

# Humboldt County Transit Development Plan 2023-2028



## Technical Memorandum 2 Alternatives Analysis



May 15, 2023



Prepared by LSC Transportation Consultants



# Five-Year Transit Development Plan 2023-2028

## Technical Memorandum 2 Alternatives Analysis

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# TABLE OF CONTENTS

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<i>CHAPTER</i>	<i>PAGE</i>
<b>Chapter 1: Introduction</b> .....	<b>1</b>
<b>Chapter 2: Service Alternatives Analysis</b> .....	<b>3</b>
Introduction .....	3
Service Alternatives for Humboldt Transit Authority .....	4
RTS Service Alternatives.....	5
ETS Route Network Alternatives.....	12
Southern Humboldt Alternatives.....	25
Willow Creek Alternatives.....	25
Other HTA Alternatives .....	26
Service Alternatives for Arcata and Mad River Transit System.....	27
Service Alternatives for Fortuna .....	37
Service Alternatives for McKinleyville.....	39
Summary .....	43
Dial-a-Ride Considerations.....	44
<b>Chapter 3: Review of Policies and Performance Standards</b> .....	<b>49</b>
Introduction .....	49
Safety Goals .....	49
Transit Quality and Effectiveness Goals and Standards .....	50
Transit Cost Efficiency Goals and Standards.....	51
<b>Chapter 4: Capital Requirements</b> .....	<b>55</b>
Introduction .....	55
Transit Vehicles .....	55
Facility Needs .....	62
Park and Ride Lots.....	65
Passenger Facilities and Amenities.....	68
Other Miscellaneous Capital Needs.....	69
<b>Chapter 5: Financial Considerations</b> .....	<b>73</b>
Introduction .....	73
Review of Existing Funding Sources.....	73
Potential New Sources of Funding.....	78
<b>Chapter 6: Marketing Strategies</b> .....	<b>81</b>
Introduction .....	81
Current Marketing Activities for Humboldt Transit Providers .....	81
Humboldt County Transit Providers Marketing Challenges and Recommendations.....	85

## LIST OF TABLES

<i>TABLES</i>	<i>PAGE</i>
Table 1: HTA Cost Allocations .....	5
Table 2: Example RTS McKinleyville-COR Express Schedule .....	6
Table 3: Example of RTS Cal Poly-COR Express Schedule.....	8
Table 4: Example of RTS Cal Poly-Eureka Express Schedule.....	8
Table 5: Redwood Transit System – Service Alternatives Summary .....	9
Table 6: Comparison of RTS Service Alternatives .....	12
Table 7: ETS Transit Service Quality – Weekday Travel Times, Frequency, and Transfers .....	13
Table 8: F & Harris Hub Scenario Routes .....	16
Table 9: Example of Simplified Schedule – F/Harris Hub Scenario .....	16
Table 10: ETS Transit Service Quality with F & Harris Hub Scenario .....	17
Table 11: EaRTH Center Hub Scenario Routes .....	18
Table 12: Example Simplified Schedule - EaRTH Center Hub Scenario .....	18
Table 13: ETS Transit Service Quality with EaRTH Center Hub Scenario .....	20
Table 14: Eureka Transit Service – Service Alternatives Summary .....	22
Table 15: Comparison of ETS Service Alternatives .....	24
Table 16: Willow Creek Service Alternatives Summary .....	26
Table 17: A&MRTS Service Quality – Weekday Travel Times, Frequency, and Transfers .....	28
Table 18: A&MRTS Service Quality – Evenings and Saturdays .....	29
Table 19: A&MRTS – Example Schedule for Green Route.....	33
Table 20: Arcata & Mad River Transit System – Service Alternatives Summary.....	34
Table 21: Comparison of A&MRTS Service Alternatives .....	37
Table 22: Fortuna Service Alternatives Summary .....	39
Table 23: McKinleyville Service Alternatives Summary .....	41
Table 24: DAR Origin/Destination by Category of Ride (Total Number) .....	46
Table 25: DAR Origin/Destination by Category of Ride (Total Percentage) .....	47
Table 26: Comparison of ADA Service Ridership Versus Funding Proportions .....	47
Table 27: Humboldt County Transit Performance Standards .....	50
Table 28: Recommended Transit Quality and Effectiveness Goals and Standards .....	52
Table 29: Recommended Transit Cost Efficiency Goals and Standards.....	53
Table 30: HTA Fleet Replacement Requirements.....	57
Table 31: ETS Fleet Replacement Requirements.....	58
Table 32: A&MRTS Fleet Replacement Requirements .....	60
Table 33: City of Fortuna Transit Vehicle Replacement Requirements .....	61
Table 34: BLRTS Fleet Replacement Requirements.....	63
Table 35: Cal Poly Commuter Commute Distance .....	66
Table 36: Humboldt County Local Transportation Fund Revenue Shares .....	75
Table 37: Humboldt County State Transit Assistance Fund Revenue Share.....	76
Table 38: Humboldt Transit Authority Shared-Cost Assessments .....	77

## LIST OF FIGURES

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<i>FIGURES</i>	<i>PAGE</i>
Figure 1: Potential Samoa/Manila Microtransit Service Area .....	11
Figure 2: ETS Routing Alternative – F & Harris Street Hub.....	15
Figure 3: ETS Routing Alternative – EaRTH Center Hub .....	19
Figure 4: ETS Ridership by Hour Oct. 2022 .....	22
Figure 5: Proposed New A&MRTS Green Route.....	32
Figure 6: A&MRTS Average Ridership by Hour Oct. 2022 .....	35
Figure 7: Potential McKinleyville Route .....	40
Figure 8: McKinleyville Microtransit Zone .....	42

## LIST OF APPENDIXES

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Appendix A: Example of Microtransit Systems .....	A-1
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# Chapter 1

## INTRODUCTION

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This *Technical Memorandum Two: Alternatives Analysis* (TM2) evaluates potential changes to Humboldt County's public transit systems.

In Chapter 2, service options are evaluated which 1) address the strengths and weaknesses of the transit programs as identified in *Technical Memorandum One: Existing Conditions* (TM1), and 2) address concerns identified through survey responses, stakeholder outreach, and public meetings. The evaluation includes performance measures to help identify which alternatives best meet the needs of the region and should be further considered for development in the final plan.

Chapter 3 reviews transit policies and recommends performance standards. These standards are also used as a guide to evaluate the effectiveness of the service alternatives presented in Chapter 2.

Chapter 4 evaluates the capital needs for the Humboldt County transit programs. This includes an evaluation of the need for replacement vehicles and expansion vehicles (if needed) and considers the zero-emission fleet strategies currently being practiced by the transit systems. Right-sizing vehicles is discussed, as well as the need for supporting infrastructure.

Chapter 5 reviews funding sources which have historically been available to the region for transit, as well as the potential for new sources of funding.

Chapter 6 identifies potential marketing strategies to strengthen perceptions of public transit and reviews management policies.

After this TM2 is presented to the public, the preferred alternatives will be developed into a final Transit Development Plan (TDP) for implementation. The TM1, TM2 and Plan Chapter will be combined to produce the TDP Final Report.

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## **INTRODUCTION**

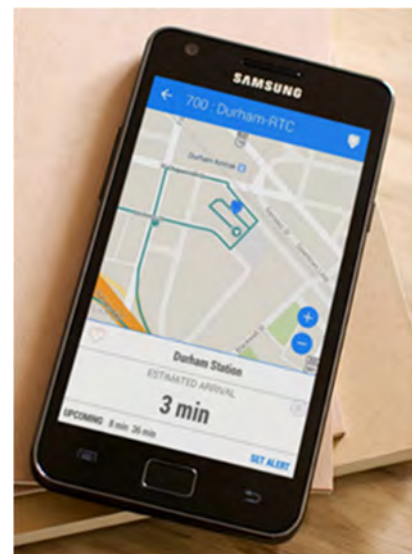
It is a unique time for transit services in Humboldt County. First, as with transit programs throughout the nation, transit ridership on all transit services in the county has dropped significantly, particularly on the larger services such as in Arcata, Eureka and on the RTS mainline service. At the same time, growth pressures in the region are creating increased travel demand, and will continue to do so as retirees, climate refugees, new employees, and an increased number of Cal Poly Humboldt students move to the area. Housing demand is high, which simultaneously pushes housing to more rural locations and encourages infill and denser housing developments. Additionally, the shift to remote work has altered the need for commuting, making it less predictable. As all of this is occurring, transit operating costs have grown exponentially due to rising fuel prices and wages, and a shortage of drivers is a persistent challenge faced by the county and the greater region of Northern California. In short, transit providers are being asked to meet more needs with fewer resources and greater unpredictability. This transportation landscape indicates the need for transit to be innovative and flexible in response.

The service alternatives presented in this chapter are evaluated for each transit service. The alternatives are intended to address findings from TM1, as well as requests and suggestions from the public and stakeholders. Each alternative is evaluated based on predicted performance measures, and the end summary identifies which alternatives are most likely to succeed. Once these findings are presented to the public, the preferred alternatives will be developed into a five-year service plan.

The alternatives are presented for each transit service, followed by a performance analysis.

### **The Concept of Microtransit**

Several of the alternatives for transit services in Humboldt County include the introduction 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 a short response time, typically within 15 minutes of the request. It can also be effective in areas with high demand for short trips. Microtransit applies the app-based technology developed for transportation network companies (such as Uber and Lyft) to provide a new form of public transit service. While the concept of real-time, demand-response service has been envisioned for many years, it could not be effectively implemented until recently with the advent of new technology. Passengers typically use an app downloaded on their smartphone or computer to request a ride and 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 may also be requested directly over the phone. However, most trips are assigned without the need for manual dispatching. Unlike traditional dial-a-ride services, there is no need for a 24-hour-or-more advance reservation. As microtransit is a shared-ride service, multiple passengers may ride the vehicle at the same time. Requirements of the Americans with Disabilities Act may be met by ensuring that enough accessible vehicles are available to serve those who require accessible service.

Microtransit has the potential to provide a higher quality demand response service (faster response times) than the general public on-demand service. The increased convenience of the ride request service could also lead to long-term increases in ridership, though there is not sufficient professional literature on which to base specific forecasts. Over time, automated data collection and reporting could also allow better allocation of resources.

The cost of obtaining and maintaining software would be determined through the RFP process and is difficult to specify, but based on other microtransit programs, it is estimated there would be an annual cost of \$25,000 for software and support, plus an additional \$4,500 per active vehicle, and miscellaneous other fees, adding approximately \$75,000 annually for 10 vehicles to \$125,000 for 20 vehicles. This fixed cost estimate is not included in the service options below, which only show marginal operating costs, but a realistic estimate would need to be included in any scenarios which include microtransit.<sup>1</sup>

## **SERVICE ALTERNATIVES FOR HUMBOLDT TRANSIT AUTHORITY**

HTA alternatives were developed to address service efficiencies as well as issues brought up by stakeholders and through survey responses. Assumptions which were made in evaluating the alternatives include the following:

1. The operating expenses and maintenance expenses reported by HTA (as shown in Tables 11 and 12 in Technical Memorandum One) were used to estimate the per-hour and per-mile marginal operating costs of each service. These costs, shown in Table 1, will be used to estimate the marginal operating cost and fare revenue of service alternatives.
2. For alternatives that expand the span of service, an additional \$40 per clock hour is included to reflect additional dispatcher costs.
3. Service is assumed to include 254 weekdays, 57 Saturdays/Holidays and 52 Sundays, unless otherwise noted.

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<sup>1</sup> An example of microtransit programs, including operating parameters, population served, and ridership is provided in Appendix A.

**Table 1: HTA Cost Allocations**

FY 2021-22

Transit Service	Redwood Transit System	Eureka Transit Service	Willow Creek	Southern Humboldt Intercity
Hourly-based Costs	\$1,495,200	\$668,100	\$185,962	\$386,688
Hours of Service	29,004	11,574	2,361	3,850
Marginal Hourly-based Cost per Hour	\$51.55	\$57.72	\$78.76	\$100.43
Miles-based Costs	\$643,600	\$181,800	\$92,100	\$162,500
Miles of Service	614,280	124,430	84,742	140,430
Marginal Mileage-based Cost per Mile	\$1.05	\$1.46	\$1.09	\$1.16
Fare Revenue	\$699,001	\$303,032	\$95,486	\$93,721
Passenger Trips	214,973	106,390	9,805	12,553
Average Fare per Passenger Trip	\$3.25	\$2.85	\$9.74	\$7.47
<i>Source: HTA Admin and Maintenance Expenses, June 2022 Board Report.</i>				

## RTS SERVICE ALTERNATIVES

Alternatives for service improvements on RTS were developed through several means:

- Onboard surveys on the Mainline Route indicate that passenger’s most popular requests are for 1) increased frequency; 2) longer span of service, especially later; and 3) increased area of service.
- A major concern of stakeholders, and confirmed by a service quality matrix, is that service between major destinations takes too long, often taking up to three times longer by bus than by car.
- There is a desire for Sunday service on all services.

### RTS Express Service

One of the most common issues raised by passengers and the public with RTS service is the relatively long travel times. For example, an RTS trip between McKinleyville and College of the Redwoods (CR) currently takes 1 hour and 13 minutes on the bus, compared with a typical auto travel time of 40

minutes, indicating that travel by transit takes 33 more minutes per one-way trip. For people with access to a car, this increased travel time is a significant impediment to transit use.

One means of increasing the attractiveness of transit is to provide express service that skips stops and focuses on serving key transfer hubs to and from local services (such as ETS and A&MRTS). Three express service options were evaluated, focusing on weekday service. Reflecting the relative passenger activity along the US 101 corridor, these options focus on the corridor between McKinleyville on the north and the College of the Redwoods on the south. They also focus on the periods of the day with the greatest ridership activity. These three options are as follows:

- McKinleyville – CR Express:** This option would operate two vehicles between central McKinleyville and CR, providing 3 express runs in the AM period (from roughly 7 AM to 10:20 AM) in each direction and four runs in the PM period (from 1:40 PM to 6:30 PM). Note that as the express service relies on local transit services to feed passengers to the transit hubs, service earlier or later than these times would not be effective given the current local span of service. An example schedule is shown in Table 2. Beyond the key transit hubs, some higher activity stops directly along the route could also be served under this schedule. Express runs would be provided every 60 minutes.

**Table 2: Example RTS McKinleyville-COR Express Schedule**

<b>Southbound</b>							
McKinleyville (Stores)		7:30 AM	8:30 AM	1:40 PM	2:40 PM	3:40 PM	4:40 PM
Cal Poly Library Circle		7:40 AM	8:40 AM	1:50 PM	2:50 PM	3:50 PM	4:50 PM
Arcata Transit Center		7:46 AM	8:46 AM	1:56 PM	2:56 PM	3:56 PM	4:56 PM
Arcata - H & 6th		7:48 AM	8:48 AM	1:58 PM	2:58 PM	3:58 PM	4:58 PM
Eureka - 4th & U	6:58 AM	7:58 AM	8:58 AM	2:08 PM	3:08 PM	4:08 PM	5:08 PM
Eureka - 3rd & H	7:01 AM	8:01 AM	9:01 AM	2:11 PM	3:11 PM	4:11 PM	5:11 PM
Eureka - 4th & B	7:03 AM	8:03 AM	9:03 AM	2:13 PM	3:13 PM	4:13 PM	5:13 PM
Eureka - Bayshore Mall	7:12 AM	8:12 AM	9:12 AM	2:22 PM	3:22 PM	4:22 PM	5:22 PM
College of the Redwoods	7:24 AM	8:24 AM	9:24 AM	2:34 PM	3:34 PM	4:34 PM	5:34 PM
<b>Northbound</b>							
College of the Redwoods	7:30 AM	8:30 AM	9:30 AM	2:40 PM	3:40 PM	4:40 PM	5:40 PM
Eureka - Bayshore Mall	7:38 AM	8:38 AM	9:38 AM	2:48 PM	3:48 PM	4:48 PM	5:48 PM
Eureka - 5th & D	7:46 AM	8:46 AM	9:46 AM	2:56 PM	3:56 PM	4:56 PM	5:56 PM
Eureka - 3rd & H	7:48 AM	8:48 AM	9:48 AM	2:58 PM	3:58 PM	4:58 PM	5:58 PM
Eureka - 5th & U	7:51 AM	8:51 AM	9:51 AM	3:01 PM	4:01 PM	5:01 PM	6:01 PM
Arcata - G & 5th	8:01 AM	9:01 AM	10:01 AM	3:11 PM	4:11 PM	5:11 PM	6:11 PM
Arcata Transit Center	8:04 AM	9:04 AM	10:04 AM	3:14 PM	4:14 PM	5:14 PM	6:14 PM
Cal Poly Library Circle	8:08 AM	9:08 AM	10:08 AM	3:18 PM	4:18 PM	5:18 PM	6:18 PM
McKinleyville (Stores)	8:18 AM	9:18 AM	10:18 AM	3:28 PM	4:28 PM	5:28 PM	6:28 PM

- **Cal Poly – CR Express:** Express service would be provided between Library Circle on the Cal Poly campus to CR, with other stops only at the Arcata Transit Center, downtown Eureka and Bayshore Mall. As shown in Table 3, the shorter route and fewer stops allows express runs to be provided every 30 to 40 minutes. A total of 11 runs would be operated in each direction, using two buses
- **Cal Poly – Eureka Express:** One bus would be used to operate service every 40 minutes, serving only the three stops in downtown Eureka (3<sup>rd</sup> & H), Arcata Transit Center and Library Circle. (It may be possible to also serve a stop slightly further west in downtown Eureka or in the southern portion of downtown Arcata, depending on detailed running time data.) A total of 9 trips could be provided in each direction during the peak periods, as shown in Table 4.

There would be two key benefits that would spur increases in ridership. First, the express runs would **reduce travel time**. For instance, the transit travel time between Library Circle and downtown Eureka (currently 26 minutes) would be reduced by 5 minutes by the McKinleyville-CR Express option and by 10 minutes by the other two options. Considering ridership along each of the corridor segments, average travel time would be reduced by 24 percent by the McKinleyville-CR Express option, 33 percent by the Cal Poly-CR Express option, and 38 percent by the Cal Poly-Eureka Express option. Secondly, the additional runs would provide more schedule options, **reducing the average wait between buses** (the headway). This average headway would be reduced from the current 24 minutes down to 15 minutes under the McKinleyville-CR Express option, from 22 minutes down to 12 minutes for the Cal Poly-CR Express option, and from 28 minutes down to 16 minutes under the Cal Poly-Eureka Express option.

Ridership increases for these options was evaluated by first reviewing recent corridor weekday ridership and then factoring for the proportion of ridership traveling between the stops served as well as for the proportion of ridership during the service periods. Elasticity analysis was then conducted to reflect both the reduction in travel time and the reduction in headway. This analysis indicates that the McKinleyville-CR Express option would increase ridership by 33,500 boardings per year, the Cal Poly-CR Express option would generate 33,200 additional boardings, and the Cal Poly-Eureka Express option would add 19,900 annual boardings. Table 5 presents the service and cost analysis for these options. As shown, the McKinleyville-CR Express option would require \$252,000 in additional operating funding per year (along with the provision of two buses), the Cal Poly-CR Express option would require \$272,400 per year (and two buses) while and the Cal Poly-Eureka Express option would increase costs by \$125,000 (requiring one bus).

**Table 3: Example RTS Cal Poly-COR Express Schedule**

	Morning					Afternoon								
<b>Southbound</b>														
Cal Poly Library Circle		7:20 AM	8:00 AM	8:30 AM	9:10 AM	2:10 PM	2:40 PM	3:20 PM	3:50 PM	4:30 PM	5:00 PM	5:40 PM		
Arcata Transit Center		7:24 AM	8:04 AM	8:34 AM	9:04 AM	2:14 PM	2:44 PM	3:24 PM	3:54 PM	4:34 PM	5:04 PM	5:44 PM		
Eureka - 3rd & H	7:06 AM	7:36 AM	8:16 AM	8:46 AM	9:16 AM	2:26 PM	2:56 PM	3:36 PM	4:06 PM	4:46 PM	5:16 PM	5:56 PM		
Eureka - Bayshore Mall	7:13 AM	7:43 AM	8:23 AM	8:53 AM	9:23 AM	2:33 PM	3:03 PM	3:43 PM	4:13 PM	4:53 PM	5:23 PM			
College of the Redwoods	7:25 AM	7:55 AM	8:35 AM	9:05 AM	9:35 AM	2:45 PM	3:15 PM	3:55 PM	4:25 PM	5:05 PM	5:35 PM			
<b>Northbound</b>														
College of the Redwoods	7:27 AM	7:57 AM	8:37 AM	9:07 AM	9:37 AM	2:47 PM	3:17 PM	3:57 PM	4:27 PM	5:07 PM	5:37 PM			
Eureka - Bayshore Mall	7:35 AM	8:05 AM	8:45 AM	9:15 AM	9:45 AM	2:55 PM	3:25 PM	4:05 PM	4:35 PM	5:15 PM	5:45 PM			
Eureka - 3rd & H	7:42 AM	8:12 AM	8:52 AM	9:22 AM	9:52 AM	3:02 PM	3:32 PM	4:12 PM	4:42 PM	5:22 PM	5:52 PM			
Arcata Transit Center	7:54 AM	8:24 AM	9:04 AM	9:34 AM	10:04 AM	3:14 PM	3:44 PM	4:24 PM	4:54 PM	5:34 PM	6:04 PM			
Cal Poly Library Circle	7:57 AM	8:27 AM	9:07 AM	9:37 AM	10:07 AM	3:17 PM	3:47 PM	4:27 PM	4:57 PM	5:37 PM	6:07 PM			

**Table 4: Example RTS Cal Poly-Eureka Express Schedule**

	Morning			Afternoon						
<b>Northbound</b>										
Eureka - 3rd & H	7:30 AM	8:10 AM	8:50 AM	2:00 PM	2:40 PM	3:20 PM	4:00 PM	4:40 PM	5:20 PM	
Arcata Transit Center	7:42 AM	8:22 AM	9:02 AM	2:12 PM	2:52 PM	3:32 PM	4:12 PM	4:52 PM	5:32 PM	
Cal Poly Library Circle	7:46 AM	8:26 AM	9:06 AM	2:16 PM	2:56 PM	3:36 PM	4:16 PM	4:56 PM	5:36 PM	
<b>Southbound</b>										
Cal Poly Library Circle	7:50 AM	8:30 AM	9:10 AM	2:20 PM	3:00 PM	3:40 PM	4:20 PM	5:00 PM	5:40 PM	
Arcata Transit Center	7:54 AM	8:34 AM	9:14 AM	2:24 PM	3:04 PM	3:44 PM	4:24 PM	5:04 PM	5:44 PM	
Eureka - 3rd & H	8:06 AM	8:46 AM	9:26 AM	2:36 PM	3:16 PM	3:56 PM	4:36 PM	5:16 PM	5:56 PM	



**Table 5: Redwood Transit System - Service Alternatives Summary**

Service Alternative	Change In Annual Service						Change in Peak Buses
	Service Hours	Service Miles	Operating Cost	Ridership	Cash Fare Revenues	Operating Subsidy	
<b>RTS Status Quo<sup>1</sup></b>							
Weekdays	26,705	563,880	\$1,968,800	194,968	\$438,678	\$1,530,122	
Saturdays/Holidays	2,299	12,894	\$132,000	20,005	\$45,011	\$86,989	
<b>Total</b>	<b>29,004</b>	<b>576,774</b>	<b>\$2,100,800</b>	<b>214,973</b>	<b>\$483,689</b>	<b>\$1,617,111</b>	
<b>Alternatives - Change from Status Quo</b>							
<b>RTS Express Service</b>							
McKinleyville-CR Express	3,234	81,255	\$252,100	33,500	\$75,400	\$176,700	2
Cal Poly-CR Express	3,179	103,378	\$272,400	33,200	\$74,700	\$197,700	2
Cal Poly-Eureka Express	1,494	45,720	\$125,000	19,900	\$44,800	\$80,200	1
<b>RTS Span of Service Alternatives</b>							
Later Saturday Service on RTS	114	2,500	\$8,500	500	\$1,100	\$7,400	0
Sunday Service	936	14,130	\$63,100	3,700	\$8,300	\$54,800	0
<b>Samoa Microtransit Service</b>							
Microtransit Service	2,628	52,560	\$190,700	13,800	\$27,600	\$163,100	1
Eliminate Samoa Transit	-2,006	-14,042	-\$118,200	-4,400	-\$9,900	-\$108,300	-1
Shift RTS Manila Runs to 101	-251	-4,022	-\$17,200	2,800	NA	-\$17,200	0
<b>Total</b>	<b>371</b>	<b>34,496</b>	<b>\$55,300</b>	<b>12,200</b>	<b>\$17,700</b>	<b>\$37,600</b>	<b>0</b>

**Later Saturday Service on RTS Mainline**

The RTS Mainline route starts at 8:30 AM on Saturdays (both northbound and southbound) and ends between 9:15-9:30 PM. Under this alternative, an additional run would be operated between College of the Redwoods and Valley West from 9:25 to 10:20 PM and from Valley West to College of the Redwoods from 9:20 PM to 10:10 PM. This would add 114 hours and 2,500 miles of service annually at a marginal operating cost of \$8,500, as shown in Table 5. The increase in hours is estimated to generate 500 annual passenger trips per year with expected fare revenue of \$1,100 (based on average fares collected on the route). The subsidy required would therefore be \$7,400.

**Sunday Service on RTS Mainline**

The RTS Mainline route Sunday service was discontinued in March 2020 due to low ridership. To reinstate service with hourly departures from Valley West southbound and Bayshore Mall northbound using two buses would add 936 hours and \$63,100 in operating cost and generate an estimated 3,700 in ridership.

## Samoa/Manila Microtransit Service

Under this scenario, a microtransit service would be implemented to serve the Samoa Peninsula as far south as Fairhaven and as far north as Manila, along with Woodley Island. In addition, direct microtransit would be provided to downtown Eureka (including the 3<sup>rd</sup> & H transit hub, and grocery stores at Redwood Market and Target) for passengers traveling to and from the peninsula. This is shown in Figure 1. Based on observed existing ridership on the Samoa Transit Service, this service would be provided on weekdays from 7 AM to 11 AM and from 1 PM to 6 PM, while on Saturdays service would be limited to 12 Noon to 6 PM.

This service would replace the existing fixed route Samoa Transit System. It would also allow the existing RTS runs that travel between Eureka and Arcata via Manila (5 northbound runs per weekday plus 4 southbound runs per weekday, along with 2 runs per Saturday) to remain on US 101. These runs currently only serve an average of 3 passengers per day (boarding or alighting). In comparison, the stops in eastern Eureka that are not served on these runs generate a total of approximately 130 passenger-trips per day (or 3 trips per run).

