

Operating Expenses and Cost Model

Expenses related to the operations of Auburn Transit for FY 2016-17 are presented in Table 11. Total operating expenses for the fiscal year totaled \$597,799. The primary operating expenses are salaries and benefits, followed by vehicle and bus stop maintenance, and fuel.

Operating Expense Category		Cost Model Variable		
		Fixed	Vehicle Service Hour	Vehicle Service Mile
Table 11: Auburn Transit Expenses and Cost Model				
<i>FY 2016/17 Actual</i>				
<u>Administrative</u>				
Salaries and Benefits - Administrative	\$109,529	\$109,529		
Salaries and Benefits - Operations Staff	\$362,055		\$362,055	
Office Expenses and Communications	\$2,178	\$2,178		
Worker's Compensation	\$15,216	\$15,216		
Materials, Supplies, and Clothing	\$4,586	\$4,586		
Professional Services, Employee Relations and Personnel Expenses	\$1,406	\$1,406		
SRWCB Fees and Health Dept. Fee	\$1,178	\$1,178		
Training and Education	\$137	\$137		
Maintenance of Buildings	\$574	\$574		
Contract Services ¹	\$26,113	\$26,113		
<u>Operating</u>				
Fuel	\$22,145		\$22,145	
Vehicle Insurance	\$12,126		\$12,126	
Operating Transfers/Out ²	\$23,000		\$23,000	
Maintenance of Equipment	\$2,831			\$2,831
Vehicle Maintenance	\$14,724			\$14,724
Total	\$597,799	\$160,917	\$419,326	\$17,556
FY 2016/17 Service Quantities			4,944	60,981
Cost Model FY 2016/17				
Fixed Costs		\$160,917		
Vehicle Service Hour Cost Factor		\$84.82		
Vehicle Service Mile Cost Factor		\$0.29		
Vehicle Service Hour plus Allocated Fixed Cost per Hour		\$117.36		
Source: City of Auburn FY 2016/17 Year-to-date Budget as of 12.06.17				
Note 1: This is money paid to Placer County for services at the Auburn Industrial Park, Locksley Lane bus stop				
Note 2: Mechanic salaries				

To evaluate performance of Auburn Transit at the route level, a “cost model” for FY 2016-17 was developed, also shown in Table 11. As shown in the table, each expense item in the FY 2016-17 budget is allocated to that quantity on which it is most dependent. For example, maintenance costs are allocated to vehicle service miles. This provides a more accurate estimate of costs than a simple total-cost-per-vehicle-hour factor, which does not vary with the differing mileage associated with an hour of service on one route versus the other. For FY 2016-17, this equation is:

$$\begin{aligned} \text{Operating Cost} &= \$0.29 \text{ per vehicle service mile} \\ &\quad + \$94.45 \text{ per vehicle service hour} \\ &\quad + \$160,917 \text{ annually for fixed costs} \end{aligned}$$

This equation can also be used to estimate the cost of any changes in service, such as the operation of additional routes or changes in service span. It will be used as part of this study to evaluate the cost impacts of service alternatives. It should be noted that the cost model does not include depreciation or capital items (such as vehicle purchases) made during the fiscal year.

Annual Operating Statistics

Operating statistics for Auburn’s two weekday routes (the Blue Route and the Red Route) are difficult to separate from one another, as in the early morning and late afternoon one bus alternates between both routes. Drivers do not keep separate passenger statistics for the Blue and the Red Routes. The totals shown in Table 12 for passengers, vehicle service hours and vehicle service miles are actual numbers, while the figures shown for the individual Blue, Red, and Saturday routes are estimates.

