



Humboldt County Transit Development Plan 2017-2022

Prepared for the

**Humboldt County
Association of Governments**

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Humboldt County 2017-2022 Transit Development Plan

Prepared for the

Humboldt County Association of Governments
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Public transportation is a vital service to many residents of Humboldt County. Transit services provide mobility to residents, including access to important medical, recreational, social, educational and economic services and opportunities. In addition to being important to the quality of life of residents in the region, public transit services assist in the functioning of educational programs, public and private employers, and social service programs throughout the region.

A Transit Development Plan (TDP) study was conducted to assess transit and related transportation issues in the county and provide a “road map” for improvements to the public transit program over the upcoming five years. The intent of this study was to evaluate the specific needs for transit services, as well as to develop plans for improvements and service revisions. This has been accomplished through the review of transit conditions and evaluation of operations, as well as through public outreach via onboard surveys, online community surveys, and community-based meetings. A wide range of alternatives were evaluated. Additionally, an important element of this study has been to identify stable funding sources for operations and capital improvements of transit services. The ultimate goal of the study is to provide a comprehensive strategy of short-range service, capital, and institutional improvements, with a supporting financial and implementation plan.

Concurrent with this Transit Development Plan, a Social Services Transportation Advisory Council (SSTAC) Strategic Plan was developed. This plan reviewed the process of defining and identifying unmet needs, and is intended as a toolkit for the SSTAC to guide them in identifying unmet needs and prioritizing services to be implemented within funding parameters. The plan chapter of the SSTAC Strategic Plan Report is included within this TDP.

STUDY ISSUES

This study takes direction from specifically identified study issues surrounding transit in the region. These issues were identified by Humboldt County Association of Governments (HCAOG) and several of its committees—the Social Services Transportation Advisory Council (SSTAC) and the Service Coordination Committee (SCC), as well as by the transit providers and their staffs, and local stakeholders and community representatives. Issues which have been identified for the study include the following:

- Identifying transit needs: who should be served by transit and where is transit service most needed? How are the needs of the dispersed few balanced against the needs of the many?
- Service Efficiency: What is the most appropriate service plan to meet the varied transit needs? What routing and scheduling changes are necessary to maximize efficiency? Is a

different service plan warranted, such as local feeder routes in Fortuna? Service to Old Arcata Road? Improved routing to reduce travel time on existing routes in Eureka and Arcata? What will be the costs / benefits of a new service plan?

- **Coordination:** Public transit in Humboldt County currently consists of five transit operators, which collectively operate ten different transit services. What is the best strategy to make travel as seamless as possible for passengers? Rebranding with a common theme, unified fare structures, and joint marketing may all be possible solutions. Which efforts are most effective and what are the costs and benefits of each strategy?
- **Funding:** What is the funding outlook for the next five years? What public and private sources of revenue are available? What cost-sharing opportunities or expectations are involved?
- **Bus Stop Development:** Passenger amenities are an important element in providing a quality transit service, particularly in an area with so much inclement weather. Are the current bus stops appropriately placed, signed and visible? Are shelters or benches needed? What passenger amenities will be needed for the upcoming plan? How can various jurisdictions best work together to insure installation and maintenance of passenger amenities?
- What is the appropriate vehicle replacement plan for each of the operators and for the region as a whole? How will providers sustain a reliable vehicle fleet?
- What other capital facilities and staff will be required to provide the transit services called for in the study documents? Is the Humboldt Transit Authority operations and maintenance facility (which provides maintenance for the majority of transit services in the County) an adequate size?
- **Farebox Ratio:** Several of the services in Humboldt County do not meet or are in danger of not meeting the minimum farebox ratio. What should be the policy for service which does not meet minimum farebox?
- **Performance Measures:** Any transit system needs a realistic set of performance measures to evaluate transit services. A review and update of performance measures, goals and objectives for each of the transit systems will be an important element of this TDP.
- **North-South Connections:** There are limited choices to reach southern destinations (Santa Rosa, San Francisco Bay Area), but increasing needs to go to these locations for medical services, as well as for flights and entertainment. What role should public transit in Humboldt County play in meeting this need?

- Student Transportation: High school students and especially college students are a high portion of the ridership in Humboldt County. How can their needs best be met? What agreements are in place with the colleges, and should those be reviewed and renegotiated?

These issues were considered as part of a comprehensive look at the role of transit in Humboldt County and the service plan that best serves this role. This TDP provides the leadership of the area with a guided plan for optimizing transit services in the next five years in a manner in which public transit can meet both the present and the future needs of the area within available resources.

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GEOGRAPHY OF HUMBOLDT COUNTY

Humboldt County is a large and mostly rural county in the northwest of California, averaging only 38 people per square mile (compared to California's average of 237). The economy historically has been agriculturally based, but tourism, recreation, government services, manufacturing, retail and education also play significant roles in the economy. The geography is coastal and mountainous, and the roadway system contains approximately 1,400 miles of county roads and city streets along with 378 miles of state highways and roadways on federal lands.

US Highway 101 is the major north-south roadway and State Highway 299 provides the main east-west access to the county. Both roadways are prone to mud-slides/rock slides which can occasionally close the road system and isolate the county.

Humboldt County has seven incorporated cities: Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell, and Trinidad. In addition, there are several unincorporated communities (McKinleyville, Garberville) along with numerous smaller communities which are Census-designated places within the county. The study area is shown in Figure 1.

The geographic, demographic and economic characteristics of the area factor into the difficult challenge of providing public transportation to residents and visitors in Humboldt County. Furthermore, transportation services are provided by multiple organizations from a number of jurisdictions, adding complexity to the challenge of providing service.

POPULATION

General Population Trends: Historic and Projected Population

Table 1 lists the historic population in Humboldt County and its cities (including unincorporated McKinleyville). As shown, the countywide population increased from 131,467 residents in 2005 to 135,052 in 2015, which is just an average of 0.3 percent population growth, compared to 0.8 percent in California over the same period. Furthermore, some cities, such as Eureka and unincorporated McKinleyville, actually lost population, while Arcata and the balance of the county had a little stronger growth than the County as a whole.

The population projections by age, as prepared by the California Demographic Research Unit, are shown in Table 2. While the population as a whole is expected to continue to grow slowly, the population aged 74 to 84 will grow much more rapidly (2.7 percent from 2010 to 2020, and 6.1 percent from 2020 to 2030). However, the school age population (ages 5 to 17) will



**Figure 1:
Humboldt County Site Map**



Table 1: Historic Population of Humboldt County

	2005		2010		2015	
	Population	% Annual Growth	Population	% Annual Growth	Population	% Annual Growth
Humboldt County	131,467	-0.5%	134,623	0.5%	135,052	0.1%
<i>Arcata</i>	17,000	0.4%	17,211	0.2%	18,085	1.0%
<i>Blue Lake</i>	1,212	1.3%	1,253	0.7%	1,278	0.4%
<i>Eureka</i>	26,793	0.5%	27,125	0.2%	26,811	-0.2%
<i>Ferndale</i>	1,427	0.6%	1,371	-0.8%	1,435	0.9%
<i>Fortuna</i>	11,479	1.8%	11,897	0.7%	11,882	0.0%
<i>McKinleyville</i> ¹	15,247	2.3%	16,896	2.1%	16,291	-0.7%
<i>Rio Dell</i>	3,265	0.6%	3,368	0.6%	3,414	0.3%
<i>Trinidad</i>	342	1.8%	367	1.4%	368	0.1%
<i>Balance of County</i>	54,702	-4.3%	55,135	0.2%	55,488	0.1%
California Population	35,869,173	1.1%	37,253,956	0.8%	38,907,642	0.9%

Note 1: McKinleyville is the third largest community, but it is not incorporated.

Source: California Demographic Research Unit, US Census

decrease by 0.2 percent to 0.9 percent in the same two decades. Most significant is the growth in senior population. Between 2010 and 2020, the population of “young retirees” (age 62 to 74) is forecast to increase by 80 percent, while those age 75 to 84 will increase by 31 percent and those 85 and above by 7 percent. This indicates a very significant increase in the need for senior transportation services.

Table 2: Population Projections by Age Groups for Humboldt County

	2010	2020			2030		
			% Annual	% Change		% Annual	From
Age Range	Population	Population	Change	From 2010	Population	Change	2010
Preschool Age (0-4 years)	7,733	6,362	-2.0%	-18%	6,458	0.1%	-16%
School Age (5-17 years)	19,314	18,914	-0.2%	-2%	17,217	-0.9%	-11%
College Age (18-24 years)	16,529	15,131	-0.9%	-8%	16,319	0.8%	-1%
Working Age (25-61 years)	73,331	71,284	-0.3%	-3%	71,581	0.0%	-2%
Young Retirees (62-74 years)	9,749	17,541	5.9%	80%	16,895	-0.4%	73%
Mature Retirees (75-84 years)	5,459	7,178	2.7%	31%	13,274	6.1%	143%
Seniors (85 or more)	2,548	2,724	0.7%	7%	3,941	3.7%	55%
All Ages	134,663	139,132	0.3%	3%	145,684	0.5%	8%

Source: California Demographic Research Unit

Existing Demographics

Table 3 presents key demographic data for Humboldt County at the US Census tract level. The census tracts are shown in Figure 2. A review of this data indicates the following:

- **Total population** of the County is 135,034, per the most recent Census data. The most populous census tracts are those in downtown Eureka, downtown Arcata, and West McKinleyville.
- **Youth** (persons aged 10 to 17) total 12,422, or 9.2 percent of total population (compared with 16.8 percent in California). Areas with relatively high concentrations of youth include Hoopa (18.3 percent), as well as the Herrick Avenue area south of Eureka (near the Eureka Municipal Golf Course), Samoa/Manila, and South Fortuna.
- **Elderly** persons age over 64 total 17,095 (12.7 percent—compared to an average of 10.3 percent in California). There are particularly high proportions of elderly living in the Westhaven/Trinidad area, Loleta and Fortuna, near the zoo in Eureka, as well as in Petrolia and Garberville.
- It is difficult to equate the types of **disabilities** identified by the US Census with people's ability to use transit. Nonetheless, persons who indicated they have a self-care limitation total 8,037, or 6.0 percent of the county's population (compared with 4.0 in California as a whole). As indicated in Table 3, persons with self-care limitations are highest in downtown Eureka, followed by Fortuna, Eureka (near the zoo), Samoa/Manila, and Rio Dell/Scotia.
- There are a total of 27,168 persons living in households below the federal **poverty** level (25.6 percent of total population, compared to 15.3 percent in California as a whole). While much of the student population around HSU is considered below poverty, other areas with high levels of poverty include downtown Arcata, downtown Eureka, Fortuna and Hoopa.
- One of the stronger indicators of transit dependence is the **households without vehicles available**. In Humboldt County, there are 4,275 such households, with a concentration of car-less households in Eureka's downtown and Henderson Center, around Humboldt State in Arcata, and in Fortuna.

COMMUTE PATTERNS

Commute Mode

Table 4 presents the commute travel characteristics for the census tracts within Humboldt County, drawn from the US Census 2014 and American Community Survey (ACS).

Table 3: Humboldt County Population Characteristics by Census Tract													
Census Tract		Total Population ¹	Occupied Housing Units ²	Youth (10-17) ⁴		Elderly (65+) ⁴		With a Disability ⁵		Below Poverty ⁶		Zero Vehicle Households ²	
#	Description			#	%	#	%	#	%	#	%	#	%
1	Eureka / Old Town	4,053	1,847	401	9.9%	395	9.7%	335	10.1%	1,350	33.3%	332	18.0%
2	Eureka / Henderson Ctr	6,056	2,283	607	10.0%	504	8.3%	364	7.6%	1,284	21.2%	418	18.3%
3	Eureka / Rosewood	6,529	2,199	612	9.4%	748	11.5%	411	8.4%	1,678	25.7%	191	8.7%
4	Eureka / Herrick Ave	3,963	1,584	502	12.7%	471	11.9%	216	7.0%	769	19.4%	124	7.8%
5	Eureka / Old Town	4,197	1,739	240	5.7%	527	12.6%	482	14.7%	1,095	26.1%	431	24.8%
6	Eureka	4,827	2,041	459	9.5%	770	16.0%	266	6.7%	767	15.9%	121	5.9%
7	Eureka / Zoo	5,203	2,288	416	8.0%	887	17.0%	481	11.1%	635	12.2%	295	12.9%
8	Myrtle town	5,365	1,998	442	8.2%	808	15.1%	330	8.0%	472	8.8%	82	4.1%
9	Bayside/Jacoby Creek	5,486	2,228	383	7.0%	671	12.2%	220	4.7%	795	14.5%	51	2.3%
10	Arcata/HSU	5,997	2,425	201	3.4%	395	6.6%	222	4.0%	2,429	40.5%	462	19.1%
11.01	Arcata Downtown	6,589	2,391	265	4.0%	674	10.2%	266	5.0%	2,155	32.7%	150	6.3%
12	Arcata/Fickle Hill	5,107	1,999	416	8.1%	424	8.3%	294	7.0%	1,221	23.9%	182	9.1%
13	Samoa/Arcata	1,383	574	176	12.7%	88	6.4%	123	10.2%	270	19.5%	19	3.3%
101.02	Willow Creek	2,578	1,162	155	6.0%	428	16.6%	143	7.1%	673	26.1%	78	6.7%
102	Westhaven/Trinidad	2,432	1,168	277	11.4%	466	19.2%	189	8.8%	413	17.0%	65	5.6%
103	Blue Lake	3,791	1,449	385	10.2%	352	9.3%	222	7.2%	459	12.1%	45	3.1%
104	Clam Beach	3,496	1,403	420	12.0%	408	11.7%	111	4.1%	371	10.6%	42	3.0%
105.01	W. McKinleyville	7,811	2,880	836	10.7%	777	9.9%	503	8.6%	1,117	14.3%	118	4.1%
105.02	E. McKinleyville	5,366	2,119	533	9.9%	867	16.2%	184	4.6%	698	13.0%	87	4.1%
106	Freshwater	1,902	799	196	10.3%	273	14.4%	102	6.6%	99	5.2%	19	2.4%
107	Humboldt Hill	7,486	2,740	660	8.8%	1,012	13.5%	505	8.9%	1,535	20.5%	126	4.6%
108	Loleta / Fortuna	3,827	1,570	450	11.8%	693	18.1%	194	6.4%	804	21.0%	80	5.1%
109.01	Fortuna	4,550	1,570	468	10.3%	744	16.4%	451	13.3%	1,374	30.2%	213	13.6%
109.02	Bridgeville	3,819	1,561	564	14.8%	550	14.4%	227	7.6%	474	12.4%	50	3.2%
110	S. Fortuna	4,741	1,785	637	13.4%	815	17.2%	235	6.6%	522	11.0%	73	4.1%
111	Rio Dell / Scotia	4,853	1,828	371	7.6%	570	11.7%	371	10.1%	641	13.2%	180	9.8%
112	Petrolia	3,303	1,315	335	10.1%	607	18.4%	108	4.0%	344	10.4%	103	7.8%
115	Redway / Shelter Cove	3,650	1,426	217	5.9%	378	10.4%	76	2.5%	887	24.3%	13	0.9%
116	Garberville	3,716	1,697	258	6.9%	632	17.0%	234	7.4%	977	26.3%	50	2.9%
9400	Hoopa	2,958	968	540	18.3%	161	5.4%	172	8.0%	864	29.2%	75	7.7%
Humboldt County		135,034	53,036	12,422	9.2%	17,095	12.7%	8,037	6.0%	27,168	25.6%	4,275	8.1%
California		38,421,464	12,577,498	6,454,806	16.8%	3,957,411	10.3%	1,537,798	4.0%	5,891,678	15.3%	964,955	7.7%

Note 1: US Census Table B01003, ACS 2015 5 Year Estimates
 Note 2: US Census Table B25044: Tenure by Vehicles Available, ACS 2013 5 Year Estimates
 Note 3: US Census Table DP03: Selected Economic Characteristics, ACS 2013 5 Year Estimates (Workers 16+ Who Commute to Work Outside the Home)
 Note 4: US Census Table B01001, ACS 2013 5 Year Estimates
 Note 5: US Census Table B18106: Sex by Age by Independent Living Difficulty, ACS 2015-5 Estimates age 18+
 Note 6: US Census Table S1701, Poverty in the Past 12 Months, ACS 2012 5 Year Estimates (%)



Figure 2
Humboldt County Census Tracts

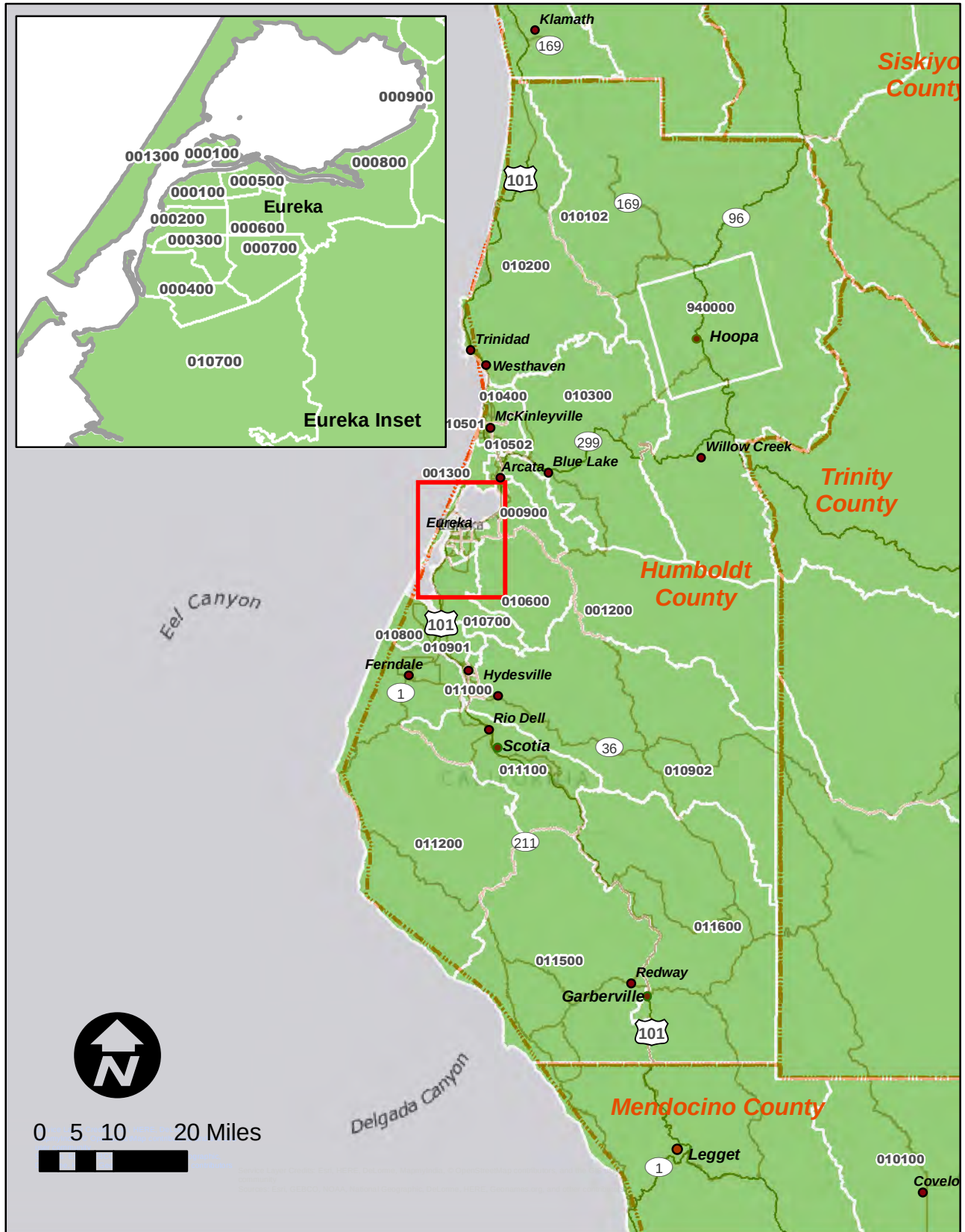


Table 4: Humboldt County Commute Travel Characteristics

Census Tract #	Description	Drove Alone		Carpooled		Transit		Walked		Other		Worked at Home		Total Commute to Work
		#	%	#	%	#	%	#	%	#	%	#	%	
1	Eureka / Old Town	1,232	66.9%	184	10.0%	14	0.8%	296	16.1%	79	4.3%	37	2.0%	1,842
2	Eureka / Henderson Ctr	2,093	73.5%	199	7.0%	128	4.5%	113	4.0%	71	2.5%	245	8.6%	2,849
3	Eureka / Rosewood	1,715	72.3%	270	11.4%	123	5.2%	106	4.5%	31	1.3%	128	5.4%	2,373
4	Eureka / Herrick Ave	1,174	77.2%	190	12.5%	18	1.2%	15	1.0%	62	4.1%	62	4.1%	1,521
5	Eureka / Old Town	1,214	68.2%	144	8.1%	33	1.9%	220	12.4%	94	5.3%	75	4.2%	1,780
6	Eureka	1,420	63.6%	324	14.5%	17	0.8%	108	4.8%	214	9.6%	151	6.8%	2,234
7	Eureka / Zoo	1,731	73.3%	254	10.8%	0	0.0%	131	5.6%	73	3.1%	171	7.2%	2,360
8	Myrtle town	2,304	89.4%	92	3.6%	1	0.0%	56	2.2%	8	0.3%	117	4.5%	2,578
9	Bayside/Jacoby Creek	1,680	68.7%	220	9.0%	22	0.9%	150	6.1%	153	6.3%	222	9.1%	2,447
10	Arcata/HSU	1,057	42.0%	172	6.8%	87	3.5%	843	33.5%	149	5.9%	210	8.3%	2,518
11.01	Arcata downtown	1,937	68.4%	310	11.0%	123	4.3%	211	7.5%	176	6.2%	74	2.6%	2,831
12	Arcata/Fickle Hill	1,235	63.0%	134	6.8%	52	2.7%	228	11.6%	149	7.6%	163	8.3%	1,961
13	Somoa/Arcata	472	75.8%	35	5.6%	4	0.6%	22	3.5%	19	3.0%	71	11.4%	623
101.02	Willow Creek	676	70.3%	76	7.9%	8	0.8%	21	2.2%	7	0.7%	173	18.0%	961
102	Westhaven/Trinidad	633	65.0%	50	5.1%	25	2.6%	75	7.7%	2	0.2%	189	19.4%	974
103	Blue Lake	1,311	80.1%	116	7.1%	3	0.2%	68	4.2%	6	0.4%	132	8.1%	1,636
104	Clam Beach	1,312	78.8%	66	4.0%	60	3.6%	55	3.3%	16	1.0%	156	9.4%	1,665
105.01	W. McKinleyville	2,847	80.2%	501	14.1%	0	0.0%	0	0.0%	68	1.9%	134	3.8%	3,550
105.02	E. McKinleyville	1,985	90.3%	107	4.9%	0	0.0%	34	1.5%	0	0.0%	72	3.3%	2,198
106	Freshwater	641	87.0%	66	9.0%	0	0.0%	2	0.3%	2	0.3%	26	3.5%	737
107	Humboldt Hill	2,493	78.7%	294	9.3%	13	0.4%	93	2.9%	35	1.1%	241	7.6%	3,169
108	Loleta / Fortuna	1,006	72.2%	96	6.9%	19	1.4%	82	5.9%	11	0.8%	180	12.9%	1,394
109.01	Fortuna	1,097	61.1%	315	17.6%	31	1.7%	218	12.2%	68	3.8%	65	3.6%	1,794
109.02	Bridgeville	1,257	83.1%	132	8.7%	0	0.0%	13	0.9%	9	0.6%	101	6.7%	1,512
110	S. Fortuna	1,476	81.1%	246	13.5%	11	0.6%	24	1.3%	23	1.3%	41	2.3%	1,821
111	Rio Dell / Scotia	1,530	80.6%	181	9.5%	0	0.0%	83	4.4%	15	0.8%	90	4.7%	1,899
112	Petrolia	918	59.1%	130	8.4%	0	0.0%	191	12.3%	29	1.9%	284	18.3%	1,552
115	Redway / Shelter Cove	731	52.8%	181	13.1%	110	7.9%	159	11.5%	0	0.0%	203	14.7%	1,384
116	Garberville	877	61.9%	148	10.4%	54	3.8%	152	10.7%	0	0.0%	186	13.1%	1,417
9400	Hoopa	814	86.4%	68	7.2%	0	0.0%	12	1.3%	0	0.0%	48	5.1%	942
Humboldt County		40,868	72.3%	5,301	9.4%	956	1.7%	3,781	6.7%	1,569	2.8%	4,047	7.2%	56,522

Source: US Census ACS 2015 5-Year Estimates, Table DP03: Selected Economic Characteristics

As shown, the majority of employees commute to work by driving alone, resulting in 72.3 percent of all Humboldt County commuters driving to work alone. The areas with the largest percentage of employees who carpool to work are Fortuna, Eureka, west McKinleyville, south of Fortuna, and Redway / Shelter Cove. Relatively small proportions of Humboldt County commuters use public transit to get to work. As shown in Table 4, Redway / Shelter Cove, Eureka / Rosewood, Eureka / Henderson Center, and downtown Arcata have the largest proportion of workers who use public transit.

County-to-County Commute Patterns

Table 5 illustrates the number of commuters in and out of the larger communities in Humboldt County, drawn from the US Census 2010 Longitudinal Employer Household Dynamics. As shown, 2,753 workers, or 38.9 percent of Arcata working residents stay in Arcata to work, while 23.5 percent commute to Eureka.

The remainder is dispersed throughout the county and beyond. While 23.9 percent of employees working in Arcata also live there, 19.9 percent (1,971 workers) come from the Eureka area and 17.8 percent (1,767 workers) come from McKinleyville. Other significant commutes include 1,286 residents of Eureka who work in Arcata; 1,459 McKinleyville residents who work in Eureka; and 1,205 Arcata residents who work in Eureka.

Humboldt County Residents' Work Locations

Table 6 presents information on the major locations where Humboldt County residents work. As shown, just over half of residents work in one of the three larger cities of Arcata, Eureka and Fortuna. Areas surrounding Eureka, such as Myrtletown, Humboldt Hill and Cutten, also contain significant numbers of jobs. Nonetheless, about a third of the jobs are dispersed throughout the remainder of the County or beyond.

Top Employers

The top employers in Humboldt County are diverse and include agricultural, medical, educational and governmental entities, as shown in Table 7. The largest employers are the St. Joseph Hospital in Eureka, with over 1,000 employees, Humboldt State University (over 800 employees), College of the Redwoods (500 employees, of which half are part time) and Sun Valley Group (between 500 and 1,000 in greenhouses in Arcata). All of the top employers are in Eureka, Arcata, Trinidad, Blue Lake and Korb.

Colleges

Humboldt State University is a four-year state university in Arcata with an enrollment of 8,790 students in 2015 and 8,503 in 2016. The University is on a semester system, which increases the City's population by approximately 50 percent from late August to late May. Approximately

Table 5: Commuters Into and Out of Humboldt County Communities

Arcata residents going to work in....			Arcata workers commuting to work from....		
Arcata	2,372	38.9%	Arcata	2,372	23.9%
Eureka and Surrounds	1,442	23.7%	Eureka and Surrounds	1,971	19.8%
McKinleyville	240	3.9%	McKinleyville	1,767	17.8%
Sacramento	100	1.6%	Fortuna	235	2.4%
Redding	92	1.5%	Bayview	119	1.2%
Crescent City	60	1.0%	Blue Lake	112	1.1%
Fortuna	59	1.0%	All Other Locations	3,366	33.9%
Trinidad	50	0.8%			
All others	1,676	27.5%			
Total	6,091		Total	9,942	

Eureka residents going to work in....			Eureka workers commuting to work from....		
Eureka	4,432	45.7%	Eureka	4,432	26.1%
Arcata	1,286	13.2%	McKinleyville	1,459	8.6%
Eureka Area	869	9.0%	Arcata	1,205	7.1%
Fortuna	270	2.8%	Fortuna	1,000	5.9%
McKinleyville	209	2.2%	Eureka Area	2,312	13.6%
Sacramento	140	1.4%	Bayview	484	2.9%
Redding	104	1.1%	Hoopa	189	1.1%
Crescent City	84	0.9%	All Others	5,885	34.7%
All Others	2,314	23.8%			
Total	9,708		Total	16,966	

Fortuna residents going to work in....			Fortuna workers commuting to work from....		
Fortuna	950	27%	Eureka	1,000	24%
Eureka	270	8%	Fortuna	950	23%
Rio Dell	178	5%	Arcata	235	6%
McKinleyville	102	3%	Eureka Surrounds	171	4%
Yreka	89	3%	Ferndale	76	2%
Hydesville	81	2%	Hydesville	64	2%
Arcata	59	2%	Redding	61	1%
Loleta	57	2%	Sacramento	59	1%
Other	1,757	50%	Other	1,504	37%
Total	3,543		Total	4,120	

Note: It is assumed employees in longer-distance locations such as Redding, Sacramento and Yreka are telecommuting or commuting part time.

Source: US Census 2010, Longitudinal Employer-Household Dynamics

Table 6: Employment Location of Humboldt County Residents

Where Residents Are Employed...	#	%
Eureka	13,899	30.3%
Arcata	8,392	18.3%
Fortuna	2,575	5.6%
McKinleyville	1,860	4.1%
Myrtle town	1,569	3.4%
Humboldt Hill	944	2.1%
Sacramento	619	1.3%
Redding	545	1.2%
Garberville	526	1.1%
Cutten	520	1.1%
All Other Locations	14,450	31.5%
Total	45,899	100%
Source: US Census 2010, Longitudinal Employer-Household Dynamics		

2,100 students are housed on campus, and the remainder of students typically live locally in rented housing. HSU students are the primary riders of the Arcata and Mad River Transit System College of the Redwoods is a two-year community college located south of Eureka. Enrollment is approximately 7,600 students.

EXISTING PLANNING DOCUMENTS

In order to understand the context of planning and development as it relates to this current Transit Development Plan, active or recent planning documents developed for Humboldt County and its communities were reviewed. Many of these documents are currently being updated, but the pertinent, transit-related elements are highlighted below.

Humboldt County Regional Transportation Plan—2014 Update

The Regional Transportation Plan (RTP) provides a long-term vision for all transportation modes in Humboldt County. A series of goals and objectives are listed, and the RTP provides the following short-term projects for public transit (not including vehicle replacements):

- RTS increased frequency & late night service (2018)
- Expand service hours on K-T NeT (2013-14)
- K-T NeT: Intelligent Transportation System application/equipment (2013-14)

Table 7: Top Humboldt County Employers

Employer	Location	Industry	# Employees
St Joseph Hospital	Eureka	Hospitals	1000-4999
Humboldt State University	Arcata	Higher Education	500-999
Sun Valley Group	Arcata	Greenhouses	500-999
College of the Redwoods	Eureka	Higher Education	500-999
Bettendorf Trucking	Arcata	Trucking	250-499
Blue Lake Casino & Hotel	Blue Lake	Casinos	250-499
Eureka City Clerk	Eureka	Government Offices-City, Village & Twp	250-499
Green Diamond Resource Co	Trinidad	Foresters-Consulting	250-499
Green Diamond Resource Co	Korbel	Foresters-Consulting	250-499
Humboldt Cnty Office-Education	Eureka	Schools	250-499
Humboldt County Social Svc	Eureka	Government Offices-County	250-499
Mad River Community Hospital	Arcata	Hospitals	250-499
Sierra Pacific Industries	Arcata	Lumber-Manufacturers	250-499
Trinidad Rancheria	Trinidad	Associations	250-499
Umpqua Bank	Eureka	Banks	250-499
CHER-AE Heights Casino	Trinidad	Casinos	100-249
Costco	Eureka	Wholesale Clubs	100-249
County-Humboldt-Health & Human	Eureka	Government Offices-County	100-249
Eureka High School	Eureka	Schools	100-249
Humboldt County Dept-Health	Eureka	Clinics	100-249
Humboldt County Mental Health	Eureka	Hospitals	100-249
Humboldt County Sheriff Dept	Eureka	Government Offices-County	100-249
Pacific Choice Seafood Inc	Eureka	Prepared Fish & Seafood Products (mfrs)	100-249
Target	Eureka	Department Stores	100-249
United Indian Health Svc	Arcata	Clinics	100-249
Walmart	Eureka	Department Stores	100-249
Winco Foods	Eureka	Grocers-Retail	100-249

Source: California Department of Labor

Additionally, the RTP long-term vision includes:

- Arcata: Pursue unmet transit needs requests for service to the Arcata Marsh and service on Sundays (2023-33)
- HTA: Feeder bus lines to McKinleyville and Fortuna to connect to the RTS commuter line (2023-33)
- HTA: Park-and-Ride lots with multi-modal facilities (e.g. bike lockers, bus shelter), located near transit stops (2023-33)
- Eureka Intermodal Transit Center
- City Ambulance of Eureka: Expand Dial-A-Ride service hours and to Sundays (2023-33)
- HCAR (no longer contracted): Expand service area for non-emergency medical trips (2023-33)

Humboldt Transit Development Plan (2012-2017)

A TDP was developed for HCAOG by PMC and adopted in July 2012. Highlighted below are the recommendations for continued monitoring (not including issues that have already been addressed). These include:

- **RTS:** On time performance and schedule adherence and additional capacity within core service area between Arcata and the College of the Redwoods.
- **ETS:** Schedule adherence to make connections with RTS and the need to increase recovery time between trips. (The pending “Line System Study” will address these issues.)
- **K/T NeT:** Ensuring on-going contributions from the Native American Tribes that receive service from K/T NeT. The fund contributions help satisfy the farebox requirements and support lifeline service for residents on the tribal reservations who have no other means of transportation. Also, transfer opportunities to other transit systems remain an important and attractive feature of K/T NeT.

Additional recommendations which are being implemented or further considered include:

- Formalize bus stops at HSU Library Circle. (Redwood Transit System, Arcata & Mad River Transit System). This is in the planning stages by HSU.
- Passenger loads continue to be monitored on peak hour RTS service within the core service corridor between Arcata and the College of the Redwoods. (Redwood Transit System).
- Establish a quarterly system-wide monitoring and evaluation program on a trip-by-trip basis. (All transit systems). This is currently being implemented with the new GFI electronic fareboxes

Humboldt County General Plan

The 2025 Humboldt County General Plan has been in progress for several years. There are numerous public transit policies listed in the General Plan which were considered during the development of this TDP. In particular, transportation systems in Humboldt County and those which link the County with other areas of the State, as well as those which integrate rural and urban areas, are to be coordinated. Additionally, multiple modes of transportation are to be integrated with public transit by developing adequate parking facilities at major bus stops and, where feasible, transporting bicycles on the buses along the intercity bus routes. While some of the general plan strategies are long-term, this TDP will align with the philosophies and strategies as appropriate.

STAKEHOLDER INTERVIEWS

Stakeholder interviews were conducted to gain perspective from elected officials, social service providers, nonprofit agencies, and others who have an interest or represent those with an interest in transportation in the study area. A list of potential stakeholders was developed at the study kick-off meeting, and 19 individuals were contacted (up to three times) to participate. Ultimately, 10 individuals participated in the interviews (listed in Appendix A).

Role of Transit

When asked what the role of public transit should be in Humboldt County (or its communities) and who should be served by transit, some stakeholders stated flatly that it should be for “everyone” while others emphasized the need to serve the transit dependent population. Still others noted the prominent markets, which include the transit dependent, students, and commuters.

Strengths and Weaknesses of Existing Services

When asked whether existing providers were doing a good job, and what their strengths and weaknesses were, stakeholders overwhelmingly responded that the providers are doing a good job with the available resources. Some of the specific comments (paraphrased) included:

- *Bus stops need improving. Often it's just a pole in the ground that is hard to see. They're not safe, not accessible, and not protective against the elements.*
- *Transit may be trying to reach too many—possibly could enhance the service if they concentrated on populated areas.*
- *Long standing complaints that DAR is not reliable (although it was noted there have been a lot of changes and that this perception may no longer be valid).*
- *Drivers are courteous, patient, and well trained.*
- *RTS is meeting the needs in the county; the cities are not meeting needs very well (Eureka and Arcata). They're missing large populations.*
- *Rural areas shouldn't be restricted so much by the farebox ratio. We have a very poor community with very dispersed needs.*
- *Could be better streamlined. We need to better identify routes that will be productive and that are truly needed. Identifying and prioritizing needs is a current weakness.*
- *It is excellent! I don't know what could be improved.*

Changes in Humboldt County

Stakeholders were asked what changes they perceive as potentially affecting transit or being affected by transit in the next five to ten years. Many noted that Humboldt County changes

very slowly, reflecting the slow population growth of the area. However, some changes that were identified included:

- *Aging in place is a big factor. Elderly population will continue to grow.*
- *Senior and disabled population are growing.*
- *Tourist industry is hard to predict—may or may not be a factor.*
- *Medical services are becoming scarcer. People have to leave the County to get services.*
- *Uncertain what will happen with the Affordable Care Act—but it could potentially have a big impact on transit.*
- *If we can't get more users, we will lose services.*
- *College enrollment is fairly stable.*
- *The biggest change and a major concern is that funding may decrease. Both TDA and grant funding.*
- *Low income individuals may become more dependent on transit as costs of vehicle ownership go up.*
- *The homeless population continues to increase.*
- *Several new developments in Fortuna:*
 - *A community center is being built. It will be a multi-generational center*
 - *Open door clinic being built next to the hospital (similar to that in Arcata). It will be a large facility serving valley-wide (Eel River Valley). Completion is slated for around July 2018.*

Underserved Communities and Populations

When asked whether elements of the community are well served by public transit, or how ridership could be enhanced or improved among these elements, answers included ...

- *While Highway 101 corridor service is good, anything off the corridor is not well served.*
- *Rather than expand service, we should make what we have more robust.*
- *People may not be accessing because it's not easy to use. It needs to be easier to understand. Better information is needed.*
- *Within Eureka—Cutten, Ridgewood, and to a lesser extent Pinehill are underserved.*
- *Frequency is the biggest obstacle to use.*
- *The bus deviates from the route if the road allows and serves flag stops, but it still is a long walk for some people.*
- *There are lots of areas that need service; everyone who needs service and doesn't get it. However, people have chosen to live in rural areas and cannot expect the services of a metropolitan area.*
- *We've identified a need on Old Arcata Road, but we can't afford it yet.*

- *Better awareness/marketing.*

Coordination with Other Regional Service

Stakeholders were asked if they thought that the variety of transit services reduces the overall transit use. Most of the stakeholders believe that the transit providers work fairly cooperatively, but the public's perception and understanding of the systems and how they work could be improved to create a more seamless service. It was noted there could be better coordination between the Yurok Tribe service and K-T Net.

SSTAC Unmet Needs Process

An important component of this study is the concurrent SSTAC Strategic Plan. Therefore, stakeholders were asked their opinion of the unmet needs identification process and specifically how they would identify unmet needs. Most of the stakeholders expressed some level of frustration at how the process has been conducted, and more particularly, at trying to understand what constitutes an unmet need, and what the metrics of measuring the need should be. Furthermore, stakeholders would like to see a process whereby services which are implemented to meet identified needs can be quickly assessed for failure or success.

Other Comments

In addition to the above, stakeholders included miscellaneous comments pertaining to the upcoming TDP. These included:

- *Fortuna could perhaps benefit from a feeder system that meets RTS.*
- *HTA has a newly established Public Relations Group—could be helpful in the TDP process.*
- *I would push the Consultants to think outside of the box. We need more flexible options not tied to a big fat bus—look at other options, different sized-vehicles.*
- *Making the Eureka routes better (instead of poorly designed loop system) seems like an important need. We keep asking people “what do you need” and not fixing what we have. It’s frustrating.*
- *It would be great if non-profits could be provided with free bus passes for clients.*
- *Fortuna/HTA work well together. Though it’s outside of the Fortuna contract, they clean the HTA stops and have done upgrades, such as adding solar light. It’s a good partnership.*

Additional Public Outreach

In addition to stakeholder interviews, public outreach was also conducted via onboard passenger surveys and online community surveys. Summaries of these efforts are provided in Chapter 5 and in Appendices B and C.

Humboldt County is served by several transit organizations and transit providers. The focus of this Transit Development Plan (TDP) is on services provided under the umbrella organization of the Humboldt Transit Authority. This chapter presents an overview of transit services, as well as a description of additional transportation services available in the region.

HUMBOLDT TRANSIT AUTHORITY

Organization

The Humboldt Transit Authority (HTA) was established in 1975 under a joint-powers agreement between the cities of Arcata, Eureka, Fortuna, Rio Dell and Trinidad and the County of Humboldt. HTA is headquartered in the county seat of Eureka. HTA is governed by a seven member Board of Directors, comprised of one representative each from the five incorporated cities and two representatives from the County of Humboldt. The Authority is administered by the General Manager and is supported by staff including the Operations Manager, Director of Maintenance, Finance Manager, Human Resources Manager, Administrative Assistant, and ADA Specialist/Title VI Coordinator/Receptionist.

Services Provided & Service Area

HTA is the primary intercity public transit system in the county, providing a fixed-route trunk service along the U.S. 101 Corridor as well as an extension to Willow Creek along Highway 299. HTA also provides both intercity and local transit service in the southern portions of the county. In addition, HTA operates intra-city fixed-route service in the City of Eureka under the Eureka Transit Service (ETS), and provides maintenance service to the Arcata & Mad River Transit System (A&MRTS), both under separate contracts. Demand response services provided in Arcata, Eureka and McKinleyville are administered by and coordinated through HTA.

In 2016 the HCAOG Board designated HTA as the Consolidated Transportation Service Agency (CTSA) for Humboldt County. As the CTSA, HTA coordinates public transportation services in the region and oversees that transit operations comply with applicable federal regulations. The overall goals of the CTSA are to: increase transportation options for seniors, the disabled, and persons of low income; reduce the costs for public transportation; and identify and implement efficiencies in community transportation operations.

Redwood Transit System

The HTA's mainline service, the Redwood Transit System (RTS), operates a full schedule between the cities of Scotia and Trinidad from Monday through Friday, and a limited schedule on weekends. On weekdays, headways range from two hours to 30 minutes in the heaviest

traveled route sectors (between Humboldt State University and College of the Redwoods). Major destinations served include Scotia, Rio Dell, Fortuna, Fernbridge, Loleta, College of the Redwoods, Fields Landing, King Salmon, Eureka, Arcata, Manila, Arcata Airport, Humboldt State University, McKinleyville, California Redwood Coast–Humboldt County Airport, Westhaven, and Trinidad. The Mainline Route is shown in Figure 3.

Southern Humboldt Local

The Southern Humboldt Local Transit System serves areas between Benbow and Miranda providing deviated fixed route service open to the general public. Service is provided Monday through Friday between 6:53 a.m. and 7:52 p.m. This service is depicted in Figures 3 and 4.

Southern Humboldt Intercity

The Southern Humboldt Intercity service provides limited service during peak travel times in the morning and afternoon, connecting Garberville and Eureka with stops including BriceLand/Redway Drive, Benbow, Redcrest, Phillipsville, Miranda, Myers Flat, Weott, Fortuna, and College of the Redwoods. Service is operated Monday through Friday between 6:53 a.m. and 9:00 p.m. The Southern Humboldt Intercity route is shown in Figure 3.

Willow Creek Intercity Transit

The Willow Creek Intercity Transit operates Monday through Saturday and connects from the transit center in Arcata to the community of Willow Creek, including stops at Valley West Boulevard (Arcata) and McKinleyville High School (unincorporated County). Service operates Monday through Friday between 6:25 a.m. to 7:35 p.m. Saturday service is between 8:25 a.m. and 7:45 p.m. The route is shown in Figure 3, with details of the route shown in Figure 5.

Tish Non-Village Deviated Fixed-Route Service

The Tish Non-Village Service (TNVS) serves the areas of College of the Redwoods, Scenic and Loleta Drive, Tish Non-Village, Fernbridge, Palmer Boulevard, and Fortuna (11th & N Street). Service is provided Monday through Friday between 7:19 a.m. and 6:57 p.m.

Fare Structure

HTA's fares are structured according to service type, passenger categories, and fare media, as shown in Table 8. Transit pass products are available that are also accepted on the major fixed routes of the local transit operators (those with electronic fareboxes). Pass products include monthly magnetic swipe passes and stored-value cards (in \$10 and \$20 denominations) good for use on RTS, Willow Creek, Tish Non-Village, and Southern Humboldt, as well as ETS, and A&MRTS buses. Transit passes allow passengers to ride the regional transit systems for a discounted rate. Passes can be purchased from the driver, the HTA office, the Intermodal Transit Facility in Arcata, as well as online.

Free transfers are provided between RTS buses to complete a single trip. Humboldt State University's Jack Pass program allows students to ride the RTS fare-free by swiping their current student identification card. HSU staff, faculty, and Extended Education participants can buy into the Jack Pass program for \$60 per semester or \$45 during the summer session.

Table 8: Humboldt County Transit Fares

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Arcata & Mad River Transit System (A&MRTS)				
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Day Pass</u>	<u>Monthly Pass</u>
Adult (18-62)	\$1.50	\$1.25	\$2.50	\$30
Youth (3-17)	\$1.25	\$0.85	\$1.50	\$25
Senior (62+)	\$1.25	\$0.85	\$1.50	\$25
Disabled (with valid ID card)	\$1.25	\$0.85	\$1.50	\$25
Blue Lake Rancheria Transit System (BLRTS)				
<u>Fare Type</u>	<u>Cash</u>	<u>10-ride pass</u>	<u>20-ride pass</u>	
Adult (18-62)	\$1.65	\$15	\$25	
Senior (62+)	\$1.25	\$11	\$20	
Disabled (with valid ID card)	\$1.25	\$11	\$20	
Student	\$1.50	\$13.50	\$22.50	
Eureka Transit Service (ETS)				
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Day Pass</u>	<u>Monthly Pass</u>
Adult (18-62)	\$1.70	\$1.40	\$3.95	\$48.00
Youth (3-17)	\$1.30	\$0.95	\$3.00	\$41.00
Senior (62+)	\$1.30	\$0.95	\$3.00	\$41.00
Disabled (with valid ID card)	\$1.30	\$0.95	\$3.00	\$41.00
Fortuna Senior Bus Transit				
<u>Fare Type</u>	<u>Cash</u>	<u>15-ride pass</u>		
Senior (50+)	\$2.00	\$20		
Disabled	\$2.00	\$20		
Klamath-Trinity Non-Emergency Transportation (K/T NeT)				
<u>Fare Type</u>	<u>Cash</u>	<u>Round-Trip</u>	<u>10-ride pass</u>	
General Public	\$2.00	\$3.00	\$13.00	
Senior (62+)	\$1.75	\$2.75	\$12.00	
Disabled	\$1.75	\$2.75	\$12.00	
Willow Creek to Weitchpec	\$4.00			
Willow Creek to Orleans	\$5.00			
Redwood Transit System (RTS) Mainline				
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Monthly Pass</u>	
Adult (18-62)	\$3.00	\$1.90	\$59	
Youth (3-17)	\$2.75	\$1.65	\$54	
Senior (62+)	\$2.75	\$1.65	\$54	
Disabled (with valid ID card)	\$2.75	\$1.65	\$54	
Day Pass	--	\$4.90	\$29.50	

Source: HCAOG

Table 8: Humboldt County Transit Fares

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Southern Humboldt Transit System – Intercity (SHI)			
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Monthly Pass</u>
Adult (18-62)	\$5.50	\$3.85	\$108
Youth (3-17)	\$5.00	\$3.30	\$97
Senior (62+)	\$5.00	\$3.30	\$97
Disabled (with valid ID card)	\$5.00	\$3.30	\$97
Southern Humboldt Transit System – Local (SHL)			
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	
Adult (18-62)	\$1.65	\$1.10	
Youth (3-17)	\$1.40	\$0.95	
Senior (62+)	\$1.40	\$0.95	
Disabled (with valid ID card)	\$1.40	\$0.95	
Deviated Route Trip	\$1.75		
Tish Non-Village Service (TNVS)			
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Monthly Pass</u>
Adult (Age 18-62)	\$3.00	\$1.90	\$59.00
Day Pass		\$4.90	\$29.50
Willow Creek Intercity Transit (WC)			
<u>Fare Type</u>	<u>Cash</u>	<u>Transit Pass</u>	<u>Monthly Pass</u>
Adult (18-62)	\$4.35	\$3.00	\$82.00
Youth (3-17)	\$3.85	\$2.50	\$77.00
Senior (62+)	\$3.85	\$2.50	\$77.00
Disabled (with valid ID card)	\$3.85	\$2.50	\$77.00

Source: HCAOG

College of the Redwoods (CR), in association with HTA, offers monthly bus passes at half price for currently enrolled CR students. The passes are sold at the CR Bookstore at the Eureka campus (main campus).

Facilities & Maintenance

Maintenance is conducted on-site at the HTA administrative facility located at 2nd and V Streets in Eureka. The maintenance facility includes three bus bays plus an extra lane if needed. There is a storage bay and a parts room that stocks vehicle spare parts, which are tracked by barcodes. The Maintenance Department is staffed by the Shop Supervisor, two mechanics, three technicians, and a cleaner. Maintenance hours are 4:30 a.m. to 7:30 p.m., with fueling through midnight. During fueling, the GFI boxes are probed for electronic mileage reading and other downloaded data. Although maintenance around the clock is possible from a financial standpoint, there is no proper supervision available to handle night work issues. In the local job market, there is a shortage of qualified mechanics trained to work with large vehicles.

