



City of Wilsonville – South Metro Area Regional Transit

# TRANSIT INTEGRATION PROJECT

## Final Report



July 2015

IN ASSOCIATION WITH:  
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# 1 INTRODUCTION

## STUDY OVERVIEW

South Metro Area Regional Transit (SMART) is a transit service operated by the City of Wilsonville. SMART provides fixed-route and Dial-a-Ride service within the City of Wilsonville and between Wilsonville and other parts of the region. SMART initiated the Transit Integration Project to analyze two specific services:

- **Route 2X**, which operates along the I-5 corridor between Wilsonville and Portland. It circulates within Wilsonville, serving employers east of I-5, and stops outside of Wilsonville at the Tualatin Park & Ride and at the Barbur Transit Center in Southwest Portland.
- **Portland Area Medical Program**, which provides door-to-door service to medical appointments in the Portland area for Wilsonville residents age 60 and older and/or with a disability.

The need for the project is driven by rapid growth of Wilsonville's population, changing demographics as the population grows older, and the movement of people and jobs throughout the city and the region. The purpose of the project is to (1) assess how well these services are performing and responding to these changing needs, and (2) to determine whether/how to adapt and/or integrate them. The desired outcome of the project is to optimize the efficiency of these services and maximize the overall customer benefits SMART can provide with its available resources.

Figure 1-1 illustrates SMART Route 2x and other regional and local transit services as of July 2013.

## GOALS AND OBJECTIVES

SMART developed goals and objectives for the Transit Integration Project, which the project team used to assess these questions, focused on the current and future needs of the Wilsonville residents and employers. The goals of the Project are to:

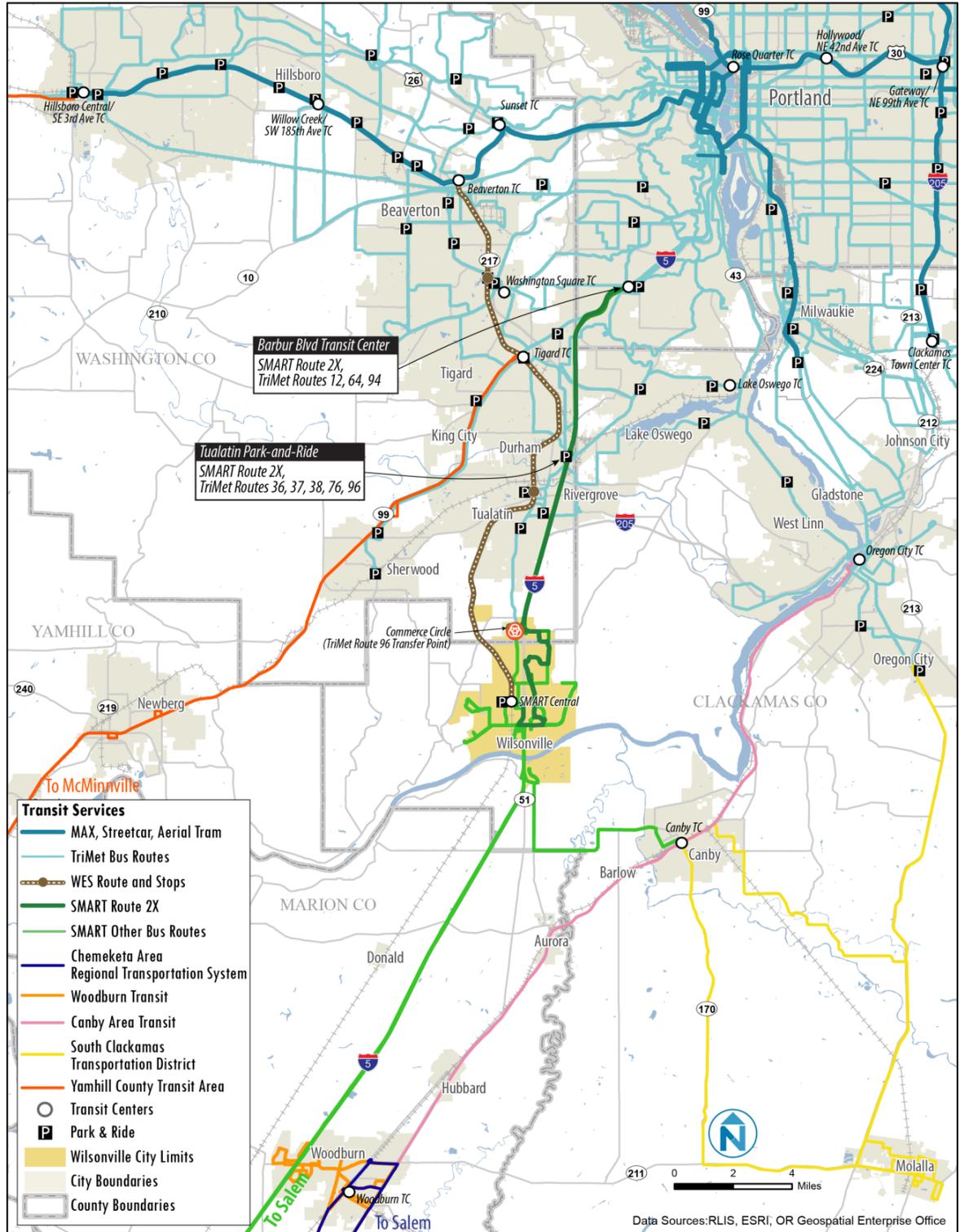
- Explore options to directly connect Wilsonville to Downtown Portland
- Develop strategies to integrate fixed-route and Dial-a-Ride (DAR) service along the I-5 corridor
- Assure financial sustainability on corridor services

Project objectives include:

- Assess transit market(s) in the I-5 corridor north of Wilsonville
- Identify options for meeting special needs transportation in the corridor
- Identify options to control demand for the Dial-a-Ride service and shift riders to fixed-route service where appropriate
- Develop a financially stable, preferred set of service and supporting options

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**Figure 1-1 Study Area Map**



## **PUBLIC INVOLVEMENT**

A robust public involvement process was an integral part of the project. The project team engaged with the public and stakeholders through a variety of media, including SMART's website, informational flyers, interviews, surveys and presentations. Outreach activities were organized into two phases: Phase 1 during the needs assessment; and Phase 2 during the development of recommended service improvements. For Phase 1, rider and community surveys were conducted during the spring of 2013 to gather inputs from vested populations and the general public. On-board surveys of SMART Route 2X passengers and an online survey of TriMet Line 96 riders were conducted to reach current fixed-route passengers. The needs assessment outreach also included extensive engagement with stakeholders representing social service providers, employers and user groups. A virtual (online) Open House and other public outreach events presented the findings of the Needs Assessment to the public and gathered feedback. Additional information on the Phase 1 public involvement program is provided in Chapter 4 and Appendices A through D.

Phase 2 outreach included similar activities to obtain community feedback on the recommended strategies during the summer of 2014. Chapter 7 and Appendices E and F present the information on Phase 2 outreach elements and results.

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## 2 PLANNING CONTEXT

When the City of Wilsonville successfully petitioned to withdraw from the TriMet service district in 1988 and formed an independent, city-owned transit system, TriMet service to Wilsonville consisted of a single peak-hour route.<sup>1</sup> In 1991, Wilsonville Area Rapid Transit (WART) began operating free, door-to-door service in the city. In 1993, the system was rebranded as SMART (South Metro Area Rapid Transit) and it started fixed-route service to major employer sites from Oregon City, Tualatin, and Barbur Transit Center. The City also contracted with TriMet to extend Line 96 to Wilsonville.

SMART services have since evolved to include local and regional services operated in-house, supported by local businesses (through a 0.30% payroll tax) and grant funds. In 2007, SMART changed its name to South Metro Area Regional Transit and the City developed a Transit Master Plan (TMP), summarized below, which responded to the planned introduction of TriMet's Westside Express Service (WES) commuter rail between Wilsonville and Beaverton Transit Center. When WES service launched in 2009, SMART restructured service with all routes transferring at the SMART Central transit center at Wilsonville Station.

### Wilsonville Transit Master Plan (2008)

This section summarizes key portions of the Wilsonville TMP that are most directly relevant to this study.

#### Transit Goals

The TMP incorporates two primary goals for transit from Chapters 6 and 8 of the City's Transportation System Plan (TSP):

- **Goal 1.** To promote an effective transit system that is a viable alternative to the single occupant vehicle; responds to the mobility needs of residents, employers, and employees; permits easy shifts from one mode to another; offers choice and convenience; and connects to other regional transportation systems.
- **Goal 2.** To develop and implement Transportation Demand Management strategies in order to create greater choice and mobility; reduce automobile trips; make more efficient use of the roadway system; and minimize air pollution.

#### Implementation Phases

The TMP defined three phases of early implementation:

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<sup>1</sup> <http://www.ridesmart.com/Index.aspx?page=72>; Wilsonville Transit Master Plan, 2008, p. 69.

- **Phase 1 – WES.** The first phase of the TMP responded to implementation of TriMet’s WES commuter rail between Wilsonville and Beaverton Transit Center. The key improvements were to coordinate route schedules with WES trains; add a route serving the eastside employment areas and Boeckman Road; and provide additional Route 1X trips to Salem.
- **Phase 2 – Downtown Portland Extension.** The second phase proposed extending what is now known as Route 2X to Downtown Portland, to provide direct connections to TriMet MAX, Portland Streetcar, and additional TriMet bus lines. This proposal, which is a central consideration for this study, is summarized in further detail below.
- **Phase 3 – Expansion to New Development.** The third phase proposed extending SMART service to the Villebois area, i.e., an expanded version of the current Route 7 (Villebois shuttle) that provides two morning and two evening round trips along a portion of the route included in the TMP.

The TMP also included additional proposed route additions, modifications, and extensions with various implementation timelines.

### **Proposed Route 2X Extension to Portland**

The TMP proposed extending Route 2x (previously Route 201) beyond Barbur Transit Center along Barbur Boulevard, serving stops at SW Bertha / SW Terwilliger Boulevards and SW Harrison Street / SW 12<sup>th</sup> Avenue (PSU) with a turnaround in the vicinity of SW 10<sup>th</sup> / SW Yamhill Avenues in Downtown Portland. The one-way travel time was estimated to be about 45 minutes, competitive with a driving time of about 30 minutes. Departures from Portland were anticipated to range from 5:00 a.m. to 7:41 p.m. When demand exceeded 30-minute headways, every other run was envisioned to operate as an express route to SMART Central, with no local stops in the eastern part of Wilsonville.

### **Transit Master Plan References**

- Recommended Bus Routes and Service: Chapter 2
- Existing Conditions and Route Maps (2008): Chapter 5

## 3 EXISTING SERVICES

This chapter provides an overview of SMART services, as well as operating statistics and trends. This analysis of existing conditions, along with the assessment of community needs and transit market conditions, forms the basis for developing service improvement strategies.

### SMART SYSTEM OVERVIEW

#### Fixed-route System

SMART currently operates four local and three intercity fixed-routes that provide connections throughout the region. SMART serves an 80 square mile service area, but regional connections extend out of the core service area. As shown in Figure 3-1, all SMART routes radiate out from SMART Central at Wilsonville Station. The transit center was opened in 2009 and serves SMART buses, TriMet Westside Express Service (WES) trains, and Salem-Keizer Transit (SKT) Cherriots buses. SMART Central includes a 400-car park-and-ride lot. SMART's seven fixed-routes are described below.

The SMART system operates only on weekdays, except routes 2X and 4 which also run on Saturdays, offering shortened trips. Hours of operation vary by route. Service generally starts between 5:00 a.m. and 6:30 a.m. and ends between 5:45 p.m. and 8:00 p.m.

#### Local Service

SMART's four local routes are illustrated in Figure 3-1 and described in more detail in Figure 3-3.

- Route 4 – Wilsonville Road East/West.
- Route 5 – 95<sup>th</sup> Avenue. Serves a common stop with TriMet Line 96 at Commerce Circle, but there is not a timed transfer.
- Route 6 – Canyon Creek.
- Route V – Villebois.

#### Intercity Service

SMART's three regional routes (as of July 2013) are illustrated in Figure 3-1 (local terminations) and Figure 3-2 (regional coverage) and described in more detail in Figure 3-3. The next section highlights some additional routes added during the execution of this study.

- Route 1X – Salem. Connects to Salem-Keizer Transit (SKT) services in Salem.<sup>2</sup>
- Route 2X – Barbur. Connects to TriMet services at SMART Central, Tualatin Park & Ride, and Barbur Transit Center. Timed transfers are available between Route 2X and WES at SMART Central or between Route 2X and TriMet Line 76 at Tualatin P&R (when WES is not in service). Route 2X terminates at Tualatin Park & Ride on Saturdays.
- Route 3 – Charbonneau-Canby. Serves the Charbonneau area and connects to Canby Area Transit (CAT) services in Canby.

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<sup>2</sup> SKT and SMART co-operate the Route 1X service between Wilsonville and Salem, departing from SMART Central.

