip Purpose

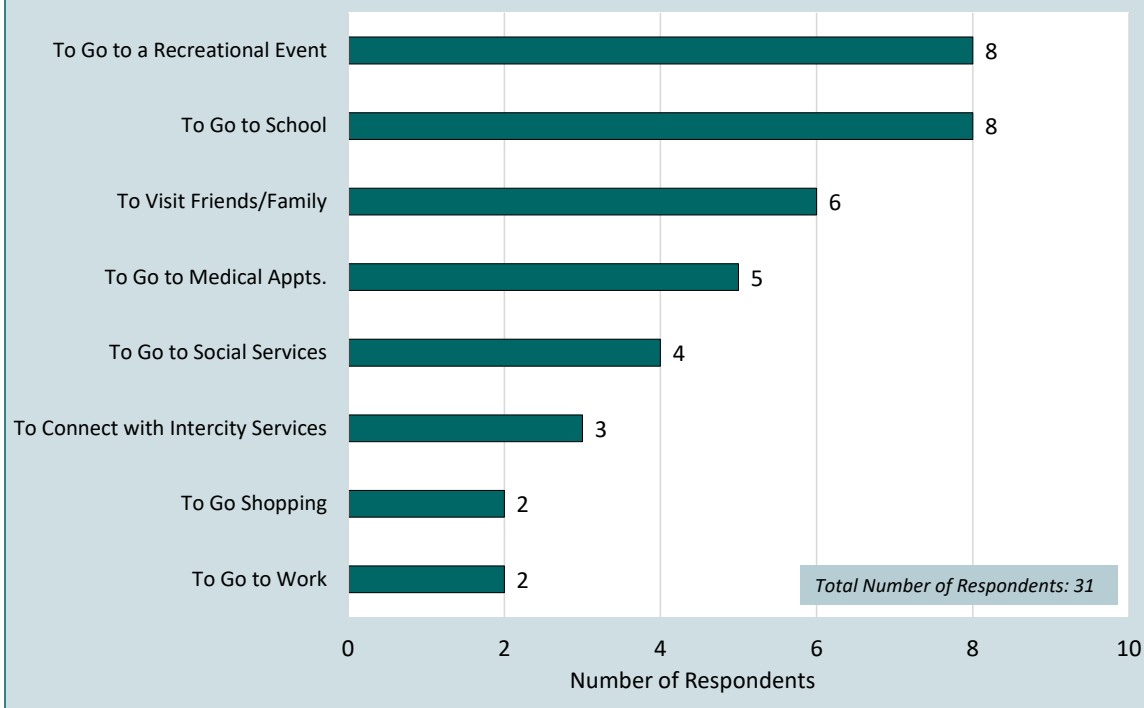
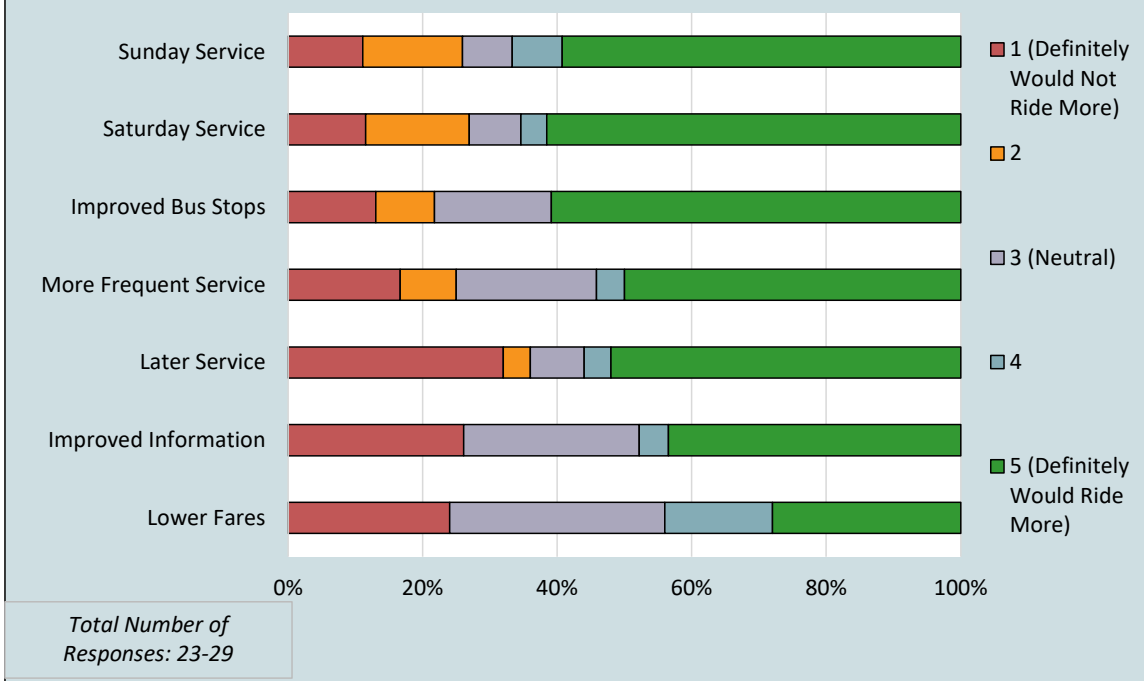


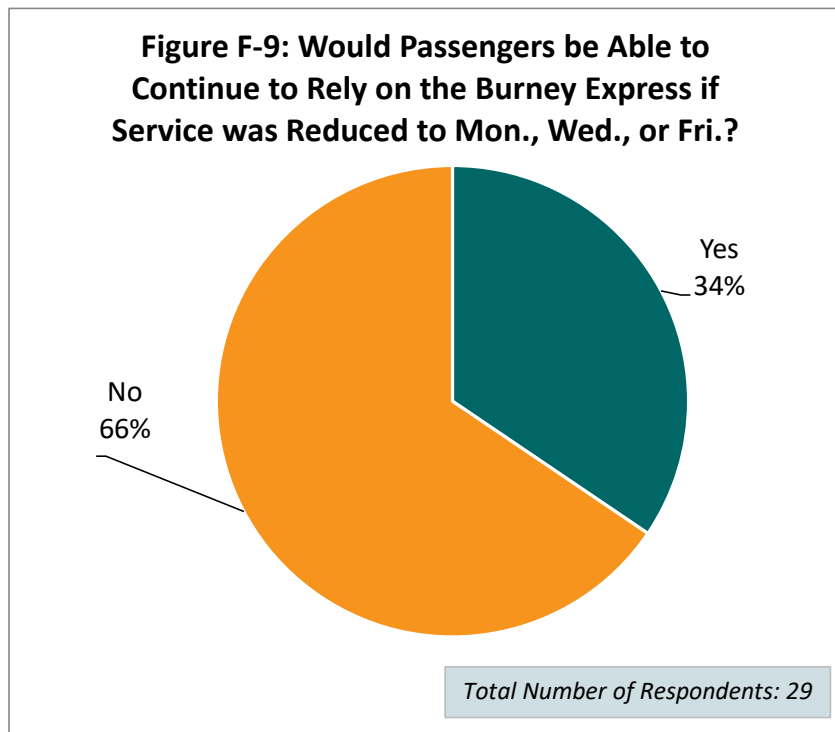
Figure F-8: Impact of Potential Burney Express Service Improvements on Ridership



The surveyed passengers were asked whether they would still be able to use the Burney Express to meet their travel needs if service was reduced to only Mondays, Wednesdays, and Fridays. As shown in Figure F-9, two thirds of the onboard survey participants (66 percent) said their transportation needs would no longer be met if Burney Express service was reduced to only three days per week.

Another possible service change that passengers were asked about was making the Burney Express a deviated fixed route that could travel as much as one mile off of SR 299. This service model would eliminate the need for passengers to travel to bus stops but could increase travel times. If the Burney Express was converted to be a deviated fixed route, 44 percent of the respondents would ride more often, 34 percent would ride the same amount, and 24 percent would ride less often.