Figure 3: Regional Routes Serving Humboldt County



Figure 4: Southern Humboldt Route / Redway and Garberville Detail



Figure 5: Willow Creek Route / Willow Creek and Blue Lake Detail



Fleet Inventory

In total, there are 26 revenue vehicles for RTS, Southern Humboldt, Tish Non-Village, and Willow Creek services, as shown in Table 9. Sixteen of the vehicles are for the RTS mainline. HTA vehicles are equipped with wheelchair lifts and tie downs, which conform to the requirements of the Americans with Disabilities Act (ADA) of 1990 requirements in regards to accessibility. Bicycle racks are available on most large buses.

EUREKA TRANSIT SERVICE

Organization

The Eureka Transit Service (ETS) has been operating since January 1976. ETS was originally contracted to a private bus operator, and later to HTA in the mid-1980s.

Table 9: Humboldt County Transit Fleet Inventories

Year	Make/Model	Quantity	Fuel type	Seating	Service	Ownership
Humboldt Transit Authority Vehicles						
2007	Gillig, Low Floor Bus	3	Hybrid	38A/2WC	RTS	HTA
2011	Gillig, Low Floor Bus	2	Diesel	38A/2WC	RTS	HTA
2012	Gillig, Low Floor Bus	2	Diesel	38A/2WC	RTS	HTA
2014	Gillig, Low Floor Bus	5	Diesel	38A/2WC	RTS	HTA
2015	Gillig, Low Floor Bus	4	Diesel	38A/2WC	RTS	HTA
2009	Chevy, Aerolite	1	Gasoline	29A/2WC	SHI	HTA
2015	Freightliner	3	Diesel	29A/2WC	SHI	HTA
2016	Freightliner	1	Diesel	29A/2WC	SHI	HTA
2012	Ford, Class C	1	Gasoline	19A/2WC	SHL	HTA
2015	Ford	1	Gasoline	19A/2WC	SHL	HTA
2009	Chevy, Duramax	2	Diesel	29A/2WC	TNVS	HTA
2013	International	1	Diesel	29A/2WC	WC	HTA
<i>Total</i>		26				
Eureka Transit Vehicles						
2007	Gillig, Low Floor Bus	2	Diesel	32A/2WC	Eureka FR	Eureka Transit
2009	Gillig, Low Floor Bus	3	Diesel	32A/2WC	Eureka FR	Eureka Transit
2014	Gillig, Low Floor Bus	2	Diesel	32A/2WC	Eureka FR	Eureka Transit
					DAR/L	City of Eureka
					DAR/L	City of Eureka
					DAR/L	City of Eureka
<i>Total</i>		7				
Arcata Mad River Transit System Vehicles						
2009	Gillig 35' Low Floor	2	Diesel	31	Arcata FR	A&MRTS
2014	Gillig 35' Low Floor	2	Diesel	31	Arcata FR	A&MRTS
2010	Ford Cutaway	2	Diesel	20	Arcata FR	A&MRTS
<i>Total</i>		6				
Fortuna Senior Bus						
2011	Ford Aerotech Cutaway	1	Gasoline	8A/2WC	Fortuna Bus	City of Fortuna
2015	Ford Eldorado	1	Gasoline	12A/2WC	Fortuna Bus	City of Fortuna
2006	Ford Aerotech Cutaway	1	Gasoline	12A/2WC	Fortuna Bus	City of Fortuna
Blue Lake Rancheria Transit Service						
2005	Chevrolet Kodiak Cutaway	1	Gasoline	27	Blue Lake	Rancheria
2015	Ford 350 Van	1	Gasoline	9	loaner/shared	Rancheria
K-T NeT						
2011	Ford Cutaway	1	Gasoline	12A/2WC	Willow Creek Area	K-T NeT

Note: DAR/L = Dial-a-Ride / Lift

Source: HTA 2016 Fleet Inventory (HCAOG)

As a mayor-council form of government, the five-member City Council serves as the main legislative body. The City Manager oversees the operations of City departments and services. The Finance Department currently provides oversight and management of the transit system. ETS' fixed-route system is operated under contract by HTA, while demand response service (dial-a-ride/dial-a-lift) is operated under a separate contract by City Ambulance of Eureka (CAE).

A third contract is an agreement between the city and HTA for HTA to conduct day-to-day administration and reporting of the DAR/DAL program.

Services Provided & Service Area

ETS operates four routes Monday through Friday and three routes on Saturdays. Routes are designated by color and cover specific areas of Eureka. Most routes originate and/or terminate at the corner of H and 3rd Streets in downtown Eureka with the exception of the Green Route. Routes run every hour on the hour. Maps of the weekday and Saturday routes are presented in Figure 6.

Gold Route

Areas of the city served include downtown Eureka, Pine Hill, Bayshore Mall and the Henderson Center. The route operates Monday through Friday from 6:15 a.m. to 7:00 p.m. and Saturdays from 10:00 a.m. to 5:00 p.m.

Green Route

Areas of the city served include downtown Eureka, Myrtletown, Silvercrest, St. Joseph and General Hospitals as well as the Bayshore Mall. The route operates Monday through Friday from 6:37 a.m. to 6:44 p.m.

Purple Route

Areas served include downtown Eureka, the County Library, Silvercrest, General Hospital, Henderson Center and the Burre Center. The route operates Monday through Friday from 6:39 a.m. to 7:00 p.m. and Saturdays from 10:00 a.m. to 5:00 p.m.

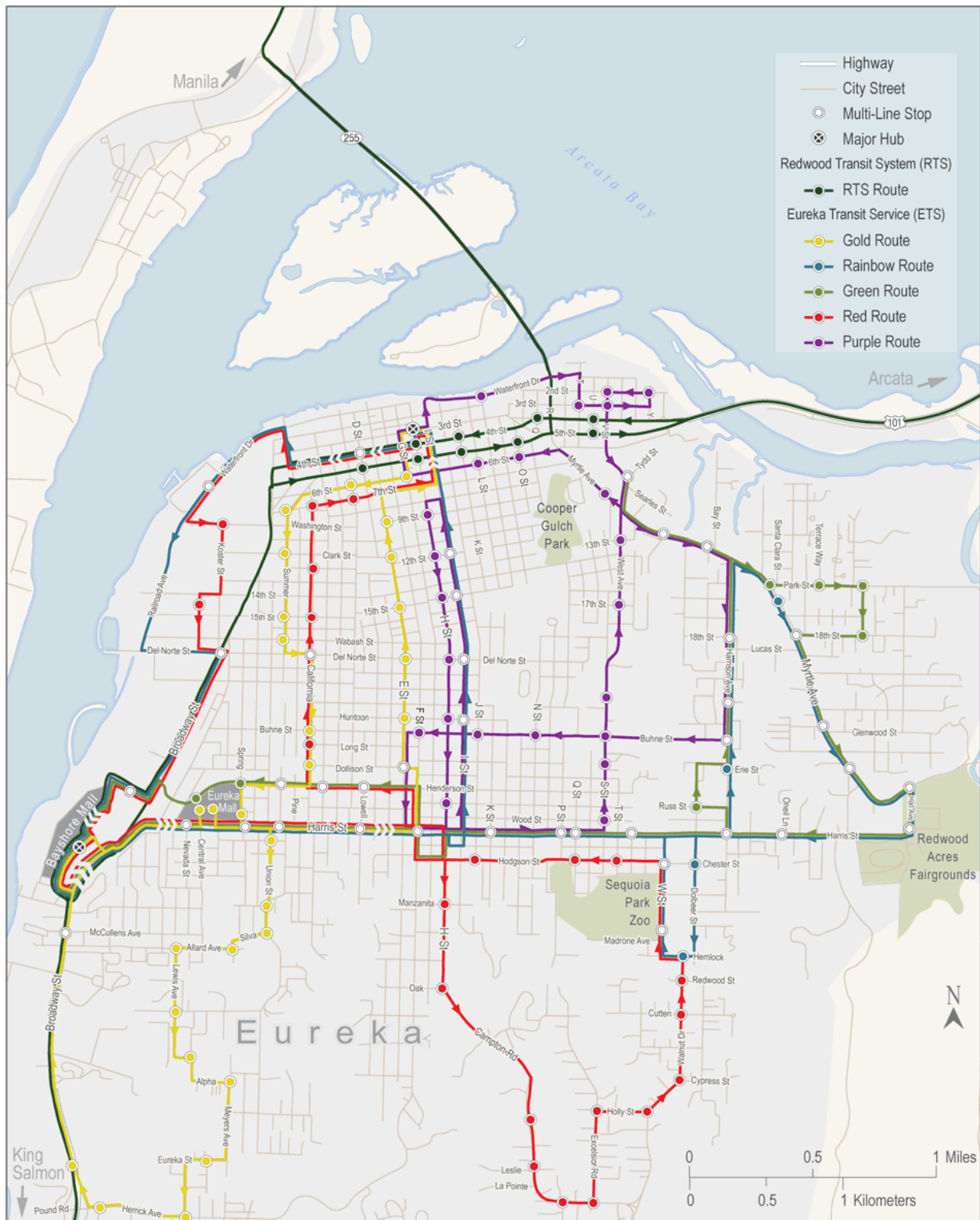
Rainbow Route

This route serves a broad area of the city such as downtown, Broadway, Bayshore Mall, Henderson Center, Sequoia Park, St. Joseph and General Hospital and Myrtletown. The route operates Saturdays from 10:00 a.m. and 5:00 p.m.

Red Route

The Red Route serves downtown Eureka, Broadway, Bayshore Mall, Henderson Center, Cutten and Sequoia Park. This route operates Monday through Friday from 6:28 a.m. to 7:00 p.m.

Figure 6: Eureka Transit System



Fare Structure

ETS' fares are structured according to fare type and media, as shown in Table 8. Free transfers are provided between ETS buses to complete a single trip. Humboldt State University (HSU) students ride the ETS fare-free as part of the Jack Pass program (described above under the Humboldt Transit Authority/Fare Structure).

Facilities & Maintenance

As part of the agreement with HTA, ETS's fleet is maintained at HTA's administrative facility in Eureka utilizing the same maintenance staff. Vehicle spare parts are tracked via barcodes and fleet maintenance software (provided by Ron Turley and Associates) that separates the maintenance labor and costs by bus and department for each transit system.

Fleet Inventory

There are seven active vehicles in the ETS fleet, as shown in Table 9. All ETS vehicles are equipped with wheelchair lifts and tie downs, which conforms to the requirements of the Americans with Disabilities Act (ADA) of 1990 requirements in regards to accessibility. The City also provides three cutaway vehicles through a lease agreement to the contractor (CAE) for the DAR/L service, which are maintained by CAE.

ARCATA & MAD RIVER TRANSIT SYSTEM

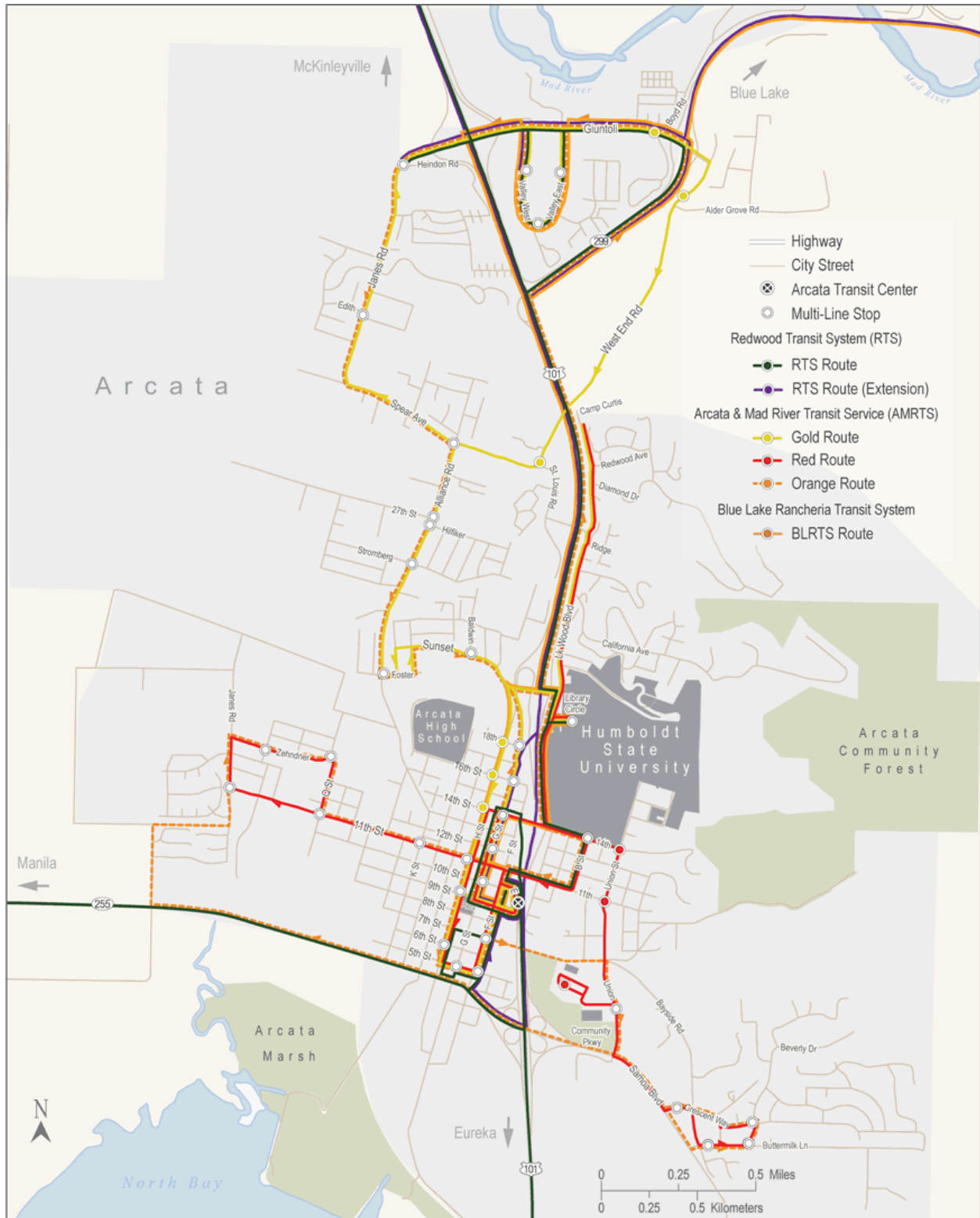
Organization

The A&MRTS was established by the City of Arcata in 1975 as a means of providing alternative transportation to serve HSU students, seniors, the disabled and other residents lacking access to an automobile. As a mayor-council form of government, the five-member City Council serves as the main legislative body. The City Manager oversees the operations of City departments and services. A&MRTS is administered by the Public Transportation Superintendent within the Engineering Department.

Services Provided & Service Area

The transit system operates on a fixed-route basis. The system is comprised of three color-coded routes that originate from and terminate at the Intermodal Transit Facility on hourly headways. Two routes operate on weekdays, and one on Saturdays. The weekday routes are depicted in Figure 7.

Figure 7: Arcata & Mad River Transit System



Fare Structure

A&MRTS' fares are structured according to fare type and media. A&MRTS bus services are part of the HSU Jack Pass program (described above under the Humboldt Transit Authority/Fare Structure). See Table 8 for 2016 transit fares.

Facilities & Maintenance

The Arcata Intermodal Transit Facility, colloquially called the Arcata Transit Center, is located at 925 E Street in downtown Arcata. It serves as a major regional hub for local, regional and intercity travel along the north coast. In addition to local buses, regional intercity buses that make stops at the transit center are Redwood Coast Transit (Del Norte County service between Smith River, Crescent City, and Arcata), Amtrak Thruway, and Greyhound Lines.

Maintenance of the A&MRTS fleet is contracted to Humboldt Transit Authority and is conducted at its maintenance facility located at 2nd and V Streets in Eureka.

Fleet Inventory

There are six vehicles in the A&MRTS fleet, as shown in Table 9. All A&MRTS vehicles are equipped with wheelchair lifts and tie downs, which conform to the requirements of the Americans with Disabilities Act (ADA) of 1990 requirements in regards to accessibility.

FORTUNA TRANSIT

Organization

As a Council-Manager form of government, the five-member City Council serves as the main legislative body for Fortuna Transit (formerly Fortuna Senior Bus). Each member serves a four-year term and elections are held every two years. The mayor and mayor pro tem are selected by the Council, who hold those offices for a two-year term. The city manager oversees the operations of City departments and services. Fortuna Senior Transit is administered and operated by the City's Parks and Recreation Department, with the Department's director serving as the transit manager.

Services Provided and Service Area

The City of Fortuna provides demand responsive transportation within its City limits for seniors aged 50 and older or disabled persons who are unable to drive. Persons under the age of 50 are eligible to utilize the service with a physician's note.

Riders can make arrangements for up to three destinations per day. Riders can call the dispatcher on the same day or one day to a week in advance to reserve a ride. For doctor

appointments, reservations may be called in up to a month in advance of the scheduled appointment.

Fortuna Transit is operated using two zones as general guidance, encompassing a north zone and a south zone. Both zones have about equal ridership bases and are developed to maximize service efficiency and effectiveness. Service is available Monday through Friday between 8:30 a.m. and 4:00 p.m. and Saturdays from 9:00 a.m. to 3:30 p.m.

Fare Structure

One-way cash fares are \$2.00. A 15-ride pass can be purchased for \$20.00 (equivalent to a 33 percent discount).

Facilities & Maintenance

Transit vehicle maintenance is conducted at the City's corporation yard located at 190 Dinsmore Drive. Vehicles undergo maintenance inspections every 90 days.

Fleet Inventory

Fortuna utilizes two Ford Aerotech cutaway buses and one Ford Eldorado in its transit bus program. The buses were purchased in 2011 and 2015. The 2006 and 2015 vehicles are 12-passenger vehicles and can accommodate two wheelchairs. The 2011 vehicle is a smaller 8 passenger bus and can accommodate two wheelchairs. All vehicles conform to the requirements of the Americans with Disabilities Act (ADA) of 1990 in regards to accessibility. The 2011 vehicle supports efforts for potential savings on capital cost, fuel and maintenance expenses.

BLUE LAKE RANCHERIA TRANSIT SYSTEM

Organization

The Blue Lake Rancheria Transit System (BLRTS) is operated by the Blue Lake Rancheria, a federally recognized tribe in northern Humboldt County. The Rancheria is located near the City of Blue Lake along State Highway 299. The service is offered in partnership with the City of Blue Lake, which provides partial funding through the Transportation Development Act.

Services Provided & Service Area

The Blue Lake Rancheria funds and operates a transit system to serve riders who are able to connect with Arcata Transit, Humboldt Transit and intercity services at the Intermodal Transit Facility in Arcata. BLRTS provides affordable transportation for students attending Humboldt State University and Arcata High School for regular class hours and after-school activities. BLRTS also partners with Horizon Resources and provides transportation services so these clients are

able to reliably ride the buses from city to city as needed. BLRTS operates Monday through Friday between 7:00 a.m. and 7:40 p.m. Figure 6, above, shows the BLRTS route within Blue Lake, and Figure 7, also above, shows the BLRTS route in the Arcata area.

Fare Structure

One-way passenger fares vary from \$1.65 for adults, \$1.50 for students, and \$1.25 for seniors (aged 62 and older) or individuals with a disability. Ten-ride passes are available for \$11.00 to \$15.00, or 20-ride passes for \$20.00 to \$25.00, as shown in Table 8.

Facilities

The service is administered by the Tribe's Transportation Department located on tribal land. In addition to managing the transit system, the department coordinates with the Tribe's Meals Programs to deliver meals to homebound seniors in Blue Lake and Fieldbrook.

Fleet Inventory

The Rancheria utilizes one 2005 Chevrolet Kodiak cutaway bus that can accommodate 27 passengers. While there is no formal spare vehicle, the transit program can use a Tribal loaner vehicle, which is a 9-passenger Ford 350 van (not a dedicated transit vehicle).

KLAMATH-TRINITY NON-EMERGENCY TRANSPORTATION (K/T NET)

Organization

K/T NeT is a 501(c)3 non-profit organization. It is managed by an Executive Director who is under the supervision of a six-member Board of Directors. The Executive Director supervises a part-time office secretary.

Services Provided & Service Area

K/T NeT provides fixed-route bus service and cannot provide door-to-door service. The transit system enables connections to two other bus services in the community of Willow Creek. One is a connection to the RTS Willow Creek Extension bus route between Willow Creek and Arcata. The second is a connection to Trinity Transit that serves communities in Trinity County including Weaverville. Flag stops are not permitted due to the narrow two-lane roads which do not allow for safe pullovers. The service is shown above in Figures 3 and 5.

K/T NeT service area encompasses Willow Creek and areas north along Highways 96 and 196 including Hoopa Valley, Weitchpec, and Orleans.

The service operates on Monday through Friday between Willow Creek, Hoopa Valley and Weitchpec. In addition, on Tuesdays and Wednesdays the route expands to serve Orleans.

Limited service is provided on Saturday between Hoopa and Willow Creek. Service is scheduled to meet the Willow Creek and Trinity Transit buses each weekday.

K/T NeT operates Monday through Friday between 9:00 a.m. and 7:05 p.m., and Saturdays from 9:00 a.m. to 11:40 a.m., and 6:15 p.m. to 6:45 p.m.

Fare Structure

Fares are distanced-based with rates between \$1.00 (local stops) and \$5.00 per trip (Willow Creek to Orleans). Multi-ride transit passes are available. K/T NeT buses and drivers are also available for hire on weekends and special events. See Table 8 for transit fares.

Facilities

Administrative offices are located in Willow Creek at 38883 Highway 299 in the Open Door Health Clinic building. The bus stop is at the corner of Highways 299 and 96. Due to lack of storage facilities, drivers park the vehicles at their homes (although they live relatively close to the office). Vehicle maintenance is conducted by a vehicle shop in Eureka.

Fleet Inventory

K/T NeT has one vehicle in its fleet. They own a 2011 Ford Cutaway, which is gasoline-fueled and seats 12 passengers and two wheelchairs. The vehicle is equipped with a wheelchair lift, which conforms to the requirements of the Americans with Disabilities Act (ADA) of 1990 in regards to accessibility.

OTHER HUMBOLDT COUNTY AND REGIONAL TRANSPORTATION SERVICES

In addition to the providers which are being evaluated as part of this TDP, additional transportation services contribute to the overall transportation network of the county, and these are described below.

Amtrak

There is an Amtrak Thruway bus service from McKinleyville to Martinez which provides connections from Humboldt County to southern locations. The bus has stops in McKinleyville, Arcata, Eureka, Fortuna, Rio Dell and Garberville. However, tickets must be purchased in connection with a train ticket. Southbound departures are daily from Arcata at 6:15 AM and 9:55 AM, and northbound arrivals into Arcata are at 4:55 PM and 10:05 PM. Examples of regular, adult, one-way fares are \$47 to Sacramento or \$68 to Fresno.

Greyhound

Arcata is the northern terminus for the Highway 101 Greyhound line. Greyhound stops at the

Arcata Transit Center (tickets are available for purchase at this location), and there are stops in Eureka and Santa Rosa. Morning southbound departures from Arcata are at 9:30 AM, and evening departures are at 10:35 PM. The route takes just over five hours to Santa Rosa at a fare of \$29 weekdays, \$45 weekends (as of May 2017), or 7 hours, 40 minutes to San Francisco with a fare of \$37 on weekdays and \$55 on weekends. Return trips arrive in Arcata at 10:30 PM or 5:35 AM.

Area 1 Agency on Aging Volunteer Driver Program

The A1AA operates a volunteer driving program. A number of years ago, the need for transportation to medical appointments in the Eel River Valley became critical, and so a volunteer driver program was established. This has been funded somewhat piecemeal by various grant funds, private foundations, and individual donations. The service area extends from Scotia to Trinidad, and Blue Lake. Essentially, the area served is wherever volunteers are willing to go.

Currently, there are 42 volunteers signed up to drive, and approximately 200 repeat riders. In 2013, there were 111 clients, and 17,000 miles were reimbursed.

In 2015, there were 166 clients, and 35,000 miles were reimbursed. The drivers' average age is around 70, and clients, whom must be aged 50 or older, are typically in their late 70's. Drivers are actively recruited by A1AA staff. The volunteers are trained (and retrained annually), must pass a background check, and must maintain a high level of insurance. The drivers are not drug-tested. The drivers' vehicles are inspected by A1AA staff. Drivers are reimbursed \$0.25 per mile, with an additional \$0.25 per mile for those who are low income.

While transportation to medical appointments was the impetus for the service and remains the primary focus, trips are also now provided for grocery shopping. Drivers sign up on a mobile app, but most passengers resist using the software for arranging rides and generally go through A1AA staff. Grant funding covers approximately 20 hours per week of a staff person's time, as well as a few additional hours from A1AA executive staff. The past budget has been approximately \$35,000 for staff time, and \$7,500 for mileage reimbursement, but the ideal level of funding would be closer to a \$65,000 annual budget.

City Cab / City Ambulance of Eureka

City Cab / City Ambulance of Eureka (CAE) is a public taxi and non-emergency medical transportation provider which now also contracts to provide demand responsive, ADA-compliant transportation in Eureka, Arcata and McKinleyville under contract with HTA. While this service has been operating nearly a year, cost data was available, but ridership data has not been provided to date.

Humboldt Community Access & Resource Center

The Humboldt Community Access & Resource Center (HCAR) is a local nonprofit social service agency founded in 1955 which provides services to local citizens with developmental and physical disabilities. The organization promotes individual independence, community integration and function through a wide array of services and supports, and included among those services is transportation. In July 2016, HTA was designated as CTSA for Humboldt County. Prior to that time, HCAR filled this role. HCAR's Transportation Department was comprised of four transportation programs including Dial-A-Ride/Dial-A-Lift (DAR/L) in the Humboldt Bay Region, Care-A-Van service for the greater Humboldt Bay area, day program transportation, and charter services. The Dial-A-Ride/Lift program was supported by TDA funds, but this program is now provided through the HTA contract with CAE, mentioned above. HCAR still provides other transportation services which are primarily funded from the Redwood Coast Regional Center and the State Department of Rehabilitation, as well as funding support from the Community Benefits Network, the United Way of Humboldt County, and through community donations and local projects.

While operating the DAR/L program, HCAR provided a 10,782 passenger trips in 2012-2013 dropping to 6,334 in 2013-14; 6,527 in 2014-15, and 4,213 in 2015-16. A total of 6,858 service hours were provided in 2012, dropping to 4,300 to 4,600 over the next several years. Productivity dropped as well, from 1.6 passenger trips per hour in 2012-13 to 0.9 passenger trips per hour in 2015-16.

Redwood Coast Transit

Redwood Coast Transit is the public transit service for Del Norte County, north of Humboldt County. RCT's Route 20 operates between Smith River (7 miles south of the Oregon border) and Arcata. Arrivals in Arcata are at 9:20 AM, 4:55 PM and 9:20 PM. Northbound departures are at 10:10 AM, 5:45 PM and 10:40 PM. Fares between the two counties are \$30, or \$5.00 for service just within Humboldt County, and \$1.50 for service just within Del Norte County.

Trinity Transit

Trinity Transit is the public transit service operating in Trinity County, to the east of Humboldt County. Four routes serve Weaverville in north, south, east and west directions. Connections are available in Willow Creek to the HTA Willow Creek Route, which enables passengers to travel between the coast and Redding (where many medical services are provided). Trinity Transit fares from Weaverville to Willow Creek or from Weaverville to Redding are \$10.00 per one-way trip. A trip from Eureka to Redding traveling on HTA and Trinity Transit would have a combined base fare of \$24.00 one way. Discounts are available for Veterans, students, youth, seniors and persons with disabilities.

REGIONAL SERVICE COORDINATION

The Humboldt County transit operators work cooperatively and have demonstrated effort to coordinate delivery of public transportation. Through their cooperative network, they have developed several tangible products and services that benefit customers and operations. Below we highlight coordinated services, and recap features that have already been described above.

Customer-based Service Coordination

- **Regional bus pass** — Transit pass products include a regional pass using stored-value cards good anytime for RTS, Willow Creek, SHTS, TNVS, ETS, and A&MRTS buses. The regional pass allows rides at a discounted rate.
- **Transit system connections** — The various transit bus routes provide a level of regional connectivity via major transfer points:
 - Downtown Eureka – Primarily along 3rd/4th/5th and H Streets, there are connections between RTS, SHT, ETS, and Greyhound and Amtrak buses.
 - Bayshore Mall (Eureka) – Connections between RTS, ETS, and SHT buses.
 - Arcata Intermodal Transit Center – Connections between local buses A&MRTS, BLRTS, RTS, and Willow Creek, plus inter-regional buses of Redwood Coast Transit/Del Norte public transit, Greyhound, and Amtrak.
 - Fortuna – Connections between RTS, TNVS, and Fortuna Senior Transit. (Few Senior Bus riders, however, transfer to RTS, due to the fact that the Senior Bus is limited to seniors and disabled, whose trips are typically within Fortuna for services.)
 - Downtown Willow Creek – Connections between Willow Creek Transit System, K/T NeT, and Trinity Transit, for trips between Arcata, the Hoopa Reservation, Orleans, and Weaverville (Trinity County).
- **Dial-a-Ride (DAR)** — DAR service is a shared ride system for seniors and disabled citizens who are unable to use public transportation. City Ambulance of Eureka (CAE) Inc. is contracted to provide DAR service in Eureka, Arcata and McKinleyville, as well as to areas outside of the required service area (complimentary to A&MRTS and ETS fixed routes). The system is zone-based.
- **Electronic fareboxes** — The main transit buses (HTA systems, ETS, and A&MRTS) have installed electronic fareboxes, which enable fare media that is transferable on any of these systems. Fare revenues are credited to the transit agency on which the trip took place.
- **Central depository** — HTA serves as the central depository of fare revenues from all public transit fixed-route services (HTA intercity service, ETS, and A&MRTS). As the buses are all parked and maintained at HTA facilities after service, the vaults are taken off the buses at night during refueling and probing of the fareboxes. HTA counts fares and distributes

revenue shares to the appropriate agency. The City of Arcata sends checks to HTA for transit passes sold at the Arcata Intermodal Transit Facility.

- **Service Coordination Committee** — The Service Coordination Committee (SCC) provides professional expertise for finding solutions to common issues facing today's operators. The SCC is comprised of local public transit operators of the ETS, HTA, A&MRTS, BLRTS, Fortuna Senior Transit, Klamath/Trinity Non-emergency Transit, and publicly provided dial-a-ride/dial-a-lift services, including the Consolidated Transportation Service Agency (CTSA). The SCC is also comprised of representatives from Caltrans District 1, Humboldt State University, College of the Redwoods, and the County of Humboldt.

SERVICE CHANGES SINCE 2012 TRANSIT DEVELOPMENT PLAN

There have been several changes made to transit services since the TDP was adopted in July 2012, as discussed below.

Introduction of Tish Non-Village Service: Tish Non-Village service was implemented July 1, 2015. This service was an outcome of the unmet needs process. Ridership averages just 14 passengers per day, or 1.55 per vehicle hour of service.

Discontinuation of Quail Service in Garberville / Introduction of the Southern Humboldt Transit Service: the Quail Service was an on-demand service which has been replaced with the Southern Humboldt Local service.

Financial and operating data for each of the Humboldt County transit providers was collected, as available, and are evaluated below.

HTA EVALUATION

HTA Revenues

The HTA revenues are presented in Table 10. As shown, 45 percent of the revenues are “operating revenues” which include contract revenue, fare revenue, reimbursements and outside revenues. In the past fiscal year, this generated \$2.84 million, nearly \$1.0 million of which was from RTS fares. Non-operating revenues include Local Transportation Funds (LTF); State Transportation Assistance (STA) funds and Federal Transit Administration (FTA) grant funds, as well as interest and advertising revenues; and rents and leases. The total non-operating revenue in 2015-16 was \$2.99 million—80 percent of which was LTF allocations. Revenues have increased from \$5,167,865 in 2014-15, to \$5,479,350 in 2015-16, and an approved amount of \$5,681,562 for 2016-17.

HTA Operating Costs

Operational and administrative expenses for the HTA are displayed in Table 11, and maintenance costs are shown in Table 12. The operational and administrative cost in 2015-16 was \$4.52 million, 85 percent of which was for payroll and benefits. The maintenance cost in 2015-16 was \$1.33 million, with 84 percent of that going toward vehicle maintenance.

Operating Data

Passenger Trips

Operating data for HTA for each of its services is depicted in Table 13 for 2015-16 (the most recent full fiscal year), including ridership, hours and miles of service provided, service days, fare revenues and costs. As indicated in the table, RTS provided over 615,656 one-way passenger trips, while ETS provided 237,677 one-way passenger trips and 21,846 trips were provided on Southern Humboldt Intercity service. At the other end of the spectrum, the Tish Non-Village carried just 3,452 one-way passenger trips.

Vehicle Hours and Miles

HTA operated 60,813 hours of service over 1,288,317 miles in 2015-16, as shown in Table 13. Approximately 55 percent of the hours and miles are provided on RTS, and about a quarter of the hours are operated on ETS, but just 12 percent of the miles.

Table 10: HTA Revenues

<i>FY 2014-15 to 2016-17</i>	<i>FY 2014-15 Budgeted</i>	<i>FY 2015-16 Budgeted</i>	<i>FY 2016-17 Approved</i>
Operating Revenue			
<u>Contract Transportation</u>			
Redwood Transit System	\$220,000	\$234,000	\$245,000
Eureka Transit System	\$899,309	\$636,288	\$655,182
Willow Creek	\$7,314	\$3,336	\$2,750
Arcata & Mad River Transit	--	--	\$90,000
DAR and CTSA			--
HTA Admin	\$8,026	\$8,026	--
Maintenance/Shop	\$68,417	\$68,417	--
<i>Total Contract Revenue</i>	<i>\$1,203,066</i>	<i>\$950,067</i>	<i>\$992,932</i>
<u>Fares</u>			
Redwood Transit System	\$967,210	\$965,000	\$995,000
Eureka Transit System	--	\$290,000	\$285,000
Tish Non-Village	--	\$19,188	\$7,500
Willow Creek	\$40,500	\$49,000	\$45,000
So Humboldt Intercity	\$70,000	\$90,000	\$91,000
So Humboldt Local	\$13,000	\$14,000	\$16,000
DAR	--	--	--
<i>Total Fare Revenue</i>	<i>\$1,090,710</i>	<i>\$1,427,188</i>	<i>\$1,439,500</i>
Insurance reimbursement	\$31,000	\$33,496	\$0
Passes & ID Cards	\$425	\$425	\$500
Outside Service Revenue	\$60,000	\$70,000	\$75,000
Misc. Revenues	\$0	\$0	\$0
Total Operating Revenue	\$2,385,201	\$2,481,176	\$2,507,932
Non-Operating Revenue			
Advertising Revenue	\$14,400	\$14,400	\$33,600
Rent & Leases	\$87,333	\$87,333	\$107,000
<u>LTF/JPA Member Assessment</u>			
Redwood Transit System	\$1,450,623	\$1,494,152	\$1,494,152
Tish Non-Village	--	\$172,692	\$177,873
Willow Creek	\$251,949	\$259,508	\$233,030
So Humboldt Intercity	\$352,363	\$374,800	\$357,285
So Humboldt Local	\$114,433	\$106,000	\$137,939
<i>Subtotal LTF</i>	<i>\$2,169,368</i>	<i>\$2,407,152</i>	<i>\$2,400,279</i>
Federal Operating	\$8,320	\$0	\$130,284
<u>STAF - State Operating Funds</u>			
Redwood Transit System	\$148,925	\$133,175	\$144,137
Eureka Transit System	\$42,036	\$10,185	\$27,599
Tish Non-Village	--	\$1,335	\$7,884
Willow Creek	--	\$5,752	\$7,884
So Humboldt Intercity	--	\$3,683	\$19,716
So Humboldt Local	--	\$870	\$7,884
Arcata & Mad River Transit	--	--	\$13,950
Dial-a-Ride	--	--	\$121,090
HTA Admin	\$81,625	\$72,289	\$52,323
Maintenance	\$133,500	\$252,000	\$90,000
<i>Total State Op Revenue</i>	<i>\$406,086</i>	<i>\$479,289</i>	<i>\$492,467</i>
Unrestricted Net Assets	\$87,157	\$0	\$0
Interest Income	\$10,000	\$10,000	\$10,000
Total Non-Operating Revenue	\$2,782,664	\$2,998,174	\$3,173,630
Total Revenue	\$5,167,865	\$5,479,350	\$5,681,562

Source: HTA staff, February 2017

Table 11: HTA Operational and Administrative Expenses

Category	FY 2014-15 Budgeted	FY 2015-16 Budgeted	FY 2016-17 Approved
Payroll and Benefits			
Redwood Transit System	\$1,049,001	\$1,121,702	\$1,331,985
Eureka Transit System	\$527,561	\$574,580	\$569,181
Tish Non-Village	--	\$72,619	\$87,755
Willow Creek	\$109,421	\$117,888	\$113,279
So Humboldt Intercity	\$189,222	\$225,285	\$240,557
So Humboldt Local	\$48,800	\$54,071	\$60,372
Arcata & Mad River Transit	\$76,443	\$76,443	\$57,100
Dial-a-Ride	\$23,522	\$16,000	\$99,240
HTA Admin	\$661,828	\$726,509	\$677,730
Maintenance/Shop	\$724,712	\$814,708	\$767,966
<i>Total Payroll Expenses</i>	<i>\$3,410,509</i>	<i>\$3,799,805</i>	<i>\$4,005,164</i>
General Operating Expenses ¹			
Arcata & Mad River Transit	\$0	\$42,500	\$2,523
Dial-a-Ride	\$0	\$1,000	\$950
HTA Admin	\$42,750	\$42,500	\$49,000
Maintenance/Shop	\$9,250	\$9,600	\$15,350
<i>Total General Operating Expenses</i>	<i>\$52,000</i>	<i>\$95,600</i>	<i>\$67,823</i>
Administrative Expenses ²			
Arcata & Mad River Transit	\$0	\$0	\$968
Dial-a-Ride	\$172,062	\$170,078	\$675
HTA Admin	\$114,275	\$112,500	\$95,500
Maintenance/Shop	\$4,000	\$4,000	\$4,200
<i>Total Administrative Expenses</i>	<i>\$290,337</i>	<i>\$286,578</i>	<i>\$101,343</i>
Operational Expenses ³			
Redwood Transit System	\$107,208	\$159,908	\$154,126
Eureka Transit System	\$51,464	\$60,659	\$7,400
Tish Non-Village	--	\$21,083	\$14,738
Willow Creek	\$16,536	\$21,673	\$32,778
So Humboldt Intercity	\$21,342	\$38,097	\$41,645
So Humboldt Local	\$16,011	\$13,164	\$14,078
Arcata & Mad River Transit	\$0	\$0	\$3,250
HTA Admin	\$28,000	\$20,000	\$7,500
Maintenance/Shop	\$500	\$500	\$5,417
<i>Total General Operating Expenses</i>	<i>\$82,389</i>	<i>\$335,085</i>	<i>\$280,932</i>
TOTAL Operational & Admin Expenses	\$3,835,235	\$4,517,068	\$4,455,262
Note 1: Dues & Subscriptions, Gen Op supplies, office supplies, printing, training & development Note 2: Legal Expenses, Accounting & bookkeeping; advertising, cost of funds, non-vehicle insurance, mileage & per diem; postage, service charges, specialized services Note 3: Driver uniforms; GFI, WiFi/GPS/MyRide; Schedule Printing, Vehicle Insurance, Op supplies Source: HTA staff, Feb 2017			

Table 12: HTA Maintenance Expenses*FY 2014-15 to 2017-18*

Category	FY 2014-15 Budgeted	FY 2015-16 Budgeted	FY 2016-17 Approved
General Maintenance¹			
Arcata & Mad River Transit Maintenance/Shop	\$2,547	\$2,547	\$8,700
	\$33,500	\$33,500	\$59,600
<i>Total General Maint. Expenses</i>	<i>\$36,047</i>	<i>\$36,047</i>	<i>\$68,300</i>
Vehicles²			
Redwood Transit System	\$683,910	\$533,040	\$456,086
Eureka Transit System	\$200,500	\$135,331	\$146,110
Tish Non-Village	--	\$44,010	\$29,645
Willow Creek	\$71,800	\$65,415	\$66,017
So Humboldt Intercity	\$138,675	\$133,005	\$144,520
So Humboldt Local	\$45,300	\$36,602	\$46,014
Arcata & Mad River Transit Maintenance/Shop	\$96,010	\$96,010	\$24,130
	\$65,500	\$72,700	\$47,200
<i>Total Vehicle Maint. Expenses</i>	<i>\$1,301,695</i>	<i>\$1,116,113</i>	<i>\$959,722</i>
Facilities³			
Arcata & Mad River Transit	\$0	\$0	\$7,279
Dial-a-Ride	\$13,500	\$13,500	\$15,000
HTA Admin	\$3,000	\$3,000	\$8,000
Maintenance/Shop	\$203,800	\$159,700	\$167,000
<i>Total Facility Maint. Expenses</i>	<i>\$220,300</i>	<i>\$176,200</i>	<i>\$197,279</i>
Total Maintenance Expenses	\$1,558,042	\$1,328,360	\$1,225,301
Total Admin & Op Expenses (from Table 11)	\$3,835,235	\$4,517,068	\$4,455,262
TOTAL DIRECT EXPENSES	\$5,393,277	\$5,845,428	\$5,680,563
Note 1: Gen. Maintenance Supplies, shop tools, safety supplies & gear; uniforms (shop)			
Note 2: Contract Maintenance; contract repairs; fuel; oil & lubricants, parts, tires, studies/permits; small tool allowance			
Note 3: I.T hardware, maint., licenses; rentals & leases; Subcontract maint.; utilities; facility M&R			
Source: HTA staff, Feb 2017			

Ridership by Fare Type

Ridership by fare type is also included in Table 13. The most commonly used fare media include stored value fares (37 percent of fares) followed by the Jack Pass (18 percent of fares on HTA services). Day passes only accounted for 6 percent of all fare media.

Table 13: HTA Operating Statistics, Fiscal Year 2015-16

Operating Characteristics	Transit Service						Total
	RTS	ETS	Willow Creek	S. Humboldt Intercity ¹	S. Humboldt Local ¹	Tish Non-Village	
Passengers							
Weekdays	550,149	220,943	12,161	21,846	11,672	3,452	820,223
Saturdays/Holidays	43,717	16,734	1,182	--	--	--	61,633
Sundays	21,790	--	--	--	--	--	21,790
Total	615,656	237,677	13,343	21,846	11,672	3,452	903,646
Miles							
Weekdays	645,922	144,210	91,080	232,254	27,540	40,132	1,181,138
Saturdays/Holidays	46,398	14,478	15,675	--	--	--	76,551
Sundays	30,628	--	--	--	--	--	30,628
Total	722,948	158,688	106,755	232,254	27,540	40,132	1,288,317
Hours							
Weekdays	30,155	13,131	2,411	6,295	1,499	2,228	55,718
Saturdays/Holidays	2,104	1,274	426	--	--	--	3,804
Sundays	1,290	--	--	--	--	--	1,290
Total	33,549	14,405	2,837	6,295	1,499	2,228	60,813
Service Days							
Weekdays	254	253	253	254	255	254	--
Saturdays/Holidays	57	57	57	--	--	--	--
Sundays	52	--	--	--	--	--	--
Total	363	310	310	254	255	254	--
Passengers by Fare Type							
Cash Fares	60,893	37,223	3,824	3,826	3,644	447	109,857
Stored Value Fares	196,126	120,526	7,999	13,270	7,883	1,198	347,002
Day Pass	37,887	11,689	63	4,435	--	266	54,340
CR Pass	56,116	--	--	1	--	785	56,902
Jack Pass	160,501	9,200	888	--	--	58	170,647
Month Pass	87,379	50,291	265	--	--	576	138,511
In Town Fare	10,164	--	--	--	--	2	10,166
Free/Attendants	6,590	8,748	304	314	145	120	16,221
Wheelchair Passengers	1,875	2,084	32	22	10	4	4,027
Bicycles	18,376	--	171	508	239	98	19,392
Total	635,907	239,761	13,546	22,376	11,921	3,554	927,065
Fare Revenues	\$1,219,116	\$288,015	\$42,732	\$81,253	\$14,202	\$6,132	\$1,651,450
Operating Costs	\$2,681,449	\$884,752	\$278,684	\$441,076	\$113,385	\$169,899	\$4,569,245
Avg Daily Ridership							0
Weekdays	2,166	873	48	86	46	14	3,233
Sat/Holidays	767	294	21	--	--	--	1,081
Sundays	419	--	--	--	--	--	419

Source: HTA Comparative Performance Activity Report, June 2016 YTD

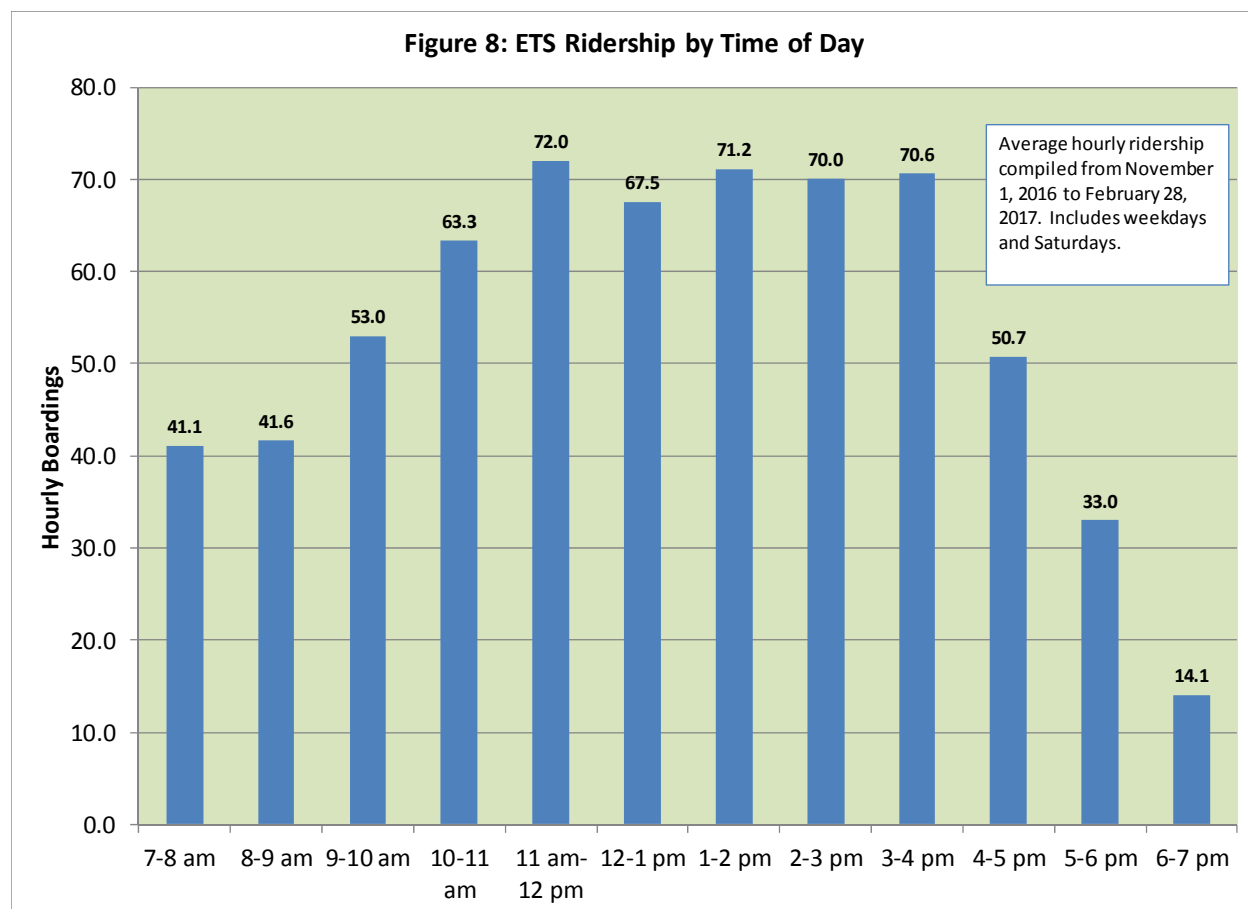
Average Passenger Trips by Day

On all of the HTA services, a total of 3,233 one-way passenger trips were provided on an average weekday, and 1,081 on average Saturday or holiday, and 419 on an average Sunday in 2015-16.

Weekend services are available on RTS and Saturday service is available on Willow Creek and ETS. On RTS, Saturday service averages about 35 percent of weekday service, and Sunday averages about 19 percent of what is provided on a typical weekday.

Average Passenger Trip by Time of Day (ETS)

Ridership by time of day was available from a four month sample of Eureka Transit Service data, as shown in Figure 8. As indicated, ridership is lowest in the first and last hours of the service day, and strongest from 11:00 AM to 4:00 PM. This is reflective of transit use for appointments and errands more than for work or school trips.



A&MRTS EVALUATION

A&MRTS Revenues

The A&MRTS revenue data has not been provided to date. However, the HCAOG allocated \$577,240 for fiscal year 2015-16. According to the 2017 Triennial Performance Audits, fare revenue totaled \$223,417.