In comparison with the current services, this microtransit service would have the following impacts on ridership potential:

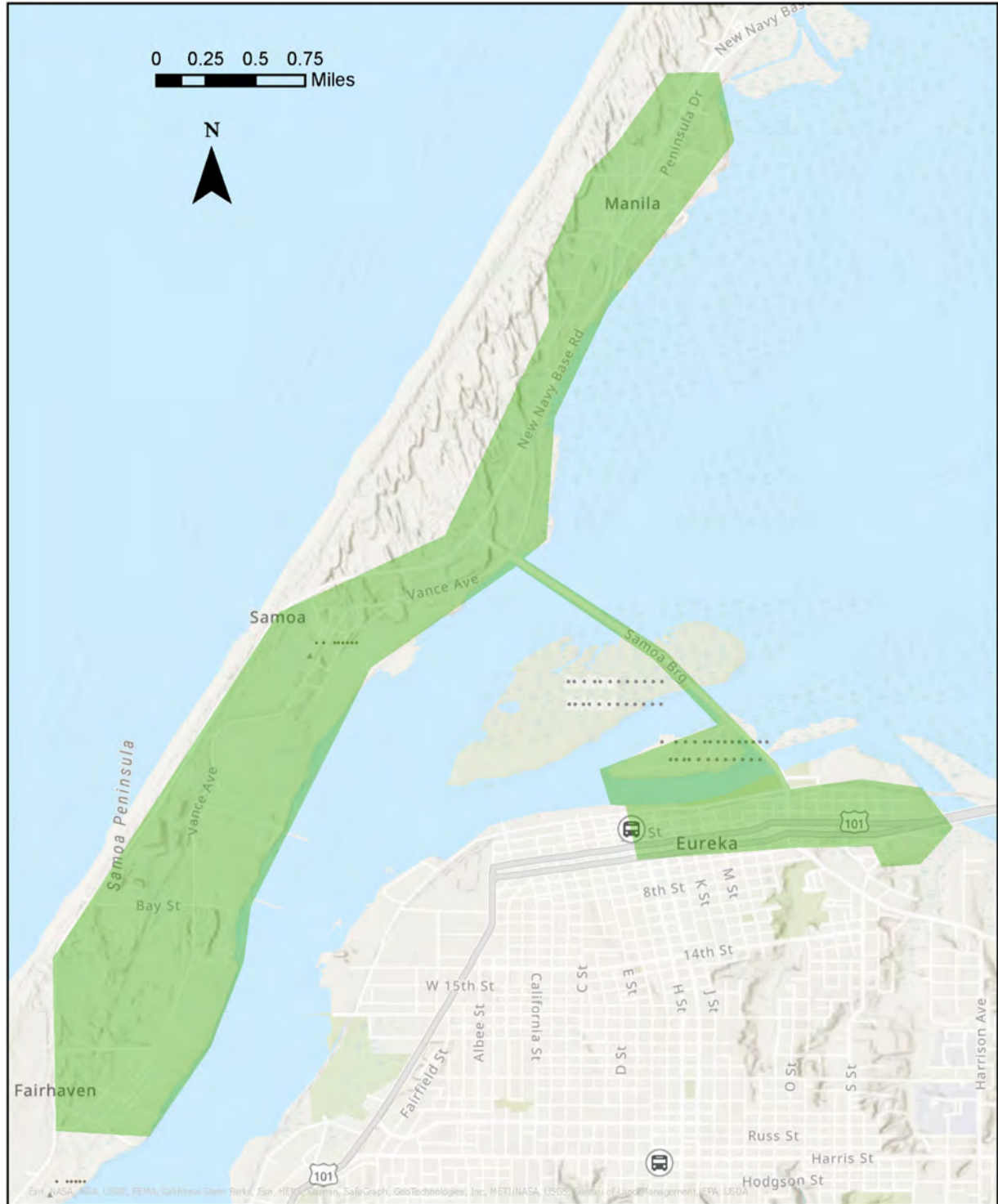
- Rather than service in Samoa at only 7 times per weekday and 4 per Saturday, service would be available at any time over 9 hours per weekday and 5 per weekend.
- The available service area would be expanded to include the Manila area (with a larger population than Samoa) and Fairhaven, in order to service more residents, as well as employment centers.
- Rather than requiring a transfer at 3<sup>rd</sup> & H in Eureka to complete trips (such as grocery store shopping), peninsula residents would be provided with direct trips to activity centers in the downtown area.

Considering these factors and the existing Samoa Transit ridership, the microtransit service is estimated to generate approximately 13,800 passenger-trips per year (or 49 per average weekday), as shown in Table 5. Including the ridership impacts of eliminating the Samoa Transit fixed route as well as shifting the existing RTS Manila runs to 101 (which is expected to slightly increase overall ridership due to greater ridership generated in eastern Eureka), the net impact of this alternative is to increase ridership by 12,200 passenger-trips per year.

Including the reduction in annual RTS running time by using the shorter 101 route, this option increases overall vehicle-hours of service by 371, and annual vehicle-miles by 34,496. This requires a total increase in operating costs of \$55,300.



**Figure 1**  
**Potential Samoa/Manila Microtransit Service Area**



## Performance Comparison of RTS Service Alternatives

Table 6 shows the relative performance of the RTS service alternatives. As shown, the change in ridership ranges from just 500 (by adding later Saturday service) to 33,500 passenger trips (by operating express service from McKinleyville to CR). Costs increase from \$8,500 to \$272,400. The performance can be evaluated in terms of passengers carried per service hour and operating cost per passenger trip. The best performing in terms of both measures is operating microtransit in Samoa, because ridership increases by 32.9 passenger trips for every hour added, at a cost of \$4.53 per passenger trip (though fixed costs would increase due to the need for software). The next best for both measures would be operating RTS Express service between CPH and Eureka, which would generate 13.3 passengers per hour at a cost of \$6.28 per passenger trip. These measures also meet the recommended performance standards (discussed in Chapter 3 of this TM2). The RTS express routes from McKinleyville to CR and from CPH to CR also meet the ridership per hour standard, but not the cost per passenger trip. Neither adding later Saturday service or operating Sunday service come close to meeting the standard.

<b>Table 6: Comparison of RTS Service Alternatives</b>				
<i>Alternatives (from Table 5)</i>	<b>Annual Ridership</b>	<b>Annual Operating Cost<sup>1</sup></b>	<b>Passenger-trips per Veh-Hour</b>	<b>Operating Cost per Passenger Trip</b>
<b>Alternatives Meeting Standard Shown in Green</b>				
RTS Express - McKinleyville-CR	33,500	\$252,100	10.4	\$7.53
RTS Express - Cal Poly-CR	33,200	\$272,400	10.4	\$8.20
RTS Express - Cal Poly-Eureka	19,900	\$125,000	13.3	\$6.28
Later Saturday Service on RTS	500	\$8,500	4.4	\$17.00
Sunday Service	3,700	\$63,100	4.0	\$17.05
Samoa Microtransit Service	12,200	\$55,300	32.9	\$4.53
<b>Recommended Standard</b>			7.5	\$7.00
<small>Note 1: Does not include fixed costs</small>				

## ETS ROUTE NETWORK ALTERNATIVES

This section presents two systemwide route service options to the existing ETS route structure. The ETS route system currently consists of four routes on weekdays and two routes on Saturdays. Focusing on the weekdays, the four routes are long cross-town routes with large one-way loops. Three routes originate at 3<sup>rd</sup>/H (Red, Gold and Purple) at the top of the hour and operate generally north-south, with the fourth route operating generally east-west. All routes also serve a common stop at F/Harris in central Eureka, though direct transfers are only available between three of the routes at any one time due to scheduling limitations. This route structure has evolved over time, largely to provide at least hourly services to the broadest geographic area within the current financial constraints (which are only sufficient to fund four buses on weekdays). The ETS route network

alternatives assume the same revenue hours, with only minimal costs associated with changes in mileage.

### Existing Route Structure Service Quality

Table 7 presents a summary of the quality of transit service between six key areas of Eureka. For each trip origin/destination pair, the required travel time (in minutes) is presented. In addition, the available service frequency (either hourly or more frequently than hourly) is shown by shading, and the need to transfer as part of the trip is indicated by a "T." As shown, this table indicates the following:

- Under the current route structure and schedule, travel times range up to 85 minutes (1 hour 25 minutes) for a single one-way trip. There are a total of five trips that require 50 or more minutes to complete. Averaging over all trips, the average in-vehicle travel time to complete a trip is 28 minutes.
- Most of the trips (28 out of 30) are currently only provided once per hour<sup>2</sup>. Six out of 30 (20 percent) require a transfer. Some of the long existing transit times reflect that there is no one place and time each hour that allows passengers to transfer directly between all four buses.

Table 7: ETS Transit Service Quality - Weekday Travel Times, Frequency, and Transfers							
		Destination Stop					
Travel Time in Minutes T = Transfer Required		Downtown (3rd & H Sts)	Providence St. Joseph Hospital	Harris & F Sts	Bayshore Mall	Cutten (Fern & Walnut Sts)	Southwest Eureka (Herrick & Vance Aves)
Origin Stop	Downtown (3rd & H Sts)		22	19	13	36	22
	Providence St. Joseph Hospital	34		13	28	33 T	66 T
	Harris & F Sts	14	7		11	8	36
	Bayshore Mall	28	21	7		23	50
	Cutten (Fern & Walnut Sts)	25	11	12	38		57 T
	Southwest Eureka (Herrick & Vance Aves)	39	48 T	19	11	85 T	

Note: Excludes Redwood Transit System service.  
Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).

<sup>2</sup> While three routes service downtown and 3<sup>rd</sup> & H, the fact that all three only serve this stop at the top of the hour limits the effective service frequency to/from other areas to hourly.

## **F/Harris Hub Route Structure Scenario**

Many cities of Eureka’s population and geographic size have found that an effective route structure is a “hub and spoke” system. Under this structure, all buses serve a single hub at a specific time each hour, which allows all passengers to make direct bus-to-bus transfers to complete any full trip with no more than one transfer (and reducing the wait at the hub between buses). Each bus then makes trips out along a “spoke” before returning to the hub to again allow passengers to transfer. Individual buses may potentially operate more than one route over the course of the hour. Examples of existing cities with hub-and-spoke systems include Lodi, California; Hanford, California; Carson City, Nevada; and Logan, Utah.

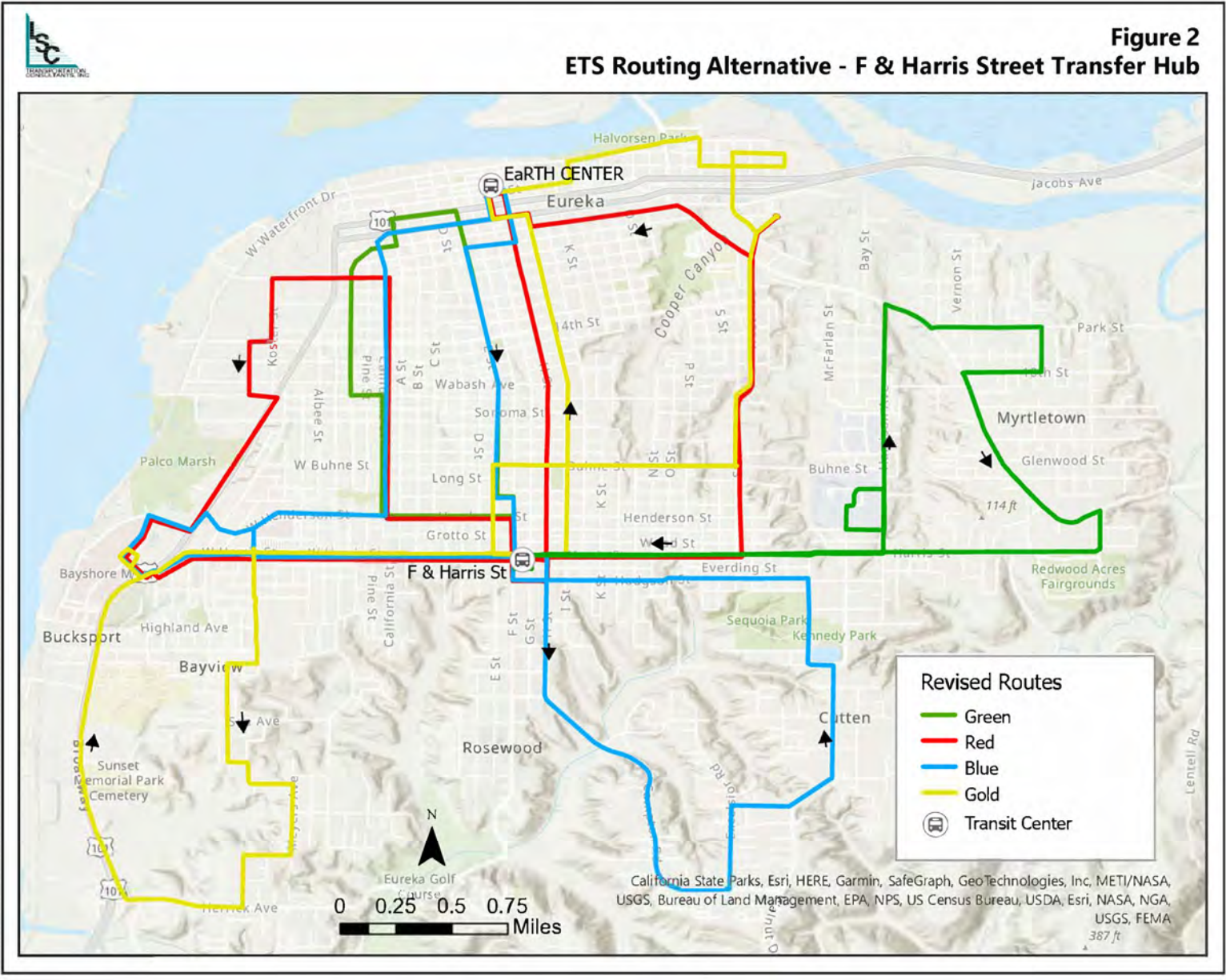
Providing the hub near the center of the service area has the benefit of providing routes with similar running times, increasing the ability to provide direct transfers. In Eureka, this location is the existing stops at F/Harris (JoAnne’s). While a maximum of three buses are currently at this location at any one time at present, there is sufficient curb space for at least four buses. Figure 2 presents a conceptual route structure with a F/Harris hub location. As also shown in Table 8, eight route segments were defined. These were developed based on the existing ridership generated at each of the various stops, the realistic running speed (consistent with existing route running speeds) and to avoid the costs associated with unnecessarily moving existing stops. Route segments were then paired to identify the two segments operated by each individual bus, while also providing at least 8 minutes per hour of driver break and recovery time. These full routes are shown in the bottom portion of Table 8.

To assess the quality of service provided by this route scenario, it is necessary to develop a simple route schedule. As shown in Table 9, each bus under this example schedule would be at F/Harris at 22 to 23 minutes after the top of the hour. They would each depart on one route segment (at various times after the driver breaks), and then all return at 49 minutes past the hour to F/Harris to transfer passengers before operating the segment route segment. The segments have been combined to provide two trips per hour to/from both downtown as well as the Bayshore Mall.

Table 10 presents a service quality summary for this route alternative, similar to the existing service quality summary for the existing route structure shown in Table 7, above. In comparison with the existing service quality, the service provided under this route structure alternative is as follows:

- The maximum trip length is 62 minutes (between southwest Eureka and Cutten), which is still a long trip for a city of Eureka’s size, but 23 minutes shorter than the existing longest trip.
- The average in-vehicle travel time is 24 minutes, which is a 13 percent reduction compared to the current 28 minutes.
- As shown in the bottom portion of Table D, travel times are generally reduced for trips to/from southwest Eureka, downtown and F/Harris, while they are generally increased for trips to/from east Eureka (presented by Providence & St. Joseph Hospital).
- There are a total of only 2 trips requiring 50 or more minutes, down from 5 today.
- A total of 5 trips are served more than once an hour, substantially more than the 2 trips today.
- 14 of the 30 trips require a transfer, compared to the 6 requiring a transfer today.





Overall, this route structure would provide a modest improvement in ETS service quality. While more passengers would need to transfer as part of their trip, the average travel time is reduced, and more trips (particularly to/from downtown) are served more than once an hour.

Under this route structure, to provide consistent Saturday service with two buses one bus would operate the interlined Southwest/Central routes and the second would operate the interlined East/North Counterclockwise routes.

<b>Table 8: F &amp; Harris Hub Scenario Routes</b>			
		Distance Route Length (Miles)	Running Time (Minutes)
<b>Individual Route Segments</b>			
North CCW		4.2	19
Central CCW		5.6	25
North CW		6.6	32
Central CW		5.4	24
East		7.2	33
SE		4.8	20
SW		5.8	26
NW		5.4	24
<b>Interlined Routes</b>			
North CCW	East	11.4	52
SE	North CW	11.4	52
SW	Central CW	11.2	51
Central CCW	NW	11.0	50

*Source: LSC Transportation Consultants, Inc.*

<b>Table 9: Example Simplified Schedule - F/Harris Hub Scenario</b>				
Bus	1	2	3	4
1st Route	North CCW	SE	SW	Central CCW
2nd Route	East	North CW	Central CW	NW
<b>Minutes Past the Top of the Hour</b>				
Depart F/Harris	30	29	23	24
Downtown (A & 101)	39	--	--	--
Downtown (H & 3rd)	--	--	--	42
Cutten	--	37	--	--
Southwest	--	--	35	--
Bayshore Mall	--	--	41	--
F/Harris	49	49	49	49
Providence Hospital	55	--	--	--
Bayshore Mall	--	57	--	7
Downtown (H & 3rd)	--	11	56	--
Arrive F/Harris	22	21	14	14

*Source: LSC Transportation Consultants, Inc.*



**Table 10: ETS Transit Service Quality With F & Harris Hub Scenario**  
Weekday Travel Times, Frequency, and Transfers

								Less than 60 Minute Frequency	60 Minute Frequency	
		Destination Stop								
Travel Time in Minutes T = Transfer Required		Downtown (3rd & H Sts)	Providence St. Joseph Hospital	Harris & F Sts	Bayshore Mall	Cutten (Fern & Walnut Sts)	Southwest Eureka (Herrick & Vance Aves)			
Origin Stop	Downtown (3rd & H Sts)		36 T	7	15 T	30	21 T			
	Providence St. Joseph Hospital	47		27	46 T	46 T	40 T			
	Harris & F Sts	7	6		8	8	12			
	Bayshore Mall	14	14 T	7		40	38 T			
	Cutten (Fern & Walnut Sts)	30 T	18 T	12	20 T		58 T			
	Southwest Eureka (Herrick & Vance Aves)	21	20 T	14	6	62 T				
Change in Travel Time (Minutes)										
Origin Stop	Downtown (3rd & H Sts)		14	-12	2	-6	-1			
	Providence St. Joseph Hospital	13		14	18	13	-26			
	Harris & F Sts	-7	-1		-3	0	-24			
	Bayshore Mall	-14	-7	0		17	-12			
	Cutten (Fern & Walnut Sts)	5	7	0	-18		1			
	Southwest Eureka (Herrick & Vance Aves)	-18	-28	-5	-5	-23				

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

### **EaRTH Center Route Structure Scenario**

The other potentially logical location of a transit hub for the ETS system is at the planned Eureka Regional Transit and Housing (EaRTH) Center at H and 3<sup>rd</sup>. Enhancing transit to this location would complement the planned housing on the site. This location is currently served by three of the weekday ETS routes, but not the Green Route.

A total of six route segments were defined, as shown in Table 11. A simplified schedule of these routes is shown in Table 12. Figure 3 presents a conceptual route plan that incorporates all four buses at the EaRTH Center location. Given the hub location near one edge of the service area, two of the routes serving the southernmost areas (Southwest and South) would require an hour cycle time. Two

route segments would require roughly 33 minutes (West and Southeast) while two would require roughly 17 minutes (East and Central). These latter four route segments would be combined into two interlined routes with an hourly cycle length, for a total of six route segments operated hourly by four buses. Each bus would have 10 to 11 minutes of layover/recovery time.

As indicated in Table 12, all buses would be at the EaRTH Center at the top of the hour. Two buses would return from the first route segment to allow a transfer at the EaRTH Center at 34 minutes past the hour (from West to Central and from Southeast to East). In addition, the schedule would provide a direct transfer time at F/Harris at 19 minutes past the hour (between the West and South routes) and at 43 minutes past the hour (between the Central and South routes).

<b>Table 11: EaRTH Center Hub Scenario Routes</b>			
		Distance	
		Route Length	Running Time
		(Miles)	(Minutes)
<b>Individual Route Segments</b>			
West		7.5	34
East		3.5	16
Southwest		10.7	50
South		10.8	49
Central		3.8	17
Southeast		7.7	33
<b>Routes With Interlining</b>			
West	East	11.0	50
Southeast	Central	11.5	50
Southwest		10.7	50
South		10.8	49

<b>Table 12: Example Simplified Schedule - EaRTH Center Hub Scenario</b>				
Bus	1	2	3	4
1st Route	West	Southeast	Southwest	South
2nd Route	East	Central		
<b>Minutes Past the Top of the Hour</b>				
Depart EaRTH Center	0	1	0	2
Bayshore Mall	14	--	--	--
F/Harris	19	--	9	19
Providence Hospital	--	21	--	--
EaRTH Center	34	34	--	--
Southwest	--	--	23	--
Bayshore Mall	--	--	29	--
Cutten	--	--	--	32
Target	42	--	--	--
F/Harris	--	43	37	43
Arrive EaRTH Center	50	51	50	51

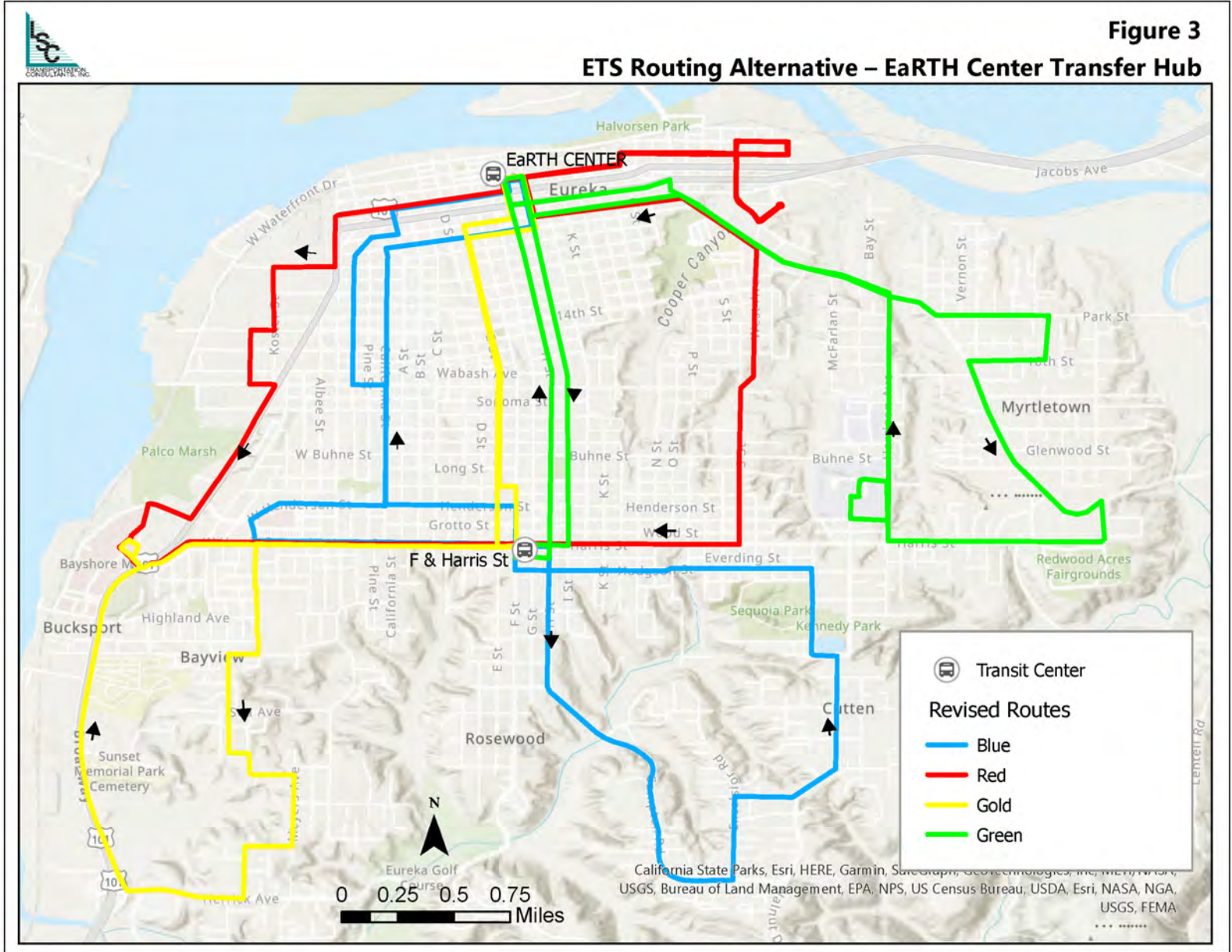


Table 13 presents the overall service quality provided by a route system with an EaRTH Center hub. In comparison with the existing service quality, this route structure alternative would function as follows:

- The maximum trip length is 70 minutes (between eastern Eureka around the Providence St. Joseph Hospital and Cutten), which is still 15 minutes shorter than the existing longest trip.
- The average in-vehicle travel time is 27 minutes, which is a slight 2 percent reduction compared to the current 28 minutes.
- As shown in the bottom portion of Table 13, travel times are generally reduced for trips to/from downtown and southwest Eureka, downtown and F/Harris, while they are generally increased for trips to/from east Eureka (presented by Providence & St. Joseph Hospital) and Bayshore Mall.

Table 13: ETS Transit Service Quality With EaRTH Center Hub Scenario Weekday Travel Times, Frequency, and Transfers							
		Less than 60 Minute Frequency		60 Minute Frequency			
Travel Time in Minutes T = Transfer Required		Destination Stop					
		Downtown (3rd & H Sts)	Providence St. Joseph Hospital	Harris & F Sts	Bayshore Mall	Cutten (Fern & Walnut Sts)	Southwest Eureka (Herrick & Vance Aves)
Origin Stop	Downtown (3rd & H Sts)		21	9	14	31	23
	Providence St. Joseph Hospital	13		22	53 T	70 T	62 T
	Harris & F Sts	8	38		20	13	14
	Bayshore Mall	20	14 T	8		37 T	53
	Cutten (Fern & Walnut Sts)	20	18 T	12	43 T		52 T
	Southwest Eureka (Herrick & Vance Aves)	20	20 T	14	6	68 T	
Change in Travel Time (Minutes)							
Origin Stop	Downtown (3rd & H Sts)		-1	-10	1	-5	1
	Providence St. Joseph Hospital	-21		9	25	37	-4
	Harris & F Sts	-6	31		9	5	-22
	Bayshore Mall	-8	-7	1		14	3
	Cutten (Fern & Walnut Sts)	-5	7	0	5		-5
	Southwest Eureka (Herrick & Vance Aves)	-19	-28	-5	-5	-17	
Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).							

- There are a total of 6 trips requiring 50 or more minutes, a modest increase from 5 today.
- 3 trips are served more than once an hour, a modest improvement from the 2 trips today.

On Saturdays under this route structure the combined Central/Southeast bus and Southwest bus would be operated.

Overall, this route option provides a modest improvement in service quality compared to the existing routing plan. It does not provide full east-west service across southern Eureka, requiring travel between eastern Eureka and other areas to go through downtown. However, it does increase transit service to the EaRTH Center and maximizes the potential to make transfers to and from the RTS services.

In comparing the two hub options, the F/Harris hub provides better service quality for ETS riders, particularly due to the lower average ride time, the reduced number of long trips over 50 minutes, and the greater number of trips that can be made more than one time per hour. However, the EaRTH Center hub plan provides moderately better opportunities for transfers to/from the RTS service, with a total of 8 arrivals/departures at transfer points in downtown or Bayview Mall per hour, compared with 7 under the F/Harris hub option.

### **Other ETS Route Modifications**

If the general route structure is maintained (rather than shifting to one of the two hub alternatives discussed above), one relatively modest but beneficial modification would be to shift the Purple Route by providing service in both directions on West Avenue/S Street (rather than providing southbound service on Harrison Avenue) and use this reduction in running time to extend north on H Street and I Street to the EaRTH Center. This would provide additional transfer opportunities to other ETS routes as well as RTS services. There would be no net change in route length or running time. Service on Harrison Avenue would still be provided by the Green Route. This would generate an estimated 900 passenger trips and \$1,700 in fare revenue with no added costs, as shown in Table 14.