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**Figure 3-1 Existing Local Transit Service Map**

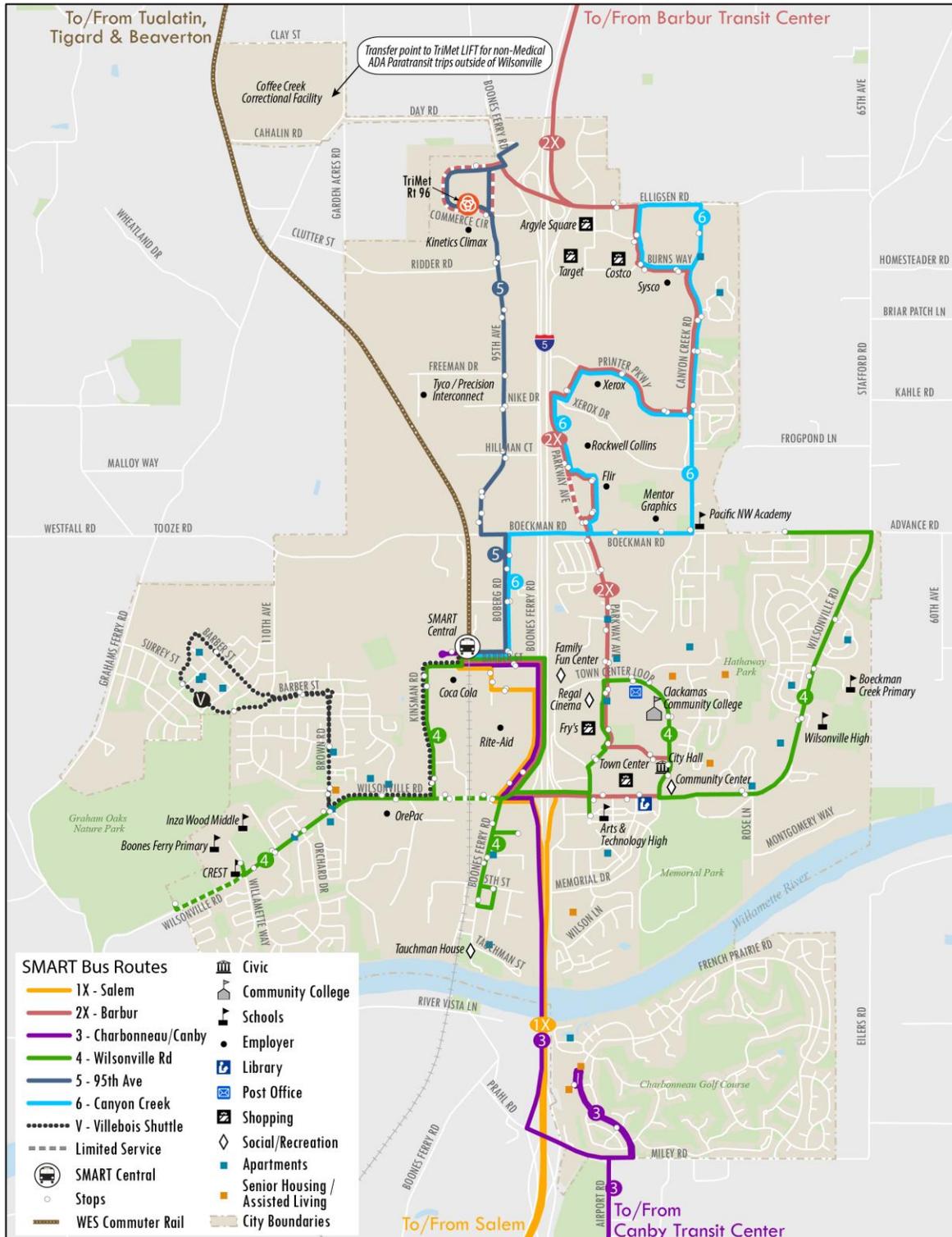
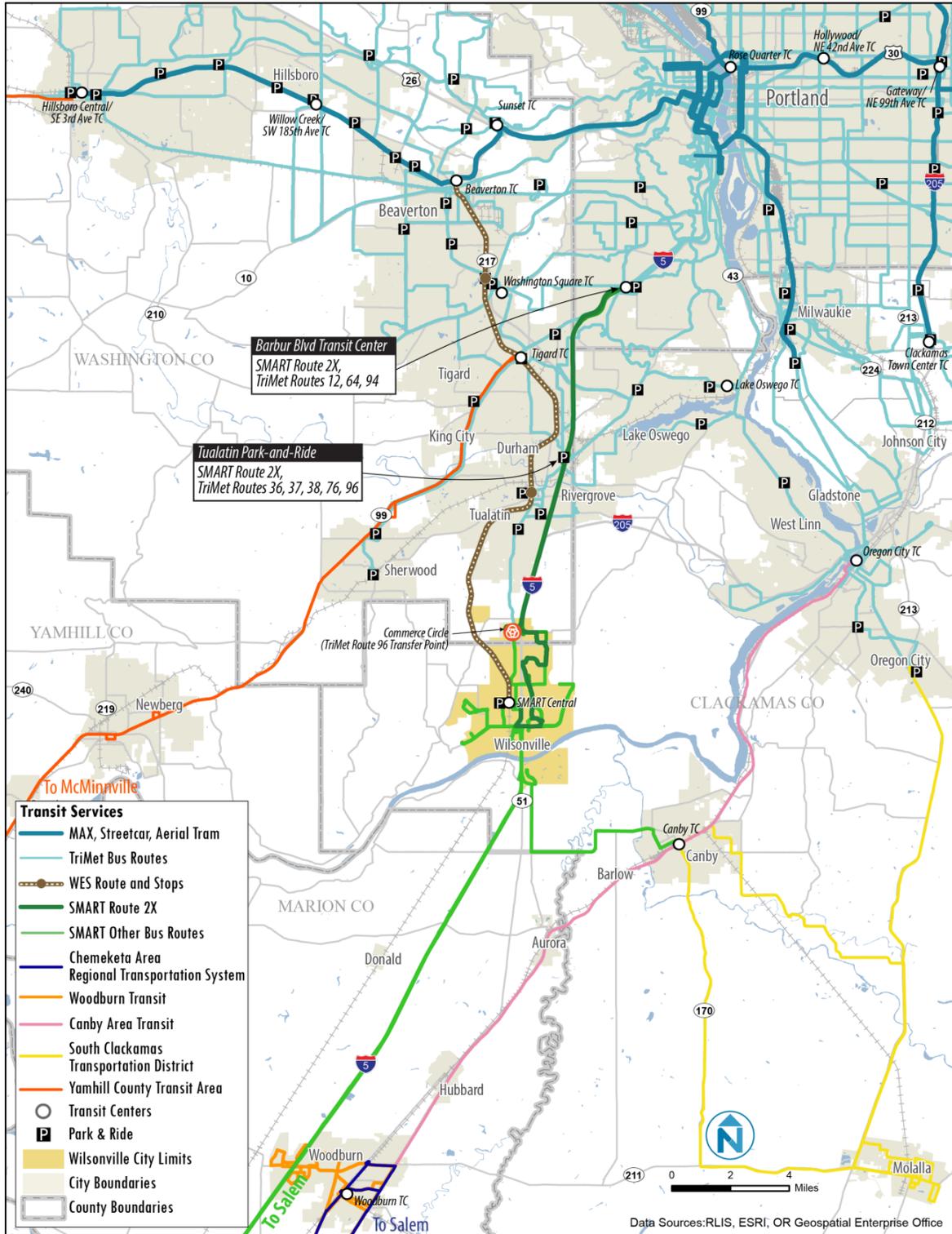


Figure 3-2 Existing Regional Transit Service Map



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**Figure 3-3 SMART Bus Routes**

Route	Service Type	Name	Termination(s) / Major Transit Centers	Other Major Destinations	Weekday Headway <sup>1</sup>	Weekday Service Span <sup>2</sup>	Saturday Headway <sup>1</sup>	Saturday Service Span /
1X <sup>3</sup>	Intercity	Salem	<ul style="list-style-type: none"> <li>▪ Salem Transit Center</li> </ul>	<ul style="list-style-type: none"> <li>▪ State Capital</li> </ul>	30-60 min	4:30 a.m.-10:00 a.m. 3:30 p.m.-8:00 p.m. No midday service	No Service	No Service
2X	Intercity	Barbur	<ul style="list-style-type: none"> <li>▪ Tualatin P&amp;R<sup>4</sup></li> <li>▪ Barbur Blvd Transit Center</li> </ul>	<ul style="list-style-type: none"> <li>▪ Wilsonville City Hall</li> <li>▪ Mentor Graphics</li> <li>▪ Xerox campus</li> <li>▪ Argyle Square</li> <li>▪ Commerce Circle</li> </ul>	20-60 min	5:00 a.m.-9:45 p.m.	60-120 min	8:15 a.m. – 5:45 p.m.
3	Intercity	Charbonneau Canby	<ul style="list-style-type: none"> <li>▪ Canby Transit Center</li> </ul>	<ul style="list-style-type: none"> <li>▪ Springridge at Charbonneau</li> </ul>	60 min	6:00 a.m.-9:15 a.m. 3:30 p.m.-7:30 p.m. No midday service	No Service	No Service
4	Local	Wilsonville Road East/West	<ul style="list-style-type: none"> <li>▪ Boulder Creek Apts. or Mentor Graphics</li> <li>▪ Boones Ferry Primary School or Graham Oaks Nature Park</li> </ul>	<ul style="list-style-type: none"> <li>▪ Boeckman School</li> <li>▪ Wilsonville H.S.</li> <li>▪ Civic Center</li> <li>▪ Town Center Loop</li> <li>▪ Inza Wood Middle School</li> </ul>	30-60 min	5:00 a.m.-7:45 p.m.	60-120 min	8:30 a.m.-5:30 p.m.
5	Local	95 <sup>th</sup> Avenue	<ul style="list-style-type: none"> <li>▪ Pioneer Cemetery</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pioneer Cemetery, Commerce Circle</li> </ul>	30 min	5:30 a.m.-10:15 a.m. 3:15 p.m.-7:15 p.m. No midday service	No Service	No Service
6	Local	Canyon Creek	<ul style="list-style-type: none"> <li>▪ Argyle Square</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mentor Graphics</li> <li>▪ Xerox campus</li> <li>▪ Argyle Square</li> </ul>	30 min	6:30 a.m.-10:05 a.m. 3:15 p.m.-7:39 p.m. No midday service	No Service	No Service
V	Local	Villebois Shuttle	<ul style="list-style-type: none"> <li>▪ Villebois</li> </ul>		2 a.m. & 2 p.m. trips	6:07 a.m.-6:45 a.m. 5:07 p.m.-5:45 p.m.	No Service	No Service
8X <sup>5</sup>	Intercity	Beaverton	<ul style="list-style-type: none"> <li>▪ Beaverton Transit Center</li> </ul>	<ul style="list-style-type: none"> <li>▪ Barber &amp; Boberg</li> </ul>	1 a.m. & 1 p.m. trip	5:20 a.m.-5:45 a.m. 10:05 p.m.-10:30 p.m.	No Service	No Service
9X <sup>6</sup>	Intercity	Portland (Late Night)	<ul style="list-style-type: none"> <li>▪ Barbur Transit Center</li> <li>▪ Portland Transit Mall</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mentor Graphics</li> <li>▪ Xerox campus</li> <li>▪ Oregon Tech</li> </ul>	1 eve trip	10:07 p.m.-10:45 p.m.	No Service	No Service

Notes: (1) Headway is the time between consecutive buses running in the same direction. (2) Rounded to nearest 15 minutes. (3) Some trips served by Salem-Keizer Transit Cherriots. (4) Route 2X terminates at Tualatin Park & Ride on Saturdays. (5) As of August 5, 2013. (6) Planned startup in September 2013 (one-year pilot).

## **Pending Service Changes**

SMART is implementing changes to the intercity services in late summer and fall 2013 in response to the needs of two large customers. Stream Global is in the process of relocating over 1,000 employees to Wilsonville from Beaverton and will operate multiple shifts throughout the day, creating the need for connections to the Beaverton area and the TriMet system when WES is not in operation. SMART will receive additional funding from the firm's payroll tax and is planning for the following changes starting this August:

- Additional late evening trips on Route 2X to the Barbur TC
- Mid-day schedule change on Route 2X to improve connections with TriMet Line 76 during the mid-day when WES is not in operation
- Creation of a new Route 8X to provide one early morning (5:45 a.m. arrival) and one late night (10:05 p.m. departure) express trip between SMART Central and the Beaverton Transit Center

In addition, the Oregon Tech Wilsonville Campus is generating a large need for students taking evening classes to connect with the TriMet system for trips to the rest of the region. Oregon Tech, in conjunction with the Associated Students of Oregon Institute of Technology (ASOIT), is providing a proportional cost-share to the City for new service to provide a late night connection. Starting in September, SMART will create a one-year pilot test of a new Route 9X. This service will provide one nightly trip operating Monday – Thursday serving Mentor Graphics (departing 10:07 p.m.), Oregon Tech, Xerox, FLIR, Rockwood Collins, the Barbur TC, and the Downtown Portland Bus Mall (arriving 10:45 p.m.).

## **Dial-a-Ride System**

In addition to fixed-route services, SMART operates door-to-door Dial-a-Ride (DAR) services for Wilsonville residents within the city and for medical trips outside of Wilsonville. DAR service is available to the general public but preference is given to those qualifying for complementary paratransit service under the Americans with Disabilities Act (ADA)<sup>3</sup>.

### **General Public Dial-A-Ride**

All Wilsonville residents, regardless of their age or disability status, may ride the DAR service, however ADA-eligible customers are given priority when scheduling DAR trips.

Dial-a-Ride trips must be scheduled at least the day before and up to two weeks prior to the trip. Trips are scheduled within two hours of the preferred pick up time. Customers can call SMART on weekdays between 6:30 a.m. – 6:30 p.m. to schedule a DAR trip.

Dial-a-Ride trips can be scheduled for weekdays between 5:30 a.m. and 7:15 p.m. There is limited DAR service on Saturdays and no service on Sundays.

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<sup>3</sup> ADA Paratransit service is required as a complement to scheduled, local fixed-route service, guaranteeing an equivalent level of service for people with a disability.

## **ADA Paratransit**

ADA Paratransit services are primarily provided for Wilsonville residents with disabilities that prevent them from riding fixed-route service. Eligible riders cannot be denied a trip within SMART's local service area when local buses are in operation. Riders must submit an eligibility form<sup>4</sup> and their disability must be certified by a medical professional to be eligible for service under the ADA.

## **Portland Area Medical Trips**

In addition to DAR services within Wilsonville, SMART offers transportation for medical purposes outside of Wilsonville. This service is open to Wilsonville residents age 60 and older and to those with disabilities. Pre-qualification is not required for this service and eligible customer simply register when requesting their first trip.

## **Out-of-Area Non-Medical Trips**

For non-medical Dial-A-Ride trips outside the SMART local service area, transfers to TriMet LIFT service are made at Coffee Creek. Passengers are responsible for scheduling the TriMet end of the trip which includes being certified as eligible for LIFT and paying the appropriate fare.