A&MRTS Operating Expenses

The A&MRTS expense budgets for 2012-13 (actual) to 2016-17 (adopted) are shown in Table 14. The budget shown includes Dial-a-Ride (contracted through HTA) and Greyhound, because

A&MRTS staff also provides service for the Greyhound office at the Arcata Transit Center. This TDP will focus on the A&MRTS expenses. The total A&MRTS operating expenses ranged from \$793,451 in 2013-14, to \$713,329 in 2014-15, and a high of \$824,810 in 2015-16, before decreasing to a proposed \$799,071 for 2016-17. The biggest expenses are for personnel salaries and benefits (\$264,847 in 2015-16), the JPA agreement (\$208,163), and equipment maintenance (\$130,655).

Operating Data

Passenger Trips

Operating data and performance indicators for A&MRTS are depicted in Table 15 for 2012-13 to 2015-16, as reported in the *Draft Triennial Performance Audit*. As indicated in the table, A&MRTS provided between 228,225 and 265,137 annual one-way passenger trips over the past four years.

Vehicle Hours and Miles

A&MRTS operated an average of 7,720 hours of service over the past four years, and an average of 96,480 miles, as shown in Table 15.

A&MRTS Performance Indicators

Based on the operating costs, fare revenues and operating statistics, a number of performance indicators were evaluated for the Draft Triennial Performance Audit, as shown in Table 15.

- Passenger Trips per Hour and Per Mile: The passengers carried per hour of service averaged from 30.3 to 34.1. This is the highest productivity of services in Humboldt County. In addition, between 2.4 and 2.7 passengers were carried per mile of service.
- Operating Cost per Passenger Trip: The operating cost per passenger trip ranged from \$2.50 most recently, to \$2.92 four years ago, also reflecting the lowest cost per passenger trip of any of the services in the county.
- Farebox Return Ratio: The farebox ratio was calculated by dividing the revenue collected on each route from the operating cost. The farebox ranges between 30.6 to 37.2 percent, which is very high for a public transit system.
- Subsidy per Passenger Trip: The subsidy per passenger trip is one of the best indicators of cost effectiveness and in effect shows the public investment for each service. This is calculated by subtracting the revenue collected on the route from the operating cost, and dividing this by the number of passenger trips. As shown in Table 15, this ranges from \$1.57 most recently to \$2.02 several years ago.

Table 14: City of Arcata Transportation Expense Budgets

Description	2013/14 Actual	2014/15 Actual	2015/16 Actual	Adopted 2016/17
A&MRTS				
Part-time & Temporary Salaries	\$136,583	\$138,828	\$146,518	\$143,458
Employee Benefits	\$84,058	\$86,730	\$118,329	\$101,094
Utilities	\$7,778	\$6,802	\$520	\$8,000
Communications	\$4,313	\$5,811	\$6,315	\$7,500
Advertising	\$2,958	\$1,657	\$1,097	\$2,500
Training & Conferences	\$1,216	-\$305	\$2,953	\$4,000
Clothing & Personal Expenses	\$486	\$40	-\$20	\$500
Memberships & Dues	\$1,435	\$1,455	\$1,144	\$1,600
Taxes & Other Fees	\$324	\$324	\$324	\$400
Insurance	\$36,223	\$28,437	\$35,621	\$38,000
JPA Agreements	\$204,081	\$208,163	\$214,408	\$214,418
Postage, Copies, Office Supplies	\$1,402	\$1,098	\$1,302	\$1,500
Other Department Supplies	\$1,591	\$2,574	\$2,794	\$1,250
Small Tools	\$183	\$107	\$161	\$250
Equipment Maintenance	\$178,613	\$159,886	\$130,655	\$200,000
Central Garage Charges	\$410	\$90	\$0	\$0
Equipment Rental	\$639	\$627	\$627	\$1,000
IT Services & Maintenance	\$3,218	\$3,355	\$3,463	\$5,151
Overhead	\$65,320	\$67,650	\$64,090	\$68,450
Capital - Other Improvements	\$10,686	\$0	\$94,509	\$0
Capital - Furniture & Equipment	\$51,933	\$0	\$0	\$0
<i>Subtotal</i>	<i>\$793,451</i>	<i>\$713,329</i>	<i>\$824,810</i>	<i>\$799,071</i>
Dial A Ride				
Regular Salaries	\$26,967	\$19,304	\$17,300	\$12,826
Overtime Wages	-\$133	\$256	\$376	\$200
Employee Benefits	\$14,318	\$10,080	\$12,179	\$7,834
Advertising	\$0	\$0	\$0	\$500
Training & Conferences	\$835	\$210	\$0	\$1,000
JPA Agreements	\$52,396	\$52,248	\$56,336	\$53,815
Office Supplies	\$0	\$0	\$0	\$100
Other Department Supplies	\$10,014	\$4,500	\$5,400	\$6,000
IT Services & Maintenance	\$924	\$1,697	\$1,730	\$1,733
Overhead	\$7,500	\$7,500	\$7,500	\$7,500
<i>Subtotal</i>	<i>\$112,820</i>	<i>\$95,794</i>	<i>\$100,820</i>	<i>\$91,508</i>
Greyhound				
Regular Salaries	\$35,977	\$36,903	\$36,121	\$45,605
Overtime Wages	\$397	\$576	\$851	\$500
Part-time & Temporary Salaries	\$0	\$0	\$0	\$0
Employee Benefits	\$18,860	\$19,851	\$25,278	\$28,784
Other Department Supplies	\$0	\$0	\$0	\$100
IT Services & Maintenance	\$1,007	\$1,976	\$2,014	\$2,145
Overhead	\$7,500	\$7,500	\$7,500	\$7,500
<i>Subtotal</i>	<i>\$63,741</i>	<i>\$66,807</i>	<i>\$71,764</i>	<i>\$84,634</i>
TOTAL	\$970,012	\$875,930	\$997,394	\$975,213
<i>Source: City of Arcata</i>				

Table 15: A&MRTS Annual TDA Performance Indicators

Performance Data and Indicators	Fiscal Year				% Change FY 2013–2016
	FY 2013	FY 2014	FY 2015	FY 2016	
Operating Cost	\$665,303	\$680,906	\$701,658	\$663,676	-0.20%
Total Passengers	228,225	241,985	243,433	265,137	16.20%
Vehicle Service Hours	7,538	7,788	7,788	7,770	3.10%
Vehicle Service Miles	94,351	96,653	97,223	97,695	3.50%
Employee FTEs	8	8	8	8	0.00%
Passenger Fares	\$203,965	\$208,245	\$223,417	\$246,624	20.90%
Subsidy	\$461,338	\$472,661	\$478,241	\$417,052	
Operating Cost per Passenger	\$2.92	\$2.81	\$2.88	\$2.50	-14.10%
Operating Cost per Vehicle Service Hour	\$88.26	\$87.43	\$90.09	\$85.42	-3.20%
Operating Cost per Vehicle Service Mile	\$7.05	\$7.04	\$7.22	\$6.79	-3.70%
Passengers per Vehicle Service Hour	30.3	31.1	31.3	34.1	12.20%
Vehicle Service Hours per Employee	942.25	973.5	973.5	971.25	3.10%
Average Fare per Passenger	\$0.89	\$0.86	\$0.92	\$0.93	4.10%
Subsidy per Passenger Trip	\$2.02	\$1.95	\$1.96	\$1.57	
Fare Recovery Ratio	202.1%	195.3%	196.5%	157.3%	21.20%

Source: Draft TPA--Annual fiscal & compliance reports; A&MRTS Activity Reports; State Controller Reports

FORTUNA TRANSIT EVALUATION

Fortuna Transit Revenues and Expenses

The Fortuna Transit revenues and expenses are presented in Table 16. The majority of revenues come from Transportation Development Act (TDA) funds (increasing from \$200,338 in 2012-13 to \$290,697 in 2015-16). Senior bus fare annual revenues range from \$11,500 to \$12,787. Operating expenses include salaries, services and supplies, and the HTA contract (for RTS services which operate within Fortuna).

Operating Data

Passenger Trips

Operating data for Fortuna Transit is depicted in Table 17 for fiscal years 2012-13 to 2015-16, including ridership, hours and miles of service provided, service days, fare revenues and costs. As indicated in the table, Fortuna Transit provided 10,875 one-way passenger trips in 2013-14, dropping down to 8,515 in 2015-16, which reflects a 21 percent drop in ridership.

Table 16: Fortuna Transit - Transit Budgets

Fund History	Actual			Estimate	Request
	FY2012-12	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17
Beginning Fund Balance	\$89,130	\$94,667	\$96,952	\$100,641	\$117,521
Revenues					
Senior Bus Fees	\$12,787	\$12,167	\$11,516	\$11,500	\$12,000
TDA Revenue Allocation	\$200,338	\$230,912	\$249,663	\$277,170	\$290,697
Other	-\$376	\$1,547	\$266	\$100	\$400
Subtotal	\$212,749	\$244,626	\$261,445	\$288,770	\$303,097
Operating Expenditures					
Salaries & Benefits	\$70,840	\$82,833	\$92,290	\$106,102	\$115,432
Service & Supplies	\$18,447	\$18,545	\$19,432	\$17,370	\$21,450
Contract Services - HTA	\$117,945	\$141,323	\$144,096	\$148,418	\$148,418
Subtotal	\$207,232	\$242,701	\$255,818	\$271,890	\$285,300
Net Activity	\$5,517	\$1,925	\$5,627	\$16,880	\$17,797
Ending Fund Balance	\$94,647	\$96,592	\$102,579	\$117,521	\$135,318
<i>Source: City of Fortuna FY 2016-17 Budget, Restricted Fund-Transit</i>					

Vehicle Hours and Miles

Fortuna Transit operated 2,674 hours of service in 2012-13, increasing to 2,905 in 2015-16, as shown in Table 17. However, the miles of service operated decreased over this time from 25,834 to 22,384.

Fortuna Transit Performance Indicators

Based on the operating costs, fare revenues and operating statistics, a number of performance indicators were evaluated for the Draft Triennial Performance Audit, as shown in Table 17.

- Passenger Trips per Hour and Per Mile: The passengers carried per hour of service dropped from 4.0 in 2013-14 to 2.9 in 2016-17. Passengers carried per mile dropped as well, from 0.42 to 0.38 passenger trips per mile of service.
- Operating Cost per Passenger Trip: Reflecting the increased operating costs and decreasing ridership, the operating cost per passenger trip ranged from \$8.28 in 2012-13 to \$13.21 in 2015-16.
- Farebox Return Ratio: The farebox ratio was calculated by dividing the revenue collected each year from the operating cost. The farebox ranges between 14.3 percent in 2012-13 to 11.76 percent in 2015-16.

- Subsidy per Passenger Trip: The subsidy per passenger trip is one of the best indicators of cost effectiveness and in effect shows the public investment for each service. This is calculated by subtracting the revenue collected on the service from the operating cost, and dividing this by the number of passenger trips. As shown in Table 17, this ranges from \$7.09 in 2013-14 to \$11.65 in 2015-16.

Table 17: Fortuna Transit Annual TDA Performance Indicators

Performance Data & Indicators	FY 2013	FY 2014	FY 2015	FY 2016	% Change FY 2013–2016
Operating Cost	\$89,306	\$101,392	\$111,722	\$112,454	25.90%
Total Passengers	10,785	8,892	8,457	8,515	-21.00%
Vehicle Service Hours	2,674	2,540	2,779	2,905	8.60%
Vehicle Service Miles	25,834	21,244	24,258	22,384	-13.40%
Employee FTEs	3	3	3	3	0.00%
Passenger Fares	\$12,787	\$12,167	\$11,516	\$13,225	3.40%
Operating Subsidy	\$76,519	\$89,225	\$100,206	\$99,229	
Operating Cost per Passenger	\$8.28	\$11.40	\$13.21	\$13.21	59.50%
Operating Cost per Vehicle Service Hour	\$33.40	\$39.92	\$40.20	\$38.71	15.90%
Operating Cost per Vehicle Service Mile	\$3.46	\$4.77	\$4.61	\$5.02	45.30%
Passengers per Vehicle Service Hour	4.0	3.5	3.0	2.9	-27.30%
Passengers per Vehicle Service Mile	0.42	0.42	0.35	0.38	-8.90%
Vehicle Service Hours per Employee	891.3	846.7	926.3	968.3	8.60%
Average Fare per Passenger	\$1.19	\$1.37	\$1.36	\$1.55	31.00%
Fare Recovery Ratio	14.32%	12.00%	10.31%	11.76%	-17.90%
Subsidy per Passenger Trip	\$7.09	\$10.03	\$11.85	\$11.65	
Source: Draft TPA--Annual fiscal & compliance reports; State Controller Reports; Senior Bus Monthly Transportation Report					

Fortuna Transit Demand-Response Operational Data

Fortuna Transit is an on demand service, and as such, it tracks “no shows”, “cancellations” and “trip denials”. Over the past four years, Fortuna Transit has improved in all of these categories, reducing the number of no shows from 84 in 2013-14 to just 10 in 2015-16. The number of cancellations dropped from 1,783 to 586 in the same time frame, and trip denials were reduced from 270 annually in 2013-14 to just 6 in 2015-16, reflecting improved enforcement of policies.

BLUE LAKE RANCHERIA TRANSIT SERVICE EVALUATION

Operating Data

Annual Passenger Trips and Vehicle Hours and Miles

Operating data for BLRTS is depicted in Table 18 for calendar years 2013 to 2016, including ridership, hours and miles of service provided. BLRTS provided an average of 17,500 one-way passenger trips annually, with a low of 13,451 in 2013 and a high of 19,896 in 2015. BLRTS operated an average of 2,066 hours of service and 44,000 miles of service each the past five years, with little variation in either.

Table 18: Blue Lake Rancheria Transit System Annual Operating Data

	2012			2013			2014			2015			2016		
Month	Riders	Hours	Miles	Riders	Hours	Miles	Riders	Hours	Miles	Riders	Hours	Miles	Riders	Hours	Miles
Jan	1,032	176	3,752	1,297	184	4,267	1,373	184	3,685	1,636	176	3,578	1,235	160	3,305
Feb	1,035	168	3,462	1,320	160	3,429	1,373	160	3,341	1,568	160	3,385	1,400	168	3,563
March	1,071	176	3,722	1,426	168	3,622	1,569	168	3,553	1,731	176	3,678	1,559	184	4,029
April	1,092	168	3,623	1,362	176	3,656	1,527	176	3,756	1,756	176	3,695	1,444	168	3,691
May	1,032	176	3,767	1,381	184	3,922	1,592	176	3,722	1,596	168	3,568	1,328	176	3,860
June	923	168	3,520	1,232	160	3,409	1,573	168	3,594	1,654	176	4,038	1,700	176	3,742
July	913	168	3,555	1,508	184	4,237	1,890	184	3,900	1,806	176	3,956	1,567	168	3,599
Aug	1,091	184	3,923	1,342	176	3,760	1,859	168	3,642	1,666	160	3,768	1,956	184	3,806
Sept	1,147	160	3,882	1,314	168	3,648	1,984	176	3,725	1,758	176	3,538	1,706	168	3,758
Oct	1,708	184	3,922	1,577	192	4,039	1,950	184	3,790	1,887	176	3,601	1,548	160	3,452
Nov	1,277	168	3,571	1,285	168	3,293	1,409	152	3,138	1,512	160	3,469	1,528	168	3,635
Dec	1,130	160	3,390	1,187	176	3,278	1,561	176	3,694	1,326	176	3,715	1,408	168	3,805
TOTALS	13,451	2,056	44,089	16,231	2,096	44,560	19,660	2,072	43,540	19,896	2,056	43,989	18,379	2,048	44,245

Source: BLRTS

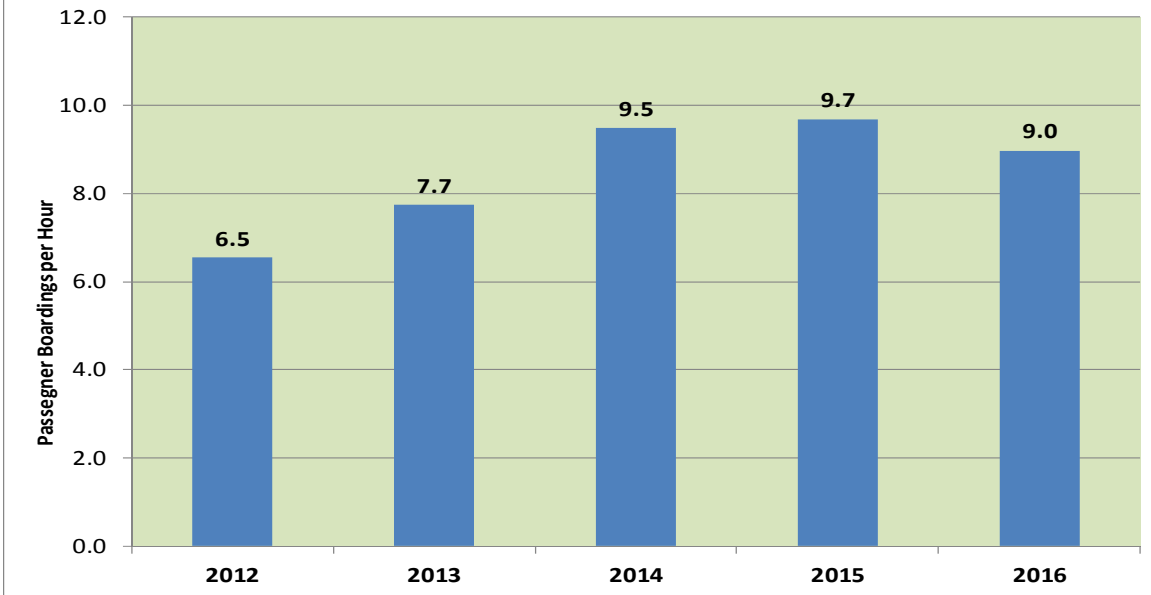
Passenger Trips per Hour and Per Mile:

The passengers carried per hour of service increased from 6.5 in 2012 to 9.7 in 2015, and down slightly to 9.0 in 2016, as shown in Figure 9. Passengers carried per mile dropped as well, from 0.42 to 0.38 passenger trips per mile of service.

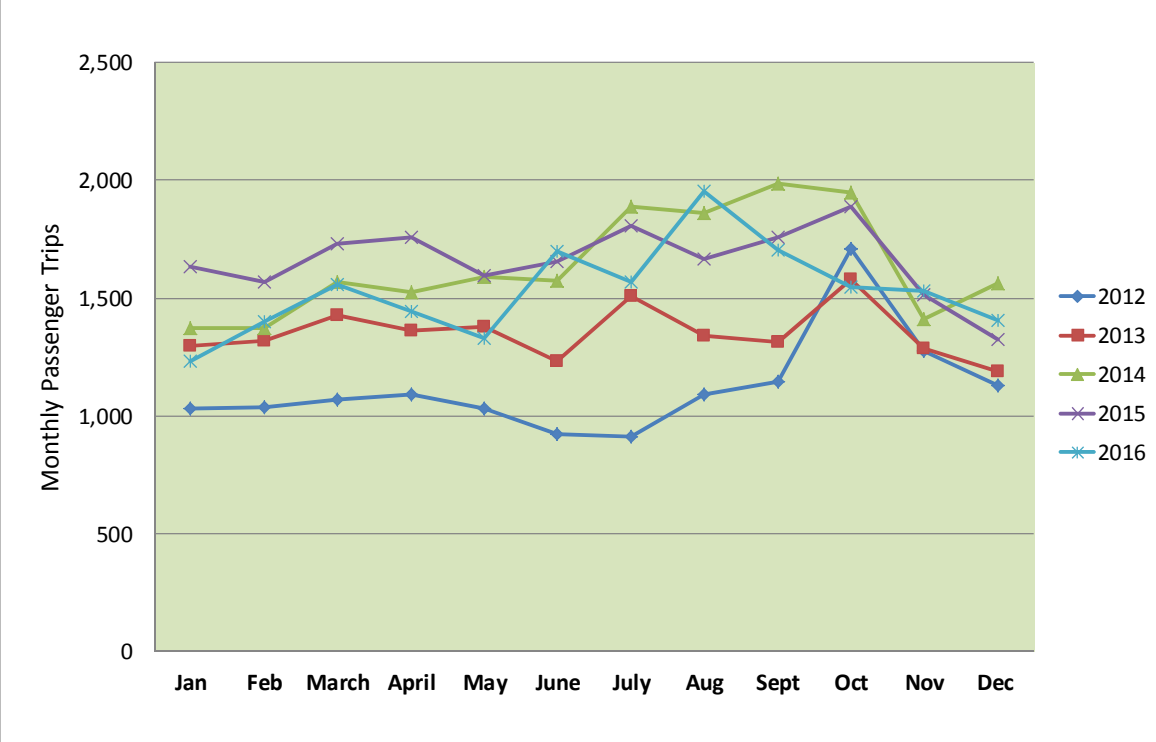
Passenger Trips by Month and Year

BLRTS ridership by month and year is shown in Figure 10. As indicated, ridership increased after 2013, and monthly ridership is consistently highest in the fall and lowest in the summer, reflecting use by college students.

**Figure 9: Blue Lake Rancheria Transit System
Average Passengers per Hour by Year**



**Figure 10: Blue Lake Rancheria Transit System
Ridership by Month by Year**



KLAMATH-TRINITY NON-EMERGENCY TRANSPORTATION EVALUATION

K-T Net Operating Costs and Revenues

The K-T NeT operating costs and revenues are presented in Table 19. The primary expenses are wages and benefits. Other operating costs include insurance, audits, and office supplies. The majority of revenues come from TDA funds (increasing from \$87,646 in 2014-15 to \$106,927 for 2016-17).

Operating Data

Operating data for K-T NeT is also depicted in Table 19. A total of 5,290 passenger trips were carried in 2015-16, over 2,246 hours and 65,881 miles.

Table 19: K-T NET Annual Budgets and 2015-16 Performance			
	Fiscal Year		
	FY 2014-15	FY 2015-16	FY 2016-17
Operating Cost			
Admin	\$50,450	\$48,676	\$47,126
Operations	\$98,421	\$108,628	\$108,320
Total	\$148,871	\$157,304	\$155,446
Operating Revenues			
Hoopa Tribe	\$35,000	\$35,000	\$25,000
Farebox Revenue	\$9,746	\$10,427	\$7,061
TDA	\$97,646	\$100,576	\$106,927
Grants/Fundraising	\$6,479	\$11,301	\$15,978
Total Operating Revenue	\$148,871	\$157,304	\$154,966
Performance Data and Indicators	FY 2015-16		
Total Passengers	5,290		
Vehicle Service Hours	2,246.75		
Vehicle Service Miles	65,881		
Employee FTEs	2.5		
Passenger Fares	\$10,427		
Operating Cost per Passenger	\$29.74		
Operating Cost per Vehicle Service Hour	\$70.01		
Operating Cost per Vehicle Service Mile	\$2.39		
Passengers per Vehicle Service Hour	2.4		
Vehicle Service Hours per Employee	898.7		
Average Fare per Passenger	\$1.97		
Fare Recovery Ratio ¹	28.88%		
Note 1: The Farebox Recovery Ratio includes cash fares and Hoopa contributions to K-T Net.			
Source: K-T Net			

This equates to just 2.4 passenger trips carried per mile of service. The operating cost per passenger trip was \$29.74. Fares are subsidized through contributions from the Hoopa Tribe so that farebox revenues are 28.9 percent, despite just \$10,427 collected in cash fares.

Ridership by Month

Ridership by month on K-T Net is fairly consistent, though January had particularly low ridership in 2015-16, as shown in Table 20. Hours of service were lower as well.

Ridership by Fare Type

K-T Net tracks fares by type of rider, with categories including regular cash fares, children, disabled, and seniors. The number of Native American passengers is also tracked. Ridership by type is shown in Table 20. Most of the ridership (87.9 percent) consists of “regular” riders and 80.7 percent are Native Americans. A total of 8.4 percent are children and just 1.2 percent are seniors.

Table 20: K-T NET Operating Characteristics by Month, FY 2015-16											
Month	Service		Fuel	Total	Passenger by Type					Total	Total
	Hours	Mileage	Costs	Passengers	Regular	Child	Senior	HC ¹	NA ²	Fares ³	Presale ⁴
July	204	6,116	\$1,996	524	456	62	5	1	400	\$529	\$2,285
August	179	5,240	\$1,613	518	402	98	11	7	419	\$524	\$2,286
Sept	186	5,685	\$1,489	478	374	97	3	3	380	\$460	\$2,241
Oct	207	6,106	\$1,474	489	415	62	6	6	397	\$502	\$2,308
Nov	173	5,164	\$1,317	418	383	14	8	13	328	\$355	\$2,334
Dec	200	5,685	\$1,492	422	380	16	7	19	300	\$441	\$2,355
Jan	133	3,838	\$941	265	254	2	1	8	210	\$271	\$2,218
Feb	182	5,526	\$1,371	455	404	29	3	19	386	\$473	\$2,220
Mar	208	6,104	\$1,418	522	476	36	5	5	442	\$561	\$2,271
April	194	5,765	\$1,346	481	445	13	6	7	408	\$575	\$2,283
May	189	5,304	\$1,397	318	303	4	3	8	271	\$418	\$2,636
June	193	5,348	\$1,196	400	360	9	13	18	326	\$385	\$2,942
Annual	2,247	65,881	\$17,049	5,290	4,652	442	71	114	4,267	\$5,494	\$28,377
Note 1: HC = disabled Note 2: NA = Native American Note 3: Total fares = cash fares Note 4: Presale = subsidy agreed upon by Hoopa Tribe, divided monthly; actual subsidies received vary. Source: K-T NeT Staff											

Performance Indicators

Table 21 includes the basic ridership, costs, fare revenue and performance indicators of all of the county’s transit services for 2015-16. Based on this data, the performance indicators were compared, as listed below.

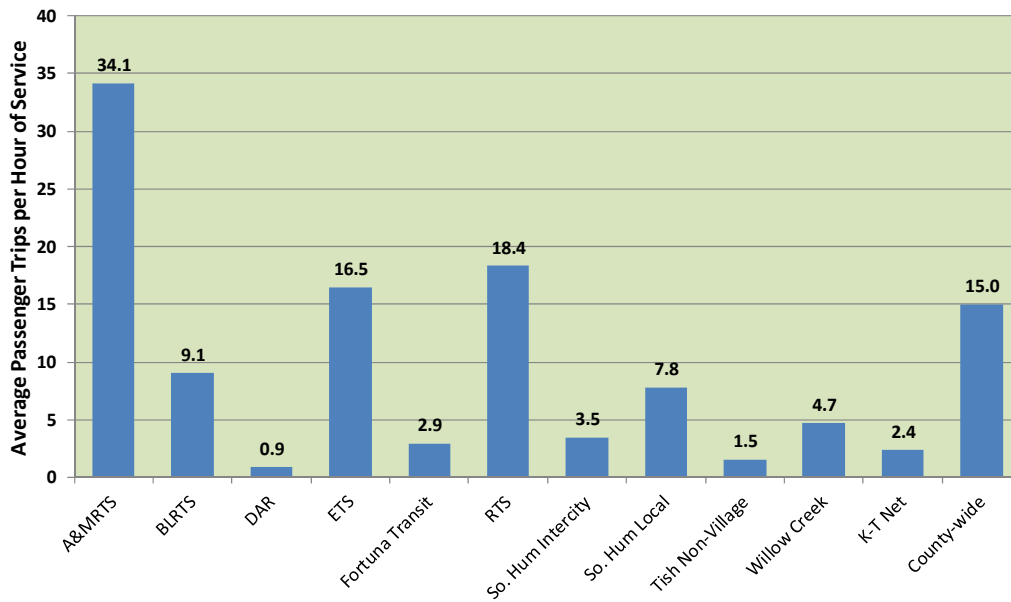
- **Passenger Trips per Hour:** The passengers carried per hour of service varied from a low of 1.5 on the Tish Non-Village service to a high of 34.1 on Arcata Transit. Countywide, the average number of passengers carried per hour was 15.0 as shown in Figure 11.
- **Subsidy per Passenger Trip:** The subsidy per passenger trip is one of the best indicators of cost effectiveness and in effect shows the public investment for each service. This is calculated by subtracting the revenue collected on the service from the operating cost, and dividing this by the number of passenger trips. As shown in Table 21, the Dial-a-Ride has the highest subsidy per passenger trip at \$42.85 per passenger, followed by Tish Non-Village with \$38.12, while at the other end of the spectrum just \$1.57 is needed per passenger trip on A&MRTS, and \$2.38 on the RTS Mainline service. This is depicted in Figure 12.

Table 21: Humboldt County Transit Providers Performance, FY 2015-16									
Provider	Service Quantities					Performance Measures			
	Ridership	Fare Revenue	Vehicle Miles in Service	Vehicle Hours in Service	Operating Cost	Subsidy	Farebox Ratio	Subsidy per Passenger	Passengers per Hour
Arcata & Mad River Transit	265,137	\$246,624	97,695	7,770	\$663,676	\$417,052	37.2%	\$1.57	34.1
Blue Lake Rancheria Transit	18,621	n/a	44,237	2,056	n/a	n/a	n/a	n/a	9.1
Dial-a-Ride	4,213	\$43,448	38,000	4,593	\$223,984	\$180,536	19.4%	\$42.85	0.9
Eureka Transit System	237,677	\$288,015	158,688	14,405	\$884,752	\$596,737	32.6%	\$2.51	16.5
Fortuna Transit	8,515	\$13,225	22,384	2,905	\$112,454	\$99,229	11.8%	\$11.65	2.9
RTS Mainline	615,656	\$1,219,116	722,948	33,549	\$2,681,449	\$1,462,333	45.5%	\$2.38	18.4
So. Humboldt Intercity	21,846	\$81,253	232,254	6,295	\$396,388	\$315,134	20.5%	\$14.43	3.5
So. Humboldt Local	11,672	\$14,202	27,540	1,499	\$103,837	\$89,635	13.7%	\$7.68	7.8
Tish Non-Village	3,452	\$6,132	40,132	2,228	\$137,712	\$131,579	4.5%	\$38.12	1.5
Willow Creek	13,343	\$42,732	106,755	2,837	\$204,976	\$162,244	20.8%	\$12.16	4.7
K-T Net	5,290	\$10,427	65,881	2,247	\$157,304	\$146,877	6.6%	\$27.77	2.4
Countywide	1,205,422	\$1,965,174	1,556,514	80,383	\$5,566,531	\$3,601,357	35.3%	\$2.99	15.0

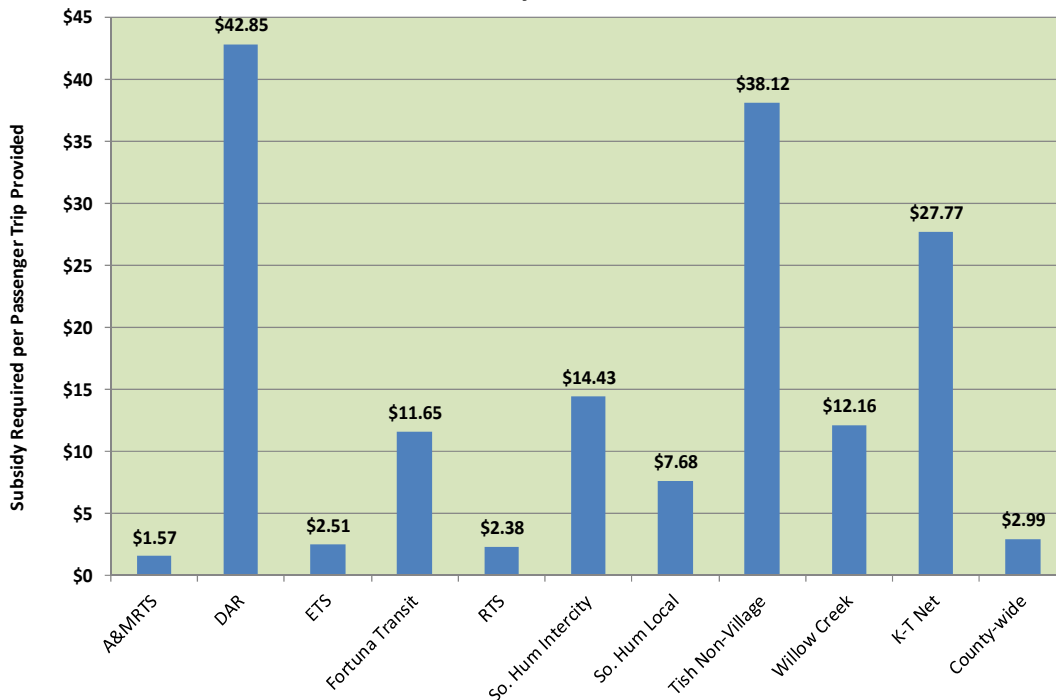
Source: HTA, A&MRTS, K-T Net, Fortuna Transit monthly reports and/or Draft Triennial Performance Audits .

- **Farebox Return Ratio:** The farebox ratio was calculated by dividing the revenue collected each year from the operating cost. The farebox ranges between just 4.5 percent on Tish Non-Village to 45.5 percent on the RTS service. It should be noted the farebox ratio calculations use cash fares as a basis, while other revenues may be included as farebox revenue.

**Figure 11: Passengers per Vehicle Hour
Humboldt County Transit Providers**



**Figure 12: Subsidy per Passenger Trip -
Humboldt County Transit Providers**



GOALS, OBJECTIVES AND POLICY STATEMENT

An important element in the success of any organization is a clear and concise set of goals and objectives, as well as the performance measures and standards needed to attain them. This can be particularly important for a public transit agency, for several reasons:

- Transit goals can be inherently contradictory. For instance, the goal of maximizing cost effectiveness can tend to focus services on the largest population centers, while the goal of maximizing the availability of public transit services can tend to disperse services to outlying areas. To best meet its overall mission, a public transit agency must therefore be continually balancing the trade-offs between goals. Adopting policy statements also allows a discussion of community values regarding transit issues that is at a higher level of discussion than is possible when considering case-by-case individual issues.
- As a public entity, a public transit organization is expending public funds and therefore has a responsibility to provide the public with transparent information on how funds are being spent and how well it is doing in meeting its goals. Funding partners also have a responsibility to ensure that funds provided to the transit program are being used appropriately. This is accomplished by providing information on the effectiveness and efficiency of the transit program.
- An adopted set of goals and performance standards helps to communicate the values of the transit program to other organizations, to the public, and to the organization staff.

Policy Statements and Standards

Transit providers in Humboldt County have indicated they do not currently have formal or adopted goals, policies and objectives for their services; therefore, new ones are suggested. A series of goals and related objectives are listed below, and the standards for meeting the objectives are listed in Table 22. The goals include the following.

- 1) Safety Goal: Transit Providers in Humboldt County will operate services in a safe manner.
 - a) Objective: Providers will limit the number of preventable accidents.
- 2) Service Quality Goal: Transit Providers in Humboldt County will operate on time.
 - a) Objective: Fixed route buses will never depart a stop early, and will leave no later than 5 minutes past published departure time.
- 3) Service Effectiveness Goal: Transit Providers will provide an effective transit service.

Table 22: Example Performance Standards for Humboldt County Providers

Shading Indicates Does Not Meet Minimum Standard			
Shading Indicates Meets Minimum Standard But Not Target Objective			
Shading Indicates Meets Target Objective			
Service	Proposed Standards		Current Status
	Minimum	Target	
1. SAFETY STANDARD			
Total Accidents			
All Services/All Providers	100,000 Miles Between Accidents	500,000 Miles Between Accidents	To be determined
2. SERVICE QUALITY STANDARDS			
On-Time Performance			
All Services/All Providers	85% of trips no later than 5 minutes behind schedule, no early departures	90% of trips no later than 5 minutes behind schedule, no early departures	To be determined
3. SERVICE EFFECTIVENESS STANDARDS			
Service Productivity -- Passengers Per Hour			
Service	Proposed Standards		Current Status
	Minimum	Target	
RTS	15.0	20.0	18.4
S Humboldt Intercity	3.0	5.0	3.5
S. Humboldt Local	7.0	10.0	7.8
Willow Creek	4.5	5.0	4.7
Tish Non-Village	4.0	5.0	1.5
ETS	15.0	20.0	16.5
A&MRTS	30.0	34.0	34.1
Fortuna Transit	8.0	10.0	9.1
BLRTS	8.0	10.0	9.1
K-T NeT	2.5	4.0	2.4
Dial-a-Ride	2.5	4.0	0.9
4. SERVICE EFFICIENCY STANDARDS			
Farebox Return Ratio			
Service	Proposed Standards		Current Status
	Minimum	Target	
RTS	26.4%	40.0%	45.5%
S Humboldt Intercity	10.0%	25.0%	20.5%
S. Humboldt Local	10.0%	25.0%	13.7%
Willow Creek	10.0%	25.0%	20.8%
Tish Non-Village	10.0%	25.0%	4.5%
ETS	22.4%	25.0%	32.6%
A&MRTS	18.8%	25.0%	37.2%
Fortuna Transit	10.0%	12.0%	11.8%
BLRTS	10.0%	20.0%	n/a
K-T NeT	10.0%	20.0%	28.9%
Dial-a-Ride	10.0%	20.0%	19.4%
Subsidy per Passenger Trip			
Service	Proposed Standards		Current Status
	Maximum	Target	
RTS	\$3.00	\$2.25	\$2.38
S Humboldt Intercity	\$15.00	\$12.00	\$14.43
S. Humboldt Local	\$10.00	\$7.00	\$7.68
Willow Creek	\$10.00	\$7.00	\$12.16
Tish Non-Village	\$15.00	\$12.00	\$38.12
ETS	\$4.00	\$2.25	\$2.51
A&MRTS	\$2.50	\$1.75	\$1.57
Fortuna Transit	\$15.00	\$12.00	\$11.65
BLRTS	\$10.00	\$7.00	n/a
K-T NeT	\$25.00	\$20.00	\$27.77
Dial-a-Ride	\$25.00	\$20.00	\$42.85

Source: Monthly Reports. TPAs

Source: Monthly Reports, TPAs

b) Objective: Transit services will carry a minimum number of passengers per hour of service provided.

3) Service Efficiency Goals: Transit Providers will provide a sufficient amount of revenue from fares (or an agreeable substitute for fares, such as donations).

a) Objective: Transit providers will meet a minimum farebox return ratio (defined as fare revenue divided by operating cost).

b) Objective: Transit providers will strive to minimize the subsidy required per passenger trip provided.

The suggested performance standards to help achieve these goals and objectives are listed in Table 22. Standards include both minimum standards and target standards that providers should strive to meet, along with the current value of each measure. The data listed under “current status” were derived from 2015-16 reports. A summary of the current performance status in regards to the standards is as follows:

- Data on the miles between accidents has not yet been provided; the suggested minimum safety standard is 100,000 miles between accidents, with a target of 500,000 miles between accidents.
- On-time performance has yet to be provided. At a minimum, no buses should depart bus stops prior to the published departure time, and a minimum of 85 percent of trips should depart no more than five minutes late (with a target of 90 percent). Depending on current conditions, this standard may be adjusted for various services.
- A “service effectiveness goal” sets a standard for the minimum number of passengers that should be carried per vehicle hour of service. This varies by the type of service provided (rural versus in town routes, for example). Table 22 identifies a minimum number that should be carried, and a desired target. Currently, Tish Non-Village, K-T Net and DAR do not meet the suggested minimum, while A&MRTS exceeds the desired target.
- The minimum farebox return ratio for each transit system is determined by TDA law and are included in Table 22. Currently, the Tish Non-Village does not meet the minimum, and K-T Net meets their minimum by including donations from the Hoopa Tribe toward their farebox revenue. Fortuna is currently meeting the minimum, but has not in the past. In addition to the minimum required, Table 22 suggests target farebox return ratios based on current status and trends. The RTS, ETS and A&MRTS perform efficiently in this regard, exceeding the suggested targets.

INTRODUCTION

A number of data collection and outreach strategies were engaged in the process of conducting this TDP in order to ascertain existing transit needs. These included:

- Stakeholder Interviews
- SSTAC Meetings
- An Online Community Survey
- Onboard Passenger Surveys

The findings from the Stakeholder Interviews were discussed in Chapter 2, as these early interviews helped define the study issues. The SSTAC meetings were directed toward the SSTAC Strategic Plan and are incorporated into that plan (see Chapter 10). The findings of the Community Surveys and Onboard Survey, particularly as they relate to transit needs, are highlighted below, with more details provided in Appendices B and C.

ONLINE COMMUNITY SURVEYS

Online community surveys were conducted from March 20 to April 15, 2017. The purpose of the survey was to find out how familiar residents are with the local and regional transit services, how well they feel the services perform, and what improvements they would like to see. A total of 242 valid survey responses were received online. Additionally 37 of the community surveys were passed out on Blue Lake Rancheria Transit Service buses, and where appropriate, these are also included in the results. Surveys were also distributed at various social service and medical office locations, but none were submitted from these locations.

It should be emphasized that respondents voluntarily chose to participate in the survey and therefore the survey is not scientific as it does not represent a randomly selected sample. It does nonetheless provide useful anecdotal information which contributes to understanding the perceptions of transit and transit needs in the county. The detailed results are provided in Appendix B, and a summary, particularly as pertains to transit needs, is provided below.

Transit Familiarity

- Community members overwhelming stated that they knew the name of the public transportation serving them, but when asked to name those services, there was a wide range of variations of the actual transit service names.
- The top name recognition was A&MRTS, or Arcata and Mad River Transit System (16 percent of responses), followed by HTA or Humboldt Transit Authority (15 percent).

- There were 86 variations of names of transportation services listed in the surveys. While most of these responses were fairly close to the correct name, the responses indicate that name recognition for the transit services is low, and the wide range of acronyms and minor variations (such as system versus service) causes confusion.
- Half of respondents said they had seen advertising, and half said they had not.
- The most common sources of advertising that respondents noticed were on the transit website (39 percent), other sources than listed (31 percent), newspaper (29 percent), radio (21 percent) and television (12 percent). Of those “other sources” more than half specifically noted the transit vehicles as are a source of advertisement.

Propensity to Use Transit

Nearly 60 percent of survey respondents initially declined to answer whether they had ever used transit services in Humboldt County, but 88 individuals responding said they had used transit in the county. That left just 15 individuals who said they had not used transit and who **were further directed to answer questions about why they do not use transit or what improvements might encourage them to use transit.** Among those 15 individuals, the most common reason given for not using transit is that they have their own transportation, but other responses included:

1. The scheduling takes over an hour to get to Arcata from Myrtle town
2. nearest stop is 2 miles from my home and no good place to leave a car for hours and hours
3. Bus stop is miles from my home
4. Requires transfers to get where I want to go
5. bus stop to far away

Over half of the 15 individuals who had not used transit agreed with the statement that they would only ride the bus if they did not have a car.

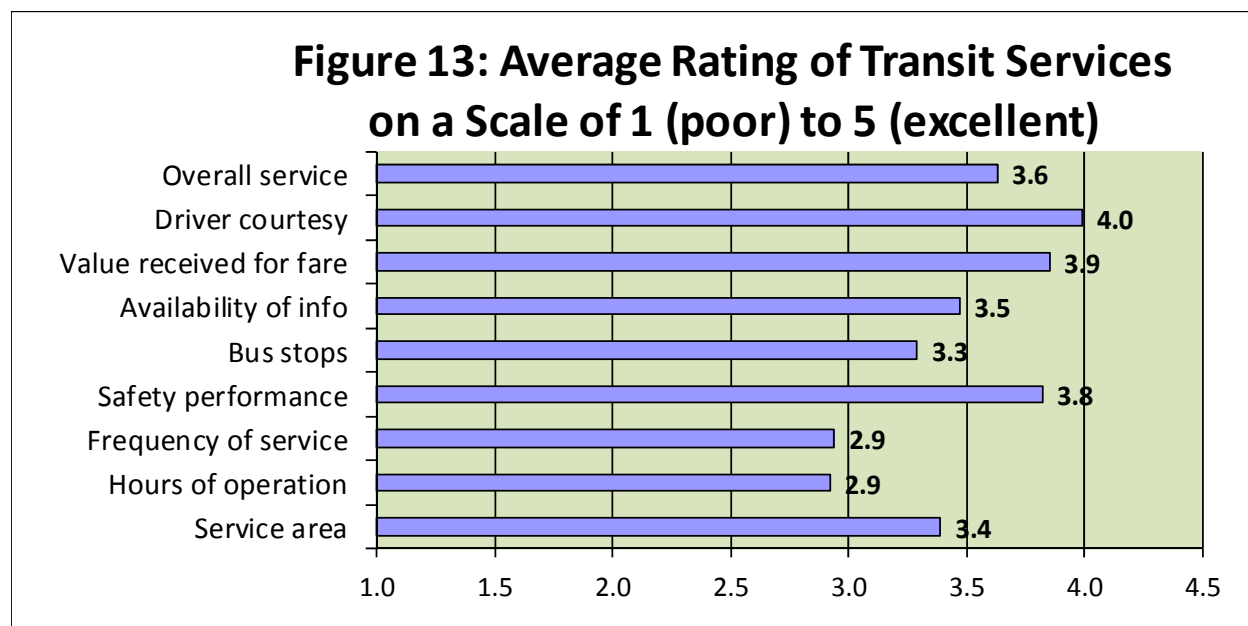
Transit Use Patterns

- Of 178 responses, 70 said that they use transit less than 1 day per month, 40 stated that they use transit 2-4 days per week, 25 use it more frequently (5 or more times per week) and 21 use it 1-4 days a month. This indicates those responding to the survey are not frequent users.
- Very few (14 respondents) had used Humboldt Dial-A-Ride in the last two years.

Opinions on Transit Service

Survey respondents were asked to rate various transit service attributes on a scale of 1 (poor) to 5 (excellent). As shown in Figure 13, “driver courtesy” had the highest average rating of 4.0. Other service attributes with relatively high ratings were “value received for fare” and “safety performance.” In contrast, “frequency of service” and “hours of operation” had the lowest average ratings, with scores under 3.0.

Similar to the above figure, respondents were asked to rate DAR attribute on a scale of 1 (poor) to 5 (excellent). The highest average ratings (with scores of 3.0 to 3.2) went to “driver courtesy,” “overall service,” “time spent on bus,” and “hours of operation.” The service attributes with the lowest ratings were “value received for fare” and “availability of information.”



Respondent Demographics

- Of 228 respondents, 35 percent live in Eureka and 24 percent live in Arcata, with the remaining spread throughout the county.
- Out of 211 individuals, 25 percent live alone, 40 percent live in a household with 2 people, 25 percent live in a 3- to 4-person household, and 10 percent in a household with five or more people.
- The majority of respondents were adults aged 23-61 (56 percent), with just 10 percent ages 18-22 and only 3 percent over 71 years old.

- Only 8 percent of respondents have no licensed drivers in their household and only 17 percent did not have a vehicle available. Responses were therefore not highly representative of transit dependent individuals, though 11.5 percent of respondents did say that they have a disability that limits use of fixed route buses.

ONBOARD PASSENGER SURVEYS

Onboard Surveys were conducted between March 28 to April 7, 2017 on HTA, RTS, ETS, A&MRTS, K-T Net, BLRTS and Fortuna Transit. On the busier routes operated by HTA and A&MRTS, trained surveyors handed out surveys to passengers and collected them. On less busy routes, self-help survey supplies were provided to passengers.

The survey instruments consisted of a one-page questionnaire in English on one side and Spanish on the reverse side, printed on card stock. Additionally, 14-font forms in English were available for visually impaired passengers. The surveys included an introduction, and between 22-26 questions, depending on the transit system. A total of 954 survey responses were received. The results of the survey effort are provided in detail in Appendix C, with highlights provided below.

- The majority of riders walked to or from the bus (86 percent of riders). ETS had the highest number of riders who transferred to get to or from their buses. A total of 3.1 percent were dropped off or picked up, and 2.3 percent used a bike to get to and from the bus.

A number of questions were posed to ascertain the transit dependency of riders, such as whether the rider had a driver's license, a car available for their trip, whether they used a scooter or wheelchair, and or how many vehicles they had in their household. The results include:

- A third of riders were using the bus one-way, indicating they likely had other options for a portion of their trip. However, only 18 percent of riders had a car available for their trip, even though half did have a driver's license, indicating that there is a strong dependency on transit.
- Only 2 percent of survey respondents used a wheelchair or scooter when accessing the fixed route bus.
- Approximately 20 percent of riders find it difficult to plan regional trips on transit.

- 44 percent of respondents come from households that do not have a vehicle available, and another 30 percent have only one vehicle in the household. ETS and Fortuna Transit passengers in particular have high numbers of households without vehicles available.
- Asked how they would make their trip if transit were not available, a third of riders said they would not make the trip, and 20 percent said they would walk.
- The majority of riders are young adults (59 percent are aged 18-34) reflecting the high use among students, and 8 percent of the passengers are over 64 years of age.
- Respondents used transit for all types of trip purposes, but the most common was for school or college (37 percent) and work (21 percent) or multiple trip purposes (13 percent). This answer varied a lot by transit system, with as many as 68 percent riding to or from college (A&MRTS) and a third riding for work on Southern Humboldt Local.
- The riders were asked about their source of transit information. The most common sources of information are the internet (27 percent) followed by the printed guide (20 percent), as shown in Table 33. Another 17 percent get information directly from the bus driver and 17 percent get information from the bus stops.
- Countywide, about a third of passengers use the Jack Pass, with 61 percent of A&MRTS riders using it, and 33 percent on RTS. While 12 percent of Fortuna riders said they use the Jack Pass, most are retired and none are students, and it is believed they incorrectly answered this question.
- Countywide, 38 percent of the riders were college students, with an especially high percentage (72 percent) on the A&MRTS service. Workers made up about 30 percent of the ridership among survey respondents. This is shown in Table 34.