Routes	Passenger- Trips	Vehicle Service Hours	Vehicle Service Miles	Total Operating Cost	Fare Revenue
Blue Route	26,112	2,232	27,530	\$269,880	\$13,831
Red Route	12,635	2,232	27,530	\$269,880	\$6,692
<i>Total Blue/Red</i>	<i>38,747</i>	<i>4,464</i>	<i>55,061</i>	<i>\$539,761</i>	<i>\$20,523</i>
Saturday Route	4,348	480	5,762	\$57,993	\$3,793
Total Systemwide	43,095	4,944	60,823	\$597,754	\$24,317

Source: Auburn Transit Total Data Query 2016/2017; Auburn Transit Total Passengers by Day 2016-2017 Report; LSC 2017 Boarding and Alighting Data.

As shown in Table 12, in FY 2016-17 Auburn Transit served just over 43,000 one-way passenger trips, operating nearly 4,500 vehicle service hours, and just under 61,000 vehicle service-miles. Of the total ridership, 11 percent (4,348) occurred on Saturdays, although the Saturday route makes up only about 9 percent of the total service hours (421 hours) of Auburn Transit. Based on ridership counts conducted by LSC in November 2017, the Blue Route carries double the amount of ridership of the Red Route, with 26,112 annual passenger trips compared to the Red Route's 12,635. Weekday vehicle service hours, vehicle service miles and operating costs are split evenly between both routes.

Annual operating costs for the Red/Blue Route were \$541,166, along with \$56,634 for the Saturday Route, as shown in Table 6. These costs were offset slightly by fare revenues of \$24,317.

Auburn Transit Performance Review

Table 13 shows several performance indicators for Auburn Transit. These performance indicators are useful because they can be compared to other systems, and to internal standards. The first two indicators, passengers per vehicle service-hour and passengers per vehicle service-mile are measures of productivity – i.e., how many riders the system supports per hour or mile of service. The next three indicators are measures of cost-effectiveness – how much does it cost the system to operate each hour of service, and how much does it cost to provide one passenger trip.

	Route				Systemwide Total
	Blue	Red	Total Weekday	Saturday ¹	
Passenger-trips per Vehicle Hour	11.7	5.7	8.7	9.1	8.7
Passenger-trips per Vehicle Mile	0.9	0.5	0.8	0.8	0.7
Operating Cost per Trip	\$10.34	\$21.36	\$13.93	\$13.34	\$13.87
Total Operating Cost per Hour	\$121	\$121	\$121	\$121	\$121
Farebox Ratio ²	5.1%	2.5%	3.8%	6.5%	4.1%
Fare per Trip ³	\$0.53	\$0.53	\$0.53	\$0.87	\$0.56
Subsidy per Trip ³	\$9.81	\$20.83	\$13.40	\$12.47	\$13.31

Note 1: The greater efficiencies generated by Saturdays are attributable to three very high-ridership weekends - one in October and two in December.

Note 2: For official TDA farebox ratio calculation, the City of Auburn provides local support to supplement fare revenue through mechanics' salaries paid by the general fund. The farebox ratio shown here does not include the general fund contribution.

Note 3: Fare per Trip and Subsidy per Trip do not include the general fund contribution for mechanics'

Passengers per Vehicle Service Hour

One measure of service efficiency is passengers per vehicle-service hour. System-wide, Auburn Transit achieved 9.7 passenger-trips per vehicle service hour. The Saturday route is slightly more productive than the weekday routes, at 10.3 passengers per hour compared to 9.6. The standard, as noted in the 2011 *Short Range Transit Plan*, is 8.0 passenger-trips per vehicle service hour. Auburn Transit is meeting this performance standard.