### **ETS Span of Service Alternatives**

In addition to improved travel time, common requests for improvements on ETS are for longer hours, Sunday service, and increased frequency. Figure 4 illustrates the current hourly ridership pattern. The cost and ridership impacts of span of service options are discussed below and depicted in Table 14.

### ***Expand Weekday Service to 7:00 PM on ETS Gold, Purple, Green and Red Routes***

Currently, the Gold, Purple, Green, and Red routes operate from approximately 7:00 AM to 6:00 PM weekdays. This schedule can be challenging even for workers whose shifts end at 5:00 PM if their trip requires a transfer, as well as for workers who work later than 5:00 PM. Under this alternative, service on these four routes would be extended one hour, to 7:00 PM. This would add 1,016 hours and 10,870 miles of service at a marginal cost of \$74,500. Given that prior to COVID ridership from 6:00 to 7:00 PM was only 2.2 percent of weekday ridership, it is expected that this service would be modest, indicating ridership would be an estimated 2,100 passenger trips annually and generating \$4,000 in fare revenue. The annual marginal subsidy would therefore be \$70,500, shown in Table 14.

**Table 14: Eureka Transit Service - Service Alternatives Summary**

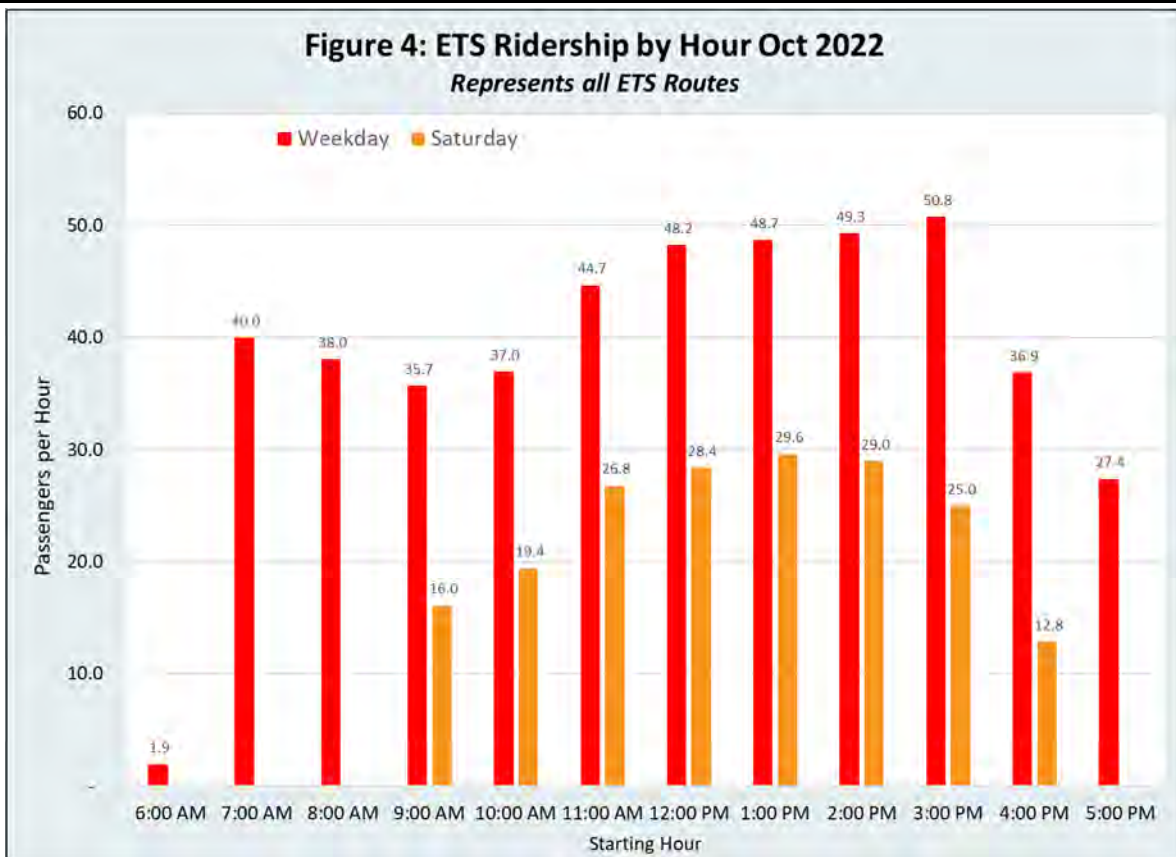
Parameters	Service Hours	Service Miles	Marginal Operating Cost <sup>2</sup>	Annual Ridership	Fare Revenues <sup>3</sup>	Marginal Operating Subsidy	Change in Peak Buses
<b>ETS Status Quo<sup>1</sup></b>							
Weekdays	10,424	111,536	\$764,680	97,664	\$183,810	\$580,870	
Saturdays	1,150	12,894	\$85,220	8,726	\$16,420	\$68,800	
<b>Total</b>	<b>11,574</b>	<b>124,430</b>	<b>\$849,900</b>	<b>106,390</b>	<b>\$200,230</b>	<b>\$649,670</b>	
<b>ETS Service Alternatives - Change from Status Quo<sup>4</sup></b>							
<b>ETS Route Realignment Alternatives</b>							
Earth Center Hub Scenario	0	0	\$0	1,300	\$2,400	-\$2,400	0
F & Harris Street Hub Scenario	0	0	\$0	7,500	\$14,100	-\$14,100	0
Shift Purple - Harrison to West/S Streets	0	0	\$0	900	\$1,700	-\$1,700	0
<b>ETS Span of Service Alternatives</b>							
Expand ETS Gold, Purple, Green, Red to 7:00 PM Weekdays	1,016	10,870	\$74,500	2,100	\$4,000	\$70,500	0
Expand ETS Gold and Rainbow to 9:00 PM Weekdays	1,524	16,310	\$176,700	3,200	\$6,000	\$170,700	0
ETS Gold and Rainbow Sundays 10 AM - 3 PM	570	6,100	\$64,600	2,200	\$4,100	\$60,500	0
ETS Gold & Red Every 30 Min. 7:30-5:30	5,080	54,360	\$372,700	15,300	\$28,800	\$343,900	1
<b>ETS Microtransit Service</b>	<b>7,586</b>	<b>98,600</b>	<b>\$582,000</b>	<b>25,500</b>	<b>\$48,000</b>	<b>\$534,000</b>	<b>3</b>

Note 1: Status Quo represents service hours, miles and ridership from 2021-22.

Note 2: Marginal Operating Cost is based on the cost allocation in Table 1, equal to \$57.72 per hour and \$1.46 per mile of service, plus a \$40/hr dispatch fee for new service on Sundays.

Note 3: Fare revenues are assumed to be equal to the average fare collected per passenger in 2021-22, or \$1.88 per trip.

Note 4: The change represents the impact of the alternatives over the existing status quo services.





### ***Expand Weekday Service to 9:00 PM on ETS Gold and Rainbow Routes***

Passengers on all services indicated a preference for later service, and particularly as more students and workers find housing in Eureka, it is worth considering evening service to facilitate trips for work, school, and social activities. Under this alternative, the Gold and Rainbow Routes would be operated from 6:00 PM until 9:00 PM. This would add 1,524 hours and 16,310 miles of service at a marginal operating cost of \$176,700 annually. The estimated hourly ridership would be similar to that carried in the previous alternative; therefore, ridership would be an estimated 3,200 passenger trips annually, generating \$6,000 in fare revenue. The annual marginal subsidy would therefore be \$170,700.

### ***Sunday Service on ETS***

Sunday service is also frequently requested by passengers. Under this alternative, the Gold and Rainbow Routes would be operated from 10:00 AM to 3:00 PM on Sundays. This would add 570 hours and 6,100 miles of service at a marginal operating cost of \$64,600 annually. It is estimated based on relative Saturday versus Sunday ridership in similar communities that hourly ridership would be approximately half that of Saturday service per hour, or an estimated 2,200 passenger trips annually, generating \$4,100 in fare revenue. The annual marginal subsidy would therefore be \$60,500 (Table 14).

### ***Increased Weekday Frequency on ETS***

Service frequency is another common request, and the service factor most likely to improve service quality for passengers. As a doubling of the system to provide half-hourly service on all routes would be cost prohibitive, this alternative evaluates increasing frequency on the Gold and Red routes (currently the most productive) to every half hour weekdays from 7:30 AM to 5:30 PM (ten additional hours per route). This would require two additional vehicles in service and would result in an increase of 5,080 service hours at a marginal operating cost increase of \$372,700. Based on an elasticity analysis, the ridership would increase by 15,300 passenger trips annually, generating \$28,800 in fare revenue, for a marginal operating subsidy of \$343,900, shown in Table 14.

### ***Citywide Microtransit in Eureka***

A microtransit program could be implemented for the Eureka area, augmenting the existing fixed route service. This service would have the following characteristics:

- The service area would be consistent with the existing ETS fixed route service area, including the City of Eureka (except the Brainard area) as well as the Myrtle town area.
- Service hours would be consistent with the fixed route service hours – weekdays from 7 AM to 6 PM and Saturdays from 9 AM to 5 PM.
- Fares would also be consistent with the fixed route services.
- Riders would use an app or call the dispatcher to request a ride. Service would be provided to serve at least 90 percent of ride requests within a half hour.

Ridership on a citywide microtransit service was estimated based upon a peer review of similar urban microtransit services around northern California and Nevada, as shown in Appendix A. Considering the demographic characteristics of Eureka compared with these peer areas, it is estimated that microtransit demand would equal approximately 2.5 trips per thousand residents per weekday. This in turn indicates a total of approximately 100 passenger trips per weekday or 25,500 per year.

The operating costs can be estimated by defining the hourly demand for ridership and considering that a reasonable maximum productivity for a demand response system given Eureka’s geography is 4 passengers per vehicle-hour. This indicates that two vehicles would be required on weekdays to serve the demand, except that a third vehicle would be needed between 11 AM and 4 PM. On Saturdays and holidays, two vehicles would be needed for most hours, except for the first and last hour of the day when one vehicle would be required. Over the course of a year, this would total 7,586 vehicle-hours of service. At an estimated average of 13 miles per hour, 98,600 vehicle-miles would be operated. These quantities indicate a total marginal operating cost of \$582,000 per year. Subtracting \$48,000 in annual fare revenues, this service would require \$534,000 in additional annual subsidy funding. This is shown in Table 14.

As an aside, consideration was also given to fully replacing the ETS fixed routes with microtransit service. However, given the existing ETS ridership and the inherent limitations on the productivity of microtransit service, this would require approximately a 130 percent increase in vehicle-hours and operating cost, and would require up to 10 vehicles in operation at peak times (in comparison with the existing four ETS buses), in order to serve the same number of passengers. In light of this higher cost and lower service effectiveness, this option was not considered further.

### Performance Comparison of ETS Service Alternatives

Table 15 shows the relative performance of the ETS service alternatives.

<b>Table 15: Comparison of ETS Service Alternatives</b>				
<b>Alternatives (from Table 14)</b>	<b>Annual Ridership</b>	<b>Annual Operating Cost<sup>1</sup></b>	<b>Passenger-trips per Veh-Hour</b>	<b>Operating Cost per Passenger Trip</b>
<b>Alternatives Meeting Standard Shown in Green<sup>2</sup></b>				
Earth Center Hub Scenario	1,300	\$0	NA	\$0.00
F & Harris Street Hub Scenario	7,500	\$0	NA	\$0.00
Shift Purple - Harrison to West/S Streets	900	\$0	NA	\$0.00
Later ETS Gold, Purple, Green, Red to 7 PM Weekday	2,100	\$74,500	2.1	\$35.48
Expand ETS Gold and Rainbow to 9 PM Weekdays	3,200	\$176,700	2.1	\$55.22
ETS Gold and Rainbow Sundays 10 AM - 3 PM	2,200	\$64,600	3.9	\$29.36
ETS Gold & Red Every 30 Min. 7:30-5:30	15,300	\$372,700	3.0	\$24.36
ETS Microtransit Service	25,500	\$582,000	3.4	\$22.82
<b>Recommended Standard</b>			<b>9.0</b>	<b>\$6.00</b>
Note 1: Does not include fixed costs				
Note 2: Meets standards with no change in hours or costs, but increase in ridership.				



Both ETS hub scenarios use the same number of buses and hours, so have no cost impact, but they are expected to improve ridership slightly, which therefore would meet performance standards. On the other hand, neither the ETS span of service alternatives or citywide microtransit meet the passenger per hour or cost per passenger standards.

## **SOUTHERN HUMBOLDT ALTERNATIVES**

The Southern Humboldt Intercity service provides two southbound and three northbound runs between Benbow and Eureka weekdays and Saturdays (with both morning runs shifted later on Saturdays). This service level reflects changes made to better reflect demand based on low ridership generated by past levels of service. Due to the low population density and high mileage between activity centers, Southern Humboldt is difficult to serve with transit. Currently, 3.3 passengers are carried per hour of service, which is slightly higher than carried on the DAR service. Currently, neither an increase nor decrease in service is warranted.

## **WILLOW CREEK ALTERNATIVES**

Willow Creek is served by three westbound and two eastbound trips per weekday, and three round-trips on Saturdays. Passengers are mostly high school students residing in the Willow Creek area and attending school in Arcata. Ridership on weekdays averages 4.8 passenger trips per hour, which is good ridership given the long distance. However, on Saturdays only 1.0 passenger trip is carried per hour (or 7.7 passengers per Saturday, on average). Given this poor performance, two alternatives are considered.

### ***Eliminate Saturday Willow Creek Service***

Under this alternative, Saturday service to Willow Creek would be eliminated, saving \$66,500 in operating cost per year, while reducing ridership by 400 passengers annually (shown in Table 16).

### ***Reduce Willow Creek Saturday Service to Two Round Trips***

Under this alternative, the midday run would be eliminated on Saturdays. This would result in cost savings of \$12,200 and a reduction in ridership of 50 passengers annually, as shown in Table 16.

### ***Performance of Willow Creek Service Alternatives***

As shown in Table 16, both alternatives meet the performance standards because they reduce costs per passenger more than the standard.

**Table 16: Willow Creek Service Alternatives Summary**

Parameters	Service Hours	Service Miles	Marginal Operating Cost <sup>2</sup>	Annual Ridership	Fare Revenues <sup>3</sup>	Marginal Operating Subsidy	Change in Peak Buses
<b>WC Status Quo<sup>1</sup></b>							
Weekdays	1,942	69,342	\$228,320	9,405	\$27,372	\$200,948	
Saturdays	419	15,400	\$49,740	400	\$1,164	\$48,576	
<b>Total</b>	<b>2,361</b>	<b>84,742</b>	<b>\$278,060</b>	<b>9,805</b>	<b>\$28,536</b>	<b>\$249,524</b>	
<b>WC Service Alternatives - Change from Status Quo<sup>4</sup></b>							
Eliminate Saturday Service	-419	-15,400	-\$66,500	-400	-\$1,200	-\$65,300	0
Reduce Saturday Service to 2 RTs	-104	-3,730	-\$12,200	-50	-\$100	-\$12,100	0

WC Service Alternatives Performance Analysis:	Passenger-trips per Veh-Hour	Operating Cost per Passenger Trip
Alternatives Meeting Standard Shown in Green <sup>5</sup>		
Eliminate Saturday Service	-1.0	-\$163.25
Reduce Saturday Service to 2 RTs	-0.5	-\$242.00
Recommended Standard	4.0	\$20.00

Note 1: Status Quo represents service hours, miles and ridership from 2021-22.

Note 2: Marginal Operating Cost is based on the cost allocation in Table 1, equal to \$57.72 per hour and \$1.46 per mile of service, plus a \$40/hr dispatch fee if hours extend beyond current service hours.

Note 3: Fare revenues are assumed to be equal to the average fare collected per passenger in 2021-22, or \$1.88 per trip.

Note 4: The change represents the impact of the alternatives over the existing status quo services.

Note 5: Meets standards by reducing costs per passenger more than the standard, or by increasing ridership while decreasing costs.

## OTHER HTA ALTERNATIVES

### Service to Mendocino County – Redwood Coast Express

Given the remote location of Humboldt County, regional services providing connectivity outside of the area fill an important role. Limited service to the Bay Area is provided by Greyhound and Amtrak Thruway, and to a lesser extent, by Cal Poly Humboldt which often charters buses for college breaks to get students to the Bay Area and Los Angeles area. The Greyhound bus schedule to San Francisco only offers morning southbound departures and evening northbound arrivals Thursdays through Mondays. Amtrak operates "Thruway" bus service daily between Arcata and Martinez, with two morning departures and two evening arrivals. In addition, HTA applied for and has recently been awarded a Transit and Intercity Rail Capital Program (TIRCP) grant to purchase a hydrogen fuel-cell bus with the intent of providing Redwood Coast Express (RCX) service to regions to the south. The concept is for the RCX bus to depart from Eureka to Ukiah (in Mendocino County), where passengers

could transfer to southbound Mendocino Transit Authority (MTA) buses, and from MTA, transfer to Sonoma-Marín Area Rail Transit (SMART) trains in Cloverdale or Santa Rosa. SMART trains currently only go as far as Santa Rosa, with the extension to Cloverdale pending funding. The RCX will continue to evolve with the development of services to the south. Some considerations to facilitate future implementation are discussed below:

- Demand for regional service should be monitored. The demand will be linked to local population growth, increases in CPH enrollment, and connectivity to activity centers and other transportation services.
- Requiring passengers to transfer is a deterrent to riding. The distance between Eureka and Santa Rosa or San Francisco is long, and transfers may be necessary, but the fewer transfers involved, the better the passenger experience will be, and the more likely residents will be to choose the service.
- Currently, the MTA Route 65 serves Ukiah to Santa Rosa, including the Santa Rosa Airport where it connects with the existing SMART, but the route departs just once a day (excluding Sunday) leaving Ukiah at 9:05 AM, and then returning at 3:39 PM. The RCX would need to depart Eureka prior to 6 AM to make a full trip to the Bay Area on the same day.
- Coordination with other providers will be key. HTA, Redwood Coast Transit (RCT, in Del Norte County), MTA, Amtrak and Greyhound all provide some level of service in the corridor, and it will be important to maximize resources by coordinating scheduling and avoiding duplication of services. Coordination will also be important for future funding of the services.
- There may also be opportunities to coordinate the RCX service with Southern Humboldt Intercity, such as timed transfers in Garberville between the two services. However, overall, these two services serve two different transit markets.

HTA should coordinate with MTA and RCT to ascertain demand, potential scheduling, and funding opportunities and agreements.

## **SERVICE ALTERNATIVES FOR ARCATA & MAD RIVER TRANSIT SYSTEM**

The Arcata and Mad River Transit System (A&MRTS) has suffered a substantial ridership loss due to COVID, particularly as it serves a large student population. However, ridership in the 2022-23 school year is trending approximately 40 percent higher than 2021-22, and 2021-22 was 30 percent higher than 2020-21, indicating recovery is occurring. This section presents alternatives to improve routing using the existing hours of service, as well as an option for a 3-bus routing system. Additionally, span of service (earlier, later and Sunday service, as well as seasonal changes) are evaluated. Finally, service to enhance Cal Poly students' ability to get to and from off-campus housing is evaluated.

Onboard survey results indicate the greatest desire for improvements to the A&MRTS is to add service, focusing first on increasing the span of service (hours/days of operation) and secondly on increasing frequency. Based on survey feedback, discussions with A&MRTS staff and evaluation of

ridership and operating trends, a number of service alternatives have been evaluated, as discussed below.

### Existing Route Structure Service Quality

As discussed in *Technical Memorandum 1*, two routes (Red and Gold) are operated weekdays from 7:00 AM to 5:00 PM, year-round, and a different route (Orange Route) which combines most of the Red and Gold route alignments is operated from 5:00 to 10:00 PM weekdays and 7:00 AM to 7:00 PM Saturdays, year-round. Prior to COVID, in addition to the scheduled buses, additional buses (trippers) were often needed at 8:00 AM and 4:00 PM due to the higher volume of ridership related to Cal Poly class schedules.

Table 17 presents a summary of the quality of transit service between six key areas of Arcata served by the Red and Gold routes. For each trip origin/destination pair, the required travel time (in minutes) is presented. In addition, the available service frequency (either hourly or more frequently than hourly) is shown by shading, and the need to transfer as part of the trip is indicated by a “T.”

Table 17: A&MRTS Service Quality - Weekday Travel Times, Frequency, and Transfers							
Red and Gold Routes							
		Destination Stop					
Travel Time in Minutes T = Transfer Required		Arcata Transit Center	Library Circle (Cal Poly)	Sunny Brae (Buttermilk Ln & Bayside Rd)	Greenview Market	Camp Curtis	Valley West Blvd
Origin Stop	Arcata Transit Center		6	23	5	7	26
	Library Circle (Cal Poly)	4		9	17	2	20
	Sunny Brae (Buttermilk Ln & Bayside Rd)	14	10		27	39 T	58 T
	Greenview Market	10	15	33		17	91 T
	Camp Curtis	30	7	16	43		19
	Valley West Blvd	26	16	82 T	49 T	40	

Note: Excludes Redwood Transit System service.  
 Note: 10-minute penalty added to trips that require a transfer.  
 Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).

As shown, Table 17 indicates the following:

- Under the current route structure and schedule, travel times range up to 91 minutes (1 hour 31 minutes) for a single one-way trip. There are a total of three trips that require 50 or more minutes to complete. Within the selected matrix, the average in-vehicle travel time to complete a trip is 25 minutes.
- Most of the trips (24 out of 30) are currently only provided once per hour. Five out of 30 (17 percent) require a transfer. Transfers are only available at the top of the hour, so the long travel times result when someone transfers from the end of one route to the end of the other (such as from Greenview Market or Sunnybrae to Valley West).

Table 18 presents a summary of the quality of transit service between six key areas of Arcata on the Orange route (evenings and Saturdays). There are no transfers, and there is no service to Camp Curtis, thus adding a one mile walk to the CPH Library Circle to catch the bus to any other location.

Table 18: A&MRTS Service Quality - Evenings and Saturdays Orange Route							
		Not served evenings or weekends.		Less than 60 Minute Frequency		60 Minute Frequency or Greater	
Travel Time in Minutes T = Transfer Required		Destination Stop					
		Arcata Transit Center	Library Circle (Cal Poly)	Sunny Brae (Buttermilk Ln & Bayside Rd)	Greenview Market	LK Wood (Camp Curtis)	Valley West Blvd
Origin Stop	Arcata Transit Center		5	5	13	*5 minutes, plus 1.0 mile walk	12
	Library Circle (Cal Poly)	4		18	26	No service (1.0 mile mile walk to stop)	6
	Sunny Brae (Buttermilk Ln & Bayside Rd)	17	23		8	*23 minutes, plus 1.0 mile walk	29
	Greenview Market	9	15	52		*15 minutes, plus 1.0 mile walk	21
	LK Wood (Camp Curtis)	*One mile walk, plus 4 minutes	No service (1.0 mile walk)	*One mile walk, plus 18 minutes	*One mile walk, plus 26 minutes		*One mile walk, plus 6 minutes
	Valley West Blvd	17	13	31	39	*23 minutes, plus 1.0 mile walk	

Note: Excludes Redwood Transit System service.  
 Note: 10-minute penalty added to trips that require a transfer.  
 Source: LSC Transportation Consultants, Inc. (based on published schedules and Google Maps).



As shown, Table 18 indicates the following:

- All travel times on the Orange route are under an hour, even if a half hour walk time to the Cal Poly library is added for passengers to catch the bus to other locations.
- The average travel time is 18 minutes, or if walking time to Camp Curtis is added, the average time is 26 minutes (a minute more than on the Red and Gold routes). Most of the trips (2 out of 20) are currently only provided once per hour.

Other key service factors of the A&MRTS routes include:

- Weekday day-time routes average 14.7 passenger per hour, while weekday evening route averages half that (7.0 passengers per hour).
- Saturday ridership averages 10.7 passenger trips per hour.
- Ridership (based on boardings by stop from June to December 2022) is spread throughout the service area, with only a few route segments having lower boardings. These include the community center and stops on Union Street north of 7<sup>th</sup>, and the Windsong neighborhood (only served on the Orange Route).
- While Red and Gold route travel times are high between the more distant bus stops (Sunny Brae, Greenwood Market, Valley West), coverage is generally good.
- By not serving Camp Curtis on the Orange route, travel times are much improved. From June to December 2022, 7 percent of boardings took place along LK Wood to Camp Curtis.

### **Assumptions for A&MRTS**

For each of the alternatives, the following assumptions have been applied:

- Based on the HTA contract with Arcata, the marginal operating cost<sup>3</sup> of additional service is estimated at \$50.00 per hour of service; based on fuel and maintenance costs, mileage costs are estimated at \$2.54 per mile of service. A service that increases both hours and mileage would incur both costs.
- Expanding service beyond existing HTA hours incurs costs for a dispatcher, at an estimated rate of \$40.00/hour.
- The CPH quarters consist of 160 “in-session” weekdays and 32 Saturdays of transit operations.
- The CPH “out-of-session” is assumed to consist of 90 weekdays and 18 Saturdays of transit operations.

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<sup>3</sup> “Marginal operating cost” includes just those costs which are variable depending on the amount of service. Hourly costs are based on driver wages and benefits, divided by service hours, and per-mile costs are based on fuel and maintenance costs, divided by service miles.

- The average cash fare collected per passenger<sup>4</sup> trip is currently \$0.34, but prior to COVID with higher use of the Jack Pass, it was \$0.05. For this analysis, we are assuming an average fare collected per trip of \$0.15, unless otherwise noted.
- The addition of housing for Cal Poly Humboldt will change the demand for service. In particular, the increased use of temporary housing at the motels in Valley West and the planned 905-bed housing at the Craftsman’s Mall will create additional demand. The Valley West locations are on the current Red and Orange routes, but the Craftsman’s Mall does not receive transit service.

### **Route Alignment – Two Bus Routes**

Based on the travel matrix, LSC evaluated numerous alternative route alignments for two buses and found no realignments improved travel time, though some offered similar travel times. Changing route alignments would only be recommended if doing so improved travel time or offered clear benefits, as passengers are used to the existing service. Realigning the Red and Gold routes is not currently recommended.