Lastly, the onboard survey asked passengers if they would continue to ride the Burney Express if the service was provided by Sage Stage, the Modoc County public transit service, instead of RABA. The majority of the passengers who participated in the survey said they would continue to ride the Burney Express even with the change in operator (70 percent).



This page intentionally left blank

SUMMARY OF STAKEHOLDER INTERVIEWS

INTRODUCTION

An important aspect of developing a Short-Range Transit Plan is understanding and addressing local perspectives. Interview questions were developed with input from RABA staff to guide conversations with representatives of the study area's geography and demographics. Stakeholders included local and elected officials, social service program directors, and citizens at large. Out of 17 stakeholders invited to participate, 13 participated. Interviews were prefaced that they would be confidential, and therefore the findings are listed generally by topic.

Stakeholder Participants – Familiarity with Public Transit

The majority of participants had a fairly comprehensive understanding of RABA services, either as board members, current and former staff, or riders. Some of the participants, however, answered questions on behalf of their constituents and were less familiar with the services, instead offering opinions based on what they have heard from complaints and compliments.

RABA Effectiveness – How Well is RABA Meeting Needs

- RABA tries to operate efficiently, but has had several hits in the last three years or so:
 - It's hard to meet Transit Development Act (TDA) farebox ratio requirements
 - RABA lost an agreement with the flight training school which purchased 60 monthly passes, which helped subsidize service. That was dropped in 2018
 - COVID – RABA probably lost half of fixed route ridership and even more paratransit. It's returned some, but not fully and hard to know if it ever will
- Shasta College has been a big ridership generator, but they have way more classes/activities online now.
- I want the taxpayer's money to be well spent.
- Many buses run empty, even before COVID. Lots of cost per traveler. Is it the best use? I don't want to end public transit and I see a need for it, but I want it to be as efficient as possible. It does bring in road money.
- Maybe the answer is more paratransit versus fixed route? Service is inefficient. Want better efficiency—not necessarily in getting a person from point A to point B, but in cost. Fuel costs are only going to make this worse. The increased fuel is really going to show up in the performance for this year.
- As well as can be expected considering the size of the service area. People want increased frequency, longer hours, but resources are limited.
- Redding is good. Anderson just has Route 3 and Shasta Lake just has Route 1; both could be better served.
- RABA works reasonably well. It's a rural area, so I understand there's a limit. Throughout the county, the population density is along I-5. It's obviously difficult to serve outlying areas.

- In the past, there was a dedicated route to the college (School Express). That was helpful. Due to the price of gas, owning a car, RABA works well for students who can use it.
- We're more active with case management now, so can facilitate students who need transportation. RABA works well with our disabled students (Ready to Ride program). They're inclusive.
- The mission has gotten harder. Farebox ratio is hard to meet; costs have gone up; RABA Express route added just as COVID hit.
- Years ago, the Lakehead Express service was introduced. There wasn't a single rider all year, and when the proponent was told that, they went out and rode it. That kind of low ridership is a failure. On the other hand, the Burney Express service serves a rural area, but there are workers who have a consistent schedule and need to get to town and it's stable.
- Having a minimum farebox ratio is good because riders have skin in the game.
- There's lots of data. The better runs need to be supported; poorer runs eliminated.
- They are serving the public. Could be better. In terms of RABA staff and board, they are excellent. But the challenges of meeting farebox ratio and working within the confines of the state regulations makes it sometimes ineffective/inefficient.
- Based on funding available, RABA does well. If there were unlimited funding, then not meet needs.

RABA's Strengths

- From what I understand the buses are nice and the schedule is prompt.
- RABA makes an effort to address the needs of disabled populations.
- The strength is having a good staff that are flexible and willing to keep an open mind (about service changes). Previously, people dug in to maintain the status quo. For example, interlining Routes 3 and 7 has worked well.
- RABA serves a lot of people. The hours of service help a lot. We refer a lot of people to RABA (and RABA also refers them to us—cooperative). We hear a lot of compliments about RABA drivers.
- There are bus stops in a lot of places and that's fantastic. The Beach Bus is fantastic. The Express service that was added is fantastic. It helps people traveling by bike to get across town more easily.
- It gets kids to school, and many to part time jobs.
- People at RABA are good; drivers are good. They've had a tough time with the pandemic, lost lots of ridership but nonetheless maintained routes. Shasta College still is doing a lot online as are businesses (though not a lot of commuters anyway—mostly elderly and low income)
- Prominent. RABA buses are everywhere. They're reliable. Dependable. Clean. They are easy to work with in the contracting process. They're flexible in meeting our needs.
- RABA is a good partner for emergencies (on Shasta College Campus). We only have one entrance, one exit and 120 in the dorms.
- RABA changed the transfer center so not everything has to go through downtown and that's a help (Masonic/Canby)

- Provides the service it was designed to provide; does reasonably well given the resources. There are always trade-offs. On paper, it is easy to see how to run it, but it's not easy. SRTA buys into the Burney Express service to meet FB.
- Organizationally very sound. Quality equipment and staff. The components are strong.
- Good regional board
- High quality, modern fleet
- Good operator and facilities

RABA's Weaknesses

- With regards to the City of Shasta Lake, the frequency of the bus route could be improved.
- A lot of people who apply for paratransit services call us to ask about the process. It's not clear to them. Not just filling out the application, but what happens in the 21 days after. People need better direction on how to apply and what to expect.
- There could be more service. Redding is very much a service-based region, with health care being the number one industry. A lot of jobs such as restaurant workers go into the evening, and RABA is limited after 5 PM. There are industrial areas that are poorly served, and it takes 45 minutes to an hour to get there by transit whereas it would take 7-10 minutes by car. There is a high level of low income in Redding, and it's challenging for them when for a job that starts at 8 am, they have to be to a bus stop by 6:15-6:30 am.
- The problem is that there are 3 high schools in the district with open enrollment. Unless you live within the boundaries of your choice school, the distance can be long. The longer distance trips don't work well by transit. Foothill High School isn't even served by transit. There's an alternative school that serves everybody regardless of residence—kids can live anywhere.
- The stigma of public transit. And kids want to get where they're going when they want to go.
- The biggest thing is they haven't changed the fares in ten years. Fares should be tied to CPI and should increase. RABA gives too much away. Passengers will board and ask what the fare is—driver will tell base fare and discount and ask passenger which they are. Naturally, everyone says they qualify for the discount and there's no verification (that I've seen—I'm partially blind but I sit near the driver). I don't think they should cut routes that don't meet minimum farebox (one guy was voted out who tried) but they should at least make an effort to run it like a business.
- Some of the new initiatives—they need to promote.
- There's still no Sunday service, no holiday service, and nothing after 8 PM. Workers can't get around after 8 PM, which is very limiting.
- We have a "now" society. People can get on their phones and get an Uber or go pick up a scooter. There are other options, and transit is slow and working from an old model. That's why ridership is down.
- Funding. The only way to improve is to increase frequency, and that can only happen with more funding.