Passengers per Vehicle Service Mile

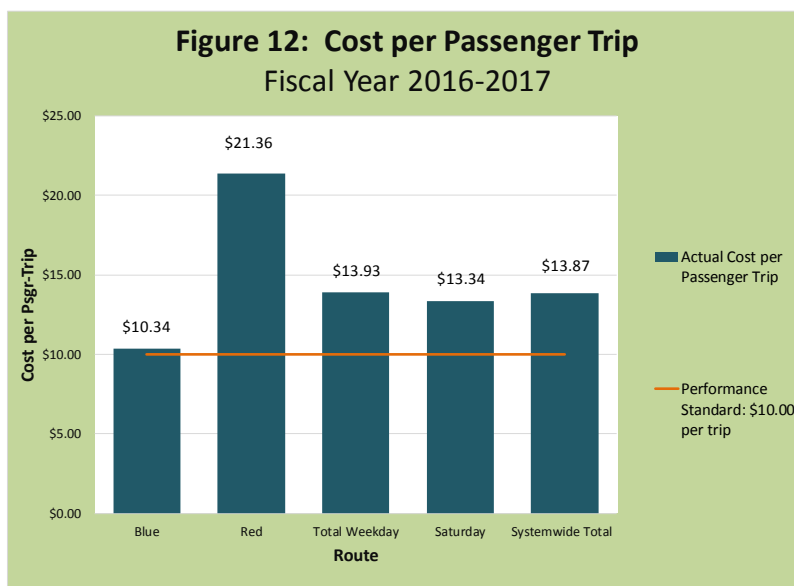
Another measure of service effectiveness is passengers per vehicle service-mile. Auburn Transit generated 0.7 passenger trips per vehicle service-mile in 2016-2017. Again, Saturday's passengers per mile were slightly higher than the weekday passengers per mile, at 0.8 compared to 0.7. As Auburn Transit's standard for passengers per vehicle service-mile is 1.0, Auburn Transit is not meeting this standard.

Operating Cost per Vehicle Service Hour

The overall operating cost per vehicle service-hour for all of the Auburn Transit routes was \$121 per hour. As Auburn Transit's standard is \$80 per hour, the program is not meeting this standard.

Operating Cost per Passenger-Trip

Operating cost per passenger trip is a direct indicator of the cost to serve each passenger. It adds an additional level of detail to cost per vehicle service hour, which does not take into account the number of people on the bus. As shown in Figure 12, system-wide the operating



cost per trip was \$13.87. On the weekday Blue and Red Routes, the cost was \$13.97, and \$13.03 on the Saturday route. Auburn Transit's standard is \$10.00 per passenger, which indicates that the program is not meeting this standard.

Operating Subsidy per Passenger-Trip

Operating subsidy per passenger trip takes into account the cost to the system after farebox revenue has been considered. For Auburn Transit, the average fare per trip was \$0.53 for the weekday Blue and Red Routes, and \$0.87 for the Saturday route, with an overall average fare of \$0.56. This gives an overall operating subsidy of \$13.31 for the system - \$13.44 for the Blue and Red Routes and \$12.15 for the Saturday route. There is no standard for operating subsidy per passenger-trip identified in the 2011 SRTP.

Farebox Ratio

For TDA purposes, Auburn Transit's farebox ratio calculation includes two elements – fares collected on-board, as well as local support provided by the City of Auburn in the form of a supplement to farebox revenues through payment of mechanics' salaries from the general fund. Per the FY 2016-17 TDA Fiscal and Compliance Audit, the City of Auburn contributed additional general fund money as local support so that Auburn Transit had a TDA farebox ratio of 11.1 percent. This is just above the current performance standard of 10 percent.

For operational performance analysis in Table 13, local support from the general fund is not included in the calculation. As shown in the table, systemwide farebox ratio is only 4.1 percent. The Saturday Route has the highest farebox ratio calculation (6.7 percent) and the Red Route has the lowest farebox ratio (2.5 percent).

Ridership Patterns and Analysis

Historical Ridership

As shown in Table 14 and Figure 13, ridership has fallen by about 15 percent over the last five years. While ridership rose about four percent between FY 2012-13 and 2013-14, between FY 2014-15 and 2016-17 ridership has declined each year.

