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SUPPLEMENTAL TRANSIT INFORMATION AND CONSIDERATIONS

Date:	May 16, 2011	Project #: 10633.07
To:	Jim Olson, City of Ashland	
Cc:	Project Management Team, Technical Advisory Committee, Planning Commission, Transportation Commission	
From:	Susan L. Wright, P.E. and Erin M. Ferguson	
Project:	City of Ashland Transportation System Plan Update	
Subject:	Supplemental Transit Information and Considerations	

The purpose of this memorandum is to provide supplemental transit information for the Planning Commission (PC) and Transportation Commission (TC) to consider while determining what transit elements they would like to include in the Draft Preferred Plan and Cost Constrained Plan. Previous information regarding existing transit service and potential transit service for the future was provided in the Technical Memorandum #3 Existing System Inventory, Transit White Paper, Commuter Rail White Paper, Streetcar White Paper, and High Density Housing White Paper. These documents are available at http://ashlandtsp.com. For reference, *Appendix A* contains the transit excerpt from Technical Memorandum #3 Existing System Inventory.

The supplemental information provided below is organized in a question and answer format to make information easier to find. The questions addressed are:

- What transit Level-of-Service does Ashland currently have? (i.e., From a transportation planning perspective, what quality of transit service does Ashland currently have?)
- How does the projected future housing density for Ashland compare to the transit frequency thresholds in the High Density Housing White Paper? (i.e., Based on housing density, could Ashland support more frequent transit service in the future?)
- Are there future "Transit Supportive Areas" that are not being served by current transit routes?

- How do costs compare for directly operated transit service (e.g., RVTD providing transit service to Ashland) versus contracted service (e.g., Ashland purchasing service from a contractor)?
- Are there case studies or examples available of smaller cities contracting (i.e., purchasing) their own transit service?
- What local agencies are providing fareless transit service?
- What types of transit options should Ashland consider?

These questions were selected based on input and questions received from City Staff, Planning Commissioners, and Transportation Commissioners.

What Transit Level-of-Service does Ashland currently have?

Transit Level-of-Service is based on the level-of-service (LOS) procedures outlined in Transit Cooperative Research Program (TCRP) Report 100: *Transit Capacity and Quality of Service Manual* (TCQSM). Chapter 3 of the TCQSM provides an extended discussion of quality of service, which is the evaluation of transit service from the passenger's point-of-view. The TCQSM uses six measures to quantify service quality. Each of these measures is assigned a letter value, where LOS A represents the best service from the passenger perspective and LOS F represents the worst service. High LOS values, such as LOS A or B, may not reflect optimal service from the transit agency's perspective, because the market may not support those service levels. The development of agency service standards helps to bridge the gap between the kind of service passengers would ideally want and the kind of service that is reasonable to provide, given available resources. The transit LOS approach mirrors the system commonly used for streets and highways, and allows a speedy comparison of service performance to transit passenger desires.

Service frequency and hours of service are considered the most relevant and useful service measures in long range planning efforts. Table 1 summarizes the LOS ranges for each of these measures.

Table 1 Transit Capacity and Quality of Service Manual - Level of Service (LOS) Measures

Level of Service	Transit Capacity and Quality of Service Measures	
	Service Frequency (minutes)	Hours of Service
LOS A	<10	19-24
LOS B	10-14	17-18
LOS C	15-20	14-16
LOS D	21-30	12-13
LOS E	31-60	4-11
LOS F	>60	0-3

The subsections below discuss service frequency and hours of service in more detail.

SERVICE FREQUENCY

From the user's perspective, service frequency determines how many times an hour a user has access to the transit mode. Characteristics such as walking distance to a transit stop or hours transit service is operating are not part of service frequency. Service frequency does measure the convenience of transit service to choice riders and is one component of overall transit trip time (helping to determine the wait time at a stop).

At LOS A, passengers are assured that a transit vehicle will arrive soon after they arrive at a stop. The delay experienced if a transit vehicle is missed is low. At LOS B, service is still relatively frequent, but passengers will consult schedules to minimize their wait time at the transit stop. Service frequencies at LOS C still provide a reasonable choice of travel times, but the wait involved if a transit vehicle is missed becomes long. At LOS D, service is only available about twice per hour and requires passengers to adjust their routines to fit the transit service provided. The threshold between LOS E and F is service once per hour. Service at frequencies greater than 1 hour requires focused planning by passengers and/or passengers are subject to considerable wasted time.

Table 2 summarizes the service frequency analysis for RVTD service in Ashland.

Table 2 Summary of 2009 Transit Service Frequency Analysis

Headway	Routes	LOS
15 Minutes	RVTD Route 10 and 15 Overlap Area	C
30 Minutes	RVTD Route 10	D

As shown in Table 2, the areas where Route 10 and Route 15 overlap (which includes most of the service coverage area in Ashland with the exception of North Main Street north of downtown) currently operate with a Frequency LOS C. The areas served by only Route 10 (which connects Ashland to Medford) operate with a Frequency LOS of D. These results are typical of a city with a population less than 50,000 people. *See the discussion in the next question related to what frequency of service Ashland could support in the future.*

HOURS OF SERVICE

Hours of service, also known as "service span," is the number of hours during the day when transit service is provided along a route, a segment of a route, or between two locations. It plays as important a role as frequency and service coverage in determining the availability of transit service to potential users: if transit service is not provided at the time of day a potential passenger needs to take a trip, it does not matter where or how often transit service is provided the rest of the day.

At LOS A, service is available for most or all of the day. Workers who do not work traditional 8:00 a.m. to 5:00 p.m. jobs receive service and all riders are assured they will not be stranded if a late-evening bus is missed. At LOS B, service is available late into the evening, which allows a range of trip purposes other than commute trips to be served. At LOS C, transit service runs into the early evening still providing some flexibility for evening trips and activities. At LOS D, service meets the needs of commuters working conventional hours and still provides service during the middle of the day. At LOS E, midday service is limited or not present and/or commuters have a limited choice of travel times in the morning and evening. At LOS F, transit service is offered a few hours per day or not at all.

Table 3 summarizes the hours of service analysis for RVTD service in Ashland.

Table 3 Summary of 2009 Hours of Service Analysis

Hours per day	Routes	LOS
5:30 a.m. – 7:30 p.m. (14 Hours)	RVTD Route 10	C
7:45 a.m. – 6:30 p.m. (<11 Hours)	RVTD Route 15	C[1]

Notes:

[1]While Route 15 has fewer service hours than Route 10, because these routes overlap, transit users experience an Hours of Service Level-of-Service of C.

As illustrated in Table 3, Route 10 currently operates at a Hours of Service LOS C. Route 15 has fewer service hours; however, users of that route are provided coverage by Route 10 therefore, the Hours of Service LOS for both routes is LOS C.

How do the projected future housing densities in Ashland compare to the transit frequency thresholds in the High-Density Housing white paper?

Table 4 summarizes the levels of residential densities that will support transit frequency as presented in the High Density Housing White Paper.