### **Route Alignment – Three Bus Routes**

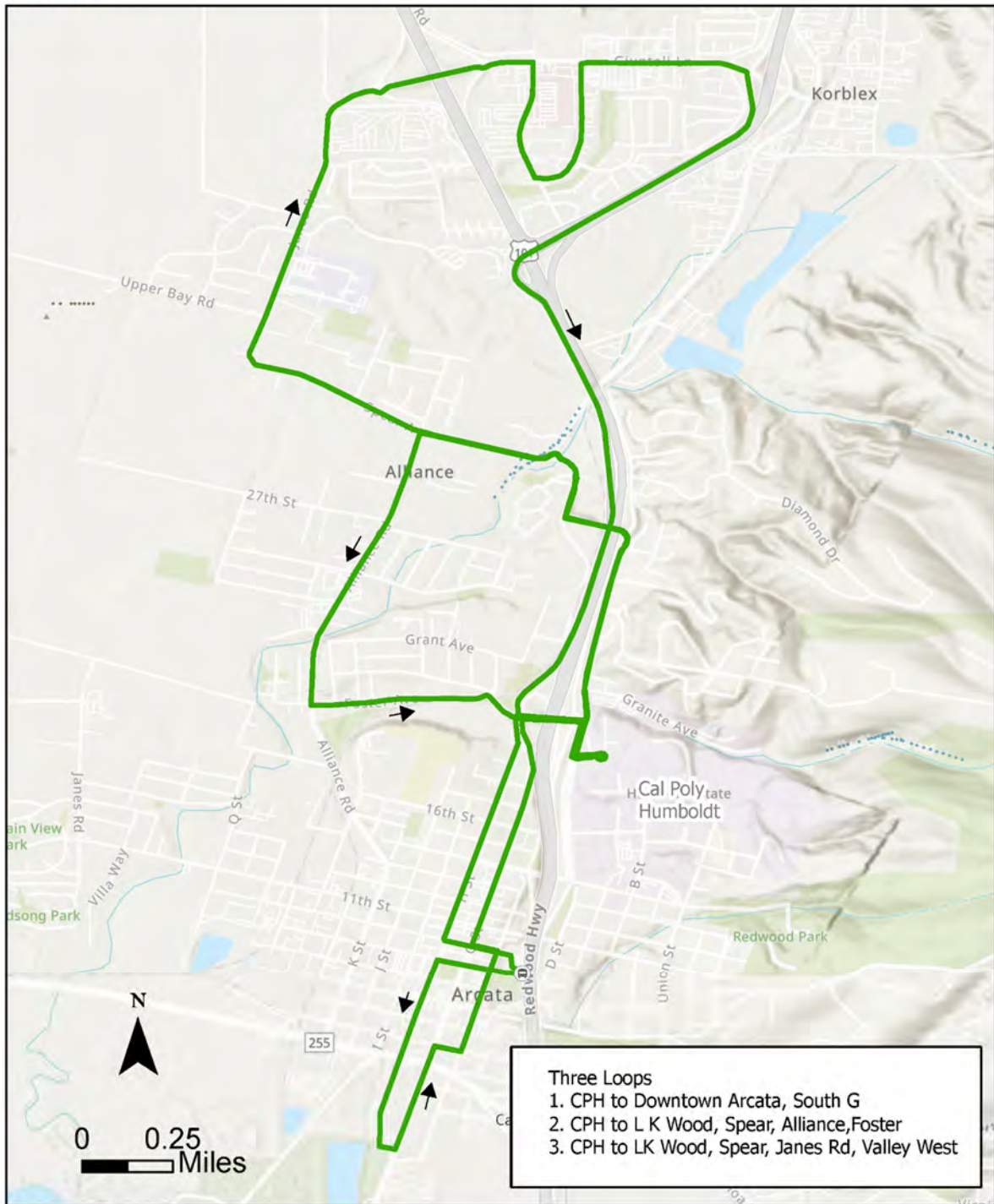
Adding a third bus would provide higher frequency in key locations, as well as service to new areas. Figure 5 shows a new Green route, which uses the CPH Library Circle as its starting and ending point and serves the stop three times per hour. The route would serve three loops:

1. The downtown loop would go directly from the CPH library to the Arcata Transit Center. From there, the route would go south on H Street and serve South G Street (new service area). The bus would return past City Hall, and back to the library circle.
2. The second central loop would depart from the library, serve L K Wood and cross the St. Louis overpass (a new stop would be needed here), continue on Spear to Alliance, and return to the library via Foster.
3. The third northern loop would also serve L K Wood to the St. Louis Overpass, but would continue on Spear to Janes Road, serve Valley West Blvd, and return by way of 299 and 101 to expedite the loop.

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<sup>4</sup> Based on fares and ridership from August 2022 to February 2023, 59 percent of riders used a JackPass, and cash fares averaged \$0.06 per passenger trip. Pre-COVID, approximately 75 percent of riders used a JackPass. This dropped to 17 percent in the spring of 2020. A&MRTS receives \$1.75 for each passenger trip by JackPass.

## Figure 5 Proposed New A&MRTS Green Route





A sample schedule is shown in Table 19. This new route would increase frequency between CPH and downtown, and CPH and Valley West. Valley West residents could get to campus at 0:09 minutes after the hour on the Green Route or at 0:47 minutes after the hour on the Gold Route. Additionally, passengers could get from campus to downtown at 0:27 minutes after the hour on the Green Route, or 0:57 minutes after the hour on the Gold Route.

New Green Route		Times Key Stops are Served on Other A&MRTS Routes																		
Bus Stops	Time Points (Minutes After the Hour)																			
<b>CPH Library Circle</b>	0:21	<table border="1"> <thead> <tr> <th colspan="2">At CPH Library Circle</th> </tr> </thead> <tbody> <tr> <td>Red Route</td> <td>0:25</td> </tr> <tr> <td></td> <td>0:34</td> </tr> <tr> <td></td> <td>0:53</td> </tr> <tr> <td>Gold Route</td> <td>0:11</td> </tr> <tr> <td></td> <td>0:47</td> </tr> <tr> <td>Orange Route</td> <td>0:33</td> </tr> <tr> <td></td> <td>0:09</td> </tr> </tbody> </table>	At CPH Library Circle		Red Route	0:25		0:34		0:53	Gold Route	0:11		0:47	Orange Route	0:33		0:09		
At CPH Library Circle																				
Red Route	0:25																			
	0:34																			
	0:53																			
Gold Route	0:11																			
	0:47																			
Orange Route	0:33																			
	0:09																			
H St. & 18th St.	0:23																			
H St. & 16th St.	0:24																			
H St. & 14th St.	0:25																			
H St. & 10th St. (Minor Theater)	0:26																			
<b>Arcata Transit Center</b>	0:27	<table border="1"> <thead> <tr> <th colspan="2">At Arcata Transit Center</th> </tr> </thead> <tbody> <tr> <td>Red Route (arrive)</td> <td>0:57</td> </tr> <tr> <td>Red Route (depart)</td> <td>0:05</td> </tr> <tr> <td>Red Route</td> <td>0:20</td> </tr> <tr> <td>Gold Route (arrive)</td> <td>0:57</td> </tr> <tr> <td>Gold Route (depart)</td> <td>0:05</td> </tr> <tr> <td>Orange Route (arrive)</td> <td>:56</td> </tr> <tr> <td>Orange Route (depart)</td> <td>:05</td> </tr> <tr> <td>Orange Route</td> <td>:27</td> </tr> </tbody> </table>	At Arcata Transit Center		Red Route (arrive)	0:57	Red Route (depart)	0:05	Red Route	0:20	Gold Route (arrive)	0:57	Gold Route (depart)	0:05	Orange Route (arrive)	:56	Orange Route (depart)	:05	Orange Route	:27
At Arcata Transit Center																				
Red Route (arrive)	0:57																			
Red Route (depart)	0:05																			
Red Route	0:20																			
Gold Route (arrive)	0:57																			
Gold Route (depart)	0:05																			
Orange Route (arrive)	:56																			
Orange Route (depart)	:05																			
Orange Route	:27																			
H St & 9th St																				
H St & 6th St	0:30																			
H St & G St (New Stop)	0:31																			
G St & 5th St																				
Uniontown Shopping Center	0:33																			
City Hall	0:34																			
12th & G	0:35																			
18th & G	0:36																			
<b>CPH Library Circle</b>	0:38	<table border="1"> <thead> <tr> <th colspan="2">At Valley West Blvd. (McDonald's)</th> </tr> </thead> <tbody> <tr> <td>Gold</td> <td>:31</td> </tr> <tr> <td>Orange</td> <td>:38</td> </tr> </tbody> </table>	At Valley West Blvd. (McDonald's)		Gold	:31	Orange	:38												
At Valley West Blvd. (McDonald's)																				
Gold	:31																			
Orange	:38																			
L K Wood Blvd & California Ave	0:39																			
L K Wood Blvd & Ridge Rd	0:40																			
St Louis Overpass (New Stop)																				
Spear west of Roundabout (New Stop)	0:41																			
Spear Ave & Alliance Rd	0:43																			
Alliance Rd. & Stromberg	0:44																			
Foster Ave. & Alliance Rd.	0:46																			
<b>CPH Library Circle</b>	0:50		<div style="border: 1px solid black; padding: 10px; background-color: #f0f0f0;"> <p>RTS Mainline serves Valley West 13 times daily each direction and CPH Library and the Downtown Arcata Transit Center 25 times daily (each direction).</p> </div>																	
L K Wood Blvd & California Ave	0:51																			
L K Wood Blvd & Ridge Rd	0:52																			
St Louis Overpass (New Stop)																				
Spear west of Roundabout (New Stop)	0:53																			
Spear Ave & Alliance Rd	0:55																			
Mad River Hospital	0:57																			
Lazy J. Tr. Ranch	0:58																			
<b>Valley West Blvd. (McDonald's)</b>	0:01																			
Valley East Blvd & Valley West Blvd																				
Valley East Blvd.																				
<b>CPH Library Circle</b>	0:09																			
12 min layover																				

This route would also serve a new area south of Samoa Blvd., serving affordable housing areas along South H and South G, and the Arcata Marsh. Additionally, the route would cross the St Louis overcrossing, thereby providing new service to the future location of CPH housing at the Craftsman’s Mall.

**Operate Green Route Same Hours as Red and Gold**

One option would be to serve the Green Route the same hours as the Red and Gold. The first run would depart the CPH library circle at 7:21 AM, and end at CPH at 5:09 PM weekdays. This would add \$209,500 in marginal operating cost and generate 11,800 passenger trips annually, as shown in Table 20. An estimated \$1,800 fare revenue would be generated, for an annual subsidy of \$207,700. This alternative would require one additional vehicle.

**Operate Green Route During Peak Periods Only**

Another option would be to serve the Green Route during peak hours: 7:21 to 11:09 AM and 2:21 to 5:21 PM weekdays. This would add \$146,900 in marginal operating costs and generate 10,500 passenger trips annually. With \$1,600 in fare revenue, the annual subsidy would be \$145,300, shown in Table 20. This alternative would also require one additional vehicle.

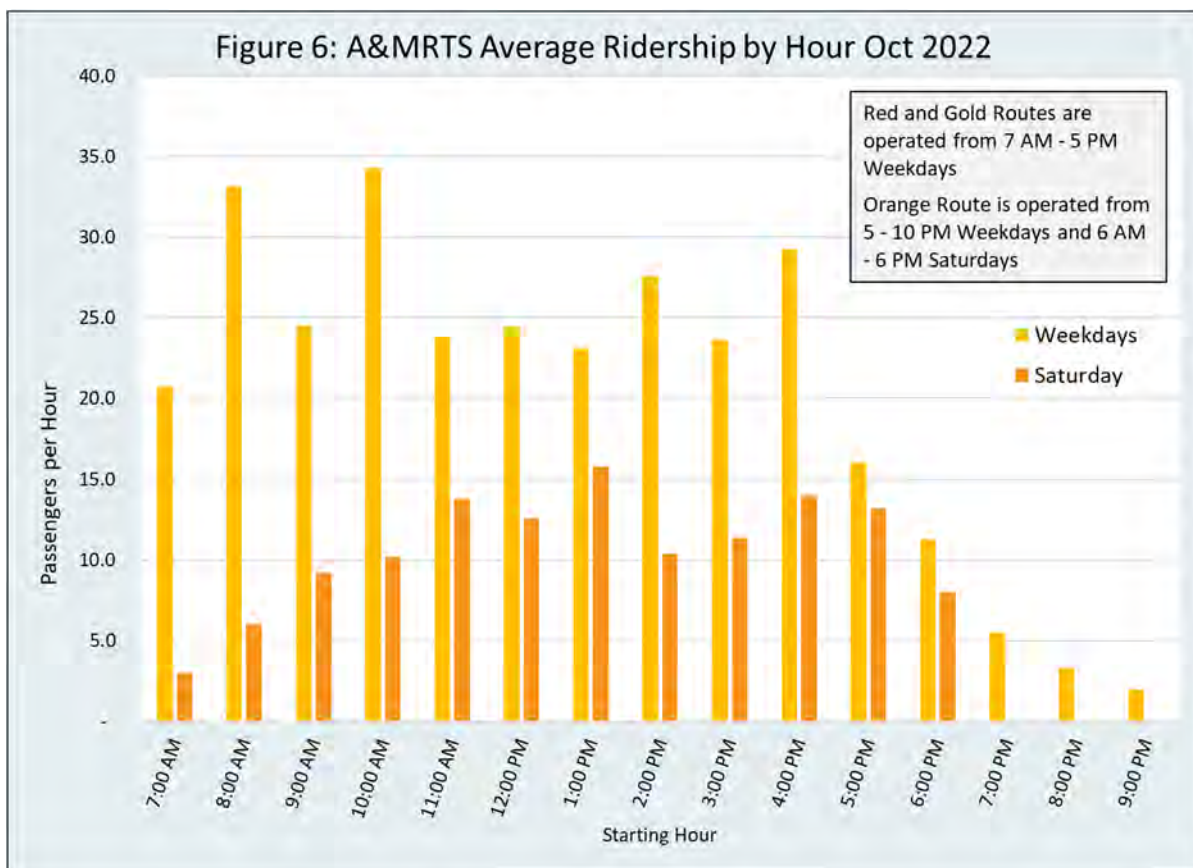
Table 20: Arcata & Mad River Transit System - Service Alternatives Summary							
Parameters	Service Hours	Service Miles	Marginal Operating Cost <sup>2</sup>	Annual Ridership	Fare Revenues <sup>3</sup>	Marginal Operating Subsidy	Change in Peak Buses
<b>A&amp;MRTS Status Quo<sup>1</sup></b>							
Weekdays	3,838	46,343	\$309,480	60,300	\$46,343	\$263,137	
Saturdays	1,842	22,244	\$148,550	6,100	\$22,244	\$126,306	
Total	5,680	68,599	\$458,070	66,400	\$38,072	\$419,998	
<b>A&amp;MRTS Service Alternatives - Change from Status Quo<sup>4</sup></b>							
<b>Route Alternatives</b>							
New Green Route 7:21 AM to 5:09 PM weekdays	2,540	32,500	\$209,500	11,800	\$1,800	\$207,700	1
New Green Route 7:21 -11:09 AM & 2:21-5:09 PM	1,780	22,800	\$146,900	10,500	\$1,600	\$145,300	1
New Green Route - While CPH in Session	1,600	20,480	\$132,000	9,200	\$1,400	\$130,600	1
<b>Span of Service Alternatives</b>							
Start Weekday Service at 6:00 AM (Orange Route)	254	3,070	\$20,500	2,000	\$300	\$20,200	0
Start Weekday Service at 6:00 AM (Red & Gold)	508	6,130	\$41,000	3,000	\$500	\$40,500	0
Operate Red & Gold til 10:00 PM Weekdays Year round	1,270	15,340	\$102,400	500	\$100	\$102,300	0
Operate Red & Gold til 10:00 PM Weekdays in Session	330	1,303	\$19,800	600	\$100	\$19,700	0
Red & Gold In-Session, Orange Out of Session, Sat, Eves	1,516	26,987	\$144,300	43,400	\$6,500	\$137,800	0
Sunday Service - Orange Route	416	6,282	\$53,400	2,700	\$400	\$53,000	0
Note 1: Status Quo is based on 2021-22 hours and miles of service and average fares collected. Cost is assumed to be \$50/hour based on the HTA contract cost, and \$2.54 per mile based on 2021-22 fuel and maintenance costs. Ridership is estimated based on increases from July 2022 to Feb 2023 over the previous year.							

### Operate Green Route Only While CPH In Session

Another option would be to serve the Green Route over the same hours as the Red and Gold, but only while CPH is in session. This would add \$132,000 in marginal operating costs and generate 9,200 passenger trips annually, as shown in Table 20. An estimated \$1,400 fare revenue would be generated, for an annual subsidy of \$130,600. This alternative would require one additional vehicle.

### Span of Service Alternatives

Passengers and stakeholders have expressed a desire for increased hours of service, which is particularly important for students wishing to get to and from campus during evening classes or special events, as well as for students in Valley West housing to get to campus and into the community, and residents to get to jobs and other activities. Figure 6 shows the current ridership by hour on A&MRTS from October 2022, and span of service alternatives are analyzed below.



### Start Weekday Service at 6:00 AM

Weekday mornings, the first runs carry an average of 20.7 passenger trips, which indicates earlier service may be warranted. One option would be to operate the Orange Route from 6:00 to 7:00 AM before switching to the Red and Gold service at 7:05 AM. This would add 254 hours of service annually at a cost of \$20,500 and would generate an estimated 2,000 passenger trips annually. After subtracting fares of \$300, the annual subsidy would be \$22,200, as shown in Table 20.

Another option would be to operate both the Red and Gold routes starting at 6:00 AM, which would add 508 hours of service and increase ridership by an estimated 3,000 passenger trips annually at a cost of \$41,000, and subtracting fares of \$500, an annual subsidy of \$40,500.

### ***Expand Weekday Evening Service – Operate Red and Gold until 10:00 PM***

As shown in Figure 6, ridership drops off by approximately half after 5:00 PM (which is also when service switches from Red and Gold to just Orange). Ridership continues dropping off each hour of the evening, with only 1.9 passenger trips carried on average between 9:00 and 10:00 PM. This pattern is a strong indication that additional service is not warranted. If both the Red and Gold routes were operated until 10:00 PM, ridership would only increase by an estimated 500 passenger trips annually, while costs would increase by \$102,400 annually.

### ***Expand Weekday Evening Service – Operate Red and Gold until 10:00 PM while CPH is in Session***

Another option would be to operate evening service only while Cal Poly Humboldt is in session. Ridership from August to May is approximately 12 percent higher than year-round ridership. Operating the Red and Orange Routes in the evenings only during the school year would add \$19,800 in operating cost and would generate 600 passenger trips.

### ***Operate Gold and Red In-Session / Orange Out-of-Session and Evenings***

Given the increased ridership performance during the school year compared to summer, one option would be to operate the Orange route during the summer from 7:00 AM to 7:00 PM Monday through Saturday, and during the school year from 6:00 to 9:00 PM weekdays. The Red and Gold routes would be operated during the school year from 7:00 AM to 6:00 PM weekdays and Saturdays.

As shown in Table 20, this option would add 1,516 hours and 26,987 miles of service annually for an operating cost of \$144,300. It is estimated the service would generate 43,400 passenger trips per year and fare revenues of \$6,500, equating to an annual subsidy of \$137,800.

### ***Sunday Service***

Sunday service is also frequently requested. One option would be to operate Sunday service on the Orange Route from 9:00 AM to 5:00 PM. This would add a cost of \$53,400 annually (year round), including costs for dispatching, as shown in Table 20. Given that ridership on Saturdays in Arcata generates approximately 75 percent of weekday ridership per hour, and Sundays generally produce a similar reduction, it is estimated this alternative would generate 2,700 passenger trips per year. This would result in an increase in fare revenue of \$400 and an increase in operating subsidy of \$53,000.

## Comparison of Arcata Alternatives and Performance Analysis

A review of Table 21 reflects the wide variation in the impacts of the various alternatives on A&MRTS annual ridership and cost. The alternatives range in marginal operating costs of \$20,500 to operate the Red & Gold routes until 10 PM weekdays, to \$209,500 to add the new green route weekdays. In terms of performance, operating Red and Gold routes until 10 PM only generates 0.4 passenger trips per hour of service at a very high cost of \$204 per passenger trip. On the other hand, operating the Red and Gold Routes during class sessions, and the Gold Route while CPH is out of session generates 28.6 passengers per hour at a cost per passenger trip of \$3.32, meeting the recommended standards in Chapter 3.

<b>Table 21: Comparison of A&amp;MRTS Service Alternatives</b>				
<i>Alternatives (from Table 20)</i>	<b>Annual Ridership</b>	<b>Annual Operating Cost<sup>1</sup></b>	<b>Passenger-trips per Veh-Hour</b>	<b>Operating Cost per Passenger Trip</b>
<b>Alternatives Meeting Standard Shown in Green</b>				
New Green Route 7:21 AM to 5:09 PM weekdays	11,800	\$209,500	4.6	\$17.75
New Green Route 7:21 -11:09 AM & 2:21-5:09 PM	10,500	\$146,900	5.9	\$13.99
New Green Route - While CPH in Session	9,200	\$132,000	5.8	\$14.35
Start Weekday Service at 6:00 AM (Orange Route)	2,000	\$20,500	7.9	\$10.25
Start Weekday Service at 6:00 AM (Red & Gold)	3,000	\$41,000	5.9	\$13.67
Operate Red & Gold til 10:00 PM Weekdays Year round	500	\$102,400	0.4	\$204.80
Operate Red & Gold til 10:00 PM Weekdays in Session	600	\$19,800	1.8	\$33.00
Red & Gold In-Session, Orange Out of Session, Sat, Eves	43,400	\$144,300	<b>28.6</b>	<b>\$3.32</b>
Sunday Service - Orange Route	2,700	\$53,400	6.5	\$19.78
<b>Recommended Standard</b>			<b>10.0</b>	<b>\$6.00</b>
<i>Note 1: Does not include fixed costs</i>				

## SERVICE ALTERNATIVES FOR FORTUNA

The City of Fortuna is served by two transit programs: Fortuna Transit and RTS. Fortuna Transit is an on-demand transit dial-a-ride program that operates Monday through Friday from 8:30 AM to 4:00 PM, with up to two vehicles in operation at a time. This service is restricted to elderly (aged 50 and over) or disabled individuals. Approximately 30 passenger trips are made per day on this service.

The RTS Mainline route provides service in Fortuna on 14 northbound and 14 southbound runs between 6:30 AM to 6:45 PM weekdays (and five times between 9 AM and 8 PM on Saturdays). Weekdays, three of the runs serve the core downtown area of Fortuna, as well as Redwood Village, Redwood Hospital, School Street, and the Park-and-Ride on the west side of Highway 101 while eleven of the runs make a shorter trip serving just half as many stops. Approximately 110 passenger trips originate in Fortuna on RTS daily.



## **Microtransit in Fortuna**

One option to serve both the local trips and the regional trips in Fortuna would be to offer microtransit service with an opportunity to transfer to the RTS Mainline service at one or two locations. Under this alternative, the local dial-a-ride service would be co-mingled with microtransit service and opened to the general public.

As the microtransit has been explained, Fortuna Transit would purchase and implement an app (and associated automated dispatching software) for the Fortuna service. With the app software handling many if not most of the trip requests, dispatchers could focus on addressing any unusual requests or addressing service issues as they arise.

Currently, the Fortuna Transit dial-a-ride service carries between 2.9 to 3.4 passengers per hour and is restricted to seniors and persons with disabilities. The existing service could potentially accommodate up to 2.0 additional passengers per hour, but it is likely that a third vehicle would be required at peak times. Furthermore, as a general public transit service, reasonable hours would be 8:00 AM to 5:00 PM, extending the day by 1.5 hours. The additional peak vehicle and extended hours would add 1,300 hours of service annually at a cost of \$159,600 (including the software fees and additional dispatching cost for extended hours), as shown in Table 22. It is estimated based on ridership in other microtransit services (Appendix A) that 2 additional passengers would be carried per hour of service on the existing vehicles, plus 4 per hour of peak service, for an increase of 11,050 passenger trips annually. The average fare collected would increase by an estimated 50 percent (due to a higher fare charged to the general public), resulting in a fare revenue of \$24,700 annually, and therefore a subsidy of \$134,900. This alternative would require the purchase of an additional vehicle.

## **General Public Dial-a-Ride in Fortuna**

A variation on the alternative above would be to open the current dial-a-ride service to the general public in Fortuna. The parameters would be the same as with microtransit, except for the reservation procedures would be through the current reservation system, not by app. Same-day trips would be accommodated only if room is available—otherwise, advanced reservations would be required. As with the previous alternative, hours would be extended to 8:00 AM to 5:00 PM. This alternative would cost an estimated \$121,100 and would generate an estimated 8,600 passenger trips. The subsidy would be an estimated \$100,800 annually, also shown in Table 22. This alternative would also require the purchase of an additional vehicle.

**Table 22: Fortuna Service Alternatives Summary**

Parameters	Service Hours	Service Miles	Marginal Operating Cost <sup>2,3</sup>	Ridership	Fare Revenues <sup>4</sup>	Marginal Operating Subsidy	Peak Buses
<b>Fortuna Status Quo<sup>1</sup></b>							
Total (Weekdays 8:30 AM to 4:00 PM)	2,671	22,710	\$218,112	7,713	\$16,000	\$202,112	2
<b>Fortuna Service Alternatives - Change from Status Quo<sup>5</sup></b>							
General Public Microtransit (Weekdays 8:00 AM-5:00 PM)	1,300	11,050	\$159,600	6,800	\$16,000	\$143,600	1
General Public Dial-a-Ride (Weekdays 8:00 AM-5:00 PM)	1,300	11,050	\$121,100	8,600	\$20,300	\$100,800	1

Fortuna Service Alternatives Performance Analysis	Passenger-trips per Veh-Hour	Operating Cost per Passenger Trip
Alternatives Meeting Standard Shown in Green		
General Public Microtransit (Weekdays 8:00 AM-5:00 PM)	5.2	\$21.12
General Public Dial-a-Ride (Weekdays 8:00 AM-5:00 PM)	6.6	\$11.72
Recommended Standard	9.0	\$7.00

Note 1: Status Quo represents service hours, miles and ridership from 2021-22.  
 Note 2: Marginal Operating Cost is based on the cost allocation, equal to \$68.35 per hour and \$1.54 per mile of service, plus a \$40/hr dispatch fee if hours extend beyond current service hours.  
 Note 3: Microtransit costs include an annual software fee of \$25,000, plus \$4,500 per active vehicle.  
 Note 4: Fare revenues are assumed to be equal to 1.5 times the average fare collected per passenger in 2021-22 to account for higher fares charged to the general public.  
 Note 5: The change represents the impact of the alternatives over the existing status quo services.