Ridership by Month

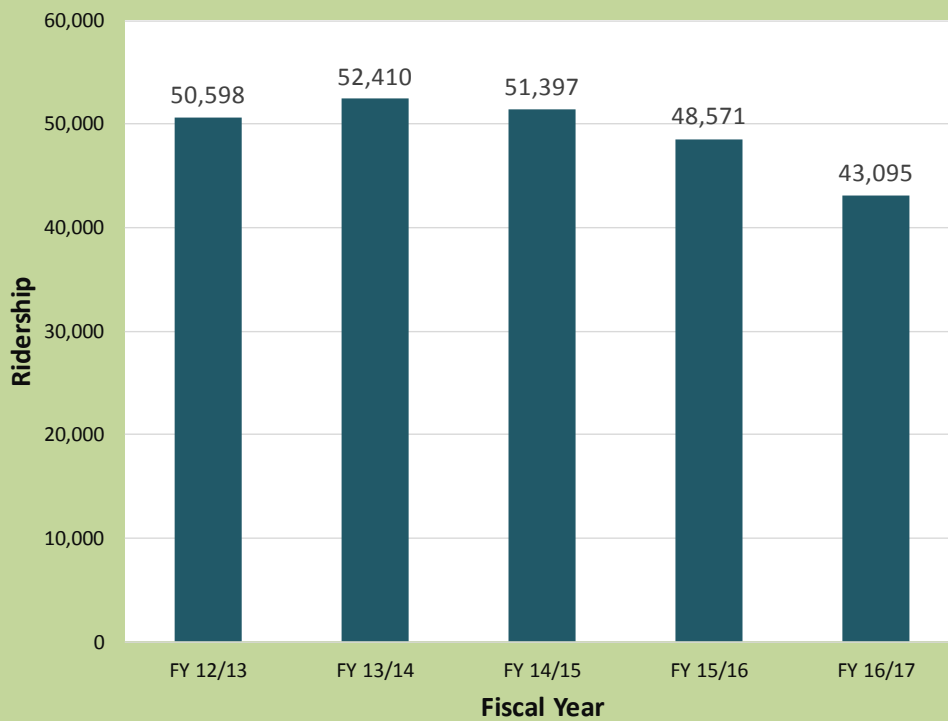
Table 15 shows that in FY 2016-17, ridership was highest during the months of October and May, at 5,250 and 4,780, respectively. October ridership is 46 percent above the average month, while May ridership is 33 percent above average. These two months boast the most pleasant weather of the year, with average temperatures around 75 degrees Fahrenheit. The month with the lowest ridership was February, with ridership 32 percent below average.

Table 14: Auburn Transit Historical Ridership

	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17
Auburn Transit Systemwide Ridership	50,598	52,410	51,397	48,571	43,095
Percent Change from Previous Year		4%	-2%	-5%	-11%
Total Change Between FY 2013 and FY 2017					-15%

Source: FY 2013-2015 Triennial Performance Audit, Auburn Transit; Auburn Transit FY 15-16 and 16-17 Passenger Data

**Figure 13: Auburn Transit Historical Ridership
FY 2013 - 2017**



Ridership by Day of the Week

Table 16 and Figure 14 show ridership by day during select weeks of the year. Table 16 also shows total wheelchair boardings for each of these weeks. As noted above, October and May are the busiest months of the year. As also shown in Table 16, the highest boardings in October

were on Tuesday and Thursday, while in May and November the highest number of boardings was on Friday. Saturday boardings were significantly lower than other days of the week. Over the three sample periods, ridership was highest on Thursdays and Fridays, relatively low on Monday, with Saturdays generating slightly more than a quarter the ridership of weekdays. Wheelchair boardings ranged between zero and three per week.