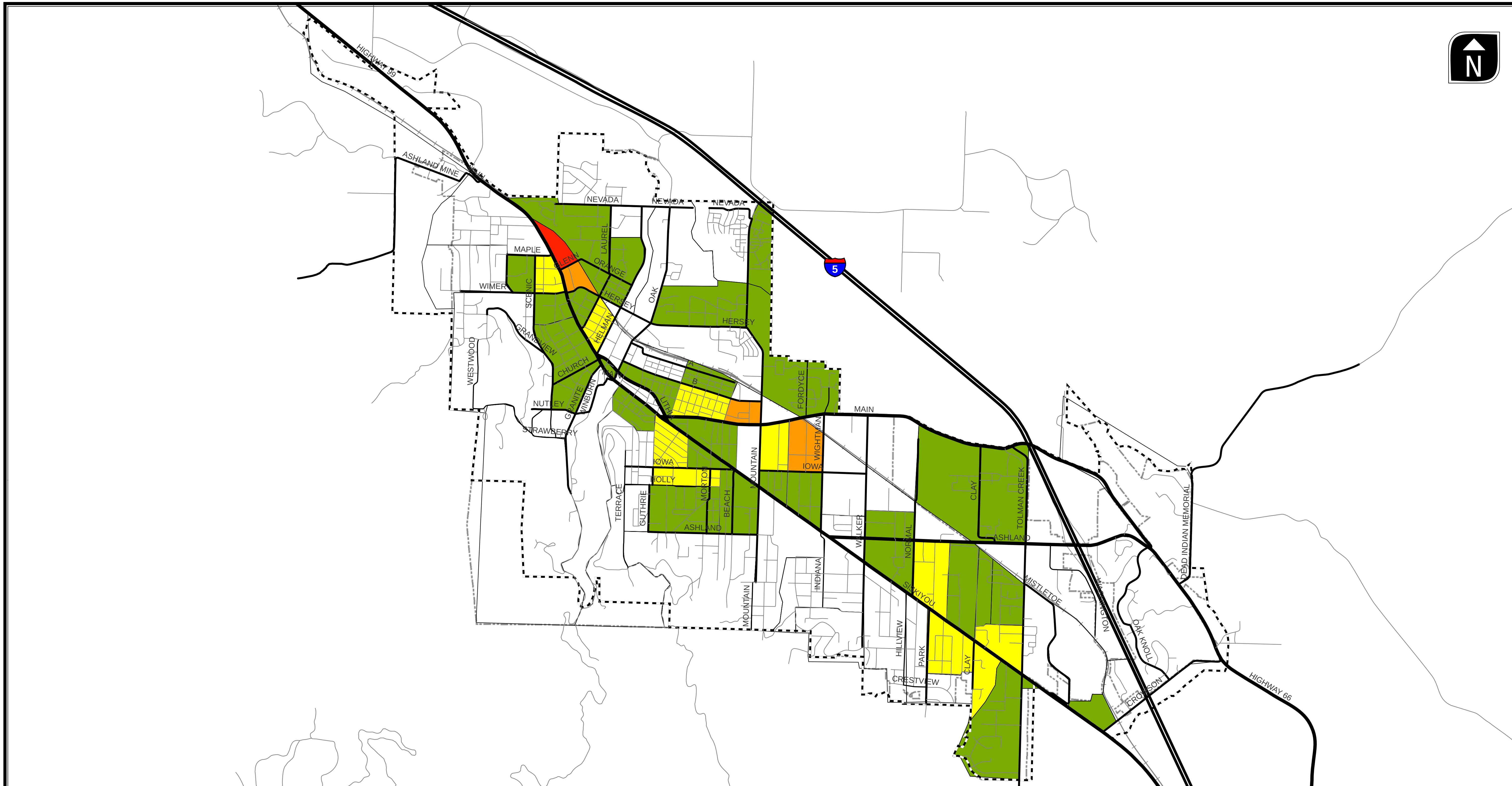
Table 4 Transit Frequency and Residential Housing Densities

Transit Frequency	Residential Density Threshold
Local bus service (1 bus per hour)	4–5 dwelling units/acre
Intermediate bus service (1 bus every 30 minutes)	7–8 dwelling units/acre
Frequent bus service (1 bus every 10 minutes)	12–15 dwelling units/acre
High Capacity Transit (HCT) systems (primarily streetcar and light rail transit)	25–50 dwelling units/acre

The information in Table 4 was compared to the projected 2034 housing densities to determine what areas within Ashland may be able to support more frequent transit service in the future. Figure 1 summarizes the housing densities projected for each Transportation Analysis Zone (TAZ) in the 2034 travel demand model which is based upon the growth assumptions in the City's Comprehensive Plan.

As shown in Figure 1, the two existing transit routes generally serve the areas forecasted to support 30-minute transit frequency (based on residential densities); there are also several areas currently being served that are forecasted to support the 15-minute transit frequency. At a high level this reinforces the current transit routes and frequency of service provided. It also indicates more frequent service is likely not warranted within the 20-year planning horizon.

While some of the residential densities are forecasted to be slightly lower than the threshold for the 15-minute transit frequency, employment density and presence of students attending Southern Oregon University (SOU) are also contributing factors that have historically and will continue to support transit service. Furthermore, transit service improvements such as longer service hours will help attract and better serve working residents and SOU students. Based on these collective considerations, we suggest 15-minute service be continued (as is currently provided with routes 15 and 10). If tradeoffs in frequency and span of service need to be considered due to costs, service hours could be extended and 30-minute headways provided during off-peak hours.



< 3 HH/Acre (Unsupportive)
3 - 6 HH/Acre (1-Hr Service)
6 - 8 HH/Acre (30-Min Service)
8 - 12 HH/Acre (15-Min Service)
12+ HH/Acre (10-Min Service)
City Limits
City UGB

Projected 2034 Households Per Acre (Supported Transit Frequency)

CITY OF ASHLAND

Figure 1

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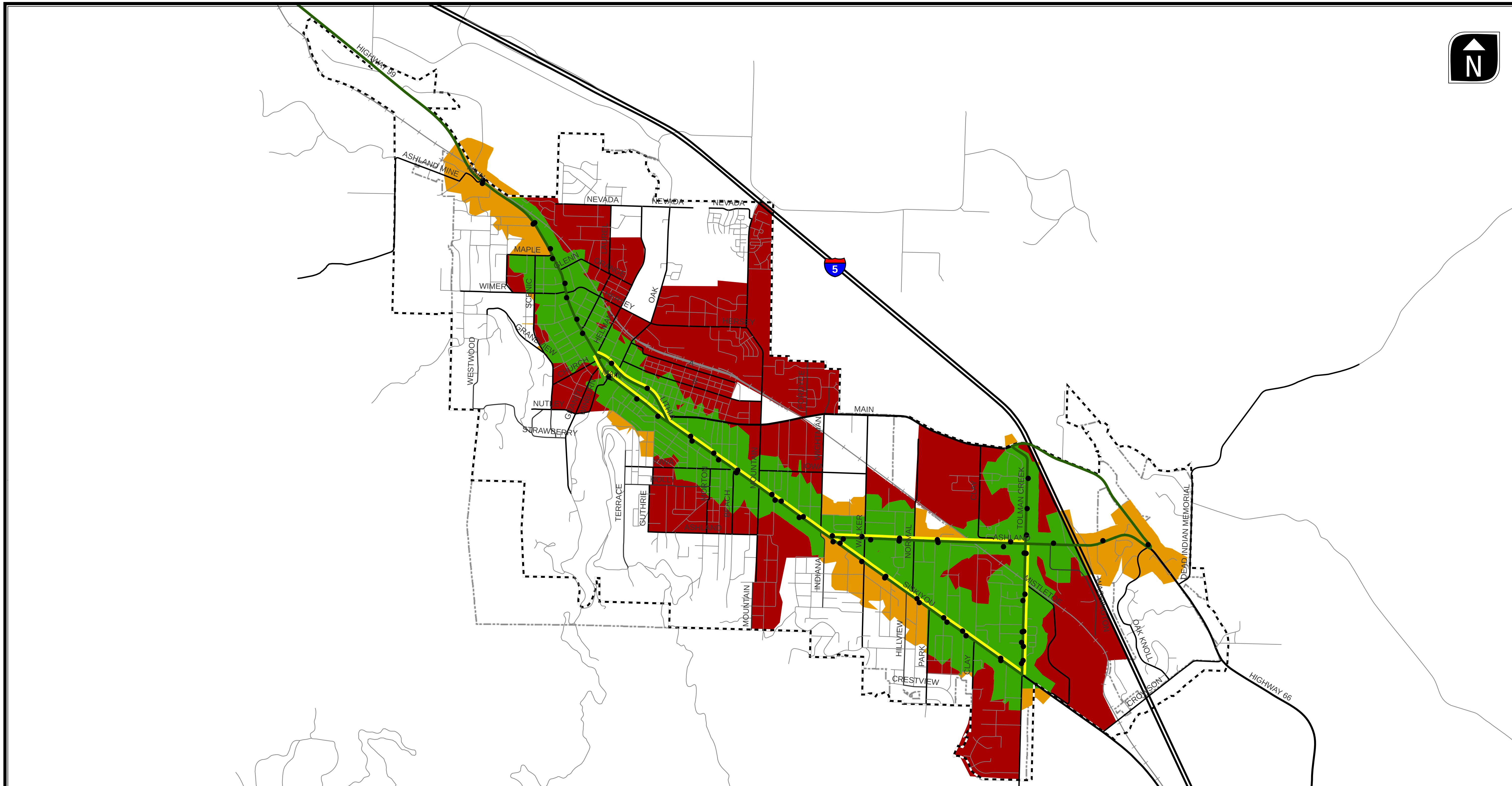
Are there future "Transit Supportive Areas" that are not being served by the current transit routes?