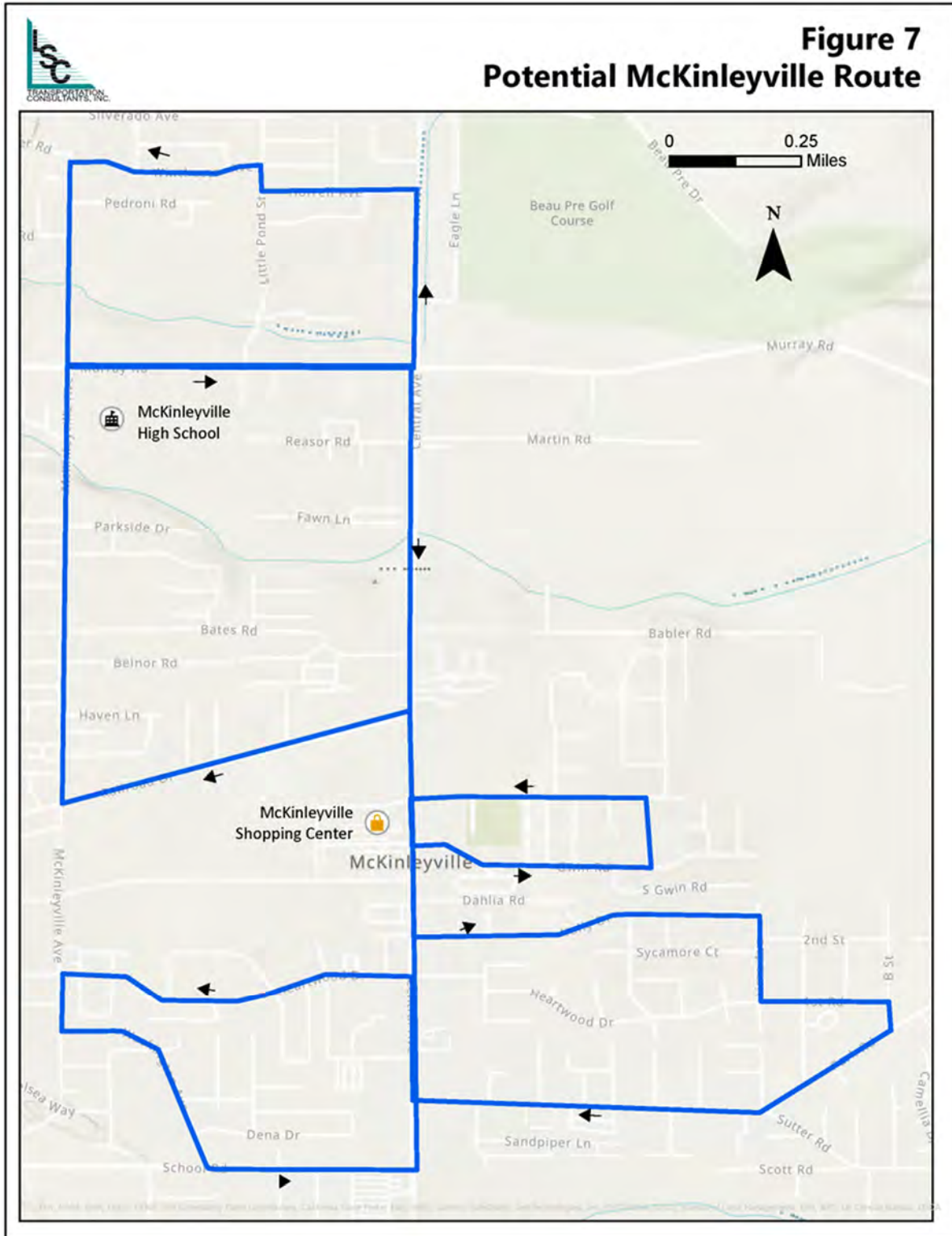
## SERVICE ALTERNATIVES FOR MCKINLEYVILLE

The unincorporated city of McKinleyville is served by RTS route approximately hourly from 7:00 AM (first southbound departure from the airport to Fortuna) to 8:30 PM (last northbound arrival at the airport). The route serves seven stops in McKinleyville, primarily along business 101 (Central Avenue), with a loop west on Murray Road, south on McKinleyville Avenue, and back to Central Avenue by way of Railroad Drive. This service provides regional access but limited local service. Two options for service are evaluated. Both assume HTA would be the operator, though whether the contract would be with the County or the McKinleyville Community Services District would need to be determined.

### Fixed Route in McKinleyville

Under this alternative, a one-bus, hourly route would be operated on weekdays from 7:00 AM to 6:00 PM and Saturdays from 9:00 AM to 4:00 PM. The route would start at the McKinleyville Shopping Center and make multiple loops from Central Avenue, as shown in Figure 7. Cost assumptions are based on HTA marginal operating costs for RTS, or \$51.55 per hour of service and \$1.05 per mile but could be higher or lower depending on who operates the service and how the price is negotiated. No fixed costs are included for this analysis. This service would operate 3,200 hours and 31,400 miles annually, for a marginal operating cost of \$197,900, as shown in Table 23. This would generate an estimated 19,000 passenger trips annually. At an average fare collected of \$1.88 (based on ETS fares), the subsidy would be \$162,100. No performance measures have been identified for McKinleyville,

but 5.9 passenger trips would be carried per hour at a marginal operating cost of \$10.42 per trip. This service would require one vehicle.





**Table 23: McKinleyville Service Alternatives Summary**

Alternatives	Service Hours	Service Miles	Operating Cost <sup>1</sup>	Annual Ridership	Fare Revenues <sup>2</sup>	Operating Subsidy	Change in Peak Buses
McKinleyville Local Route	3,200	31,400	\$197,900	19,000	\$35,800	\$162,100	1
Microtransit	3,200	48,000	\$255,300	10,400	\$31,200	\$224,100	1

McKinleyville Service Alternatives Performance Analysis	Passenger-trips per Veh-Hour	Operating Cost per Passenger Trip
(No performance standards have been identified)		
McKinleyville Local Route	5.9	\$10.42
Microtransit	3.3	\$24.55

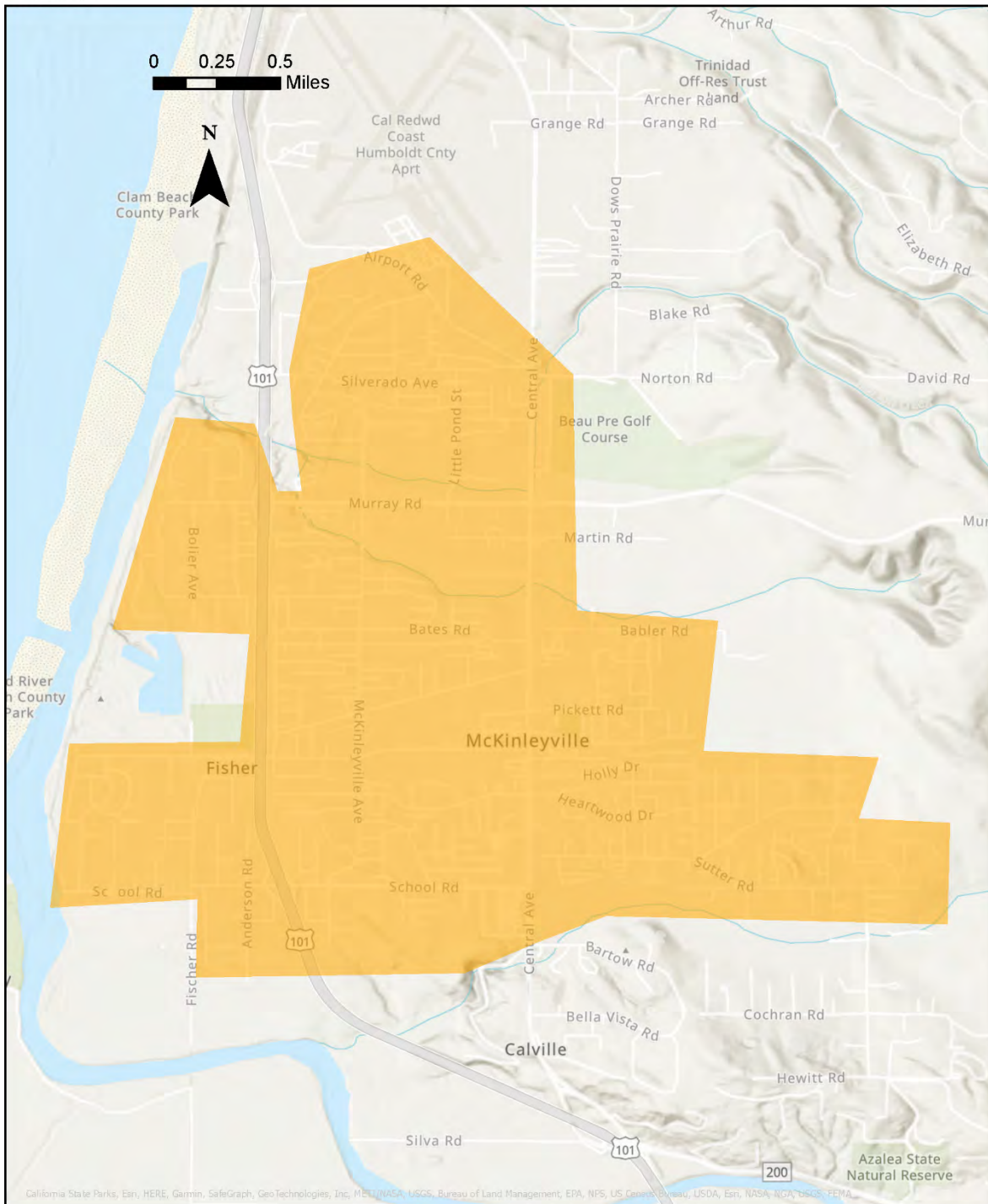
Note 1: Operating Cost is based on the RTS cost allocation in Table 1, equal to \$51.55 per hour and \$1.46 per mile of service and does not include fixed costs.  
 Note 2: Fare revenues are assumed to be equal to the average fare collected per passenger on ETS in 2021-22, or \$1.88 per trip.

### Microtransit in McKinleyville

Another option to serve McKinleyville would be to offer microtransit service. A potential McKinleyville microtransit zone is shown in Figure 8. This service would be available weekdays from 7:00 AM to 6:00 PM and Saturdays from 9:00 AM to 4:00 PM. A total of 3,200 service hours would be operated annually with one vehicle. Based on the population base and microtransit in other regions, ridership is projected at 10,400 passenger trips annually. There is currently only one passenger trip per day on average served by paratransit that stays within McKinleyville, so the microtransit service would not change the need for paratransit in McKinleyville. The marginal operating cost (not including software or administrative costs) would be an estimated \$255,300. The average fare collected was assumed to be \$3.00 (like DAR), resulting in a fare revenue of \$31,200 annually, and therefore a subsidy of \$224,100. No performance measures have been identified for McKinleyville, but just 3.1 passenger trips would be carried per hour at a marginal operating cost of \$24.55 per trip.



## Figure 8 McKinleyville Microtransit Zone



## SUMMARY

In sum, this review provides useful information for making decisions regarding the individual and combined routes. The appropriate alternatives to work into the overall plan will depend on the relative balance between the desire for ridership growth and the financial realities of available operating funding. The following are key overall findings that result from this evaluation:

The “best” alternatives consist of the following:

- Replacing the Samoa Transit with microtransit would have among the most positive performance, though it does increase operating costs.
- All three RTS Express routes perform well, especially the Cal Poly to Eureka option, but also each adds significant cost.
- Both options to focus ETS services on either the EaRTH Center hub or F & Harris hub offer improvements in ridership without additional costs, with the F & Harris option yielding a better overall improvement in service quality and potential ridership.
- Shifting the Purple Route from Harrison to two-way service on West and S Streets and extending the route to the EaRTH Center would have no costs, but would improve ridership, thereby meeting performance standards.
- Eliminating Saturday service on the Willow Creek service offers substantial savings with minimal ridership loss. Reducing service on Saturdays also reduces costs with limited ridership loss while still maintaining a lifeline level of service.
- Operating the Red and Gold routes while CPH is in session, and the Orange route out-of-session generates an additional 22.3 passenger trips per hour of service at a cost of just \$4.09 per trip, which meets performance standards. However, it adds \$177,500 in operating costs.
- Microtransit or general public dial-a-ride would perform well in Fortuna, meeting current standards. However, the standards are set based on existing service, which is restricted to eligible passengers.
- Microtransit in McKinleyville (based in part on prior public outreach).

Alternatives which do not perform well and should potentially be eliminated from further consideration include:

- Later service on RTS weekdays
- Sunday service on RTS
- All span of services (expanded service) on ETS
- Citywide Microtransit in Eureka
- The A&MRTS Green Route would generate a lot of ridership but would not meet performance standards for passengers carried per hour or cost per passenger trip. This might be reconsidered if ridership levels return, or if other funding (such as through Cal Poly) is

available. It should be noted that while the RTS Express is analyzed as an RTS service, it has a positive impact on service frequency in Arcata as well.

- While none of the A&MRTS span of service meet the standards, starting at 6:00 AM performs best among these and might be considered if ridership levels return.

## **DIAL-A-RIDE CONSIDERATIONS**

HTA is contracted by the City of Arcata, City of Eureka and County of Humboldt to administer the operation of a consolidated Dial-A-Ride (DAR) program. HTA in turn contracts with City Ambulance of Eureka (CAE) to operate the service. CAE operates non-emergency medical transportation and taxi service in addition to the DAR. Service is provided within ADA-mandated areas (those areas within  $\frac{3}{4}$  mile of fixed route service, not including commuter or intercity service), and in areas outside of ADA-mandated areas. These areas are divided into four zones, as described in Technical Memorandum 1, and listed below:

- Zone 1 (two geographical areas, both outside of mandated ADA service areas)
  - McKinleyville
  - Hwy 101 Corridor between Arcata and Eureka
- Zone 2 - Arcata
- Zone 3 - Eureka
- Zone 4 - Supplemental Areas (Samoa, Manila, Old Arcata Road, Humboldt Hill, King Salmon, Fields Landing, College of the Redwoods)

One “ticket” is required for a ride within each zone. The cost per ticket is \$3.00. Each time a passenger crosses the corridor and outlying areas to accomplish a single trip, an additional ticket is required. The maximum number of tickets required for a single trip is three. The current service provides a high level of coverage.

## **Rider Policies**

An important element of a Dial-A-Ride program is the policies regarding ridership eligibility and service use policies.

### ***Eligibility***

Individuals must complete a written application to be eligible for HTA DAR services. If deemed necessary, HTA states that follow-up interviews may be required to complete the application process. If HTA believes there is an abuse of the process and unqualified passengers are using DAR, it is recommended that HTA consider requiring interviews for all applicants. Just requiring an interview sometimes discourages ineligible applicants from attempting to apply.

## ***No-Shows and Cancellations***

HTA maintains the following No Show/Cancellation Policy:

*“A no show occurs when a rider fails to appear to board the vehicle for a scheduled trip. This presumes the vehicle arrives at the scheduled pickup location and the driver waits at least 15 minutes within the pickup window.*

*Because No Shows and Late Cancellations prevent other passengers from obtaining rides, an accumulation of No Shows and/or Late Cancellations may result in suspension of service.”*

When a rider is a No-Show or cancels late, the computer reviews their history to see if there is a pattern of abuse, and the passenger may be suspended. The policy does not specify how many no shows or late cancellations result in suspension. Additionally, excuses for no-shows and late cancellations listed on the website are fairly vague and include circumstances such as “sudden illness or change in condition” and “family emergency”—which provide a lot of leeway for passengers.

The percentages of no shows and cancellations are high. From July to December 2022, 8 percent of trips were no-shows, and 20 percent were late cancellations. This indicates policies need to be clarified and improved, and enforcement may also need improvement.

## **Funding Agreement for DAR Services**

The funding agreement for DAR is derived from a general application of the number of registered Dial-a-Ride passengers in a geographic area, as well as the number of trips by category. The ADA eligible riders are sorted into the following categories:

- Arcata residents who live within an ADA-mandated service area (Arcata ADA)
- Eureka residents who live within an ADA-mandated service area (Eureka ADA)
- McKinleyville residents living in non-mandated areas (County A)
- Eureka non-mandated fringe areas (County E)
- All other non-mandated service areas (HCAOG)
- Visitors from outside of the area, but qualifying for ADA service (ADA)

The origin and destination of all trips from July to December 2022 by category of rider is shown in Table 24 (number of passenger trips) and Table 25 (percent of passenger trips). For example, out of 8,691 total passenger trips, 5,872 (67.6 percent) originated in Eureka, 1,864 (21.4 percent) originated in Arcata, and 876 (10.1 percent) originated in McKinleyville. In Eureka, 4,532 trips (77 percent) both originated in and ended in Eureka. In addition, 3,369 trips (57 percent) were Eureka residents of ADA-mandated areas, while the remainder were passengers that do not reside in the Eureka ADA-mandated area. Note that the categories are based on the residence location of the rider, which results in trips within various communities that are in other categories. For instance, an Arcata resident making a trip between a physician’s office and a pharmacy in Eureka is assigned to the Arcata ADA category.

The overall cost of DAR service is allocated to the funding partners based on a formula of 50 percent proportion of DAR eligible population and 50 percent proportion of ridership by category. As shown in Table 26, this results in 58 percent of funding responsibility being allocated to HTA (as operator of the ETS service).

According to this formula, HTA is paying a greater share than the share of trips by category, Arcata is paying very close to the trip proportion, while Humboldt County and HCAOG are paying less than their share of trips. However, the trip pattern does not take into account the difference in travel time or distance associated with trips served in each community. While four or five trips could be served in Eureka in one hour, a trip from more remote locations, such as McKinleyville, or those which cross multiple zones require a much longer travel and deadhead time and have a higher impact on DAR resources. A more thorough analysis of DAR ridership patterns, including travel time per passenger trip by zone, will be conducted to make recommendations on potential adjustments to funding allocations and/or zones.

**Table 24: DAR Origin / Destination by Category of Ride July 1, 2022 to December 31, 2022**  
*Number of Total Trips*

Origin	Destination	Category of Rider						Total
		ADA	Arcata ADA	County A	County E	Eureka ADA	HCAOG	
Arcata	Arcata	0	465	2	0	3	234	704
	Bayside	0	2	0	0	0	112	114
	Eureka	0	181	25	95	327	292	920
	McKinleyville	0	15	38	1	1	71	126
	<b>Arcata Origin Total</b>	<b>0</b>	<b>663</b>	<b>65</b>	<b>96</b>	<b>331</b>	<b>709</b>	<b>1,864</b>
Bayside	Arcata	0	2	0	0	0	49	51
	Bayside	0	0	0	0	0	6	6
	Eureka	0	0	0	0	0	3	3
	<b>Bayside Origin Total</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>58</b>	<b>60</b>
Eureka	Arcata	0	210	22	97	315	294	938
	Bayside	0	0	0	0	0	6	6
	Blue Lake	0	0	0	1	0	0	1
	Eureka	12	101	61	921	3,019	418	4,532
	Fields Landing	0	0	0	0	0	3	3
	Fortuna	0	0	0	0	1	0	1
	Loleta	0	0	0	12	0	0	12
	McKinleyville	0	3	309	23	28	10	373
	Samoa	0	0	0	0	6	0	6
<b>Eureka Origin Total</b>	<b>12</b>	<b>314</b>	<b>392</b>	<b>1,054</b>	<b>3,369</b>	<b>731</b>	<b>5,872</b>	
Fields Landing	Eureka	0	0	0	0	0	3	3
Fortuna	Eureka	0	0	0	0	1	0	1
Loleta	Eureka	0	0	0	10	0	0	10
McKinleyville	Arcata	0	18	49	1	0	72	140
	Eureka	1	2	379	22	27	10	441
	McKinleyville	0	6	277	0	8	4	295
	<b>McKinleyville Origin Total</b>	<b>1</b>	<b>26</b>	<b>705</b>	<b>23</b>	<b>35</b>	<b>86</b>	<b>876</b>
Samoa	Eureka	0	0	0	0	5	0	5
<b>Total</b>		<b>13</b>	<b>1,005</b>	<b>1,162</b>	<b>1,183</b>	<b>3,741</b>	<b>1,587</b>	<b>8,691</b>

Source: LSC Transportation Consultants Inc., from Routematch data.

**Table 25: DAR Origin / Destination by Category of Ride July 1, 2022 to December 31, 2022**

*Percent of Total Trips*

Origin	Destination	Category of Rider						Total
		ADA	Arcata ADA	County A	County E	Eureka ADA	HCAOG	
<b>Percent of Total Trips</b>								
Arcata	Arcata	0.0%	5.4%	0.0%	0.0%	0.0%	2.7%	8.1%
	Bayside	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	1.3%
	Eureka	0.0%	2.1%	0.3%	1.1%	3.8%	3.4%	10.6%
	McKinleyville	0.0%	0.2%	0.4%	0.0%	0.0%	0.8%	1.4%
	<b>Arcata Origin Total</b>	<b>0.0%</b>	<b>7.6%</b>	<b>0.7%</b>	<b>1.1%</b>	<b>3.8%</b>	<b>8.2%</b>	<b>21.4%</b>
Bayside	Arcata	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%	0.6%
	Bayside	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
	Eureka	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	<b>Bayside Origin Total</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.7%</b>	<b>0.7%</b>
Eureka	Arcata	0.0%	2.4%	0.3%	1.1%	3.6%	3.4%	10.8%
	Bayside	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%
	Blue Lake	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Eureka	0.1%	1.2%	0.7%	10.6%	34.7%	4.8%	52.1%
	Fields Landing	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Fortuna	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Loleta	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
	McKinleyville	0.0%	0.0%	3.6%	0.3%	0.3%	0.1%	4.3%
	Samoa	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
<b>Eureka Origin Total</b>	<b>0.1%</b>	<b>3.6%</b>	<b>4.5%</b>	<b>12.1%</b>	<b>38.8%</b>	<b>8.4%</b>	<b>67.6%</b>	
Fields Landing	Eureka	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fortuna	Eureka	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Loleta	Eureka	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%
McKinleyville	Arcata	0.0%	0.2%	0.6%	0.0%	0.0%	0.8%	1.6%
	Eureka	0.0%	0.0%	4.4%	0.3%	0.3%	0.1%	5.1%
	McKinleyville	0.0%	0.1%	3.2%	0.0%	0.1%	0.0%	3.4%
	<b>McKinleyville Origin Total</b>	<b>0.0%</b>	<b>0.3%</b>	<b>8.1%</b>	<b>0.3%</b>	<b>0.4%</b>	<b>1.0%</b>	<b>10.1%</b>
Samoa	Eureka	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.1%
<b>Total</b>		<b>0.1%</b>	<b>11.6%</b>	<b>13.4%</b>	<b>13.6%</b>	<b>43.0%</b>	<b>18.3%</b>	<b>100.0%</b>

Source: LSC Transportation Consultants Inc., from Routematch data.

**Table 26: Comparison of ADA Service Ridership Versus Funding Proportions**

July - December 2022

Passenger Type	Funding Source	Percent of Ridership	Percent of Funding	Difference
Arcata ADA	City of Arcata	12%	10%	-2%
County A & E	County of Humbol	27%	18%	-9%
Eureka ADA	HTA	43%	58%	15%
HCAOG	HCOAG	18%	14%	-5%

Source: HTA July -December ridership, and FY 2023-24 funding agreement.

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## REVIEW OF POLICIES AND PERFORMANCE STANDARDS

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### INTRODUCTION

Public transit agencies benefit from developing performance standards to evaluate their effectiveness, efficiency, and quality. As Humboldt County's transit programs receive public funding, the agencies' adopted goals and standards are an important tool for communicating to the public how effectively they are 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 time new services are implemented and given up to two years to adjust to more ambitious standards. This chapter evaluates basic goals and standards for Humboldt's transit services.

### SAFETY GOALS

The top goal of all transit programs should be to operate safely. This is best measured in the number of preventable accidents. The industry standard is that all services should operate with a minimum of 100,000 miles between preventable accidents. A target standard is 500,000 miles between accidents. In 2021-22, RTS, ETS and the Dial-a-Ride all had accidents which fall short of the minimum standard. ETS in particular had seven accidents in just over 124,000 miles. A&MRTS, the City of Fortuna and Blue Lake Rancheria did not provide data. This data is shown in Table 27.

Additionally, both for safety and convenience of passengers, each transit agency should minimize the number of road calls, which is achieved by regularly maintaining vehicles in safe condition. It is recommended that all transit programs in Humboldt County should operate a minimum of 10,000 miles between road calls, and ideally 15,000 miles. SHI, WC and Dial-a-Ride reached both the minimum and target standards, but RTS and ETS did not meet the minimum. A&MRTS, the City of Fortuna and Blue Lake Rancheria did not provide data. This is also shown in Table 27.

**Table 27: Humboldt County Transit Performance Standards**

Shading Indicates Does Not Meet Minimum Standard
Shading Indicates Meets Minimum Standard
Shading Indicates Meets Target Standard

1. SAFETY STANDARD			
Miles Between Accidents			
Transit Service	Recommended Standard		Current Performance <sup>1</sup>
	Minimum Standard	Target Standard	
RTS Mainline	100,000 Miles Between Accidents	500,000 Miles Between Accidents	47,252
Eureka Transit Service			17,776
S. Humboldt Intercity			140,430
Willow Creek			No Accidents
Dial-a-Ride			85,034
Arcata & Mad River Transit			To be determined
Fortuna Transit			To be determined
Blue Lake Rancheria			To be determined

Miles Between Road Calls			
Transit Service	Recommended Standard		Current Performance
	Minimum Standard	Target Standard	
RTS Mainline	At Least 10,000 Miles Between Road Calls	At Least 15,000 Miles Between Road Calls, for All Buses Within Normal Useful Life	7,491
Eureka Transit Service			2,592
S. Humboldt Intercity			35,108
Willow Creek			84,742
Dial-a-Ride			21,259
Arcata & Mad River Transit			To be determined
Fortuna Transit			To be determined
Blue Lake Rancheria			To be determined

Note 1: Data is from 2021-22.  
Source: HTA

## TRANSIT QUALITY AND EFFECTIVENESS GOALS AND STANDARDS

The Humboldt County transit programs should have a goal to strive to provide high quality, effective transportation. Below are goals and related standards to help Humboldt County transit providers achieve optimal performance. The intent is for the standards to be ambitious to encourage improvement but realistically achievable to be meaningful (particularly in the aftermath of the impacts of COVID-19).

### ***On-Time Performance***

On-time performance is an important indicator of service quality. Services which consistently run late jeopardize passengers' confidence in reliability and harm the reputation of services. While some factors are beyond the control of transit programs, such as accidents, unusual traffic congestion or other unforeseen circumstances, services should be planned so they are able to operate on time and transport passengers with minimal delays. On time is defined as never leaving a bus stop prior to the published time (never early), and not leaving more than five minutes after the published time.

Table 28 shows the recommended minimum and target on-time performance standards for each program, and the current status (where available). Only ETS meets the target standard. SHI and WC both fall well short of meeting the standard, which is a difficult measure to achieve given the long distances of the trips and unpredictable road conditions. A&MRTS and Fortuna verbally acknowledged meeting standards but did not have data available.

### ***Passengers Carried per Revenue Hour***

The number of passengers carried per revenue hour of service is a strong indicator of the effectiveness of a transit service, and particularly helpful when predicting the success of future services. This also is a factor that was significantly impacted during COVID, as ridership dropped sharply. Nonetheless, the number of passengers carried per hour of service helps transit agencies determine which services are successful, and which are struggling. While some services such as dial-a-ride and long-distance intercity trips are expected to carry fewer passengers per hour of service, the measure is an important measure when making decisions regarding whether a service should be continued, discontinued, or improved.

Table 28 includes recommendations on the minimum number of passengers per revenue hour and recommends a target standard as well. As indicated, both RTS and Fortuna are near to meeting the minimum, while A&MRTS falls short. The rest of the services meet the minimum standard, while none meet the target. This is in part because the target is set higher in hopes that transit programs will recover from COVID impacts and reach higher standards.

## **TRANSIT COST EFFICIENCY GOALS AND STANDARDS**

Each transit program has the responsibility to operate as cost effectively as possible. While many factors are beyond the control of operators, such as fuel prices, cost of equipment, etcetera, measuring the cost helps determine which services are most cost-effective. Below are goals and related standards to evaluate the cost effectiveness of the Humboldt County transit providers.