Passengers were asked to rank service characteristics of transit services on a scale of “poor” (1) to “excellent” (5). The results are shown in Table 23. Overall, passengers ranked services in the “good” range, from an average of 4.1 on RTS to an average of 4.9 on Fortuna Transit, and 5.0 on Willow Creek (albeit from a very small sample). In terms of ranking all of the service characteristics, RTS had 68 percent of responses in the 4-5 range, and 9 percent in the 1-2 range. In particular, the cost of the service ranked an average of 3.6. Driver courtesy and system safety consistently had the most positive ranks.

Table 23: Onboard Surveys - Ranking of Service Attributes

Service	Average Ranking of Service Attributes: Scale of 1 (poor) to 5 (excellent)												Percent 4 or 5 rank
	System Safety	On- Time	Driver Courtesy	Duration of trip	Areas Served	Clean Bus	Phone Info	Printed Info	Internet Info	Cost of fare	Bus Stops	Overall Service	
A&MRTS	4.4	3.8	4.5	4.3	4.0	4.3	3.9	4.2	4.1	4.2	4.2	4.4	78.1%
ETS	4.5	4.3	4.5	4.2	4.0	4.3	4.0	4.4	4.2	4.0	3.9	4.4	79.2%
Fortuna Transit	4.9	4.8	4.9	4.9	4.8	4.9	4.9	4.8	4.7	4.7	4.8	4.9	93.9%
RTS Mainline	4.3	3.8	4.1	4.0	3.7	4.0	3.7	4.2	4.2	3.6	3.7	4.1	68.8%
So. Humboldt	4.3	4.4	4.5	4.3	3.7	4.2	3.6	4.2	3.9	4.0	3.7	4.4	77.8%
Tish Non-Village	4.4	4.4	4.2	4.6	3.4	3.6	3.4	5.0	4.6	4.6	3.0	4.6	73.3%
Willow Creek	4.7	4.3	5.0	4.5	5.0	4.7	4.7	4.7	3.0	4.7	5.0	5.0	97.5%
K-T Net	4.5	4.4	4.5	4.4	4.1	4.1	4.0	4.4	3.9	4.3	4.3	4.4	84.2%

Source: Onboard Surveys conducted March/April, 2017

Highest scores

Lowest Scores

Riders were also asked to list improvements they would most like to see. The results were provided as text responses and generally included one to three desired improvements. The responses have been categorized into the areas of desired improvements in Appendix C. In short, the most commonly requested improvements were for increased span of service (earlier, later, and on weekends); increased frequency; service to additional locations; improved bus stops; reduced fares; and improved information. Some respondents also had complaints about drivers leaving stops early or not stopping at the bus stop, but many also complimented the drivers and the service.

INTRODUCTION

This chapter provides an analysis of alternatives developed in response to findings in earlier chapters of the report, as well as in response to public input and staff meetings. The analyses were reviewed by staff and the public, and the preferred elements are recommended in the plan chapter (Chapter 9) of this document.

SERVICE ALTERNATIVES FOR ARCATA & MAD RIVER TRANSIT SYSTEM

Onboard survey results indicate the greatest desire for improvements to the AMRTS 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. For each of the alternatives, the following assumptions have been used:

1. Based on labor costs, the marginal operating cost of additional service is estimated at \$61.54 per hour of service; based on fuel and maintenance costs, mileage costs are estimated at \$1.34 per mile of service. A service that increases both hours and mileage would incur both costs.
2. Expanding service beyond existing hours incurs costs for a dispatcher, at an estimated rate of \$35.00/hour.
3. The fall and spring HSU semesters consists of 160 “in-session” weekdays and 32 Saturdays of transit operations.
4. The HSU “out-of-session” is assumed to consist of 90 weekdays and 18 Saturdays of transit operations.
5. While the average fare collected per passenger trip is currently \$0.92, because 73 percent of passengers surveyed said they were Jack Pass users, it is assumed that most new riders would also use a Jack Pass. As these new Jack Pass riders would not generate additional farebox revenue, an overall estimated \$0.13 of fare revenue would be generated per new passenger trip.

Adjust Schedule to Better Match HSU Class Schedules / Increase Trip Choices

HSU classes primarily start at the top of the hour and are dismissed at 0:50 minutes after. The Red Route (coming from Sunny Brae) arrives at HSU at 0:53, which gives students just 3 minutes

to get to the HSU library to catch the bus heading toward the Transit Center, and 7 minutes to get to their classes. The Gold Route arrives at 0:47 minutes after the hour (from Valley West) which fits class start times but departs too early for dismissals, and also departs at 0:11 (toward LK Wood and Valley West). Students who want to go to the Transit Center from the HSU library must either catch the Red Route at 0:53, or ride the Gold Route all the way out to Valley West, arriving at the Transit Center at the same time as the Red Route at 0:57.

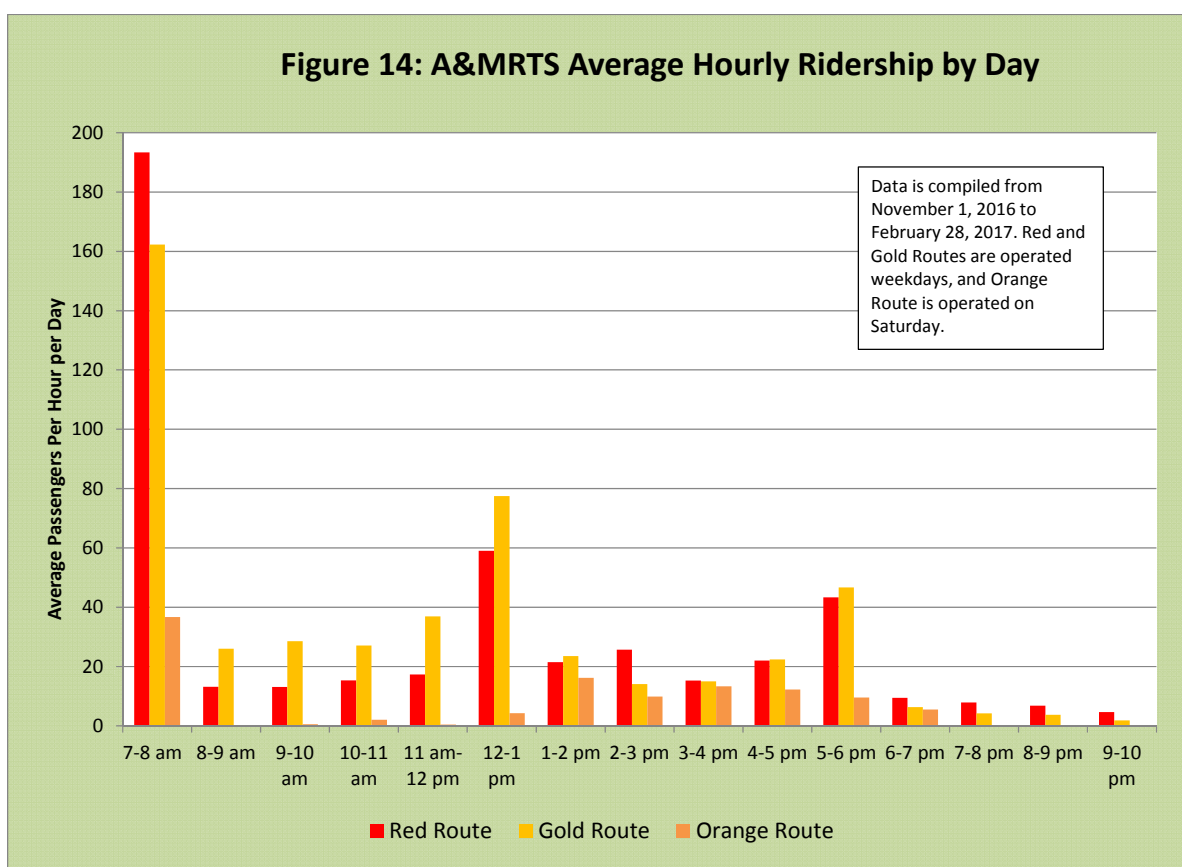
Passenger surveys indicate that only 1.7 percent of passengers transferred as part of their trip (and ridership by fare type confirms low rates for transfers), which means that the timed connection between routes at the Transit Center is of little importance. Scheduling the Red Route to depart the Transit Center hourly starting at 0:25 minutes after the hour (with the first run departing at 7:25 AM) would allow passengers to arrive on campus at 0:44 (from the Transit Center) and 0:54 (from LK Wood, going to Sunny Brae), and depart for the Transit Center at 0:12 minutes after the hour. The bus would have a layover at the Transit Center from 0:17 to 0:25 minutes after the hour. Passengers could get from HSU to the Transit Center either by taking the Red Route at 0:12 or the Gold Route at 0:47. As a result, the convenience of the overall schedule for HSU students and staff would be substantially improved.

While there would be no effect on the hours or miles of service operated, it is expected the greater convenience of this route would generate at least a 5 percent increase in annual ridership, or an estimated 13,260 annually. This is shown in Table 24.

Table 24: Arcata & Mad River Transit Service Alternatives Summary							
Service Alternative	Change In Annual Service						Change in Peak Buses
	Service Hours	Service Miles	Operating Cost ¹	Ridership	Fare Revenues	Operating Subsidy	
Adjust Route Schedules at TC / HSU	0	0	\$0	13,260	\$1,720	-\$1,720	0
Switch to Orange at 8 PM, End at Midnight	0	0	\$11,200	-820	-\$110	\$11,310	0
Last Call bus at 10 PM	160	1,920	\$18,000	800	\$100	\$17,900	0
Sunday Orange Route	400	4,800	\$52,100	4,900	\$640	\$51,460	0
Peak Shuttle: 2 short + 1 long	960	8,120	\$70,000	12,790	\$1,660	\$68,340	1
Peak Shuttle: 4 short	960	8,640	\$70,700	13,210	\$1,720	\$68,980	1
All Day In-Session Short Shuttle	1,760	15,840	\$129,600	15,980	\$2,080	\$127,520	1
Serve South G Street	0	1,860	\$2,500	880	\$110	\$2,390	0
Serve Community Center On Demand	0	-660	-\$900	3,980	\$520	-\$1,420	0
Eliminate Gold Route on LK Wood Blvd.	0	-5,820	-\$7,800	-18,040	-\$2,350	-\$5,450	0
Note 1: Operating cost is estimated at \$61.54 per hour plus \$1.34 per mile of service. If expanded beyond current hours, an additional \$35/hour of administrative cost is incurred.							

Increased Span of Service Alternatives

The most often requested service improvements listed on surveys was for increased span of service, and particularly for increased evening service. However, ridership by hour trends (Figure 14) show that ridership drops off significantly in the evening.¹ Just 45 passenger trips are provided on the Red and Gold routes together on an average weekday from 6:00 PM to 10:00 PM, which is 5 percent of the average weekday ridership. Yet this equals 25 percent of the daily operating hours of service. Often the reason given for requesting the later service is that HSU students wish to stay at the library later to study. To address the requests on surveys, while also considering the much lower ridership generated after 5:00 PM, the following alternatives were evaluated.



Expand Span of Evening Service – One Route After 8 PM, Ending at Midnight

One way to extend evening service without changing the total vehicle-hours of operation would be to switch to a one-bus service (the Orange Route) starting at 8:00 PM on weekdays, but

¹ It should be noted that while the trends in Figure 1 are generally accurate, the first hour peak actually occurs between 8-9 AM, not 7-8 AM.

operate until Midnight. While the service hours of operation would remain the same, this option would incur an operational cost of \$11,200 annually due to the need to keep a driver-dispatcher on call for two additional hours on weekdays. This is shown in Table 24. However, when evaluating ridership, it was determined that the reduced headways between 6:00 and 8:00 PM would result in a loss of 1,500 passenger trips per year, while the later service hours would only generate an estimated 700 passengers per year. Therefore, this alternative would result in a net loss of 800 passenger trips annually.

Expand Span of Evening Service – End at 9 PM, with On Demand Sweeper Bus at 10 PM

Another option for extending the span of service to meet the need of students who would like to stay on campus to study would be to operate a late evening bus “on-demand.” The routes would operate with the last departures from the transit center at 9:00 PM, as they currently do, but a final bus would be dispatched at 10:00 PM which would pick students up at the HSU library and deliver them to any location within a quarter mile of the existing bus stops in Arcata. The driver would poll passengers upon boarding at HSU, and determine the best route for delivering passengers most efficiently. This on-demand bus would afford students an opportunity to get close to home regardless of which route they typically ride. Similar services are operated for other college campuses, including the City of Lompoc Transit (COLT), which operates three night shuttles that pick students up at Hancock College and delivers them to any requested destination in the City, and Inyo Mono Transit service to Cerro Coso College in Bishop.

As shown in Table 24, this option would add 160 hours and 1,920 miles of service annually for an operating cost of \$18,000. It is estimated the service would generate approximately 800 passenger trips per year and fare revenues of \$100, equating to an annual subsidy of \$17,900.

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 \$52,100 annually (year round), including administrative costs, as shown in Table 24. Given that ridership on Saturdays in Arcata generates approximately a quarter of weekday ridership per hour (per staff estimates and hourly data by route), and Sundays generally produce even less ridership than Saturdays², it is estimated this alternative would generate 4,900 passenger trips per year. This would in turn result in an increase in fare revenue of \$640 and an increase in operating subsidy of \$51,460.

² In the City of San Luis Obispo, for example, Sunday ridership is 85% of Saturday ridership, and Saturday ridership is 45 percent of weekday ridership.

HSU – Downtown – South G Street Shuttle Alternatives

The Arcata City Engineer has been exploring ideas to operate a high-frequency shuttle bus from HSU to South G Street (including the Arcata Marsh). The onboard passenger surveys (bearing in mind that the surveys provided snapshot data which does not have a high degree of reliability) indicates that the strongest areas of demand for service are HSU, downtown, Valley West, Greenview Market and Sunny Brae.

For this alternative, two routes are considered: a “short shuttle” from the Transit Center to the HSU library via H and G Streets, and a “long shuttle” which adds a loop from the Transit Center to South G Street via H Street to Samoa, G Street, Front Street, 3rd Street and back via G Street. Additionally, the Arcata Marsh Interpretive Center could be served by request on the long shuttle route. The short shuttle would be 2.25 miles and take 12 minutes to serve, while the long shuttle would be 3.9 miles and would take 20 minutes to serve. The on-demand stop would add 0.38 miles and 2-3 minutes to the route. The short and long shuttle routes are shown in Figure 15, and options for serving them are discussed below. Any of these alternatives would require an additional peak vehicle in operation, as indicated in Table 24.

Peak Hour, In-Session Long/Short Shuttle

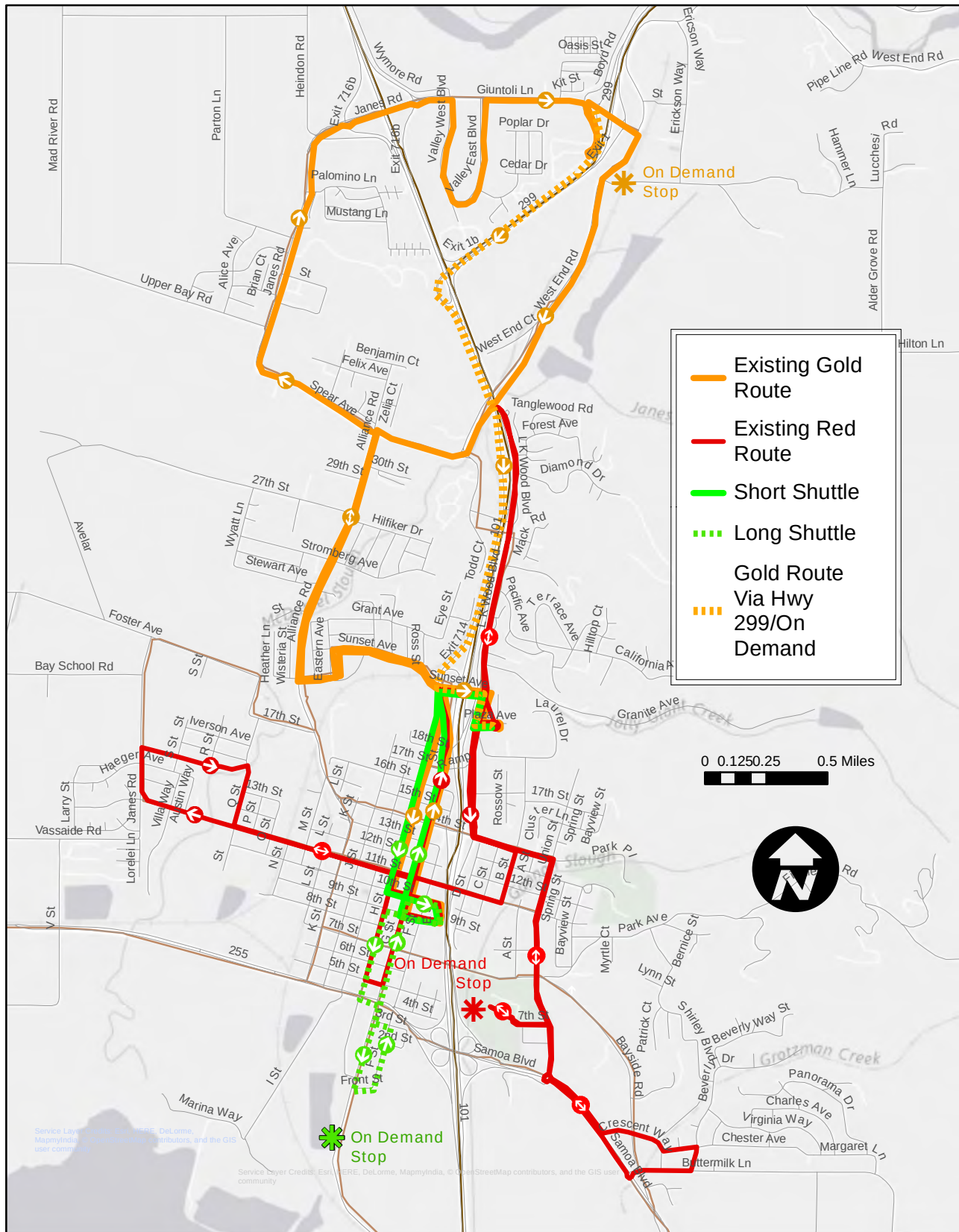
Under this alternative, service would be offered for peak hours (7:00 to 9:00 AM, 11:30 AM to 1:30 PM, and 4:30 to 6:30 PM) during the school year. These operating hours would increase the ability to commute between the city core area and HSU during commute times, as well as provide for mid-day trips (such as a lunch trip into downtown from campus).

Two short and one long shuttle run would be operated each hour (a total of 50 minutes with a ten minute layover/break each hour at the Transit Center). As shown in Table 24, this would add 960 hours and 8,120 miles of service at an annual marginal operating cost of \$70,000. While this would generate new ridership, it would also take some ridership away from the existing Gold and Red routes. The overall net increase in ridership is estimated at 12,790, which would generate \$1,660 in fare revenue for a subsidy of \$68,340 annually.

Peak Hour, In-Session Short Shuttle

While there are apartments south of Samoa Boulevard which would be newly served by the long shuttle³ and the Arcata Marsh is a popular place to visit, potential travel demand between HSU and the Transit Center is much higher. Under this alternative, only the short shuttle would be served four times per hour during peak hours on weekdays. This would add 960 hours and

³ Currently these apartments are 0.3 miles from the nearest stop.



8,640 miles of service at an annual marginal operating cost of \$70,700. While this would generate new ridership, it would also take ridership away from the existing Gold and Red routes. The overall increase in ridership is estimated at 13,210, which would generate \$1,720 in fare revenue for a subsidy of \$68,340 annually.

All Day In-Session Short Shuttle

Under this alternative, the short shuttle would operate four times per day from 7:00 AM to 6:00 PM while HSU is in session, without the mid-morning and mid-afternoon breaks in service assumed in the previous alternatives. This would add 1,760 hours and 15,840 miles of service annually, at a cost of \$129,600, as shown in Table 24. Ridership would shift from the Gold and Red Routes, but new ridership would be generated as well, for an estimated increase of 15,980 passenger trips per year and fare revenue of \$2,080. The marginal subsidy would be \$127,520 annually.

Serve Area South of Samoa Boulevard

The area south of Samoa Boulevard on H Street has some high-density, low income housing that currently is just over a quarter mile from the nearest bus stop (5th and G Street). While the long/short shuttle alternative would serve this area, another route option to consider is extending the Red Route to the south end of H Street. This would add 0.6 miles and three minutes to the route, which would make the route 55 minutes instead of 52 minutes and could cause on-time performance issues. The cost of adding miles would be \$2,500 annually, and would generate an estimated 880 additional passenger trips annually for a subsidy of \$2,390, as shown in Table 24. However, if on-time performance issues were significant, ridership might not be realized. Including this route segment on the Gold Route would add 1.1 mile and 5 minutes to the route. This alternative might be more successful if combined with an “on demand” stop as described below.

On-Demand Stops

Under this alternative, stops on the route which only generate a few stops per day would be converted to “on demand” stops. Passengers would call dispatch a half hour before they would like to ride the bus and request that the bus stop at the on-demand location, or to get dropped off, the passenger would simply ask the driver to serve the on-demand stop as they board. Only a couple of stops currently might benefit for conversion to “on-demand” including:

- Renner Station – bus would return via SR 299 unless a stop was requested

- Arcata Community Center – bus would not detour through parking area unless a request was made.

Eliminating the Renner Station stop from the Gold Route has the potential to reduce the route by 1.0 mile and 6 minutes. However, the route would not return via Spear Avenue, so anyone wishing to go to HSU north of Foster Avenue would need to catch the route as it headed northbound. For example, someone boarding at Alliance and Stromberg can currently catch the northbound bus at 0:22 after the hour to go to Valley West, or southbound at 0:42 past the hour to go to HSU. Under this option, they would have to catch the 0:22 bus and ride through Valley West to go to HSU. Furthermore, the Spear and West End Road stop would be eliminated, requiring passengers who use this stop to instead use the stop at Spear and Alliance instead (0.29 miles away). During surveys, 4 passengers boarded at the Spear and West End Road stop, and one at the Renner stop. Combined with the inconvenience passengers would experience of having to board earlier and ride longer, this alternative would not be beneficial.

Removing the Community Center from the Red Route has the potential to reduce the route by 0.5 miles and 3 minutes. During surveys, no passengers specifically identified the Community Center as their boarding or alighting location, although some listed “Union Street” which might include the Community Center. This stop is a good candidate to serve on-demand, which would benefit on-time performance, reduce travel time for other passengers, and reduce miles put on the vehicles on most runs. However, this location also includes the Senior Center which serves meals on site Tuesday through Friday from 11:30 AM to 12:15 PM. On these days, the bus would serve the stop regardless of requests at 10:41 AM and 12:41 PM, but the remainder of the time, the stop would be served on demand. While this would require some educating of the public, on-demand stops are successfully used for many transit systems, including El Dorado Transit in El Dorado County and Gold Country Stage in Nevada County. The cost savings for this alternative would be small (possibly \$900 annually due to reduced mileage) as shown in Table 24. Ridership can be estimated to increase by 3 percent due to shorter in-route travel time (3,980 passenger trips annually) and better on-time performance. This alternative would reduce the annual subsidy by an estimated \$1,420.

Reduce Route Redundancy on LK Wood Boulevard

Currently, both the Red and Gold Routes serve LK Wood Boulevard north of Sunset Avenue. Under this alternative, only the Red Route would serve this area. Therefore, passengers who currently catch the 0:11 bus from HSU to LK Wood would only have the option to catch the 0:27 Red Route instead. This would reduce the Gold Route by 1.75 miles and 8 minutes (which could, for example, be used to serve the area south of Samoa Boulevard, as described above). This alternative would save an estimated \$7,800 annually in reduced mileage, but because this

corridor generates a high amount of ridership, it would also result in a ridership loss of an estimated 18,040 one-way trips and \$5,450 in fare revenue, as shown in Table 24.

Serve Bayside Post Office

The Bayside Post Office is at the edge of the Arcata city limits, but is an unserved area. The post office is 1.1 mile from the nearest bus stop, so at a minimum, serving it would require adding 2.25 miles and 11 minutes to the route. This is not feasible under the current hourly headway. Because degrading the Red Route frequency to more than an hour would have a substantial negative impact on all Red Route riders, this would require operating an additional bus.

Any demand for transit service in this area would be generated by 1) the Jacoby Creek K-8, 2) small businesses including a small café, hot yoga and a gym located at Old Arcata Road and Hyland Drive and 3) residents in the area. The school has an enrollment of approximately 450 students, but typically only upper grade students would even consider riding public transit, reducing this number by half. Furthermore, the majority of families find it easier to drive or carpool their children to school rather than to have them sit on a public bus for a much longer travel time. The transit mode split is likely to be no more than 2.0 percent, which would generate a maximum of 1,240 trips per school year. Residential demand is estimated to have the potential to generate an estimated 2,900 transit trips in the area annually. This level of demand is too low to warrant extending a route to this area. Even operating four hours per day on weekdays would require an additional 1,000 hours per year and cost \$77,700. Due to this cost and low ridership potential this alternative is not considered further.

Comparison of Arcata Alternatives and Performance Analysis

A review of Table 24 reflects the wide variation in the impacts of the various alternatives on A&MRTS annual ridership. As shown in Figure 16, these range from an increase of 15,980 (for the all-day Short Shuttle) to a reduction of 18,040 (for elimination of the Gold Route along LK Wood Boulevard). Each of the alternatives for shuttle service have a relatively high potential to increase ridership, as does starting service at 6:00 AM on weekdays during the school year.

Alternatives Performance Analysis

An analysis of the performance of the service alternatives is presented in Table 25. This considers the following key transit service performance measures.

Figure 16: Change in Ridership - Arcata Service Alternatives

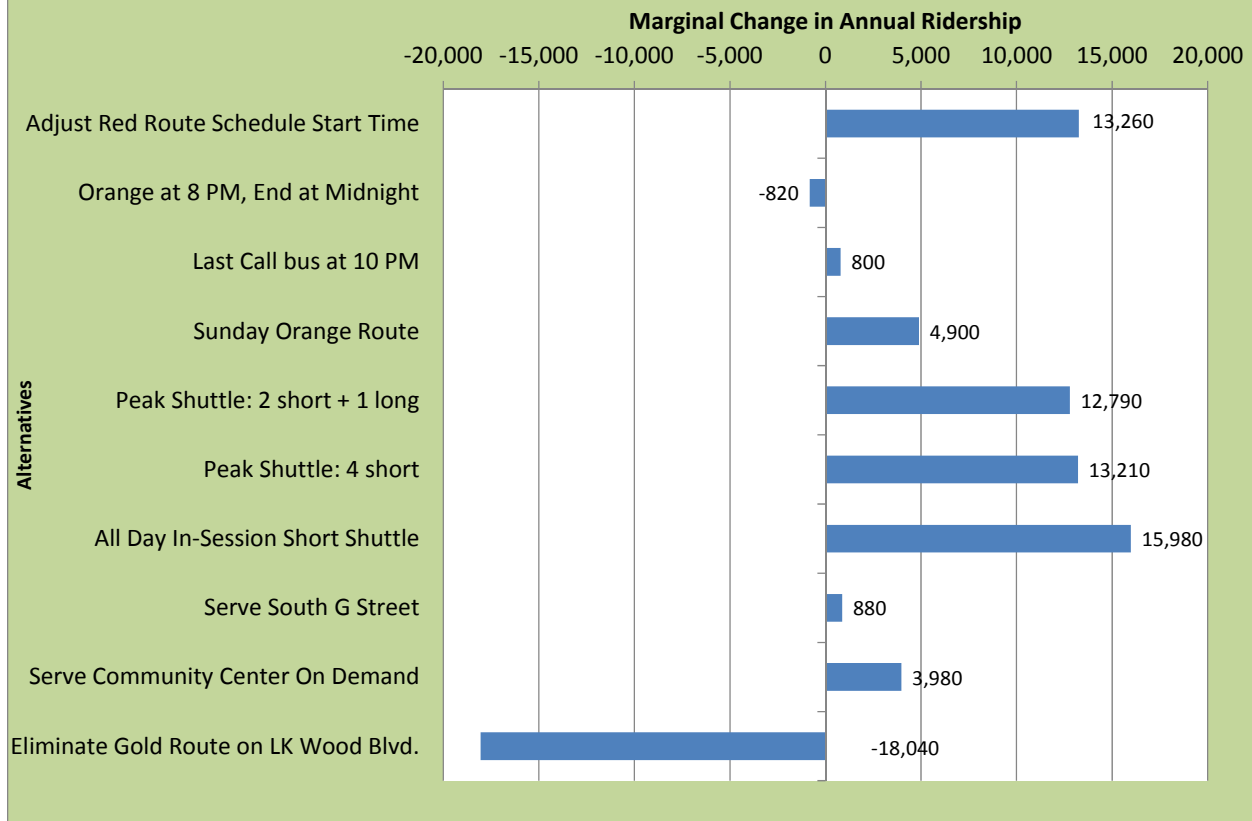


Table 25: Arcata Service Alternatives Performance Analysis

Alternative	Marginal Operating Cost	Change in Annual Ridership		Marginal Cost per Passenger	Marginal Subsidy per Passenger	Farebox Return Ratio
Adjust Route Schedules at TC / HSU	\$0	13,260	NA	\$0.00	-\$0.13	NA
Orange at 8 PM, End at Midnight	\$11,200	-820	NA	-\$13.66	-\$13.79	-1%
Last Call bus at 10 PM	\$18,000	800	5.0	\$22.50	\$22.38	1%
Sunday Orange Route	\$52,100	4,900	12.3	\$10.63	\$10.50	1%
Peak Shuttle: 2 short + 1 long	\$70,000	12,790	13.3	\$5.47	\$5.34	2%
Peak Shuttle: 4 short	\$70,700	13,210	13.8	\$5.35	\$5.22	2%
All Day In-Session Short Shuttle	\$129,600	15,980	9.1	\$8.11	\$7.98	2%
Serve South G Street	\$2,500	880	NA	\$2.84	\$2.72	4%
Serve Community Center On Demand	-\$900	3,980	NA	-\$0.23	-\$0.36	-58%
Eliminate Gold Route on LK Wood Blvd.	-\$7,800	-18,040	NA	\$0.43	\$0.30	30%

Source: LSC Transportation Consultants, Inc.

Passenger-Trips per Vehicle-Hour

The marginal passenger-trips per vehicle-hour is a key measure of the productivity of a transit service. Note that some alternatives do not result in a change in vehicle-hours, making this

measure inapplicable. As shown in Table 25, the most productive change in ridership would be starting weekday service at 6:00 AM, which would generate additional 23.8 passenger trips per additional hour of service.

The shuttle services would generate between 9.1 and 13.8 passenger trips per hour of service, with the most productive of these options being the shorter downtown-HSU route option. The “last call” bus is only estimated to generate 5 passenger trips per hour.

Cost Per Passenger-Trip

This measure indicates two alternatives that yield negative numbers. The Orange Route service until Midnight alternative would reduce ridership while increasing costs (a poor result), while serving the Community Center on demand would increase ridership while reducing costs (a positive result). One alternative (eliminating Gold Route on LK Wood Boulevard) yields a positive value, resulting from a decrease in both costs and ridership. In this case, the fact that only \$0.43 is saved for every passenger-trip lost indicates a relatively poor alternative. Among the other alternatives (which increase both ridership and costs), the better options are those with a relatively low cost per passenger. By this measure, serving South G Street by extending an existing route is a relatively good option (requiring a relatively low \$2.84 per new passenger), while operating a last call bus at 10:00 PM requires \$22.50 per new passenger. Other alternatives that are relatively good performers by this measure are starting the Red and Gold Routes at 6:00 AM (\$4.01) and the peak shuttle alternatives (\$5.35 to \$5.47).

Subsidy per Passenger-Trip

This measure directly relates the key public input (funding) to the key desired output (ridership). The results, as shown in Table 25 and Figure 17, exhibit the same pattern as the previous performance measure, as the marginal fare per passenger-trip is low.

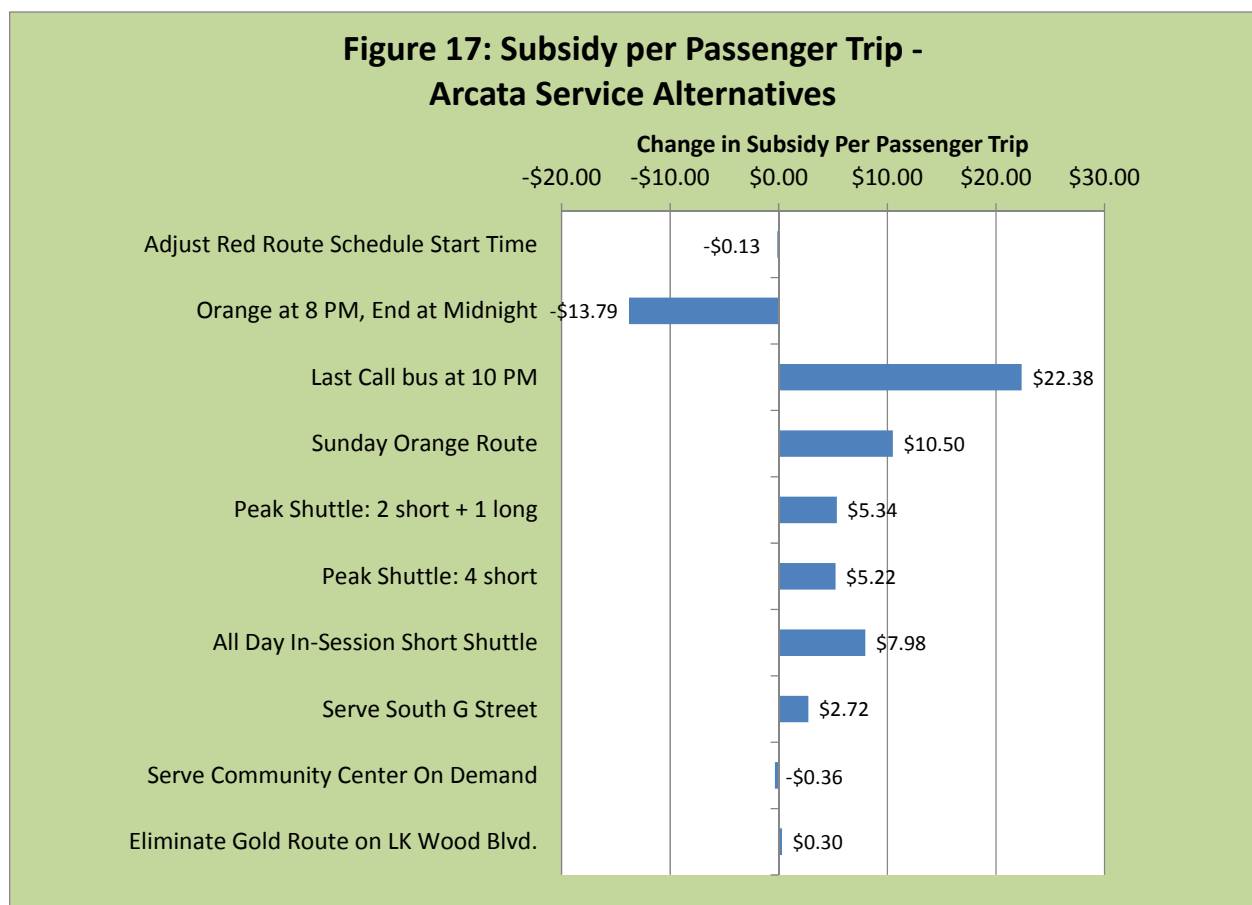
Summary

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:

- Changing the schedule of the Red Route to leave the Transit Center at 0:25 AM after the hour.
 - Serving the Community Center on demand (except on runs which serve the meal site).
 - Serving South G Street on an existing route (assuming that this can be accommodated within the current hourly schedule).
- The shuttle service alternatives also yield reasonably good productivity (passengers per hour of service) and subsidy per passenger figures. These alternatives have the potential to increase mobility between the downtown core and the HSU campus, which may result in economic benefits along the corridor.

Of the shuttle service options, the “short” route focusing on providing higher frequency between downtown and HSU is the better performing alternative.



- Alternatives which do not perform well and should be eliminated from further consideration include:
 - Serving the Bayside Post Office
 - Switching to Orange Route at 8 PM and ending at midnight
 - A “last call” bus
 - Eliminating redundant service on LK Wood Boulevard

SERVICE ALTERNATIVES FOR REDWOOD TRANSIT SYSTEM

Redwood Transit System 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 Chapter 4) were used to estimate the per-hour and per-mile marginal operating costs of each service. These costs, shown in Table 26, 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 \$35 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.

Table 26: HTA Cost Allocations FY 2015-16									
Transit Service	Hourly-based Costs	Hours of Service	Marginal Hourly-Based Cost per Hour	Mileage-based Costs	Miles of Service	Marginal Mileage-Based Cost per Mile	Fare Revenue	Passenger Trips	Average Fare per Passenger
Redwood Transit System	\$1,121,702	33,549	\$33.43	\$533,040	722,948	\$0.74	\$965,000	615,656	\$1.57
Eureka Transit Service	\$574,580	14,405	\$39.89	\$135,331	158,688	\$0.85	\$290,000	237,677	\$1.22
Tish Non-Village	\$72,619	2,228	\$32.60	\$44,010	40,132	\$1.10	\$19,188	3,452	\$5.56
Willow Creek	\$65,415	2,837	\$23.06	\$65,415	106,755	\$0.61	\$49,000	13,343	\$3.67
So Humboldt Intercity	\$225,285	6,295	\$35.79	\$133,005	232,254	\$0.57	\$90,000	21,846	\$4.12
So Humboldt Local	\$54,071	1,499	\$36.06	\$36,602	27,540	\$1.33	\$14,000	11,672	\$1.20
Source: HTA Admin and Maintenance Expenses (Feb 2017)									

RTS MAINLINE

Alternatives for service improvements on RTS were developed through a number of 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.

- There have been ongoing requests for more service to Manila, as well as passengers expressing the desire to eliminate service to Manila in order to reduce travel times.
- Service to Old Arcata Road was identified as an unmet need, but no operational analysis of this potential service has been conducted.
- The Consultant's review of performance indicates that some Southern Humboldt runs as well as the Tish Non-Village service have low ridership.
- Overcrowding is an issue on the Mainline Route between Arcata and Eureka.

Mainline Route Time of Day and Origin/Destination Trip Patterns

In order to evaluate span of service alternatives, it is helpful to evaluate existing patterns of use by time of day. It is difficult to arrange the Mainline ridership data by time of day because the route is not on clock headways and starts and ends at various locations between the northernmost stop (Trinidad Park and Ride) and the southernmost stop (Hoby's Market in Scotia). Instead, Table 27 and Figure 18 show the average passengers per hour by RTS Trip Number and by trip starting time.

The data presented shows two trends: 1) ridership is lowest before 8:00 AM and after 5:00 PM, and remains fairly steady throughout the day, and 2) productivity (passengers per hour) is by far highest on trips between College of the Redwoods and Humboldt State University (Trips numbers 7, 15, 35 and 41) on which between 43 to 58 passenger trips are carried per service hour (compared with an average of 23.7 passenger trips per hour of service).

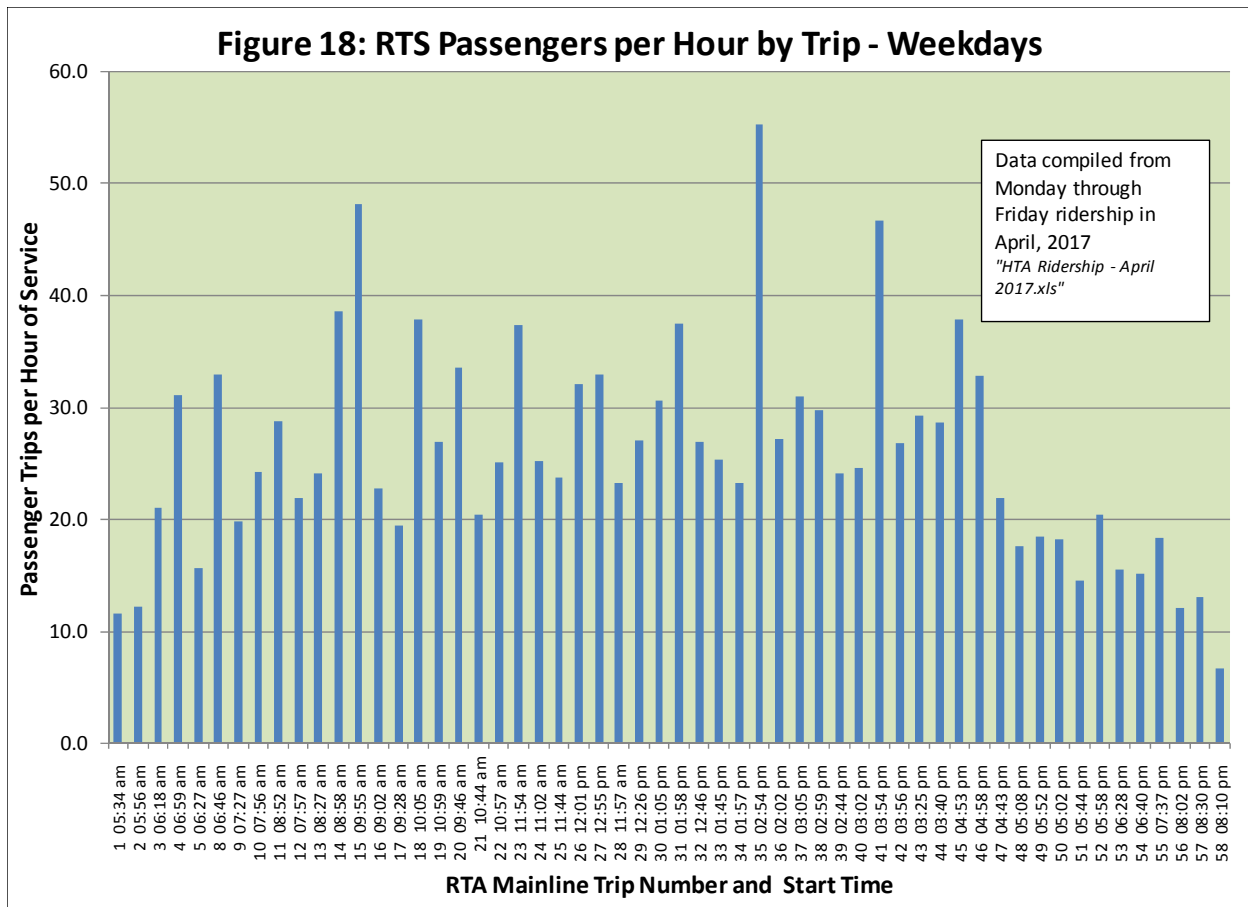
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Further analysis of the data shows ridership by route segment, compared to the number of runs operated on those route segments. The ridership by origin and destination was plotted, and a trend line was included which shows the current number of runs provided in the identified corridors (Figure 19). Where the number of daily passengers is much lower than the level of service provided, this represents service which has capacity to serve additional ridership and suggests that additional service is not warranted, and possibly service could be reduced without a detrimental impact to ridership. On the other hand, where daily passenger trips are high compared with the number of runs provided, this represents maximum capacity and suggests service increases could be beneficial in terms of increasing ridership.