There are two components related to Transit Supportive Areas (TSAs). The first is the proximity to service (i.e., service coverage) and the second is potential ridership based on household and/or employment density. Service coverage is a measure of the area within walking distance of transit service. Areas must be within ¼-mile of a bus stop or ½-mile of a rail transit station to be considered an area served by transit. To qualify as a TSA one of the following thresholds must be met:

- Minimum population density of 3 households/gross acre; or
- Minimum employment density of 4 employees/gross acre.

Figure 2 displays the 2034 TSAs currently served within the City of Ashland based on the combination of projected 2034 household and employment densities. Areas defined as transit supportive that currently have service are shown in green. Areas defined as transit supportive but are currently lacking service are shown in red. Areas that have transit service, but do not qualify as a TSA, are shown in orange. Most areas in red would require additional transit routes to be served, although some could be served by adding bus stops to existing transit routes, or developing new pathway connections to existing transit routes. As shown in Figure 2, some of the TSAs that require additional transit routes to be served include areas along Hersey Street, Mountain Avenue, and East Main Street.



- Transit Supportive Areas Served
- Service Coverage Area
- Transit Supportive Areas Unserved
- City Limits
- City UGB

Transit Supportive & Unsupportive Areas

CITY OF ASHLAND

Figure 2

How do costs compare for directly operated transit service (e.g., RVTD providing service to Ashland) versus contracted service (e.g., Ashland purchasing service from a contractor)?

Information regarding operating costs per revenue hour and operating costs per revenue mile were obtained from the National Transit Database from the Federal Transit Administration (FTA) for agencies in Oregon that are required to report to the FTA.

Some agencies directly operate their service (including RVTD and City of Wilsonville's SMART), some agencies contract their service (City of Bend and City of Corvallis), and some agencies directly operate and contract different parts of their service.

While on average the purchased (i.e., contracted) service is about half of the directly operated service, this trend is varies depending upon if all or part of a system's service is purchased. Agencies that purchase all of their service, such as the City of Bend and City of Corvallis, have costs ranging from approximately $71 to $82 per revenue hour. The City of Medford and City of Wilsonville's services are all directly operated and have costs of $144 to $145 per revenue hour. The districts that have partial directly operated and partially purchased service (City of Eugene and City of Salem) have below average costs for both types of service. Table 5 summarizes the cost information for Oregon agencies.

Table 5 2009 Oregon Fixed Route Bus Service

Company Name	Location	Service	Operating Expense Per Revenue Hour	Operating Expense Per Revenue Mile
Lane Transit District	Eugene	Directly Operated	$115.32	$9.34
		Purchased Service	$50.86	$1.77
Salem Area Mass Transit District	Salem	Directly Operated	$108.03	$8.60
		Purchased Service	$35.66	$0.81
Rogue Valley Transportation District	Medford	Directly Operated	$143.94	$7.87
South Metro Area Regional Transit	Wilsonville	Directly Operated	$144.94	$8.18
City of Corvallis	Corvallis	Purchased Service	$81.91	$5.90
City of Bend, Bend Area Transit	Bend	Purchased Service	$71.13	$7.62
		Directly Operated Average	$128.06	$8.50
		Purchased Service Average	$59.89	$4.03

Source: Data obtained from National Transit Database.

Are there any case studies or examples available of smaller cities contracting (i.e., purchasing) their own transit service?

There are several examples of cities outside of the TriMet (Portland metro area transit service provider) service boundary that contract their own transit service but provide connections to TriMet's service area. These include:

- Wilsonville (SMART);
- Molalla (South Clackamas Transit);
- Canby; and
- Sandy (SAM).

With the exception of Wilsonville SMART, these services are not included in the National Transit Database due to their small size.

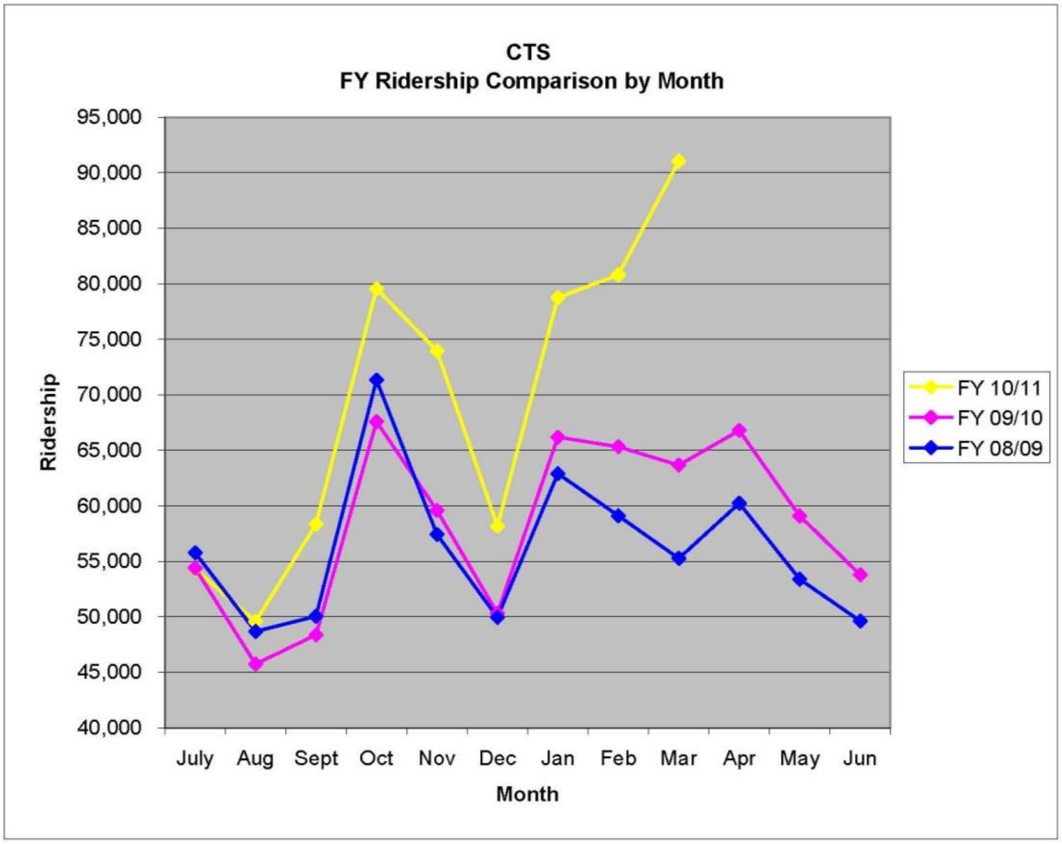
What other agencies in Oregon are providing fareless service?

Several transit agencies in Oregon are providing fareless services. Many of these agencies are the same as those listed above that contract their own transit service. They include:

- **Corvallis Transit** – Provides fareless for their routes within the city. There is a charge for other systems that connect to CTS.
- **SMART (Wilsonville)** – Provides fareless service for routes within the city. Several routes travel outside the city to connect to other services and these have fares.
- **SAM (Sandy)** – Provides fareless service inside and outside the city.
- **South Clackamas Transit District (Molalla)** - Operates a fare-free route within Molalla, but charges for routes connecting to other cities.

The City of Corvallis recently implemented fareless service in February 2011. As shown in the ridership data in Exhibit 1, ridership for the 2010/2011 fiscal year was already higher than previous years but increased noticeable in March after the fareless service was implemented. The City of Corvallis is funding the fareless service through a Sustainability Tax that adds $4.05 to single-family residential customers' utility bill each month of which $2.75 is dedicated to fund the fareless transit service.

Exhibit 1 – City of Corvallis Ridership Data



There is currently a Transit Cooperative Research Program (TCRP) synthesis project underway that's exploring the topic of the advantages and disadvantages of implementing fareless service. This report will include approximately 35 case studies of agencies that implemented fareless service. It will include information such as why fareless service was implemented, what the agency's experience was as well as why some of agencies returned to having fares. This report is not complete but more information is available at: http://144.171.11.40/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=2989. In the interim, *Appendix B* contains a 2002 synthesis conducted by the Florida Department of Transportation that concludes that fareless policy might be appropriate for smaller transit systems in communities where some of the primary disadvantages of fareless service (e.g., overcrowding, security, and problem riders such as truant school children and transients) may not be significant concerns.