Table 15: Auburn Transit Ridership by FY 2016-17

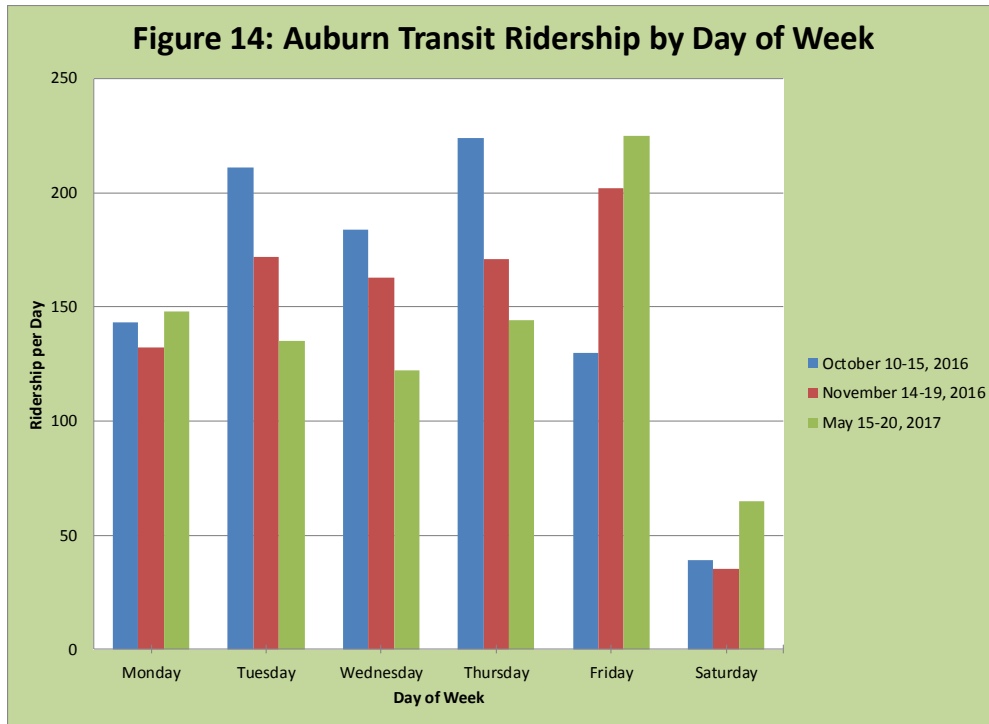
	Monthly Ridership	% of Monthly Average
July	3,586	100%
August	3,876	108%
September	3,808	106%
October	5,250	146%
November	3,133	87%
December	3,333	93%
January	2,753	77%
February	2,434	68%
March	3,559	99%
April	3,327	93%
May	4,780	133%
June	3,256	91%
Total	43,095	

Source: Auburn Transit

Table 16: Auburn Transit Ridership by Day of Week

Sample Time Period	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total	Total Wheelchair Boardings
October 10-15, 2016	143	211	184	224	130	39	931	0
November 14-19, 2016	132	172	163	171	202	35	875	2
May 15-20, 2017	148	135	122	144	225	65	839	3
Total over the sample periods	423	518	469	539	557	139	2,645	128
Percent of Weekday Average	84%	103%	94%	108%	111%	28%		

Source: Auburn Transit, Passenger Types by Day



Ridership by Time of Day

LSC conducted boarding and alighting counts on Auburn Transit during the month of November. Using annual ridership data provided by Auburn Transit, these counts were then adjusted to the annual average. Table 17 and Figure 15 show ridership on each route by hour on the data collection days. Looking at each route individually, there is no distinct ridership pattern that emerges, although ridership is slightly higher between 11:00 AM and 1:00 PM on both the Red and the Blue routes. Taking both routes together, ridership is highest between 10:00 AM and 3:00 PM, peaking at 27 riders at 11:00 AM. The 9:00 AM hour (when only the Red Route is operating) saw the lowest ridership, with just two passenger trips. Throughout the middle of the day (between 10:00 AM and 3:00 PM), weekday runs averaged 9.3 passenger trips, very similar to the 9.7 passenger-trips per hour reported above in the performance section. Average ridership before 10:00 AM and after 3:00 PM was 6.9 riders per hour. Overall average ridership throughout the day on a weekday was 8.5 riders per hour.