Table 27: RTS Weekday Mainline Route - Passengers per Hour by Trip

Trip #	Start		End		Average Passenger Trips per..			
	Location	Time	Location	Time	Wkdy	Day	Minutes	Vehicle-Hour
NB 1	Kenmar Rd (Fortuna Overlook)	05:34 am	Arcata/Eureka Airport	07:33 am	462	23.1	119	11.6
SB 2	Arcata/Eureka Airport	05:56 am	Hoby's Market, Scotia	08:12 am	556	27.8	136	12.3
NB 3	Kenmar Rd (Fortuna Overlook)	06:18 am	HSU Library Circle	07:36 am	546	27.3	78	21.0
SB 4	HSU Library Circle	06:59 am	College of the Redwoods	07:45 am	477	23.9	46	31.1
NB 5	Hoby's Market, Scotia	06:27 am	Trinidad Park & Ride	08:58 am	791	39.6	151	15.7
NB 7	College of the Redwoods	07:56 am	HSU Library Circle	08:39 am	626	31.3	43	43.7
SB 8	Trinidad Park & Ride	06:46 am	Hoby's Market, Scotia	09:04 am	1,514	75.7	138	32.9
NB 9	Hoby's Market, Scotia	07:27 am	Arcata/Eureka Airport	09:38 am	867	43.4	131	19.9
SB 10	HSU Library Circle	07:56 am	College of the Redwoods	08:44 am	387	19.4	48	24.2
NB 11	College of the Redwoods	08:52 am	HSU Library Circle	09:35 am	413	20.7	43	28.8
SB 12	Arcata/Eureka Airport	07:57 am	Kenmar Rd (Fortuna Overlook)	09:58 am	884	44.2	121	21.9
NB 13	Hoby's Market, Scotia	08:27 am	Arcata/Eureka Airport	10:38 am	1,051	52.6	131	24.1
SB 14	HSU Library Circle	08:58 am	College of the Redwoods	09:45 am	605	30.3	47	38.6
NB 15	College of the Redwoods	09:55 am	HSU Library Circle	10:38 am	690	34.5	43	48.1
SB 16	Arcata/Eureka Airport	09:02 am	Kenmar Rd (Fortuna Overlook)	10:50 am	820	41.0	108	22.8
NB 17	Hoby's Market, Scotia	09:28 am	Trinidad Park & Ride	11:58 am	970	48.5	150	19.4
SB 18	HSU Library Circle	10:05 am	College of the Redwoods	10:52 am	593	29.7	47	37.9
NB 19	College of the Redwoods	10:59 am	HSU Library Circle	11:42 am	387	19.4	43	27.0
SB 20	Trinidad Park & Ride	09:46 am	Hoby's Market, Scotia	12:04 pm	1,541	77.1	138	33.5
NB 21	Kenmar Rd (Fortuna Overlook)	10:44 am	Arcata/Eureka Airport	12:38 pm	776	38.8	114	20.4
SB 22	HSU Library Circle	10:57 am	College of the Redwoods	11:44 am	393	19.7	47	25.1
NB 23	College of the Redwoods	11:54 am	HSU Library Circle	12:37 pm	535	26.8	43	37.3
SB 24	Arcata/Eureka Airport	11:02 am	Kenmar Rd (Fortuna Overlook)	12:50 pm	908	45.4	108	25.2
NB 25	Kenmar Rd (Fortuna Overlook)	11:44 am	Arcata/Eureka Airport	01:38 pm	901	45.1	114	23.7
SB 26	HSU Library Circle	12:01 pm	College of the Redwoods	12:48 pm	503	25.2	47	32.1
NB 27	College of the Redwoods	12:55 pm	HSU Library Circle	01:38 pm	472	23.6	43	32.9
SB 28	Arcata/Eureka Airport	11:57 am	Kenmar Rd (Fortuna Overlook)	01:50 pm	878	43.9	113	23.3
NB 29	Hoby's Market, Scotia	12:26 pm	Trinidad Park & Ride	02:53 pm	1,325	66.3	147	27.0
SB 30	HSU Library Circle	01:05 pm	College of the Redwoods	01:52 pm	479	24.0	47	30.6
NB 31	College of the Redwoods	01:58 pm	HSU Library Circle	02:41 pm	538	26.9	43	37.5
SB 32	Trinidad Park & Ride	12:46 pm	Hoby's Market, Scotia	03:04 pm	1,240	62.0	138	27.0
NB 33	Fortuna Park and Ride	01:45 pm	Arcata/Eureka Airport	03:39 pm	962	48.1	114	25.3
SB 34	HSU Library Circle	01:57 pm	College of the Redwoods	02:44 pm	364	18.2	47	23.2
NB 35	College of the Redwoods	02:54 pm	HSU Library Circle	03:37 pm	792	39.6	43	55.3
SB 36	Arcata/Eureka Airport	02:02 pm	Kenmar Rd (Fortuna Overlook)	03:58 pm	1,053	52.7	116	27.2
NB 37	College of the Redwoods	03:05 pm	McKinleyville High School	04:18 pm	754	37.7	73	31.0
SB 38	HSU Library Circle	02:59 pm	College of the Redwoods	03:46 pm	466	23.3	47	29.7
NB 39	Kenmar Rd (Fortuna Overlook)	02:44 pm	Arcata/Eureka Airport	04:37 pm	910	45.5	113	24.2
SB 40	Arcata/Eureka Airport	03:02 pm	Kenmar Rd (Fortuna Overlook)	04:50 pm	884	44.2	108	24.6
NB 41	College of the Redwoods	03:54 pm	HSU Library Circle	04:39 pm	701	35.1	45	46.7
SB 42	HSU Library Circle	03:56 pm	College of the Redwoods	04:43 pm	421	21.1	47	26.9
NB 43	Hoby's Market, Scotia	03:25 pm	Trinidad Park & Ride	05:58 pm	1,491	74.6	153	29.2
SB 44	Trinidad Park & Ride	03:40 pm	Hoby's Market, Scotia	06:04 pm	1,374	68.7	144	28.6
NB 45	College of the Redwoods	04:53 pm	HSU Library Circle	05:36 pm	543	27.2	43	37.9
SB 46	HSU Library Circle	04:58 pm	College of the Redwoods	05:45 pm	515	25.8	47	32.9
NB 47	Kenmar Rd (Fortuna Overlook)	04:43 pm	Arcata/Eureka Airport	06:42 pm	868	43.4	119	21.9
SB 48	HSU Library Circle	05:08 pm	Kenmar Rd (Fortuna Overlook)	06:22 pm	434	21.7	74	17.6
NB 49	College of the Redwoods	05:52 pm	Trinidad Park & Ride	07:22 pm	555	27.8	90	18.5
SB 50	Arcata/Eureka Airport	05:02 pm	Kenmar Rd (Fortuna Overlook)	06:58 pm	706	35.3	116	18.3
NB 51	Kenmar Rd (Fortuna Overlook)	05:44 pm	Arcata/Eureka Airport	07:34 pm	534	26.7	110	14.6
SB 52	Arcata/Eureka Airport	05:58 pm	Hoby's Market, Scotia	08:00 pm	830	41.5	122	20.4
NB 53	Hoby's Market, Scotia	06:28 pm	Arcata/Eureka Airport	08:41 pm	690	34.5	133	15.6
SB 54	Trinidad Park & Ride	06:40 pm	Kenmar Rd (Fortuna Overlook)	08:46 pm	635	31.8	126	15.1
NB 55	Kenmar Rd (Fortuna Overlook)	07:37 pm	Valley West Blvd	09:10 pm	569	28.5	93	18.4
SB 56	Arcata/Eureka Airport	08:02 pm	Kenmar Rd (Fortuna Overlook)	09:46 pm	438	21.9	108	12.2
NB 57	Hoby's Market, Scotia	08:30 pm	McKinleyville High School	10:27 pm	508	25.4	117	13.0
SB 58	Trinidad Park & Ride	08:10 pm	Kenmar Rd (Fortuna Overlook)	10:10 pm	267	13.4	120	6.7
TOTAL					41,392	2,069.6	5,233	23.7

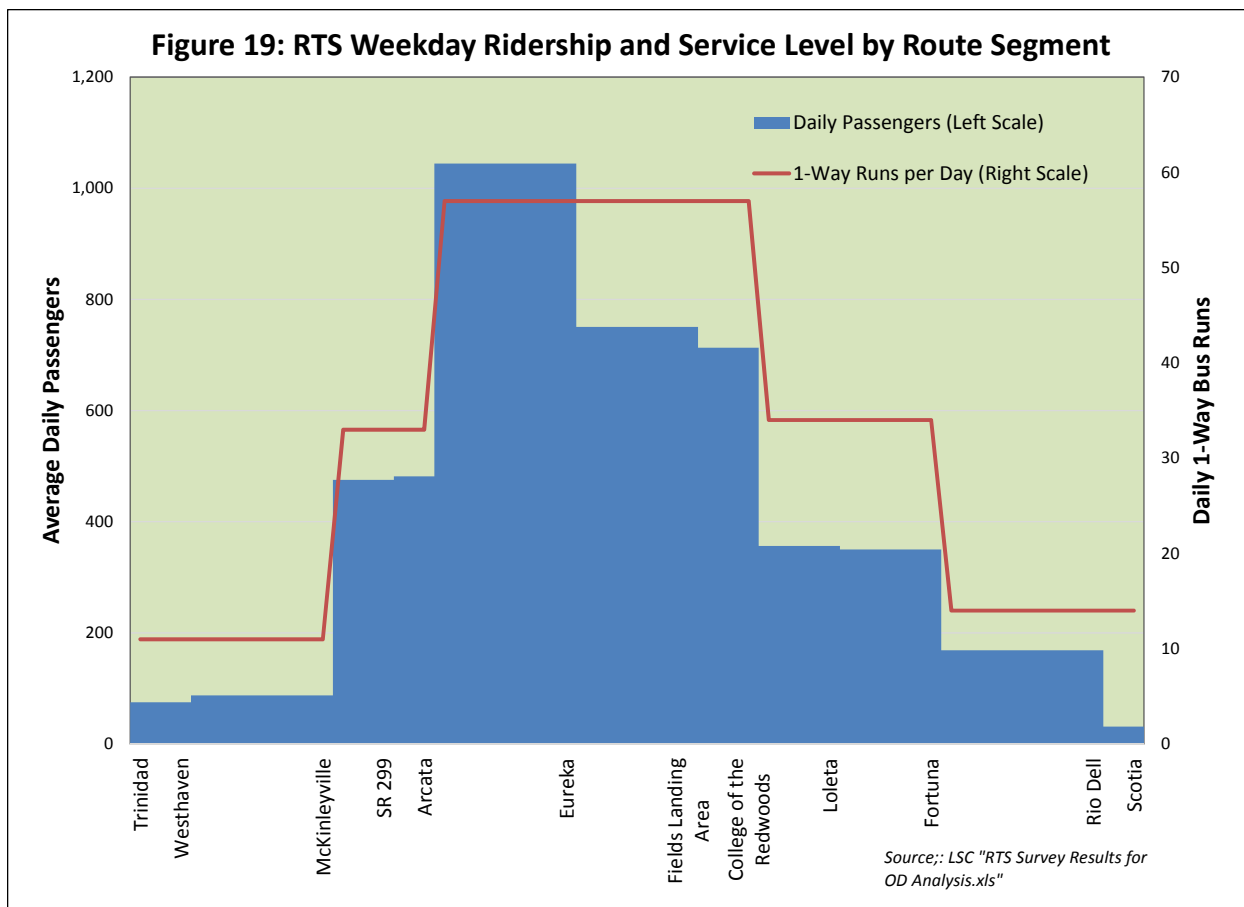
Source: HTA Ridership data April 2017



This comparison indicates the following:

- The current service plan generally reflects ridership demand
- Additional service between Arcata and Eureka could serve additional ridership and perhaps address overcrowding.
- Current capacity between Eureka and Fortuna is relatively high compared with ridership, indicating the potential to reduce the number of daily runs.
- The disparity between the ridership levels and daily runs both north of McKinleyville and south of Rio Dell indicates that there is little potential for additional ridership that would be generated by expanded service, and that there could be cost savings with relatively low impact on ridership if runs were shortened.

With consideration of public input and ridership analysis, the service alternatives are evaluated as presented below.



EXPAND WEEKEND SERVICE ON RTS

A common request on the RTS surveys was for increased frequency and later hours of service on weekends. Currently, there are 119 hours of RTS service per weekday, compared to 37 hours on Saturdays and 25 hours on Sundays. Nonetheless, this level of service generates 18.2 passengers per hour of service on weekdays compared to 20.8 on Saturdays and 16.9 on Sundays. This represents a relatively high level of ridership on weekends considering transit systems frequently find weekend ridership to be much lower than weekday ridership. This indicates increasing service on weekends has the potential to produce a reasonable level of ridership, though offering too much service would simply spread out the existing ridership to available times, making the service more convenient for passengers but less cost effective for the transit operator.

As discussed previously, an additional factor at play is the origin and destination of trips. The analysis of trips' starting and ending locations garnered from survey data indicates that the highest levels of RTS ridership occurs between Arcata and Eureka, then between Arcata and Fields Landing, followed by ridership between McKinleyville and Fields Landing and finally

McKinleyville and Fortuna. The alternatives presented below are presented with these factors considered.

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 \$7,600, as shown in Table 28. The increase in hours is estimated to generate 1,400 annual passenger trips per year with expected fare revenue of \$2,200 (based on average fares collected on the route). The subsidy required would therefore be \$5,400.

Service Alternative		Change In Annual Service						Change in Peak Buses
		Service Hours	Service Miles	Operating Cost	Ridership	Fare Revenues	Operating Subsidy	
Mainline Route Alternatives	Later Saturday service on RTS Mainline	114	2,500	\$7,600	1,400	\$2,200	\$5,400	0
	Later Sunday service on RTS Mainline	104	2,300	\$7,400	1,000	\$1,200	\$6,200	0
	Deviate to College of the Redwoods 2x NB & SB Saturdays	21	620	\$1,200	10	\$0	\$1,200	0
	Extend Trip 7 to College of the Redwoods	29	3,800	\$3,800	240	\$400	\$3,400	0
	Eureka - Arcata Express	1,576	34,000	\$77,800	24,400	\$25,500	\$52,300	1
	Eliminate Manila from Mainline	0	-3,040	-\$2,200	-2,300	-\$3,600	\$1,400	0
	Replace Manila RTS with Taxi Voucher Program	0	-3,040	\$31,900	1,300	\$7,100	\$26,600	0
	Reroute Existing Runs to Old Arcata Road Corridor	744	11,900	\$33,600	2,500	\$3,900	\$29,700	0
	New Service on Old Arcata Road Corridor	1,736	35,700	\$84,400	8,000	\$12,500	\$71,900	1
Other Alternatives	Eliminate Last Two Trips on SoHum Run 451	-330	-7,620	-\$16,200	-1,000	-\$2,700	-\$13,500	0
	Intercity Only in So. Humboldt	-46	12,000	\$5,200	2,800	\$15,300	-\$10,100	0
	Eliminate SHL, Add 4x Sat/Sun Scotia-Benbow	-226	12,300	\$1,500	-300	-\$700	\$2,200	0
	Willow Creek: Stop in Blue Lake	28	560	\$1,000	400	\$1,500	-\$500	0
	Eliminate Tish Non-Village Service	-2,228	-40,100	-\$116,600	-3,500	-\$6,130	-\$110,500	-1

Later Sunday Service on RTS Mainline

The RTS Mainline route ends between 7:03-7:13 PM on Sundays. Under this alternative, an additional run would also be operated between College of the Redwoods and Valley West, from

7:25 to 8:20 PM and from Valley West to College of the Redwoods from 7:20 PM to 8:10 PM. This would add 104 hours and 2,300 miles of service annually at a marginal operating cost of \$7,400, as shown in Table 28. The increase in hours is estimated to generate 1,000 annual passenger trips per year with expected fare revenue of \$1,200 and a subsidy of \$6,200.

Additional Saturday College of the Redwoods Service by Deviating Existing Runs

At present, Saturday service to the College of the Redwoods is limited to two southbound runs that terminate at the campus at 11:09 AM and 7:10 PM, and two northbound runs that start at the campus at 11:29 AM and 7:25 PM. For the estimated 168 students living on campus, this effectively means that the only possible trip off-campus (that avoids staying overnight elsewhere) is an 11:29 AM departure to Eureka or other points to the north, returning at 7:25 PM. These existing runs serve an average of 2 passengers each, or a total of 4 between the two round-trips each Saturday. While there are five additional Saturday runs on US 101 passing by the campus, none of these runs serve the campus. The ridership on each run is shown in Table 29. A Student Senator from the Associated Students of the College of the Redwoods (ASCR) led a survey which the ASCR believes shows a need for increased service to the campus on Saturdays⁴.

Table 29: Estimated Average Saturday Ridership on Existing Routes Passing College of the Redwoods

Trip #	Start Location	Start Time	Direction	End Location	# Psgrs On Board as Bus Passes College of the Redwoods
1	Hoby's Market, Scotia	08:30 am	NB	Trinidad Park & Ride	15
2	Trinidad Park & Ride	08:30 am	SB	Hoby's Market, Scotia	12
5	Hoby's Market, Scotia	11:34 am	NB	Trinidad Park & Ride	11
6	Trinidad Park & Ride	11:18 am	SB	Hoby's Market, Scotia	14
9	Hoby's Market, Scotia	02:01 pm	NB	Trinidad Park & Ride	12
10	Trinidad Park & Ride	02:02 pm	SB	Hoby's Market, Scotia	15
15	Hoby's Market, Scotia	04:45 pm	NB	Trinidad Park & Ride	11
16	Trinidad Park & Ride	04:29 pm	SB	Hoby's Market, Scotia	11
19	Hoby's Market, Scotia	07:38 pm	NB	McKinleyville High School	6
20	Trinidad Park & Ride	07:28 pm	SB	Fortuna Park and Ride	6

Source: HTA ridership by run data, and onboard survey data regarding trip origin/destination

⁴ The ASCR survey results were submitted to HCAOG as part of the UTN process for 2017-18. A total of 80 survey responses were received. However, interpretation of the data is faulty. For example, an average of 30 individuals responded that they would use each of 4 northbound and 4 southbound trips four times per month if the bus stopped at CR, and the report concluded that this equated to an expected ridership of 121 northbound round trips and 103 southbound round trips, which assumes that each of the individuals responding would use all trips in each direction every Saturday. While the data does suggest some CR students have a desire for increased service, the anticipated ridership from the survey is substantially overestimated.

Under this alternative, existing Saturday runs would deviate to College of the Redwoods on Saturday. The southbound 2:02 PM departure from Trinidad would deviate to serve College of the Redwoods at 3:35 PM, arriving at Scotia at 4:27 PM (12 minutes later than the current schedule). This would shorten the layover from 30 minutes to 18 minutes. Alternatively, the run departure time could be moved 10 minutes earlier (1:52 PM) providing a 10 minute break instead of 20 minutes at the start of the run). Northbound, runs departing Scotia at 8:30 AM and 2:01 PM would divert to serve College of the Redwoods at 9:20 AM and 2:20 PM. With these schedule changes added to the current stops at CR, students could leave campus northbound at 9:20 AM, 11:29 AM and 2:20 PM, and could arrive back on campus at 11:09 AM, 3:35 PM and 7:10 PM, allowing a trip into town ranging from 3 to 9 hours. Assuming schedules are shifted to accommodate driver breaks, this alternative would add 30 minutes per Saturday to the running time at a cost of \$1,200 annually, as shown in Table 28.

An estimated 168 students live on campus. Of over 100 classes offered in the fall of 2017, only four were offered on Saturday, so class offerings are very limited on campus, and most of the demand for transit service would be driven by those living on campus. Considering this, an elasticity factor was applied to current ridership, and it was estimated that this service would generate just 120 annual trips. However, the inconvenience of diverting would cause a loss of an estimated existing 110 passenger trips, so that there would be only a net of 10 additional riders per year.

Additional Saturday College of the Redwoods Service by Extension of an Existing Run

Another means of providing additional service to the College of the Redwoods on Saturday would be to extend an existing run that currently terminates southbound at Bayshore Mall to instead terminate at the College. A good candidate for this extension would be extending Trip 7 (terminating at the mall at 1:49 PM) to instead terminate at the College at 1:59 PM and then operate a northbound departure from the College at 2:09 PM. Along with the existing service, this would allow for a stay of roughly 2 hours in Eureka (a good length of time for shopping and lunch) or a 5 hour stay in the late afternoon/early evening.

This would shift the other trips on these runs by 20 minutes. As shown in Table 28, total daily service would be increased by 40 minutes per day and 16.8 vehicle-miles per day, resulting in an annual operating cost increase of \$3,800.

This alternative has the advantage of not impacting the existing ridership passing the College, but still, only 240 passenger trips would be projected annually. They would generate \$400 in additional fares, yielding a net subsidy of \$3,400 per year.

EXPAND WEEKDAY SERVICE ON RTS MAINLINE

Currently, half of all of HTA hours are operated on RTS, and 90 percent of the RTS hours are provided on weekdays. Nonetheless, increased frequency was a common request on surveys, and the ridership by route segment data in Figure 19 indicates operating additional service between Arcata and Eureka might be beneficial.

Peak Period Express Service Between Arcata and Eureka

Even with a total of 29 runs per weekday between Arcata (the HSU library) and Eureka (College of the Redwoods), there are periods of overcrowding ... particularly in the morning commute period and the mid- to late afternoon. As shown in Figure 19, above, the segment that has particularly high ridership in comparison with capacity is between downtown Eureka and the HSU campus. The on-board survey indicates that passengers traveling between Eureka and Arcata make up 31 percent of all RTS riders.

Under this alternative, one additional bus⁵ would be operated on all non-holiday weekdays over the HSU academic year (mid-August through mid-May) from 7 AM to 10:45 AM, and from 2:00 PM to 6:30 PM. With a 45-minute round-trip cycle length, a total of 11 round-trips would be operated daily. Stops would be limited to the HSU Library, the Arcata Transit Center, one stop in each direction in southern Arcata, one stop in each direction in eastern Eureka, and the 4th/H transfer point in downtown Eureka.

This “Express” service would substantially improve the frequency of service between Eureka and Arcata, increasing the number of one-way bus trips from the current 36 to 58 during the service periods. This equates to a reduction in the average headway (time between buses) from the current 28 minutes to 17 minutes. This service would add 1,576 vehicle-hours and 34,000 vehicle-miles of service each year, increasing operating costs by \$77,800.

Ridership increases was estimated based upon existing ridership solely between Eureka and Arcata/HSU during the service period and the months of service, calculated from the existing ridership by run factored by the trip origin/destination data (from the on-board surveys). This is estimated to be an increase of 24,400 passenger-trips per year. The increase in fare revenue was estimated (considering that Jack Pass holders would not generate additional fares) to equal \$25,500 per year. The net increase in operating subsidy would total \$52,300 annually. In addition to providing more frequent (and slightly faster) service, this would also reduce the need for passengers to stand on crowded runs, thereby improving the quality of service.

⁵ Optimally, a battery electric bus.

Eliminate Manila Service

Currently, Manila is served five times per day northbound and four times per day southbound. Some passengers complain that deviating to Manila is inconvenient as it adds time their transit trip. However, trips which serve Manila are only 7 minutes longer than trips which do not serve Manila. Ridership on runs that serve Manila is generally on par with runs that do not serve Manila (given the same starting and ending points), with variations apparently more of a factor of time and direction than whether Manila is served.

The cost savings of eliminating Manila would result from reduced mileage, which would total \$2,200 annually. Unless the schedule could be rearranged to make use of the 7 minutes saved on these runs, the combined 267 hours of reduced schedule time would most likely become “deadhead” time (or could be used to serve College of the Redwoods a few times per day). An estimated 3,500 passenger trips would be lost, though the increased convenience in ridership would boost ridership by an estimated 1,200, for a total loss of 2,300 passenger trips and \$3,600 in fare revenue. The subsidy for this route would therefore increase by \$1,400, as shown in Table 28. As ridership would drop while subsidy requirements increase, this option is not recommended.

Serve Manila with a Taxi Voucher Program

An alternative method to serve Manila would be to eliminate the existing five fixed runs per day and instead make service available through a taxi voucher program. The concept of a taxi subsidy program is to direct the public subsidy funding traditionally provided to the transit provider (such as Redwood Transit Service) and instead provide it directly to the transit user, in the form of a voucher that can be used to purchase private transportation services. As these private transportation services are often taxi companies, this concept is also referred to as a “taxi voucher” program.

The concept takes advantage of existing private transportation providers and the market process, making transportation affordable and strengthening private companies. Taxi subsidy programs are commonly provided for relatively low-demand areas, typical of point-to-point services provided for special user groups (e.g., senior persons and persons with disabilities). Eligible citizens receive subsidies in the form of coupons or vouchers to purchase transportation services at a discount. The sponsoring agency (city, county, or other group such as a social service agency) redeems the coupons or vouchers at full value, with rates negotiated with private firms in advance. This ensures that the providers receive full fare for their services.

There are three basic approaches to a taxi subsidy program:

- One is to sell coupons at a discount through approved outlets. For instance, a book of 20 \$1 coupons, for use as payment for rides, might sell for \$10.
- The second approach is to issue identification cards to eligible users. Riders who present the card pay a discounted fixed price for the trip, or a variable price based on mileage, and signs a voucher. The carrier presents the signed voucher to the sponsoring agency for the difference.
- In the third form, if a taxicab service is used, the user pays a percentage of the metered fare upon presentation of the ID card.

In all cases, it is important to establish rigorous controls and monitoring procedures to address any potential for abuse.

The firm or firms that provide the service are typically identified through a Request For Proposals (RFP) process. It is important to note that there are a variety of standards that would be applied, typically including the following:

- Drug and alcohol testing of all safety-sensitive positions.
- Americans with Disabilities Act requirements, including driver and dispatcher training.
- Reporting requirements
- Prohibitions against asking for or accepting tips as part of the service

An example of how such a program might work to replace fixed route service in Manila would be for the rider to call for pick-up by the selected firm's vehicle. Passengers would be picked up or dropped off at any location along a public street in Manila (anywhere north of Peninsula Drive and New Navy Base Road and south of Stamps Lane and New Navy Base Road). At the other end of their trip, they would be transported to or from stops currently served by RTS in Arcata or Eureka. The taxi ride from Manila to an RTS bus stop (and vice versa) would constitute a complete fare ride (i.e., no transfers would be issued to board the RTS Mainline or other systems). Service hours would be approximately equivalent to those currently available on the RTS fixed-route service (first pick up at 6:30 AM and last drop off at 8:00 PM). This would provide a service fairly equivalent to the existing fixed-route, but with greater flexibility within the community of Manila (allowing pick-ups/drop-offs). Passengers would pay the base RTS \$3.00 fare, with no fare discounts allowed.

Current ridership on the existing fixed route service in Manila is estimated to be 3,500 passenger trips per year. Some passengers prefer fixed route services that do not require a reservation, and this would result in a small loss of ridership, estimated to be 900 passenger trips annually. On the other hand, other people would prefer the curb-to-stop service (which essentially increases the service area) and flexible times scheduled through the taxi firm. The result is that this option would potentially increase ridership by an estimated 9,000 passenger trips or more annually.

One method to keep costs under control would be to limit this service to 3,600 passenger trips per year and operate it as a demonstration project for the first year. A maximum of 300 tickets would be sold monthly, and individuals would be prohibited from buying more than 45 tickets per month.

HTA's reimbursement rate would need to be determined through the RFP process. For purposes of this analysis, it is assumed that the current rate used in the CAE contract for paratransit trips would apply (\$3.00 per ticket used, plus \$6.25 for ambulatory passengers and \$10.50 for those requiring a lift vehicle). An estimated five percent of the trips would require wheelchair lifts. The cost to HTA would therefore be \$34,100. (The savings through reduced mileage on the Mainline service would reduce the annual operating cost to \$31,900.) Fares at \$3.00 per trip would equate to \$10,800 from the taxi voucher program, but the reduction in fares from RTS passengers from Manila and the increase in ridership on the Mainline 101 portion of the route would bring the change in fare revenue to \$7,100. The annual subsidy would therefore be \$26,600, or \$20.46 per passenger trip. As the current average subsidy per passenger trip on the Mainline service is \$2.38, this would be a significant increase in subsidy. The impacts are shown in Table 28.

The benefit of this alternative is that Mainline RTS passengers would bypass Manila and save seven minutes per trip. Scheduling would be simplified for HTA as the route would stay on Highway 101 for all trips. Passengers in Manila would retain a public transportation option and would have more flexible times and locations for transit service in Manila.

The drawbacks to this alternative are that it increases the subsidy per passenger trip by more than two-fold, and passengers would be required to make reservations ahead of their desired trip. Passengers would also be restricted in the number of times they could use transit monthly and would not be eligible for fare discounts. There would also be an ongoing need for HTA to monitor and manage the service, which can be particularly cumbersome if the taxi firm(s) involved change hands or go out of business. HTA would also be responsible for taking and addressing public complaints about the service provided. Additionally, providing a general public DAR-type service in Manila would raise equity issues in other non-urban areas of the HTA

service area. Residents of areas (such as Old Arcata Road) may well ask why only residents of Manila are provided with this service. Providing a taxi subsidy program in Manila could trigger calls for similar programs in the many other relatively low-density rural residential areas of Humboldt County.

Service on Old Arcata Road

Providing RTS service along the Old Arcata Road corridor has been an unmet need identified as reasonable to meet for several years. A route serving this corridor would travel in both directions between Arcata and Eureka, via Samoa Boulevard, Old Arcata Road, and Myrtle Avenue.⁶ Two options were considered to provide this service, as discussed below.

Diversion of Existing RTS Runs

This option would be similar to the existing service to Manila, in that existing through-runs between Arcata and Eureka (and beyond) would serve the Old Arcata Road corridor rather than US 101. It is assumed that the level of service would be similar to that provided to Manila, with five round-trips per weekday and two round-trips per Saturday.

This option would add approximately 15 minutes of running time and 4 vehicle-miles of travel to each run. Note that this additional running time would require re-scheduling of many existing runs. Over the course of a year, this would add 744 vehicle-hours and 11,900 vehicle-miles to RTS service, increasing operating costs by an estimated \$33,600 per year.

The new route would provide service to an additional 913 households along the corridor⁷ that would be within a 10-minute (1/2 mile) walk of the route. A reasonable transit ridership rate can be found by reviewing the ridership generated in Manila, where an estimated 3,500 boarding's or alighting's occur annually. As there are 406 households in Manila, this equates to 8.6 passenger-trips per household. However, this rate also needs to be adjusted to reflect the demographic characteristics of the two areas. Specifically, Manila area households have a higher rate of poverty than do households along Old Arcata Road (20 percent versus 14 percent, respectively) and a higher rate of zero-vehicle households (3.3 percent and 2.3 percent, respectively). In light of this, the rate in the Old Arcata Road area would be roughly 30 percent less, or 6.0 passenger trips per household per year. Applying this ratio to the Old Arcata Road corridor, an estimated 5,500 passenger-trips would be generated by households along the new route. Other land uses along this corridor (the Jacoby Creek School and Freshwater School,

⁶ An "on demand stop" could also be served at the Humboldt Area Foundation near the intersection of Indianola Road and Indianola Cutoff.

⁷ Note that this excludes residences already in the A&MRTS and ETS service areas.

Humboldt Area Foundation, etc.) are estimated to generate 10 passengers per weekday, and negligible ridership on weekends, or 2,500 passengers per year for a total of 8,000 passengers per year.

However, the estimated daily 220 existing passengers on the runs diverted to Old Arcata Road would have their in-vehicle travel time increased by 15 minutes. Over the course of the year, this would total approximately 57,300 passengers faced with additional travel time. An elasticity analysis indicates that this additional inconvenience would reduce ridership by an estimated 5,500 passenger-trips. The net impact of this alternative would therefore be an increase of 2,500 passengers per year. This increase in riders in turn would increase fare revenues by \$3,900, resulting in a net subsidy increase of \$29,700, as shown in Table 28.

New Old Arcata Road Route

The other option would be to operate a separate route between Eureka (4th & H) and the Arcata Transit Center. This would require approximately an hour and ten minutes per round-trip. Over the course of a year, this new route would operate an estimated 1,736 vehicle-hours and 35,700 vehicle-miles, resulting in an increased cost of \$84,400. The 8,000 new passenger boarding's would generate \$12,500 per year in annual passenger fares, yielding a net increase of \$71,900 in operating subsidy. This alternative would also result in an additional vehicle using the 4th and H transit transfer point, putting additional strain on the bus capacity.

SOUTHERN HUMBOLDT ALTERNATIVES

As the basis for evaluating service alternatives for the Southern Humboldt services, a detailed evaluation of the performance of each individual run was conducted, using average daily ridership figures for March, 2017. The results are presented in Tables 30 and 31, with performance measures not attaining the minimum standards recommended in Table 22 of Chapter 4 shaded in gray. A review of this data indicates the following:

- As a whole, the Intercity/Local trips meet all standards, and the Local only trips attain the subsidy per passenger trip standard and the minimum farebox ratio standard but the 5.1 passengers per vehicle-hour does not attain the 7.0 recommended standards.
- In addition, the 2:37 PM Trip 83 from Benbow to Miranda exceeds the \$10.00 subsidy per passenger-trip standard.
- The runs later in the day have poorer performance, with none of the runs starting at 5:30 PM or later attaining all three standards.

This data was used as the basis for developing and evaluating the following alternatives.

Eliminate Last Two Trips on Run 451

A relatively straightforward alternative would be to reduce Run 451 by extending the existing Run 85 (the 4:20 PM northbound departure from Benbow to Miranda) to travel (in-service) to Eureka, eliminating the southbound 5:30 PM departure from Miranda to Garberville (Trip 86) and the 6:21 PM northbound trip from Garberville to Eureka (Trip 9). These two trips serve only an average of 6 passengers per day, as shown in Table 30. Southbound passengers on the 5:30 PM departure from Miranda would still have a later departure at 6:55 PM, while northbound passengers from Garberville would have a later departure at 7:30. This would provide a new northbound run to Eureka roughly 35 minutes ahead of the existing Trip 7 schedule, which could be useful to some passengers. Overall, this alternative would reduce ridership by an estimated 1,000 boarding's per year, but would reduce annual operating costs by an estimated \$16,200 per year, as shown in Table 28. Subsidy would be reduced by \$13,500 per year.

Operate Only Intercity Service in Southern Humboldt

Given that there is overlap between Southern Humboldt Intercity and Southern Humboldt Local service, this alternative evaluates eliminating the local service and providing only the intercity

Table 30: Southern Humboldt Ridership and Performance by Run - Sorted by Direction and Time														Performance Analysis		
														Not Meeting Standard Shaded		
Trip #	Run #	Dir	Start	From	End	To	Ridership			Vehicle Service			Fare ²	Psgr per VSH	Subsidy per Psgr	Marginal Farebox Ratio
							Local	Intercity	Total	Hours	Miles	Cost ¹				
2	502	SB	7:03 AM	Eureka	8:51 AM	Benbow	6	9	15	1.80	72	\$106	\$41	8.5	\$6.93	39%
4	401	SB	9:20 AM	Eureka	11:17 AM	Benbow	4	4	8	1.95	72	\$111	\$19	4.0	\$14.33	17%
6	451	SB	12:25 PM	Eureka	2:22 PM	Benbow	3	6	10	1.95	72	\$111	\$28	5.0	\$11.45	25%
82	401	SB	12:50 PM	Miranda	1:36 PM	Benbow	5	0	5	0.77	18	\$38	\$6	6.6	\$7.47	16%
8	505	SB	2:53 PM	Eureka	4:50 PM	Benbow	2	17	19	1.95	72	\$111	\$65	9.5	\$6.00	59%
84	451	SB	3:30 PM	Miranda	4:10 PM	Garberville	4	0	4	0.67	15	\$32	\$5	5.9	\$8.22	15%
10	507	SB	5:25 PM	Eureka	7:15 PM	Garberville	2	7	10	1.83	69	\$105	\$30	5.2	\$11.01	28%
86	451	SB	5:30 PM	Miranda	6:11 PM	Garberville	2	0	2	0.68	15	\$33	\$2	2.3	\$21.32	6%
1	401	NB	6:53 AM	Garberville	8:39 AM	Eureka	1	15	16	1.77	69	\$103	\$57	9.0	\$6.48	55%
3	502	NB	9:06 AM	Benbow	10:59 AM	Eureka	3	7	10	1.88	72	\$109	\$29	5.3	\$10.92	27%
81	401	NB	11:32 AM	Benbow	12:15 PM	Miranda	5	0	5	0.72	18	\$36	\$6	6.3	\$7.90	15%
5/91	401	NB	1:46 PM	Benbow	3:35 PM	Eureka	4	8	11	1.82	72	\$106	\$33	6.2	\$9.36	31%
83	451	NB	2:37 PM	Benbow	3:20 PM	Miranda	3	0	3	0.72	18	\$36	\$3	4.0	\$12.62	10%
85	451	NB	4:20 PM	Garberville	4:57 PM	Miranda	3	0	3	0.62	15	\$31	\$4	5.2	\$9.58	13%
7	505	NB	5:05 PM	Benbow	6:52 PM	Eureka	3	4	7	1.78	72	\$105	\$18	3.7	\$15.80	18%
9	451	NB	6:21 PM	Garberville	7:59 PM	Eureka	2	2	4	1.63	69	\$98	\$11	2.7	\$22.27	11%
11	507	NB	7:30 PM	Garberville	9:00 PM	Eureka	1	2	3	1.50	69	\$93	\$8	2.0	\$31.07	9%
Total							52	81	133	24	879	1,364	365	5.5	\$10.24	27%
Subtotal: Intercity/Local							31	81	112	20	780	1,158	339	5.6	\$10.34	29%
Subtotal: Local Only							21	0	21	4	99	206	26	5.1	\$9.73	13%
Note 1: Using cost factors presented in Table 26.														Source: HTA records for April, 2017		
Note 2: Using average fare per passenger, as shown in Table 21.																

Table 31: Southern Humboldt Ridership and Performance by Run - Sorted by Run

														Performance Analysis		
														Not Meeting Standard		Shaded
Trip #	Run #	Dir	Start	From	End	To	Ridership			Vehicle Service			Fare ²	Psg	Subsidy	Marginal
							Local	Intercity	Total	Hours	Miles	Cost ¹		per VSH	per Psg	Farebox Ratio
1	401	NB	6:53 AM	Garberville	8:39 AM	Eureka	1	15	16	1.77	69	\$103	\$57	9.0	\$6.48	55%
4	401	SB	9:20 AM	Eureka	11:17 AM	Benbow	4	4	8	1.95	72	\$111	\$19	4.0	\$14.33	17%
81	401	NB	11:32 AM	Benbow	12:15 PM	Miranda	5	0	5	0.72	18	\$36	\$6	6.3	\$7.90	15%
82	401	SB	12:50 PM	Miranda	1:36 PM	Benbow	5	0	5	0.77	18	\$38	\$6	6.6	\$7.47	16%
5/91	401	NB	1:46 PM	Benbow	3:35 PM	Eureka	4	8	11	1.82	72	\$106	\$33	6.2	\$9.36	31%
6	451	SB	12:25 PM	Eureka	2:22 PM	Benbow	3	6	10	1.95	72	\$111	\$28	5.0	\$11.45	25%
83	451	NB	2:37 PM	Benbow	3:20 PM	Miranda	3	0	3	0.72	18	\$36	\$3	4.0	\$12.62	10%
84	451	SB	3:30 PM	Miranda	4:10 PM	Garberville	4	0	4	0.67	15	\$32	\$5	5.9	\$8.22	15%
85	451	NB	4:20 PM	Garberville	4:57 PM	Miranda	3	0	3	0.62	15	\$31	\$4	5.2	\$9.58	13%
86	451	SB	5:30 PM	Miranda	6:11 PM	Garberville	2	0	2	0.68	15	\$33	\$2	2.3	\$21.32	6%
9	451	NB	6:21 PM	Garberville	7:59 PM	Eureka	2	2	4	1.63	69	\$98	\$11	2.7	\$22.27	11%
2	502	SB	7:03 AM	Eureka	8:51 AM	Benbow	6	9	15	1.80	72	\$106	\$41	8.5	\$6.93	39%
3	502	NB	9:06 AM	Benbow	10:59 AM	Eureka	3	7	10	1.88	72	\$109	\$29	5.3	\$10.92	27%
8	505	SB	2:53 PM	Eureka	4:50 PM	Benbow	2	17	19	1.95	72	\$111	\$65	9.5	\$6.00	59%
7	505	NB	5:05 PM	Benbow	6:52 PM	Eureka	3	4	7	1.78	72	\$105	\$18	3.7	\$15.80	18%
10	507	SB	5:25 PM	Eureka	7:15 PM	Garberville	2	7	10	1.83	69	\$105	\$30	5.2	\$11.01	28%
11	507	NB	7:30 PM	Garberville	9:00 PM	Eureka	1	2	3	1.50	69	\$93	\$8	2.0	\$31.07	9%

Note 1: Using cost factors presented in Table 26.

Source: HTA records for April, 2017

Note 2: Using average fare per passenger, as shown in Table 21.

service. An example schedule is shown in Table 32. This was developed starting with the existing intercity runs and extending the local runs to Eureka.

Table 32: Example Southern Humboldt Transit Schedule - Intercity Service Only

Run #	Dir	Start Time	From	End Time	To
502	SB	7:03 AM	Eureka	8:51 AM	Benbow
401	SB	9:20 AM	Eureka	11:17 AM	Benbow
451	SB	11:39 AM	Eureka	1:36 PM	Benbow
507	SB	12:54 PM	Eureka	2:51 PM	Benbow
505	SB	2:53 PM	Eureka	4:50 PM	Benbow
507	SB	5:25 PM	Eureka	7:15 PM	Garberville
401	NB	6:53 AM	Garberville	8:39 AM	Eureka
502	NB	9:06 AM	Benbow	10:59 AM	Eureka
401	NB	11:32 AM	Benbow	1:22 PM	Eureka
451	NB	1:46 PM	Benbow	3:35 PM	Eureka
507	NB	3:06 PM	Benbow	4:55 PM	Eureka
505	NB	5:05 PM	Benbow	6:52 PM	Eureka
507	NB	7:30 PM	Garberville	9:00 PM	Eureka

An additional mid-day round-trip was also added to provide a more consistent schedule, bringing the number of daily runs from 5 to 6 in the southbound direction and from 6 to 7 in the northbound direction. Mid-day run times were also adjusted to provide a better distribution over the day while providing adequate driver breaks. Overall, this schedule improves the services available in the mid-day period, particularly in the northbound direction: rather than the 4 hour 41 minute break between the northbound runs north of Miranda, the longest gap in service would be 2 hours 26 minutes. As a result, residents along the corridor would be better able to make half-day trips to Fortuna and Eureka.

The total annual vehicle-hours of service would remain very close to current quantities, dropping by only an estimated 46 vehicle-hours per year compared to the current Southern Humboldt Local and Southern Humboldt Intercity total. As the buses would be operating more along higher-speed facilities, however, total annual vehicle-miles would increase by an estimated 12,000 per year. As a result, total costs would be increased by \$5,200 per year. While a modest loss of existing Southern Humboldt Local ridership would occur (an estimated 5 per day or 1,300 per year), there would be an increase of intercity boarding's of 4,100 per year, yielding a net increase of 2,800 per year. Considering that the intercity ridership pays a higher fare, the net increase in fare revenue would total \$15,300. In sum, subsidy requirements would be reduced by an estimated \$10,100, as shown in Table 28.

Combine Some of the Southern Humboldt Intercity Trips with Existing RTS Trips to/from Scotia

The Southern Humboldt Intercity service was initiated as a fully separate service from the RTS Mainline. As a result, there is substantial overlap of services between Eureka and Scotia, with two buses sometimes traveling along US 101 within a short time of each other when one bus could provide adequate service. Now that the Southern Humboldt Intercity service is well-established, it may be possible to improve the overall efficiency of the service by operating some trips as extensions of RTS trips. Table 33 presents a comparison of the existing scheduled times of Southern Humboldt Intercity trips at 4th and H streets in downtown Eureka, compared with the nearest RTS run to/from Scotia. While some Southern Humboldt runs are not close to RTS runs in the schedule, there are some runs that could potentially be combined to save operating costs by eliminating duplicative service between Eureka and Scotia:

- The 7:03 AM southbound departure of Southern Humboldt Trip 2 is only 6 minutes after the 6:57 AM departure of RTS Trip 2.
- The 8:39 AM arrival of Southern Humboldt Trip 1 is only 6 minutes earlier than the 8:45 AM arrival of RTS Trip 9.

- The 10:59 northbound arrival of Southern Humboldt Trip 3 is only 14 minutes later than the 10:45 AM arrival of RTS Trip 17.
- The 7:59 PM northbound arrival of Southern Humboldt Trip 9 is only 13 minutes later than the 7:46 PM arrival of RTS Trip 53.

Table 33: Comparison of Southern Humboldt Intercity Schedule Times with Nearest RTS Schedule Time

Southbound Departures from 4th & H			Northbound Arrivals at 5th & H		
Southern Humboldt (Existing Schedule)	RTS to Scotia	Difference (Minutes)	Southern Humboldt (Existing Schedule)	RTS from Scotia	Difference (Minutes)
7:03 AM	6:57 AM	-6	8:39 AM	8:45 AM	6
9:20 AM	10:57 AM	97	10:59 AM	10:45 AM	-14
12:25 PM	1:57 PM	92	3:35 PM	4:45 PM	70
2:53 PM	1:57 PM	-56	6:52 PM	7:46 PM	54
5:25 PM	4:57 PM	-28	7:59 PM	7:46 PM	-13
			9:00 PM	9:38 PM	38

Identifying the specific runs that could be combined would require an extensive re-analysis of the “run cuts” for the RTS Mainline service (which is beyond the scope of a TDP), as well as evaluation of existing peak passenger loads on both Southern Humboldt Intercity and RTS services between Eureka and Scotia. Every one-way trip between Eureka and Scotia, however, costs approximately \$12,800 to operate over the course of the year. Combining Southern Humboldt trips with RTS trips should be evaluated as part of future run-cutting as RTS schedules are changed.

Eliminate Southern Humboldt Local and Expand Southern Humboldt Intercity on Weekends

Under this alternative, the Southern Humboldt Local service would be eliminated on weekdays, leaving just the Southern Humboldt Intercity service. Resources would be shifted to expand the Southern Humboldt Intercity on weekends. The weekend SHI route would meet the RTS Mainline routes at Scotia. A route would be operated southbound from Scotia at 8:35 AM, 11:25 AM, 1:50 PM and 4:35 PM, and would take an hour to arrive at Benbow Inn. The northbound runs would leave Benbow Inn at 10:15 AM, 12:40 PM, 3:25 PM and 6:20 PM, arriving back in Scotia at 7:20 PM to catch the last 7:38 PM northbound run. This would require two drivers: one would “deadhead” to Scotia for the 8:35 AM run, and end at 1:40 PM, returning with the northbound 2:01 PM RTS driver. The relief driver would arrive on the 1:31

PM bus, and would operate the 1:50 PM southbound run until ending at Scotia at 7:20 PM, then deadheading back to Eureka.

This elimination of SHL service would reduce service hours by 1,058 hours and service miles by 25,146, but would add 832 service hours and 37,440 service miles on weekends for a net reduction of 226 hours and a net increase of 12,300 miles. The operating cost would increase by an estimated \$1,500. It is assumed approximately half of the existing local ridership would switch to SHI services on weekdays and half would be lost. It is also assumed that the weekend service would generate a per-hour ridership approximately half of what is generated on weekdays, per transit trends, resulting in a net loss of 300 passenger trips. With the reduction in fare collected, the marginal subsidy would be an estimated \$2,200. Therefore, this alternative would result in a slight loss of ridership and a small increase in subsidy, but would simplify weekday schedules and would provide weekend service where none currently exists.

WILLOW CREEK ALTERNATIVE

Serve Blue Lake on RTS Willow Creek Route on Demand

The Willow Creek service is operated four times per weekday in the westbound direction and three times in the eastbound direction. This provides a reasonable level of service for this long distance trip. One option to consider would be to add service in Blue Lake on an “on-demand” basis. Upon request when boarding in Willow Creek or Arcata, the passenger would inform the driver of their request, or the passenger would call to request a pick-up half an hour prior to the buses’ departure from either Arcata or Willow Creek (or tell the driver on their trip to Willow Creek).

Westbound, the bus would exit at Glendale Drive at the east end of Blue Lake and go to the Blue Lake Casino, then travel westbound on Glendale Drive toward Lipscomb Hill, returning to Highway 299 at Murphy’s Market. Eastbound, the route would exit at the west end of Blue Lake and serve the same segment in the reverse. This would add 1.3 miles to the route and 4 minutes to each run.

While passengers could use this service to get between Blue Lake and Arcata (filling in some of the midday gap that exists from 10 AM to 1 PM when there is no Blue Lake Rancheria Transit Service), the higher fare of the Willow Creek service would discourage this use. The regional fares on Willow Creek is \$4.35 compared to \$1.65 on the BLRTS. The primary demand for this stop would be for individuals wanting to go between Willow Creek and Blue Lake. The major trip purposes would likely be employment at the Blue Lake Rancheria or personal business/visiting friends. It is difficult to estimate the demand for this, as it could vary

substantially depending on the decision of a few casino employees (as an example) to use or not use the service. However, the operating cost would remain low as the deviation would not add significant mileage or time. A reasonable estimate is that a deviation would be requested 20 percent of the time, generating an annual ridership of 400 passenger trips (one per deviation), and the operating cost would be \$1,000 and would generate a fare revenue of \$1,500. This would result in a reduction in subsidy of \$500, as shown in Table 28.

OTHER RTS ALTERNATIVES

Eliminate Tish Non-Village

Tish Non-Village Service (TNVS) was implemented in 2016 as a result of the Unmet Transit Needs (UTN) process. Four round trips are provided evenly dispersed throughout the day, Monday through Friday, between 7:19 AM and 6:57 PM. Despite consistently providing this service for nearly two years and providing marketing for the service, ridership in 2015-16 averaged only 1.5 passenger trips per hour, and the farebox return ratio is below 10 percent. Under this alternative, this service would be eliminated, saving \$116,600 annually in operating costs (\$110,500 in operating subsidy) and reducing ridership by 3,500 annually, as shown in Table 28.

COMPARISON OF RTS, SOUTHERN HUMBOLDT, TISH NON-VILLAGE AND WILLOW CREEK ALTERNATIVES

Table 34 presents a summary comparison of the various HTA service alternatives. As also shown in Figure 20, the impact on annual ridership varies from a high of 24,400 new passenger-trips for the Eureka-Arcata Express peak-period service to the reduction of 3,500 associated with elimination of Tish Non-Village service. Providing new service on Old Arcata Road would also have a relatively high ridership increase (8,000 per year), while eliminating Manila service and eliminating the two runs on Southern Humboldt service would both result in reductions in ridership.

Performance Analysis

Productivity (Ridership per Vehicle-Hour)

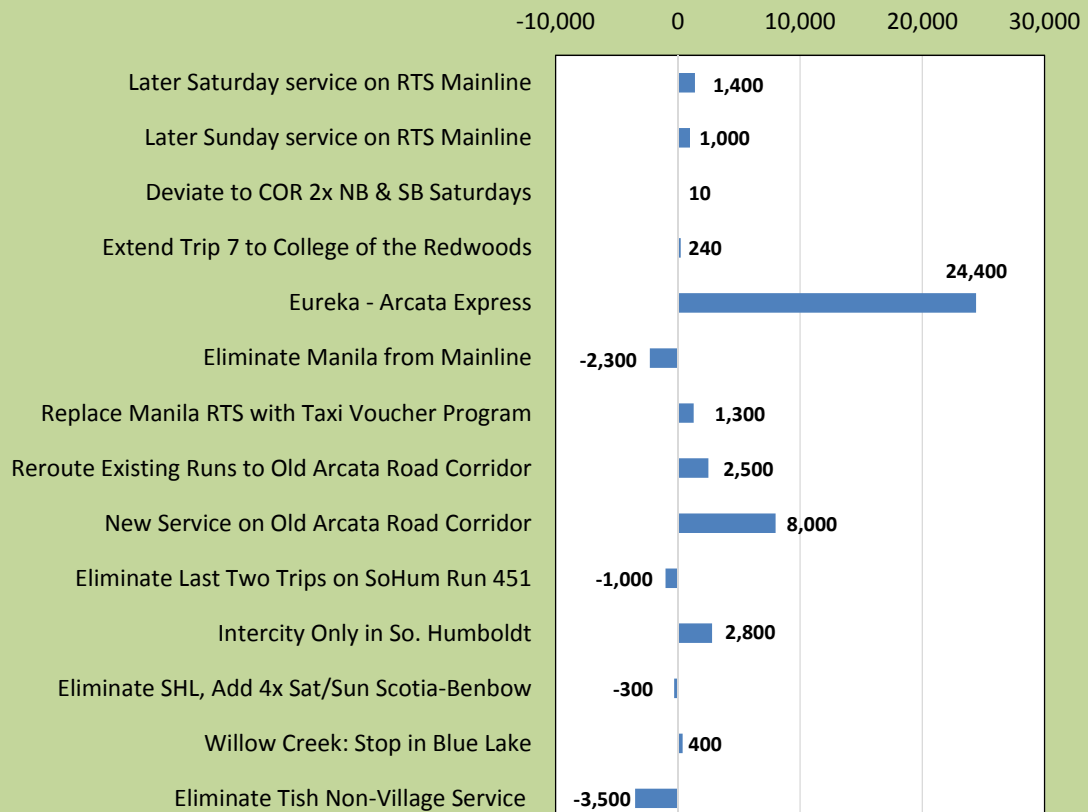
The various alternatives fall into several categories with regarding to this performance measure:

- Eliminating service to Manila cannot be evaluated by this measure, as it is assumed that no change in vehicle-hours would occur.

Table 34: HTA Service Alternatives Performance Analysis

Alternative	Marginal Operating Subsidy	Change in Annual Ridership	Marginal Ridership per Vehicle-Hour	Marginal Subsidy per Passenger	Marginal Farebox Ratio
Later Saturday service on RTS Mainline	\$5,400	1,400	12.3	\$3.86	29%
Later Sunday service on RTS Mainline	\$6,200	1,000	9.6	\$6.20	16%
Deviate to COR 2x NB & SB Saturdays	\$1,200	10	0.5	\$120.00	0%
Extend Trip 7 to College of the Redwoods	\$3,400	240	8.4	\$14.17	11%
Eureka - Arcata Express	\$52,300	24,400	15.5	\$2.14	33%
Eliminate Manila from Mainline	\$1,400	-2,300	--	-\$0.61	--
Replace Manila RTS with Taxi Voucher Program	\$26,600	1,300	--	\$20.46	22%
Reroute Existing Runs to Old Arcata Road Corridor	\$29,700	2,500	3.4	\$11.88	12%
New Service on Old Arcata Road Corridor	\$71,900	8,000	4.6	\$8.99	15%
Eliminate Last Two Trips on SoHum Run 451	-\$13,500	-1,000	3.0	\$13.50	--
Intercity Only in So. Humboldt	-\$10,100	2,800	-60.9	-\$3.61	294%
Eliminate SHL, Add 4x Sat/Sun Scotia-Benbow	\$2,200	-300	-1.3	-\$7.33	--
Willow Creek: Stop in Blue Lake	-\$500	400	14.3	-\$1.25	150%
Eliminate Tish Non-Village Service	-\$110,500	-3,500	1.6	\$31.57	--

Source: LSC Transportation Consultants, Inc.