What types of transit options should Ashland consider?

The following considerations were identified based on input provided through the white paper process as well as meetings and discussions with City Staff, Planning Commissioners, and Transportation Commissioners.

- Extending service hours into the evening to provide more flexibility to and service to students, working residents and visitors.
- Providing Saturday service hours to serve students, visitors and community members.
- Operating a second local circulator bus route to serve existing and future Transit Supportive Areas that are not currently being served (such as Mountain Avenue).
- Providing fareless service to attract more transit riders and reduce vehicle trips.
- Providing express bus service on Route 10 to Medford.
- Providing a commuter bus that operates on I-5 between Ashland and Medford.

Next Steps

The Planning and Transportation Commissioners will be able to use this information to help inform their discussions and decisions about what transit service improvements they would like included in the Draft Preferred Plan. Commissioners are also encouraged to use this information to identify priorities for different transit service improvements; priorities will help inform the development of the Draft Cost Constrained Plan.

Appendices

Appendix A – Transit Excerpt from Technical Memorandum #3 Existing System Inventory

Appendix B – Fare, Free or Something In-Between (Florida Department of Transportation's Report on Fareless Transit Service)

Supplemental Transit Information and Considerations

Appendix A – Transit Excerpt from Technical Memorandum #3 Existing System Inventory

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Appendix A – Transit Excerpt from Technical Memorandum #3 Existing System Inventory

Public Transportation System Inventory

The Rogue Valley Transit District (RVTD) provides intercity and regional public transit. RVTD serves the City of Ashland as well as Talent, Phoenix and Medford with fixed-route bus service. System-wide, the bus fares are $2.00 for fixed route service, but fares inside the City of Ashland are reduced to $1.00 through city funds that buy down the cost of fares. City subsidies also allow for free bus passes to senior citizens and high school students. The $1.00 fare begins at the north end of town at the Jackson Well Spring bus stop and ends at the south end of town at the Ashland Hills Inn stop.

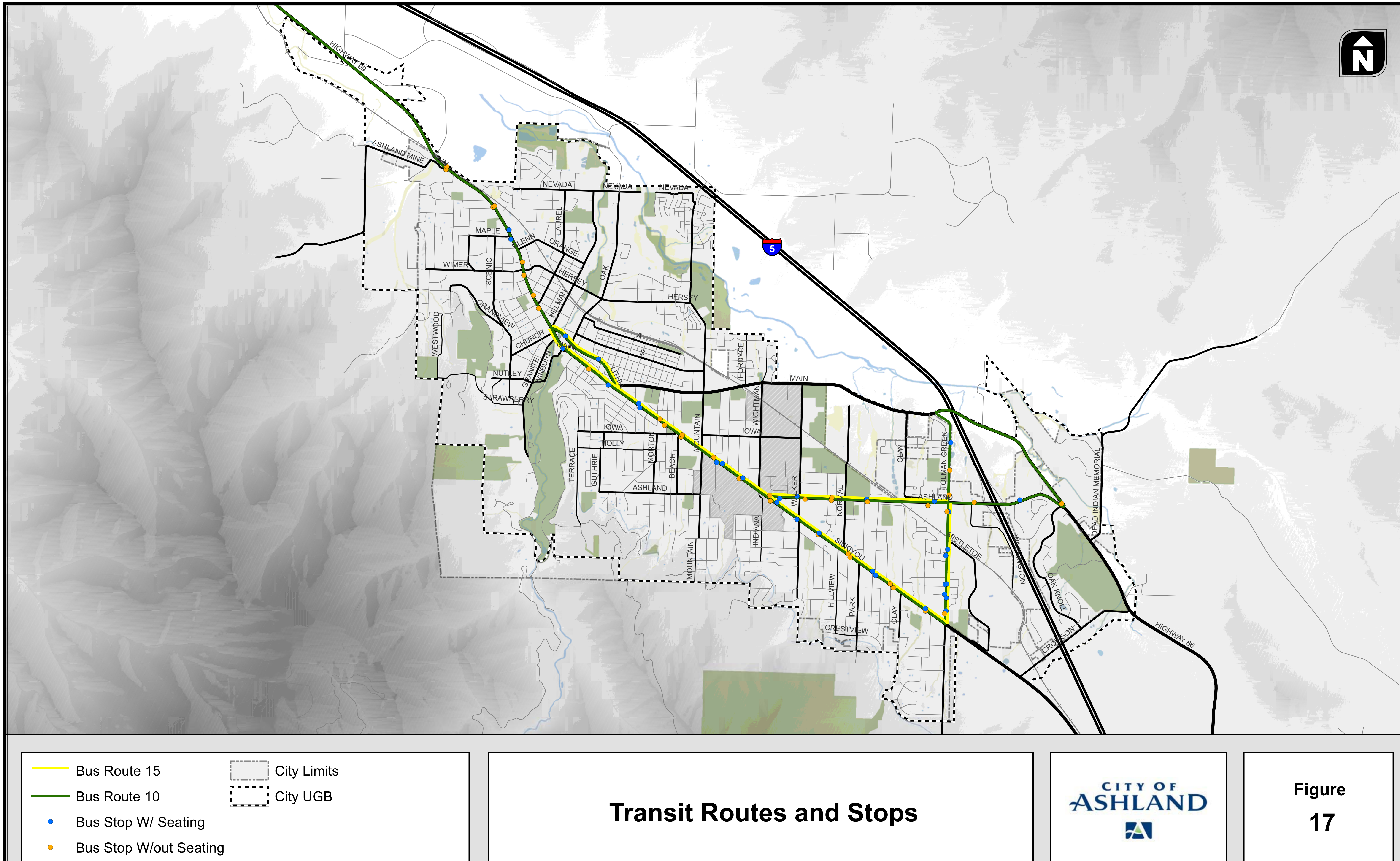
Routes 10 and 15 currently provide service for Ashland on Monday through Friday. Service hours are approximately 5:00 am to 6:30 pm. Route 10 has a farebox recovery rate of 32% compared with a farebox recovery of 27% system-wide. Exhibits 4 and 5 are photos of some of the public transportation system elements currently in Ashland.

Exhibit 4 RVTD Bus in Operation in Downtown Ashland

Exhibit 5 RVTD Stop with Seating

Figure 17 illustrates the transit routes and stops. Currently, there are no park and ride locations within the City of Ashland. Connectivity to other transit is through the Front Street Station in Medford.

Ridership levels for the City of Ashland have fluctuated with changes in fares and service. Historically, ridership system-wide and within the City of Ashland have increased in response to sharp increases in fuel prices. Peak ridership levels were reached during 2003 through mid- 2006 when no fares were charged to Ashland riders. When fares were increased and the Route 5 loop service was discontinued, ridership dropped sharply. Loop service was restored in 2009 (Route 15); however, fares were increased from $0.50 to $1.00 (which still represents a significant city subsidy to the $2.00 fare on the rest of the RVTD system) and the overall fixed route ridership has been declining over the past two years.



Transit Routes and Stops

Figure 17

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Similarly, as shown in Table 6, ridership for the Valley Lift paratransit service, described later in this section, has also had minor but steady decline since 2005 (data is not available prior to 2005).