## **Other Services**

SMART offers the following additional services:

- **Shopper Shuttle.** SMART operates a one-day per week door-to-door shopper shuttle service on Thursdays to Lamb's Thriftway, Albertsons, and Fred Meyer stores in Wilsonville for seniors and supportive housing residents.
- **Community Center Senior Lunches.** SMART operates pre-scheduled, door-to-door service to Wilsonville Community Center for senior lunches.

## **Fares**

SMART, which is supported by a payroll tax paid by Wilsonville businesses, is free for trips within Wilsonville, including both fixed-route and DAR service. Trips outside of Wilsonville require a fare. The in-city portion of Route 2X does not require a fare, while fares are charged for trips north of Commerce Circle, i.e., to/from Tualatin Park & Ride or Barbur Transit Center.

Figure 3-4 summarizes fixed-route fares and passes for riding SMART routes. Intercity routes that provide connections to other cities and other transit providers require a fare. Longer-distance trips to Salem require higher fares than trips within the Portland metro region. SMART does not accept transfer receipts from other transit providers and other providers do not provide a discounted fare for passengers transferring from SMART services.

Riders can pay cash or purchase a monthly pass for either the 1X or the 2X/3 routes. An "All" pass allows use of all intercity routes (1X, 2X, and 3). Reduced-price passes for seniors, disabled, students, and youth must be purchased in person at Wilsonville City Hall.

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<sup>4</sup> <http://www.ridesmart.com/Modules/ShowDocument.aspx?documentid=183>

**Figure 3-4 Fixed-Route Fares & Passes**

Fare Category	Fare Type	1X (Salem)	2X (Portland) 3 (Canby)	8X (Beaverton) 4	9X (Portland) 3	Local (Wilsonville)
Adult 1	Single Ride (cash)	\$3.00	\$1.50	\$3.00	\$1.50 <sup>a</sup> \$3.00 <sup>b</sup>	Free
	Monthly Pass (Local)	\$75.00	\$35.00	N/A	N/A	
	Monthly "All" Pass 3	\$110.00		N/A	N/A	
	Multiple-Ride Punch Cards 20 punches for \$25 40 punches for \$50	N/A	1 punch	2 punches	1 punch to Barbur TC 2 punches to Downtown Portland.	
Discounted 2	Single Ride (cash)	\$1.50	\$0.75	N/A	N/A	
	Monthly Pass (Local)	\$37.50	\$17.50	N/A	N/A	
	Monthly "All" Pass 3	\$55.00		N/A	N/A	

Notes: (1) Adult fares are for persons age 18-59. (2) Discounted fares are for seniors age 60+, persons with disabilities, Medicare card holders, youth age 5-17, and students 18-23 with valid student ID. (3) An "All" Pass is valid on all intercity routes (1X, 2X, and 3X). (4) Starting 8/5/2013. (5) Starting 9/23/2013. (a) \$1.50 to Barbur TC. (b) \$3.00 to Downtown Portland.

Source: SMART website

Dial-A-Ride trips within Wilsonville are free. For DAR services outside Wilsonville (limited to medical trips), a monthly pass is also available but few passengers use it.

**Figure 3-5 Dial-A-Ride Fares and Passes**

Fare Type	Local	Intercity
Single Ride (cash)	Free	\$3.00
Monthly Pass		\$50.00

Source: SMART website

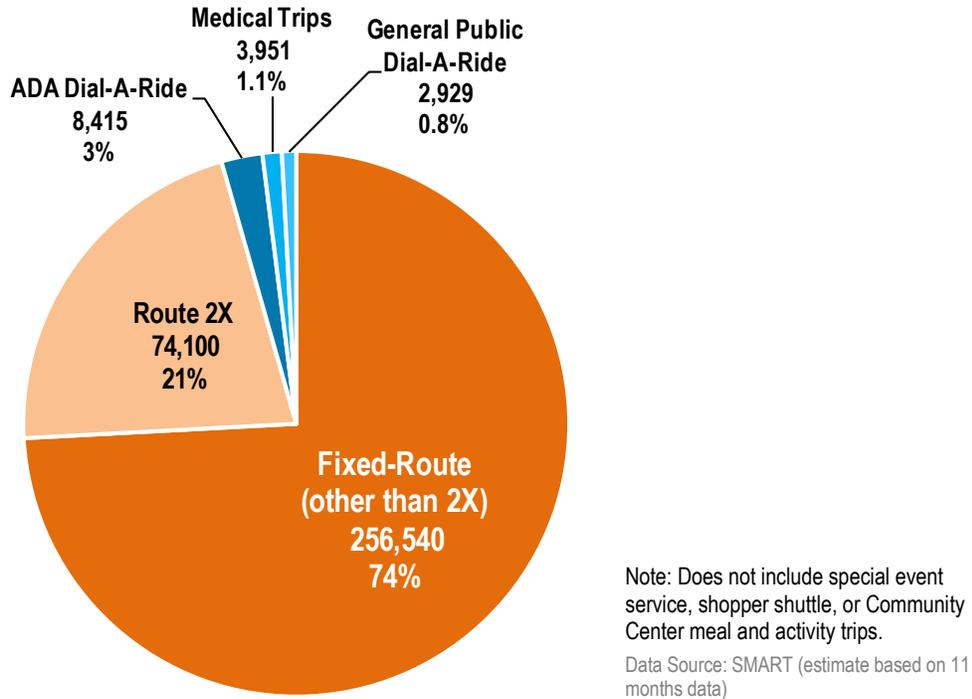
## Ridership

In Fiscal Year (FY) 2012-2013, the SMART system provided nearly 346,000 trips.<sup>5</sup> Fixed-route service provided 96% of those trips, of which about 22% were on Route 2X. Demand responsive service accounted for the other 4% of all trips on SMART in 2012-2013. Of Dial-A-Ride trips, 55%

<sup>5</sup> Based on estimated ridership for June 2013, excluding special event, Community Center, and Senior Shuttle trips. Including these trips, annual ridership totals 351,451.

were ADA Paratransit trips, 26% were out-of-town medical rides, and 19% were general public non-medical trips. Figure 3-6 illustrates the ridership breakdown for SMART services.

**Figure 3-6 SMART Ridership by Service Type and/or Route, FY 2012-13**



### Fixed-Route Ridership Trends

Figure 3-7 and Figure 3-8 present ridership data from 2009 to 2013 for SMART fixed-routes overall, highlighting Route 2X’s share. Ridership on Route 2X is growing, while the number of trips taken on all fixed-route services is generally trending upward with a slight decrease comparing the two most recent years (a similar trend to Dial-A-Ride services as highlighted in the next section).

The number of rides taken on SMART fixed-route services has grown by 14.7% from 2009. After reaching a peak of just over 370,500 trips in 2011/12, ridership declined by 5% to 351,451 in 2012/13. The average daily weekday ridership for all SMART fixed-route service was 1,347 riders per day in FY2012. For Saturday fixed-route service the average daily ridership was 219 passengers for FY 2012.

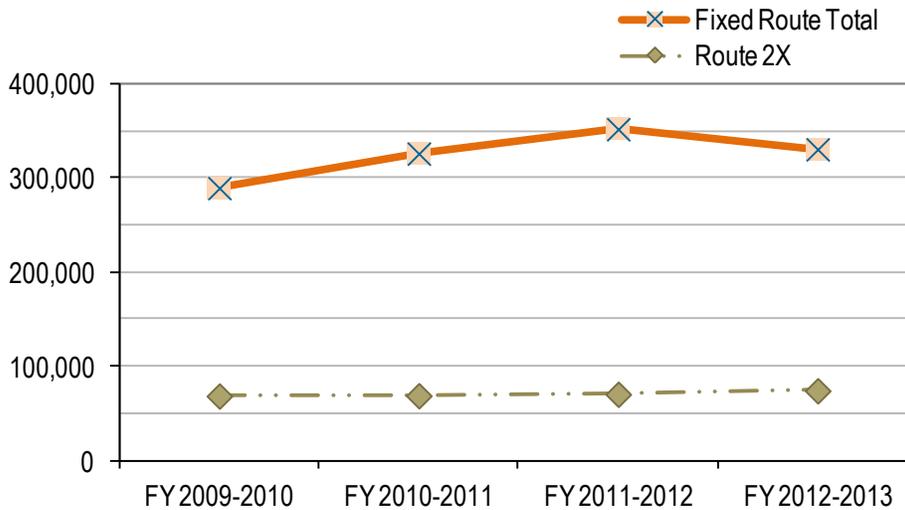
Ridership on Route 2X increased by 8.1% during this time, from about 68,500 trips in 2009-10 to just over 74,000 in 2012-13. Even as overall ridership declined in 2012-13, Route 2X ridership increased by 5% between 2011-12 and 2012-13, accounting for 21% of all fixed-route trips. In FY2012, Route 2X averaged 268 daily weekday passengers and 59 Saturday passengers.

**Figure 3-7 Fixed-Route Ridership Trends, Route 2X and Overall, 2009-2013**

	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	% Change 2009-2013
<b>Route 2X</b>	68,516	68,861	70,401	74,100	8.1%
<b>All Fixed-route</b>	306,421	344,723	370,526	351,451	14.7%

Data Source: SMART (FY 2012-2013 is estimated based on 11 months data).

**Figure 3-8 Fixed-Route Ridership Trends, Route 2X and Overall, 2009-2013**



Data Source: SMART (FY 2012-2013 is estimated based on 11 months data).

### Dial-A-Ride Ridership Trends

Figure 3-9 and Figure 3-10 provide annual ridership data for 2009-2013 on ADA Paratransit and general-public DAR, and Portland area medical trips. Since 2009, the number of trips taken on SMART’s ADA Paratransit DAR has grown 30%, while ridership on the general-public DAR has increased 56%. Portland area medical trips have remained consistently around 4,000 trips per year since 2009.

While general public DAR grew significantly more than ADA Paratransit over this time period, this service still comprises a much smaller portion of all DAR trips. General public DAR ridership grew considerably (74%) between 2009-10 and 2010-11, but growth declined to 7% in 2011-12, and declined by 16% in 2012-13. In part, continued growth of ADA Paratransit demand is reducing capacity for general public Dial-A-Ride (SMART cannot deny trips to ADA-qualified passengers).

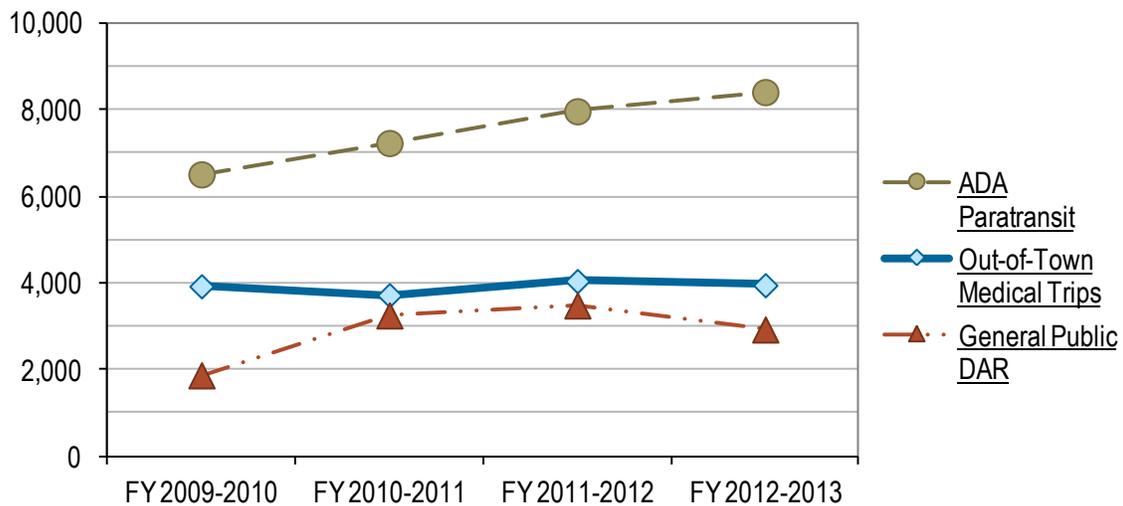
In FY2012 use of all demand- responsive service averaged about 67 passengers per day.

**Figure 3-9 Dial-A-Ride Ridership Trends, 2009-2013**

	FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	% Change 2009-2013
ADA Paratransit DAR	6,514	7,238	7,973	8,415	29.2%
General Public DAR	1,870	3,254	3,484	2,929	56.6%
Out-of-Town Medical Trips	3,927	3,721	4,048	3,951	0.6%

Data Source: SMART. (FY 2012-2013 is estimated based on 11 months data).

**Figure 3-10 Dial-A-Ride Ridership, 2009-2013**



Data Source: SMART. (FY 2012-2013 is estimated based on 11 months data).

## Performance

### Productivity

During a field observation of the Route 2X on April 18, 2013 at three points along the route—SMART Central, Tualatin Park & Ride, and Barbur Transit Center, the maximum number of passengers on the bus was 11 while the northbound average was about two and the southbound average was slightly more than two. It is important to note that the counts did not include Route 2X passengers making local trips on Route 2X, i.e., boarded and alighted between SMART Central and Tualatin Park & Ride, and therefore understate actual maximum passenger load. Nearly 30% of ridership on Route 2X is local based on the onboard survey as discussed in the next chapter.

Figure 3-11 provides the productivity of SMART’s individual services in terms of the number of passengers carried per vehicle hour. Route 2X is one of the system’s lower performers for fixed routes. Overall, SMART’s demand response services also have a relatively low productivity, averaging less than two passengers per vehicle hour. The out-of-town medical service performs at

an even lower level averaging around one passenger an hour.<sup>6</sup> The longer distances served by Route 2X and out-of-town medical services account in part for these services lower productivity. The table includes a comparison to statistics from 2007, although it should be noted that routes have changed and the passengers per service hour may not be directly comparable to the measure from FY2011-12. Ridership on some routes has increased, particularly Routes 1X and 4, while ridership has declined on other routes, including Route 2X. This may be due the opening of WES in 2009 and in the case of Route 2X, the introduction of Route 6 which serves similar travel patterns.