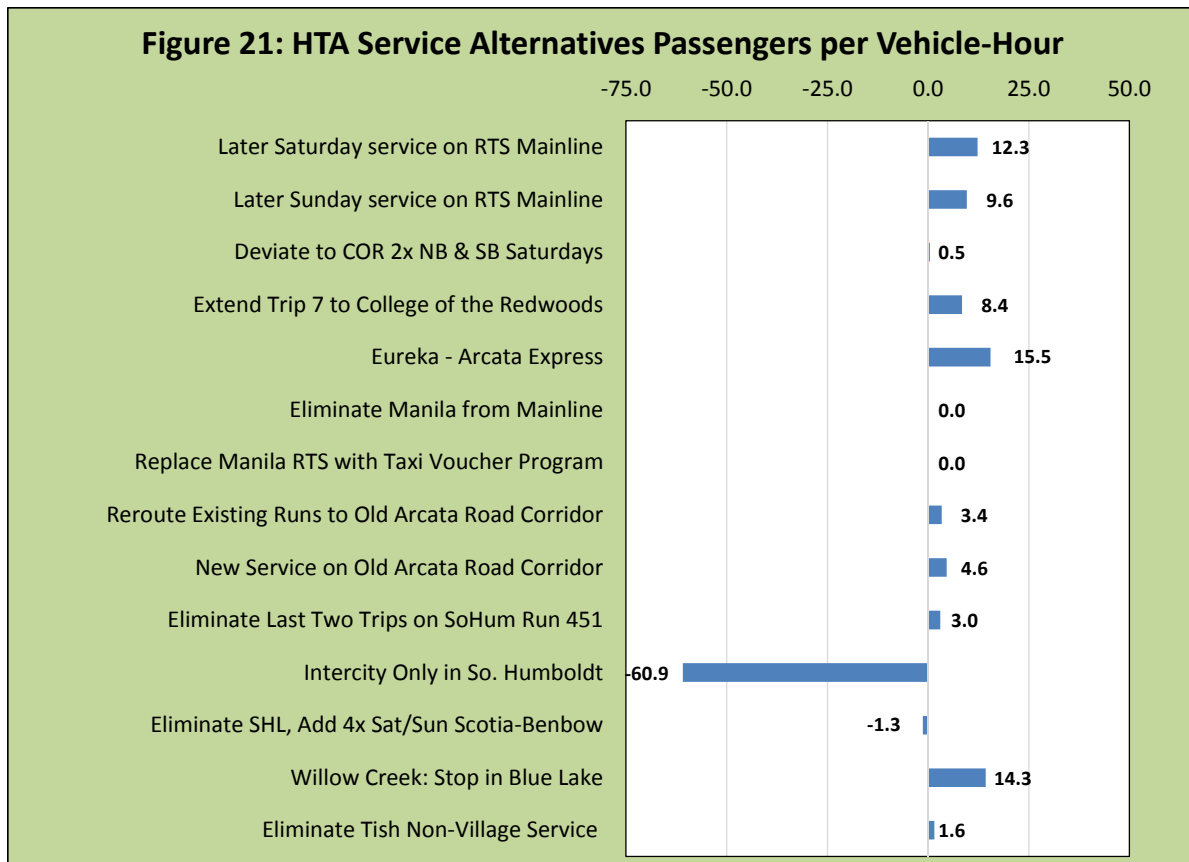
Figure 20: Impact of HTA Alternatives on Annual Ridership

- Replacing Manila RTS fixed route service with a taxi voucher system is not measured in hours, which would be highly variable.
- The elimination of the two Run 451 trips on the Southern Humboldt service would reduce ridership as well as vehicle-hours, yielding a positive value of 3.0. This indicates that only 3 passenger-trips would be lost for every hour reduction in service. Similarly, the reduction in both ridership and vehicle-hours associated with the elimination of Tish Non-Village service indicates that only 1.5 passenger-trips would be lost per vehicle-hour eliminated.
- Converting Southern Humboldt service to intercity only would increase ridership while reducing vehicle-hours, yielding a negative “ridership per hour” value.
- The remaining alternatives would increase both ridership and vehicle-hours. In these cases, a higher value is a better result. As shown in Figure 21, the “best” alternative by this measure is the Eureka-Arcata Express service, with 15.5 passenger-trips per vehicle-hour. Other alternatives with high productivity are service to Blue Lake on the Willow Creek service (14.3) and later Saturday RTS Mainline service (12.3). Poor performers by this measure are the deviation of Saturday RTS Mainline runs to College of the Redwoods (0.5) and rerouting existing RTS Mainline runs to serve Old Arcata Road (3.4).

Subsidy per Passenger-Trip

This key measure reflects the desired outcome of a transit service (ridership) and the most important input (public subsidy). The various alternatives can be considered in the following categories:

- Eliminating the two Southern Humboldt trips and eliminating Tish Non-Village service both reduce ridership as well as costs. In this condition a high positive value is desirable, as it reflects a greater level of subsidy saved per passenger-trip lost. The reduction in Southern Humboldt service would save \$13.50, while the elimination of Tish Non-Village service would save \$32.03.
- Eliminating service to Manila generates a negative value for this measure, as it reduces ridership while increasing subsidy needs (a poor result). This is true of eliminating weekday Southern Humboldt Local service and implementing weekend Southern Humboldt Intercity service, but on a much smaller scale as the impacts are relatively small (loss of 300 passenger trips per year and increased subsidy of \$2,200 per year).

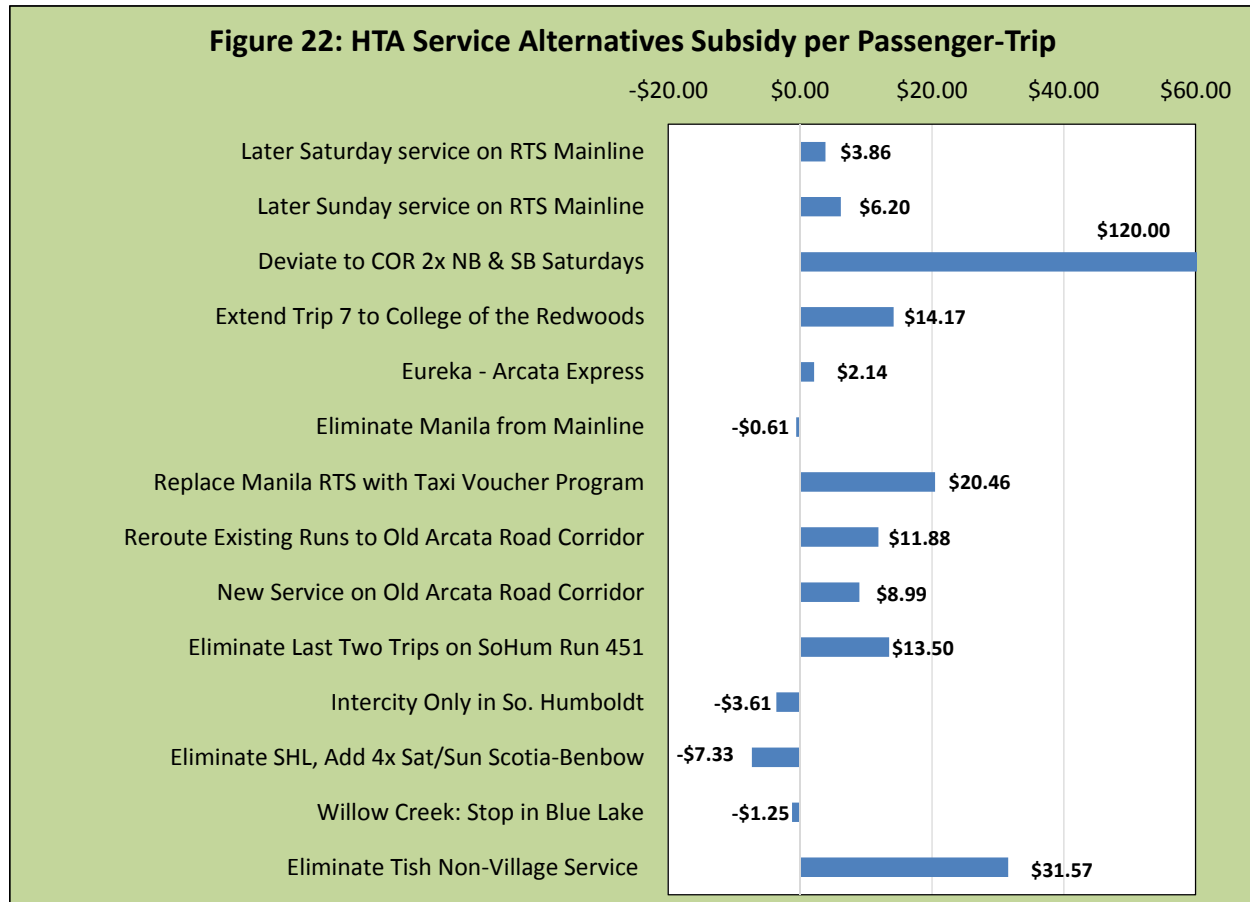


- On the other hand, the conversion of Southern Humboldt service to intercity trips only as well as service to Blue Lake on the Willow Creek Route would increase ridership while reducing subsidy requirements, yielding a desirable negative value.
- The remaining alternatives increase both ridership and operating subsidy. A lower value reflects a better alternative, in that less public funding is required for every new passenger-trip served. As shown in Figure 22, by this measure the better alternatives are the Eureka-Arcata Express service (\$2.13), later Saturday RTS Mainline service (\$3.86), and later Sunday RTS Mainline service (\$6.20). At the other extreme, deviating Mainline trips to service College of the Redwoods on Saturdays would require \$120 per net new passenger-trip.

Farebox Ratio

Considering the marginal change in fare revenues over the marginal change in operating costs yields the marginal farebox return ratio. This measure is only useful for those alternatives that increase both fare revenues and operating costs. A review of these alternatives indicates that the “best” alternatives are the conversion of Southern Humboldt service to intercity runs only

(294 percent) and the Willow Creek service to Blue Lake (150 percent). Other alternatives with relatively high farebox ratios are the Eureka-Arcata Express service (33 percent) and the later Saturday RTS Mainline service (29 percent).



Summary

Overall, this analysis indicates that the following alternatives are the better candidates to carry forward into the plan, depending on many factors including funding availability:

- Eureka-Arcata Express service
- Service to Blue Lake (on demand stops) on the Willow Creek Route
- Conversion of Southern Humboldt service to intercity trips only
- Later Saturday RTS Mainline service
- Eliminate Tish Non-Village service

The following are alternatives that are less effective, but could be potential plan elements:

- Service on Old Arcata Road through provision of a separate route

- Eliminate the last two trips on Southern Humboldt Run 451 (if the conversion to full intercity service is not pursued)
- Eliminate Southern Humboldt Local service on weekdays and provide service on weekends (while the quantitative impacts are slightly negative, the desire to have service on weekends may make this option worthwhile)
- Later Sunday RTS Mainline service
- Extending RTS Mainline Trip 7 to serve College of the Redwoods on Saturdays

Finally, the following alternatives are recommended for elimination from further consideration:

- Eliminating Manila service from the RTS Mainline
- Replacing Manila service with a Taxi Voucher program
- Serving Old Arcata Road by diverting existing RTS Mainline trips
- Serving College of the Redwoods on Saturdays by diverting existing RTS Mainline trips

Service to Mendocino County

In the past, part of the definition of “unmet transit needs” specifically excluded out-of-county trips. The SSTAC Strategic Plan which is being developed concurrent with this TDP revisited this definition and determined out-of-county trips are a real need of Humboldt County residents and should be considered on par with other identified needs. The desire for extending public transit service southward from Benbow into Mendocino County along US 101 has been a common request over recent years. In particular, the desire to access medical services in Ukiah has been cited. There are a number of factors that should be considered in assessing the feasibility of this alternative:

- Mendocino Transit operates the CC Rider route between Fort Bragg, Willits, Ukiah and Santa Rosa. A reasonable strategy would be to extend service south to Willits, where onward trips can be made by transferring to Mendocino Transit.
- A reasonable operating plan would be to provide two round-trips daily, on weekdays and Saturdays, timed to meet CC Rider runs in Willits. Each round-trip would require 3 hours of operating time and 130 miles. Assuming these can be operated as extensions of existing SHI runs to/from Benbow, this service would incur an annual operating cost of \$113,100, and would require an additional vehicle.
- The ridership demand for this service is limited by the fact that there are already two intercity public bus services along the corridor:

- Greyhound operates two round-trips daily along US 101, with stops in Arcata, Eureka, Rio Dell, Garberville, Willits, Ukiah and beyond. Runs depart Eureka at 9:50 AM and 10:35 PM, and arrive northbound in Eureka at 10:10 PM and 5:15 AM. Fares vary by day and availability, but the lowest fares for a trip between Eureka and Ukiah is on the order of \$30, between Eureka and Willits is \$20, and between Garberville and Willits is \$12.
- Amtrak Thruway buses operate two round-trips in each direction, with stops in McKinleyville, Arcata, Eureka, Fortuna, Rio Dell, Garberville, Leggett, Laytonville, Willits and beyond, terminating at the Martinez Amtrak Station. A one-way fare from Eureka to the Bay Area is \$62. Unfortunately, passengers on this bus service must be taking a trip that includes rail service beyond Martinez. However, this service does reduce the number of persons who would ride a new service, as it addresses some of the need for travel between Humboldt County and the Bay Area (or beyond).
- Considering that some of the intercity transit demand is already served, application of intercity transit demand models indicates that annual ridership on a new service connecting Humboldt and Mendocino Counties would be on the order of 4,500 one-way passenger-trips per year.
It should be noted that a substantial proportion of this new ridership would be generated by Mendocino County residents, as the population of the areas along US 101 in Mendocino County north of Willits (including Laytonville) is 3,680 residents.
- Based on the fare per mile currently charged on the Southern Humboldt Intercity, fares for the additional service between Benbow and Willits would be similar to the current SHI fares (base fare of \$5.50). As this would be in addition to SHI fares, the total fare from Eureka to Willits would be \$11 (or on the order of half the Greyhound fare). At these fare levels, fare revenues generated by the ridership would be roughly \$23,600. Subtracting these revenues, the public subsidy for this service would be on the order of \$89,500 per year.
- The performance of this route would be relatively low, with 2.4 passengers per vehicle-hour and a public subsidy of approximately \$20 per passenger.

To be equitable, this service would optimally be funded through a combination of funds generated in Humboldt County and funds generated in Mendocino County. It bears noting that the 2012-16 Short Range Transit Development Plan for Mendocino Transit Authority (prepared by Transit Marketing and Mobility Planners in 2012) makes no mention of the need for new service connecting Mendocino and Humboldt Counties. The Mendocino Council of Governments FY 2016/17 and 2017/18 Unmet Transit Needs Testimony also do not include any

requests for service connecting the two counties, though the desire for service from Laytonville to Willits (which is not currently offered) was requested.

Service to Laytonville was also a request generated by the 2014 Mendocino Countywide Transit Ridership Survey conducted by LSC. Overall, however, the level of interest within Mendocino County to provide fixed route service to Laytonville appears low.

SERVICE ALTERNATIVES FOR EUREKA TRANSIT SERVICE

A Eureka Transit Service (ETS) Line System Study will be conducted within the fiscal year, which will likely alter the Eureka routes. Therefore, alternatives considered for this TDP are limited to scheduling options. Survey responses on the ETS strongly included a desire for longer service hours. The alternatives below evaluate an expansion in hours of service, and are summarized in Table 35.

Table 35: Eureka Transit Service - Service Alternatives							
Service Alternative	Change In Annual Service						Change in Peak Buses
	Service Hours	Service Miles	Operating Cost ¹	Ridership	Fare Revenues	Operating Subsidy	
<u>Earlier Weekday Service</u>							
Red Route	194	2,322	\$10,600	2,000	\$2,400	\$8,200	0
Green Route	172	2,156	\$9,500	1,700	\$2,100	\$7,400	0
Total	366	4,479	\$20,100	3,700	\$4,500	\$15,600	0
Start Saturday Service at 8:00 AM	342	3,796	\$23,900	2,800	\$3,400	\$20,500	0
Weekday Service Until 10:00 PM	3,029	33,926	\$167,800	12,600	\$15,400	\$152,400	0
Note 1: Operating cost is estimated at \$39.89 per hour plus \$1.22 per mile of service.							

Earlier Weekday Service on ETS

Several public requests have been made for earlier weekday service on ETS. At present, the start of service on the four routes is as follows:

Red Route – Starts at H & 3rd at 7:00 AM

Green Route – Starts at Harris & F at 6:52 AM

Gold Route – Starts at Bayshore Mall at 6:31 AM

Purple Route – Starts at H & 9th at 6:37 AM

Transit ridership is typically very low prior to 6 AM, except in larger cities. However, it is important to provide the opportunity to access job locations (such as in downtown Eureka) and transfers to regional routes prior to 8:00 AM. A review of these start times indicates that the Gold and Purple Routes provide arrivals consistent with these guidelines, but that the Red and Green Routes do not complete their first useful service between residential areas and employment centers with adequate time for passengers to walk to all job sites prior to an 8:00 AM start time. A reasonable option would therefore be to revise weekday start times as follows:

Red Route – Start at Harris & Central at 6:14 AM (adds 46 minutes of service)

Green Route – Start at Myrtle & Dean at 6:11 AM (adds 41 minutes of service)

This additional service would increase operating costs by \$20,100 per year. Ridership-per-hour data for similar cities was reviewed to assess the ratio of ridership between 6 AM and 7 AM to the overall system ridership. Applied to the Red and Green Route weekday ridership and adjusted for the proportion of the hour served, an estimated 3,700 additional riders would be generated by this extension of service hours. These additional riders would increase fare revenues by \$4,500 per year, yielding a net increase in subsidy costs of \$15,600 annually as shown in Table 35.

Earlier Saturday Service on ETS

The ETS service on Saturdays and limited-service holidays currently does not start until 10:00 AM. This precludes residents from accessing jobs starting prior to roughly 10:30 AM, and also limits ability to make Saturday morning trips for shopping or recreation. A reasonable option would be to start the three Saturday routes (Gold, Purple and Rainbow) at 8:00 AM. This option would increase annual operating costs by \$23,900 per year.

Based on the observed ridership during these additional hours to the ridership in hours of current operation at similar Northern California cities, it is estimated that this option would increase ridership by 2,800 per year. Subtracting the additional \$3,400 in fare revenues, annual subsidy would be increased by \$20,500 per year.

Later Weekday Service on ETS

The current end of the ETS weekday service day at 7:00 PM (except for 6:44 PM on the Green Route) provides two departure options after a 5:00 PM end of the business day, but does not serve evening trips for employment, shopping, dining or employment. A reasonable option

would be to extend the operation of the four routes until 10:00 PM on the Gold, Red and Purple Routes and until 9:44 on the Green Route. This would better accommodate shopper and employees and would be consistent with the evening service in Arcata.

This option would be relatively expensive, increasing operating costs by \$167,800 per year. Ridership, based upon a review of other California transit systems that operate later on weekdays, would be increased by 12,600 per year and would generate an increase in fare revenues of \$15,400. The resulting increase in annual subsidy would be \$152,400 per year.

As an aside, another option would be to operate the Saturday service plan (Gold, Purple and Rainbow Routes) after 7 PM. This would reduce the increase in operating costs to \$125,800 and the net subsidy increase to \$114,000, but would reduce the ridership increase to roughly 9,500. The performance measure for this option would be similar to that of the full four-route evening option.

Schedule Adjustments for Better RTS Connections

The need to better coordinate ETS and RTS connections (largely at H and 3rd) was a common request in the on-board passenger surveys. At present, three of the four ETS routes serve H & 3rd at the top of the hour, while the preponderance of northbound RTS buses occur around 15 and 45 minutes past the hour and the preponderance of southbound RTS buses serve this transfer stop around the top and bottom of the hour. As a result, ETS riders making a transfer to a northbound RTS trip often have a 15 minute wait. The RTS schedules must be coordinated with numerous factors beyond connections with ETS, including transfers to A&MRTS and bell times at HSU and College of the Redwoods, and redesigning the RTS schedules to consistently match ETS schedules would result in a less efficient service (as it would require longer layovers at trip termini). Providing better timed connections between southbound RTS buses and ETS routes should be considered as part of the ETS route redesign.

COMPARISON OF ETS SERVICE ALTERNATIVES

As shown in Table 36, the weekday evening service would generate the greatest increase in ETS ridership, and would also have a substantially higher subsidy requirement than the other options. The best productivity would be generated by the earlier weekday service (10.1 passenger-trips per vehicle-hour) followed by the earlier Saturday service (8.2) and the weekday evening service (4.2). The same pattern is shown by the subsidy per passenger measure, with the earlier weekday service requiring only \$4.22 per passenger, while the weekday evening service requires \$12.10. Finally, the evaluation of farebox ratio similarly

shows the earlier weekday service as better (22 percent) and the weekday evening service as worse (9 percent).

Table 36: ETS Service Alternatives Performance Analysis					
Alternative	Marginal Operating Subsidy	Change in Annual Ridership	Marginal Ridership per Vehicle-Hour	Marginal Subsidy per Passenger	Marginal Farebox Ratio
Earlier Weekday Service	\$15,600	3,700	10.1	\$4.22	22%
Start Saturday Service at 8:00 AM	\$20,500	2,800	8.2	\$7.32	14%
Weekday Service Until 10:00 PM	\$152,400	12,600	4.2	\$12.10	9%
<i>Source: LSC Transportation Consultants, Inc.</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 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.

The RTS Mainline route provides service in Fortuna on its northbound and southbound runs, with hourly service from 7:43 AM to 6:43 PM, and nearly hourly evening service ending at 10:03 PM. The RTS Mainline route serves the core downtown area of Fortuna, as well as Redwood Village, Redwood Hospital, School Street, and the park-n-ride on the west side of Highway 101. Additionally, the RTS Southern Humboldt Intercity serves Fortuna five times daily in the southbound direction and in the northbound direction by request for drop offs on six runs.

The data provided in Figure 4, above, indicates that (based on survey results) less than 1 percent of RTS Mainline ridership uses the bus to make a local trip within Fortuna, but almost 7 percent of RTS Mainline riders use the bus to go to or from Fortuna (not including trips to or from College of the Redwoods). While the UTN process has not identified any unmet transit needs in Fortuna, it is likely (based on the demographics of Fortuna) that there are potential transit riders not currently served. There are pockets of high percentages of individuals living below poverty level in Fortuna (23.5 percent in some census tract block groups). Given that local ridership on the Mainline service is quite low, and Fortuna Transit has ridership restrictions, it is also likely that some of the need is unmet. For this reason, it is worthwhile to consider transit options which would serve the general public beyond the existing services.

Open Fortuna Transit to General Public

One option to consider would be to open Fortuna Transit to the general public. As an example, the City of Bishop, California operates a DAR service open to the general public. Given the proportion of general public that use this service (with adjustments for the fact that Fortuna has RTS as an option, but Bishop has no other local service, and also Bishop considers seniors age 62 compared to 50 in Fortuna), it is expected Fortuna Transit ridership would increase by an estimated 33 percent, or 2,800 passenger trips per year. While the current vehicles could accommodate this increase most of the time, there would be an estimated 20 percent increase in vehicle hours (adding 580 hours per year), resulting in an annual increased cost of \$22,500 (based on the current cost model). General public fares would be \$3.00, generating \$8,400 in fare revenues, for a total increased subsidy of \$14,100. The subsidy per passenger trip would therefore be \$5.04.

Currently, Fortuna Transit has a part time dispatcher, two part-time drivers and a full time driver, while 10 percent of the Director of Public Work's administrative time is allocated to transit. The part time driving and dispatch staff are low wage, non-benefited positions staffed by individuals who are semi-retired. Increasing service hours by 20 percent would strain current staffing and would potentially require hiring a full time driver/dispatcher with benefits. Therefore, this option has the potential to increase the cost by more than the \$22,500 based on the current model. The City of Fortuna would need to consider staffing options in order to appropriately estimate the full impact of this alternative.

As an aside, it would be possible to open the existing demand response Fortuna Transit program to the general public, but set the non-elderly/non-disabled fare high enough (such as \$5 per one-way trip) that little actual use by the general public would actually occur. That would have the benefit of making the transit program eligible for additional funding programs, while avoiding the cost impacts associated with increases in the service levels.

Implement Local Fixed Route and Reduce RTS Mainline Service

Another option for serving Fortuna would be to establish a local fixed route and reduce the RTS Mainline Service. The RTS Mainline service would continue to exit at Main Street in the southbound direction, but after serving N Street, the bus would head south on 12th Street to the Highway 101 interchange. Northbound, the RTS bus would exit at 12th Street and serve the N/11th stop before heading west on Main Street to enter Highway 101. This would reduce the route by 1,268 hours and 23,300 miles annually, for a cost savings of \$59,600. Currently, 62 percent of the boardings in Fortuna are at N and 11th or O'Reilly's and would continue to be served. The remaining existing RTS passengers would be served by the local fixed route

(transferring to RTS at one of the remaining stops), but their overall travel time would be increased and the need to transfer would reduce the convenience of transit service. As a result, it is estimated that 4,200 existing passenger trips would be lost. Additionally, an elasticity model indicates that the shorter travel time for RTS passengers traveling through Fortuna (such as between Scotia and Eureka) would increase ridership by 6,800 passenger trips per year, and an additional 3,000 passenger trips would be added because the route would serve a new area of south 12th Street (which includes multi-family dwelling units). This would therefore result in an overall increase of 5,600 passenger trips and \$8,800 additional fare revenue.

A fixed route in Fortuna designed to replace the RTS service would need to operate similar hours and days on an hourly headway. One possible route would be to operate one loop starting at 9th and Main, travel north to N Street, east to 12th, south to Newberg, northwest on South Rohnerville Road, and back to 9th and Main. The bus would then operate a second loop that would also travel north to N Street, east to 12th, south to Main, east to North Fortuna Boulevard, south to Ross Hill Road/School Road, north on South Rohnerville Road east west on Redwood Way; north on South Fortuna and west on Main to 9th. This two-loop route would be 9.4 miles in total length and would use many of stops currently installed for RTS. In order to make the route ADA compliant, the vehicle would deviate up to ¾ of a mile for ADA eligible passengers by request from 4:00 PM to 10:00 PM, when DAR service is not available. The combined fixed route and route deviation would take approximately one hour to serve.

Operating this service from 8:00 AM to 10:00 PM, Monday through Friday would require \$185,000 annually, as well as the purchase of a low-floor bus. Ridership is estimated to be 33,300 annually. With a base fare of \$1.50, approximately \$40,600 would be generated in farebox revenue, for an annual subsidy of \$144,400.

This analysis provides a broad stroke for a potential new fixed route service. Many details would need to be worked out, including whether the City would operate the service in-house, or contract out; what would be the optimal hours and times of operation; and how the service would be funded. The details of such a plan are beyond the scope of this TDP.

DIAL-A-RIDE CONSIDERATIONS

HTA is contracted by the City of Arcata, City of Eureka and County of Humboldt to administer the operations of the dial-a-ride/lift programs. HTA in turn contracts with City Ambulance of Eureka (CAE, soon to be City Transport of Eureka, or CTE) to operate the service. CAE operates non-emergency medical transportation and taxi service in addition to the Dial-a-Ride. CTE will just be responsible for the contracted Dial-a-Ride service, which should simplify reporting. However, dispatchers and other staff will continue to be shared.

Until July 2016, the Humboldt Community Access & Resource Center (HCAR) was the designated Consolidated Transportation Services Agency (CTSA) responsible for administering the Dial-a-Ride program. As such, a Triennial Performance Audit was conducted for HCAR, but not for CAE. Data monitoring and reporting had been inconsistent or largely absent, and ridership had not been tracked as a result. For example, the TPA could not verify ridership statistics as those reported to the State Controller differed by as much as 60 percent from what was reported internally. In short, there are no reliable data trends to evaluate the effectiveness of current service. Fortunately, that is changing.

HTA recently acquired Routematch[®] software, which is improving the monitoring and reporting of DAR data. HTA and CAE staff have been learning to use the software and expect to be able to provide better monthly and annual reports and performance data in the future. However, without this data to date, service alternatives for the DAR services can only be evaluated in very general terms. Based on some of the issues that were discussed in stakeholder interviews, the following DAR considerations are presented below.

FTA Regulations Regarding Shared Mobility Options

CAE provides contract dial-a-ride service and has branded the DAR/L programs in a manner that promotes a uniform service and image to the riding public in the greater Humboldt Bay Area. CAE and HTA's Customer Service staff communicate as needed to resolve issues and provide assistance.

Contracting for paratransit/demand response service has its benefits as private companies or non-profit agencies may be better equipped to transport special needs passengers. However, this brings up the question of whether or not the contractor is subject to the same rules as the public transit operator, particularly Federal Transit Administration's Drug and Alcohol Testing regulations. The FTA website provides clear guidance on this issue in the Shared Mobility Frequently Asked Questions Section.

According to federal transit law (49 U.S.C. § 5331), public transportation operations that receive financial assistance under the FTA's Urbanized Area, Capital Investment Grant and Rural Area programs must conduct controlled substance and alcohol testing of public transportation employees responsible for safety-sensitive functions, including operating, dispatching, and maintaining revenue service vehicles. Recipients, sub recipients of FTA 5311 funds and their contractors are subject to this provision. A contractor is defined as any entity (private company, non-profit organization, ride sourcing company, taxi company et.) which is providing a "safety sensitive" function for the recipient of FTA funds.

There are three exceptions to the Drug and Alcohol Testing rules which currently do not apply to HTA.

1. The “taxi cab exemption” is when the recipient of FTA funds contracts with more than one Taxi Company or other entity to provide service. In this case the public transit passenger has the ability to randomly choose from among a number of taxicab companies for service. As it is difficult to administer a drug testing program with multiple companies, the drug test rules do not apply in this case. However, since the DAR program uses only a single company, this does not apply.
2. Drug and alcohol testing does not apply to projects funded with Public Transportation Innovation (§ 5312) research funds (which is not the case).
3. If a public transit agency is subsidizing a one-year pilot program and there are no FTA funds in either the vehicles or the operations of the service, then the drug and alcohol rules do not apply, even if the public transit agency is contracting with only one ride sourcing or one taxicab company. However, if the program extends beyond one year, drug and alcohol rules apply.

In summary City Ambulance of Eureka drivers should be incorporated into a drug and alcohol testing program.

Transit Zones - Fares

The current DAR system is divided into four zones (Zone 1 includes two separate areas):

- Zone 1 McKinleyville
- Zone 1 Corridor (Hwy 101 & Outlying Areas)
- 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 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.

This fare system takes into consideration that the cost is higher for longer trips. Fares collected are allocated back to the jurisdictions where the DAR served. For example, a trip from Eureka to and back would cross three zones and require three tickets each way. The revenue would be credited back one-third to Eureka, one-third to the County, and one third to Arcata, representing each zone crossed. This is one method of distributing revenues back to the jurisdictions which pay for the service.

Questions to be addressed when better ridership data is compiled include:

1. Are the zones appropriately sized?
2. Do the revenue allocations reasonably reflect the resources invested by each entity? For example, is the jurisdiction with the highest ridership paying the highest operating cost? Are they receiving the correct proportion of revenues?
3. The DAR fares are higher than fixed route fares, representing the higher cost of demand-responsive service. Is there a way to improve dispatching to make more efficient use of the DAR vehicles?

CAE Reporting and Monitoring

The current contract between CAE and HTA provides very general information regarding what records should be kept and how they should be reported. In order to evaluate the effectiveness of CAE services and address any shortcomings, appropriate data is essential. The Routematch software will be instrumental in preparing better, more comprehensive reports, but monthly and annual reports should include data which will help HTA identify if and where there are operational issues. Potential items to include in reports are listed below.

General Trip Data

The following data could be collected for each passenger trip, to be available upon demand by HTA.

- | | |
|--------------------------------------|---|
| – Name | – Time alighted |
| – Origin | – Any unusual circumstances encountered |
| – Destination | – Eligibility category |
| – Trip distance (in tenths of miles) | – Fare paid (tickets) |
| – Time passenger is on-board vehicle | – Number of passengers in party |
| – Scheduled pick-up time | – Zone |
| – Time boarded | |

Monthly Report data

- Route mileage and bus hours, including vehicle service hours and vehicle service miles
- Any removal of equipment resulting in interruption of service, including particulars, such as time service was suspended and time resumed.
- Complaints and requests for service from the public
- Amount of fuel per bus (HTA-supplied vehicles)
- Bus mileage per bus (HTA-supplied vehicles)
- Summary of accidents or incidents
- Service interruptions (delay log) – time out of service and time resumed
- Complaints and resolutions
- Number of customer calls received

Additionally, the following data should be considered for reporting to provide to HTA monthly in a format specified by HTA:

- Telephone calls received per hour
- Average telephone call hold times for each hour of operation
- Total ridership by eligibility category
- Total passengers using wheelchairs
- Total revenue miles
- Total vehicle revenue hours broken out by weekday, Saturday
- Average passengers per vehicle revenue hour and per vehicle revenue mile
- Number and percentage of passengers boarded early, within pick-up window, and late
- Number and percentage of passengers boarded more than thirty minutes past the scheduled pick-up time window (if required by HTA)
- Average time per passenger trip
- Attendants transported
- Accidents
- Number of trip denials
- Complaints and resolutions

Data by Origination Zone could include:

- Number of Passengers by trip origin
- Number of Passengers by trip destination
- Number of free attendants
- Number of wheelchair users

- Number of ambulatory passengers
- Number of tickets paid
- Number of bicycles transported

National Transit Database Requirements

In order to support required reporting to the National Transit Database, the CAE should submit monthly reports to HTA which include:

- Scheduled vehicle revenues miles
- Actual vehicle revenue miles
- Actual vehicle miles
- Actual vehicle hours
- Actual vehicle revenue hours
- Ridership

This data must be broken down by weekday versus Saturday.

Drug and Alcohol Control Program

The Contractor (CAE) should develop and implement a drug and alcohol control program and conduct drug and alcohol testing in compliance with Federal and/or State law or regulation for public transit operators and provide an annual report to HTA as directed by HTA. At a minimum, this should contain:

- A policy on drug and alcohol use in the workplace that complies with FTA requirements .
- An employee and supervisor education and drug and alcohol awareness training program.

Quarterly reports should be submitted to HTA providing a list of drug and alcohol testing done for the quarter and an updated list of safety sensitive employees.

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INTRODUCTION

The provision of public transit services requires a substantial investment in vehicles, facilities and equipment. This chapter presents the ongoing needs of the transit program as well as any potential new capital needs related to the service alternatives. In particular, this chapter discusses the vehicle replacement needs, facility needs (maintenance and operations), and passenger amenities needs (transit centers and bus stop improvements), and typical costs for these capital items. It should be noted that in the span of five years (which this plan covers), unplanned capital purchases are sometimes required, and new technologies often change the scope and price of capital purchases. Nonetheless, it is helpful to identify known capital needs, particularly vehicle replacement needs.

TRANSIT VEHICLES

Acquiring transit vehicles -- from planning stages to funding acquisition to procurement -- takes two to three years. Therefore, identifying potential vehicle needs as well as the appropriate vehicle types (size, fuel source, and etcetera) is very important. At the same time, vehicle technology is rapidly changing and it is challenging to know which new technologies will provide the best benefit for a transit system. Discussion of vehicle acquisition, therefore, considers the need to be as flexible as possible in acquiring state-of-the-art technologies.

Types of Vehicles – Pros and Cons

Below is a discussion of the types of vehicles transit providers are likely to consider for vehicle procurement. The recommended vehicle purchase plan, including an estimated annual cost for each year of the TDP, will be provided in the Plan Chapter after service alternatives have been selected and budget estimates finalized.

Hybrid Electric Vehicles

A vehicle technology gaining popularity among transit systems nationwide is hybrid electric propulsion. Under this arrangement, battery-powered electric motors drive the wheels; the batteries are charged using a small internal combustion engine (diesel-, gasoline- or alternative-fueled) to power an electric generator. This arrangement provides dramatically lower emissions, as the engine operates within a very narrow and efficient operating range.

Hybrid buses which use ultra-low sulfur diesel and particulate matter filters have 90 percent lower emissions than a conventional diesel bus, and tend to have less greenhouse gas emissions than both conventional diesel and CNG buses.

Hybrid electric propulsion systems have been tested at several large transit programs, most notably at New York City Transit. The National Renewable Energy Laboratory prepared an evaluation of the benefits of 10 new CNG Orion VII buses and 10 new Orion VII hybrids used for New York City Transit. According to the report, hybrid maintenance costs were lower than the CNG buses, battery replacement rate for the hybrid vehicles was about 4.5 percent per year, brake repair costs were 79 percent lower on the hybrid buses than the CNG buses and the hybrids had fewer road calls. New York City Transit has since placed an order for an additional 500 hybrid buses. Other agencies which have implemented hybrid technologies include Sunline Transit in Thousand Palms (California), the Roaring Fork Transit Authority (Colorado), the Los Angeles County Metropolitan Transportation Authority, the Orange County Transportation Authority, Omnitrans in San Bernardino, TriMet in Portland (Oregon), King County Metro Transit in Seattle, the Southeastern Pennsylvania Transportation Authority in Philadelphia, and New Jersey Transit.

The National Renewable Energy Laboratory (NREL) has conducted several studies comparing fuel economy and maintenance cost per mile between hybrid electric and diesel transit vehicles for urban fleets. According to a NREL study for Long Beach Transit, fuel economy (miles per gallon) on a gasoline powered hybrid electric vehicles was 4.3 percent lower than on a diesel fueled vehicle but maintenance per mile costs were 42 percent less on the hybrid. Similar comparisons made for King County Metro Transit in Seattle show that fuel economy in miles per gallon was 27 percent greater on a diesel hybrid vehicle in comparison to an Ultra-Low Sulfur Diesel (ULSD) vehicle. In this case study, total maintenance cost per mile was only 4 percent lower for the hybrid vehicles.

Operating costs for a hybrid electric system are typically lower in comparison to conventional diesel- or CNG powered arrangements due to greater fuel economy and reduced brake wear (the batteries are also charged through regenerative braking, which tends to slow the vehicle while it recoups energy). In addition, hybrid electric buses provide better acceleration and quieter operation than conventional internal combustion engine propulsion systems. Another benefit of hybrid electric technology is that it does not require the large infrastructure investment that is required for CNG technology. However, the average price of a hybrid bus is substantial, costing roughly \$700,000 for a 35-foot bus compared to \$280,000 for a conventional diesel bus (2011 APTA Public Transportation Vehicle Database). In addition, conventional sealed-gel lead acid battery systems typically last only two to three years, and replacement units cost on the order of \$25,000.

Better battery technology currently exists that could extend battery life (e.g., nickel metal hydride), but this technology currently costs \$35,000 to \$45,000 per bus.

Battery-Electric Transit Vehicles

Technology and experience for battery-electric transit vehicles are still fairly new. Some larger transit systems are beginning to purchase battery-electric buses, with incentives being provided by the FTA.

As an example of cost, Marin County recently purchased two battery-electric vehicles for \$1.6 million. The cost includes purchase of the buses, GPS and fare collection equipment purchase and vehicle inspections. The project will be funded with a grant from the Federal Transit Administration, local transportation sales tax revenues dedicated for transit capital projects, and a Bay Area Air Quality Management District grant for zero-emission vehicles. Additionally, through its Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, the state's air resources board will provide the manufacturer with an \$111,000 voucher per vehicle, which reduces Marin Transit's vehicle purchase price.

The vehicles can be charged overnight at the operator's yards rather than requiring specialized fast-charge equipment at transit centers or along the route. Infrastructure improvements to charge buses will be paid for primarily with local vehicle license fee funds dedicated to support electric vehicles.

The two electric buses will supplement Marin Transit District's hybrid fleet of 18 diesel electric buses, along with 30 gasoline paratransit vehicles, 19 gasoline shuttle vehicles and 23 diesel buses. An additional 10 hybrids will be delivered in 2017. As illustrated by this example, adapting a fleet toward zero-emissions is an incremental process, but it is a strategy which the local providers may wish to consider as part of their vehicle replacement plan.

Beyond the issue of cost, a key factor regarding battery electric buses is the potential range between charges. While buses with a range of 120-150 miles have been available for several years, some manufacturers have recently announced new technology that can operate up to 350 miles between charges – much more than most system's daily mileage per bus.

Charging Stations

Should providers decide to purchase battery-electric vehicles, the vehicles will require charging stations. Depending on the type of vehicle and the battery technology, charging may be completed quickly at in-route charging stations, or overnight at the operations facility. One current issue is that the charging technology is proprietary to the manufacturer.

Use of battery electric buses therefore requires the purchase of proprietary charging stations to support the buses, and tends to lock a transit system into a single manufacturer.

Gasoline Transit Vehicles

Much of current fleets include gasoline-fueled cutaway vehicles. These are relatively inexpensive and take no special equipment to re-fuel. The CalACT vehicle purchasing cooperative indicates that a 16-passenger low-floor cutaway costs between \$98,000 and \$110,000 while the standard floor counterpart costs on the order of \$80,000. In order to afford vehicles, gasoline-fueled vehicles will be a necessary part of the replacement fleets.

Clean Diesel Transit Vehicles

Likewise, some providers operate larger vehicles fueled with clean-diesel, which are cheaper than either hybrid-electric or electric vehicles. A heavy-duty low-floor diesel bus costs in the range of \$480,000 per vehicle. These will also likely be a necessary part of the replacement plan.

ARCATA & MAD RIVER TRANSIT SYSTEM

The A&MRTS uses 35-foot low-floor Gilligs in Arcata, with smaller cutaways used for tripper service or during lower demand periods. Larger buses would be inappropriate given the narrow streets in Arcata, and smaller buses would not accommodate high passenger loads at peak times. The City of Arcata is interested in purchasing alternative fueled-vehicles, such as battery-electric buses. However, given the high cost, this will only be feasible if grant opportunities are available which support such purchases. For planning purposes, it is assumed the current vehicles would be replaced with similarly sized diesel-fueled vehicles, as shown in Table 37.

The replacement schedule is based on a life expectancy of 12 years for the low floor vehicles and 7 years for the cutaways. A&MRTS has two 2014 low floor vehicles in daily service, plus two 2009 back-up vehicles. The newer vehicles will need replacing in 2026 (or they can become back-up vehicles, depending on mileage), and the two 2009 should be replaced within the next five years as they approach 350,000 miles (approximately in 2022). Both Cutaways will expire in 2018-19 based on age, but due to their very low mileage, purchases could be postponed until 2020 or later. As shown in Table 37, the cost of vehicles during the plan period is estimated at \$1.46 million. The purchase price could be somewhat higher if alternatively fueled vehicles are purchased. Two additional vehicles of each type will need to be purchased in the five years following the plan period.

Table 37: Arcata & Mad River Transit System Replacement Vehicle Needs*Costs in thousands*

Type/Size Vehicle	Planned Replacement Year					5-Year Total	Vehicle Needs
	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23		6-10 Years FY 23-28
<u>Number of Vehicles</u> ¹							
Low Floor 32/2 psgr	0	0	0	0	2	2	2
Cutaway 20/2 psgr	0	0	2	0	0	2	2
<u>Cost of Vehicles</u> ²							
Low Floor 32/2 psgr	\$0	\$0	\$0	\$0	\$1,082	\$1,082	
Cutaway 20/2 psgr	\$0	\$0	\$375	\$0	\$0	\$375	
Total	\$0	\$0	\$375	\$0	\$1,082	\$1,457	
Note 1: Based on recommended life-span of vehicles (200,000 miles or 7 years for Cutaway; 350,000 miles or 12 years for Low Floor).							
Note 2: Inflation assumed to be 2% annually.							

HTA

HTA has a fleet of 26 active vehicles and 13 back-up or surplus vehicles of varying sizes and ages (including DAR vehicles). Due to the high mileage of most of the routes, vehicles often reach the end of their useful life based on mileage rather than age. Over the next five years, a total of 13 transit vehicles and 1 staff vehicle will need replacing at an estimated cost of \$2.6 million, as shown in Table 38. This assumes the current fleet will be replaced with similarly sized and similarly fueled vehicles to those HTA currently operates (including two hybrid-electric buses), and it also includes an electric staff vehicle. However, as with the City of Arcata, HTA would like to take advantage of opportunities to purchase alternatively-fueled vehicles should grant funding become available. Furthermore, HTA may consider purchasing additional smaller cutaways within the plan period should there be an opportunity or need to contract with social services agencies to provide some of their transportation needs. Specific vehicle capacity requirements can be reviewed at the time of procurement.

In addition to the vehicles needed in the next five years, 22 more transit vehicles will expire in the five years after the plan, including 12 large low-floor buses which cost \$500,000 in current dollars (more than double what will need to be spent in the next five years). It is therefore important for HTA to pursue an aggressive capital reserve fund if possible toward matching funds.

EUREKA TRANSIT SERVICE

ETS has a fleet of seven 32-passenger low floor vehicles for fixed route service in Eureka. Based on the age of the vehicles (which have a 12-year life span), 5 of the vehicles will need replacing

over the next five years at a cost of \$2.6 million. Additionally, 2 more vehicles will need replacing in the five years past the current plan period. Eureka's vehicle needs are also shown in Table 38.

Table 38: HTA and ETS Replacement Vehicle Needs							
Costs in thousands							
Provider	Planned Replacement Year					5-Year	Vehicle Needs
Type/Size Vehicle	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	Total	6-10 Years FY 23-28
HTA Vehicles Needed							
Number of Vehicles ¹							
Low Floor, 38/2 psgr	0	0	0	0	0	0	12
Medium 29/2 psgr	1	2	1	0	2	6	5
Cuttaway 19/2 psgr	0	0	0	0	1	1	0
DAR 7/2 psgr	2	2	0	1	1	6	5
Staff Vehicle	1	0	0	0	0	1	1
Cost of Vehicles ²							
Low Floor, 38/2 psgr	\$0	\$0	\$0	\$0	\$0	\$0	
Medium 29/2 psgr	\$300	\$612	\$312	\$0	\$649	\$1,874	
Cuttaway 19/2 psgr	\$0	\$0	\$0	\$0	\$195	\$195	
DAR 7/2 psgr	\$180	\$184	\$0	\$96	\$97	\$557	
Staff Vehicle	\$35	\$0	\$0	\$0	\$0	\$35	
Total	\$515	\$796	\$312	\$96	\$942	\$2,660	
ETS Vehicles Needed							
Number of Vehicles ¹							
Low Floor 32/2 psgr	0	2	0	3	0	5	2
Cost of Vehicles ²							
Low Floor 32/2 psgr	\$0	\$1,020	\$0	\$1,592	\$0	\$2,612	
Note 1: Based on recommended life-span of vehicles.							
Note 2: Inflation assumed to be 2% annually.							

FORTUNA

The City of Fortuna uses 7- to 12-passenger Cutaways to operate Fortuna Transit. The newest vehicle was purchased using Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA) program funds, while the two older vehicles were purchased using FTA 5310 funds (a funding source specifically aimed at providing service to the elderly and disabled population). The expected life-span of these vehicles is five years or 150,000 miles. During the plan period, all three vehicles will reach the end of their useful life and need to be replaced, although the 2011 vehicle is used for back-up and replacement could be postponed. The estimated cost for replacing all three vehicles is of \$186,000, as shown in Table 39. Additionally, two vehicles will need replacing in the following five year period.

Table 39: Other Humboldt Transit Providers Replacement Vehicle Needs
Costs in thousands

Provider Type/Size Vehicle	Planned Replacement Year					5-Year	Vehicle Needs
	FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23	Total	6-10 Years FY 23-28
Fortuna Transit Vehicle Needs							
Number of Vehicles ¹							
Cutaway 8/2	1	0	0	0	1	2	1
Cutaway 12/2	0	1	0	0	0	1	1
Cost of Vehicles ²							
Cutaway 8/2	\$60	\$0	\$0	\$0	\$65	\$125	
Cutaway 12/2	\$0	\$61	\$0	\$0	\$0	\$61	
Total	\$60	\$61	\$0	\$0	\$65	\$186	
Blue Lake Rancheria Vehicle Needs							
Number of Vehicles ¹							
Cutaway 23/2	0	0	0	0	1	1	0
Cost of Vehicles ²							
Cutaway 23/2	\$0	\$0	\$0	\$0	\$195	\$195	
KT NeT Vehicle Needs							
Number of Vehicles ¹							
Cuttaway 12/2	0	0	0	0	1	1	0
Cost of Vehicles ²							
Cuttaway 12/2	\$0	\$0	\$0	\$0	\$65	\$65	
Note 1: Based on recommended life-span of vehicles. Note 2: Inflation assumed to be 2% annually.							