**Table 28: Recommended Transit Quality and Effectiveness Goals and Standards**

Shading Indicates Does Not Meet Minimum Standard
Shading Indicates Meets Minimum Standard
Shading Indicates Meets Target Standard

2. PROVIDE HIGH QUALITY PUBLIC TRANSIT SERVICE			
On-Time Performance (Measured as Percent On Time) <sup>1</sup>			
Transit Service	Recommended Standard		Current Performance
	Minimum Standard	Target Standard	
RTS Mainline	85 Percent On Time	90 Percent On Time	85.4
Eureka Transit Service	85 Percent On Time	90 Percent On Time	91.6
S. Humboldt Intercity	85 Percent On Time	90 Percent On Time	76.8
Willow Creek	80 Percent On Time	90 Percent On Time	63.2
Dial-a-Ride	Serve Trips within 30 Min of Appt.	Serve Trips within 30 Min of Appt.	
Arcata & Mad River Transit	90 Percent On Time	90 Percent On Time	Meets requirement <sup>2</sup>
Fortuna Transit	Serve Trips within 30 Min of Appt.	Serve Trips within 30 Min of Appt.	Meets requirement <sup>2</sup>
Blue Lake Rancheria	90 Percent On Time	90 Percent On Time	NA

3. PROVIDE EFFECTIVE PUBLIC TRANSIT			
Passenger-trips per Revenue Hour			
Transit Service	Recommended Standard		Current Performance
	Minimum Standard	Target Standard	
RTS Mainline	7.5	10.0	7.4
Eureka Transit Service	9.0	12.0	9.2
S. Humboldt Intercity	3.0	4.0	3.3
Willow Creek	4.0	5.0	4.2
Dial-a-Ride	2.5	3.5	2.5
Arcata & Mad River Transit	10.0	15.0	7.1
Fortuna Transit	3.0	4.0	2.9
Blue Lake Rancheria	4.0	6.0	4.5

Note 1: On-time is defined as never early and not more than 5 minutes late.  
 Note 2: Transit provider has indicated they meet the standard, but does not have specific data.  
 Note 3: Data is from 2021-22  
 Source: HTA, A&MRTS, Fortuna Transit, BLRTS, CAE

## Minimum Farebox Recovery Ratio

In simple terms, the farebox return ratio is the ratio of the operating income (largely fare revenues, but also including advertising revenue) divided by the non-capital expenses. The Transportation Development Act (TDA) established minimum farebox recovery ratios as a means of ensuring transit agencies were measuring the cost effectiveness of transit services, but those requirements were put on hold during COVID and are currently under review. Nonetheless, this measure helps identify which services are most cost effective. Table 29 shows the recommended minimum farebox return ratio and the current status of each provider. Currently, RTS, SHI, WC, and ETS all meet the minimum farebox return ratio, while A&MRTS, Fortuna Transit and the Dial-a-Ride do not. Data was not provided for BLRTS.

Table 29: Recommended Transit Cost Efficiency Goals and Standards		
Shading Indicates Does Not Meet Minimum Standard		
Shading Indicates Meets Target Standard		
3. PROVIDE COST EFFICIENT SERVICES		
Minimum Farebox Return Ratio		
Transit Service	Recommended Standard	Current Farebox Return Ratio
RTS Mainline	10% Minimum Farebox Recovery for All Services	19.3%
S. Humboldt Intercity		15.9%
Willow Creek		27.6%
Eureka Transit Service		19.4%
Arcata & Mad River Transit		8.3%
Fortuna Transit		6.4%
Blue Lake Rancheria		NA
Dial-a-Ride		6.5%
Marginal Operating Cost per Passenger Trip (Weekdays)		
Transit Service	Recommended Maximum Standard	Current Marginal Operating Cost per Passenger Trip
RTS Mainline	\$7.00	\$6.96
S. Humboldt Intercity	\$30.00	\$30.80
Willow Creek	\$20.00	\$18.97
Eureka Transit Service	\$6.00	\$5.95
Arcata & Mad River Transit	\$6.00	\$6.33
Fortuna Transit	\$23.00	\$23.67
Blue Lake Rancheria	\$15.00	NA
Dial-a-Ride	\$25.00	\$30.80
<p>Note 1: The standard for marginal operating cost per vehicle revenue hour should be updated annually according to inflation rates recorded by the CA Consumer Price Index.</p> <p>Source: HTA, A&amp;MRTS, BLRTS, Fortuna Transit, Triennial Performance Audit.</p>		

### ***Marginal Operating Cost per Passenger Trip***

Another means of measuring cost effectiveness is to track the marginal operating cost per passenger trip. This is calculated by determining the variable operating cost of a service (i.e., those costs related to hourly services and which change based on the number of hours operated—and do not include fixed costs), divided by the number of passenger trips. This measure is useful when comparing one service to another to determine which is more cost effective. Table 29 shows the recommended maximum cost per passenger trips, and the current status of each provider. The data represents weekdays. The cost per passenger trip represents the difficulty of providing rural and intercity trips compared to local service. As shown, RTS, WC and ETS meet the standard, and SHI, A&MRTS and Fortuna are close to meeting the standard. Dial-a-Ride does not currently meet the standard. Data was not available for BLRTS.

## **INTRODUCTION**

To operate safe, reliable, and comfortable services, transit agencies need to plan for substantial capital investments into vehicles, facilities, and other amenities. This chapter presents recommended ongoing capital investments for the Humboldt County transit providers throughout the next five years, as well as other additional capital projects that will ultimately enhance transit services and aid with the deployment of zero-emissions vehicles (ZEVs). While there is always a degree of uncertainty when planning capital improvements, as there may be unanticipated capital needs or the pricing of products may change, it is still helpful to identify known capital needs to assist transit staff with planning funding and procurement.

## **TRANSIT VEHICLES**

It is important that transit vehicles are regularly replaced to ensure fleets remain in good condition. Transit agencies need to plan ahead when replacing vehicles, as the entire procurement process can take multiple years. The vehicle procurement process has been even more delayed since the COVID-19 pandemic caused global supply chain shortages, emphasizing the need for advance planning. This section identifies the anticipated vehicle needs and purchasing schedule for each provider based on the Useful Life Benchmark (ULB) of vehicles as identified by the Federal Transit Administration. Additionally, the suggested sizes and fuel sources of new vehicles are discussed. Any expansion vehicle purchases required specifically to support the recommended service plans will be discussed once the preferred service alternatives are selected.

The State of California's (CA) 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-agency fleet bus purchases to be ZEVs. By 2029, this requirement will increase to 100 percent. To meet this requirement, transit agencies can purchase either battery-electric buses (BEBs) or fuel-cell electric buses (FCEBs).

The types of vehicles agencies purchase will depend on the specific needs of each agency. While it is essential that CA transit agencies plan for converting fleets to ZEVs, ZEV technology is continuously improving and evolving, making it difficult to know what type of vehicles will be available. Currently, ZEVs are still more expensive than diesel vehicles, meaning transit providers will need to secure additional funding in order to meet local match requirements for capital grant funds. Future pricing of ZEVs is hard to predict though, as it is unknown whether the more widespread use of ZEVs will eventually result in prices being more



*Electric HTA bus; source Schatz Energy Research Center*



comparable to those of diesel- and gas-powered vehicles. The following discussions regarding each transit provider's anticipated vehicle replacement needs are therefore subject to change as new and improved ZEV technologies are made available.

## **HTA**

HTA has a 31-vehicle fleet for operating the RTS, SHI, WC, and DAR services. The vehicles range in age from 1 to 11 years old and range in capacity from 9 to 35 passengers. Table 30 presents the anticipated HTA vehicle replacement schedule based on when current vehicles will reach the end of their ULB (7 years for DAR vehicles and 12 years for fixed-route buses). It is important to note, however, that a number of the HTA vehicles will likely reach the end of their ULB based on mileage rather than age due to the long distances covered by many of the services. HTA staff need to monitor whether vehicles should be replaced sooner than anticipated due to surpassing recommended mileage limits.

HTA will need to replace 14 fixed route and 8 DAR vehicles during the current five-year planning period at an estimated cost of \$13.1 million (Table 30). Another 8 fixed route and 5 DAR vehicles will then need to be replaced in the following five-year planning period for approximately \$13.8 million. These estimates assume that HTA will continue to procure gas- and diesel-powered vehicles until prohibited by the ICT Regulation, however, HTA will likely purchase ZEVs sooner as they have been awarded grants for such purchases and have purchased ZEVs in the past.

Due to the long distances and hilly terrain covered by many of the HTA services, HTA plans to purchase FCEBs to make sure vehicles have adequate range. Table 30 reflects HTA's plans to purchase FCEBs, however it is possible that HTA may procure BEBs for DAR replacement vehicles depending on funding availability. The charging requirements of each ZEV model should be reviewed before procurement and deployment. In 2022, HTA was awarded \$38.7 million in funding from the Transit and Intercity Rail Capital Program (TIRCP) to purchase 11 full-sized FCEBs and to construct a new hydrogen fueling station at the recently approved EARTH Center, discussed further in the Passenger Amenities section of this Chapter.

## **Eureka Transit Service**

ETS has a fleet of eight, 31-passenger vehicles to operate its local fixed route services. All of the vehicles are currently diesel-powered. The City of Eureka will need to replace four of the vehicles within the five-year planning period at a cost of \$3.7 million and another two vehicles in the planning period that follows at a cost of \$3 million (Table 31). The ETS vehicle replacement schedule was developed based on the ULB of 12 years and the ICT requirements. Table 31 assumes that the City of Eureka will procure BEBs given that BEBs are cheaper and have ranges that are adequate for local fixed route service. However, should grants support purchases, the City may instead procure FCEBs. Purchasing FCEBs would increase the total cost of replacing the ETS fleet.



<b>Table 30: HTA Fleet Replacement Requirements</b>												10-Year Plan Total
Estimated Current Cost of Vehicles	Vehicle Parameters	Plan Period (by Fiscal Year) <sup>2</sup>										
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	
<b>Fixed Route Vehicles</b>	<b>Fixed Route Buses</b>											
Gas/Diesel \$586,000	Number of Buses (Gas/Diesel)	2	2	2	2	3	2	0	0	0	0	13
Fuel-Cell \$1,290,000	Number of Buses (Hydrogen)	0	0	0	1	2	1	2	2	1	0	9
	Total Number of Vehicles	2	2	2	3	5	3	2	2	1	0	22
	Total Cost (in thousands) <sup>1</sup>	\$1,172	\$1,231	\$1,268	\$2,743	\$4,977	\$2,910	\$3,140	\$3,235	\$1,666	\$0	\$22,340
<b>Paratransit Vehicles</b>	<b>DAR Vehicles</b>											
Gas/Diesel \$115,000	Number of Vehicles (Gas/Diesel)	2	2	1	1	0	0	0	0	0	0	6
Fuel-Cell \$450,000	Number of Buses (Hydrogen)	0	0	0	1	1	0	0	2	2	1	7
	Total Number of Vehicles	2	2	1	2	1	0	0	2	2	1	13
	Total Cost (in thousands) <sup>1</sup>	\$230	\$242	\$124	\$629	\$516	\$0	\$0	\$1,128	\$1,162	\$599	\$4,631
<i>Does not include expansion vehicles (to be determined)</i>	Total Vehicle Costs (in thousands)	\$1,402	\$1,472	\$1,392	\$3,372	\$5,494	\$2,910	\$3,140	\$4,363	\$2,828	\$599	\$26,971

Note 1: All costs include 5.0 percent annual inflation in 2024/25, and 3.0 percent thereafter.  
Note 2: This table states the vehicle replacement requirements per the Innovative Clean Transit Regulation and does not consider any specific agency plans to procure electric vehicles before the regulation goes into effect.  
Note 3: HTA procures vehicles for the RTS, SHI, WC, and Humboldt DAR services  
Note 4: Assumes HTA will convert fleets to zero-emissions vehicles by purchasing solely fuel-cell buses. HTA may choose to purchase battery-electric buses in the future if vehicle ranges improve.  
Source: LSC Transportation Consultants, Inc.

Table 31: ETS Fleet Replacement Requirements												10-Year Total
Estimated Current Cost of Vehicles	Vehicle Parameters	Fiscal Year										
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	
<b>Fixed Route Vehicles</b>	<b>Fixed Route Buses</b>											
Gas/Diesel \$586,000	Number of Buses (Gas/Diesel)	2	1	0	1	0	0	0	0	0	0	4
Electric \$1,150,000	Number of Buses (Electric)	0	0	0	1	0	0	0	0	1	1	3
	Total Number of Vehicles	2	1	0	2	0	0	0	0	1	1	7
<i>Does not include expansion vehicles (to be determined)</i>	Total Cost (in thousands) <sup>1</sup>	\$1,172	\$615	\$0	\$1,934	\$0	\$0	\$0	\$0	\$1,485	\$1,530	\$6,736
	Total Vehicle Costs (in thousands)	\$1,172	\$615	\$0	\$1,934	\$0	\$0	\$0	\$0	\$1,485	\$1,530	\$6,736

Note 1: All costs include 5.0 percent annual inflation in 2024/25, and 3.0 percent thereafter.  
Note 2: This table states the vehicle replacement requirements per the Innovative Clean Transit Regulation and does not consider any specific agency plans to procure electric vehicles before the regulation goes into effect.  
Source: LSC Transportation Consultants, Inc.

## **Arcata & Mad River Transit System**

A&MRTS normally has a fleet of about 6 vehicles. Currently, A&MRTS has 8 vehicles because the City recently procured two new BEBs that were delivered in early 2023. Depending on how well the BEBs perform, the City will then retire the two oldest A&MRTS buses. The A&MRTS vehicles range in size from 40-foot low-floor Gilligs to smaller cutaways. The vehicles range in capacity from 19 to 31 passengers. The replacement schedule presented in Table 32 is based on a ULB of 12 years for the larger, low-floor vehicles and 7 years for the cutaways.

As seen in Table 32, the City of Arcata will need to replace 2 large buses and 2 cutaways within the five-year planning period based on vehicle age. It is estimated that replacing these vehicles will cost \$2.1 million. The City will only need to replace one additional vehicle in the subsequent five-year planning period. Table 32 assumes that A&MRTS will continue to procure BEBs once the ICT regulation goes into effect due to BEBs being cheaper and having adequate range for A&MRTS's local services. If the City of Arcata instead chooses to procure FCEBs to meet the ICT requirements, the anticipated vehicle replacement costs for A&MRTS would increase.

## **Fortuna Transit**

The Fortuna Transit fleet consists of three, 8- to 12-passenger cutaway vans that were purchased in 2011, 2015, and 2017. While two of these vehicles have exceeded their ULB of 7 years (the 2011 and 2015 models), all the Fortuna Transit vehicles are still operating without any regular maintenance issues. Nonetheless, all three vehicles should be replaced within the five-year planning period.

The estimated cost for replacing all three vehicles is \$360,200, as shown in Table 33. The cost estimate assumes that Fortuna Transit will continue to purchase gas- or diesel-powered vehicles until the ICT Regulation comes into effect. However, City staff have indicated that if funding becomes available, they will likely purchase a ZEV sooner which would increase the five-year capital cost by about \$200,000.

If Fortuna Transit replaces all of its new vehicles after seven years of use, then all three vehicles would need to be replaced again between FY 2030-31 and FY 2032-33. At that point, the ICT Regulation will be in full effect and Fortuna Transit will have to purchase ZEVs. At this time, Fortuna Transit plans on investing in BEBs specifically, which will be suitable for their local service.

**Table 32: A&MRTS Fleet Replacement Requirements**

Estimated Current Cost of Vehicles	Vehicle Parameters	Fiscal Year										10-Year Total
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	
<b>Fixed Route Vehicles</b>	<b>Fixed Route Buses</b>											
Gas/Diesel \$586,000	Number of Buses (Gas/Diesel)	0	0	0	1	0	0	0	0	0	0	1
Electric \$1,150,000	Number of Buses (Electric)	0	0	0	1	0	0	0	0	0	0	1
	Total Number of Vehicles	0	0	0	2	0	0	0	0	0	0	2
	Total Cost (in thousands) <sup>1</sup>	\$0	\$0	\$0	\$1,934	\$0	\$0	\$0	\$0	\$0	\$0	\$1,934
<b>Cutaway Vehicles</b>	<b>Cutaways</b>											
Gas/Diesel \$115,000	Number of Vehicles (Gas/Diesel)	1	0	1	0	0	0	0	0	0	0	2
Electric \$300,000	Number of Vehicles (Electric)	0	0	0	0	0	0	0	1	0	0	1
	Total Number of Vehicles	1	0	1	0	0	0	0	1	0	0	3
	Total Cost (in thousands) <sup>1</sup>	\$115	\$0	\$124	\$0	\$0	\$0	\$0	\$376	\$0	\$0	\$615
<i>Does not include expansion vehicles (to be determined)</i>	Total Vehicle Costs (in thousands)	\$115	\$0	\$124	\$1,934	\$0	\$0	\$0	\$376	\$0	\$0	\$2,549

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

Note 2: This table states the vehicle replacement requirements per the Innovative Clean Transit Regulation and does not consider any specific agency plans to procure electric vehicles before the regulation goes into effect.

Source: LSC Transportation Consultants, Inc.

Table 33: City of Fortuna Transit Vehicle Replacement Requirements												10-Year Total
Estimated Current Cost of Vehicles	Vehicle Parameters	Fiscal Year										
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	
<b>Paratransit Vehicles</b>	<u>DAR Vehicles</u>											
Gas/Diesel \$115,000	Number of Vehicles (Gas/Diesel)	1	1	0	0	0	0	0	0	0	0	2
Electric \$300,000	Number of Vehicles (Electric)	0	0	1	0	0	0	0	1	1	1	4
	Total Number of Vehicles	1	1	1	0	0	0	0	1	1	1	6
<i>Does not include expansion vehicles (to be determined)</i>	Total Cost (in thousands) <sup>1</sup>	\$115	\$121	\$324	\$0	\$0	\$0	\$0	\$376	\$387	\$399	\$1,723
	Total Vehicle Costs (in thousands)	\$115	\$121	\$324	\$0	\$0	\$0	\$0	\$376	\$387	\$399	\$1,723

Note 1: All costs include 5.0 percent annual inflation in 2024/25, and 3.0 percent thereafter.  
Note 2: This table states the vehicle replacement requirements per the Innovative Clean Transit Regulation and does not consider any specific agency plans to procure electric vehicles before the regulation goes into effect.  
Source: LSC Transportation Consultants, Inc.

## **Blue Lake Rancheria Transit System**

The Blue Lake Rancheria Transit System (BLRTS) has four vehicles: three are powered on biodiesel fuel and one is a BEB. Not all of these vehicles are used to operate the transit service on a daily basis, however BLRTS staff rely on all four vehicles in case one is undergoing maintenance. Table 34 shows the estimated BLRTS vehicle replacement schedule. The presented schedule assumes that BLRTS will continue to purchase non-ZEVs until the ICT Regulation comes into effect, however BLRTS has stated publicly its commitment to sustainability and will likely purchase ZEVs sooner than required. It is recommended BLRTS procure a replacement vehicle for its 2014 shuttle during the upcoming FY. The 2013 bus will be due for replacement in FY 2025-26. The other two vehicles will need to be replaced in the following five-year planning period, at which point all vehicles purchased will need to be ZEVs.

## **FACILITY NEEDS**

For the context of this study, transit facilities refer to the locations and infrastructure that serve functions related directly to transit administration, vehicle operations or maintenance. Facility features which are catered towards the needs of passengers are discussed in the next section about passenger amenities.

## **HTA**

### ***Fuel-Cell Electric Bus Charging Infrastructure***

HTA will need to install hydrogen fuel charging infrastructure prior to operating FCEBs. Currently, HTA plans to install FCEB charging infrastructure at the new “Eureka Regional Transit and Housing Center” (EaRTH Center), which will be constructed at the location of the parking lots at 3rd and H Streets in Old Town Eureka. The EaRTH Center will be an intermodal transit center and a multi-modal transportation hub, accommodating bicycles, pedestrians, and transit. The FCEB charging infrastructure at the EaRTH Center will not be limited to HTA, but will be available to the public as well, promoting the further use of FCEBs by other regional stakeholders. The EaRTH Center’s passenger amenities are discussed further in the following section.

HTA was awarded \$38.7 million in funding from the TIRCP program in 2022 to be used for procuring 11 FCEBs and beginning construction of the EaRTH Center. The project has not yet commenced as of April 2023; therefore, the anticipated completion date is not until 2025 at the earliest. HTA has no other plans to construct FCEB charging infrastructure besides at the EaRTH Center.

Table 34: BLRTS Fleet Replacement Requirements												10-Year Plan Total
Estimated Current Cost of Vehicles	Vehicle Parameters	Plan Period (by Fiscal Year) <sup>2</sup>										
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	
<b>Fixed Route Vehicles</b>	<b>Fixed Route Buses</b>											
Gas/Diesel \$586,000	Number of Buses (Gas/Diesel)	0	0	1	0	0	0	0	0	0	0	1
Electric \$1,150,000	Number of Buses (Electric)	0	0	0	0	0	0	0	1	0	0	1
	Total Number of Vehicles	0	0	1	0	0	0	0	1	0	0	2
	Total Cost (in thousands) <sup>1</sup>	\$0	\$0	\$634	\$0	\$0	\$0	\$0	\$1,442	\$0	\$0	\$2,076
<b>Paratransit Vehicles</b>	<b>Shuttle Vans</b>											
Gas/Diesel \$115,000	Number of Vehicles (Gas/Diesel)	1	0	0	0	0	0	0	0	0	0	1
Electric \$300,000	Number of Vehicles (Electric)	0	0	0	0	0	1	0	0	0	0	1
	Total Number of Vehicles	1	0	0	0	0	1	0	0	0	0	2
	Total Cost (in thousands) <sup>1</sup>	\$115	\$0	\$0	\$0	\$0	\$355	\$0	\$0	\$0	\$0	\$470
<i>Does not include expansion vehicles (to be determined)</i>	Total Vehicle Costs (in thousands)	\$115	\$0	\$634	\$0	\$0	\$355	\$0	\$1,442	\$0	\$0	\$2,545
<p>Note 1: All costs include 5.0 percent annual inflation in 2024/25, and 3.0 percent thereafter.</p> <p>Note 2: This table states the vehicle replacement requirements per the Innovative Clean Transit Regulation and does not consider any specific agency plans to procure electric vehicles before the regulation goes into effect.</p> <p>Source: LSC Transportation Consultants, Inc.</p>												



## ***Maintenance and Operations Site Improvements***

The need to improve the existing HTA operations and maintenance facility, located between 1st and 2nd Streets and V and W Streets in Eureka, has been an ongoing issue pre-dating the previous 2017 TDP. HTA staff have indicated that it would be preferable to modify the existing facility rather than relocate. Recommended improvements to the existing facility, and the anticipated costs<sup>5</sup>, include:

- **Restructuring Bus Parking Area:** At times, HTA has not had enough room to park all of its vehicles at the operations facility, forcing some vehicles to park in front of the maintenance bays. Similar to the 2022 Regional Transportation Plan (RTP) for Humboldt County, this TDP recommends that HTA invest in restructuring the bus parking area at its operations facility in order to better accommodate more vehicles. This would likely cost about \$825,000.
- **Maintenance:** HTA currently has two maintenance bays. The limited maintenance space sometimes requires HTA to contract with other regional maintenance providers. HTA should consider alternatives for how to increase the number of maintenance bays at its facility, whether by new construction or by converting the current wash bay to a maintenance bay and moving the wash bay to another location. In all, this work will likely cost HTA \$550,000.
- **Solar PV System:** The 2022 RTP recommended that HTA install a solar PV system (micro-grid) on the roof of its maintenance facility. The solar PV system would help to reduce the amount of greenhouse gas emissions generated by HTA, improving the overall sustainability of the agency. The 2022 RTP estimated the solar PV system would cost \$1.68 million.

The projects listed in this section would increase the capacity and energy efficiency of the HTA operations and maintenance facility. At this time, there has been no funding secured for any of these projects.

## ***Redway Satellite Office/Transit Hub***

Redway is located off of US 101 in between Miranda and Garberville. It is served by the SHI service, which operates between Eureka and Benbow. Currently, HTA has no facilities in the southern region of Humboldt County, meaning that the SHI buses have to deadhead south to Benbow in order to operate the first northbound SHI run each morning. To eliminate the need to deadhead south, a new satellite office or transit hub in Redway could be considered. This facility could likely include space for bus storage and the appropriate fueling infrastructure. A recommendation that HTA establish a Redway transit hub was included in the Humboldt County RTP, with an estimated project cost HTA of at least \$385,000. No funding has been secured at this time.

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<sup>5</sup> Costs identified in Humboldt County Regional Transportation Plan, adjusted for inflation.

## **Arcata & Mad River Transit System**

### ***Arcata Intermodal Transit Facility***

The 2022 RTP also recommends that the City of Arcata install a solar PV system on the roof of the Arcata Intermodal Transit Facility. The solar PV system would generate sustainable energy for the amenities on site, reducing the total greenhouse gas emissions produced to power the facility. It is estimated that this project would cost the City of Arcata \$910,000. No funding has been secured for this project at this time.

### **Fortuna Transit**

The only expected facility needs for Fortuna Transit are related to the charging infrastructure that will be needed to deploy ZEVs. The City of Fortuna plans to eventually install BEB charging technology at the City's Corporation Yard, located at 180 Dinsmore Drive. The City will need to secure funding and begin the installation of charging infrastructure at least a year before purchasing a BEB. As the City does not currently have any BEBs and will likely not procure one for at least a year or more, there is still adequate time to plan the installation of BEB charging infrastructure. Fortuna Transit does not have any passenger facilities or amenities, as it is a DAR service.

## **PARK AND RIDE LOTS**

Park-and-ride lots, either formal or informal, could potentially play an expanded role in the future of transit in Humboldt County. There are four Caltrans owned park-and-ride lots in Humboldt County, consisting of the following:

- Trinidad East and Trinidad West: on the northeast corner (13 spaces) and northwest corner (8 spaces) of Patricks Point Drive and Main Street, Trinidad
- Fortuna: at the corner of Kenmar Road and Atterberry Lane (20 spaces)
- Elk River: on the northwest corner of the Elk River intersection at Pound Road and Herrick Avenue in Eureka (37 spaces)

In total, these 78 parking spaces are modest in comparison with overall commuting needs.

The Trinidad East and Fortuna park-and-ride lots are currently served by RTS. Commercial, public, or private parking lots with excess capacity could also potentially serve transit hubs. As an example, the College of the Redwoods has an extensive parking lot that may not all be needed to serve current parking demand.

Combining the utility of park-and-ride lots and transit services is most likely to be successful under the following conditions:

- Parking is close to a high-demand activity center (such as a large employer or college—like Cal Poly Humboldt) but not within easy walking distance and a high-frequency shuttle provides service between the lot and the activity center.
- The park-and-ride lot and associated transit service provides an adequate incentive (in terms of travel time savings or ability to avoid a stressful drive) to offset the hassle of changing

modes from car to bus. In general, planners find that a commute trip of at least 10 miles from the activity center is needed for commuters to find that using the park-and-ride/transit service is worth the inconvenience of shifting modes, absent strong limitations on parking availability at the activity center.

- The transit service needs to be very convenient, providing a one-seat ride without transfers to a stop within a short (within a quarter mile) walk of the work site and not requiring a significantly longer travel time compared with driving (and preferably a travel time saving). Amenities on the bus (such as wi-fi, comfortable seats and individual reading lights) can also help to attract park-and-ride passengers.
- Park-and-ride lots need to provide security for passengers as well as for their vehicles. This includes adequate lighting, the absence of areas that cannot be seen from nearby streets, and potentially the provision of camera systems.
- How parking is managed at the activity center is also crucial to the success of a park-and-ride program. This may include permit parking programs or paid parking programs at the activity center. It also may require limitations on nearby parking options (such as parking on nearby neighborhood public streets). Without a substantial disincentive to auto use through limited or expensive parking, simply providing transit services and park-and-ride lots may not generate significant transit ridership.

Cal Poly Humboldt is the most obvious high-use activity center for which park-and-ride lots might provide utility. Furthermore, parking in and around campus is difficult and can be expensive, which also argues for park-and-ride options. Table 35 presents recent survey data of commuters (students and employees) from an annual commuter survey conducted by Cal Poly Humboldt’s Parking & Commuter Services department.

<b>Table 35: CalPoly Commuter Commute Distance</b>		
	Students	Employees
Live on Campus	19%	1%
0.1-1 Mile	15%	11%
1.1-2 Miles	26%	5%
2.1-3 Miles	5%	6%
3.1-5 Miles	4%	10%
5.1-8 Miles	9%	21%
8.1-11 Miles	9%	22%
11.1-15 Miles	5%	12%
15.1-20 Miles	1%	2%
20.1-30 Miles	2%	3%
30.1-40 Miles	1%	1%
More than 40 Miles	1%	1%
Telecommute	3%	4%
<b>Total in Prime Park-and-Ride Commute Range</b>	<b>10%</b>	<b>20%</b>

*Source: Spring 2022 Commuter Surveys, Cal Poly Humboldt.*

As shown, the proportion of commuters that commute more than roughly 10 miles is relatively modest, at 10 percent of students and 20 percent of employees. The *Parking Market Demand Study* (Walker Consultants, 2018) includes maps that reflect the housing location of commuters. These also reflect the concentration of persons living within 10 miles of campus (including Arcata, McKinleyville and Eureka). Persons living more than 10 miles from campus are concentrated in Fortuna in particular, with lower concentrations in the Fields Landing and Trinidad/Moonstone areas.