Desired or Suggest Improvements to RABA

- Increased frequency. But not sure how much difference that would make. The people who ride it are going to use it regardless.
- Will medical providers like North Bay Transit be part of this study? Because they provide a lot of service and it's reimbursed by Medicaid. Why should RABA be providing these trips when there are probably five such providers out there? North Bay Transit could only serve 75 of 150 requests due to a lack of drivers. That's important data that should be considered in the plan.
- With regards to the City of Shasta Lake, the frequency of the bus route could be improved. This could be done by shortening the route or increasing the consistency. If a patron misses the bus, the bus won't back for an hour.
- Possibly an on-demand service may help out ridership.
- Increasing accessibility and availability of transportation services for clients with developmental disabilities and increasing coverage area.
- Accessibility, ease of use, availability, increased routes, safe stops.
- Pull things in more. RABA tries to serve to large of an area. More concentrated service. The service area is killer.
- Reduced service areas
- Get rid of Zone fares. They take a lot of time to process and slow things down. Even if fares had to be reduced/increased to balance, the zone fares are a problem.
- Set policies. For example, passengers want to bring more stuff on board but that's not safe. It's been good to have bag limits and not allow carts. We have too many wheelchair boardings and those interfere with loading wheelchairs.
- Possibly adjust hours to run later. Service ends at 7:30, and many jobs go later than that.
- It comes down to time. People have to start their trip at 8:00 AM to get to a 10:00 AM appointment to account for transfers and possible delays. It's an ordeal to use transit.
- Transportation is confusing for the average person. There's no one place to get information. RABA has a good website with information about its services, and ShastaConnect has information about their services and others. But lots of seniors don't use the internet. We get phone calls asking for information about RABA—even transportation from Sacramento. People don't know where to find information. A one-stop location (web and phone) would help a lot.
- Extended hours
- There are drop offs/pickups right in front of the schools, but the issue is getting kids across town effectively.
- Should serve the airport. They had a route that went to a flight school but didn't stop at the airport.
- Sunday service—RABA didn't want to do this, so it's through Dignity Health (DH) and is uber-like. Youngsters think Uber is the bee's knees but it's expensive! Taxi drivers say they are busier than ever because Uber charges so much. I personally had a bad experience trying to use the Sunday service and haven't since. There were software glitches, and I used a taxi because my appointment was time sensitive.

- Dignity Health (DH) phone system doesn't work well for transportation. Transportation is secondary. You can use the voice prompt at the beginning of the call, but not throughout the call. If you stay on the line with RABA, you eventually get to an operator, but with DH you get dropped. DH is not adaptive after the initial interaction and people who aren't using smart phones can't use the service.
- Service is centered from downtown or Canby. Not everything should have to go downtown.
- Better coordination with Trinity Transit, Sage Stage, others.
- Could expand more. There's the loop in Shasta Lake, but no service off the loop.
- People don't want to wait. It takes me 4-6 hours to go to one appointment, and maybe also get a meal or run an errand if I'm lucky. People don't want to wait for buses when cars are so much faster—get a ride.
- "Spoke" system is okay but make it smaller with more outlying service. And instead of going out and back, make it like a flower design so it serves more areas. Lots of people have to walk 4-6 blocks to a stop so just don't use it.
- Would like better connectivity with the high schools. Shasta College has 160 high school students, and it would be great if the routes coordinated better with their bell times and their transportation. Especially now that HS is starting later.
- Would like the school express back. Faster service. I coordinated with a student who left at 7:40 AM and I thought she would easily make it to class, but she didn't arrive until just after 9 AM.
- We have a basic needs center and we've improved our case management. We're educating our front-line staff to be knowledgeable about the available transit services. It would be great if RABA could help train them.
- Lots has been put on hold with COVID. Still not up to speed, but it's not over. Important to monitor. There has been a lot of \$ put into new runs. I support frequency over coverage. Burney Express is a good service—3 trips/day is a benefit so people can make midday trips.
- I favor express routes.
- Smaller vehicles and more frequent, on-demand type of service. We would save money if people could call up an autonomous vehicle and use that. We need to move to the future. We're operating same as in the 40's.
- 15-30 minute headways
- Serve other key areas, like the airport/VA
- Can't attract the non-transit-dependent without improving and can't improve without more money.

Attracting Riders

- RABA is a social service system. People don't ride it by choice
 - Because it's a large area, difficult to serve efficiently
 - There's no traffic congestion, parking issues—easy to get everywhere by car
 - Primarily hourly headways, so not attractive for choice riders
- With regards to the City of Shasta Lake; more frequent bus access.

- I'm not sure about the Redding/Shasta Lake/Anderson area but would like to see more service to areas like Palo Cedro and Bella Vista. And more service so routes don't take as long.
- We need to target younger riders who don't have a car. If they learn to use transit now, there's a greater chance of them using it later even if a lot will be lost to cars when they can drive. Some will stay with you.
- I haven't used RABA, and when I was going to (8 years ago) my husband nixed it saying it wasn't safe. Now that I'm involved with public transit, I feel differently about it, but it does have that reputation of not being safe and serving the homeless.
- Accessibility. Availability of the bus is paramount to getting to services. The through services help. People don't want to have to walk across town, but they don't want to wait at a bus stop where transients congregate.
- Someone just spoke to me about a grant to provide free transit for youths. That's very new and we're not sure of the success.
- There are no major employers, so RABA doesn't really work for commuters. The hours don't work for commuters either. There are not enough hours of operation to go to work and conduct any errands. RABA should start an hour earlier and/or go to 10 PM. But ridership would be weak.
- Many years ago there was a bus that picked up in Red Bluff and brought students to the Shasta College campus. Maybe RABA and TRAX together could do that.
- Couldn't it be free for all students?
- Emphasize successful routes. Continuity of existing systems. Marginally successful routes now are likely to continue to improve. Don't introduce new routes. Change is hard—it's hard for riders. Hard for me to figure out sometimes and riders are generally less analytical.

Changes to the Redding – Shasta Lake – Anderson Areas

- Future growth – growing southward along So. Bonnyview (fast food, retail) outside of the service area, so not sure how that will be addressed. Also planned growth northwest off Oasis Road. These will be hard to serve. But also a lot of development in the downtown area through SCS grants--\$40 million worth. We're building affordable housing and bus passes will be part of the deal.
- Smaller communities of Shasta Lake and Anderson—if they take on more service in their areas, their costs will go up. Funding agreements now have them only paying for the portion of the route that's in their community, but if they're seeking 8-12 hour/day service, which will be expensive for them and will impact funding.
- Microtransit for peripheral services: we've looked at this, asking whether it can work to bring people to the fixed routes. But is it cost effective? Paratransit is more expensive, and it seems microtransit would be too.
- Growth in Anderson: We've met low-income housing needs. We're building middle income housing right now—starting construction and six families will move in.
- The City of Shasta Lake has partnered with a local developer in the construction of a 49-unit affordable housing complex. Also, a local non-profit is seeking to construct a 30-unit affordable housing complex for veterans.

- Increased businesses and homes in out-lying areas. More traffic and a greater population in general.
- Growth in the east side corridor, like where Costco is going in. Many of the jobs moving in will be shift jobs, so might need specific hours to run transit to serve those.
- Gas prices and inflation will have a big impact on need, but it also makes providing transit more expensive.
- The VA moving will impact transit.
- We're seeing a change in the new work force. They're not as willing to drive. More are relying on transit as they turn 18. They see driving as too expensive, so they don't get a license.
- We've had decreased enrollment for the past 10 years. Young people are moving out, and retirees are moving in. The State has mandated later start times for students, and this could have an impact on transportation. Working parents may head off to work, leaving kids at home to get to school on their own.
- We expect the biggest growth will be through the added service through TRAX. We have offices downtown (not students) and a health program downtown, but the program hours really can't be done with transit.
- Long term – serve the core areas. Growth will be strongest in the urban areas, not the mountain areas. Density is increasing. Affordable housing and increased parking costs downtown will influence transit use. There are more people who can't afford cars.
- The trail systems have improved tremendously. There is a better pedestrian network, and 100 miles of shoulders have been added to roads.
- The public has other choices. Byrd brought 35 scooters to Anderson last month, and we had 700 trips in a month. That's the future, not 40' Gilligs, at least for Anderson, which is small and has excellent non-motorized paths. You can get from any residence to Walmart in minutes by scooter.
- People also have more options since COVID. Many still working remotely, meeting by Zoom.
- As VMT requirements, zero-emission vehicles become more of a reality and necessity, the public mindset will change. Whether that's to start with Uber, rideshares, or other modes, it will lead to more people using some form of public transit. We will continue to move in that direction as the need to reduce greenhouse gases/climate change is more imperative.