Exhibit 6 Ashland Transit Ridership 1997 - 2010

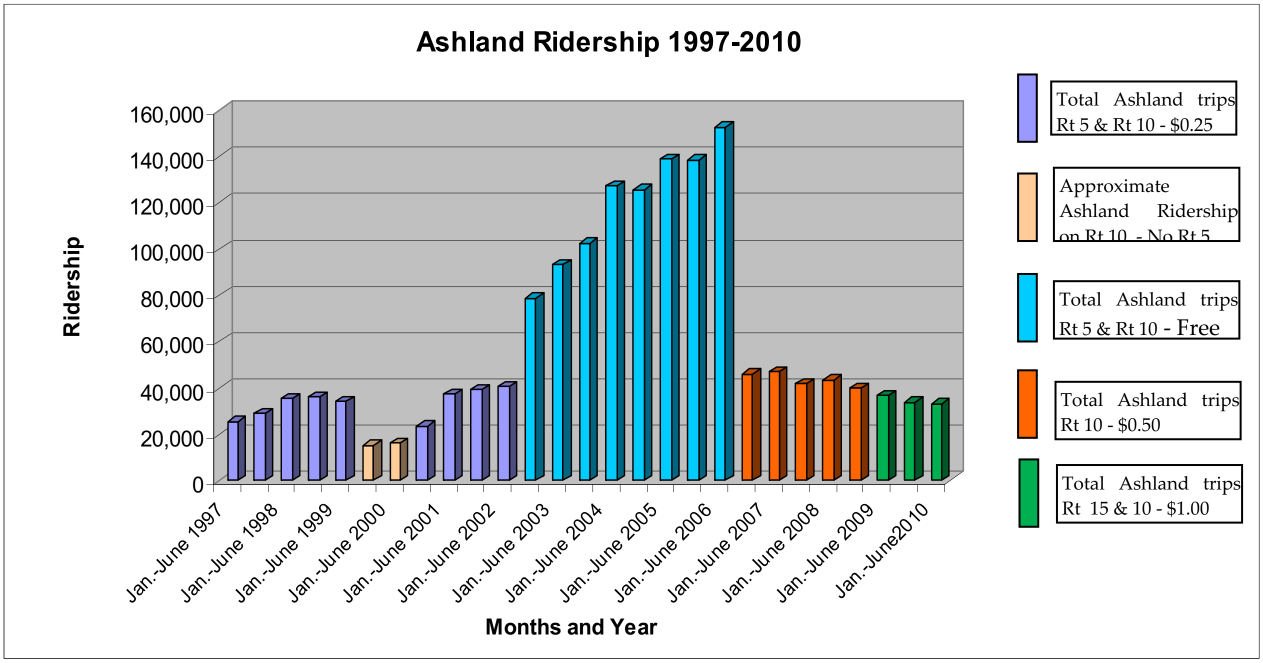

Table 6 Valley Lift Average Monthly Trips in Ashland

FY 2005-2006	FY 2006-2007	FY 2007-2008	FY 2008-2009	FY 2009-2010
1,290	938	969	893	776

Stop amenities for RVTD's fixed-route bus service include shelters and bike racks at some locations. Amenities by location are listed in Table 7. In addition to the shelters provided by RVTD, the City of Ashland has purchased shelters for additional stops and pays for repair and maintenance of those shelters. RVTD is currently developing new bus stop standards and policies that will determine which stops will qualify for shelters in the future.

Table 7 Bus Stop Amenities

Stop ID	Stop Location	Landmarks/Destination	Shelter Type	Bike Rack
Route 10				
010400	On N. Main	50' S of Ashland Mine Rd.	-	-
010410	On N. Main	50' N of Grant St.	-	-
010420	On N. Main	S of Maple St.	-	-
010430	On N. Main	154' S of Wimer St.	-	-
010440	On N. Main	110' S of Laurel St.	-	-
010450	Ashland Plaza	Ashland Plaza	Full	Present
010460	On East Main	S of First St.	-	-

Stop ID	Stop Location	Landmarks/Destination	Shelter Type	Bike Rack
010470	On East Main	55' S of Gresham St.	Full	Present
010480	On Siskiyou Blvd.	123' S of Sherman St.	Full	Present
010490	On Siskiyou Blvd.	41' N of Liberty St.	-	-
010500	On Siskiyou Blvd.	78' S of Beach St.	Full	-
010510	On Siskiyou Blvd.	40' S of University Way	Full	Present
010520	On Siskiyou Blvd.	69' S of Avery	-	-
010530	On Hwy. 66 (Ashland St.)	270' E of Siskiyou Blvd.	-	-
010540	On Hwy. 66 (Ashland St.)	145' E of Walker Ave.	-	-
010550	On Hwy. 66 (Ashland St.)	75' E of Lit. Way	-	-
010560	On Hwy. 66 (Ashland St.)	53' E of Park St.	-	-
010570	On Hwy. 66 (Ashland St.)	278' W of Tolman Ck. Rd.	-	-
010580	On Tolman Ck. Rd.	N of Hwy. 66 at Albertsons	-	-
010590	On Tolman Ck. Rd.	At Abbott Ave. sign	-	-
010600	On Tolman Ck. Rd.	At Chautauqua Trace	Full	-
010610	On East Main	Flag Stop at Hwy. 66 (20' before stop sign)	-	-
010620	On Hwy. 66	At Windmill Inn	Full	
010630	On Hwy. 66	69' E of Washington St.	-	-
010640	On Tolman Ck. Rd.	230' S of Hwy. 66	Bench	-
010650	On Tolman Ck. Rd.	50' S of Grizzly Dr.	Bench	-
010660	On Tolman Ck. Rd.	173' S of Diane	Bench	-
010680	On Tolman Ck. Rd.	380' N of Siskiyou Blvd.	-	-
010690	On Siskiyou Blvd.	200' N of Bellview St.	Full	-
010700	On Siskiyou Blvd.	105' S of Glendale Ave.	-	-
010710	On Siskiyou Blvd.	65' N of Faith Ave.	Full	Present
010720	On Siskiyou Blvd.	135' S of Normal Ave.	-	-
010730	On Siskiyou Blvd.	165' N of Harmony Ln.	-	-
010740	On Siskiyou Blvd.	235' S of Hwy. 66	Full	Present
010750	On Siskiyou Blvd.	198' N of Bridge St.	-	-
010760	On Siskiyou Blvd.	100' S of Palm	Full	-
010770	On Siskiyou Blvd.	S of Morse St.	Full	-
010780	On Siskiyou Blvd.	75' S of Morton St.	-	-
010790	On Siskiyou Blvd.	96' S of Sherman	Full	Present
010800	On Lithia Way	94' N of Second St.	-	-
010810	On Lithia Way	257' N of Oak St.	Full	-
010820	On N. Main St.	122' N of Central St. (sign behind big tree)	-	-
010830	On N. Main St.	276' S of Glenn St.	-	-

Stop ID	Stop Location	Landmarks/Destination	Shelter Type	Bike Rack
010840	On N. Main St.	150' N of Maple St.	Full	-
010850	On N. Main St.	102' N of Grant St.	-	-
010860	On N. Main St.	445' S of Jackson Rd	-	-
Route 15				
015010	DMV	213' S of Ashland	-	-
015020	On Ashland St.	28' W of YMCA Way	-	-
015030	On Ashland St.	100' W of Shamrock Lane	-	-
015040	On Ashland St.	100' W of Ray Lane	-	-
015050	On Ashland St.	25' W of Walker Ave.	-	-
015060	On Ashland St.	85' E of Siskiyou	-	-
010740	On Siskiyou Blvd.	198' N of Bridge St. – SOU	-	-
010750	On Siskiyou Blvd.	100' S of Palm (by pool at Palm Motel)	Full	-
010760	On Siskiyou Blvd.	S of Morse St. – Ashland High School	Full	-
010770	On Siskiyou Blvd.	75' S of Morton St.	-	-
010780	On Siskiyou Blvd.	96' S of Sherman – Safeway	Full	Present
010790	On Lithia Way	94' N of Second St. – Ashland Physical Therapy	-	-
010800	On Lithia Way	257' N of Oak St.	Full	-
010450	Ashland Plaza	Ashland Plaza	Full	-
010460	On East Main	S of First St. – Ashland Springs Hotel	-	-
010470	On East Main	55' S of Gresham St. – Library	Full	Present
010480	On Siskiyou Blvd.	123' S of Sherman St. –Safeway	Full	Present
010490	On Siskiyou Blvd.	41' N of Liberty St.	-	-
010500	On Siskiyou Blvd.	78' S of Beach St. – Ashland High School	Full	-
010510	On Siskiyou Blvd.	40' S of University Way – SOU	Full	Present
010520	On Siskiyou Blvd.	69' S of Avery at Hwy. 66 sign – SOU	-	-
015210	On Siskiyou Blvd.	210' W of Walker Ave.	-	-
015220	On Siskiyou Blvd.	243' W of Harmony	-	-
015230	On Siskiyou Blvd.	111' E of Beswick	-	-
015240	On Siskiyou Blvd.	70' E of Terra Ave.	-	-
015260	On Siskiyou Blvd.	180' W of Bellview	-	-
015270	On Tolman Ck. Rd	170' N of Siskiyou	-	-
015290	On Tolman Ck. Rd	20' S of Springhill	-	-
015300	On Tolman Ck. Rd	262' S of Mistletoe	-	-

RVTD owns 29 buses assigned to fixed-routes service, six of which are currently listed as retired from service. An inventory of vehicles is provided in Table 8.