**Figure 3-11 System Productivity Measures FY2011-12 and 2007**

Route	FY 2011-12 <sup>a</sup>			Previous Route #	2007 <sup>b</sup>	
	Vehicle Hours	Passengers	Passengers per Vehicle Hour		Passengers	Passengers per Vehicle Hour
1X – Salem	3,674	58,272	15.9	1X	38,846	16.9
2X – Barbur	13,310	67,173	5.0	201	85,347	14.1
2X – Barbur - Saturday	508	3,228	6.4			
3 – Charbonneau / Canby	2,037	15,761	7.7	205	13,115 <sup>c</sup>	10.9
4 – Wilsonville Road	10,775	135,557	12.6	204	112,754	23.3
4 – Wilsonville Road – Saturday	490	8,802	18.0			
5 – 95 <sup>th</sup> Avenue	2,355	22,048	9.4	203	14,289	12.6
6 – Canyon Creek	2,154	36,363	16.9	N/A	N/A	N/A
V - Villebois Shuttle	439	2,822	6.4	N/A	N/A	N/A
Demand Response (all services)	11,260	20,478	1.8	N/A	31,643 <sup>d</sup>	N/A

Data Source: (a) SMART. (b) For equivalent route in 2008 based on Wilsonville Transit Master Plan, Chapter 5. (c) Only for the 16 out of 20 trips operated by SMART; other trips were provided by Canby Area Transit. (d) FY 2004-2005.

### Operating Costs and Farebox Recovery

Figure 3-12 lists operating costs for SMART fixed-route and Dial-A-Ride services in FY 2011-2012 and Figure 3-13 illustrates the cost breakdown. Overall fixed-route service cost \$2.5 million to operate in FY 2011-12, including over \$935,000 for Route 2X. Route 2X is the most expensive individual fixed-route service run by SMART because it operates over a long distance. The operating cost for Route 2X is also higher per passenger trip than the fixed-route system overall, although about a third the cost per DAR trip.

Route 2X recovers about 4.5% of its annual operational costs from fares. This is in part because the 2X functions as a local circulator within Wilsonville (no fares) and also has relatively low ridership for trips outside of Wilsonville and high operating costs. The out-of-town medical program costs of approximately \$177,000 are covered by fares (roughly \$12,000) and a state Special Transportation Fund (STF) grant.<sup>7</sup>

<sup>6</sup> Based on a FY2011-12 ridership of 4,048 and 4,064 estimated vehicle hours.

<sup>7</sup> The grant funds two vehicles that provide the out-of-town medical trips. These vehicles provide 4,064 service hours annually. Other Dial-A-Ride vehicles also provide some of the out-of-town trips (estimated at about 5 service hours per week).

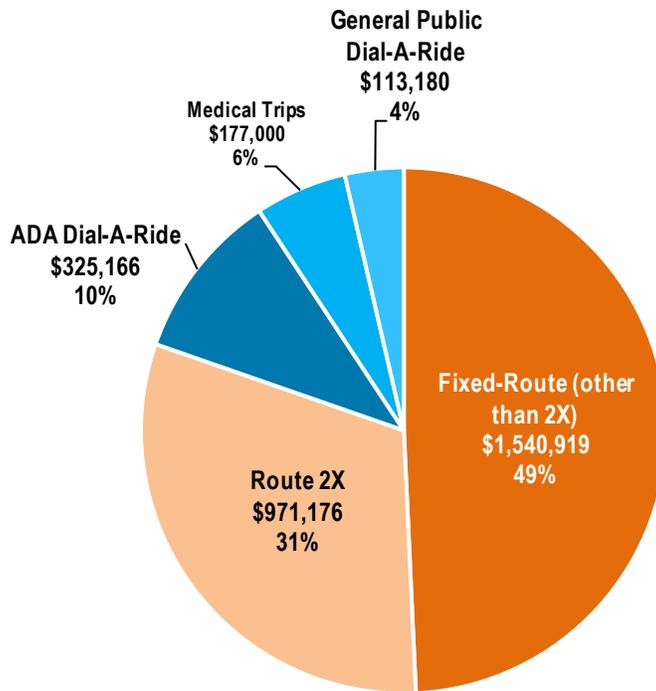
**Figure 3-12 SMART Operating Costs, FY 2011-12**

Route	Annual Operating Costs	Cost per Passenger	Net Cost per Passenger
2X Weekday	\$935,466	\$13.93	\$13.30
2X Saturday	\$35,710	\$11.06	N/A
Fixed-Route System	\$2,512,095	\$7.18	\$6.72
Demand Responsive	\$791,370	\$38.64	\$29.99

Notes: Costs per fixed route are based on each route's relative share of annual operating hours. Net costs reduce total costs by any fare or service-specific grant revenues.

Data Source: SMART

**Figure 3-13 SMART Operating Costs, FY 2011-12**



Data Source: SMART

## Major Transfer Locations

SMART Central serves as the primary transit center within Wilsonville, co-located with the Wilsonville WES station. SMART Central features connections to TriMet WES commuter rail, a 400 space park and ride, and 48 bicycle lockers. To allow transfers between SMART routes and WES, SMART routes are timed to pulse with WES arrivals and departures. SMART schedules list the arrival time of WES trains and generally leave five minutes after WES arrivals. As an example of regional connections, the 6:28 a.m. WES train arrives in Wilsonville at 6:55 a.m.; at 7:00 a.m. Route 2X leaves Wilsonville, destined for Barbur Transit Center; arriving at 7:44 a.m. Passengers can catch the 7:48 a.m. Line 12 to Portland City Center and Parkrose/Sumner Transit Center or other buses. Several major transfer locations outside of Wilsonville allow for transfers from SMART to other providers, including TriMet (Tualatin Park & Ride and Barbur Transit Center),

Canby Area Transit (CAT), and Cherriots. Figure 3-14 illustrates how SMART service connects to the regional transportation system, making connections north and south of Wilsonville.

**Figure 3-14 Major Transfer Locations to/from SMART Routes**

Name	Location	Transit Operators/Routes Served	Destinations	
SMART Central	9699 SW Barber St, Wilsonville	All SMART Routes	TriMet WES Commuter Rail	Throughout Wilsonville and regional connections. WES only operates during peak periods.
Tualatin Park-and-Ride	SW 72 <sup>nd</sup> Ave & Bridgeport Rd, Tualatin	SMART Route 2X Barbur	TriMet Routes 36, 37, 38, 76, 96	Connections throughout Washington County including Beaverton, Tualatin, and Tigard; Lake Oswego; and SW and Downtown Portland. Route 96 only operates during peak periods.
Barbur Boulevard Transit Center	9750 SW Barbur Blvd, Portland	SMART Route 2X Barbur	TriMet Routes 12, 64, 94	Connections to Downtown Portland; 64 connects to Marquam Hill/OHSU (peak only); 94 connects Sherwood to Portland (peak only)
Canby Transit Center	NW 1 <sup>st</sup> Ave & N Ivy St (near Thriftway), Canby	SMART Route 3	CAT Orange Line (99E)	Orange Line connects Woodburn to Oregon City
Salem Transit Mall	285 Church St NE, Salem	SMART Route 1X	All Cherriots Routes	Connections in the greater Salem region.
Coffee Creek Correctional Facility	24499 SW Grahams Ferry Rd	SMART DAR	TriMet LIFT	ADA Paratransit trips in the TriMet service area

## Fleet

SMART has a fleet of over 35 vehicles that include 30, 35, and 40-foot long buses, vans, cutaways, and a trolley bus. SMART operates 20 vehicles during maximum service, including 14 fixed-route and 6 demand responsive vehicles. In 2011, the average fleet age of fixed-route buses was 10.3 years and the average fleet age of demand-responsive vehicles was 5.5 years.

Figure 3-15 identifies the vehicles types and capacities typically used on Route 2x. Out-of-town medical trips typically use 7-11 seat vans while in-town Dial-A-Ride may use a van or cutaway vehicles.

**Figure 3-15 Typical Vehicle Types and Capacities on Route 2X**

Service	Vehicle Type	Capacity	Typical Number of Daily Runs
Route 2X	Large Bus	38-45 Seats	22
Route 2X	Cutaway Bus (Mid-sized)	19-21 Seats	3

The fleet is maintained at the SMART Operations Fleet Facility, a 12,400 sq. ft. SMART and City vehicle maintenance facility completed in 2013.

## **TriMet Services to Wilsonville**

### **Westside Express Service (WES) Commuter Rail**

Wilsonville Station, home of SMART Central, is the southern terminus of TriMet’s Westside Express Service (WES) commuter rail. WES provides peak-hour, weekday-only rail service to Beaverton Transit Center. Weekday mornings, WES trains leave Wilsonville station every 30 minutes beginning at 5:21 a.m. until 8:51 a.m.; weekday afternoons trains leave Wilsonville Station every half hour from 3:28 p.m. until 6:58 p.m. Trains leave from Beaverton Transit Center weekday mornings between 5:58 a.m. and 9:28 a.m. and weekday afternoon between 4:05 p.m. and 7:35 p.m.

### **TriMet Line 96 Bus Service**

TriMet Line 96 provides one of the key transit connections between Wilsonville and Downtown Portland. The line starts at Commerce Circle in Wilsonville, runs along Boones Ferry Road and SW 72<sup>nd</sup> Avenue to Tualatin P&R, and then proceeds on I-5 until reaching Downtown Portland. Line 96 connects with SMART Routes 2X and 5 for connecting local service. Line 96 makes 20 southbound and 16 northbound trips to/from the City of Wilsonville.

## **Current Travel Options between Wilsonville and Downtown Portland**

At present, most transit riders traveling between Wilsonville SMART Central and Downtown Portland use one (or more) of the following options (Figure 3-16). Each of these options provides different benefits to travelers journeying between these two cities:

- Options #1 -#6 only run on weekdays.
- Option #1 is available throughout the day whereas Options #2-#6 are only available during peak hours.
- Options #1-4, riding SMART Route 2X, provides passengers with the most direct trip to/from employment and residential destinations along the route in Wilsonville.
- Options #5-6, riding WES to MAX or another TriMet bus line is the least costly, takes the least amount of time, and has the smallest possible trip time window due to well-timed transfers.
- Option #6 is available on Saturdays but requires two transfers and takes over 2 hours.

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**Figure 3-16 Public Transit Travel Options between Wilsonville SMART Central and Downtown Portland**

Option #	Link #1	Transfer Location	Link #2	Peak NB Trip Time (min)	Peak SB Trip Time (min)	Midday Trip Time	Trip Cost	Hours of Service	Days of Service	Notes
1	SMART Route 2X	Barbur TC	TriMet Line 12	64 min	99 min	72 min	\$4.00	5 a.m.-8 p.m.	M-F	4
2	SMART Route 2X	Barbur TC	TriMet Line 94	65 min	N/A	N/A	\$4.00	6-9 a.m., 3-8 p.m. No Midday Service	M-F	1, 2
3	SMART Route 2X	Tualatin P&R	TriMet Line 96	61 min	73 min	N/A	\$4.00	5-10 a.m., 2-7 p.m. No Midday Service	M-F	2
4	SMART Route 2X	Tualatin P&R	TriMet Line 38	71 min	80 min	N/A	\$4.00	5-9 a.m., 3-8 p.m. No Midday Service	M-F	2
5	TriMet WES	Beaverton TC	TriMet MAX Blue/Red or Line 58	50-59 min	55-61 min	N/A	\$2.50	5:30-9 a.m., 3:30-8 p.m. No Midday Service	M-F	2, 3
6	TriMet WES	Tigard TC	TriMet Line 12 or 94	65 min (Line 12) 58 min (Line 94)	60 min (12 only)	N/A		5:30-9 a.m., 3:30-8 p.m. No Midday Service	M-F	1, 2, 3
7	SMART Route 2X	Tualatin P&R <sup>4</sup>	TriMet Line 76 to Line 12 or MAX	120-135 min			\$4.00	9 a.m.-5:20 p.m.	Sat	4

Notes: Peak trips target an 8 a.m. arrival in Portland (NB) or Wilsonville (SB). Midday trips target a noon arrival. Saturday trips assume leaving at 9 a.m. (1) Line 94 makes trips to Downtown Portland only in the AM peak and from Downtown Portland in the PM peak. (2) WES and Lines 38, 94, and 96 do not operate on Saturdays. (3) WES operates only during weekday peak hours. (4) Route 2X terminates at Tualatin Park & Ride on Saturdays.

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## 4 COMMUNITY INPUT ON NEEDS

During the needs assessment phase of the Transit Integration Project, the following approaches were used to gather community input on needs and desires for possible service improvements:

- Surveys of existing fixed-route intercity riders including an onboard survey of SMART Route 2X riders and an online survey of TriMet Line 96 users
- A community-wide on-line survey of the general public including non-transit user
- Outreach to organizations and individuals representing key stakeholder groups

SMART provided \$75 gift cards toward a prize drawing for the Line 96 and Community on-line surveys to increase participation. Appendices A through D further describe the study's community engagement results.

### FIXED-ROUTE SERVICE SURVEYS (ROUTE 2X AND LINE 96)

Two survey instruments were used to assess how people currently use fixed-route bus transit to and from Wilsonville. An on-board survey was conducted on SMART Route 2X and passengers on TriMet Line 96 were distributed an invitation to participate in an online survey. In total, 280 people participated in the surveys. The surveys collected information about trip origin and destination, trip purpose, frequency of ridership, and basic demographic questions. Passengers were asked to identify service improvements and locations they would like a single seat ride (not requiring a transfer).