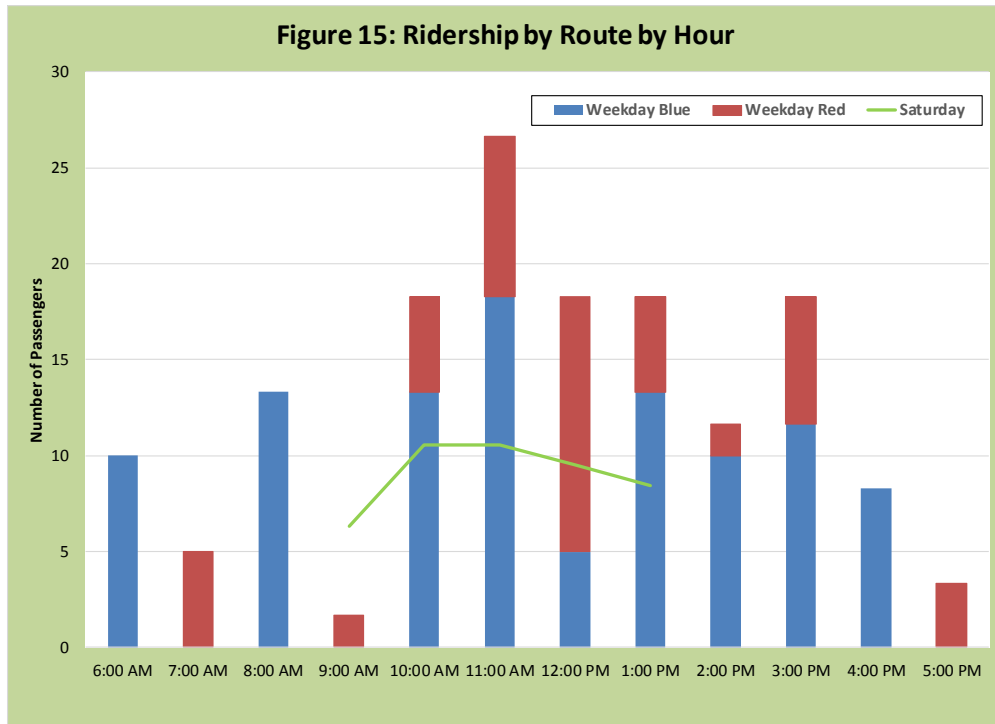
Saturday boarding and alighting counts were conducted between 9:00 AM and 1:00 PM on Saturday, November 18, then scaled up to the average Saturday. As shown in Table 17 and Figure 15, ridership was highest on Saturday at 10:00 AM, 11:00 AM, and 12:00 PM, with eleven riders each on the 10:00 AM and 11:00 AM runs, and ten riders on the 12:00 PM run. Note that average Saturday ridership is influenced by three very high-ridership days in October and December.

TABLE 17: Auburn Transit Ridership by Route by Run

Start Time	Weekday Route		Total Weekday	Saturday
	Blue	Red		
6:00 AM	10		10	
7:00 AM		5	5	
8:00 AM	13		13	
9:00 AM		2	2	6
10:00 AM	13	5	18	11
11:00 AM	18	8	27	11
12:00 PM	5	13	18	10
1:00 PM	13	5	18	8
2:00 PM	10	2	12	
3:00 PM	12	7	18	
4:00 PM	8		8	
5:00 PM		3	3	
Total	103	50	153	84