Table 8 Fixed Route Vehicles

Stop ID	Vehicle	Class	Fuel	Past Useful Life	Replacement Status[1]
3701	1991 Gillig Phantom	A	Diesel	Yes	NEEDS REPLACEMENT
3702	1991 Gillig Phantom	A	Diesel	Yes	NEEDS REPLACEMENT
4531	1980 GMC	A	Diesel	Yes	Retired
4532	1980 GMC	A	Diesel	Yes	NEEDS REPLACEMENT
2802	1995 Bluebird	B	CNG	Yes	Retired
2803	1995 Bluebird	B	CNG	Yes	Retired
2808	1995 Bluebird	B	CNG	Yes	Retired
4527	1980 GMC	A	Diesel	Yes	NEEDS REPLACEMENT
4528	1980 GMC	A	Diesel	Yes	Retired
4529	1980 GMC	A	Diesel	Yes	NEEDS REPLACEMENT
4530	1980 GMC	A	Diesel	Yes	Retired
3011	2004 New Flyer	A	CNG	No	No need for replacement
3012	2004 New Flyer	A	CNG	No	No need for replacement
3013	2004 New Flyer	A	CNG	No	No need for replacement
3014	2004 New Flyer	A	CNG	No	No need for replacement
3015	2004 New Flyer	A	CNG	No	No need for replacement
3016	2004 New Flyer	A	CNG	No	No need for replacement
3017	2004 New Flyer	A	CNG	No	No need for replacement
3018	2004 New Flyer	A	CNG	No	No need for replacement
3019	2004 New Flyer	A	CNG	No	No need for replacement
3020	2004 New Flyer	A	CNG	No	No need for replacement
3021	2006 New Flyer	A	CNG	No	No need for replacement
3022	2006 New Flyer	A	CNG	No	No need for replacement
3023	2007 New Flyer	A	CNG	No	No need for replacement
3024	2008 New Flyer	A	CNG	No	No need for replacement
3025	2009 New Flyer	A	CNG	No	No need for replacement
2901	2010 New Flyer	A	Diesel	No	No need for replacement
2902	2010 New Flyer	A	Diesel	No	No need for replacement
2903	2010 New Flyer	A	Diesel	No	No need for replacement

Note:

[1] Replacement status identified by RVTD.

RVTD also operates a paratransit service through their Valley Lift Program and TransLink. The Valley Lift Program is a shared ride, curb-to-curb, wheelchair accessible transportation service for people with disabilities preventing them from using RVTD's fixed-route bus service. Valley Lift service is provided within ¾ mile buffer on either side of the RVTD fixed-route system. This transportation options fulfills requirements of the Americans with Disabilities Act. RVTD owns and maintains the vehicles; the drivers are contracted through Paratransit Services. Users of this service fall into three categories of eligibility: temporary, conditional and unconditional. During the last fiscal year, ridership averages 750-800 trips per month. The fare is $2.00 and provides a low cost recovery since each trip costs $20-30. Table 9 is an inventory of the Valley Lift vehicles.

Table 9 Paratransit Vehicles

Stop ID	Vehicle	Class	Fuel	Past Useful Life	Replacement Status[1]
1305	1997 E350	D	Diesel	Yes	POSSIBLE REPLACEMENT
1306	1997 E350	D	Diesel	Yes	POSSIBLE REPLACEMENT
1307	1997 E350	D	Diesel	Yes	POSSIBLE REPLACEMENT
0301	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0302	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0303	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0304	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0305	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0306	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0307	2005 Chevy Venture	E	Gas	Yes	No need for replacement
0701	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0702	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0703	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0704	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0705	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0706	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0707	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0708	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0709	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0710	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0711	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0712	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement
0713	2006 Ford-Braun Tranz	E	Gas	No	No need for replacement

Note:

[1] Replacement status identified by RVTD.

TransLink is a 7-county Medicaid transportation service provided to eligible Oregon Health Plan (OHP) and eligible Medicaid clients traveling to authorized medical services. TransLink is funded through the Oregon Department of Human Services. RVTD is considered the Lead Special Transportation Service for ODOT Region 3. In that administrative capacity, the agency schedules and dispatches rides through multiple providers.

Appendix B – Fare, Free or Something In-Between (Florida Department of Transportation's Report on Fareless Transit Service)

TITLE: FARE, FREE, OR SOMETHING IN BETWEEN?

TITLE: FARE, FREE, OR SOMETHING IN BETWEEN?

ABSTRACT

The following synthesis offers information as to the impact, cost, advantages, and disadvantages of implementing system wide fare-free policies in various transit systems. Information was gathered through the documented results of research done on case studies of fare-free experiments, and from active transit professionals with first-hand knowledge of the results of other fare-free demonstrations implemented by a variety of transit systems around the United States.

Based upon the findings of this synthesis, it is concluded that a fare-free policy might be appropriate for smaller transit systems in certain communities, but is ill-advised for larger transit systems in major urban areas because experience shows that in larger systems, a tremendous amount of criminal activity, as well as a sharp increase in ridership, caused higher maintenance costs, labor costs, and operational costs and drove away existing riders.

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TITLE: FARE, FREE, OR SOMETHING IN BETWEEN?

INTRODUCTION

From time to time, either transit policy board members or transit managers seriously consider providing transit services free of charge to passengers. There are a number of factors behind the motivation to offer fare-free transit and there are consequences to any operational transit policy, and those who make decisions about whether to offer fare-free service should be aware of the range of possible consequences. There are many factors, which influence whether fare-free transit would be a negative or positive experience in any given environment such as the size of the community and transit system, degree of commitment to fare-free service by both the community and the transit system management and employees, and age and establishment of the transit service (16).

The purpose of this paper is to document the advantages and disadvantages of fare-free service in differing transit system environments within the framework of several fundamental policy questions.

METHODOLOGY

In researching fare-free policy, a search was initiated in TRIS Online and an exhaustive search of the Internet was performed, searching for all demonstrations of fare-free transit and the results of implementation of fare-free policy.

The internet was a valuable resource, but most articles pertained to decade old experiments. The fact that there have not been any recent fare-free demonstrations in larger transit systems is telling: After the disconcerting experiences of larger transit systems experimenting with fare-free service, most transit system directors were hesitant to try fare-free service, instead opting for marketing to Universities and local employers for reduced fares to build ridership. This article focuses on the precise reasons why totally fare-free policies don't work in large metropolitan areas.

POTENTIAL ADVANTAGES OF FARE-FREE TRANSIT IMPLEMENTATION

Cost Advantages of Fare-Free Service

The implementation of a fare-free policy may eliminate revenues collected, but it also eliminates costs associated with setting and collecting fares (30, 31). A certain amount of overhead is associated with fare policy research and planning within transit organizations. The elimination of fares could remove these costs and may free staff to focus on the quality and effectiveness of service, which is important in keeping and attracting quality ridership (33).

The impact of changes in transit fares on ridership is typically assessed by fare elasticity measures (2, 6, 10, 22). The Simpson-Curtain Rule of fare elasticity would theoretically cause a 30 percent increase in ridership, with a 100 percent decrease in fares (16, 39). However, elasticity levels can vary by type of passenger, time of day, type of route, and length of time since the fare change was instituted (6, 22).

The farebox may be seen as a potential source of confusion and embarrassment to the uninitiated transit user (16). Although automobile users have costs over and above the cost of gasoline whenever they make a trip, they are not inconvenienced by having to search for change and remembering the confusing details of the transit system. Psychologically, this has a deleterious effect on existing and potential transit customers (39).

The types of ridership increases are also important. Hodge et al. (1994) propose that there are two positive sources of ridership change that can be accomplished by fare-free implementation:

- Transit riders who are attracted by the goal of decreasing auto use and fulfilling environmental objectives.
- Transit riders who are provided with additional mobility.

It has been found that smaller transit systems do not experience problem riders like those described in larger systems. Those organizations attribute these positive results to educational efforts and an aggressive, zero-tolerance policy for unacceptable behavior while on board transit (16).