**Figure 4-1 Summary of On-board and Online Survey Findings**

Survey Question	Route 2X	Line 96
Purpose of your trip	<ul style="list-style-type: none"> <li>▪ 61%, work</li> </ul>	<ul style="list-style-type: none"> <li>▪ 34%, work</li> </ul>
Origin and Destinations	<ul style="list-style-type: none"> <li>▪ 35%, Wilsonville</li> <li>▪ 34% Portland</li> </ul>	<ul style="list-style-type: none"> <li>▪ 46%, Portland</li> <li>▪ 37% Wilsonville</li> </ul>
Frequency of Ridership	<ul style="list-style-type: none"> <li>▪ 56%, 5 or more days per week</li> <li>▪ 29%, 2 to 4 days per week</li> </ul>	<ul style="list-style-type: none"> <li>▪ 62%, 5 or more days per week</li> <li>▪ 25%. 2 to 4 days per week</li> </ul>
How long have you been riding particular line	<ul style="list-style-type: none"> <li>▪ 49%, more than 2 years</li> </ul>	<ul style="list-style-type: none"> <li>▪ 84%, more than 2 years</li> </ul>
If particular line was not available	<ul style="list-style-type: none"> <li>▪ 28%, would not make this trip</li> <li>▪ 17%, someone would drive me</li> </ul>	<ul style="list-style-type: none"> <li>▪ 32%, used WES</li> <li>▪ 26%, would have driven alone</li> <li>▪ 18%, used Route 2X</li> </ul>
Other locations particular transit service should serve	<ul style="list-style-type: none"> <li>▪ 26%, Downtown Portland</li> <li>▪ 12% Portland</li> <li>▪ 10% Beaverton/Beaverton TC</li> </ul>	<ul style="list-style-type: none"> <li>▪ 50%, Downtown Portland</li> </ul>
What improvements to the particular transit service would help you to ride more often	<ul style="list-style-type: none"> <li>▪ 39%, Sunday Service</li> <li>▪ 36% more frequent Saturday service</li> <li>▪ 34%, more frequent weekday service</li> </ul>	<ul style="list-style-type: none"> <li>▪ 23%, more frequent weekday service</li> <li>▪ 17%, more frequent Saturday service</li> </ul>
Age	<ul style="list-style-type: none"> <li>▪ 47%, 31-59</li> <li>▪ 24%, 23-30</li> </ul>	<ul style="list-style-type: none"> <li>▪ 75%, 31-59</li> <li>▪ 12%, 23-30</li> <li>▪ 12%, 60-74</li> </ul>
What is total household income	<ul style="list-style-type: none"> <li>▪ 26%, under \$10,000</li> <li>▪ 24%, over \$60,000</li> </ul>	<ul style="list-style-type: none"> <li>▪ 51%, over \$60,000</li> <li>▪ 10%, \$40,000-\$49,999</li> <li>▪ 10%, \$50,000-\$59,999</li> </ul>

## **On-Board Survey: Route 2X**

On Thursday April 18, 2013, Saturday April 21, 2013, and Thursday April 25, 2013, passengers riding SMART Route 2X were given an on-board survey to fill out about the one-way trip they were currently making.<sup>8</sup> The survey instrument is provided in Appendix A. One hundred and ninety-two passengers completed the survey. There was a very high participation rate with almost all passengers who were offered a survey completing one.

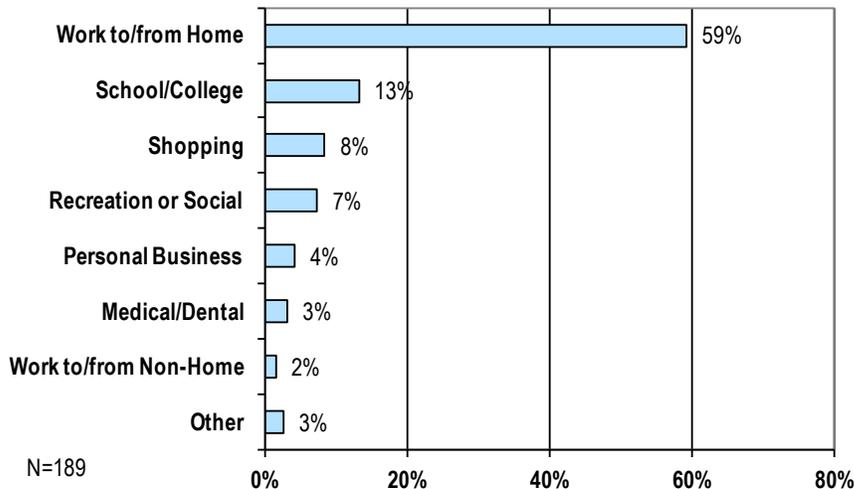
The survey asked passengers questions regarding their trip origin and destination, mode of travel to/from the bus, how often they ride transit, how long they have been riding transit, their disability status, from where in the region they would like a single seat ride, and what improvements would help them ride SMART Route 2X more often, among other questions. Demographic questions were also asked in order to understand characteristics of the survey sample.

<sup>8</sup> Surveys on 4/25 were used to fill in several runs that were not surveyed on 4/18.

## Trip Purpose

The majority (59%) of passengers riding SMART Route 2X traveled between home and work, and 13% were traveling between home and school/college (Figure 4-2). The most common institutions that riders attend were Portland Community College, Portland State University, and Pioneer Pacific College. A combined 23% traveled between home and other activities (shopping, recreation or social destination, personal business, or medical or dental appointments). A small number of passengers used Route 2X for travel between work and other activities.

Figure 4-2 What is the purpose of your trip?



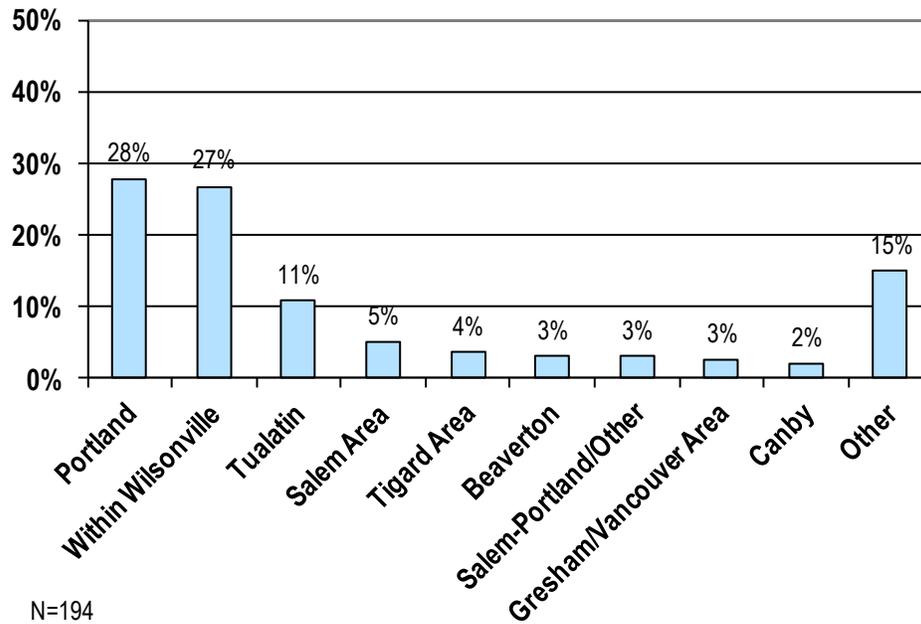
## Travel Origins and Destinations

About 27% of surveyed passengers on SMART Route 2X were traveling solely within Wilsonville. Of those passengers who traveled between Wilsonville and another location, the most common origin and destination cities were Portland (28%) and Tualatin (11%) (Figure 4-3). About 4% were traveling between Wilsonville and the Tigard area and 3% were traveling to/from Beaverton. About 5% of passengers were traveling between Wilsonville and the Salem area and 3% were traveling between the Salem and Portland areas.

Figure 4-4 provides a breakdown of Portland origins and destinations. Southwest Portland was the destination/origin for six out of ten of passengers headed into or out of Portland. Within Southwest Portland, origins and destinations along Barbur Boulevard were most common (45%), followed by the Portland Community College (PCC) – Sylvania Campus (18%), and the Hillsdale neighborhood (12%). Northeast Portland was the next most common Portland destination/origin, for 18% of Portland-bound travelers. Sixteen percent (16%) of travelers to/from Portland were headed to downtown.

Sixty-eight percent (68%) of surveyed passengers were making a round trip on transit that day.

**Figure 4-3 Travel between Wilsonville and Other Cities(**



**Figure 4-4 Breakdown of Portland Origins/Destinations**

Portland Sub-Areas	% within Portland Sub-Areas	SW Portland Sub-Areas	% within SW Portland Sub-Areas
SW Portland	60%	Barbur Blvd.	45%
		Hillsdale	12%
		PCC	18%
		Other SW	24%
NE Portland	18%		
Downtown	16%		
SE Portland	5%		

Note: N = 55

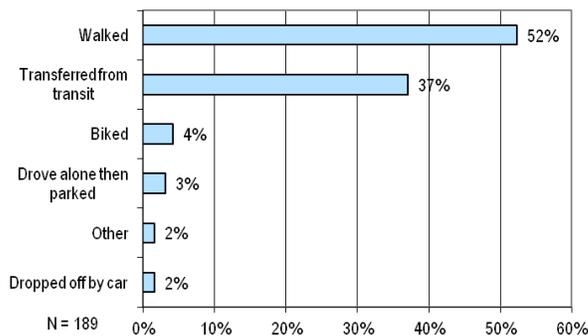
### Access To and From the Bus Stop

Just over half (52%) of the passengers riding Route 2X walked to reach the bus stop, with 70% walking for five minutes or less (Figure 4-5). Another 37% transferred to Route 2X from another transit route. Four percent (4%) biked to reach the bus stop, most of whom cycled one mile or less in distance. Few survey respondents drove alone (3%) or were dropped off at the bus stop in a car (2%).

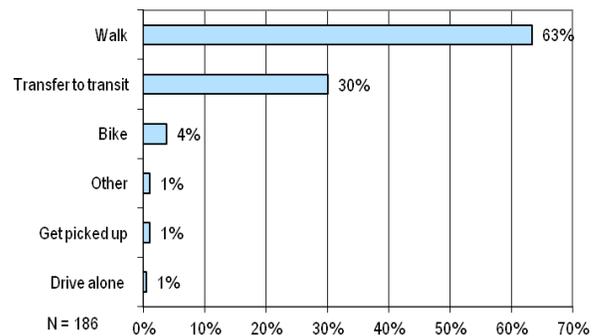
Sixty-three (63%) of passengers planned to walk to get to their final destination (Figure 4-6). Nearly three-quarters of these passengers reported they would walk 5 minutes or less. Three out of ten passengers planned to transfer to another transit route. Another 4% reported they would bicycle to access their final destination. Most of these cyclists reported distances of 1 mile or less to reach their final destination. Very few SMART Route 2X passengers planned to drive alone (1%) or get picked up in a car (1%).

Similar to overall access patterns, most Route 2X passengers who start or end their trip in Portland either walk, bike, or use transit to/from their trip origin/destination, while only a small number drive or are picked up. Of particular note, 65% of those who started their trip in Portland used transit to access Route 2X.

**Figure 4-5 How did you get to the bus?**



**Figure 4-6 How will you get from the bus to your final destination?**



Of those respondents transferring to or from another transit route, TriMet Line 76 was the most common, with one-quarter of survey respondents transferring to this route (Figure 4-7). TriMet Line 12 was the next most common, with 16% of survey respondents transferring to this route.

**Figure 4-7 Transit Routes Transferred To/From**

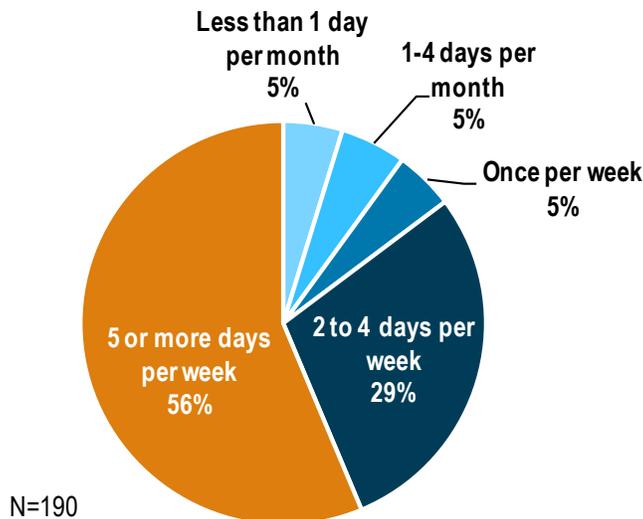
Transit Route	Percent of Respondents	Origin/Destination City (Sample)
TriMet Line 76	25%	Aloha, Beaverton, Bull Mountain, Metzger, Portland (downtown, NE, SW), Tigard, Tualatin
TriMet Line 12	16%	Portland (downtown, NE, SE, SW), Salem
SMART 1X	9%	Gresham, Salem
WES	9%	Beaverton, Portland (NE)
SMART 4	8%	Wilsonville
TriMet Line 44	8%	Portland (SW)
TriMet Line 96	8%	Portland (downtown), Tualatin
TriMet Line 94	6%	Portland (downtown, SW)
TriMet Line 37	3%	Canby, Portland (SW)
CARTS Route 50	2%	Dallas
TriMet LIFT	2%	Portland (SW)
TriMet Line 38	2%	Tualatin
TriMet Line 43	2%	Portland (SW)
TriMet Line 54	2%	Beaverton

Note: N = 64

### Usage Patterns – Frequency of Use

Most SMART Route 2X customers use the service very frequently. Over half (56%) of survey respondents travel 5 or more days per week, and three out of ten riders ride this route two to four days per week (Figure 4-8).