BLUE LAKE RANCHERIA TRANSIT SYSTEM

The Blue Lake Rancheria Transit System operates a 2013 Ford Cutaway, and a 2007 23-passenger bus is available as back-up. The 2013 bus has a life expectancy of 10 years or 350,000 miles. Therefore, this vehicle will need to be replaced, or put into back-up, in 2023 at an estimated cost of \$195,000, as shown in Table 39.

K/T NeT

K/T NeT replaced their 2011 Ford Cutaway in May, 2017 with a Ford 450 12 passenger (2 wheelchair positions). The 2011 vehicle is being kept as a back-up vehicle, which K/T NeT previously did not have. The new vehicle only has a five-year life span and will need replacing in again in 2022 at an estimated cost of \$65,000 as shown in Table 39.

FACILITY NEEDS

ARCATA & MAD RIVER TRANSIT SYSTEM

The City of Arcata wishes to make minor improvements to the Inter-modal Transit Center (ITC), and passenger amenity improvements are needed as well. Specific improvements are yet to be identified, but at a minimum, a capital fund for bus stop improvements should be included in the financial plan.

HTA

Maintenance and Operations Site Improvement or Relocation

HTA has outgrown the operations and maintenance facility located at on between 1st and 2nd Streets and V and W Streets in Eureka. There are two options for expanding: improve the current site or relocate. Both options have pros and cons, and ultimately an additional study will be necessary to determine which option is preferable. Some of the issues of the current site and possible solutions are nonetheless discussed below.

- **Parking:** Currently, there is parking for 39 of HTA's 43 vehicles on the site. Staff and transit vehicles are sometimes parked in front of the maintenance bay due to lack of space.

HTA would like to use the encroachment on W Street between its two properties and claim this area for parking. The whole block cannot be claimed because of the private property (Maxon Property) located on the southeast corner of 1st and W Streets.

- **Office Space:** The office space is too small. Several employees are stationed in the conference room, and cubicles and office spaces are small and cramped. Rather than encroach on the existing limited parking, one possibility for expansion would be to add a second floor to the existing building.

There is a house on the property which HTA rents out as income property. This site could potentially be used for additional office space, but the conference room is upstairs and the building is not ADA accessible.

- **Maintenance:** There are currently two maintenance bays. HTA contracts with other transit providers in the region to provide maintenance and a third mechanic would be beneficial to continue this arrangement, but a third maintenance bay would be needed.

One option would be to move the wash bay to a new location and convert it to a maintenance bay.

- **Unused property:** The Nixon House in the southeast corner of the property is a dilapidated building which HTA would like to remove. However, the building is on a historic registry despite its condition. If cleared from the property, the detail bay could be relocated to the corner of the parcel, and the wash bay could be built here as well.

Additionally, HTA owns the parcel north of 1st Street between W and X Streets. This property borders a wetland to the north which requires a 100 foot setback. The setback ends at the sidewalk, making this lot unbuildable. However, there may be potential to place solar panels on this site.

These items will need to be considered as part of a larger study for improving the operations and maintenance facility for HTA.

Vehicle Storage in Southern Humboldt County

At present, all of the vehicles used to operate the Southern Humboldt service are operated out of HTA's single operations facility in Eureka. As a result, every weekday morning an HTA bus runs "deadhead" (out of service) to begin the 6:35 AM northbound run from Garberville to Eureka.

In addition, at the end of the operating day three buses operate northbound departures between 5:05 PM and 7:30 PM when ridership levels indicate only two are warranted (as discussed in Chapter 6, above). If an evening northbound trip were eliminated and a vehicle stored overnight in the Garberville area, one full round-trip per weekday could be eliminated, with virtually no impact on the ridership. Over the course of a year, this would reduce operations by 590 vehicle-hours and 34,000 vehicle-miles, yielding a cost savings of \$51,300.

To capture these savings, a secure (fenced) storage space for at least one vehicle (and preferably two) would be needed. Transit systems using this "park out" strategy typically make an agreement with a local jurisdiction (such as a utility district or the County) to park in an existing facility. If this existing facility also has a mechanic on-staff, this can be helpful as they can help with informal vehicle maintenance (such as a vehicle that needs a jump start in the morning), though scheduled maintenance would still be provided under the HTA's existing arrangements. It would also be necessary to employ driver staff (two to three positions) that would report to work at this Southern Humboldt location, and preferably live in the area. These drivers would be required to check in and check out with the HTA Dispatcher via phone or video chat.

It should be noted that Humboldt County is looking for land to build a maintenance barn and storage yard, and there may be an opportunity for a joint venture or for HTA to lease a portion of the yard.

Fortuna

The City of Fortuna recently finished a remodel of their transit office, and does not have passenger amenities for their Dial-a-Ride service. In the past, Fortuna has partnered with HTA to add solar panels to the HTA stops in the City, and may do so again, but there are no foreseeable capital needs at this time.

PASSENGER FACILITIES AND AMENITIES

Passenger facilities include all equipment and amenities that serve the passenger as they access the bus. This includes bus stop shelters, benches and signs, information kiosks, pedestrian crossing amenities and transfer centers. The quality of passenger amenities is a very important factor in a passenger's overall perception of a transit service. Depending on the trip, a passenger can spend a substantial proportion of their total time using the transit service waiting at their boarding location. If this is an uncomfortable experience, if it is perceived to be unsafe, or if it does not provide adequate protection from rain and inclement weather, the bus stop can be the deciding factor regarding a potential passenger's use of the transit system. Below is a discussion of the existing passenger facilities and potential improvements for the plan period.

HTA and ETS

The HTA and ETS improvements include transit hub improvements, as well as procurement of new and replacement signs, benches and shelters, as discussed below.

Eureka Transit Center

Many cities of Eureka's population size with a well-developed transit network have benefitted from the developing a central transit passenger hub facility. Good examples of modern transit centers in Northern California can be found in Redding, Chico and Tahoe City. Transit centers are key elements of a successful public transit system, for the following reasons:

- To the *passenger*, the facility is a crucial link in the overall transit trip and optimally should provide easy access, comfort and protection from the elements, a sense of security, pleasant surroundings, and a clear view of the approaching bus. Downtown Eureka is a

particularly important connection, as it is the key transfer point between ETS routes as well as to and from the RTS system.

- To the *public*, passenger facilities are essential in forming the public perception of the transit program; they are visible “on the street,” and part of the community 24/7. As part of the historic downtown core area, a Eureka transit center is particularly important in forming this public image of transit. In addition, inadequate transit facilities can result in traffic issues.
- To the *service provider*, facilities can make the boarding and alighting process safer in terms of traffic and passenger safety, and more efficient by speeding passenger boarding through the provision of effective queuing areas, thereby reducing delays getting in and out of traffic.

The existing transfer site along H Street between 3rd Street and 4th Street consists of a loading area along the curb with a comfortable capacity of 3 buses at a time, a single large shelter, a pay phone and several bike racks and trash cans. It has the following deficiencies:

- The number of buses at the site can exceed the bus bay capacity. This requires buses to stop in other nearby locations (resulting in potential traffic issues and passenger having to cross travel lanes to make connections) and/or buses having to depart to make room for arriving buses, thus missing passenger connections.
- The bus loading area is split by an alley and is also near an existing driveway, causing sight distance problems for drivers and potential conflicts with bus passengers walking to/from the buses.
- The short loading area requires buses to park without adequate space to allow some buses to depart if there is a bus to the front. This can cause delays as the bus to the rear waits for the bus in front to depart (particularly when the bus in front is loading/unloading a wheelchair user).
- Buses swinging away from the curb can conflict with autos backing out of the angled parking spaces on the north side of the street.
- There is inadequate shelter from winter rains and wind.
- There is inadequate street lighting, reducing public safety (and the perception of public safety).

- It is directly adjacent to a parking lot, creating the potential for passengers to damage private vehicles as they lean against them while waiting for the bus.
- It is not co-located with the existing Greyhound stop (at 4th and Q streets 0.6 miles to the east) or the existing Amtrak Thruway stop (at 6th and C streets 0.4 miles to the west), making connections between the local/regional and intercity services difficult.
- It is not co-located with the RTS stop, although this stop is within visual distance on 5th Street. The location for connections is currently convenient due to closeness, but inconvenient in that it is not obvious where the stop is located in relation to the ETS transit center.
- The existing facility provides a poor public image for both the ETS and the RTS transit program.

The overall public transit network for Eureka, Humboldt County and the North Coast could be substantially benefitted from the development of a modern transit center serving all uses. A realistic program for this facility would consist of the following:

- Bus bays adequate to accommodate up to four ETS buses at a time, along with two RTS and one Greyhound or Amtrak Thruway buses, for a total of seven bus bays. Optimally, these bays would be configured to avoid the need for transferring passengers to walk across travel lanes, and to avoid or minimize conflicting movements with general public traffic.
- Auto drop-off/pick-up curb space, along with parking for transit operations staff.
- Indoor, climate controlled passenger waiting area of approximately 2,000 square feet of floor area.
- Outdoor seating areas with capacity for approximately 50 persons.
- Restroom and break facilities for drivers.
- Space for custodial equipment and supplies.
- An information/ticket sales counter that can be staff at least during special events.
- Real-time traveler information, such as screens showing AVL data on bus locations.

- Lighting and security enhancements.

Based on current construction and design costs, this facility would require a budget of approximately \$3 million, excluding any land acquisition costs.

ETS Bench and Shelter Improvements

Passenger facilities were among the lowest ranked system characteristic on onboard surveys for ETS. Currently, there are seventeen stops with benches and shelters, plus two stops with just benches. Some of these shelters need improving or replacing. Additionally, the surveys and a review of the system indicate there is a need for more benches and shelters throughout Eureka to better serve passengers. However, as the pending Line System Study could result in new and/or eliminated route segments, determining the number and location of improvements should be postponed until this study is completed. Even then, it will take some time to establish ridership patterns and to identify where amenities are most needed. Stops with more than ten boarding's per day would likely warrant a shelter, and stops with more than five passenger boarding's per day would warrant a stop. The capital improvement budget for the TDP should annually include lump sum line item expenditure for passenger amenities.

OTHER MISCELLANEOUS CAPITAL NEEDS

Below is a discussion of capital items which do not fit into the categories already discussed. These miscellaneous capitals needs also support the safe and efficient operation of transit programs in Humboldt County.

HTA

DAR Routematch Call-Back Module

HTA recently purchased and is using Routematch© software to support the Dial-a-Ride services. There has been a learning curve to understand the reporting and monitoring aspects of the software, but there has already been significant improvement in tracking and reporting CAE data. HTA would like to expand its capabilities by purchasing a call-back module which will have the capability to alert passengers that a scheduled reservation is confirmed and/or that a pick-up is imminent. HTA is exploring the cost of this software.

Online Payment Software

HTA would like to improve payment options for customers by purchasing online payment software which allows passengers to pay for their fares online. HTA is exploring the cost of this software.

ETS

Bike Racks

While HTA buses have bike racks, ETS buses do not, and this was frequently mentioned on surveys. A number of Eureka's transit dependent population relies heavily on biking as a means of transportation, and adding bike racks would facilitate and improve this mode of transportation. Bus bike racks which accommodate three bikes cost on the order of \$750 to \$1,500 and should be purchased with every new replacement vehicle.

BLUE LAKE RANCHERIA

The BLRTS would like to purchase a portable bus washing system with an EV charging system. These portable units take up only 15 square feet of space to store and have a rechargeable battery. The estimated cost is \$35,000.

K/T NeT

K/T NeT needs additional items for its newly purchased vehicle, including a bike rack, camera system, radio and farebox. These items would have a combined cost of approximately \$20,000.

Transit programs within Humboldt County rely on a number of funding sources, including Federal Transit Administration (FTA) grants, Local Transportation Funds (LTF), contract revenue, fares, et cetera. Transit funding sources have varying levels of stability. This chapter reviews the historical trends of funding resources for transit operations and capital, and discusses the projected status of future 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

Current sources of funding used among Humboldt County transportation providers are listed below, with a discussion of recent trends and expectations for future availability.

Federal Transit Funding Sources

The Federal Transit Administration (FTA) administers a variety of public transit grant programs across the nation. Below is a description of the various grant programs.

FTA Section 5311 Rural Area Formula Grants

This 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 uses land area, population, and transit service. All areas within Humboldt County are considered “rural” for purposes of this funding source. In Fiscal year 2016, the following FTA 5311 grants were allocated locally:

Humboldt Transit Authority	\$478,461 for capital purchases
City of Arcata	\$140,000 for operating assistance
City of Eureka	\$125,000 for operating assistance

This funding source will continue to be an important source of revenue for the transit programs.

STATE AND LOCAL FUNDING SOURCES

Local Transportation Funds

A mainstay of funding for transit programs in California is provided by the Transportation Development Act (TDA). The major portion of TDA funds are provided through the Local Transportation Fund (LTF). These funds are generated by a one-fourth cent statewide sales tax, returned to the county of origin. The returned funds must be spent for the following purposes:

- Two percent may be provided for bicycle facilities per TDA statutes.
- The remaining funds must be spent for transit and paratransit purposes, 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)

Table 40 shows the transportation revenue shares by jurisdiction for 2016-17 and 2017-18. The County receives approximately half of the LTF funds, with the City of Eureka receiving 18 percent and Arcata receiving 12 percent. As indicated in the Table notes, 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.

The amount of LTF funds generated are determined by local sales tax and are therefore a function of the vitality of the local economy. This makes the amount available difficult to predict, but reviewing trends of recent years indicates steady growth of between 4 to 12 percent annually. This comes on the heels of decreased LTF revenues during the recession years of 2008 to 2012.

State Transit Assistance (STA) Funds

In addition to LTF funding, the TDA includes a State Transit Assistance (STA) funding mechanism. The sales tax on gasoline is used to reimburse the state coffers for the impacts of the 1/4 cent sales tax used for LTF. Any remaining funds (or “spillover”) are available to the counties for local transportation purposes. Though this funding source can be particularly difficult to predict, in recent years, it has provided approximately 15 percent of the operating revenue for the County and transit providers.

Table 40: Humboldt County Transportation Revenue Shares

LTF Distribution ¹	2016-17	2017-18
Administrative Allocations		
Humboldt County Association of Governments (HCAOG)		
Administration, Planning, Programing	\$270,000	\$275,000
Humboldt County Auditor's Office	\$4,000	\$4,000
Reserve for Pedestrian & bicycle facilities/Local Entities	\$88,311	\$92,198
	<u>\$362,311</u>	<u>\$371,198</u>
Allocation by Jurisdiction		
Arcata ²	\$576,264	\$607,494
Blue Lake ³	\$40,568	\$43,032
Eureka ⁴	\$867,584	\$894,908
Ferndale ⁴	\$44,078	\$47,947
Fortuna ⁴	\$387,396	\$396,147
Rio Dell ⁴	\$108,569	\$114,217
Trinidad ⁴	\$11,688	\$12,271
Humboldt County ⁵	\$2,291,083	\$2,401,691
Total Allocation to Jurisdictions	<u>\$4,327,230</u>	<u>\$4,517,707</u>
Total LTF Funds	\$4,689,541	\$4,888,905
STA Distribution ²		
First Priority		
STA Contingency Fund		\$100,000
Non-mandated Dial-a-Ride Services		\$68,000
Consolidated Transportation Services Agency	--	\$111,590
	<u>\$0</u>	<u>\$279,590</u>
Claimants		
City of Arcata (A&MRTS)	\$57,563	\$28,773
City of Blue Lake (BLRTS)	\$34,963	\$0
City of Eureka (ETS)	\$183,647	\$57,872
City of Fortuna	\$430	\$488
Humboldt Transit Authority (RTS) Regional Projects	\$244,054	\$180,000
Humboldt Transit Authority (HTA)	\$142,323	\$120,689
CTSA	\$1,368	--
Dial-a-Ride	<u>\$100,000</u>	<u>\$100,000</u>
Total Claims	<u>\$764,348</u>	<u>\$487,822</u>
Total STA Funds	\$764,348	\$767,412

Note 1: Estimate by HCAOG pursuant to Section 6620 of the California Administrative Code.

Note 2: The City of Arcata typically uses LTF only on transit, but has also used LTF funds for bus stops and street repairs.

Note 3: 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.

Note 4: The City of Eureka consistently uses all of their LTF allocation on transit.

Note 5: The County is required to use their LTF allocation on transit until an unmet transit need finding from the 2015-16 fiscal year is met.

Note 6: The State Controller has estimated \$632,511 for 2015-16, with \$118,000 of unclaimed funds added, and \$13,827 added to the City of Eureka.

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. The LCTOP was created to provide operating and capital assistance for transit agencies to reduce greenhouse gas emission 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 moneys received shall be expended on projects that will benefit disadvantaged communities. Five percent of the annual auction proceeds in the Greenhouse Gas Reduction Fund (Fund) are allocated for LCTOP (starting in 2015-16).

FARES

Fare Peer Review

Passenger revenues are an important source of revenue. Fares can be very flexible in that they can be reduced for portions of the population (such as the elderly and disabled) that may be least able to pay. Within California, transit systems must maintain a minimum farebox return ratio in order to be eligible for Transit Development Fund (TDA) monies. Therefore, it is important to maintain a balance between bringing in sufficient fare revenues and not discouraging or limiting transit ridership.

A good method of determining the appropriateness of public transit operator's fare structure is to conduct a peer review. Table 41 presents the simplified fare structure for the RTS mainline service and the Southern Humboldt Intercity service along with similar regional routes. The characteristics of each route are as follows:

- **RTS Mainline** – Total one-way route mileage is around 50 miles between Trinidad and Scotia. RTS offers both an “In Town” fare for \$1.90 per trip as well as the regional base fare of \$3.00 per trip. Passengers can take advantage of a discounted fare if they purchase multi-ride tickets. This lowers the base fare price to \$1.90 per trip. Seniors, disabled and youth are also offered a discount. A monthly pass is available for \$59.00.
- **Southern Humboldt Intercity** – The base 1-way cash fare along the 70-mile route is \$5.50 for general public and \$5.00 for the reduced fare category.

Table 41: Peer Transit System Fares

Transit Program	Redwood Transit System	Siskiyou STAGE	Lassen Rural Bus	Lake Transit	Yuba Sutter Transit	SLO RTA	
Service Area - Route	Humboldt County - Mainline	(Yreka - McCloud)	(Susanville - So. County)	(Clearlake - Deer Park)	(Foothill Route)	(SLO - Paso Robles Rt 9)	Average
Fare Structure							
Base FareSingle Ride	\$3.00	\$4.00	\$4.00	\$5.00	\$2.00	\$3.00	\$3.50
DiscountSingle Ride	\$2.75	\$2.75	--	--	\$1.00	--	\$2.17
Base FareMulti-Ride	\$1.90	\$3.00	--	--	--	--	\$2.45
DiscountMulti-Ride	\$1.65	--	--	--	--	--	\$1.65
In-Town Fare	\$1.90	\$1.75	\$2.00	--	--	\$1.00	\$1.66
Monthly Pass	\$59.00	--	--	--	--	\$44.00	\$51.50
Monthly Pass Discount	\$54.00	--	--	--	\$15.00	\$22.00	\$30.33
Operating Statistics							
One-way Route Mileage	50	48	43	45	36	31	42
Annual Ridership	615,656	19,920	2,058	19,463	2,441	252,744	152,047
Annual Fare Revenues	\$1,219,116	\$42,157	\$1,079	\$22,780	\$3,861	\$412,871	\$283,644
Performance Measures							
Base Fare per Route Mile	\$0.06	\$0.08	\$0.09	\$0.11	\$0.06	\$0.10	\$0.08
Average Fare per Boarding	\$1.98	\$2.12	\$0.52	\$1.17	\$1.58	\$1.63	\$1.50

Source: LSC

The discount fare card cost per trip is \$3.85 for the general public and \$3.30 for reduced fare. Unlimited monthly passes are also available for \$108 (general public) and \$97 (reduced fare).

- **Siskiyou STAGE Yreka – McCloud** – To the northeast of Humboldt County, STAGE operates a public transit line between Yreka and McCloud in Siskiyou County, a distance of around 48 miles one-way. Ridership on this route (19,920) is significantly lower than ridership on the RTS mainline (615,656) as it operates less frequently and serves a smaller population base. STAGE base fare for this route is \$4.00 with an “In Town” fare of \$1.75.
- **Lassen Rural Bus Susanville – South County** - Over in Lassen County, Lassen Rural Bus (LRB) operates a long distance route (43 miles one-way) between the incorporated city of Susanville and the communities of Doyle and Herlong in the southern portion of the county. It should be noted that the route provides transportation for employees of the Sierra Army Depot and as such the majority of fares are paid for by the federal government. LRB’s base fare for travelling the entire route is \$4.00 with a \$2.00 option for shorter distances along the route. Ridership is particularly low on this service, 2,058 one-way passenger-trips.

- **Lake Transit Clearlake to Deer Park** - The Lake Transit Authority (LTA) provides several regional/intercity routes in addition to local routes within the City of Clearlake. The Clearlake to Deer Park route joins Lake and Napa counties and travels a distance of around 45 miles one way. LTA has the highest base fare of \$5.00 with no short distance options.
- **Yuba Sutter Transit Foothill Rural Route** – In addition to serving the more urbanized areas of Marysville and Yuba City, Yuba Sutter Transit offers several regional rural routes to the outlying communities in Yuba and Sutter counties. The Foothill Route connects Marysville to Brownsville, a one-way distance of around 36 miles. Yuba Sutter Transit has the lowest base fare out of the peers reviewed (\$2.00) and a monthly pass option only available for seniors and disabled passengers for \$15.00.
- **San Luis Obispo Regional Transit Authority (SloRTA) SLO – Paso Robles** – The RTA regional route from San Luis Obispo to Paso Robles is shorter than the other peers (31 miles) but carries a greater number of passenger-trips (252,744) than all the peers except for RTS. The multi region base fare is the same as RTS (\$3.00) with an “In Town” option of \$1.58 per trip.

Comparison with RTS Fares

As shown at the bottom of Table 41 the peer average base fare for a long distance route (not including RTS) is \$3.60. The RTS single ride base fare is 17 percent lower than the peer average and ranks fourth highest out of six transit systems (\$5.00 being the highest fare). The RTS discounted single ride base fare is 47 percent higher than the peer transit agencies who offer a similar option. Only STAGE offers a multi-ride base fare and the RTS fare is 37 percent lower. For the “In Town” fare options, RTS has the second highest fare. Most of the peers do not offer a monthly pass option for these routes. Of those who do, RTS has the highest monthly pass price.

As each route/service travels different distances, a good performance measure with which to compare these transit systems is the base fare per route mile. The peer average is \$0.088 per route mile as compared to \$0.060 for RTS, which is ranked the lowest fare per mile along with Yuba Sutter Transit. Another performance measure, average fare per boarding, demonstrates that RTS has the second highest average fare (\$1.98), roughly 41 percent above the peer average.

Comparison with Southern Humboldt Intercity Fares

The SHI base fare of \$5.50 is higher than any of the other peer systems. The cost of all fare instruments is high compared with the peer fares, ranging from 80 to 103 percent above the peer average. The average base fare per mile (\$0.079) is still 31 percent above the peer average.

Review of Boarding by Fare Instrument

Additional useful data regarding fare changes is the proportion of ridership using the various fare instruments. As shown in Table 41, the largest proportion (32 percent) of RTS Mainline passengers board using a stored value card, followed by 26 percent using Jack Pass. Only 10 percent of RTS passengers board using a cash one-way fare. Between the HSU and the College of the Redwoods pass programs, 35 percent of RTS Mainline passengers benefit from the college pass programs.

The similar data for Southern Humboldt Intercity indicates a substantial majority (62 percent) use the stored value card. Monthly pass users generate 22 percent of the boarding's, which cash customers generate 15 percent.

Discussion of Fare Changes

Given the high existing fares on the Southern Humboldt Intercity service compared with the peers and the fact that the fare per mile is 31 percent higher than on RTS Mainline service, fare increases on Southern Humboldt Intercity service was not considered. However, as the fare per mile and base fare for RTS Mainline service is substantially below the peer average and as additional fare revenues could be useful in funding service enhancements, several options for fare increases were evaluated for RTS Mainline service.

A **10 percent** across-the-board fare increase would result in a base fare of \$3.30 (general public) and \$3.05 (discounted), and a monthly pass of \$65/\$59. This would also require renegotiation of the college pass funding levels. An elasticity analysis indicates that this level of fare increase would reduce ridership by 20,200 passengers boarding per year (or 3 percent). Considering the increase in fare levels and reduction in ridership, overall fare revenues would increase by approximately \$78,000 per year.

A **20 percent** increase across the board would result in a cash fare of \$3.60/\$3.30 (general public/discount), a multi-ride cost per boarding of \$2.28/\$1.98, and a monthly pass rate of

\$71/\$65. Annual boarding would be reduced by an estimated 38,000 (6 percent), while annual fare revenues would increase by \$153,000.

The following plan presents service programs, capital improvements, and financial strategies to guide the improvement of public transit services in Humboldt County over the coming five years. This chapter presents the individual plan elements in brief, based on the substantial discussions presented in previous chapters; the reader is encouraged to refer to previous chapters for additional background on the plan elements.

SERVICE PLANS

The appropriate service elements included in the overall plan reflect the relative balance between the desire for ridership growth and the financial realities of available operating funding. The service enhancements recommended are described below, followed by a discussion of several other plan elements to be implemented if there are changes in funding or system wide needs. The service plans are presented as realistic scenarios for implementing the evaluated options, but are intended to have a flexible timeline. A flexible timeline will allow transit agencies to pursue additional political consensus, address staffing needs, and confirm the public desires for such changes. These activities may delay or expedite implementation from the presented schedules.

SERVICE PLAN FOR ARCATA & MAD RIVER TRANSIT SYSTEM

The service plan impacts for the next five years for A&MRTS are portrayed in Tables 42 to 44. Table 42 presents annual operating costs. The base case operating cost is derived from the 2016-17 budget presented in Table 14, assuming an annual 2.0 percent rate of inflation. The operating costs of each alternative and ridership and fare projections are based on the analyses in Chapter 6. The recommended alternatives are discussed below.

Adjust Schedule to Better Match HSU Class Schedules / Increase Trip Choices

As evaluated in Chapter 6, scheduling the Red Route to depart the Transit Center hourly starting at 25 minutes after the hour (with the first run departing at 7:25 AM) would allow increase travel options for passengers at the Transit Center and improve the timing for passengers arriving on the HSU campus. In particular, this would avoid the current need to dash out of classes with three minutes to catch the departing southbound Red Route bus. While there would be no change in the amount or cost of service, it is expected the greater convenience of this route would generate an estimated 8,800 in 2018-19, increasing to 13,800

by 2022-2023. This is shown in Table 43. By the final year, the increased ridership would generate \$1,800 in annual fare revenue, as shown in Table 44.

Table 42: Arcata & Mad River Transit System Estimated Operating Cost						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case Operating Cost ¹	\$994,700	\$1,034,900	\$1,055,600	\$1,076,700	\$1,098,200	\$5,260,100
<u>Service Plan Elements</u>						
Serve Community Center On Demand ²	-\$900	-\$900	-\$900	-\$900	-\$900	-\$4,500
Serve South G Street ²	\$0	\$2,600	\$2,700	\$2,700	\$2,800	\$13,300
<i>Subtotal: Service Plan Elements</i>	<i>-\$900</i>	<i>\$1,700</i>	<i>\$1,800</i>	<i>\$1,800</i>	<i>\$1,900</i>	<i>\$0</i>
<i>Percent Change</i>	<i>-0.1%</i>	<i>0.2%</i>	<i>0.2%</i>	<i>0.2%</i>	<i>0.2%</i>	
Net Operating Cost ¹	\$993,800	\$1,036,600	\$1,057,400	\$1,078,500	\$1,100,100	\$5,496,000
Note 1: The FY 2018-19 costs are based on A&MRTS 2017-18 costs and adjusted for inflation (2% annually).						
Note 2: Plan elements to be implemented in July 2018.						
Source: LSC Transportation Consultants, Inc.						

Table 43: Arcata & Mad River Transit System Estimated Ridership						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case Ridership ¹	267,400	269,700	272,000	274,400	276,700	1,625,300
<u>Service Plan Elements</u>						
Adjust Route Schedules at TC / HSU	8,800	12,100	13,600	13,700	13,800	62,000
Serve Community Center On Demand	2,600	3,600	4,100	4,100	4,200	18,600
Serve South G Street	0	600	700	800	900	3,000
<i>Subtotal Plan Elements</i>	<i>11,400</i>	<i>16,300</i>	<i>18,400</i>	<i>18,600</i>	<i>18,900</i>	<i>83,600</i>
<i>Percent Change</i>	<i>4.3%</i>	<i>6.0%</i>	<i>6.8%</i>	<i>6.8%</i>	<i>6.8%</i>	
Net Ridership	278,800	286,000	290,400	293,000	295,600	1,443,800
Note 1: Base case ridership assumed to grow at a rate of 0.9% annually, based on a combination of population growth (1.0% for Arcata) and student enrollment growth (0.5% per year).						
Source: LSC Transportation Consultants, Inc.						

Table 44: Arcata & Mad River Transit System Estimated Farebox Revenues						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case	\$248,700	\$250,900	\$253,000	\$255,200	\$257,400	\$1,265,200
<u>Service Plan Elements</u>						
Adjust Route Schedules at TC / HSU	\$1,100	\$1,600	\$1,800	\$1,800	\$1,800	\$8,100
Serve Community Center On Demand	\$300	\$500	\$500	\$500	\$500	\$2,300
Serve South G Street	\$0	\$100	\$100	\$100	\$100	\$400
<i>Subtotal Plan Elements</i>	<i>\$1,400</i>	<i>\$2,200</i>	<i>\$2,400</i>	<i>\$2,400</i>	<i>\$2,400</i>	<i>\$10,800</i>
<i>Percent Change</i>	<i>0.6%</i>	<i>0.9%</i>	<i>0.9%</i>	<i>0.9%</i>	<i>0.9%</i>	
Net Farebox Revenues	\$250,100	\$253,100	\$255,400	\$257,600	\$259,800	\$1,276,000
Source: LSC Transportation Consultants, Inc.						

Make the Community Center an “On Demand” Stop

While the current deviation off of Union Street to serve the Community Center stop adds a half-mile of travel and 3 minutes of travel time to each Red Route run, the ridership is very low⁸ and the travel time delays passengers and adds to the challenge of staying on schedule. This stop should be served only “on demand”, whereby passengers wanting a drop-off tell the driver as they board and passengers wanting a pick-up call at least a half hour prior to their desired pick-up so the driver can be notified to serve the stop. The 11:01 AM and 1:01 PM times (reflecting the Red Route schedule change) should still be served regardless of requests, in order to serve the Senior Center meal program. In addition to improving service to other passengers, this will reduce subsidy needs by an estimated \$1,400 per year.

Extend Transit Service to South G Street

In combination with the “on demand” stop at the Community Center, the Red Route should be extended to serve the area south of Samoa Boulevard on H and G Streets in 2019-20. This area has a substantial amount of higher-density housing, as well as various commercial activities. The cost of adding miles to the route would be \$2,600 in the first year and would generate an estimated 600 additional passenger trips with a subsidy of \$2,500, increasing to 900 passenger trips by the third year, as shown in Table 43. This strategy would need to be monitored closely for on-time performance issues.

A&MRTS Services Recommended Contingent on Funding:

Provide a High Frequency Shuttle between HSU and Downtown in Peak Periods

A new shuttle service should be considered for connecting the HSU campus and downtown Arcata, providing service roughly every 15 minutes during the morning (7:00 AM to 9:00 AM), mid-day (11:30 AM to 1:30 PM) and evening (4:30 PM to 6:30 PM) peak periods on weekdays during the school year. This service would address the fact that the highest transit demand is between the campus and downtown Arcata, and will encourage HSU students and staff to patronize downtown Arcata. This would add 960 hours and 8,640 miles of service at an annual marginal operating cost of \$72,100 in 2018-19 dollars (assuming a 2 percent inflation rate). The overall increase in ridership (considering that some of the shuttle ridership would shift from existing Gold and Red Route ridership) is estimated to be 13,200, which would generate \$1,600 in fare revenue for a subsidy of \$70,500. While this option would perform well, a steady source of revenue would need to be identified before it could be implemented.

⁸ No boardings or alightings were observed during the surveys conducted as part of this study.

A&MRTS Services Evaluated and Not Recommended

A number of service options were evaluated to address public requests or perceived shortcomings in the transit system, but were found not to be an overall benefit to the transit system due to performance and/or cost. Detailed evaluations were provided in Chapter 6, and are briefly recapped below:

- *Increased Span of Service (later service and Sunday service):* Though frequently requested on surveys, ridership patterns indicate that increasing the hours of service offered or Sunday service would not be an effective use of operating funding.
- *Reduced Redundancy on LK Wood:* This route segment receives a high level of service, and an option was evaluated to reduce service. However, the high frequency also generates a high level of ridership, and performance measures indicate it should be maintained.
- *Serve Bayside Post Office:* While the majority of the City of Arcata receives transit service, Bayside Drive out to Jacoby Creek School and the Bayside Post Office do not. However, offering service would require an additional route, and the demand in the area does not warrant a new route.

SERVICE PLAN FOR HUMBOLDT TRANSIT AUTHORITY

The service plan presented below is for all services operated under HTA contracts, including Redwood Transit System, Willow Creek, Southern Humboldt, Tish Non-Village and Eureka Transit Service. The impacts of the service plan are portrayed in Tables 45 to 47. The base case operating cost in Table 45 is derived from the 2017-18 approved HTA budget, adjusted for inflation (assumed at 2.0 percent). The operating costs, ridership impacts and fare projections of each alternative are based on the analyses in Chapter 6.

RTS Mainline Eureka – Arcata Express Service

An “Express Service” is recommended between Eureka and Arcata to address current overcrowding issues, as well as to improve overall quality of service on this key corridor. This service should consist of a single additional bus making round-trips every 45 minutes from approximately 7:00 AM – 10:45 AM, and from 2:00 PM – 6:30 PM. This strategy has the best performance indicators of all alternatives evaluated. The Express Service would substantially improve the frequency of service between Eureka and Arcata, increasing the number of one-way bus trips from the current 36 to 58 during the service periods. This alternative would add

an estimated \$79,400 in marginal operating cost annually and would generate 16,200 additional passengers in the first year of operations, reaching 25,400 by the end of the plan period, as shown in Tables 45 and 46. This alternative also addresses many survey requests for increased service frequency.

Table 45: Humboldt Transit Authority Estimated Operating Cost						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case Operating Cost ¹	\$6,716,800	\$6,851,100	\$6,988,100	\$7,127,900	\$7,270,500	\$34,954,400
<u>Service Plan Elements</u>						
Eureka - Arcata Express	\$79,400	\$80,900	\$82,600	\$84,200	\$85,900	\$413,000
Eliminate SHL, Add 4x Sat/Sun Scotia-Benbow	\$1,500	\$1,600	\$1,600	\$1,600	\$1,700	\$8,000
Willow Creek: Stop in Blue Lake	\$1,000	\$1,000	\$1,100	\$1,100	\$1,100	\$5,300
Eliminate Tish Non-Village Service	-\$118,900	-\$121,300	-\$123,700	-\$126,200	-\$128,700	-\$618,800
Later Saturday service on RTS Mainline	\$7,800	\$7,900	\$8,100	\$8,200	\$8,400	\$40,400
Earlier ETS Weekday Service	\$20,500	\$20,900	\$21,300	\$21,800	\$22,200	\$106,700
<i>Subtotal: Service Plan Elements</i>	<i>-\$8,700</i>	<i>-\$9,000</i>	<i>-\$9,000</i>	<i>-\$9,300</i>	<i>-\$9,400</i>	<i>-\$45,400</i>
<i>Percent Change</i>	<i>-0.1%</i>	<i>-0.1%</i>	<i>-0.1%</i>	<i>-0.1%</i>	<i>-0.1%</i>	
Net Operating Cost ¹	\$6,708,100	\$6,842,100	\$6,979,100	\$7,118,600	\$7,261,100	\$34,909,000
Note 1: The FY 2018-19 costs are based on HTA 2017-18 approved budget, adjusted for inflation (2%). Includes direct expenses for RTS, ETS, Willow Creek, Southern Humboldt, Tish Non-Village, plus administration and maintenance, and DAR-CTSA contract. Source: LSC Transportation Consultants, Inc.						

Eliminate Southern Humboldt Local Service and Provide Southern Humboldt Intercity Service on Weekends

The Southern Humboldt services have relatively low performance, averaging 5.7 passenger trips per hour of service, but they are important in that they provide service to far reaches of the county. Reducing weekday service by eliminating the Southern Humboldt Local runs (while maintaining the weekday Southern Humboldt Intercity runs) would allow the resources from those services to be provided on weekends. Overall, this strategy expands the availability of service (weekend service is a strong request by Garberville area representatives), while still maintaining a reasonable level of local service through the Southern Humboldt Intercity route. This strategy would have minimal ridership impacts (a loss of 300 passenger trips annually) for a small subsidy (\$2,200 additional per year), as shown in Tables 45 and 46.

Table 46: Humboldt Transit Authority Estimated Ridership						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case Ridership ¹	909,100	914,500	923,700	932,900	942,200	4,622,400
<u>Service Plan Elements</u>						
Eureka - Arcata Express	16,200	22,200	24,900	25,200	25,400	113,900
Eliminate SHL, Add 4x Sat/Sun Scotia-Benbow	-300	-300	-300	-300	-300	-1,500
Willow Creek: Stop in Blue Lake	300	400	400	400	400	1,900
Eliminate Tish Non-Village Service	-3,500	-3,500	-3,600	-3,600	-3,600	-17,800
Later Saturday service on RTS Mainline	900	1,300	1,400	1,400	1,500	6,500
Earlier ETS Weekday Service	1,900	2,500	2,800	2,900	2,900	13,000
<i>Subtotal Plan Elements</i>	<i>15,500</i>	<i>22,600</i>	<i>25,600</i>	<i>26,000</i>	<i>26,300</i>	<i>116,000</i>
<i>Percent Change</i>	<i>1.7%</i>	<i>2.5%</i>	<i>2.8%</i>	<i>2.8%</i>	<i>2.8%</i>	
Net Ridership	924,600	937,100	949,300	958,900	968,500	4,738,400
Note 1: Ridership is assumed to grow with population (0.3 to 1.0%).						
Source: LSC Transportation Consultants, Inc.						

Table 47: Humboldt Transit Authority Estimated Farebox Revenues						5-Year Plan Total
Plan Element	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Base Case	\$1,661,400	\$1,681,400	\$1,718,700	\$1,774,300	\$1,850,100	\$8,685,900
<u>Service Plan Elements</u> ⁽¹⁾						
Eureka - Arcata Express	\$16,900	\$23,200	\$26,100	\$26,300	\$26,600	\$119,100
Eliminate SHL, Add 4x Sat/Sun Scotia-Benbow	-\$700	-\$700	-\$700	-\$700	-\$700	-\$3,500
Willow Creek: Stop in Blue Lake	\$1,000	\$1,400	\$1,500	\$1,500	\$1,600	\$7,000
Eliminate Tish Non-Village Service	-\$6,100	-\$6,200	-\$6,300	-\$6,300	-\$6,400	-\$31,300
Later Saturday service on RTS Mainline	\$1,500	\$2,000	\$2,200	\$2,300	\$2,300	\$10,300
Earlier ETS Weekday Service	\$3,000	\$4,100	\$4,600	\$4,600	\$4,700	\$21,000
<i>Subtotal Plan Elements</i>	<i>\$15,600</i>	<i>\$23,800</i>	<i>\$27,400</i>	<i>\$27,700</i>	<i>\$28,100</i>	<i>\$122,600</i>
<i>Percent Change</i>	<i>0.9%</i>	<i>1.4%</i>	<i>1.6%</i>	<i>1.6%</i>	<i>1.5%</i>	
Net Farebox Revenues	\$1,677,000	\$1,705,200	\$1,746,100	\$1,802,000	\$1,878,200	\$8,808,500
Note 1: Base Case fare revenue derived from 2015-16 budget (Table 13), increased by population growth (0.6%).						
Source: LSC Transportation Consultants, Inc.						

Willow Creek Service – Add Stop in Blue Lake

A simple means of increasing options between Willow Creek and Blue Lake would be to add an “on demand” stop on the Willow Creek route. Because this stop would only be served on demand and is a short distance from the regular route, the impacts are small but positive (an increase of 400 passenger trips annually at a cost of \$1,000, which would be more covered by the \$1,500 fare revenue). However, if the Willow Creek route experienced on-time

performance issues by making a deviation, the benefits of this option could be lost, so scheduling performance should be closely monitored.

Eliminate Tish Non-Village Service

The Tish Non-Village service was implemented in response to the Unmet Transit Needs process, but has performed poorly since its initiation. This service is costing approximately \$32 per passenger-trip, and serves only 1.5 passengers for every vehicle-hour of service. As the ridership is not concentrated on any particular runs, cutting back on the number of daily runs would not be effective. Eliminating this service will save \$118,900 the first year (with increased savings annually considering inflation) and would result in a loss of 3,500 to 3,600 passenger trips annually, as shown in Table 45 and 46.

Later Saturday Service on RTS Mainline

Saturday evening runs should be initiated between the College of the Redwoods and Valley West, departing northbound at 9:25 PM and southbound at 9:25 PM north – thereby giving passengers an extra hour of service in either direction. This would add 1,500 passenger trips at an annual subsidy of \$6,100 by the final year of the plan. Later Saturday service was a common request on surveys, and this alternative generates moderately good performance measures.

Earlier Weekday Service on ETS

Several public requests have been made for earlier weekday service on ETS. Currently, routes start between 6:31 and 7:00 AM. Transit ridership is typically very low prior to 6 AM, except in larger cities. However, it is important to provide the opportunity to access job locations (such as in downtown Eureka) and transfers to regional routes prior to 8:00 AM. While the Gold and Purple Routes provide arrivals consistent with these guidelines, the Red and Green Routes do not. Under this strategy, weekday start times would be shifted as follows:

Red Route – Start at Harris & Central at 6:14 AM (adds 46 minutes of service)

Green Route – Start at Myrtle & Dean at 6:11 AM (adds 41 minutes of service)

This additional service would increase operating costs by \$20,500 in the first year. Ridership-per-hour data for similar cities was reviewed to assess the ratio of ridership between 6 AM and 7 AM to the overall system ridership. Applied to the Red and Green Route weekday ridership and adjusted for the proportion of the hour served, an estimated 3,700 additional riders would be generated by this extension of service hours. These additional riders would increase fare

revenues by \$3,000 in the first year, to \$4,700 in the final year of the plan, yielding a net increase in subsidy costs of approximately \$17,700 annually.

HTA Services Evaluated and Not Recommended

A number of service options were evaluated to address public requests or perceived shortcomings in the transit system, but were found not to be an overall benefit (again, the reader is encouraged to read the detailed analyses in Chapter 6). These consist of the following:

- *Later Sunday Service on RTS Mainline:* This alternative to add additional Mainline runs on Sundays was projected to perform moderately, but performance measures were estimated to be lower than most existing services. This option could be revisited in several years to see if demand has increased.
- *Additional Saturday College of the Redwoods Service:* A student body survey was conducted with the intent to show a need for Saturday service to College of the Redwoods, but an evaluation of several potential service options found there would be limited demand, substantial cost increases, while also potentially having a negative impact on existing ridership. Therefore, Saturday service to College of the Redwoods is not recommended.
- *Eliminate Manila Service:* Some passengers complain about the delay required to serve Manila (which adds seven minutes more than staying on Highway 101). However, the ridership generated in Manila and the benefit of serving a low-income area were deemed to outweigh this inconvenience. An option to serve Manila using a taxi subsidy program was also found to result in substantial financial and institutional issues. It is recommended RTS continues to serve Manila.
- *Service on Old Arcata Road:* This service alternative stems from findings that there is an unmet transit need on Old Arcata Road. A number of individuals have repeatedly called for service to this area. However, an evaluation of redirecting RTS Mainline service to this area was projected to perform poorly and to negatively impact existing passengers. In addition, adding a new route would generate a farebox ratio which meets TDA requirements, but which is far below HTA's recommended target performance. Other service options included in this plan (notably the Eureka – Arcata Express service) would be a much more effective use of the limited TDA funding.

SERVICE PLAN FOR CITY OF FORTUNA

Chapter 6 evaluated opening up Fortuna Transit to the general public, as well as starting a fixed route service. Both of these options have the potential to improve transit services in Fortuna, but implementation is not recommended in the next three years, and further evaluation of these options should be conducted in the latter half of the planning period. For planning purposes, it is assumed services will remain on-demand with eligibility requirements, and existing sources of revenue will continue to fund the program, as depicted in Table 48.

Table 48: Financial Forecast for Fortuna Transit						5-Year Plan Total
	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Fortuna Transit						
Annual Operating Cost ¹	\$139,600	\$142,400	\$145,300	\$148,200	\$151,100	\$726,600
Revenues						
Fare Revenues ²	\$12,100	\$12,100	\$12,200	\$12,300	\$12,400	\$61,100
TDA Allocation ³	\$127,500	\$130,300	\$133,100	\$135,900	\$138,700	\$665,500
Total Revenue	\$139,600	\$142,400	\$145,300	\$148,200	\$151,100	\$726,600
Note 1: Operating costs based on 2016-17 budget, plus 2 percent annual inflation. Note 2: Fare revenues increase at rate of population growth (0.6% annually). Note 3: TDA is projected to increase at rate of inflation (2%) Source: LSC Transportation Consultants, Inc.						

SERVICE PLAN FOR K/T NET

K/T Net is a small transit system which is best served by having flexible service planning. There are no anticipated increased service needs, and route or scheduling changes over the next five years will be minor. Nonetheless, coordination opportunities between K/T Net and Yurok Transportation should be pursued whenever possible. Table 49 presents the annual operating costs for the five-year planning period, as well as the expected sources of revenue.

SERVICE PLAN FOR BLUE LAKE RANCHERIA TRANSIT SERVICE

The one-bus fixed route service operated by Blue Lake Rancheria Transit System is meeting current needs, and no anticipated changes are foreseen for the planning period. Operating costs and revenues were not provided for this report, but it is anticipated that existing revenue streams will continue to adequately cover operating costs for the plan period.

Table 49: Financial Forecast for K/T Net						5-Year Plan Total
	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	
Annual Operating Cost ¹	\$161,700	\$168,200	\$171,600	\$175,000	\$178,500	\$855,000
Revenues						
Fare Revenues ²	\$7,100	\$7,100	\$7,200	\$7,200	\$7,300	\$35,900
TDA Allocation ³	\$109,100	\$111,300	\$113,500	\$115,800	\$118,100	\$567,800
Hoopla Tribe ⁴	\$30,000	\$30,000	\$30,000	\$30,000	\$30,000	\$150,000
Grants / Fundraising ⁵	\$15,500	\$19,800	\$20,900	\$22,000	\$23,100	\$101,300
Total Revenue	\$161,700	\$168,200	\$171,600	\$175,000	\$178,500	\$855,000
Note 1: Operating costs based on 2016-17 budget, plus 2 percent annual inflation. Note 2: Fare revenues increase at rate of population growth (0.6% annually). Note 3: TDA is projected to increase at rate of inflation (2 percent) Note 4: Assumed to contribute the average of previous two years. Note 5: Grants and Fundraising are expected to provide the balance of funds needed. Source: LSC Transportation Consultants, Inc.						

CAPITAL IMPROVEMENTS

Transit services require ongoing capital investment in facilities and rolling stock. Capital investments in both vehicles and passenger facilities can also attract additional riders, while improving the quality of service and safety/security of existing riders.

Transit Fleet Improvements

Foremost, the ongoing replacement of the transit fleet is essential for the long-term sustainability of transit programs in Humboldt County. As shown in Tables 37 to 39 in Chapter 7, a total of 23 vehicles will need to be replaced in the next five years at a cost of over \$4.5 million. These vehicle needs are an important part of the financial plans, presented below.

Electric Buses

There is increasing interest at the statewide level to transition transit fleets to electric propulsion vehicles⁹. There are two options in electric buses with widespread application:

- Hybrid electric propulsion consists of battery-powered electric motors drive the wheels, with the batteries charged using a small internal combustion engine. This arrangement provides dramatically lower emissions, as the engine operates within a very narrow and

⁹ While fuel cell and hydrogen buses are also in use, these technologies are more experimental and currently less feasible.

efficient operating range. Hybrid buses which use ultra-low sulfur diesel and particulate matter filters have 90 percent lower emissions than a conventional diesel bus, and tend to have less greenhouse gas emissions than both conventional diesel and CNG buses. Agencies which have implemented hybrid technologies include Sunline Transit in Thousand Palms, the Los Angeles County Metropolitan Transportation Authority, and TriMet in Portland (Oregon). Studies indicate that fuel economy (miles per gallon) on a gasoline powered hybrid electric vehicles are 4.3 percent lower than on a diesel fueled vehicle, while maintenance per mile costs are less on hybrid electric vehicles than on diesel fueled vehicles. However, the average price of a hybrid bus is substantial, costing roughly \$700,000 for a 35-foot bus when compared to \$280,000 for a conventional diesel bus (2011 APTA Public Transportation Vehicle Database). In addition, conventional sealed-gel lead acid battery systems typically last only two to three years, and replacement units cost on the order of \$25,000.