Positive effect of Fare-Free Policies on internal transit environment

The removal of the farebox will change the vehicle environment. Proponents of fare-free service believe that removing the farebox will eliminate the problem of fare disputes and will also eliminate the abuse of drivers by passengers who equate fare payment with ownership of the vehicle. Much of the transit vehicle driver's job satisfaction is tied to interactions with passengers. If the farebox is removed and transit riders experience a more welcoming environment due to the removal of this potential psychological barrier, then the drivers will also benefit (16).

Some researchers (16) feel that critics have over emphasized the negative aspects of a fare-free policy, because problem riders are not always an issue, educational programs may resolve these problems, the severity of the problem riders may vary as a function of whether the system started fare-free or if the system converted, and management attitudes toward the fare-free policy and the communication of these attitudes to other transit employees may influence the agency's fare-free experience.

System efficiency— Advantages in a fare-free system

Traditionally, one measure of system effectiveness is the farebox recovery rate. In support of fare-free service, researchers (16) state that an overemphasis on farebox recovery is counterproductive with respect to the goal of increasing ridership. Instead, system effectiveness could be measured by cost per rider, rather than farebox recovery. In the case of Austin, Texas, in the 12 months prior to the fare-free experiment, the average cost per rider was $2.51. During the 15 months of the fare-free experiment, the average cost per rider was $1.51 and rose back up to an average cost per rider of $2.18 in the year following the fare-free experiment (5). Researchers (16) purport that the system also gained some efficiencies because there were no labor and capital expenses associated with collecting fares.

Community image advantages

In current U.S. culture, public transit is most often viewed as the option of last resort. Existing users may view transit differently from non-users of transit. In many cases, automobile users view any increase in taxes that fund transit as being unfair to them, not realizing that society subsidizes auto travel (39). In a fare-free transit system, people who usually drive may be encouraged to use public transit simply because it does not cost them anything more to use public transit.

POTENTIAL DISADVANTAGES OF FARE-FREE TRANSIT IMPLEMENTATION

Cost Disadvantages of Fare-Free Service

In larger transit systems, fareboxes generate much more of an agency's operating revenue than smaller systems. At Miami-Dade Transit, fareboxes generate $70 million per year (or 33.33 percent) of the approximately $210 million in operating costs (25). Comparatively, in many smaller systems the farebox recovers less than ten percent of the yearly operating cost. Removing the farebox might make fiscal sense in smaller systems because the costs associated with farebox collection and farebox maintenance may equal the fare revenue. However, in larger transit systems, the actual cost of removing the fareboxes will leave the system with a very large revenue shortfall.

Although the Mercer County (Trenton, NJ) fare-free demonstration in 1979 was conducted only during non-peak hours, their system sustained a loss in peak hour fares as well. A total of one-fourth (24.7 percent) of their revenue was lost from the fare-free experiment, with 4.3 percent of that loss coming from fare revenue lost during peak transit hours. Additionally, Mercer Metro had to provide additional bus service to meet excessively high passenger demands during the fare-free hours, causing operation costs to skyrocket (9).

The Capital Metro fare-free experience in Austin, Texas mirrors the Mercer Metro results. The system quickly became overburdened with requirements for capacity expansion and a subsequent increase of operating costs. The skyrocketing operation and maintenance costs became a substantial drain on the system. Officials at Capital Metro described the cost of operation in a fare-free system as “staggering” (29).

Negative effect on internal transit environment

Fare-free systems can attract problem riders, resulting in vandalism and problems for other riders. The Miami Beach Transportation Management Association sponsors electric shuttle bus service in Miami Beach. For the first year of operations, the service was offered for free. This new service attracted over a million riders in its first year, with only seven buses in operation. However, the free fares also attracted undesirable passengers.

The absence of fares can make riders feel a lack of responsibility for the well being of the transit system, also resulting in a negative impact on driver satisfaction. In the Trenton, New Jersey fare-free experiment, 92 percent of transit drivers found their jobs to be less enjoyable as a result of the fare-free program (9). In the Austin, Texas experiment, officials claim that transit operators came close to “insurrection” as their transit system became flooded with truant school children, vagrants, and other “dubious categories” of passengers (29). It is important to note that these findings contradict the findings by Hodge et al. (16) that eliminating the fare would result in a more positive environment for transit vehicle operators because they wouldn’t have to argue with passengers over fares. However, the psychological barrier of the farebox and hunting for change and dealing with paper transfers could be minimized with new fare structures (e.g., an all-day pass) or new farebox technology, which would eliminate transfers and accept stored-value cards or even credit cards.

However, psychological costs in personal security and physical crowding seen in these fare-free demonstrations may actually cause more problems than the psychological cost of the farebox. Problem riders increase personal security costs of transit use and cause a decrease in ridership of both new and existing quality riders (16). As evidenced in the Austin experiment, quality riders do not immediately return to the system once they've been driven out, and the system must prove itself over time to disenfranchised riders (29). Steiner and Starling (32) claim that eliminating the farebox may cause a decrease in average boarding times, but it will cause an increase in aggregate boarding times. The reality is that increased ridership will result in more crowding, which will negatively impact boarding times. Additionally, schedule adherence will be negatively impacted by a larger number of people riding the bus short distances who might have otherwise walked (32).

As mentioned previously, the transit industry standard for measuring increase in ridership is fare elasticity (16). However, elasticity estimates do not take into account the impact that system-wide fare-free implementation can have on encouraging problem riders and what ramifications that might have on long-term riders. A farebox may be seen as a psychological barrier to the new transit user, but it may also be a barrier in keeping out a less desirable type of transit rider. According to Hodge et al.(16), there are two negative sources of ridership change, which can possibly overwhelm a system and drive away quality ridership:

- Transit riders who would have used other modes, but choose transit because it is free
- Transit riders who enter the system for the negative and criminal purposes.

In the Austin, Texas fare-free demonstration, both anecdotal and official data suggest that problem riders increased substantially and drove away other riders. In both the Mercer Metro and the Austin, Texas experiences, problem riders actually drove away many of the regular bus commuters. In none of the experiments did the increase in transit ridership include automobile commuters enticed by the fare-free service (9, 20, 29).

System efficiency— Disadvantages in a fare-free system

System effectiveness can be measured by the farebox recovery rate. Fare-free advocates suggest that system effectiveness could instead be measured by per rider cost. In another example, consider a fairly large transit system that moved approximately 270,000 riders per day. If that system experienced a 30 percent increase in ridership due to fare-free program implementation, it would have an increase of approximately 81,000 riders per day, based on fare elasticity analysis. A caveat here: As the fare approaches zero, there may be changes around zero which are not accounted for by the Simpson-Curtain rule of fare elasticity. Based upon the information from both Mercer Metro (Trenton, New Jersey) and Capital Metro (Austin, Texas), most transit systems could not recover from such a loss of revenue, even if the system might be regarded as more efficient on a cost-per-passenger basis. Imagine that the system becomes overwhelmed with passengers, and must provide expansion of service. Also imagine that the system must now pay for maintaining the system in the face of vandalism and property damage from problem passengers, as well as hiring off-duty police officers to control security incidents. Without passenger-generated revenues, most transit systems would be unable to pay for additional services and quality of service will suffer.

Community image disadvantages

If fare-free transit is implemented and the system becomes inundated with problem riders, vandalism, and personal crimes, the system will be viewed negatively and quality riders will not be attracted to it. In trying to remove barriers that separate the transit-dependent rider from the quality rider, such as removing the farebox, the transit system may instead have unwittingly erected other barriers which are far more damaging to the image of the system. Problem riders who may be encouraged into the system by a fare-free policy may damage the system's public image, as well as damage the system physically and financially. Given these very serious repercussions, care must be taken in assessing if fare-free policies would be beneficial or detrimental to a particular system and community.

CASE STUDIES

Temporary Fare-Free Experiments

Two of the largest fare-free demonstrations were conducted in the late 1970s in Trenton, New Jersey and Denver, Colorado. Both projects lasted slightly more than one year between 1978 and 1979, and were implemented on an off-peak basis. In Trenton, the primary motivation for the experiment was social and economic redevelopment of the area. In Denver, the primary motivation for the experiment was reducing pollution and automobile use (16). The Denver experiment resulted in a 36 percent increase in ridership and the Trenton experiment resulted in a 16 percent increase in ridership (11).

Many fare-free advocates express concern with the methodology of these two experiments, the first being that both experiments were run during off-peak hours only. If the motivation was to promote transit use and reduce congestion, then perhaps the experiments should have been run during peak periods (16).