Role of Public Transit

- Transit is an essential social service. People utilize the system. It also brings grant money into the community (ATP grants, Highway grants, etc.). It's important for that reason. It's also a community service. We have events like the Veteran's Salute where we raise money to buy passes for Vets, Homeless Connect, special events we're part of.
- I serve at risk people and I understand their needs, their inability to get on a bus at 6 am and go to a job. They need services.
- Provide safe, dependable, and low-cost transit options that serves the people in the Redding area.

- To increase the ability of disadvantaged populations to readily access community resources including employment in all areas of our county.
- There is a big need for it. There are lots of people without cars, lots of low income. But there is getting over the hurdle of public perception about what public transit is.
- It's a connector. It's how people get to public resources. The County offices are very dispersed. Some are downtown, some are on the outskirts of downtown, and some are further out. Transit helps people get to community services.
- Convenience. If transit can meet mobility needs.
- The role is to provide transportation for those who don't have options. I'd like to see it as an alternative to driving to reduce traffic and pollution.
- There's a park-and-ride lot downtown, but these types of facilities should be in the outlying areas so people can park outside of town and take the bus in. You might get people out of their cars if transit were more flexible.
- Access for people without the resources to drive or have a car.
- In urban areas, transit is a competitive option. In rural areas, like Redding, it is born of need when an automobile is not available, and we have to be realistic about that. It serves workers, people getting to services. It's important.
- In the past, there was a contentious relationship between public works and the city, between roads vs transit. That's improved. The thinking used to be that any new service was good, but now it's recognized that only routes that meet performance measures are good.
- Public Works should continue to build infrastructure, including that for transit. The City should continue to show itself as an efficient provider.
- To get people where they need to go, primarily for services, not recreation. Interestingly, scooters and bikes, which began as recreational, are starting to meet people's needs for services. Byrd operates on a business model, and just dropped scooters off at multi-unit housing, so perhaps that's where the need is. Will be interesting to see.
- Transit is a service provider for people who have no other options.
- RABA operates independently but represents many jurisdictions. It's the agency to get things done, get grant funding to switch to ZEVs, pilot programs. RABA is a key leader.

Additional Comments

- In Anderson, everyone drives a car. Even people who are struggling drive cars, sometimes at the expense of feeding their families. Yes, there are some who don't have cars, but if there's any way they can drive, they do.
- RABA bought an electric bus, but I still haven't been on it. I'd like to see it used more. I guess they used it for the Beach Bus, but they rotate other large/small buses in various routes, but not the electric bus. (Also, what will society do with used batteries?)
- Advocate for farebox ratio standards. Good measure.
- There's no longer a local paper, and few take the Redding paper. Reaching the public is challenging.
- There's always been a concern about RABA streets versus roads, but RABA is here to stay.

CONCLUSION

The comments provided by stakeholders varied widely, but a few key themes were reflected by the majority of participants, including the following:

- **Efficiency:** Most stakeholders believe RABA is as efficient as it can be given the resources available. Some noted that it is difficult to meet the farebox ratio, but a few also noted the importance of having performance measures to ensure the greatest efficiency possible.
- **Strengths:** RABA staff, governance, and capital assets were listed as top strengths for RABA. Driver courtesy was also mentioned. Stakeholders noted that RABA serves who it is intended to serve, has fairly good coverage, and meets basic needs.
- **Weaknesses:** The primary weakness is the lack of frequency and subsequently the time it takes to travel from one location to another. This was attributed to funding, but also to serving low productive routes.
- **Desired Improvements and Attracting Riders:** The top improvement suggested was for increased frequency to improve travel time. Others suggested that something entirely new should be tried, such as on-demand “Uber” type of service or alternative modes to fixed route service. Several suggested improved efficiencies through eliminating poor performing routes and concentrating on core “trunk” services. There was mention of the “empty bus” syndrome, and stakeholders suggested smaller buses may be more effective. Additionally, stakeholders acknowledge the perception of public transit is often poor, and changing how people think about transit would be beneficial. For example, some suggested youth and young adults are more likely to ride and attracting them as young people can make them life-long riders.
- **Role of Transit:** Stakeholders noted that transit should be for everyone, but in reality, serves those who have no other options.

This page intentionally left blank

REVIEW OF RELEVANT REPORTS

A review of the findings and recommendations of other local and regional plans and reports was conducted.

FY 2022/2023 SRTA Transit Needs Assessment

As a requirement for allocating TDA funding in the region, every year SRTA must complete a study of potential unmet transit needs to identify possible areas to improve service that are reasonable to meet. The most recent Transit Needs Assessment for the region was conducted by SRTA in early 2022. In Section 6: Analysis of Potential Service Improvements, the report identified that *“the following transit needs consistently rank among the top unmet transit needs identified by the Shasta Transit Priorities Survey, RABA Short Range Transit Plan, and SRTA’s Chronological History of Unmet Transit Needs Comments since FY 2002/03:*

- Sunday Service
- Expanded Hours of Operations
- More Frequent Buses (Shorter Headways)
- “New Service”

Specific short-term analysis recommendations were made based on the 2040 SRTA LRTP. These considerations include:

- Continue SRTA Sunday On-Demand Transit service beyond the pilot project timeframe;
- Continue expanded SRTA CTSA service, including consideration of adding service on Saturdays;
- Explore future RABA On-Demand Transit service as an alternative to existing RABA Bus service on Saturdays and/or for low performing routes and times;
- Explore consolidating Burney Express with SRTA CTSA service and Sage Stage;
- Find efficiencies and reduce overlap between RABA demand response service (complimentary paratransit) and ShastaConnect;
- Implement low-income strategy from Long-Range Transit Plan (i.e., free fares); and
- Re-establish Airport Express to both the Veteran’s Administration (VA) Clinic and VA Home on Knighton Road.

2000-2020 City of Redding General Plan: Transportation Element

Various policies in the current General Plan’s Transportation Element include public transportation strategies. Below are examples of policies that may impact the SRTP.

T1A. Ensure that multimodal infrastructure improves transportation choices for... public transportation riders... and that all users are considered and included in the planning, design,

approval, construction, and operation of new streets, and the alteration and maintenance phases of existing streets by:

- Providing pedestrian and bike connections from developments to... transit stops.
- Incorporating street design features and techniques that promote safe and comfortable travel along streets by... public transportation riders.
- Providing features that improve the comfort, convenience, and safety of users such as... comfortable and attractive public transportation stops and facilities.

T13. Review the City's construction standards for... transit facilities and revise as necessary to incorporate Complete Streets standards that support all users.

T3C. Collaborate with the Redding Area Bus Authority (RABA) to incorporate infrastructure to assist users in employing multiple means of transportation in a single trip in order to increase transportation access and flexibility. Examples include, but are not limited to, provisions for bicycle access on public transportation, secure bicycle racks at transit stops, and public transportation access to trails and recreational locations.

T4B. In collaboration with Shasta County, City of Anderson, City of Shasta Lake, and the Regional Transportation Planning Agency, integrate bicycle, pedestrian, and public transportation facility planning into regional and local transportation planning programs to 4 Transportation Element City of Redding 2000–2020 General Plan encourage connectivity between jurisdictions. Encourage coordination among these agencies to develop joint prioritization, capital planning and programming, and implementation of street improvement projects and programs.

T5A. Establish the following peak-hour LOS standards for transportation planning and project review. They reflect the special circumstances of various areas of the community:

- Use LOS "D"—"tolerable delays"—for the Downtown area where vitality, activity, and pedestrian and transit use are primary goals.

T11D. Establish maximum and minimum standards for parking spaces in transit corridors and Downtown to promote use of alternate modes of transportation.