- Battery-electric buses are rapidly gaining acceptance around California, including purchases by San Joaquin Transit, Marin Transit, and Foothill Transit (which has plans to convert 100% to battery electric buses). Costs are on the order of \$800,000 per unit. Relatively modest costs are also incurred for individual charging stations. These buses typically have a range of 120-150 miles on a single charge, which may limit their applicability for longer-distance runs in Humboldt County. However, this range can accommodate local services (A&MRT and ETS), as well as elements of the RTS service. In addition, there may be opportunities for charging during layovers in the course of the operating day.

It is recommended that improvements in electric vehicle technologies be monitored and opportunities for grant funding of bus purchases be pursued. This could provide a substantial reduction in transit operations emissions, as well as ongoing operating costs. While unit costs are currently higher than for fossil-fueled vehicles, the growth in the electric transit market may well bring costs down, and the availability of funding through Air Pollution Control District and the California State Air Resources Board can also reduce local funding requirements.

Bus Stop Improvements

A transit system's bus stops and passenger amenities play an important role in the public's perception of transit. However, the priority for bus stop improvements fluctuates often. For planning purposes, rather than identify specific improvements, the financial plan for each of the transit providers includes a "transit amenities" fund to ensure that bus stops are maintained and improved on an ongoing basis. Additionally, the City of Eureka and HTA should partner to identify a location and site design, as well as funding opportunities, for a centralized Eureka Transfer Center, as discussed in Chapter 7.

Facility Needs

While not specifically programmed as part of the financial plan due to the need to further evaluate costs, siting requirements and operational details, HTA is in need of either expanding or relocating their current operations facility, as discussed in Chapter 7. Additionally, the City of Arcata will be making accessibility, lighting and safety improvements at their Intermodal Transit Facility and has set aside PTIMSEA funds for this purpose.

Other Miscellaneous Capital Needs

As discussed in Chapter 7, a number of capital needs have been identified by Humboldt County transit programs, including the following:

HTA:

- Route Match Call Back Module
- Online Payment Software
- Vehicle Storage in Southern Humboldt

ETS:

- Bike racks for buses

BLRTS:

- EV Bus wash system

K/T Net (items for new vehicle):

- Bike rack
- Camera system
- Radio
- Farebox

FINANCIAL PLANS

A&MRTS Financial Plan

The service and capital improvements discussed above are planned to be funded through a combination of fare revenues, state/federal grants, and local funding. The following methodology was utilized in developing the Financial Plan:

- First, forecasts of annual operating and administrative costs were developed, as presented in Table 42 for FY 2018/19 through FY 2021/22. “Base case” operating and administrative cost forecasts were estimated based on the existing budget. A 2.0 percent average annual inflation rate is applied to estimate base case costs in the

absence of any change in service levels. Next, operating and administrative cost estimates were identified for each TDP element, based upon the analyses presented in Table 24 (in Chapter 6). These costs were also factored to reflect the assumed rate of inflation. Operating and administrative costs by the fifth year of the Plan will total approximately \$1,100,100, which is \$1,900 (or 0.2 percent) over the FY 21-22 base-case cost of \$1,098,200.

- Next, ridership for each TDP element was estimated, as presented in Table 43. The “base case” ridership reflects expected ridership with no changes in service. The ridership impact of each plan element is then identified and summed. As new services do not immediately attain the full potential ridership, ridership on new services is factored to reflect gradual ridership change in the first years depending on the nature of the service element. In addition, ridership change is factored to reflect the 1.0 percent annual increase in the population forecast by the California State Demographer’s office for the City of Arcata. By FY 2021/22, ridership is forecast to equal 295,600 one-way passenger-trips per year, which is 18,900 trips over the base case FY 2021/22 forecast of 276,700. This indicates that the Plan will result in a 6.8 percent increase in ridership by the end of the plan period.
- Based on the ridership figures presented in Table 43, the estimated farebox revenues are presented in Table 44. As presented, by the final year of the plan period, the service expansion elements will increase fare revenue by \$2,400 in the final year, equal to a 0.9 percent increase. Fare increases are low because the average fare collected per passenger trip is low due to the high use of the Jack Pass.
- The next element necessary in the development of the TDP is estimation of the capital cost for vehicles, as shown in Table 37 for each year of the TDP period. Vehicle replacements will cost \$1,457,900 over the five-year period. Additionally, a bus stop improvement cost of \$30,000 annually is assumed for the transit program, plus inflation. Other yet-to-be identified capital items may be necessary as well, particularly for improvement of the Intermodal Transit Facility.

The results of Tables 42 through 44 were used to develop the Financial Plan, as presented for each of the five years of the Transit Development Plan period in Table 50. In addition to passenger fare revenues, this Financial Plan incorporates the funding sources discussed below.

Operating Funding Sources

Funding sources for the operating plan are discussed in detail in the following paragraphs and illustrated in Table 49.

Table 50: Arcata and Mad River Transit System Financial Plan						
	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23	5-Year Plan Total
OPERATING PLAN						
Base Case Costs						
Operating Plan Elements (From Table 42)	\$994,700	\$1,034,900	\$1,055,600	\$1,076,700	\$1,098,200	\$5,260,100
	(\$900)	\$1,700	\$1,800	\$1,800	\$1,900	\$6,300
Total Operating Costs	\$993,800	\$1,036,600	\$1,057,400	\$1,078,500	\$1,100,100	\$5,266,400
<u>Operating Revenues</u>						
Fare Revenues ¹	\$250,100	\$253,100	\$255,400	\$257,600	\$259,800	\$1,276,000
Greyhound Commission and Misc. ²	\$65,000	\$66,300	\$67,600	\$69,000	\$70,400	\$338,300
Annual FTA - 5311	\$102,000	\$104,040	\$106,121	\$108,243	\$110,408	\$530,812
Annual LTF	\$547,400	\$583,260	\$597,779	\$612,557	\$627,692	\$2,968,688
Annual STA	\$29,300	\$29,900	\$30,500	\$31,100	\$31,800	\$152,600
TOTAL OPERATING REVENUES	\$993,800	\$1,036,600	\$1,057,400	\$1,078,500	\$1,100,100	\$5,266,400
Annual Balance (Transferred to Capital)	\$72,200	\$48,800	\$46,900	\$45,000	\$43,000	\$255,900
Capital Plan						
Vehicle Replacement Costs (From Table 37)	\$0	\$0	\$374,500	\$0	\$1,082,400	\$1,456,900
Passenger Amenity Improvements	\$30,000	\$31,200	\$33,100	\$35,800	\$39,500	\$169,600
Total Capital Costs	\$30,000	\$31,200	\$407,600	\$35,800	\$1,121,900	\$1,626,500
<u>Capital Revenues</u>						
Prop 1B Bond Funds	\$6,000	\$6,200	\$81,500	\$7,200	\$79,100	\$180,000
FTA 5339 Funds	\$24,000	\$25,000	\$26,500	\$28,600	\$31,600	\$135,700
Capital Reserve Funds	\$0	\$0	\$48,800	\$0	\$0	\$48,800
TOTAL	\$72,200	\$48,800	(\$203,900)	\$45,000	(\$968,200)	(\$1,006,100)
Note 1: Fare revenues including HSU contract, cash fares, DAR, bus ticket sales.						
Note 2: Greyhound commission, advertising revenue, charter revenue, vending revenue.						
Source: LSC Transportation Consultants, Inc.						

- Fare revenue, including cash fares and contracted reimbursements for Jack Pass use are estimated based on the 2016-17 estimated fare revenue, increased by 0.9 percent annually to reflect the population growth and projected HSU enrollment increases.
- Greyhound commissions, vending machine revenues and advertising are estimated to increase at the rate of inflation (2.0% annually).
- FTA Section 5311 (Rural Program) funds are used for operations. These funds are based on the 2016/17 allocated amount, and also increases by the rate of inflation.
- Annual STA (State Transit Assistance) funding is based on the 2017-18 apportioned amount and grown by 2.0 percent inflation each year.
- Annual LTF (Local Transportation Fund) revenues are based on the estimated FY 17-18 budgeted amount and adjusted to cover the remaining operating expenses (ensuring they do not go beyond the total annual LTF funds available) after 5311 and STA funds are accounted for.

Capital Funding Sources

Capital funding sources are planned to consist of the below, as presented in the bottom portion of Table 49.

- FTA Section 5310 (Enhanced Mobility) funding for the annual stop improvement project
- FTA 5339 (Buses and Bus Facilities) funds will be used towards the vehicle purchases throughout FY 2018-19 and FY 2021-22
- STIP (State Transportation Improvement Program) grant funding for the purchase of a GMC bus in FY 2017-18 and staff support vehicle in FY 2018-19
- Prop 1B – the remaining \$180,000 of this fund will be used toward bus stop improvements.

A&MRTS Implementation Plan

Fiscal Year 2018-19

- Adjust Red Route schedule
- Serve Community Center on demand
- Bus stop improvements

Fiscal Year 2019-20

- Serve south of G Street
- Continue bus stop improvements
- Explore purchase of battery-electric vehicles, grant opportunities

Fiscal Year 2020-21

- Continue bus stop improvements
- Purchase two Cutaway vehicles (possibly battery-electric)

Fiscal Year 2021-22

- Continue bus stop improvements

Fiscal Year 2022-23

- Continue bus stop improvements
- Purchase two low-floor vehicles (possibly battery-electric)

Financial Plan For HTA

The service and capital improvements presented for HTA are planned to be funded through a combination of fare revenues, state/federal grants, and local funding. The following methodology was utilized in developing the Financial Plan:

- First, forecasts of annual operating and administrative costs were developed, as presented in Table 45 for FY 2018/19 through FY 2021/22. “Base case” operating and administrative cost forecasts were estimated based on the existing budget. A 2.0 percent average annual inflation rate is applied to estimate base case costs in the absence of any change in service levels. Next, operating and administrative cost estimates were identified for each TDP element, based upon the analyses presented in Table 28 (in Chapter 6). These costs were also factored to reflect the assumed rate of inflation. Operating costs by the fifth year of the Plan will total approximately \$7,261,100, which is \$9,400 less than the FY 21-22 base-case cost because the increased service elements will be offset by the elimination of the Tish Non-Village service.
- Next, ridership for each TDP element was estimated, as presented in Table 46. The “base case” ridership reflects expected ridership with no changes in service, but growing at the projected rate of population growth (0.6 percent in the County). The ridership impact of each plan element is then identified and summed. As new services do not immediately attain the full potential ridership, ridership on new services is factored to reflect gradual ridership change in the first years depending on the nature of the service element. In addition, ridership change is factored to reflect the 0.6 percent annual increase in the population forecast by the California State Demographer’s office for

Humboldt County. By FY 2021/22, ridership is forecast to equal 968,500 one-way passenger-trips per year, which is 26,300 trips over the base case FY 2021/22 forecast of 942,200. This indicates that the Plan will result in a 2.8 percent increase in ridership by the end of the plan period.

- Based on the ridership figures presented in Table 46, the estimated farebox revenues are presented in Table 47. As presented, by the final year of the plan period, the service expansion elements will increase fare revenue by \$28,100 in the final year, equal to a 1.5 percent increase.
- The next element necessary in the development of the TDP is estimation of the capital cost for vehicles, as shown in Table 38 for each year of the TDP period. Vehicle replacements will cost \$5,271,700 over the five-year period. Additionally, a bus stop improvement cost of \$50,000 annually is assumed for the transit program, plus inflation. Other yet-to-be identified capital items may be necessary as well, particularly for improvement of the Operations and Maintenance Facility.

The results of Tables 45 through 47 were used to develop the Financial Plan, as presented for each of the five years of the Transit Development Plan period in Table 51. This Financial Plan incorporates the funding sources discussed below.

Operating Funding Sources

Funding sources for the operating plan are discussed in detail in the following paragraphs and illustrated in Table 51:

- Contract revenues are received from the various entities which contract with HTA to provide service, totaling \$2,195,900 in 2018/19 based on the 2017/18 approved budget, and assuming 2.0 percent inflation.
- Fares are also based on the budgeted expectations plus inflation, and include fare revenue for the recommended TDP elements.
- Miscellaneous revenues include revenue streams such as advertising revenues, rents and leases, etcetera, also estimated to increase at the rate of inflation.
- Annual LTF (Local Transportation Fund) revenues are based on the estimated FY 17-18 budgeted amounts and adjusted to cover the differences in operating expenses for TDA elements (ensuring they do not go beyond the total annual LTF funds available). The

Table 51: Humboldt Transit Authority Financial Plan					
	FY18-19	FY19-20	FY20-21	FY21-22	FY22-23
					5-Year Plan Total
OPERATING PLAN					
Base Case Costs					
Operating Plan Elements (From Table 45)	\$6,716,800 (\$8,700)	\$6,851,100 (\$9,000)	\$6,988,100 (\$9,000)	\$7,127,900 (\$9,300)	\$7,270,500 (\$9,400)
Total Operating Costs	\$6,708,100	\$6,842,100	\$6,979,100	\$7,118,600	\$7,261,100
<u>Operating Revenues</u>					
Contract Transportation	\$2,195,900	\$2,239,800	\$2,284,600	\$2,330,300	\$2,376,900
Fares	\$1,254,100	\$1,279,100	\$1,304,700	\$1,330,800	\$1,357,400
Misc. Revenues	\$320,400	\$326,800	\$333,300	\$340,000	\$346,800
LTF/JPA Member Assessment	\$2,477,200	\$2,526,700	\$2,577,400	\$2,628,800	\$2,681,600
STAF - State Operating Funds	\$284,500	\$290,200	\$296,000	\$301,900	\$307,900
Federal Operating	\$176,000	\$179,500	\$183,100	\$186,800	\$190,500
TOTAL OPERATING REVENUES	\$6,708,100	\$6,842,100	\$6,979,100	\$7,118,600	\$7,261,100
CAPITAL PLAN					
Vehicle Replacement Costs (From Table 38)	\$515,000	\$1,815,600	\$312,100	\$1,687,300	\$941,700
Solar Infrastructure	TBD				
Bus Stop Improvements	\$50,000	\$52,000	\$55,200	\$59,800	\$66,000
Total Capital Costs	\$565,000	\$1,867,600	\$367,300	\$1,747,100	\$1,007,700
<u>Capital Revenues</u>					
- Capital reserves - Low Carbon Transit Operations Program - California Office of Emergency Services - State Transit Assistance Funds					
Source: LSC Transportation Consultants, Inc.					

operating costs are reduced from the base cost because of the elimination of Tish Non-Village service.

- STA and FTA 5311 funds are also based on the estimated FY 17-18 budgeted amounts and adjusted for inflation.

Capital Funding Sources

Capital funding sources are planned to consist of the below, as presented in the bottom portion of Table 50.

- Capital reserves (with an existing balance of approximately \$800,000) used for fleet improvements.
- Low Carbon Transit Operations Program
- California Office of Emergency Services
- State Transit Assistance Funds

HTA Implementation Plan

Fiscal Year 2018-19

- Implement RTS Arcata-Eureka Express Service
- Eliminate Tish Non-Village (January 2018)
- Eliminate Southern Humboldt Local – Add 4 Southern Humboldt Intercity on Saturdays and Sundays
- Add On-demand stop in Willow Creek
- Extend Weekday Mainline in Evenings
- Start ETS Red and Green Routes approximately 40 minutes earlier on weekdays
- Improve bus stops, and prioritize list of improvements for following year
- Purchase one medium sized vehicle and one staff vehicle for HTA
- Purchase two DAR vehicles
- Develop RFP for operations facility site selection

Fiscal Year 2019-20

- Continue bus stop improvements, prioritize improvements for following year
- Purchase two medium sized vehicle for HTA
- Purchase two DAR vehicles
- Purchase two low-floor vehicles for ETS

Fiscal Year 2020-21

- Continue bus stop improvements, prioritize improvements for following year
- Purchase one medium sized vehicle for HTA

Fiscal Year 2021-22

- Continue bus stop improvements, prioritize improvements for following year
- Purchase one DAR vehicle
- Purchase three low-floor vehicles for ETS

Fiscal Year 2022-23

- Continue bus stop improvements, prioritize improvements for following year
- Purchase two medium sized vehicles for HTA
- Purchase one cutaway for HTA
- Purchase one DAR vehicles

INTRODUCTION

The Humboldt County Association of Governments (HCAOG) serves as the Regional Transportation Planning Agency (RTPA) for Humboldt County. One of the many responsibilities of the RTPA is to oversee the allocation of Transportation Development Act (TDA) funds which support public transportation. For this process, each RTPA establishes a Social Services Transportation Advisory Council (SSTAC). The primary role of the SSTAC is to lead and participate in the RTPA's annual "Unmet Transit Needs" (UTN) process, identifying transit needs that may be reasonable to meet. The TDA law requires this process for all funding recipients who do not use the entirety of their funding-allocation for the purposes of transit (or non-transit uses such as administration or bicycle or pedestrian uses, as applicable). While there are specific guidelines for conducting the UTN process, there is also much leeway in how each RTPA and SSTAC interprets the guidelines.

A Social Services Transportation Advisory Council (SSTAC) Strategic Plan was developed concurrent with the development of the TDP. The purpose of the Strategic Plan is to clarify the role of the SSTAC, review recent UTN findings, identify goals and objectives for the SSTAC, and provide a strategy to make the UTN process as clear and efficient as possible. The Strategic Plan has been published as a stand-alone report which includes the background information and processes for decision making during its development. This chapter presents the findings and summary of the Strategic Plan.

Steps for a Successful Unmet Transit Needs Process

The SSTAC Strategic Plan was developed through an iterative process with the SSTAC which brought forth problems and concerns in addressing the UTN process, reviewed policies and procedures, and developed a more comprehensive and streamlined process for addressing UTNs. This plan summarizes those recommended strategies to best serve HCAOG and the public. This plan shall act as a guidebook to planners and SSTAC members in conducting the UTN process.

Adopt Mission Statement, Policies and Definitions

The Strategic Plan report reviewed goals, policies and definitions related to the role of the SSTAC and the UTN process. The plan recommends that the policies and definitions for "Unmet Transit Need" and "Reasonable to Meet" be formally adopted, along with a mission statement. The definitions derived at by the SSTAC are presented below. For a deeper understanding of the definitions, the reader is referred to the full SSTAC Strategic Plan report.

Definition of “Unmet Transit Need”

Unmet Transit Needs shall be defined as:

Unmet transit needs are, at a minimum:

- (1) Trips requested from residents who do not have access to public transportation, specialized transportation, or private transport services or resources for the purpose of traveling to medical care, shopping, social/recreational activities, education/training, and employment; or*
- (2) Proposed public transportation, specialized transportation, or private transport services that are identified in the following (but is not limited to): a Transportation Development Plan, Regional Transportation Plan, Coordinated Public Transit–Human Services Transportation Plan.*

Additionally, the HCAOG TDA Rules stipulate that, for this process, unmet transit needs do not include the following:

- Improvements funded or scheduled for implementation in the next fiscal year.*
- Minor operational improvements or changes such as bus stops, schedules, and minor route changes.*
- Trips for primary or secondary school transportation.*
- Sidewalk improvements or street and road needs.*

For further clarification regarding “minor operational improvements” are those changes to service which do not affect the operating cost of the transit service either by requiring additional staff and/or additional vehicle hours of service or miles of service. As most of the costs associated with transit service are tied to the hours of service (such as driver wages) rather than the miles of service, the cost implications are minimal for service modifications that change miles but not hours of service.

Furthermore, the SSTAC agreed to drop “trips for purposes outside of Humboldt County” as an exclusion to unmet transit needs, and will in the future consider trips outside of the county as a potential unmet transit need.

Definition of “Reasonable to Meet”

The SSTAC has identified the following criteria in determining “Reasonable to Meet” transit needs:

Unmet transit needs may be found to be reasonable to meet by means of the following criteria:

- (1) To be considered reasonable to meet, a service must be operationally feasible and financially sustainable, as defined below:
 - a. To be considered operationally feasible, the service must have adequate running time, adequate roadways, and must be safe to operate.*
 - b. To be considered financially sustainable, enough money should be available from identified sources of funding to pay for the marginal operating cost of the service continuously for three years.**
- (2) Additionally, to be considered “reasonable to meet” the service must be projected to meet a minimum “marginal farebox return ratio”¹⁰ of 10 percent within two years. If multiple competing services are requested, other factors such as estimated subsidy per passenger trip and passengers per vehicle hour of service may also be considered. Ridership and farebox return ratio thresholds will also be considered for continuing newly-introduced services.¹¹*
- (3) Pursuant to the requirements of Transportation Development Act (TDA) Statutes (Public Utilities Code Section 99401.5 (c)), a determination of needs that are reasonable to meet shall not be made by comparing unmet transit needs with the need for streets and roads, for the allocation of TDA funds.*
- (4) Once a service is determined to be “reasonable to meet” and is implemented, it can be expected that the ridership in the first 1-2 years of the new service will be less than the projected optimal ridership. Ridership should be evaluated at 6-month intervals to determine if service is meeting performance standards adopted by the transit provider, and specifically, whether the service meets a minimum 10 percent marginal farebox ratio. If the service is being adequately promoted and fails to be within 60 percent of the identified standards after six months, 90 percent within the first year, or 100 percent within two years, the service may be cancelled and deemed “no longer reasonable to meet.” An exception to this rule is when a community or group is willing to participate in sharing the ongoing cost of the new service.*

Policy Review

Several policies were also reviewed and acted upon as described below.

¹⁰ The marginal farebox return ratio is determined by dividing the marginal fare revenue (that fare revenue collected specifically for the new service) by the marginal operating cost (the operating cost of the additionally provided service).

¹¹ Thresholds for services introduced as a means of meeting UTNs are discussed in the Policy Discussion of the SSTAC Strategic Plan.

- 1) Upon review of the options, the SSTAC decided to remove the exclusion and determine out-of-county trips as “reasonable to meet” on an equal footing with other identified, in-county requests.
- 2) At present, the SSTAC does not have any established goals or policies. Establishing goals and policies may help guide future discussions, particularly with regard to prioritizing between competing unmet transit needs that are reasonable to meet. The SSTAC determined language found in the *Regional Transportation Plan (VROOM ... Variety in Rural Options in Mobility)* provides policy statements appropriate for Humboldt County, as follows:

“GOAL: Achieve an integrated and sustainable multimodal transportation system that provides public transportation options for all users traveling in Humboldt County. Transit and paratransit users have options for affordable, reliable and efficient transit service that effectively meets their local and regional mobility needs.

Specific Public Transportation Objective: Expand and improve local and interregional transit services to improve mobility for people in Humboldt County.

Policy PT-1: To grow and meet transit demand, fund programs to increase trip frequency. Prioritize programs with the highest potential to increase ridership and reduce the number of single occupancy vehicle trips made in Humboldt County.

Policy PT-7: HCAOG shall evaluate and consider requests for extending service hours, expanding service area, and adding service frequency, based on the potential of the new service(s) to achieve minimum productivity standards.”

- 3) Policy for Prioritizing New Service Requests: First, the SSTAC will use steps outlined in the Strategic Plan to verify claims of unmet need (see “Verifying Claims of Unmet Need” below). The SSTAC will also use the clarified definitions in this Plan to better evaluate whether service requests are reasonable to meet, and will apply service standards to determine such. In particular, the new service will need to have a projected farebox ratio of 10 percent or better (based upon realistic analyses of potential ridership and costs).

In comparing the new service against other newly requested and existing services to determine which services as a whole will be funded, the SSTAC will use additional service standards (calculated by HCAOG with the assistance of operators) to formulate a service comparison. The SSTAC will then deliberate to recommend whether a service (1) meets the definition of “reasonable to meet” and (2) is prioritized for limited available funding.

Identify Participants' Roles

It is important for all of the participants in the UTN process to understand their roles. Below is an overview of the primary role and responsibilities of the Regional Transportation Planning Agency (RTPA), SSTAC and providers in the UTN process.

Role and Responsibility of the RTPA

The HCAOG (as the designated RTPA) has the primary role in conducting the UTN process. Responsibilities include:

- Oversee UTN process, including initial planning and outreach in coordination with the SSTAC
- Facilitating and summarizing public input
- Identifying potential Unmet Transit Needs versus operational improvements, and forwarding the suggestions for operational improvements to the transit operator for their consideration
- Analyze UTN requests, including assessments of potential ridership and cost, capital and operational implications (with input from transit operators) and provide this information to the SSTAC to inform their decision-making

Role and Responsibility of Transit Operators

- Adopt performance standards
- Provide data to measure performance
- Provide input to the RTPA regarding the potential impacts of addressing unmet transit needs.

Role and Responsibility of the SSTAC

- Lead and participate in UTN process
- Review requests and suggestions for service improvements and, applying definitions, determine if requests are “unmet transit needs” and if so, determine if they are “reasonable to meet.”
- Provide recommendations to the HCAOG Board regarding Unmet Transit Needs

Adopt Performance Standards

The transit providers in Humboldt County are strongly encouraged to adopt performance standards which reflect their level of service, funding and operating characteristics, as identified in Table 22 in Chapter 4 of this TDP. While this is an iterative and evolving process, having standards in place facilitates HCAOG's ability to evaluate the feasibility of a transit request and to prioritize transit needs.

At a minimum, the SSTAC and HCAOG staff will consider the farebox return ratio of a recommended service. Other helpful standards and the metrics of performance include:

- **Service Effectiveness Standards:** measured in passengers carried per service hour.
- **Service Efficiency Standards:** in addition to farebox return ratio, also the subsidy spent per passenger trip.

The farebox return ratio in particular should be used to determine if a service suggestion is "reasonable to meet" while the remaining standards can be helpful in prioritizing prospective services.

When evaluating impacts of a newly conceived service, the marginal costs should be considered, which equal the costs added to existing costs, and do not include, for example, administrative and fixed costs that the program would incur regardless of the new service. Likewise, the ridership and fare revenue which would be generated would be used to determine the marginal subsidy per passenger trip.

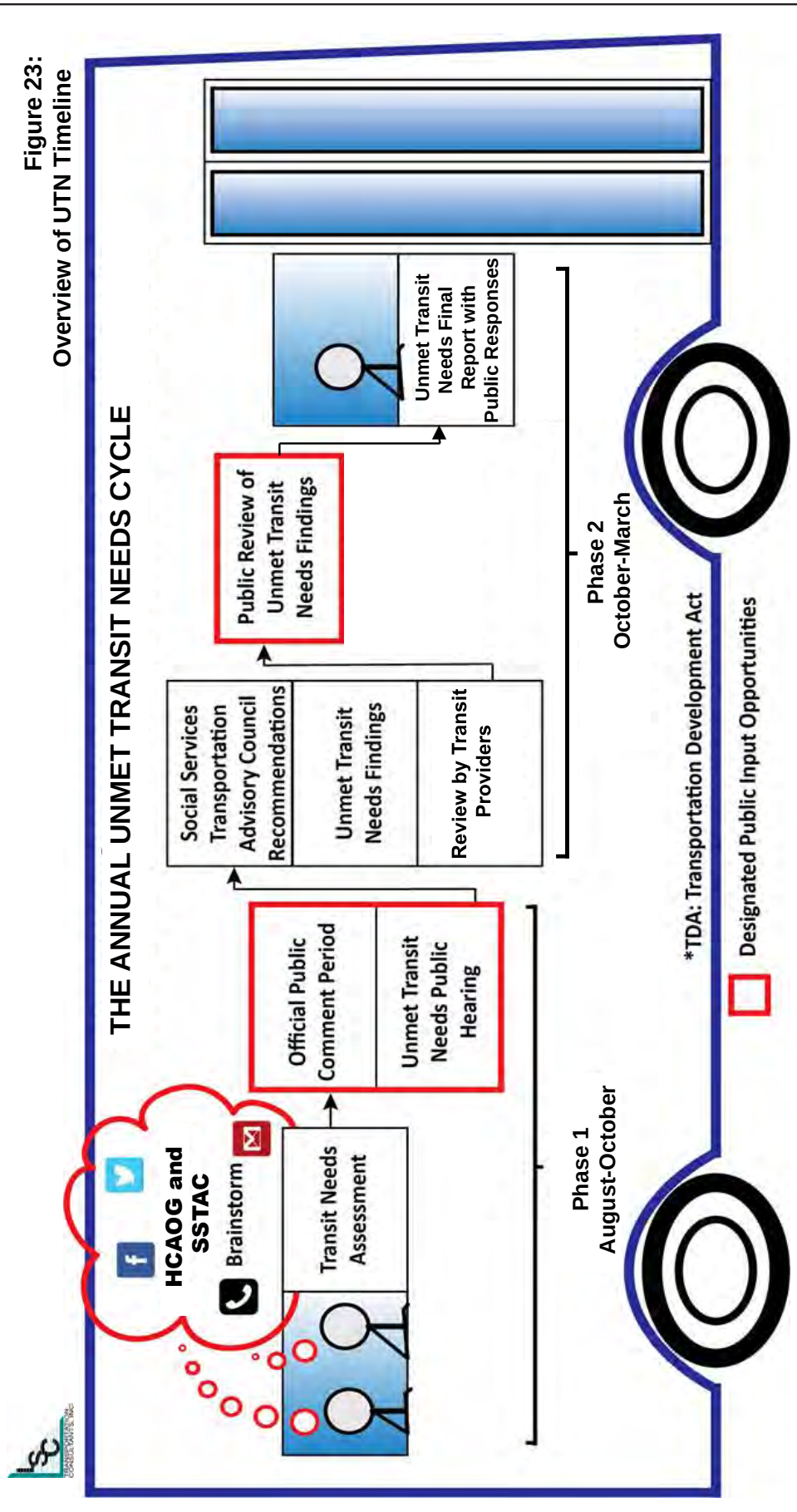
While the quantitative measures are an important evaluation tool and should provide the first approach in determining needs, qualitative factors, such as providing coverage to under-served or severely mobility-limited populations may be considered as well. There is no simple formula for determining which transit needs are reasonable to meet.

UTN PROCESS

Below is a recap of the UTN process and strategies to improve the process in Humboldt County.

Timeline

The UTN process is an annual one, so it is important to provide and maintain a calendar of key events and activities which occur for the process. Borrowing from the comprehensive and easy-to-read graphic in Shasta County, a timeline has been developed for Humboldt County as shown in



Highlighted activities in the calendar include the following:

Phase 1: August to October

1. Transit Needs Assessment: The SSTAC and HCAOG staff brainstorm and/or identify:
 - A review of findings from the previous year's UTN process
 - Best methods of outreach for the current year
 - Trends or activities in social services, economics, transit operations or otherwise which might affect the UTN process
 - Confirm schedule and calendar of public hearings
2. Public Outreach
 - Flyers/posters soliciting input
 - Website announcements soliciting input and describing process and opportunities for input
 - New methods of outreach identified in Step 1 (above) as appropriate
 - Public notice of hearings
 - Conduct hearings
 - Receive written, telephone and public hearing comments

Phase 2: October to March

1. SSTAC reviews comments, identifies "unmet" versus "operational" requests – reports to HCAOG (see flow chart, Figure 24)
2. HCAOG submits requests deemed "operational" to providers; confers with providers to determine feasibility of meeting unmet transit needs
3. HCAOG conducts analysis to determine "reasonable to meet"—presents to SSTAC
4. SSTAC makes recommendations on findings
5. Public reviews and responds to findings
6. HCAOG prepares report of UTN
7. HCAOG Board reviews and adopts UTN findings

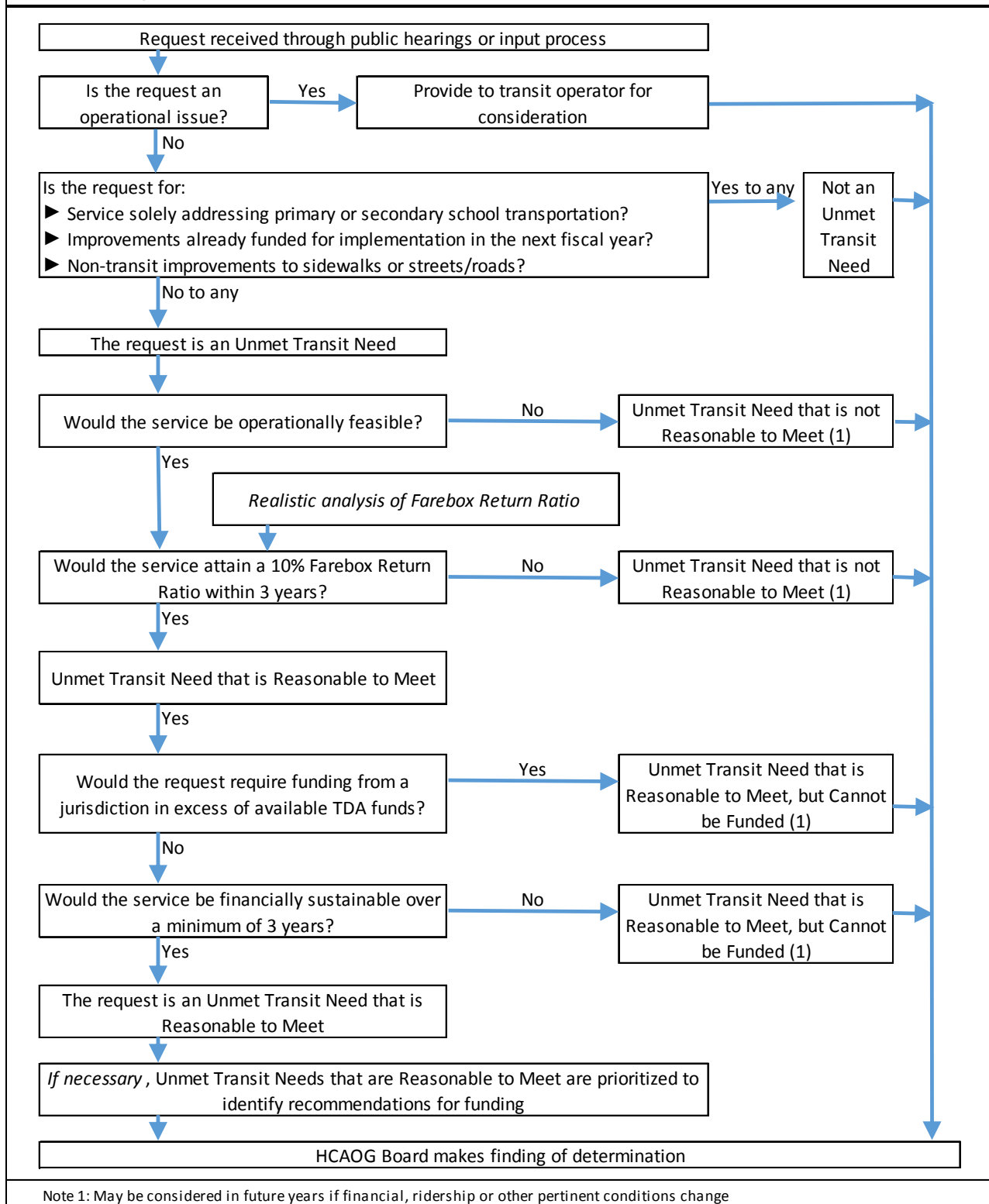
EFFECTIVE OUTREACH

A critical element of the UTN process is, of course, public outreach. The minimum required outreach per TDA law is to conduct one annual hearing in the jurisdiction which does not expend all TDA funds on transit. Many TDA recipients go above and beyond this required minimum, including Humboldt County.

Humboldt County Outreach Efforts

In Humboldt County the minimum requirement would be to conduct one hearing in the County seat (Eureka).

Figure 24: HCAOG Unmet Needs Process Flowchart



However, to effectively garner input from the potentially transportation disadvantaged throughout the county, HCAOG chooses to conduct hearings in multiple locations at multiple times. For example, public hearings were held in October and November, 2016, by the following entities for the 2017-18 UTN Process:

- City of Arcata
- City of Blue Lake
- City of Eureka
- City of Fortuna
- HCAOG (two meetings held in Eureka)
- McKinleyville Municipal Advisory Committee
- Manila Community District
- City of Rio Dell
- City of Trinidad
- City of Ferndale

A flyer for the hearings was widely distributed and posted on buses. The flyer is printed in English and Spanish. The hearings were held by city staff, municipal staff, or HCAOG staff, sometimes as a portion of a regularly scheduled City Council meeting. Results were submitted to HCAOG within a month following the hearings, along with any additional phone or written comments received. The UTN report for 2017-18 was adopted in March, 2017.

This level of outreach goes above and beyond what is required, but is effective in ensuring that residents from all portions of Humboldt County have an opportunity to provide input.

Humboldt County Surveys and Other Outreach

In addition to the planned and advertised public hearings on UTN, other outreach activities have been conducted in recent years, including:

- A “Focus Survey” conducted by the SSTAC and staff in 2015 to determine transit needs in the Fieldbrook, Glendale and McKinleyville area. The need was reported the previous year, and the survey was follow-up. The survey was sent to 2,230 residents in an approximate one mile radius of Fieldbrook Road, Glendale Avenue, the City of Blue Lake, Korbek, and Murray Road to Central Avenue in McKinleyville. The survey was available in English and Spanish and available electronically on HCAOG’s website. A total of 123 responses were received.
- The Associated Students of the College of the Redwoods (ASCR) led a survey to identify student weekend transit needs in 2016. The student senator who led the process communicated with HCAOG in planning the surveys. The survey was made available to students living in the school dorms, and students taking Saturday classes. A total of 80 individuals completed the survey.
- A letter with supporting signatures was submitted from the Peninsula Community Collaborative regarding unmet transit needs on the Samoa Peninsula. The October 2016 letter included six signatures.

Coordinated efforts to solicit UTNs can be productive, particularly if the identified needs are clear. However, claiming a need for transit service without any specifics can be counterproductive (see the discussion below on “verifying transit needs”)

HCAOG Website Materials Relating to UTN

The HCAOG website includes a link to each of its committees. The SSTAC link describes the role of the SSTAC and lists committee members, and provides a link to the meeting schedule, agendas, meeting records and SSTAC bylaws. (It would be helpful if the “unmet transit needs” mentioned in the first sentence on the page could be linked to the UTN page). A separate link posted under “Projects” has a brief description of the Unmet Transit Needs, and provides links to a detailed description of the UTN process and to the last two adopted “UTN Reports of Findings.” The description of the UTN process provides a good synopsis, but a simpler format might work better for the average lay person wanting to know how input will be processed. Appendix D presents materials developed by LSC for posting on the HCAOG website regarding the unmet transit needs process which might be a suitable supplement to link on the SSTAC page.

Verifying Claims of Unmet Needs

Tips for Projecting Transit Ridership

Evaluating requests received through the UTN process requires forecasting the ridership (and in turn the farebox revenue) that would result from the proposed service. The field of transit ridership forecasting is quite extensive and there are a myriad of studies and techniques that have been developed regarding how best to estimate future ridership. The following are some recommendations and rules of thumb that should be considered in assessing UTN requests in Humboldt County:

- Some requests are to **improve the quality of an existing service**, such as by increasing service frequency within existing service hour or reducing fares. The standard methodology (which is well developed) to estimate ridership for these types of requests is an **elasticity analysis**. This methodology builds upon the field of microeconomics, and considers the change in a service variable to the change in ridership. Just as a change in the cost of a consumer good (like potato chips) has a quantifiable change in the number of items purchased, the change in the frequency of service has a quantifiable change in ridership. The ratio between the change in the service variable and the change in ridership is the “elasticity factor.” Many studies have been conducted to measure real-world elasticity factors for various systems.¹² Once an appropriate elasticity factor has been identified, it can be used to estimate the change in ridership.

¹² One comprehensive summary of this methodology is “Traveler Response to Transportation System Changes Handbook, Third Edition”, available at www.tcrp.org.

- Other requests are for **expanding the span of service** (the times during which transit service is operated). For instance, extending an existing daytime-only service into the evening or adding Sunday service are both expansions in service span. Ridership forecasts in this case are best evaluated through a review of ridership on similar peer transit systems that already operate over the longer span. For instance, the ridership in the peer system over the proposed longer span may be 20 percent greater than over the current span. If so, it would be reasonable to expect that expanding the span on the local system would result in a similar 20 percent growth in ridership¹³.
- UTN requests can also be for transit service to a **new service area**. In this case the best strategy is to consider the transit trip rate of similar areas that are already provided with service. US Census and local jurisdiction parcel data can be used to identify the number households and their characteristics, along with that of similar areas currently served. The daily boardings and alightings in the similar area can then be divided to identify a rate of daily transit trips per household. If there are demographic factors (such as income levels) that warrant adjusting the rate, these should be considered. This resulting rate can then be applied to the number of households in the proposed service area to estimate daily ridership.
- In considering UTN requests, surveys can be useful, but should be considered with caution. There are many factors that can make the results of a survey not a good indication of actual potential ridership:
 - “Self-selection” is a common problem. If respondents volunteer to take a survey, those persons most interested in the results of the survey tend to actually respond and thus the results are not a representation of the overall population. This is a particular issue with on-line surveys or paper surveys printed in a newspaper or available at a counter. A random selection of the overall population (using interviewers) provides much more valid results. Even in a random survey, care must be taken to ensure that those surveyed accurately reflect the overall population. For instance, surveying people on the street near a bus stop may result in a higher proportion interested in transit improvements than a survey conducted at an employee entrance.
 - Biased or simplistic survey design. Survey questions may tend to lead a respondent to an answer (such as “Do you agree that transit service would be a good idea?”). Or the questions may be too simple to yield a useful result. Simply asking “Would you use a transit service?” does not provide information about how often the service would be used, and does not lead the respondent to think through the factors that would limit their ability to use transit such as their work

¹³ One note of caution is that any change in service quality at the peer systems between the hours currently operated and the expanded hours should be considered. For instance, many systems operate at lower frequencies in the evening than during the day, which impacts their ratio of evening to daytime ridership.

times, the need to make stops along their commute route, or need for a car while at work. To be a valid basis for a ridership forecast, a survey needs to generate information on the various reasons that people would later say they didn't ride the new transit service.

- Respondents who provide misleading answers. They may not consider all of the factors that actually limit their potential to use transit service (see above) or may say they desire service in order to increase the chance that it will be available at the infrequent times they would actually use it (such as when their car is being repaired).

Because of these factors, a general rule of thumb in the transit industry is that for every 100 persons saying they desire a new transit service, 6 passengers will actually board the service over a day.

- Simple petitions for new transit service are not a useful basis for UTN decision making. Many people when asked to sign a petition will do so simply to please the petitioner and to be able to quickly get on with their day. A petition with hundreds of signatures can therefore indicate of the persistence of a few petitioners rather than the actual sentiment of the public. LSC has never found a petition for transit service to accurately reflect actual potential ridership.

Once an initial ridership figure has been estimated, a good “check” is to calculate the performance measures of the service option which would address the request and compare that with the current service. The performance of a service expansion is almost always poorer than the existing service, reflecting that the existing service has been designed to serve the riders easiest to attract to the service. As a result, if the performance of a service expansion exceeds that of the existing service, results should be carefully reviewed. For example, if a current service generates 10 passengers per vehicle-hour of service and increasing service frequency generates 15, there is almost certainly something wrong in the calculations.

In conclusion, transit ridership forecasting should be based as much as possible on quantitative techniques, but there will always be some measure of “expert judgement” as no two communities or situations are identical. There are many studies and documents available that provide methodologies for transit demand estimation based on regional or national data. However, LSC has found that more accurate estimates (which are also more easily accepted by local decision makers) are based on local data, if available.

REPORTING OF UNMET NEEDS FINDINGS

The TDA is not specific about what should be included in a report of Unmet Needs Findings. Chapter 2 presented a peer review describing the contents of various reports produced for the UTN process. Below is a more detailed examination of what is included in recent HCAOG

reports, and recommendations for future reporting. *Recommendations are shown in bold italics.*

Review of HCAOG Reports and Recommendations for Reporting

Resolution: The report starts with a resolution adopting the findings of the UTN process. This is a common and appropriate introduction to the attached report. ***No changes are suggested.***

Executive Summary: This is a one page summary briefly explaining the role of the RTPA, the purpose of the UTN process, the steps of the process, the SSTAC's recommendation and the HCAOG's findings. It is a concise and well written summary which is helpful to the reader. ***No changes are suggested.***

1. Transportation Development Act: This section describes the law which governs the UTN process, and identifies the specific articles which direct funding for transit in the County. This is followed by a description of the Unmet Transit Needs Process, including the role of the RTPA and SSTAC and opportunities for outreach. The definitions and criteria used in the UTN process are then enumerated. ***This section should be revised to include updated definitions.***

2. Transit Dependent Demographics and 3. Existing Transit Service: A description of the transit dependent population, including a table, is presented, along with a list and brief description of the existing transit services available in the County. This information is useful, but ***could be simplified and the reader referred to the Transportation Development Plan (TDP) for details.***

4. Unmet Transit Needs Findings: The stated purpose for the UTN process is followed by the options for findings. This is followed by a recap of the previous year's findings. The recap starts with a statement that the HCAOG Board adopted findings that there are (were) no unmet transit needs that are (were) reasonable to meet. The section then goes on to list the most common comments from the previous year. ***With a finding of no unmet transit needs, these comments should not be included—the first sentence of the recap is all that is needed. In the case where unmet needs are identified, the status of those needs should be included in the recap.***

The recap of the previous year's findings are followed by an overview of the current year's UTN findings. First, the outreach efforts are described, and the reader is advised to see an appendix showing a flyer produced for outreach. The comments received are summarized in tables (Table 4 showing comments received by phone or in writing and Table 5 showing comments received at public hearings). The tables have the following headings:

- **ID:** The individual or groups that made the comment
- **Transit Service:** which transit service provides or would likely provide the service in question
- **Responses:** representing the number of comments regarding the service in question

- **Public comments/requests submitted:** a summary of the service request or service suggestion
- **UTN:** Either an “x” representing that it is an unmet need, or left blank if not an unmet need.
- **Operational:** Either an “x” representing that it is an operational issue rather than an unmet need, or left blank.
- **Other:** An “x” is marked if there is neither an unmet need, nor is it an operational issue.

It is recommended that a column with the category of “Reasonable to Meet” be added to these tables.

After the tables, the reader is referred to appendices which list the full details of the comments received, and again refers to the appendix with the outreach flyer.

The next section of the report provides discussion on the most frequently received comments. The bulk of this discussion covers how many comments were received and from what source, often followed by a brief statement of why the request is or is not warranted. The headings do not make the request clear, and the reader must often read half a page to find the conclusion, which may be just one sentence.

This section could benefit from better organization and clearer purpose. For example, the first “need” is listed under the heading “Samoa Peninsula” while a more descriptive heading of “New Service to Samoa and within the Samoa Peninsula” would better describe the request.

The Lake County “Response and Recommended Findings” (Appendix C) provides a good example of stating the need and summarizing the findings. The write-up includes:

- A numbered list of service suggestions or requests. The headings are in bold and clearly identify what is at issue, and the heading is followed by a brief description of what the request entails.
- An analysis of the need and a response.

This section of the report should reflect the analysis of the comments received. This section also includes a heading of “CR – Additional Saturday service and new Sunday service” which reports on a request for additional service to College of the Redwoods on Saturdays. The request is accompanied by survey results which were specifically designed by student government to identify the need. The results of the survey are reported in a table and in an appendix. However, the survey methodology is largely flawed. Most notably, respondents were asked to identify which time of day they would use the bus on Saturday if it deviated to College of the Redwoods. While the answers were almost certainly derived at independently, the interpretation was that the respondents intended the results to be combined. For instance, over 30 percent of respondents answered that they would use the bus four or more times per month for each time of day it was offered. The results of these independently asked questions

were tallied as though each respondent would use the bus each time of the day all four Saturdays per month, resulting in a grossly overestimated need for service. (See the discussion on Verifying Claims of Unmet Needs, above).

While the methodology of the survey is a problem, the reporting of the survey and its results is also a problem. It is difficult to tell from reading the discussion whether the surveyor or HCAOG staff interpreted the data. A better reporting format would be to ***include the survey methodology, results and summary completely as provided by the submitter in an appendix. The interpretation of the survey by HCAOG staff should be provided in the document text.***

In this particular case, the “facts” that could be reported from the survey include those bulleted items listed under the “Table 6” heading, which includes a statement that 70 of 80 individuals surveyed said they would be in favor of the RTS Mainline route deviating to the CR campus multiple times on Saturdays. The conclusion of need, however, should be linked to other factors. While this is identified as an unmet need, analysis is needed to conclude if it is reasonable to meet. For example, out of over 100 classes, only four are being offered on Saturdays in the fall of 2017. Only 168 students live on campus with only a portion of these students generating transit demand. Ridership on the existing services to the campus on Saturdays is quite low. The indicators are that ridership on the deviated runs would be quite low. HCAOG’s response in the report was to shift the onus to prove a need to the College of the Redwoods, which is a reasonable conclusion.

5. TDA Funds and Allocations: This section includes a description of the funding, and amounts allocated to each jurisdiction. This is helpful information to provide to the public because it circles back to the whole purpose of the UTN process, which is to help identify which transit services should be funded. ***No changes are suggested.***

List of Acronyms: This is helpful for this jargon-heavy topic. ***No changes are suggested.***

Appendix A: Existing Transit Operators & Services: ***Rather than include this, the reader could be referred to the TDP.***

Appendix B: Public Comments Received via Telephone or Written: ***No changes are suggested.***

Appendix C Record of Public Hearings and Testimony ***No changes are suggested.***

Appendix D Unmet Transit Needs Flyer: ***To the extent possible, outreach materials should be provided here rather than the body of the text.***