A medium-sized transit system that experimented with total fare-free service was Austin, Texas. The experiment ran from October 1989 to December 1990. Ridership increased 75 percent during the experiment, but expanded service accounts for some of this percentage (5), and the People for Modern Transit (PMT) Technical Committee (29) claims that once the ridership increase is adjusted for normal growth and addition of University of Texas student passengers, the initial jump really only amounted to a 10 percent increase. This experiment was regarded as both successful in terms of increasing ridership and disastrous in terms of attracting problem riders who drive away quality ridership and caused system losses due to criminal activity (29). In response, 75 percent of transit drivers petitioned to have the fare-free program discontinued immediately, due to the abuse they were experiencing at the hands of problem riders (20).

When summing up the experience of these fare-free demonstrations:

- All systems showed a substantial ridership increase (ranging from 13% to 83%)(16);
- There is little evidence that these projects made a significant dent in Single Occupant Vehicle travel during peak hours (5, 28, 33);
- While the community at large supported fare-free policies, actual riders complained about deterioration of safety and service quality;
- Bus operators voiced concerns over increased rowdiness, problem passengers, and the effect on schedules (20, 39).

PERMANENT FARE-FREE TRANSIT SYSTEMS

The oldest fare-free system is located in Commerce, California, just outside of Los Angeles. This system has operated fare-free since 1962. According to the manager of this system, they do not experience problems with riders other than occasional graffiti (16). However, this is a very small system, serving approximately 970,000 riders annually with 11 buses. Although this system is located only six miles outside of Los Angeles, transit officials tell us that since they have such a limited travel area, they do not attract problem riders (8).

The next oldest system is located in Amherst, Massachusetts and has been providing fare-free service since 1976. The Amherst, Massachusetts system is free to all, but is partially funded by a yearly student fees. This system serves five colleges in the area and also the surrounding communities. It serves approximately 6 million passengers every year and operates approximately 40 buses (37). This type of service is in place at many universities throughout the country, and seems to be relatively problem-free.

Island County Transit, located in Washington State, has operated a fare-free system since its inception in 1987. According to Director Martha Rose, Island County Transit has a low occurrence of problem passengers. It has 16 fixed-route buses and 2 paratransit buses. They serve 675,775 passengers per year on their fixed-route service and 19,664 passengers annually on their paratransit routes (18). Rose attributes their success with a three-strikes policy and also to educational programs in the schools. The only complaints noted for this system were the need for more park and ride lots and buses to deal with increasing ridership demands.

It is important to note that all of the permanent fare-free systems listed above started out as fare-free systems and are either small systems, or serve limited populations (e.g., UMass serves a community with five colleges). In addition, all of the successful fare-free systems shown in this synthesis serve small cities or rural areas.

SUMMARY AND RECOMMENDATIONS

In order to assess if a fare-free policy would benefit a transit system, there are several questions that must be addressed:

- *What is the net cost of a fare free policy?*

  In smaller systems, the net farebox recovery is usually less than ten percent (14). The cost of collection might cancel out any net proceeds of fare collection. Most systems operating in smaller communities do not experience the same types of problem riders experienced in larger, more metropolitan areas.

  In larger systems, the net farebox recovery is typically much greater than smaller systems, and the revenue is a substantial portion of the operating budget. As evidenced by the Capital Metro fare-free experiment in Austin, Texas, which only had a 15 percent farebox recovery, the ballooning costs of operations due to maintenance, labor, and security costs financially threatened the well being of the system. The cost of the deterioration of the internal bus environment, security, employee satisfaction, and public image was definitely not worth any benefits that could be gained by farefree (20, 29).

- *What will be the impact of a fare-free policy on ridership and quality of service?*

  Fare-free policy will yield substantial gains in ridership. What is important is the type of ridership that is being gained. Will the types of people attracted to the system be positive or negative for the system? Will the implementation of fare-free service overwhelm the system with overcrowding and problem riders, driving away existing users?

- *How will a fare-free policy impact the attainment of the community's goals?*

  Will fare-free service increase mobility for transit-dependent riders in the community? Will fare-free service advance environmental and traffic congestion goals? Will fare-free service cause a positive perception of the transit system in the long term? Will fare-free service cause an increase or decrease in customer service and satisfaction? (16)

It seems that fare-free service in certain communities with smaller transit systems can be a positive experience, as evidenced by long-running fare-free services in systems such as Commerce, California; Amherst, Massachusetts; and Island County Transit in Washington. However, the experience with fare-free service in large urban areas has not been successful in terms of overall service quality. Fare-free proponents question the methodology within these fare-free demonstrations: two of the larger systems discussed in this report (Denver and Trenton) offered the fare-free service during peak transit hours only. It is not clear if more ridership might have been attracted during peak hours. It could be that off-peak times actually attract more problem riders, while not assisting in the attainment goals such as promoting transit use, increasing mobility, and reducing traffic congestion and pollution.

In the case of Austin, Texas, fare-free service was provided all day, and there were no time limits set on the demonstration. Although significant efforts were made to increase passenger safety and comfort through hiring off-duty police officers, Hodge et al. (16) claim that many of the Austin demonstration's problems stemmed from lack of support for the policy from agency managers and lack of planning and scheduling for overload on specific routes. Many others point to the fact that a fare-free policy simply overwhelms the system, significantly increasing operating costs. The fare-free experiment did not increase quality ridership or improve the public image of the system and problem riders were attracted to the system, and vandalism and crime increased (29). Physical assaults tripled in the first three months of the fare-free implementation, increasing to 120 incidences from 44 in the three months prior to implementation (3). Many faithful riders were driven from the system by fear for personal safety and the deterioration of the bus environment and they were not quick to return after the experiment (20, 29).

Fare-free proponents (16), who espouse the benefits of fare-free policy stop short of recommending fare-free implementation for larger systems. They instead advocate achieving better system efficiency and quality ridership via marketing of prepaid fares. If a transit system is trying to attract a certain type of rider with the incentive of fare-free service, why not market the fare-free service directly to that population? A transit system might market passes to surrounding businesses and universities on a prepaid basis. Prepaid fare marketing to choice rider populations would seem to be a more efficient way of increasing choice ridership, increasing mobility, and decreasing traffic congestion and pollution. Issues such as safety, travel time, frequency and reliability of service, availability and ease of schedule and route information, infrastructure at stops, and driver courtesy, were all found to be more important than the cost of fares (39).

In a study performed in the Spring of 1990, during the fare-free demonstration period, Capital Metro (5) asked both riders and the general public for the five most important factors in determining whether to ride the bus. The five most important factors were:

- On-board safety
- On-time performance

- Convenience of routes
- Cleanliness inside the buses
- Frequency of service (5).

The three least important factors in determining if both riders and the general public would ride the bus were:

- Cost of service;
- Outside appearance of the buses;
- Courtesy of the bus operators (20).

Transit systems desiring to increase choice ridership should instead focus on improving service quality and safety for customers. Even a minimum fare offers a barrier to problem riders that cause a deterioration in the service, image, and comfort of a given transit system (6,39).

NEW DIRECTIONS

There are many unanswered questions in the presented research review. Are fare-free demonstrations really a bad idea? Or, has the proper research not yet been done? There have been many research projects into increasing ridership by marketing to certain demographics via schools or employers. There are successful U-PASS programs, which offer unlimited transit service to students in many other University communities (4, 24, 35, 38). While these programs are not fare-free in the truest sense, they allow students, staff, and faculty a complete package of transportation benefits for a very low price, while building ridership on the transit system. In fact, in the Chicago area, the U-PASS program accounts for one-sixth of the Chicago Transit Authority's (CTA) ridership (35).

There are questions that linger here that need to be addressed. Can the results of any of the urban transportation fare-free demonstrations be trusted? Did the fare-free experiments fail because fare-free doesn't work in larger systems, or did it fail because staff members of larger transit systems had negative feelings about the demonstration? Elimination of fares has been theorized to help increase transit system efficiency by reducing the cost of fare collection (30, 31). For fairness, future directions in fare-free demonstrations in larger urban settings should include better controls of the attitudes of staff and directors in those systems. It is possible that predetermined attitudes contributed to the failure of fare-free demonstrations in larger transit systems. Future studies should include comprehensive studies of farebox recovery in smaller versus larger systems and which amenities are most important to riders.

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