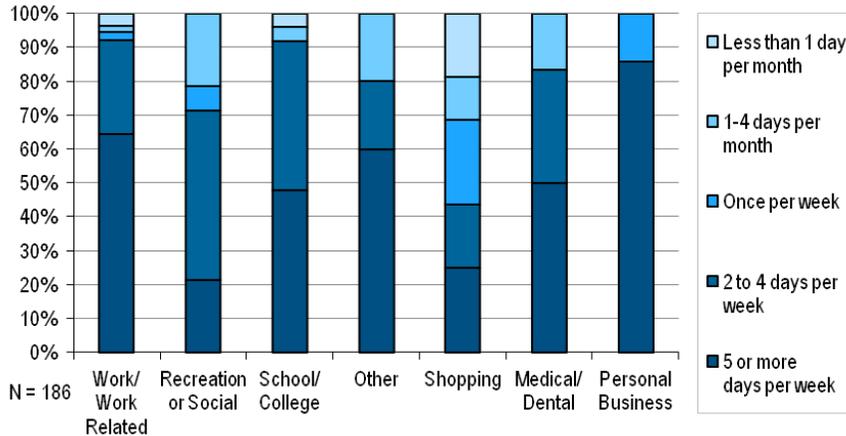
**Figure 4-8 How often do you ride SMART Route 2X?**



### Usage Patterns – Trip Purpose

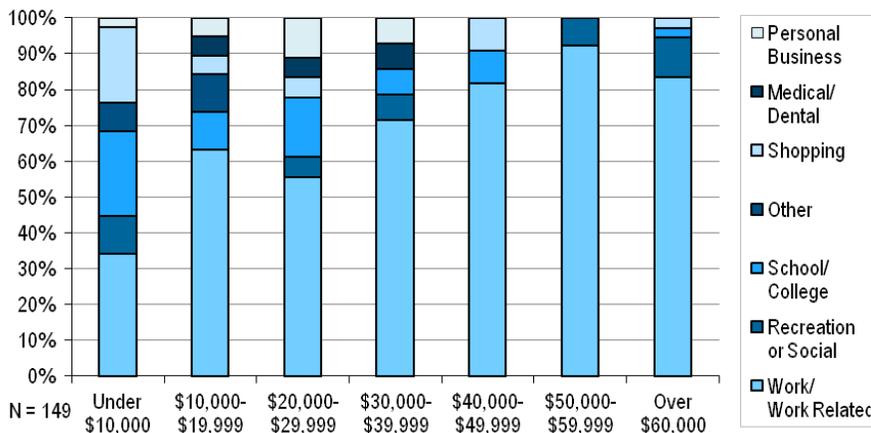
Those survey respondents making trips for work and school purposes tend to ride Route 2X most often, with just over 90% each using this service at least two days per week. Seventy percent (70%) of Route 2X passengers traveling for recreation or social purposes ride 2 or more days per week. Respondents traveling for shopping purposes are less frequent riders, with only 44% traveling two or more days per week.

**Figure 4-9 Trip purpose by frequency of ridership**



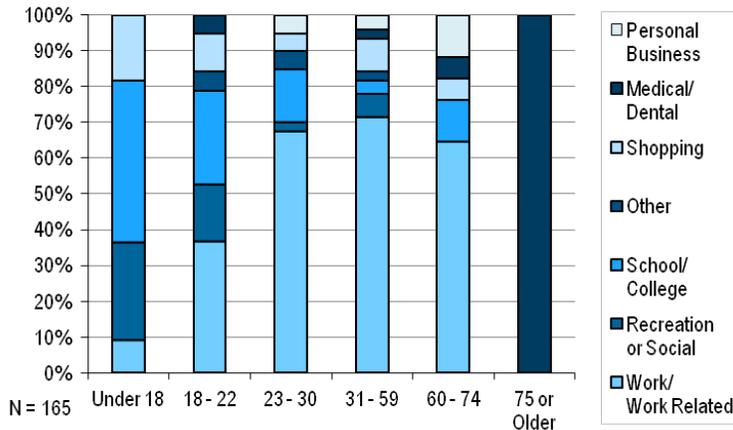
While work trips are the major trip purpose for all income groups, the proportion of work trips increases with household income (Figure 4-10). Passengers with incomes of less than \$40,000 use Route 2X for most trip purposes, while passengers with higher incomes mostly use the service for commuting. Respondents in the lowest household income category (less than \$10,000) had the greatest distribution of trips across trip types. About one-third (34%) of respondents in this category were commuting for work purposes, almost one-quarter (24%) were traveling to/from school, and 21% were on a shopping trip.

**Figure 4-10 Trip Purpose by Income Category**



Most respondents under age 18 were traveling for social, school, or shopping purposes (Figure 4-11). Those between the ages of 18 and 22 were traveling largely for work or school purposes. Work trips were the major trip purpose for respondents age 23 to 74. The few respondents age 75 or older were traveling for a medical appointment.

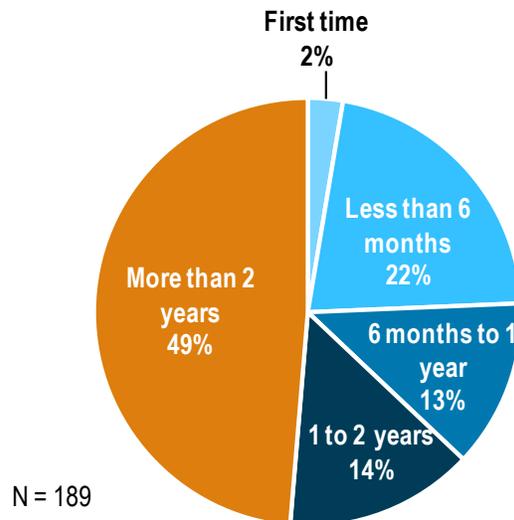
**Figure 4-11 Trip Purpose by Age Group**



**Usage Patterns – Time Span of Use**

About half (49%) of survey respondents have been riding SMART Route 2X for more than two years (Figure 4-12). Fourteen percent (14%) have used this service for one to two years and 13% have been riding for 6 months to 1 year. Nearly one-quarter of respondents has been riding for less than 6 months. These findings indicate that SMART Route 2X is attracting new riders while maintaining long-term riders.

**Figure 4-12 How long have you been riding SMART Route 2X?**



## Fare Payment

Figure 4-13 illustrates the fares paid by survey respondents, including:

- Over half of survey respondents (55%) paid a cash fare, including 46% general (adult) and 9% reduced fare.
- About 27% of respondents used a monthly pass including a general fare pass (7%), all pass (6%), reduced pass (5%), employer-provided pass (4%), and reduced all pass (3%). In addition, two respondents wrote in that they used an 18-ride punch card.
- About 18% of respondents paid a reduced fare, including both cash fares and passes.
- About 16% of respondents wrote in that their trip was free, referring to the fact that SMART is free within Wilsonville. One respondent (not counted in the chart) noted that they also have a punch pass (i.e., for use on trips outside Wilsonville).

Figure 4-13 How did you pay your fare for this bus?

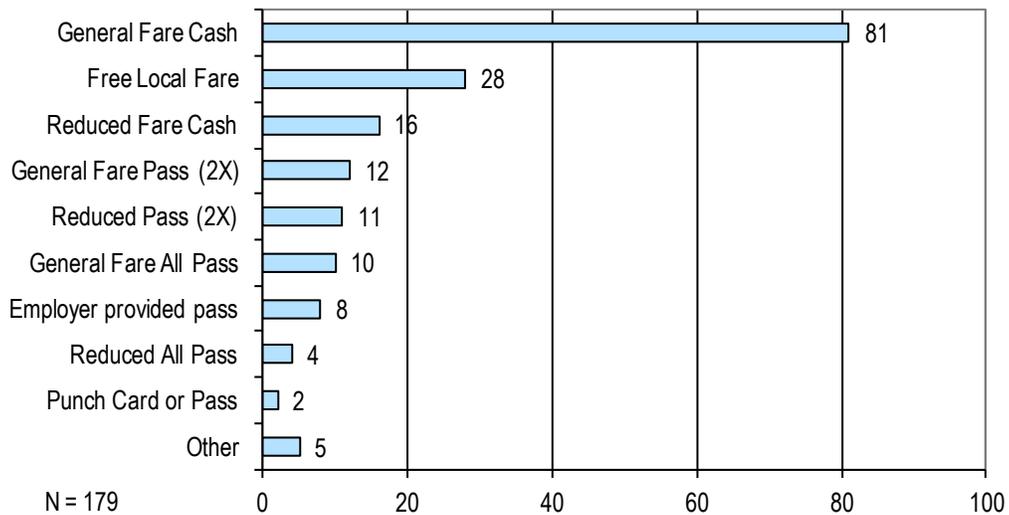
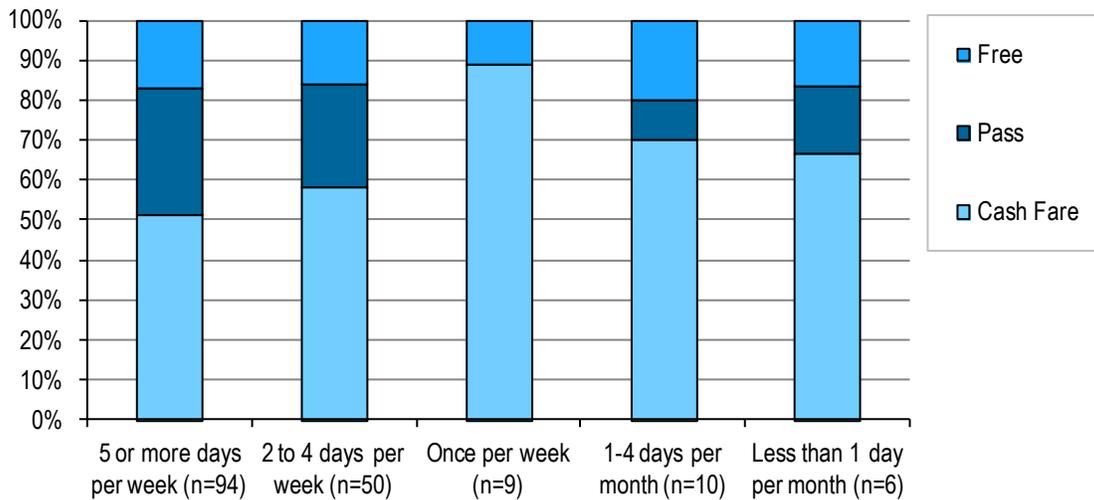


Figure 4-14 summarizes fare payment type by ridership frequency. Surprisingly, more than twice as many Route 2X passengers who ride five or more days per week pay with a cash fare rather than purchase a pass, especially given SMART’s fare structure where a pass pays for itself after only 12 round trips. All passengers who ride once a week either paid with cash fares or rode for free within Wilsonville. A few infrequent riders used passes.

**Figure 4-14 Frequency of ridership by fare payment type**



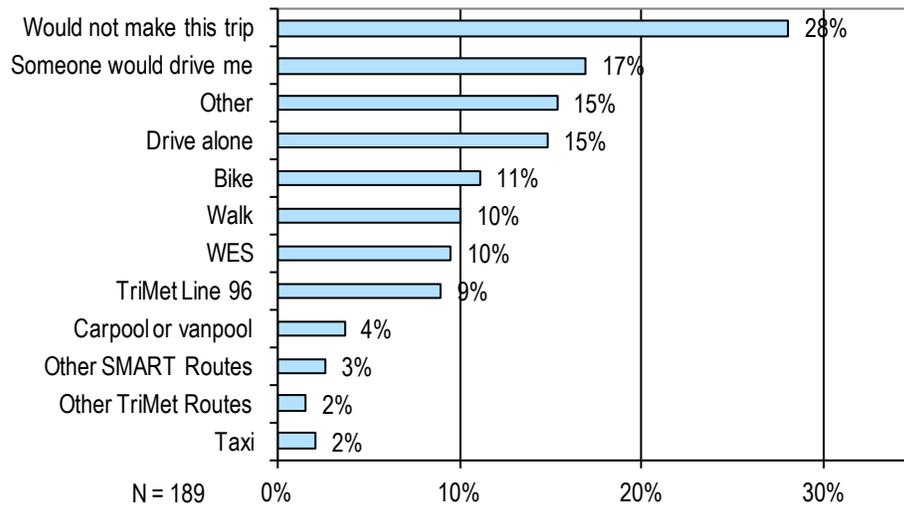
**Reliance on Transit**

When survey respondents were asked how they would have made this trip without SMART Route 2X, the most commonly cited response (28% of respondents) was that they would not have made the trip (Figure 4-15).

Seventeen percent (17%) had someone who could have driven them to their destination, and 15% would have driven alone.

Eleven percent (11%) of respondents would have biked and 10% would have walked. Others could have taken other transit modes, including WES (10%), TriMet Line 96 (9%), or other SMART or TriMet routes.

**Figure 4-15 If SMART Route 2X was not available, how would you have made this trip?**



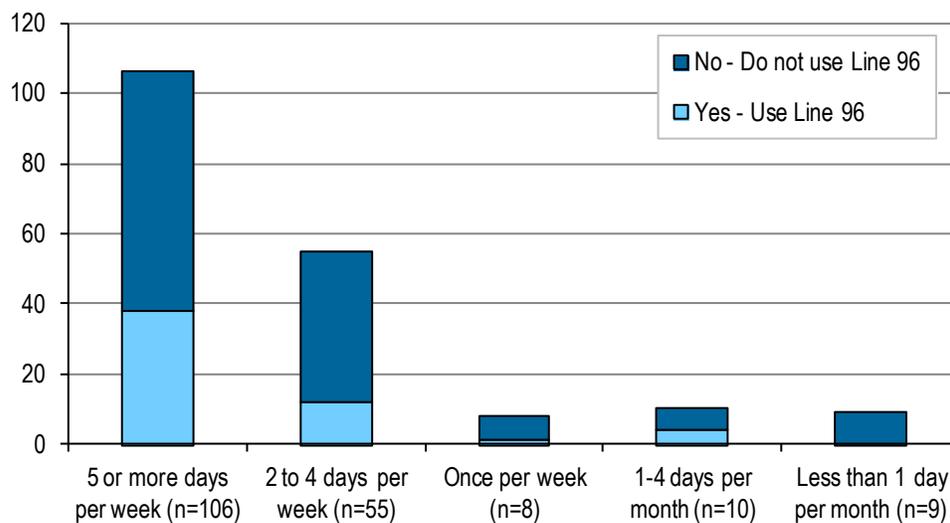
Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

In addition, only 17% of passengers had a car available to them for that trip, and another 12% could have borrowed a car but with inconvenience to others. Half of respondents have a driver's license.