T13A. Support the continuation and expansion of private commercial bus operations to provide additional regional transit opportunities for residents.

T13B. Work with the Redding Area Bus Authority (RABA) on an ongoing basis to plan and implement additional transit services that are timely, cost-effective, responsive to growth patterns, and meet the needs of existing and future transit demand.

T13C. Provide bus pull-outs along arterial streets at approximately ¼-mile intervals or as indicated in the Shasta County Transit Development Plan. Determine the precise locations during development plan review or at the time of major street improvement or reconstruction.

T13D. Require development to install passenger amenities at designated bus stops when identified as a mitigating measure.

T13E. Provide attractive, well-lighted, comfortable, and protected waiting areas for bus passengers.

T13F. Promote coordination of transit and air transportation services to enhance the transportation options available for residents and visitors to the Redding community.

2016 City of Redding Transportation Plan

The Transportation Plan provides a series of goals and guiding principles for transportation within the city. Below are those applicable to the SRTP:

Goal 4. Encourage transit ridership by providing safe and effective service and real-time information.

Guiding Principles

- Implement real-time passenger information systems.
- Improve Americans with Disabilities Act (ADA) access, lighting, and shelters.
- Add a new fixed route that provides service in and around Downtown, and to Turtle Bay

Goal 6. Provide a transportation environment that encourages bicycle use.

The 2016 City of Redding Transportation Plan additionally includes a full Transit Action Plan with various objectives and design elements. Objectives include the following:

- Transit systems are integrated into a strong pedestrian and bicycle network.
- Encourage a mix of complementary uses at a higher density within the local area of a transit center.
- Provide mobility for all ages, incomes, and lifestyles.
- Efficiency and experience are improved through the availability of information, comfort, safety, and ease of access which improves public image and ridership.

Furthermore, the design elements outlined below provide tools to increase rider comfort and system efficiency to increase ridership.

- A. Real-Time Passenger Information
- B. Bus Stop Improvements
- C. Buses
- D. Route Expansion

2022 Downtown Redding Specific Plan Update

The Specific Plan Update refines the Downtown Redding Specific Plan that was originally adopted in 2001. The document summarizes the recent developments and changes that have spurred renewed interest in the Downtown Redding area and provides a guiding vision for the future changes to the area as well as regulatory changes that encourage infill and mixed-use development in Downtown.

The Specific Plan Update includes a set of implementation strategies regarding public transit that include:

- A. Improve bicycle facilities at the Downtown Transit Center.
- B. Improve pedestrian connections to the Downtown Transit Center.

- C. Encourage residents and workers to utilize bus service to and from Downtown by making the routes efficient, the stops convenient, and providing clear service.

An additional point that is mentioned regarding public transportation is a policy that reduces parking space requirements for developers. The policy is summarized as follows: *“The Director may grant up to an additional 25 percent reduction for active transportation improvements and/or the provision of transit passes. ... Reduction of one space for each transit pass purchased from the Redding Area Bus Authority for one individual for a period of 10 years; the purchase of multiple passes equivalent to one individual for a period of 10 years shall be acceptable. Such passes shall be provided to one or more resident, business owner, or employee of the subject project at no cost.”*

These policies can have a short- to medium-term effect by encouraging transit use for new Downtown area residents and generating revenue for RABA in the form of purchasing monthly passes. The long-term effect of this policy is that there is less demand for car-oriented development and more transit-oriented development in Redding’s urban core, making it possible to live a car-lite lifestyle for new residents and reducing the barriers to riding on RABA transit services. Additionally, it will build support for transit-oriented development and improved transit infrastructure and services among the developer community in the Redding area which can be important for improving transit service and generating economic benefits for the community.

2007-2027 City of Anderson General Plan: Circulation Element

There are several policies in the City of Anderson’s current General Plan’s Circulation Element that relate to public transportation strategies. Below are examples of policies that may impact the SRTP.

A. Public Transportation Policies (TP)

TP-1 - Ensure that new roadways and facilities can accommodate public transit. (Air Quality Element)

TP-2 - Ensure that new public and private development supports public transit. (Air Quality Element, Land Use Element)

TP-3 - Encourage transit providers to improve transit routes, frequency, and level of service to adequately serve the mobility needs of Anderson residents, including those dependent on public transit in a cost-effective manner. (Air Quality Element)

B. Public Transportation Implementation Programs (TI)

TI-1 - When reviewing development proposals, coordinate with public transit on appropriate standards for bus bays, bus turnouts, bus shelters, and other public transit amenities.

TI-2 - Coordinate with public schools to promote access and roadway designs that support school bus requirements.

TI-3 - During the development review process, require provisions in site plans for public transit vehicle stops and turning maneuvers, where appropriate.

TI-4 - Explore potential locations for Park-and-Ride facilities within Anderson.

TI-5 - Use routing and transit programs to maintain the highest level of public transit service possible.

Draft 2040 City of Shasta Lake General Plan: Circulation Element

The City of Shasta Lake is currently updating its general plan, and the public review and comment period ended on September 8th, 2022. In the draft plan, the Circulation Element of the plan includes various policies that relate to public transportation strategies.

The first goal of this section is to “Develop a transportation system that meets the needs of all segments of the community, including residents, businesses, visitors, and the region, through a ‘complete streets’ approach to transportation planning.” The policies outlined under this goal include:

Policy-Cir-1.2 - Evaluate the feasibility of including “complete streets” considerations in the design of all street improvement projects, including but not limited to ... Public transit improvements.

Policy-Cir-1.8 - Promote greater linkages between land uses and transit, as well as non-vehicular modes of transportation to reduce vehicular trip related emissions.

Policy-Cir-1.9 - Take into account the specific needs of the population when designing roadways, including bicycle and pedestrian access, transit and drop-off needs, and safety around crosswalks, intersections, and roundabouts.

The third goal of this section is to “Promote alternative travel modes, including transit, pedestrian, and bicycle circulation systems to improve access and public health.” Below a number of specific policies that relate to this goal.

Policy-Cir-3.3 - Encourage the development and expansion of local and regional public transit systems. Request improvements in transit service.

Policy-Cir-3.6 - Encourage local transportation agencies to make public transit more comfortable and convenient, especially for underserved populations.

Policy-Cir-3.7 - Review proposed designs for large traffic-generating uses with transit service in mind, and, where feasible, require streets to be improved to provide bus loading and unloading without disruption of through-traffic.

Additionally, the plan includes a section on transit that states that “Issues with the current service include long wait times (up to an hour) and a lack of transit stops, especially those with shelters.”

And finally, the plan mentions another opportunity for multimodal transportation connections: “RABA transit service currently includes buses with bike racks. However, there are no existing Park-and-Ride lots or transit terminals in the City of Shasta Lake where a bicyclist could connect to another mode of transportation.”

2018 SRTA Regional Transportation Plan (RTP) & Sustainable Communities Strategy (SCS) for the Shasta Region

In 2018, the SRTA Board of Directors adopted the RTP to guide the future 20 years of transportation investments in the Shasta Region, which includes the Cities of Redding, Anderson, Shasta Lake, and unincorporated areas of Shasta County. The SCS is a component of the RTP, required under California

Senate Bill 375, which address how the RTP will meet the region’s greenhouse gas (GHG) emissions reduction targets.

The RTP included a SWOT analysis – a high level summary of regional Strengths, Weaknesses, Opportunities, Threats affecting the regional transportation network – including SRTA’s ability to sustain and evolve the system to meet regional and interregional mobility needs for people and freight. For public transportation as related to RABA, strengths included TDA funding, weaknesses included RABA performance (e.g., poor on-time performance, infrequent headways, no late evening service, and no Sunday service), opportunities included transit data (e.g., technology for data collection), and threats included lack of appeal to choice riders and increased operating costs (due to fuel increases).

The RTP also included the following goal, objective, and strategies:

Goal #3: Provide an integrated, context-appropriate range of practical transportation choices.