Considering the factors discussed above as well as the service alternatives presented in Chapter 2, the following are options that could be elements of an expanded park-and-ride program with a relatively high potential for ridership:

- The City of Arcata is considering locations for park-and-ride lots, which could also be served by transit. One location under consideration is the Caltrans right-of-way south of the Sunset Overpass between G Street and Highway 101. This area could accommodate a lot of approximately 80 parking spaces. With a 0.34 mile walk distance, it would require a shuttle service at least during prime commute periods. In other periods, A&MRTS buses could potentially serve it several times an hour in each direction (depending on the service plan implemented).
- As discussed above, existing public park-and-ride lots beyond the 10-mile commute distance are very limited. Short of constructing new lots, shared use of existing lots could provide a near-term park-and-ride strategy, such as entering into use agreements for park-and-ride use of limited portions of existing lots at the following (so long as studies indicate that these spaces are not needed during weekday daytime hours for other purposes):
  - College of the Redwoods. This could potentially be served by the RTS Express options discussed in Chapter 2 and would be of benefit to the concentration of staff and students living in Fortuna.
  - Bayshore Mall. In particular, there are parking lots at the northern end of the mall that appear to have little or no existing use and could be easily accessed from 101 with an Express Route.
  - The old mill site in Fortuna. This area just east of US 101 and south of Newburg Road could be relatively easily made into a park-and-ride lot serving Fortuna and points south. It would require additional express bus service beyond the options discussed in Chapter 2.
  - Bear River Casino Resort. As parking demand for the casino resort is relatively low during weekday daytime hours when needed for CPH, a shared use arrangement could potentially make use of a portion of these large lots. While additional express service would be required, this location is only ½ mile off of US 101 and is well located to serve commuters from Fortuna, Ferndale and the south county.

## **PASSENGER FACILITIES AND AMENITIES**

The experience of riding transit begins before a passenger ever boards the bus. It is important that while accessing and waiting for the bus, transit passengers feel safe and comfortable. High quality passenger facilities and amenities, such as bus stop shelters, benches and signs, and transfer centers, benefit passengers by making the time spent before boarding the bus easy and enjoyable. Transit agencies need to continuously invest in passenger amenities, whether by installing new features or by repairing existing capital. This section highlights some of the ongoing or potential passenger facilities and amenities projects for the upcoming five-year planning period.

### **HCAOG**

#### ***Bus Passenger Facilities Plan***

HCAOG has previously expressed interest in conducting a Bus Passenger Facilities Plan. This study would inventory existing bus stops throughout Humboldt County and recommend improvements for each stop based on which amenities are already present, the state of existing amenities, and average boarding activity. The final Bus Passenger Facilities Plan would prioritize recommended improvements to provide direction on how to best use limited capital funds. Potential improvements could include installing benches, installing signs, replacing existing amenities, or landscaping. Other nearby regions, such as Lake County, have conducted similar studies and used the findings to improve bus stops and enhance the passenger experience. HCAOG, as the RTPA for Humboldt County, would be responsible for preparing this study. The Plan would likely cost about \$50,000.

The individual Humboldt County transit providers would be responsible for then implementing the recommended improvements included in the Bus Passenger Facilities Plan within their own networks. Each of the Humboldt County transit providers with bus stops (HTA, ETS, A&MRTS, BLRTS) should establish capital funds to implement the recommended bus stop improvements included in the eventual plan document as well as for normal, ongoing bus stop maintenance. These capital funds should be included in each respective provider's financial plan.

### **HTA and ETS**

#### ***Eureka Regional Transit and Housing Center (EaRTH Center)***

As previously mentioned, the EaRTH Center will not only be a location for charging FCEBs, but it will also be a planned intermodal living space. The center is proposed to have a total of 31 apartment units dedicated to students, workforce members, and traveling doctors and nurses. The facility will house up to 90 Cal Poly and College of the Redwoods students. Other transit-related amenities will include a



*Rendering of EaRTH Center;  
HTA, Smith Group, Schatz  
Energy Research Center*

transit plaza, covered seating areas for passengers, lighting, bathrooms, and bike storage. There will also be businesses along the ground floor such as a café, bike repair shop, pharmacy, and daycare, as well as food trucks.

While HTA has received funding for this project through the TIRCP program, it will not likely be completed until 2025.

## **HTA**

### ***McKinleyville Transit Hub***

The McKinleyville Community Plan (2017) outlined the community's desire to further develop the Town Center in order to promote a greater sense of identity. It was suggested in previous planning documents that fixed route transit in the McKinleyville Town Center could support further development of the Town Center into a focal point.

McKinleyville is currently served by the RTS and BLRTS services. The development of a Transit Hub in the McKinleyville Town Center would improve the experience of transit passengers traveling to or from McKinleyville and further economic development in the area in line with the vision outlined in the Community Plan. It is suggested the Transit Hub include amenities such as benches, shelters, and waste baskets. The 2022 RTP estimated establishing a Transit Hub in McKinleyville would cost HTA approximately \$420,000. The biggest unknown variables that would impact the success and cost of the potential McKinleyville Transit Hub are the costs to buy or lease land, and whether an appropriate site in the Town Center ever becomes available. This project would need to be further researched and designed before applying for any grant funding.

## **Arcata & Mad River Transit System**

### ***New Bus Stops***

New bus stops may be needed as part of route reconfigurations (depending on alternatives selected). The new location of Cal Poly housing at the Craftsman's Mall will necessitate a new stop in the vicinity west of the St. Louis overcrossing.

## **OTHER MISCELLANEOUS CAPITAL NEEDS**

Other capital investments which would help increase the efficiency of Humboldt County transit operations and improve the passenger experience but do not belong to the previous categories are described in this section.

## **ETS**

### ***Bike Lockers and Bike Racks***

It was recommended in the 2017 TDP that ETS invest in bike racks for its buses, as passengers have consistently asked for bike racks when given the opportunity to provide public input. Installing bike racks on the v buses would encourage greater rates of biking and help transit passengers complete

their first/last miles by allowing people to bike to and from destinations that are further from ETS bus stops.

Unfortunately, ETS has still not installed any bike racks on its vehicles because the buses would be unable to safely operate the current route network. The ETS routes were designed for buses that are 30-feet long, but ETS instead operates buses that are 35-feet long to better accommodate seniors and disabled passengers. Bike racks would add approximately 3.5-feet to the front of the bus, making the buses too long to successfully complete all the required turns along the routes.



*Bike lockers at Solana Beach, CA; Wikimedia Commons.*

Alternatives to installing mounted bike racks on the ETS buses would be to install bike lockers or stationary bike racks at stops. Bike lockers are small boxes which fit up to two bicycles and can be locked. Bike lockers serve to keep people’s bicycles safe from both the potential for robbery as well as from the elements. It is common for public transit providers to install bike lockers at central bus stops.

Passengers can then use the bike lockers, typically on a first-come, first-serve basis, either for free or for a small charge. Bike racks leave bikes exposed and require riders to bring their own locks, however they still provide a location for bikers to safely secure their bicycle prior to boarding the bus. Companies that manufacture bike lockers and bike racks include Madrax, CycleSafe, and Reliance Foundry, among others. Costs for bike lockers start at upwards of \$3,000 per locker, excluding shipping and labor costs. Costs for a classic u-shaped bike rack start at approximately \$225 per unit, also excluding shipping and labor costs.

As described in Chapter 2, this TDP considers two different route network alternatives for ETS. Depending on which, if any, of the route network alternatives are implemented by ETS will impact which locations are best for installing bike lockers. Under the F/Harris Street alternative, both bike lockers and bike racks should be installed at F and Harris Streets. Bike lockers and parking have already been included under the EaRTH Center plan. Other locations for installing bike lockers or bike racks under either routing alternative should be selected based on boarding activity and physical constraints, such as whether there is enough space for the lockers or if land ownership/right-of-way rules allow for these features to be installed.



**Bike parked on public bike rack; Wikimedia Commons**



## **Blue Lake Rancheria**

### ***New Farebox Machines***

BLRTS should consider purchasing fareboxes for their vehicles that can accept payment forms such as pass products, digital passes on smart phones, or credit cards. Examples of electronic fareboxes that accept these other payment forms include the Aries 5 Farebox by Payment in Motion and the Odyssey® Farebox by Genfare. New fareboxes cost between \$12,000 and \$18,000 each. Given that BLRTS has four vehicles, it would cost the agency between \$48,000 to \$72,000 to purchase new fareboxes for each of its buses, excluding installation fees and then subsequent annual software costs.

All of the fixed route providers in Humboldt County besides BLRTS are utilizing the Token Transit platform to allow contactless payment for transit fares. This technology removes the need for passengers to go to specified locations to purchase tickets. While the Token Transit app needs to be promoted further to encourage expanded use across Humboldt County, it has already been helpful to passengers navigating transfers. Tickets are validated electronically, allowing the transit agencies to collect important data on ridership and boardings and also taking pressure off of the already busy drivers. For passengers, the Token Transit app is free. For transit agencies, there are no startup, hardware, or software costs associated with the app; instead, BLRTS would enter into an agreement with Token Transit allowing Token Transit to retain a certain percentage of fares purchased through the app up to a set value.

Installing new fareboxes capable of accepting multiple payment forms will allow BLRTS to participate in the Regional Pass fare program more easily, if desired. The Humboldt County Regional Pass is a card-product that costs \$50 and allows the passenger to board any of the participating agencies' buses for the 31 days the pass is valid. The Regional Pass makes it easier for people to travel between the different transit systems and to travel longer distances across Humboldt County. If BLRTS procures new fareboxes, it would be helpful for passengers transferring between BLRTS and other services if the agency could accept digital payments or the Regional Pass.

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## **INTRODUCTION**

Public transit in Humboldt County is funded by federal, state, and local sources ranging from Federal Transit Administration (FTA) grants to one-way passenger-fares. One of the most difficult aspects of transit planning is determining what service and capital changes are financially feasible, as transit funding is not necessarily consistent over time. In addition to the unpredictable nature of transit funding amounts, there may be restrictions on what funding can be used for. For instance, in recent years there has been more funding available for capital investments versus operations, making it difficult for the Humboldt County transit providers to enhance or expand their services.

This chapter reviews the existing funding resources utilized by the Humboldt County transit operators, and then discusses the projected future status of these sources as well as potential new sources of funding. Five-year financial plans will be presented in the Plan Chapter of the Final TDP Report after service alternatives have been selected for implementation.

## **REVIEW OF EXISTING FUNDING SOURCES**

The existing funding sources utilized by Humboldt County transportation providers and predictions on future availability are described briefly in this section.

### **Federal Transit Funding Sources**

#### ***FTA Section 5310 – Grants for Enhanced Mobility of Seniors & Individuals with Disabilities***

The FTA Section 5310 Program provides formula funding to support projects which increase the mobility of senior adults and disabled persons. Funding is given to the states based on the population of senior adults and disabled persons living in the state, and then the states further distribute funding to designated recipients. HCAOG is the designated recipient for Humboldt County.

While most Section 5310 funding goes to nonprofit organizations dedicated to the focus populations, public transit operators are also eligible recipients. Projects can be focused on either operations or capital. To be eligible for funding, projects must be included in a locally derived Regional Coordination Plan. The most recent Humboldt County Coordination Plan was completed in 2021 and is due to be updated in the current planning period. Section 5310 funding will continue to be available throughout the next five years.

## ***FTA Section 5311 - Rural Area Formula Grants***

The FTA Section 5311 Program provides capital, planning, and operating assistance to support public transportation in rural areas, defined as areas with fewer than 50,000 residents. Funding is based on a formula that considers the land area, population, and transit services in the region. Based on the definition used by the FTA, all areas within Humboldt County are “rural.” Section 5311 funding can be used for operations, capital, and planning. Section 5311 will continue to be an important source of revenue throughout the planning period.

## **State and Local Funding Sources**

### ***Local Transportation Funds***

The CA Transportation Development Act (TDA) continues to be a critical source of funding for transit agencies across the state. Most TDA funds are administered through the Local Transportation Fund (LTF). The LTF is supported by a one-fourth cent statewide sales tax. LTFs are then distributed to each county based on the amount of sales tax collected. Per TDA statutes, LTF can be spent on the following:

- Two percent may be spent on bicycle facilities.
- The remaining funds must be spent for transit and paratransit purposes (operations or capital), unless a finding is made by the Transportation Commission that no unmet transit needs exist that can be reasonably met. (Article 4 or 8)
- If a finding of no unmet needs reasonable to meet is made, remaining funds can be spent on roadway construction and maintenance purposes. (Article 8)

LTF funding is distributed to the jurisdictions based on population. Table 36 shows how LTF funding was distributed to each jurisdiction for FYs 2021-22 and 2022-23. In FY 2022-23, the County received nearly half of the LTF funds (47 percent), the City of Eureka received 17 percent, and the City of Arcata received 12 percent. Blue Lake, Ferndale, Fortuna, Rio Dell, and Trinidad use LTF for a combination of transit and non-transit projects and are therefore required to participate in the Unmet Transit Needs process each year.

Given that the LTF is generated by local sales tax, the amount of funding available is dependent on local economic activity. This dependency makes it impossible to predict the amount of LTF that will be available any given year. The amount of LTF increased by about 20 percent from FY 2019-20 through FY 2022-23, but funding levels did temporarily decrease in FY 2021-22 in the wake of the pandemic and associated downturn in local economic activity.

## State Transit Assistance (STA) Funds

The other source of TDA funding is through the State Transit Assistance (STA) program. Revenues from the sales tax on gasoline are used to offset the impacts of the one-fourth cent sales tax used for LTF. Any remaining funds (or “spillover”) are available to the counties for local transportation purposes. STA funds can be used for both operations and capital. Though this funding source can be particularly difficult to predict, in recent years, it has been used to support capital, operations, and planning needs for multiple of the Humboldt County transit agencies. Table 37 shows the amount of STA funding issued to claimants in the last two FYs and what projects STA funds were allocated towards.

<b>Table 36: Humboldt County Local Transportation Fund Revenue Shares</b>		
LTF Distribution <sup>1</sup>	2021-22	2022-23
<b>Administrative Allocations</b>		
Humboldt County Association of Governments (HCAOG) <sup>2</sup>	\$450,000	\$600,000
Humboldt County Auditor's Office	\$4,000	\$4,000
Reserve for Pedestrian & bicycle facilities/Local Entities	<u>\$92,560</u>	<u>\$120,426</u>
<b>Total Administrative Allocations</b>	<b>\$546,560</b>	<b>\$724,426</b>
<b>Allocation by Jurisdiction</b>		
Arcata <sup>3</sup>	\$605,852	\$815,409
Blue Lake <sup>4</sup>	\$41,657	\$52,712
Eureka <sup>5</sup>	\$904,087	\$1,146,425
Ferndale <sup>5</sup>	\$44,740	\$57,512
Fortuna <sup>5</sup>	\$404,974	\$541,214
Rio Dell <sup>5</sup>	\$111,465	\$142,049
Trinidad <sup>5</sup>	\$12,065	\$14,918
Humboldt County <sup>6</sup>	<u>\$2,410,607</u>	<u>\$3,130,658</u>
<b>Total Allocated to Jurisdictions</b>	<b>\$4,535,447</b>	<b>\$5,900,897</b>
<b>Total LTF Funds</b>	<b>\$5,082,007</b>	<b>\$6,625,323</b>
<p>Note 1: Estimate by HCAOG pursuant to Section 6620 of the California Administrative Code.</p> <p>Note 2: HCAOG administration, planning and programming</p> <p>Note 3: The City of Arcata typically uses LTF only on transit, but has also used LTF funds for bus stops and street repairs.</p> <p>Note 4: Blue Lake, Ferndale, Fortuna, Rio Dell and Trinidad use LTF for a combination of transit and non-transit and are therefore required to participate in the Unmet Transit Needs process.</p> <p>Note 5: The City of Eureka consistently uses all of their LTF allocation on transit.</p> <p>Note 6: The County is required to use their LTF allocation on transit until an unmet transit needs found during the FY 2022-23 hearing are met.</p>		

<b>Table 37: Humboldt County State Transit Assistance Fund Revenue Share</b>		
<b>STA Distribution</b>	<b>2021-22</b>	<b>2022-23</b>
<b>Claimants</b>		
<b>City of Arcata (A&amp;MRTS)</b>		
Electric Bus	\$132,257	\$103,740
Operating	--	\$150,000
Vehicle Replacement	\$36,000	--
<b>HCAOG</b>		
TPA & TDP	--	\$130,000
<b>Humboldt Transit Authority (HTA)</b>		
CTSA	\$125,596	\$129,365
DAR Supplemental	\$107,737	\$113,195
ETS Bus Replacement	\$159,793	--
Maintenance, Licenses, Passenger Info System	\$70,000	\$196,614
Zero Emission Buses Infrastructure & Planning	\$300,000	--
Electric Farebox & Bus Surveillance Cameras	\$83,205	--
Safety Consultant	\$74,000	--
Vehicle Maintenance & Repairs	\$75,000	\$180,000
Facility Repairs & ADA Upgrades	\$72,711	--
Remix License	--	\$15,000
DAR Cameras (5)	--	\$32,500
Bike Racks (8)	--	\$12,000
Samoa Transit (CAE Contract)	--	\$134,287
Operating Assistance	--	\$232,561
<b>Total Claims</b>	<b>\$1,236,299</b>	<b>\$1,429,262</b>
<b>Total STA Funds</b>	<b>\$1,236,299</b>	<b>\$1,429,262</b>
Source: HCOAG		

### ***Low Carbon Transit Operations Program***

The Low Carbon Transit Operations Program (LCTOP) is an element of the Transit, Affordable Housing, and Sustainable Communities Program established by the California Legislature in 2014 by Senate Bill 862. LCTOP is generated by resources from the Greenhouse Gas Reduction Fund and was created to provide operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with a priority on serving disadvantaged communities. Approved projects in LCTOP support new or expanded bus or rail services, expand intermodal transit facilities, and may include equipment acquisition, fueling, maintenance and other costs to operate those services or facilities, with each project reducing greenhouse gas emissions. For agencies whose service area includes disadvantaged communities, at least 50 percent of the total money received shall be expended on projects that benefit disadvantaged communities.

### ***Transit and Intercity Rail Capital Program***

The Transit and Intercity Rail Capital Program (TIRCP) is another element of the Transit, Affordable Housing, and Sustainable Communities Program established by Senate Bill 862. The TIRCP program is supported by funds from the Cap-and-Trade Program, which was extended through 2030. The intention of the TIRCP is to “fund transformative capital improvements that will modernize

California’s intercity, commuter, and urban rail systems, and bus and ferry transit systems, to significantly reduce emissions of greenhouse gases, vehicle miles traveled, and congestion.”<sup>6</sup>

The HTA has been awarded TIRCP funding in the last two funding cycles (2022 and 2023). In 2022, the HTA was awarded \$38.7 million towards procuring 11 FCEBs, installing FCEB charging infrastructure, constructing the EaRTH Center, and initiating the new RCX service. In 2023, the HTA was awarded \$8.6 million in partnership with the Yurok Tribe and Redwood Coast Transit to deploy four ZEVs in tribal regions, further expand the RCX service, as well as a few other project components more focused on amenities in Del Norte County. These projects are discussed in more depth in previous chapters.

## Local Funding Sources

### Joint Powers Authority Cost Sharing

The Joint Powers Authority (JPA) agreement which created the Humboldt Transit Authority includes a clause for cost sharing, as follows (paraphrased) in the latest amendment:

*All costs incurred by the HTA in connection with the operation of Redwood Transit System (RTS), less fare box revenues and other sources of funds, shall be shared by the parties on the following basis:*

- County – 50 percent
- Participating Cities (Arcata, Eureka, Fortuna, Rio Dell, and Trinidad) – 50 percent

*The portion to be paid by each city shall be determined by its population relative to the other participating cities (with discussion on increases and decreases relative to the county).*

The JPA cost-sharing agreement for FY 2022-23 is broken down in Table 38 by percentages.

HTA Member	Service					
	RTS	SHI	WC	ETS	Samoa Transit	Arcata DAR
County of Humboldt	50%	100%	100%	27%	100%	60%
City of Eureka	23%	--	--	73%	--	--
City of Arcata	14%	--	--	--	--	40%
City of Fortuna	10%	--	--	--	--	--
City of Rio Dell	3%	--	--	--	--	--
City of Trinidad	0%	--	--	--	--	--

Source: HCAOG

<sup>6</sup> California State Transportation Agency. (2023). *Transit and Intercity Rail Program*. CA.gov. <https://calsta.ca.gov/subject-areas/transit-intercity-rail-capital-prog>



## **POTENTIAL NEW SOURCES OF FUNDING**

In recent years, more potential sources of transit funding have become available as local, statewide, and national agencies continue to push for more environmentally friendly and equitable modes of transportation. New funding sources that could be utilized to implement service and capital components of this TDP are described below.

### **Cal Poly Humboldt Contracts**

Ongoing contracts with regional partners are important funding sources for many transit agencies. Cal Poly Humboldt has current contracts to fund both A&MRTS and the HTA to provide Cal Poly Humboldt students and staff with free fares on the A&MRTS, RTS, ETS, and WC services during the spring and fall semesters through the Jack Pass program. Per these contracts, Cal Poly Humboldt reimburses each agency (City of Arcata and HTA) for the fares after each quarter based on actual ridership.

As discussed in previous chapters, Cal Poly Humboldt is planning to expand significantly in the upcoming years. This will likely cause students to rent properties further from the main campus in Arcata. There are service alternatives included in Chapter 2 that would increase service to Cal Poly Humboldt in order to better accommodate the needs of these new and further distributed students. The current contracts between Cal Poly Humboldt and both the City of Arcata and the HTA will expire during this planning period, at which time the Jack Pass reimbursement rates should be reviewed to ensure the university is adequately supporting the transit services utilized by its students and staff. In addition, any new services dedicated solely or predominantly to expanded Cal Poly Humboldt park-and-ride programs may require a new contract to provide direct operating support.

### **Caltrans Sustainable Transportation Planning Grant Program**

The Sustainable Transportation Planning Grant Program was established through the Road Repair and Accountability Act of 2017 to generate reliable transportation funds. Approximately \$25 million of funds from this Act will be available each year for a Sustainable Transportation Planning Grant cycle. The grant type most relevant to HCAOG and the Humboldt County transit operators are the Sustainable Communities Grants. These grants are being awarded to encourage local and regional planning efforts that will ultimately help CA meet its greenhouse gas reduction targets by benefiting the multimodal transportation system.

For FY 2023-24, grant awards will range from \$50,000 to \$700,000 and local match requirements will be at least 11.5%. During the last round of funding in late 2022, awards were given to studies that will directly support transit improvements such as multimodal access studies, regional transit electrification plans, long range transportation plans, and transit feasibility studies. It is worth noting that in 2022, the City of Eureka was awarded a Sustainable Communities grant to develop a Bike Plan.

### **Caltrans Clean California Local Grant Program**

Caltrans established the Clean California Local Grant Program to fund projects which beautify and improve streets and roads, tribal lands, parks, pathways, and transit centers. Cycle 1 resulted in \$300

million being awarded to 105 projects. Cycle 2 funding, which will be awarded in FY 2023-24, will be contingent on the state budget. It is unknown how long this grant program will be funded. The maximum amount allowed to be requested is \$5 million. Local match requirements range from 0 to 50 percent depending on the project. None of the Humboldt County transit providers have received a Clean California Grant so far, however during Cycle 1, the City of Rio Dell received funding to improve the local River Trail, and the Humboldt Bay Harbor, Recreation, and Conservation District received funding to conduct the Peninsula Beautification Project.

### **Local Transportation Tax**

Transit services need to meet farebox revenue requirements per CA statutes in order to qualify for state funding sources, however the law permits transit agencies to use other locally derived funding sources, such as a local transportation tax, to increase fare revenues. Unlike grant programs, a transportation tax is a more guaranteed tool for funding public transit. However, such a tax requires voter approval.

In May 2023, the Humboldt County Board of Supervisors approved \$336,000 to hire a public policy firm to research reliable funding opportunities, including a sales tax, for future road repairs and transportation improvements. The county levies a half-cent sales tax through Measure Z for public safety (passed in 2014), but the funding is dedicated to safety, with the largest share going to the sheriff's department. An ad hoc committee will oversee the process and make recommendations for future funding priorities. The committee has agreed to include public transportation as one of the areas which need funding.

The sales tax, if approved, would provide a new source of funding that would be less restricted in eligible uses than TDA and FTA grant funding. This flexibility would make the potential new sales tax an exciting opportunity for transit, as agencies would be able to use the funds for both operations and capital investments, potentially allowing for the expansion of services.

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**INTRODUCTION**

Transit marketing is critical for attracting riders, providing service information in a timely manner, and establishing a recognizable brand. During many of the stakeholder interviews, detailed in Appendix E, the stakeholders noted that public transit in Humboldt County is perceived as a service solely used by and intended for the transit reliant population. Marketing strategies should therefore focus on attracting discretionary riders. Additionally, ensuring schedules and information about the transit systems are easy to find, understandable, and updated is key to attracting and keeping ridership. This chapter discusses some specific marketing strategies to facilitate these concepts.

**CURRENT MARKETING ACTIVITIES FOR HUMBOLDT TRANSIT PROVIDERS**

Humboldt County transit providers have limited operating funds, so not surprisingly, none of them have a dedicated marketing budget. Instead, each provider incorporates activities and materials to promote services simply whenever funding and staff capacity allow. The existing use of marketing tools and strategies are described below.