### Use of TriMet Line 96

About seven out of ten survey respondents do not use TriMet Line 96, but those that do are primarily frequent SMART riders. Reasons for using Line 96 include to travel to/from Portland when times or connections are more convenient than SMART Route 2X.

**Figure 4-16 Use of TriMet Line 96 by SMART Usage Frequency**



## Route 2X Service to Other Destinations

Respondents were asked to write in their top #1, #2, and #3 additional locations the route should serve. Downtown Portland is the top #1 priority location cited by one-third (33%) of respondents who answered this question, while Portland in general was mentioned by another 9%. When all top priority responses are combined in aggregate, service to Downtown Portland was noted as a top priority location by 26% of survey respondents, and Portland in general was requested by another 12%. Beaverton generally, and the Beaverton Transit Center in particular, was also noted as a top priority by a relatively high share (10%). Specific examples and other priority locations reported by respondents are provided in Figure 4-17.

**Figure 4-17 Other Locations Route 2X Should Serve**

Location	% of Respondents	Specific Examples
Downtown Portland	26%	Stops along Barbur Blvd. enroute to downtown, MAX (generally), MAX Red Line to Airport
Portland	12%	PCC Sylvania
Beaverton	10%	Beaverton TC, SW 56th & Beaverton Hillsdale Hwy
Wilsonville (Other Locations)	6%	Wilsonville H.S., Boeckman Creek Elementary, Coffee Creek Prison
Tualatin (Locations other than P&R)	3%	Meridian Park Hospital, Shorter wait for Line 76 at Tualatin P&R
Other: Salem (3%), West Linn (3%), Lake Oswego (1%), Oregon City (1%), and Newberg/Sherwood (1%)		

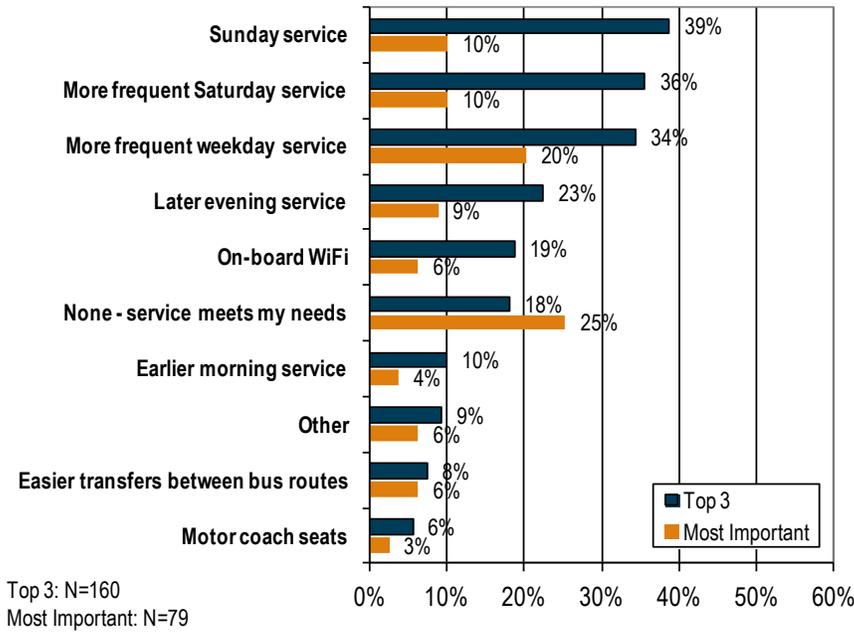
Note: N = 71

## Route 2X Improvement Priorities

The three top important improvements selected by survey respondents that would help them choose to ride Route 2X more often include Sunday service (39%), more frequent Saturday service (36%), and more frequent weekday service (34%) (Figure 4-18). Later evening service was chosen by 23% of passengers. Extending service until 9:00 p.m. would meet the needs of 30% of these respondents while service until 10 p.m. would meet the needs of 65% of these respondents.

Of respondents who identified a single most important improvement of the same set of options, 20% cited more frequent weekday service. More frequent Saturday service and Sunday service were each cited as the single most important improvement by 10% of respondents, followed by later evening service among 9% of respondents.

**Figure 4-18 What improvements would help you choose to ride Route 2X more often?**

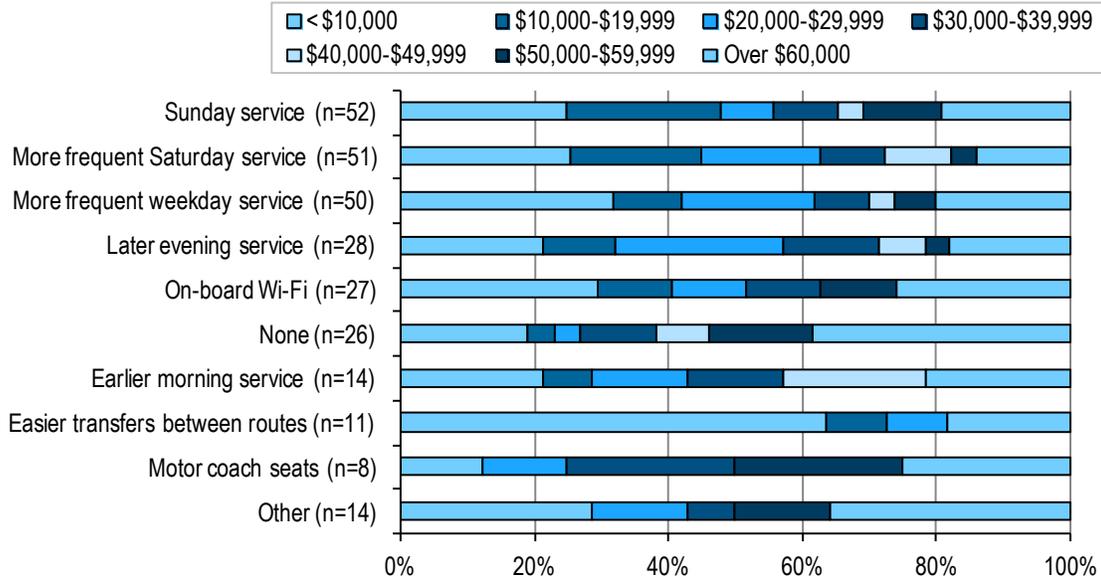


Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

Figure 4-19 illustrates improvements priorities by income category. There was generally broad support from various income categories for the overall improvements priorities for Route 2X. Interesting differences include:

- A large share of respondents in the highest income category indicated that the service meets their needs (no improvement necessary).
- A large share of respondents in the lowest income category (over 60%) wanted easier transfers between routes.

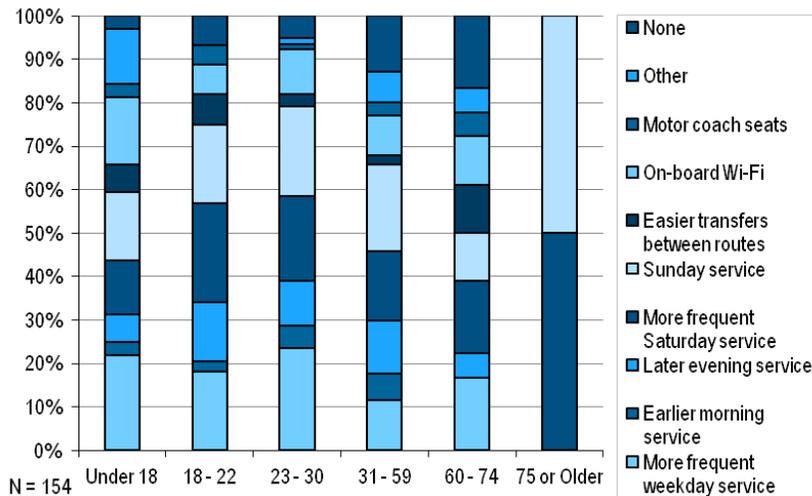
Figure 4-19 Route 2X Improvement by Income Category



N = 131

Figure 4-20 illustrates improvement priorities by age group. More frequent weekday service, more frequent Saturday service, and Sunday service received strong support from nearly all age groups. Respondents under age 30 were slightly more interested in more frequent weekday service than older age groups. Later evening service had more support by respondents age 18 to 59. On-board Wi-Fi had relatively similar levels of support across all age groups, except the oldest category.

Figure 4-20 Route 2X Improvement by Age Group



N = 154

## Additional Comments

When asked for additional suggestions to improve SMART Route 2X or about any other topic, the most common open-ended comment was an expression of gratitude for the service (28) and for the friendliness and helpfulness of the drivers (16). Figure 4-21 identifies the frequency of different categories of comments including a sample of open-ended comments. A comprehensive listing of comments is provided in Appendix B.

**Figure 4-21 Summary of Open-Ended Comments**

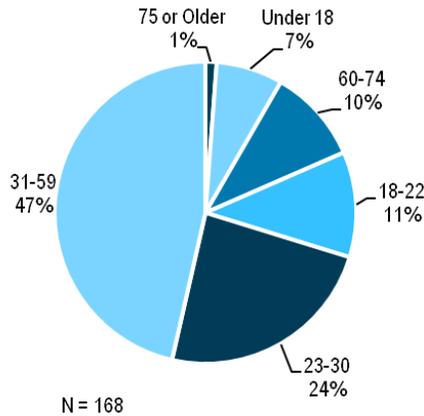
Comment Category	#	Sample Comments
Service meets needs, thank you	28	<ul style="list-style-type: none"> <li>▪ The only reason I was able to move to Wilsonville was because the bus service connects to Portland via Barbur. Young people who want to volunteer, work, or do things in Portland later in the evening or on the weekends are unable to without a car if the bus runs only earlier or not at all, or doesn't connect at Barbur.</li> </ul>
Drivers are nice and helpful	16	<ul style="list-style-type: none"> <li>▪ I have so far experienced friendly bus drivers, which makes my trip good because they have a positive attitude.</li> </ul>
More frequent, expanded hours on weekends	10	<ul style="list-style-type: none"> <li>▪ Would like service that runs late enough Saturday that I can do things Downtown Portland on Saturday night.</li> <li>▪</li> </ul>
Later service on weekdays	10	<ul style="list-style-type: none"> <li>▪ 2X is one route to new Oregon Tech and doesn't offer service out of town for late night classes.</li> <li>▪ Would like to go to concerts and be able to get back. Later in general would be good as risked missing last bus last week.</li> </ul>
Service on Sundays	7	<ul style="list-style-type: none"> <li>▪ The bus should run on Sunday, more frequently on Saturdays, and earlier on Saturdays.</li> </ul>
Service to Barbur on weekends	5	<ul style="list-style-type: none"> <li>▪ Running to Barbur on Saturday! That would be a huge help. It takes two hours and 4 different buses for me to get to work on Saturday.</li> </ul>
Service to Portland	4	<ul style="list-style-type: none"> <li>▪ Expanded service north on Barbur would eliminate my short trips on TriMet</li> </ul>
More frequent service	3	<ul style="list-style-type: none"> <li>▪ More frequent service around Wilsonville during the day so errands can be run.</li> </ul>
Service reliability, better information		<ul style="list-style-type: none"> <li>▪ Please email me and notify when it comes to heavy traffic on I-5 if necessary.</li> <li>▪ I love how consistently on time the 2X is</li> </ul>
Accept TriMet transfers	2	<ul style="list-style-type: none"> <li>▪</li> </ul>
On-board Wi-Fi	2	<ul style="list-style-type: none"> <li>▪</li> </ul>
Earlier service on weekdays	2	<ul style="list-style-type: none"> <li>▪ It would be nice to jump on MAX from 2X. I work at Costco and our shift starts at 4:30 AM. I would love to take 2X to work.</li> <li>▪ Run 24 hrs maybe every 2 hours within Wilsonville so people can get to their jobs earlier than your earliest bus</li> </ul>
Other specific suggestions	-	<ul style="list-style-type: none"> <li>▪ If 2X is not available for transfer from Wilsonville Station to Rockwell Collins, please start #6 earlier. Thank you.</li> <li>▪ (Provide) a bus from Canby to Wilsonville at 3:00.</li> <li>▪ Allow the 96 to go to SW Parkway and the Wilsonville WES station</li> </ul>

## Respondent Demographics

The following section describes some basic demographic features of the on-board survey sample.

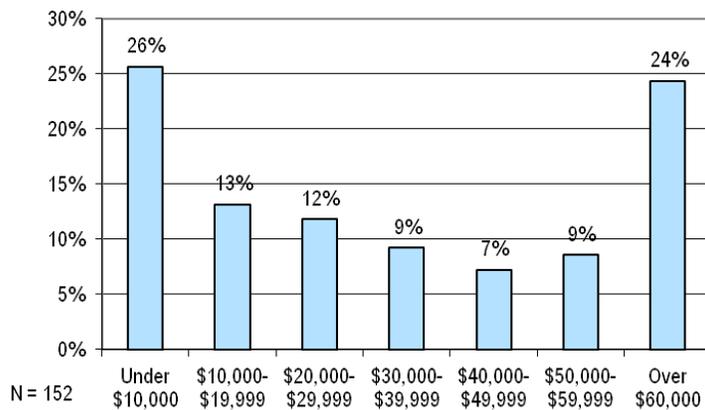
The largest share, nearly half, of survey respondents are between the ages of 31 and 59 (Figure 4-22). Almost one-quarter (24%) are age 23 to 30, and 11% are age 18-22. Seven percent (7%) are under age 18. Ten percent (10%) are age 60-74 and 1% are 75 years of age or older. More men than women make up the survey sample; 62% of survey respondents are male.