Objective 3.1 – Develop an integrated, context-appropriate range of local transportation choices.

Strategies:

- B.** Improve connectivity between public transportation and bicycling and walking to reflect the complete door-to-door trip from origin to destination.
- C.** Prioritize public transportation, bicycle, and pedestrian infrastructure and amenities within designated Strategic Growth Areas (SGAs) and on corridors that connect to/from SGAs.

2040 SRTA Long Range Transit Plan

In 2021, the SRTA Long Range Transit Plan (LRTP) for Shasta County was introduced, which provides the SRTA long-range (20 year) vision for public transportation and mobility services throughout the region. The LRTP included a variety of scenarios and strategies that SRTA can take to address emerging trends, while also considering/adapting to real world conditions as they occur, for implementation and continues reevaluation. The LRTP identified the following four distinct strategies/categories:

- Multi-Modal Accessibility Strategies
- Fixed-Route Service and Infrastructure Strategies
- Policy Improvement Strategies
- Alternative Mobility and Technology Strategies

In the section discussing “Fixed-Route Service and Infrastructure Strategies” (i.e., “Realign Current Transit Network for Future Conditions”), the LRTP notes how transit agencies periodically analyze existing services (e.g., through the transit agency SRTP), with any service realignments identifying key travel patterns, concentrations of transit dependent populations, and the alignments of both high and low ridership routes. Following such and analysis, the LRTP notes, “*key corridors should be identified as candidates for high-frequency trunk line service, while lower ridership areas may receive lower-frequency service or more cost-effective emerging mobility options like microtransit. This approach to system realignment would provide more useful service on the high frequency corridors,*

ensure transit dependent populations continue to have access to mobility options, and allows new service types to be tested and evaluated in lower demand areas.”

In the section discussing “Fixed-Route Service and Infrastructure Strategies” (i.e., “Implement Transit Enhancements Coordinated with Active Transportation Improvements”, the LRTP notes the following transit infrastructure enhancements that can help to increase the speed of transit:

- **Off-board fare collection systems** which “allow passengers to board transit vehicles without waiting in line to pay fares.”
- **Transit signal priority** which is “activated by an approaching transit vehicle and can be very effective on streets with long signal cycles or significant distances between signals.”
- **Queue jump lanes** which “are short sections of exclusive transit lanes that allow transit vehicles to bypass congested areas.”

In the section discussing “Policy Improvement Strategies” (i.e., “Low-Income Fare Strategy”), the LRTP notes the SRTA role of partnering with transportation providers in the region to develop a comprehensive coordinated approach to low-income fares, as well as contributing funding to evaluate the potential for fare capping technology and the financial impacts related to a low-income fare program. Fare capping is an emerging strategy in which “*individual trips are tracked and fares are capped after reaching certain thresholds (i.e., two trips in a day or 30 trips in a month).*”

This page intentionally left blank

RABA MICROTRANSIT SERVICE ALTERNATIVES ANALYSIS

INTRODUCTION

The attached tables provide a detailed analysis of potential ridership by microtransit zone in the RABA service area. The methodology for this analysis is explained in detail in Chapter 6 of the Short Range Transit Plan.

Table I-1: Analysis of Full Conversion to Microtransit

Hour of the Day	All Day Microtransit Service												Microtransit Service Prior to 8 AM and After 5 PM															
	Weekday Ridership Demand by Hr						Sat Ridership Demand by Hour						Number of Vehicles in Operation				Unserved Existing Ridership if Constrained		Number of Vehicles in Operation				Unserved Ridership if Constrained					
	Fixed Route			DAR			Fixed Route			DAR			Unconstrained		Constrained		Weekday		Sat		Unconstrained		Constrained		Weekday		Sat	
	Fixed Route	DAR	Total	Fixed Route	DAR	Total	Week-day	Satur-day	Week-day	Satur-day	Weekday	Sat	Week-day	Satur-day	Week-day	Satur-day	Weekday	Sat	Week-day	Satur-day	Weekday	Sat						
6:00 AM	48	0	48	0	0	0	12	0	12	0	0	0	21	--	21	--	--	--	--	--	--	--						
7:00 AM	84	10	94	0	0	0	21	0	21	0	10	0	21	--	21	--	--	--	--	--	--	--						
8:00 AM	99	14	113	0	0	0	25	0	21	0	29	0	--	--	--	--	--	--	--	--	--	--						
9:00 AM	111	13	124	81	1	82	28	21	21	12	40	34	--	--	--	--	--	--	--	--	--	--						
10:00 AM	111	6	117	78	1	79	28	20	21	12	33	31	--	--	--	--	--	--	--	--	--	--						
11:00 AM	116	3	119	91	0	91	29	23	21	12	35	43	--	--	--	--	--	--	--	--	--	--						
12:00 PM	110	4	114	92	1	93	28	24	21	12	30	45	--	--	--	--	--	--	--	--	--	--						
1:00 PM	127	12	139	83	1	84	32	21	21	12	55	36	--	--	--	--	--	--	--	--	--	--						
2:00 PM	137	17	154	91	0	91	35	23	21	12	70	43	--	--	--	--	--	--	--	--	--	--						
3:00 PM	129	7	136	77	2	79	33	20	21	12	52	31	--	--	--	--	--	--	--	--	--	--						
4:00 PM	97	3	100	60	0	60	25	15	21	12	16	12	--	--	--	--	--	--	--	--	--	--						
5:00 PM	73	1	74	38	1	39	19	10	19	10	0	0	19	10	19	10	0	0	0	0	0	0						
6:00 PM	37	1	38	40	0	40	10	10	10	10	0	0	19	10	19	10	0	0	0	0	0	0						
Total	1,279	91	1,370	731	7	738					370	275																
Total Existing	1,162	91	1,253	663	9	673																						
Factor for Expanded Service Area						1.1	Unconstrained Microtransit		Constrained Microtransit																			
Annual Ridership	Existing Wkdy +Sat		Existing Sat Only		Wkdy + Sat		Sat Only		Wkdy + Sat		Sat Only		Weekday	Sat	Weekday	Sat												
	355,700		35,000		389,100		38,400		280,100		14,300		81,920	4,160	81,920	4,160												
Change in Ridership							33,400	3,400	-75,600	-20,700																		
							Weekday	Sat	Weekday	Sat			Weekday	Sat	Weekday	Sat	Weekday	Sat										
Total Daily Vehicle Hours							325	187	251	116			80	20	80	20	0	0										
Annual Vehicle-Hours							83,200	9,700	70,300	6,000			21,500		21,500													
							Wkdy + Sat		Sat Only																			
Total Annual Unserved Ridership if Constrained							109,000		14,300																			
Percent of Existing Ridership Unserved if Constrained							28%		45%																			
							Ridership: Early/Late Service																					
							Wkdy		Sat		Total																	
Daily							254		79																			
Annual							65,024		4,108		69,132																	

Table I-2: Analysis of Downtown Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	2	0	1	0	1	0	2	0	2	0
7:00 AM	3	0	1	0	1	0	3	0	3	0
8:00 AM	4	0	1	0	1	0	4	0	4	0
9:00 AM	4	2	1	1	1	1	4	2	4	2
10:00 AM	4	2	1	1	1	1	4	2	4	2
11:00 AM	5	3	1	1	1	1	5	3	5	3
12:00 PM	4	3	1	1	1	1	4	3	4	3
1:00 PM	5	2	1	1	1	1	5	2	5	2
2:00 PM	5	3	1	1	1	1	5	3	5	3
3:00 PM	5	2	1	1	1	1	5	2	5	2
4:00 PM	4	2	1	1	1	1	4	2	4	2
5:00 PM	3	1	1	1	1	1	3	1	3	1
6:00 PM	1	1	1	1	1	1	1	1	1	1
Total Daily	50	21	13	10	13	10	50	21	50	21
Existing Daily Boardings	18	12	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	36	10	Unconstrained		Constrained		13,900		13,900	
Percent Internal	10%	15%	3,848		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	50	21	<i>Annual Ridership at Existing Stops</i>				13,900			
Addl Service Area Factor	1.00	1.00								
Total MT Demand	50	21								
			0		0					