*Branding*

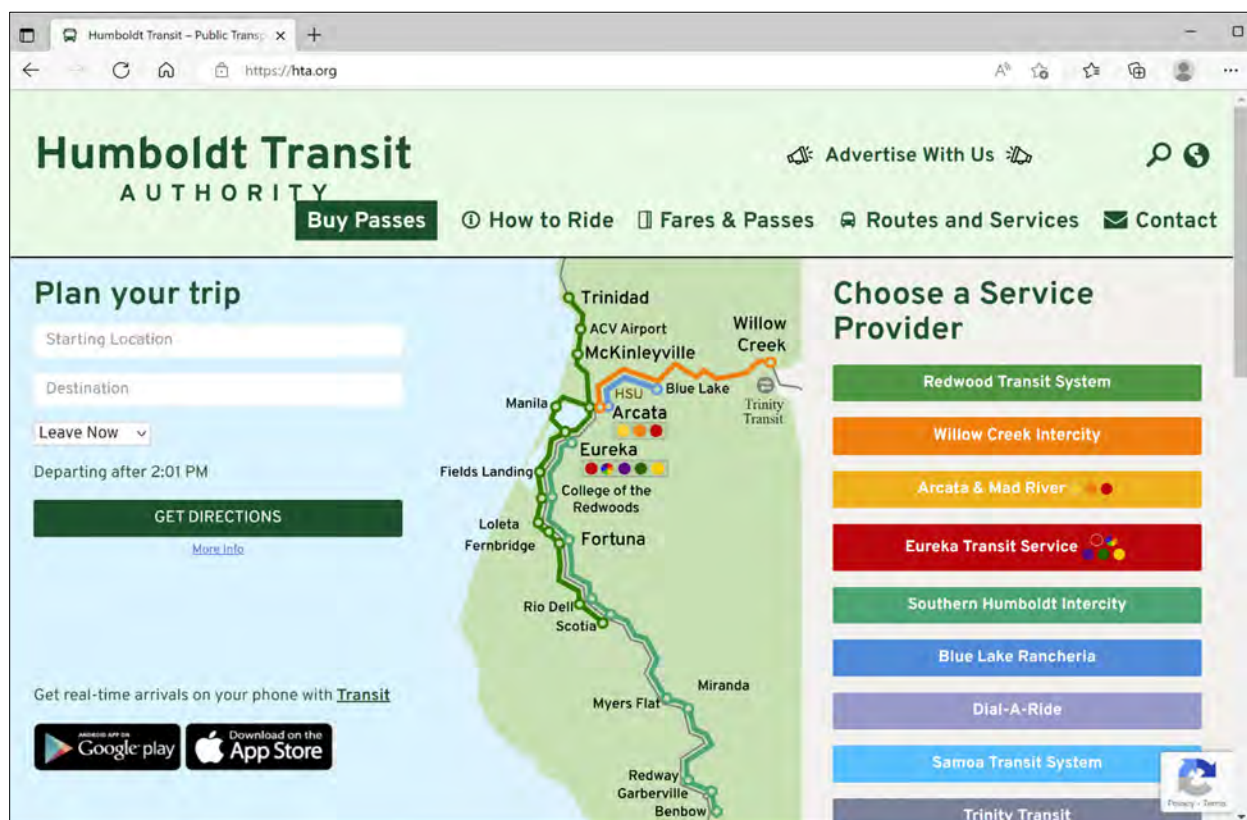
Currently, each of the various Humboldt County transit providers has their own branding and identity. Each system has unique color schematics for buses and promotional materials. There has been discussion, and even a commissioned study, to potentially brand all systems together in hopes that this might improve passengers’ understanding of the continuity between the services, but there is also a desire to maintain the uniqueness of each system. The main advantage of singular branding is that the public then perceives the system as seamless, and having a systemwide fare mechanism becomes easier. The disadvantage is that it adds costs, particularly initially, and these costs would likely be more beneficial spent in other marketing pursuits. Additionally, each transit system is unique, and managers may prefer to have a say in how their systems look and are advertised. A compromise may be to add a singular logo that identifies each system that participates in a universal payment method. Progress is already being made towards simplifying payment by utilizing the Token Transit technology (except for BLRTS and Fortuna Transit) and installing credit card readers.



## Website Design

HTA maintains a website for RTS, ETS, WC, SHI, Samoa Transit, A&MRTS, BLRTS, and DAR. The website is well designed and easy to navigate. The website includes:

- Real-time trip planning (by destination and time of day) and service updates;
- A page for each fixed route system with information on all corresponding routes and runs that can be viewed as digital, interactive maps/schedules or downloadable PDF schedules. Each system page also summarizes the communities served and the fare structure;
- A page for the DAR service, showing a map of the different zones and information on eligibility and how to schedule a ride;
- A page with written directions on how to navigate the Humboldt County transit network and plan a ride, including how to find the best route, buy fares, and expectations for passenger conduct. There are “How to Ride” videos in both English and Spanish;
- A separate fare page summarizing each service’s fare structure and where/how to purchase fares, transfer policies, and the various pass products available;
- At the bottom, a navigation menu with links to backgrounds on the providers and the JPA that formed the HTA, the staff directory, job postings, procurement information, HTA Board of Directors meeting agendas, the Title VI Plan, projects and planning, complaints, the ADA Plan, and more;
- The ability to buy fares and pass products online;
- Information on other regional transit services such as Trinity Transit; and
- A contact page for RTS, ETS, A&MRTS, and BLRTS and a general contact form.



Overall, the HTA website is extremely informative on the public transit offerings available in Humboldt County. The only noticeable feature missing from the website is a place for information on real-time service updates and alerts, such as weather or construction delays. The current news bulletin covers changes that were planned. Currently, a link to the HTA Facebook page can be found at the bottom navigation menu. If other social media accounts are established in the future, they should be linked on each system's respective website page.

The City of Fortuna hosts information on Fortuna Transit on its own website. The Fortuna Transit page includes information on passenger eligibility, ride eligibility, hours, and how to make a reservation. The City of Fortuna provides an active link to the HTA website for people who need transportation outside of the city limits or who do not qualify for the Fortuna Transit service.

### ***Print Materials/Riders Guide***

Passenger guides provide directions for riding the bus in addition to being promotional tools. Passenger guides are especially important for transit passengers who do not have a mobile device to access route information on the go. HTA provides printed schedules for all of the Humboldt County fixed route services, which can also be downloaded from the HTA website. HTA recently compiled all of the schedules into a pamphlet and distributed the information to regional stakeholders to further share with their own clientele. HTA also had the printed schedules posted in a library display at the Main Library in Eureka. If resources allow, it would be beneficial for technology-limited passengers if HTA developed a comprehensive, printed rider's guide with information on passenger policies, fares, and schedules for all of the transit services (RTS, WC, SHI, ETS, A&MRTS, BLRTS, and Fortuna Transit).

### ***Social Media***

Social media is an increasingly important part of outreach and marketing. A well-organized and regularly updated social media platform can effectively and quickly reach a broad audience. Transit agencies across the nation are now frequently using social media to provide real-time information about service changes and interruptions as well as for more general promotion of available services and upcoming events. Social media posts can be designed to engage with followers or to recruit new passengers through methods such as "pushing" a post.

HTA has a Facebook account with over 1,000 followers. The Facebook page includes information on how to access the HTA website and how to contact staff either by phone, email, or in person. HTA uses this account primarily to post news on bus stop locations, upcoming service changes, holiday information, weather impacts, and job postings. The Blue Lake Rancheria has Facebook and YouTube accounts, on which they have promotional videos about the agency's ZEV technology, however these accounts are for the tribe as a whole and are not exclusive to information on transit. There are no other social media accounts for any of the Humboldt County transit providers.





## Phone Information

Many individuals, particularly seniors and visually impaired individuals, prefer to receive information by phone. It is important for accessibility that transit providers continue to offer information over the phone. Currently, people can call HTA to schedule DAR reservations. There are also staff available by phone on weekdays during typical business hours to provide information on RTS, ETS, and BLRTS, and on weekdays and Saturday to discuss A&MRTS. The providers' phone numbers and office hours are posted on the HTA website under the "Contact" page. Phone information should also be included on bus stop signage and on any social media accounts the transit providers have (or establish in the future). It would be helpful for non-English speakers if the transit providers invested in an option for passengers to get phone information in other languages, such as Spanish.

## Special Events and Promotions

Special events and promotions can be utilized to reward current riders and encourage new riders. Examples that have been implemented by other transit agencies include free-fare days, discounted seasonal passes, or complimentary transit for popular local events. These types of promotions require dedicated funding, such as additional LCTOP funds. The Humboldt County transit providers have held these types of promotions in the past; during recent years, Humboldt County held free-fare days for all local services and allowed children under the age of 18 to ride for free during the summer (advertisement shown to the right).

Another lower-cost option for promoting the transit system through events would be to partner with local organizations with missions related to transportation and transit. For instance, in winter of 2023 the environmental organization 350 Humboldt conducted a campaign to encourage members to ride the bus for trips unreasonable to complete solely by bike. The HTA could, in the future, provide an organization like 350 Humboldt with rider's guides and discounted passes to support these related campaigns and encourage participation.



## Active Management

Active management refers to responsive and adaptive decision making by transit directors/managers. The HTA, A&MRTS, BLRTS, and Fortuna Transit directors and managers continually review performance of their respective transit services and modify services in response to community needs.



An obvious example of active management was when the agencies reduced service levels in response to the COVID-19 pandemic, and how the agencies are now increasing service levels as demand slowly returns. The Humboldt County transit providers have also had to alter services due to the nation-wide driver shortage, but active management practices have helped each agency make decisions about which services to reduce and how to communicate service reductions to the public.

Humboldt County transit directors/managers have historically been active in discussions about how to eliminate some of the difficulties that arise due to there being multiple transit providers in the region. Agency leaders have discussed strategies such as implementing uniform bus branding and introducing a single payment system. These past efforts have contributed to successful collaborations such as the 31-Day Humboldt Regional Pass product. It is important the Humboldt County transit managers continue to participate in collaborative discussions in order to improve the overall regional transit system and facilitate increased ridership while also continuing to meet the expectations of each specific community and brand.

## **HUMBOLDT COUNTY TRANSIT PROVIDERS MARKETING CHALLENGES AND RECOMMENDATIONS**

While HTA does an excellent job with current marketing activities which encompass the many services offered in Humboldt County, the authority feels challenged in trying to reach potential new riders. This is a common challenge for most transit systems, and addressing the challenge requires a transit agency to understand their target market. Surveys were conducted for riders of all the transit systems (except BLRTS) in 2022 which help to identify who is using transit and what is important to riders.

The onboard survey results indicate that a large number of people in Humboldt County are riding the bus either to get to school or work (38 percent and 35 percent of the respondents, respectively). This is supported by the fact that most of the respondents were frequent transit riders; most ride the bus 2 to 5 days per week. The survey respondents primarily get transit information from the internet (38 percent), printed guides (31 percent), information posted at stops (30 percent), and Google Maps (29 percent). The onboard survey results are discussed in Appendix D.

Overall, those who participated in the onboard survey had good impressions of the Humboldt County transit providers and ranked the services highly. The online community survey results (Appendix C) more clearly reveal the challenges HTA and the Humboldt County transit agencies have encountered when trying to reach new riders. Over 60 percent of the community survey respondents did not know of the WC, BLRTS, SHI, Fortuna Transit, or Samoa Transit services. The top words used to describe the current transit system were limited, infrequent, and slow, and the survey participants ranked the various transit providers significantly worse than the passengers who took the onboard survey. 34 percent said they do not use public transit because it is difficult to use and 21 percent because they do not know about the services.

Together, the results from the two survey efforts can be used to develop new marketing strategies and tools that will be effective in reaching current riders and be more likely to attract new riders. The best practices for rural transit are to use all marketing tools available, and to particularly take

advantage of low-cost, high-impact activities such as social media and public outreach. These strategies are discussed below by category of the intended audience.

### **Current Riders**

The best marketing strategies aim to retain existing riders while also attracting new ones. It is imperative that HTA and the other Humboldt County transit providers continue to develop marketing materials that are both informative and practical for current riders in order to maintain the good perceptions of the transit held by most passengers.

- **Branding/Physical Presence:** The Humboldt County transit providers should continue to pursue options that will make it easier for riders to navigate between different systems, such as a common payment system.
- **Bus Displays:** The information on vehicle head signs and internal bulletin display boards on the buses are highly visible to passengers. The information contained within these displays should be attractive, informative, and quickly convey information.
- **Website Improvements:** HTA should add a specific section to the website homepage for important real-time service alerts. The HTA website should also include a link to the Fortuna Transit page in case eligible passengers are searching for information.
- **Printed Materials:** HTA could develop a full rider's guide document discussing information for all of the transit services in the county, including fixed route schedules, fare policies, transfer information, and rules for passenger conduct. While the final document may be dense, it would still serve as a comprehensive resource for passengers who cannot access digital information regularly. This comprehensive rider's guide should also be made in Spanish.
- **Social Media:** At this point in time, HTA is the only transit provider with an exclusive social media account. All of the individual providers should establish their own Facebook and Twitter accounts to share important service changes but also to share exciting news such as the deployment of new ZEVs, positive rider experiences, or progress on ongoing capital projects.
- **Phone Materials:** The relevant agency's phone information should be included on all new and replacement bus stop signs installed during the planning period. It would also be beneficial if HTA developed phone resources for Spanish-speaking individuals.
- **Special Promotions:** Special promotions can serve as an opportunity to thank current passengers for their use of the transit system and to boost passenger morale and perceptions. Each agency should continue to offer special free-fare days or pass promotions when finances allow. New technologies such as ZEVs or the Token Transit app should



continue to be pushed through concerted marketing efforts to excite passengers about the positive changes occurring on the bus.

- **Active Management:** Humboldt County is already benefiting from the hands-on approach taken by local transit managers. Active management of the transit system will become even more important as the various managers work to attract riders, convert fleets to ZEVs, and implement new services spanning local to interregional distances. Active management is one of the best strategies for retaining ridership because the transit manager can respond to the immediate needs and concerns of the riders and strives to provide the best service possible.

## Attracting Students



Students from Cal Poly Humboldt and College of the Redwoods have historically comprised a large portion of Humboldt County transit ridership. It is important the Humboldt County transit providers encourage students to return to the bus system now that in-person instruction has resumed at both universities. The planned expansion of Cal Poly Humboldt in upcoming years also represents a large pool of potential new transit riders that HTA and A&MRTS, in particular, should market to. Specific strategies to attract college students might include:

- Campus visits and presentations on what services are available at the start of the school year;
- Creating specific promotional materials describing the transit services to each campus and information on the Jack Pass;
- Requests that campuses share promotional materials, preferably through the campus messaging network or email system;
- Partnering with on-campus clubs and organizations either interested in transit or could benefit from learning more about transit services;
- Radio and newspaper advertising; and
- On-campus kiosk with rider's guides.

## Attracting New Riders

Every transit system experiences turnover in ridership as students graduate, residents move, and people acquire cars and/or drivers licenses. Unfortunately, many transit agencies find attracting new riders to replace those leaving to be a challenge. The onboard survey results revealed that most passengers have used public transit in Humboldt County for 2 or more years (53 percent), while far fewer are new passengers (only 20 percent began riding public transit within the previous 6 months). Strategies which HTA and the other providers should engage in to try and reach new riders include:

- **Testimonial Advertising:** Transit systems inevitably have grateful passengers. The transit agencies should let riders tell their stories. This can be done as a newspaper story, as part of

a flyer or poster, or as a radio spot. Identify regular passengers on the transit system (a single mom, a student, a disabled passenger, a local politician, etc.) and ask why they ride, what they like about the service, and how transit personally helps them. These testimonials could inspire the public and help to improve the poor perceptions of the existing transit system held by the greater community.

- **Outreach Campaigns about New Technology and Projects:** Transit services in Humboldt County are continuously evolving as new services are implemented and new technologies deployed. The transit providers should try to promote the transit system by developing outreach materials describing exciting changes such as new facilities, ZEVs, the Token Transit app, and other services. Emphasizing how the transit system is improving and easy to use will help to counter perceptions the Humboldt County transit services are dated and may cause some non-riders to reconsider using transit.
- **Social Media Campaigns:** As previously mentioned, the HTA has a Facebook page with over 1,000 followers. A number of transit agencies use Facebook advertising to reach people who are on the platform but unfamiliar with available transit services. HTA should utilize Facebook advertising to increase awareness of the transit system and to attract riders back to the service. These campaigns should be done outside of the “holiday season” months of November and December when Facebook is flooded with advertisements. If HTA budgeted \$250 for Facebook advertisements annually, the HTA’s posts would reach a significant number of people on the platform.
- **Special Events and Partnerships:** Free-fare days not only reward current passengers, but also have been found to entice both new and past riders to hop on the bus. When funding allows, the transit agencies should try to offer special events such as free-fare days to lower the barriers to reach new residents. These could be used to encourage people to try the Token Transit app as well. The transit agencies should also work to partner with local organizations with an interest in transit to encourage ridership by planning events, an example being a “Ride the Bus to Work Day.”
- **Public Presentations:** Public speaking is the ultimate low-cost marketing tool. Public speaking can be interactive with the speaker fielding questions and conveying customized information for the specific audience. Target audiences would likely be seniors, students, social service program clients, and employee groups. Presentations to schools and the colleges, businesses, employers, social services, senior residences, senior centers, and neighborhood associations would therefore be appropriate. Presentations should be tailored for the general public, both riders and non-riders alike. Speaking to members of civic and business organizations enables the transit agency to set up an identity as part of the community and get information to residents who may not normally interact with transit.

**EXAMPLES OF MICROTRANSIT SERVICES**

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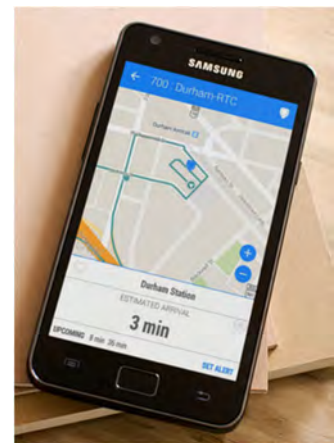
## EXAMPLES OF MICROTRANSIT SERVICES

### MICROTRANSIT PEERS REVIEW

Technological advancements and changing travel patterns in the wake of the COVID-19 pandemic have led many transit agencies across the United States (US) to embrace new forms of transit, one of which has been “microtransit.” This appendix reviews the concept of microtransit before discusses policies, operations, and performance of peer microtransit programs in suburban to mid-size cities in California and Nevada.

### The Concept of Microtransit Service

Over the last several years, the concept of “microtransit” has seen increasingly widespread application in communities of all sizes. The goal of microtransit is typically to provide transit service to an area not served efficiently by fixed routes within a short response time. Microtransit achieves this by applying app-based technology developed for transportation network companies such as Uber and Lyft. Passengers will typically use an app downloaded on their smartphone or computer to request a ride. The app’s routing algorithm assigns the ride request to a specific driver/vehicle, then the passenger is provided with an estimated service time. Fares are typically handled through the app.



To ensure equitable accommodation, the majority of transit agencies using microtransit technology also have an option for passengers to request rides directly by phone call. Even with this exception, most rides are assigned without the need for manual dispatching. Unlike traditional dial-a-ride services, there is no need for a 24-hour-or-more advance reservations. As microtransit is a shared-ride service, multiple passengers may be on the vehicle at the same time. Requirements of the Americans with Disabilities Act (ADA) may be met by ensuring that a sufficient number of accessible vehicles are available to serve those who require special accommodations.

### Background and Policies of Peer Microtransit Services

LSC Transportation Consultants, Inc., researched microtransit programs operated by transit agencies in suburban to mid-size cities in California and Nevada. These programs are listed in Tables 1 and 2. These programs were established between February 2018 (Sacramento Regional Transit’s SmART Ride service) and April 2020 (City of Napa On-Demand). The City of Napa’s On-Demand program, operated by Vine Transit, was the only microtransit service analyzed established specifically in response to the pandemic. Other peer transit services in California planning to implement microtransit in 2023 include Woodland (Yolobus), Fairfield (FAST Transit), and Placer County (Placer County Transit).

All of the peer microtransit services analyzed in this study have evolved since their initial pilot phases, with most of the transit agencies having either expanded or modified the service zones based on popularity and changing transportation needs during the COVID-19 pandemic. Passengers are only able to request rides between two destinations within the same microtransit zone, therefore modifying microtransit zones is an important process that may encourage or limit ridership.

Most of the programs analyzed provide curb-to-curb service, however the SmART Ride service provides either curb-to-curb service or corner-to-corner service depending on the zone. When rides are limited to a single service zone, passengers get to locations in other zones by requesting rides to central transfer points where they are able to transfer to a fixed route or different microtransit service.

There are a lot of possible vendors for microtransit technology and software, and the number of options continues to grow as the market expands. The vendors used by the microtransit programs discussed in this study include Transloc, Via, and Spare. Other microtransit technology vendors include The Routing Company (TRC), Goin, and TripSpark.

### **Microtransit Peers Operations Summary**

Table 1 presents a review of recent or projected operations data for the microtransit services in the Cities of Hanford, Napa, and Sacramento, California, and for Washoe County, Nevada. Statistics for the individual zones are provided for the FlexRide and SmART Ride services. The peer microtransit zones vary in size from 6 to 35 square miles. These zones cover areas of varying populations and population densities; the populations living in the service areas range from 16,200 (City of Napa) to 203,000 (Franklin SmART Ride Zone). Some of these zones, such as the Downtown SmART Ride Zone, cover areas which are also served by fixed route buses. Others, such as the FlexRide Zones, cover areas with no fixed route service.

Schedule information is summarized in Table A1. The daily hours vary by service, and in some instances by zone, however it is worth noting that all of the peers offer microtransit throughout the entire “9 to 5” workday. Weekend microtransit service is provided by Vine Transit and Washoe RTC.

The operations data reflects the substantial ridership that can be served by a microtransit program and provides context for the number of vehicles needs for certain levels of service. For instance, the Rancho Cordova, Arden/Carmichael, and Elk Grove SmART Ride Zones all had two vehicles operating at peak hours to provide just upwards of 10,000 passenger-trips in Fiscal Year (FY) 2021-22. Average daily ridership ranged from 40 passenger-trips in the suburban cities of Carmichael and Elk Grove (Sac RT) to 144 passenger-trips in the dense, urban Downtown SmART Ride Zone.

### **Microtransit Peers Performance Summary**

Performance indicators are useful tools for assessing and comparing different-sized transit services. Table A2 presents a summary of the peer microtransit programs’ performance based on the operations data contained in Table A1. As seen in Table A2, the average number of square miles per peak vehicle was 0.32 and the average number of residents per peak vehicle was 10,922. While these



values obviously vary by agency, the data can still be used to inform calculations on how many vehicles may be needed to meet demand in microtransit zones in other cities.

The productivity of a transit service is often assessed by calculating the number of passenger-trips carried per vehicle revenue hour. On average, the peer microtransit zones carried 3.11 passenger-trips per hour, slightly more than the average, traditional dial-a-ride service, which typically carries 1 to 2 passengers per hour. The most productive microtransit zones analyzed were the Rancho Cordova and Folsom SmART Ride Zones and the Sparks-Spanish Village FlexRide Zone (all over 3.35 passenger-trips per hour).

The cost efficiency of a transit service can be greatly affected by not only fare revenue generated by ridership, but also by contract rates with transit operators and by whether or not the microtransit passengers are “co-mingling” with other transit passengers. “Co-mingling” refers to instances when microtransit, dial-a-ride, or non-emergency medical transportation passengers share a vehicle on their ride. However, based on dividing the total program cost by the considering just the available data, the most cost-efficient service analyzed was the City of Napa On-Demand service (\$52.17 per vehicle revenue hour).

## **Conclusions**

Microtransit is a new and evolving type of public transportation service that is surging in popularity across the US as transit agencies adapt to new travel conditions post-pandemic. Microtransit is often implemented in areas that are not served effectively with fixed routes to provide increased coverage in a more cost-effective manner. Passengers can schedule rides using app-based technology similar to what is used for Uber or Lyft to get where they need to go within the specified microtransit zone.

LSC collected data on microtransit programs being operated by transit agencies in small- to mid-size cities across California and the western US to help inform similar-sized providers who may be considering implementing microtransit in the future. Each microtransit program obviously differs, however the data consistently demonstrates the capacity for these services to carry a substantial amount of ridership, even in areas still served by fixed routes. It is important for transit agencies to consider how their unique community compares to those reviewed in this peers analysis when designing a microtransit service as well as peer microtransit data for upcoming fiscal years, as data for FYs 2022-23 and 2023-24 will more accurately reflect the “new normal” demand for transit in the post-pandemic era.

**Table A1: 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
<b>City of Napa On-Demand</b> <sup>1</sup>	6.0	16,200	Yes	M - F: 7AM - 5:30PM Sat: 7:30AM - 5:30PM	11,867	113,367	6	25,787	308	84
<b>FlexRide - Washoe RTC</b>										
North Valleys Zone <sup>2,3</sup>	13.3	40,564	No	M - F: 5:30AM - 11PM Sat - Sun: 6:20AM - 9PM	8,038	133,932	5	18,837	365	52
Somerset Verdri Zone <sup>2,3</sup>	9.8	35,200	No	M - F: 5:30AM - 11PM Sat - Sun: 6AM - 10:30PM						
Sparks-Spanish Springs Zone <sup>2</sup>	13.1	21,100	No	M - F: 5:30AM - 11PM Sat - Sun: 6AM - 10:30PM	9,410	152,305	5	36,256	365	99
<b>SMART Ride<sup>5</sup> (SacRT)</b>										
Citrus Heights Zone	35.9	58,496	Partial	M - F: 6AM - 9PM	12,700	--	6	34,544	254	136
Franklin Zone	14.0	203,000	Partial	M - F: 7AM - 7PM	6,782	--	4	20,320	254	80
Gerber Zone	10.0	105,800	No	M - F: 7AM - 7PM	3,581	--	2	10,414	254	41
Rancho Cordova Zone	6.9	52,600	Partial	M - F: 7AM - 7PM	5,842	--	3	30,988	254	122
Downtown/ CSUS Zone	7.7	43,100	Yes	M - F: 6AM - 9PM	12,014	--	6	36,576	254	144
Natoma/N. Sac Zone	15.1	52,300	Yes	M - F: 7AM - 7PM	7,290	--	4	21,590	254	85
Arden/ Carmichael Zone	15.0	72,200	Partial	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40
Folsom Zone	27.9	72,900	Yes	M - F: 7AM - 7PM	4,775	--	3	16,002	254	63
Elk Grove Zone	26.4	76,100	No	M - F: 7AM - 7PM	3,581	--	2	10,160	254	40
<b>Peer Zone Average</b>	15.5	65,351	NA	NA	7,455	133,201	4	22,636	277	82

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

Note 2: Data sourced from RTC Washoe staff.

Note 3: North Valleys and Somerset Verdri 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.

**Table A2: Microtransit Peer Review - Performance Analysis**

Providers	Peak Vehicles per Sq Mile	Square Miles per Peak Vehicle	Population per Peak Vehicle	Vehicle-Hours of Service per 1,000 Population	Annual Ridership per Capita	Psgs per Revenue Mile	Psgs per Revenue Hour	Cost per Vehicle-Hour of Service <sup>1</sup>	Cost per Passenger-Trip <sup>2</sup>
<b>City of Napa On-Demand</b>	1.0	1.0	2,700	733	1.59	0.23	2.17	\$52.17	\$24.01
<b>FlexRide - Washoe RTC</b>									
North Valleys & Sommerset Verdi Zone	0.2	4.6	15,153	106	0.25	0.14	2.34	\$67.43	\$28.77
Sparks-Spanish Springs Zone	0.4	2.6	4,220	446	1.72	0.24	3.85	\$67.43	\$17.50
<b>SMART RT</b>									
Citrus Heights Zone	0.2	6.0	9,749	217	0.59	--	2.72	\$155.04	\$57.00
Franklin Zone	0.3	3.5	50,750	33	0.10	--	3.00	\$155.04	\$51.74
Gerber Zone	0.2	5.0	52,900	34	0.10	--	2.91	\$155.04	\$53.32
Rancho Cordova Zone	0.4	2.3	17,533	111	0.59	--	5.30	\$155.04	\$29.23
Downtown/ CSUS Zone	0.8	1.3	7,183	279	0.85	--	3.04	\$155.04	\$50.93
Natoma/N. Sac Zone	0.3	3.8	13,075	139	0.41	--	2.96	\$155.04	\$52.35
Arden/ Carmichael Zone	0.1	7.5	36,100	50	0.14	--	2.84	\$155.04	\$54.65
Folsom Zone	0.1	9.3	24,300	66	0.22	--	3.35	\$155.04	\$46.26
Elk Grove Zone	0.1	13.2	38,050	47	0.13	--	2.84	\$155.04	\$54.65
<b>Peer Zone Average</b>	0.3	3.2	10,922	188	0.52	0.20	3.11	\$126.91	\$42.24

See Table 1 for data sources and notes.

Note 1: Calculated by total program cost divided by vehicle revenue hours by zone. Peer average is for provider, not zone.

Note 2: Cost by zone is allocated based on the proportion of hours operated per zone. Cost per passenger trip equals the allocated cost per zone divided by passenger trips per zone.