Source: Onboard counts conducted 11/9/17 through 11/18/17

Figure 15: Ridership by Route by Hour



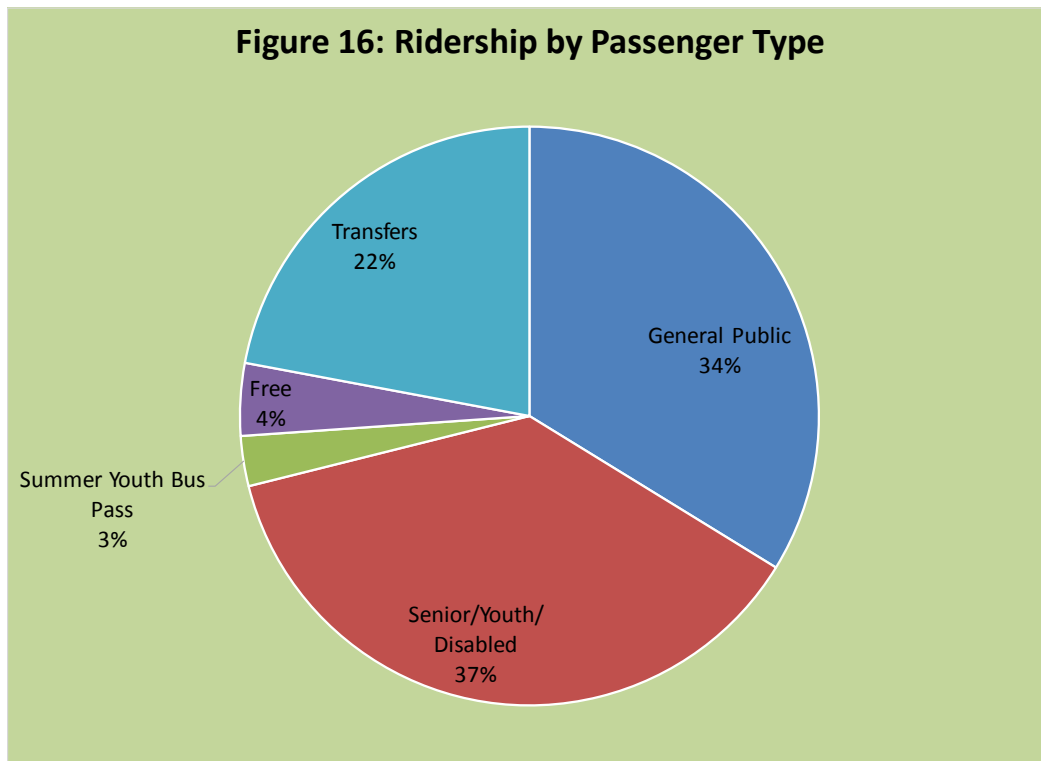
Ridership by Passenger and Fare Type

Table 18 and Figure 16 depict ridership by passenger type. Table 19 and Figure 17 further break down the fare types. Ridership on Auburn Transit is fairly evenly distributed between general ridership fare categories and senior/youth/disabled categories. Table 18 and Figure 16 show that 34 percent of passenger trips paid a full general fare, while 37 percent of passenger trips paid a senior/youth/disabled fare. Transfers made up 22 percent of boardings.

Table 18: Auburn Transit Ridership by Passenger Type
FY 2016-17

	Ridership	Percent of Total
General Public	14,555	34%
Senior/Youth/Disabled	16,085	37%
Summer Youth Bus Pass	1,206	3%
Free	1,744	4%
Transfers	9,505	22%
Total	43,095	100%

Source: Auburn Transit, 2017



Examining the types of fares that passengers purchase, as shown in Table 19 and Figure 17, most passengers purchase a single-ride fare (44 percent). The next most-common type of fare is the 30-ride pass (24 percent). Very few passengers purchased a monthly pass (2 percent), or a day passes (1 percent). That is most likely because the 30-ride pass offers the greatest cost benefit at a \$6 discount off the price of 30 rides, while the day pass costs more than twice the amount of two single rides, and thus is only a benefit for passengers making round-trips that include transfers, or making more than two one-way trips. The monthly pass, at \$40 per month, requires a rider to ride the bus round-trip for 20 days or more to make the pass worthwhile.

Table 19: Auburn Transit Ridership by Fare Type
FY 2016-17

	Number	Percent of Total
Single Ride Fare	19,108	44%
30-Ride Pass	10,321	24%
Monthly Pass	967	2%
Day Pass	244	1%
Summer Youth Pass	1206	3%
Free	1,744	4%
Transfers	9,505	22%
Total	43,095	

Source: Auburn Transit, 2017