Table I-3: Analysis of North Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	2	0	1	0	1	0	2	0	2	0
7:00 AM	3	0	1	0	1	0	3	0	3	0
8:00 AM	4	0	1	0	1	0	4	0	4	0
9:00 AM	4	3	1	1	1	1	4	3	4	3
10:00 AM	4	3	1	1	1	1	4	3	4	3
11:00 AM	5	3	1	1	1	1	5	3	5	3
12:00 PM	4	3	1	1	1	1	4	3	4	3
1:00 PM	5	3	1	1	1	1	5	3	5	3
2:00 PM	5	3	1	1	1	1	5	3	5	3
3:00 PM	5	3	1	1	1	1	5	3	5	3
4:00 PM	4	2	1	1	1	1	4	2	4	2
5:00 PM	3	1	1	1	1	1	3	1	3	1
6:00 PM	1	1	1	1	1	1	1	1	1	1
Total Daily	50	26	13	10	13	10	50	26	50	26
Existing Daily Boardings	17	9	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	20	10	Unconstrained		Constrained		14,200		14,200	
Percent Internal	5%	5%	3,848		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	36	19	<i>Annual Ridership at Existing Stops</i>				10,200			
Addl Service Area Factor	1.40	1.40								
Total MT Demand	50	26								

Table I-4: Analysis of East Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	3	0	1	0	1	0	3	0	3	0
7:00 AM	5	0	1	0	1	0	5	0	5	0
8:00 AM	6	0	1	0	1	0	5	0	5	0
9:00 AM	7	5	1	1	1	1	5	5	5	5
10:00 AM	7	5	1	1	1	1	5	5	5	5
11:00 AM	7	5	1	1	1	1	5	5	5	5
12:00 PM	7	5	1	1	1	1	5	5	5	5
1:00 PM	8	5	2	1	1	1	8	5	5	5
2:00 PM	9	5	2	1	1	1	9	5	5	5
3:00 PM	8	4	2	1	1	1	8	4	5	4
4:00 PM	6	3	1	1	1	1	5	3	5	3
5:00 PM	5	2	1	1	1	1	5	2	5	2
6:00 PM	2	2	1	1	1	1	2	2	2	2
Total Daily	80	42	16	10	13	10	69	41	60	41
Existing Daily Boardings	34	18	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	34	18	Unconstrained		Constrained		19,900		17,500	
Percent Internal	5%	5%	4,616		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	66	35	<i>Annual Ridership at Existing Stops</i>				1,100		-1,300	
Addl Service Area Factor	1.20	1.20								
Total MT Demand	80	42								

Table I-5: Analysis of East/Airport Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	4	0	1	0	1	0	4	0	4	0
7:00 AM	7	0	2	0	1	0	7	0	5	0
8:00 AM	9	0	2	0	1	0	9	0	5	0
9:00 AM	10	7	2	1	1	1	10	5	5	5
10:00 AM	10	6	2	1	1	1	10	5	5	5
11:00 AM	10	7	2	1	1	1	10	5	5	5
12:00 PM	10	7	2	1	1	1	10	5	5	5
1:00 PM	11	7	2	1	1	1	10	5	5	5
2:00 PM	12	7	2	1	1	1	10	5	5	5
3:00 PM	11	6	2	1	1	1	10	5	5	5
4:00 PM	8	5	2	1	1	1	8	5	5	5
5:00 PM	6	3	1	1	1	1	5	3	5	3
6:00 PM	3	3	1	1	1	1	3	3	3	3
Total Daily	111	59	23	10	13	10	106	46	62	46
Existing Daily Boardings	34	18	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	34	18								
Percent Internal	5%	5%	Unconstrained		Constrained		29,400		18,400	
Total Ridership Generated at Existing Stops	66	35	6,408		3,848		<i>Change from Existing Ridership</i>			
Addl Service Area Factor	1.68	1.68	<i>Annual Ridership at Existing Stops 18,800</i>				10,600		-400	
Total MT Demand	111	59								

Table I-6: Analysis of West Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	2	0	1	0	1	0	2	0	2	0
7:00 AM	4	0	1	0	1	0	4	0	4	0
8:00 AM	4	0	1	0	1	0	4	0	4	0
9:00 AM	5	3	1	1	1	1	5	3	5	3
10:00 AM	5	3	1	1	1	1	5	3	5	3
11:00 AM	5	4	1	1	1	1	5	4	5	4
12:00 PM	5	4	1	1	1	1	5	4	5	4
1:00 PM	6	3	1	1	1	1	5	3	5	3
2:00 PM	6	4	1	1	1	1	5	4	5	4
3:00 PM	6	3	1	1	1	1	5	3	5	3
4:00 PM	4	2	1	1	1	1	4	2	4	2
5:00 PM	3	1	1	1	1	1	3	1	3	1
6:00 PM	2	2	1	1	1	1	2	2	2	2
Total Daily	57	29	13	10	13	10	55	29	55	29
Existing Daily Boardings	18	9	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	36	18	Unconstrained		Constrained		15,500		15,500	
Percent Internal	5%	5%	3,848		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	52	26	<i>Annual Ridership at Existing Stops</i>				14,700			
Addl Service Area Factor	1.10	1.10								
Total MT Demand	57	29								

Table I-7: Analysis of Combined Downtown/West Zone Microtransit Alternative

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership: Unconstrained		Ridership: Constrained	
	Week-day	Saturday	Unconstrained		Constrained		Week-day	Saturday	Week-day	Saturday
			Weekday	Saturday	Weekday	Saturday				
6:00 AM	4	0	1	0	1	0	4	0	4	0
7:00 AM	7	0	2	0	1	0	7	0	5	0
8:00 AM	8	0	2	0	1	0	8	0	5	0
9:00 AM	9	5	2	1	1	1	9	5	5	5
10:00 AM	9	5	2	1	1	1	9	5	5	5
11:00 AM	10	6	2	1	1	1	10	5	5	5
12:00 PM	9	6	2	1	1	1	9	5	5	5
1:00 PM	11	6	2	1	1	1	10	5	5	5
2:00 PM	12	6	2	1	1	1	10	5	5	5
3:00 PM	11	5	2	1	1	1	10	5	5	5
4:00 PM	8	4	2	1	1	1	8	4	5	4
5:00 PM	6	3	1	1	1	1	5	3	5	3
6:00 PM	3	3	1	1	1	1	3	3	3	3
Total Daily	108	49	23	10	13	10	104	44	62	44
Existing Daily Boardings	27	14	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	33	17	Unconstrained		Constrained		28,800		18,200	
Percent Internal	20%	20%	6,408		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	53	28	<i>Annual Ridership at Existing Stops</i>				200			
Addl Service Area Factor	1.30	1.30					-10,400			
Total MT Demand	69	36								

Table I-8: Analysis of Anderson Zone Microtransit Alternative (Partial Day)

Hour	Hourly Demand		Number of Vehicles in Operation				Ridership:		Ridership:	
	Week-day	Saturday	Unconstrained		Constrained		Unconstrained		Constrained	
			Weekday	Saturday	Weekday	Saturday	Week-day	Satur-day	Week-day	Satur-day
6:00 AM	3	0	1	0	1	0	3	0	3	0
7:00 AM	5	0	1	0	1	0	3	0	3	0
8:00 AM	5	0	1	0	1	0	3	0	3	0
9:00 AM	6	4	1	1	1	1	3	3	3	3
10:00 AM	6	4	1	1	1	1	3	3	3	3
11:00 AM	6	4	1	1	1	1	3	3	3	3
12:00 PM	6	4	1	1	1	1	3	3	3	3
1:00 PM	7	4	1	1	1	1	3	3	3	3
2:00 PM	7	4	1	1	1	1	3	3	3	3
3:00 PM	7	4	1	1	1	1	3	3	3	3
4:00 PM	5	3	1	1	1	1	3	3	3	3
5:00 PM	4	2	1	1	1	1	3	2	3	2
6:00 PM	2	2	1	1	1	1	2	2	2	2
Total Daily	69	36	13	10	13	10	32	24	32	24
Existing Daily Boardings	21	11	Annual Vehicle-Hours				Total Annual Ridership			
Existing Daily Alightings	19	10	Unconstrained		Constrained		9,400		9,400	
Percent Internal	20%	20%	3,848		3,848		<i>Change from Existing Ridership</i>			
Total Ridership Generated at Existing Stops	36	18	<i>Annual Ridership at Existing Stops 10,000</i>				-600		-600	
Addl Service Area Factor	1.30	1.30								
Total MT Demand	46	24								

Table I-9: Analysis of Weekday Evening Microtransit Alternative					
Hour	Hourly Demand	Number of Vehicles in Operation		Ridership:	Ridership:
		Unconstrained	Constrained	Unconstrained	Constrained
6:00 PM	39	10	4	39	16
7:00 PM	20	5	4	20	16
8:00 PM	8	3	3	8	8
Total 6PM-9PM	67	18	11	67	40
Total 7PM-9PM	28	8	7	28	24

	Annual Vehicle-Hours		Total Annual Ridership	
	Unconstrained	Constrained	Unconstrained	Constrained
6PM-9PM	4,608	2,816	17,147	10,283
7PM-9PM	2,048	1,792	7,112	6,187

LIST OF RABA BUS STOPS TO REMOVE AFTER THE IMPLEMENTATION OF MICROTRANSIT

INTRODUCTION

The attached tables list the RABA fixed route bus stops that will need to be removed upon the implementation of the RABA SRTP due to the introduction of microtransit. The listed stops should be removed after RABA daytime microtransit services (Shasta Lake, Anderson, Central, and East) have begun operations. The below stops should be removed in addition to the stops listed in Table 50 of Chapter 10 of the SRTP.

Table J-1: RABA Bus Stops to Remove after Implementation of Microtransit (2/2)

Route	Stop	Shelter	Bench	Sign
1	Hill Blvd at Ranchera Rd			x
1	Shasta Dam Blvd at Givan St			x
1	Shasta Dam Blvd at Shasta Park Dr		x	x
1	Shasta Dam Blvd at Sacramento St			x
1	Shasta Dam Blvd at Lake Blvd			x
1	Hill Blvd at Pine Ave			x
2E	Trinity St at California St			x
2E	Trinity St at Liberty St			x
2E	Continental St at Butte St			x
2E	Park Marina Dr at Athens Ave	x	x	x
2E	Park Marina Dr at Sundial Bridge Dr			x
2E	Park Marina Dr at Olympus Ave			x
2E	Park Marina Dr at Locust St			x
2E	Parkview Ave at Freebridge St			x
2E	Parkview Ave at Akard Ave			x
2E	Ellis St at Polk St			x
2E	Lincoln St at S. Market St			x
2W	Court St at Butte St			x
2W	11th St at Eureka Way (CW)			x
2W	Magnolia Ave at Tehama St			x
2W	Orange Ave at Shasta St			x
2W	Orange Ave at Eureka Way			x
2W	Eureka Way at Walnut Ave	x	x	x
2W	Eureka Way at Whiskeytown Ct		x	x
2W	Buenaventura Blvd at N. Cal Ore Dr			x
2W	Buenaventura Blvd at Placer St			x
2W	Placer St at Mesa St (CW)		x	x
2W	Placer St at San Francisco St (CW)			x
2W	Airpark Dr at Gold St (CW)		x	x
2W	Airpark Dr at Sonoma St (CW)		x	x
2W	Airpark Dr at Sonoma St (CCW)		x	x
2W	2525 Airpark Dr			x
2W	Airpark Dr at Rosaline Ave (CW)		x	x
2W	Court St at Sonoma St (S)			x
2W	Court St at Sonoma St (N)			x
2W	Court St at Gold St (CW)	x	x	x
2W	Eureka Way at Magnolia Ave (CCW)	x	x	x
2W	Eureka Way at Pioneer Dr (CCW)			x
2W	Eureka Way at Overhill Dr (CCW)			x
2W	Eureka Way at Sunset Dr (CCW)			x
2W	Buenaventura Blvd at Lakeside Dr			x
2W	Buenaventura Blvd at Rosita Dr			x
2W	2510 Airpark Dr			x
2W	Buenaventura Blvd at Eureka Way (CW)		x	x
2W	Court St at Gold St (CCW)		x	x
2W	Rosaline Ave at West St (CCW)			x
2W	Airpark Dr at Rosaline Ave (CCW)	x	x	x
2W	Placer St at Mesa St (CCW)		x	x
2W	Airpark Dr at Gold St (CCW)	x	x	x
2W	Placer St at San Francisco St (CCW)	x	x	x

Table J-1: RABA Bus Stops to Remove after Implementation of Microtransit (2/2)

Route	Stop	Shelter	Bench	Sign
2W	Buenaventura Blvd at Rosita Dr (CCW)			x
2W	Buenaventura Blvd at Lakeside Dr (CCW)			x
2W	Buenaventura Blvd at Eureka Way (CC	x	x	x
2W	11th St at Eureka Way (CCW)			x
2W	Court St at Shasta St (CCW)			x
3	Sheridan St at Court St			x
3	West St at Linden Ave			x
3	Railroad Ave at Laurel Ave			x
3	Railroad Ave at Grandview Ave (N)			x
3	Railroad Ave at Grandview Ave (S)			x
3	Railroad Ave at Logan St (S)			x
3	Railroad Ave at Sheridan St			x
5	Hartnell Ave at Northwoods Way	x	x	x
5	Hartnell Ave at Arcade Way	x	x	x
5	Hartnell Ave at Reservoir Ln			x
5	Hartnell Ave at Middleton Ln		x	x
5	Hartnell Ave at Victor Ave	x		x
5	Hartnell Ave at Churn Ct			x
5	Hartnell Ave at Shasta View Dr	x	x	x
5	Shasta View Dr at Leonard St			x
5	Venus Way at Scorpious Way			x
5	Galaxy Way at Meteor St			x
5	Victor Ave at Galaxy Way			x
5	Hartnell Ave at Irwin Rd		x	x
5	Hartnell Ave at Robert Ct	x	x	x
5	Victor Ave at Bramble Pl			x
5	Victor Ave at Marlene Ave (N)			x
5	Victor Ave at Marlene Ave (S)			x
5	Trinity St at Libery St			x
6S	Victor Ave at Lazelle Ct		x	x
6S	Victor Ave at Cypress Ave (N)			x
6S	Victor Ave at Harnell Ave			x
6S	El Vista St at Alta Campo Dr		x	x
6S	Victor Ave at El Vista St			x
6S	Dana Dr at Churn Creek Rd		x	x
6S	Victor Ave at Cascade Ln			x
6S	Victor Ave at Vega St			x
6S	Victor Ave at Mistletoe Lne			x
6S	Victor Ave at Cypress Ave (S)			x
7	Trinity St at California St			x
9	Balls Ferry Rd at Ventura St			x
9	Balls Ferry Rd at Childress Dr			x
9	Stingy Ln at Silo Ct			x
9	Stingy Ln at Bay St			x
9	North St at Sharon Ave			x
9	North St at Tremonto Rd			x
9	North St at Ventura St		x	x
9	North St at Freeman St		x	x
9	Stingy Ln at Daisy St		x	x