**Figure 4-22 What is your age?**



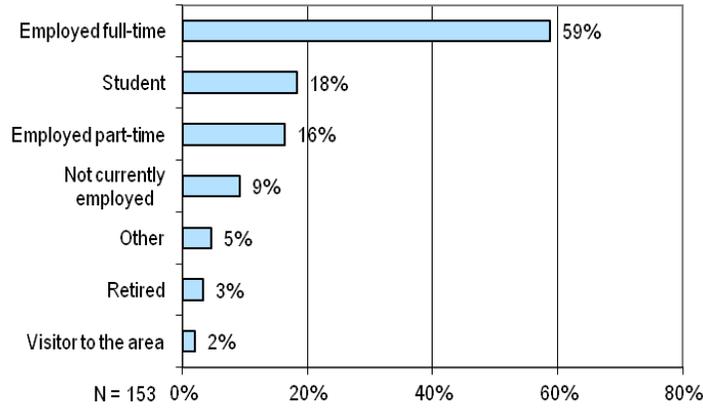
In terms of household income (before taxes), half of the survey respondents are split at the highest and lowest ends of the income spectrum. Just over one-quarter (26%) of respondents have a total household income of under \$10,000 per year, and just under one-quarter have an income of over \$60,000 per year (Figure 4-23). The rest are distributed throughout the income categories in between, with slightly more in the lower categories.

**Figure 4-23 What is your total household income (before taxes)?**



Nearly 60% of survey respondents are employed full-time, 16% have part-time employment, and 9% are not currently employed (Figure 4-24). Eighteen percent (18%) of survey respondents are students.

**Figure 4-24 What is your employment or student status?**



Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

## Online Survey: TriMet Line 96

From mid-May to mid-June 2013, riders on TriMet Line 96 with Wilsonville as their origination or destination were asked to participate in an online survey. The Line 96 survey questions were similar in nature to those asked of the Route 2X passengers. Administered through the SMART website, the survey had a total of 88 participants. Of the responses, a total of 61 participants who made connections to or from Wilsonville were determined to be germane to this study (based on origin/destination locations provided by the survey respondents). Respondents included some passengers approached at Tualatin Park & Ride.

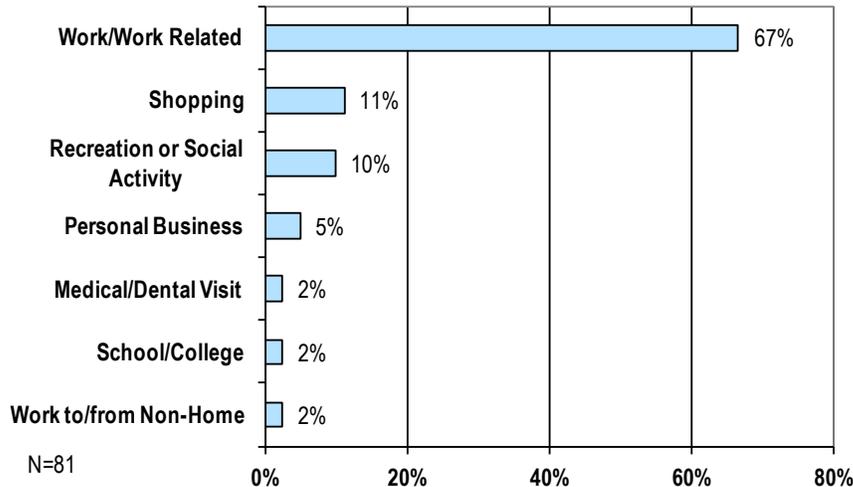
TriMet's Line 96 runs on weekdays between Portland City Center and SMART Central making connections along the I-5 corridor at the Tualatin Park & Ride at SW 72<sup>nd</sup> & SW Bridgeport Avenue and SW Martinazzi & Mohawk in Tualatin.

The online survey followed a similar format to the Route 2X on-board survey. The survey asked questions regarding riders' trip origin and destination, mode of travel to/from the bus, how often they ride transit, how long they have been riding transit, how they would make the trip without Line 96, and what transit improvements they most valued. Basic demographic questions were asked.

### Trip Purpose

Of the eligible survey respondents, about two-thirds of passengers were making a trip from or to Wilsonville for a work, or work-related, reason. Other major trip purposes were traveling to or from shopping (11%), a recreational or social activity (10%), and personal business (5%). Figure 4-25 highlights the principal reasons for people's trips.

Figure 4-25 What is the purpose of your trip?



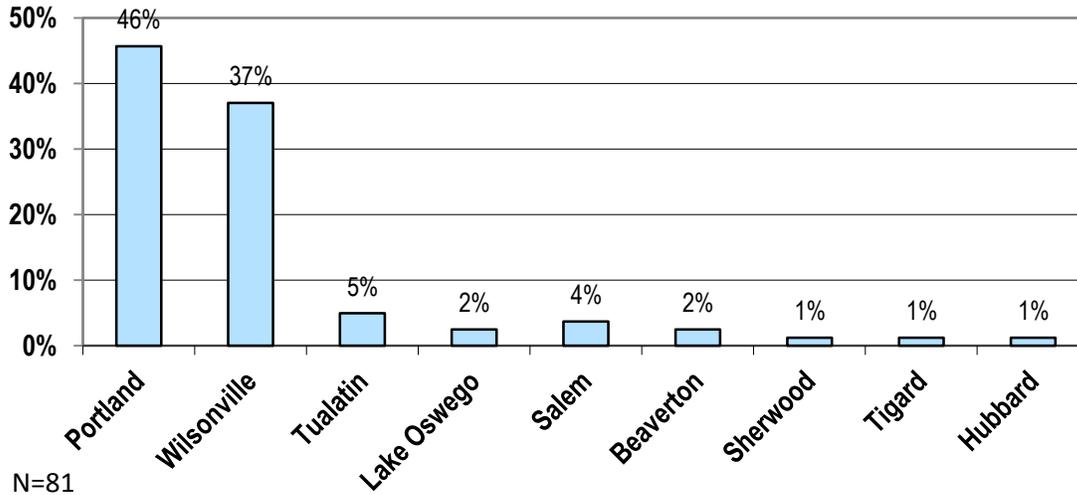
Note: Trip purpose was determined based on respondents who provided non-home trip purpose information on at least one end of their trip.

### Trip Origin/Destination

Figure 4-26 illustrates respondent origin-destination patterns. Most survey respondents use Line 96 for travel between Wilsonville and Portland (combined 83%). A small share of respondents use

Line 96 for travel to Tualatin (5%) and Salem via Wilsonville (4%). Sixty-percent (64%) of survey respondents said that they were making a round trip on the bus.

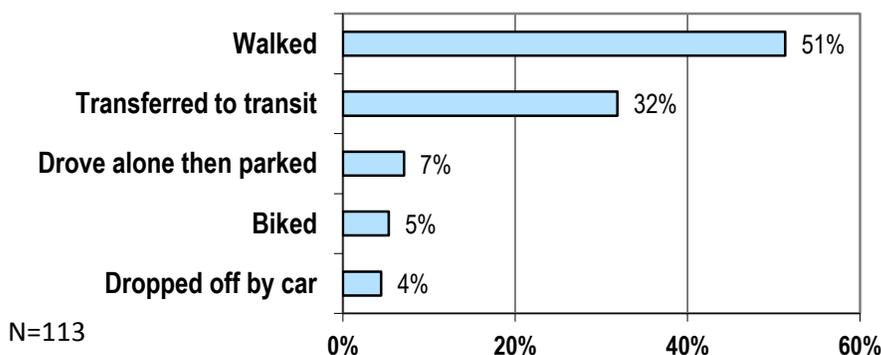
**Figure 4-26 Origins and destinations of eligible Line 96 passengers**



**Access To/From Line 96**

To connect to Line 96 and from the bus to their destination, more than half of the respondents (51%) walked. The next most popular means of connecting was through a transfer, with 32% of passengers reporting this as their means to or from the bus stop. Seven-percent (7%) of respondents drove alone, 5% biked, and 4% were dropped off by car (Figure 4-27). Passengers that transferred from transit used a variety of bus lines people to access Line 96.

**Figure 4-27 How did you get to or go from the bus?**



Survey respondents were asked to list the transit route they transferred from; overall 45 transfers were indicated. The most common line to transfer from or to was TriMet WES with 8 responses (18%), the second most common were SMART Route 2x and TriMet Line 12, both with 6 responses (13%). Figure 4-28 identifies the bus lines used to transfer to/from Line 96.

**Figure 4-28 Transfer routes to/from Line 96**

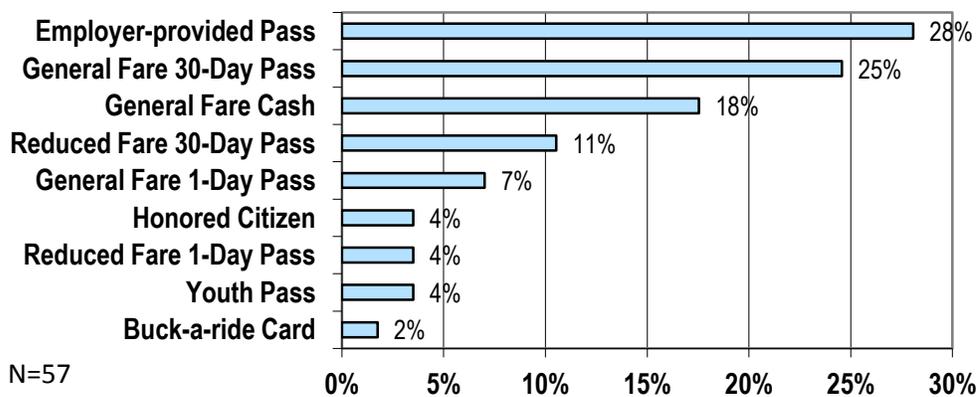
Route	# of Respondents	%
WES	8	18%
SMART Route 2X	7	13%
TriMet Line 12	6	13%
SMART 5	4	7%
TriMet Line 76	2	4%
MAX: Red, Blue, Green	7	14%
Other TriMet Bus Lines: 10, 14, 15, 17, 44, 57, 62	7	14%
Other SMART Routes: 1X, 2, 3, 5	4	8%
<b>TOTAL</b>	<b>45</b>	<b>100%</b>

Note: includes non-Wilsonville originated/destined riders

### Fare Payment

Passengers paid for their trip by a variety of means. The majority of respondents held some form of a monthly pass (64%). The most common form of payment was an employer-provided pass (28%). The next most common means of payment was a general fare 30-day pass (25%) followed by a general fare cash payments (18%). Figure 4-29 illustrates the variety of ways passengers paid for their trips.

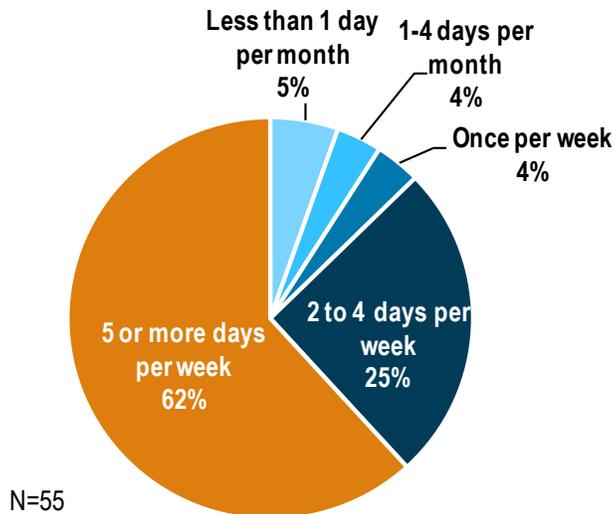
**Figure 4-29 Means of fare payment on Line 96**



### Line 96 Usage Patterns – Frequency of Use

Overall, survey respondents were frequent transit users. Sixty-two-percent (62%) of respondents used transit five or more days per week, 25% used transit two to four days per week, and 5% used transit less than one day per month. Figure 4-30 shows the frequency of ridership of Line 96 survey respondents.

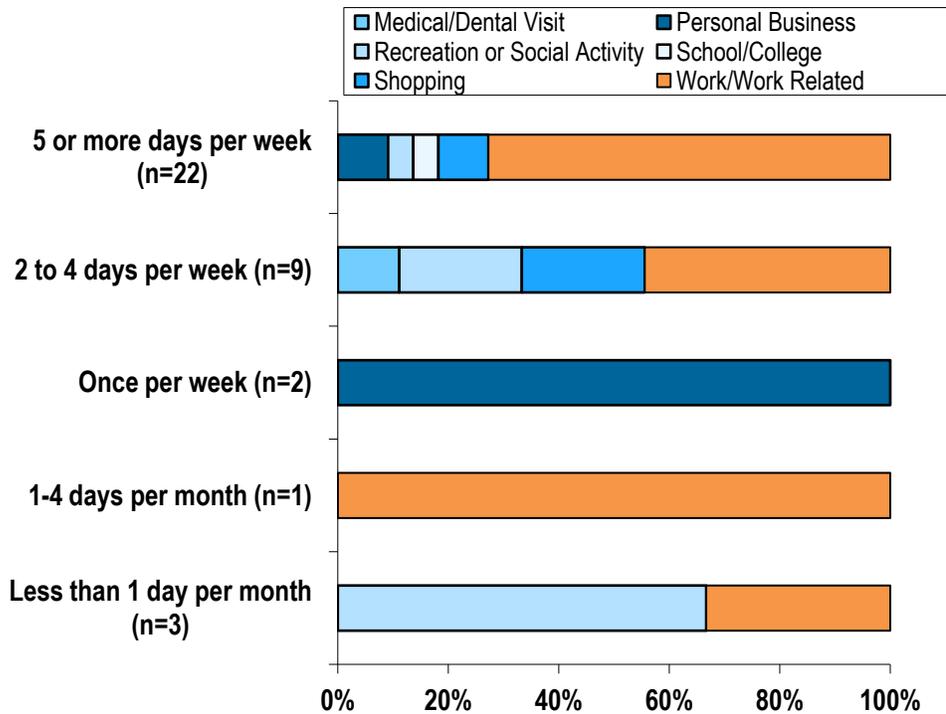
Figure 4-30 Frequency of transit ridership



### Line 96 Usage Patterns – Trip Purpose

As noted above, most passengers rode Line 96 for work or work-related purposes. Figure 4-31 shows a breakdown of ridership frequency and trip purpose. The figure shows that the principal reason for the most frequent passengers was for work or work related travel—nearly three-quarters of 5-day a week riders. Forty-four percent (44%) of riders who use Line 96 between two and four days per week use it for work or work-related travel, but the majority (56%) of these riders use it for non-work trip purposes.

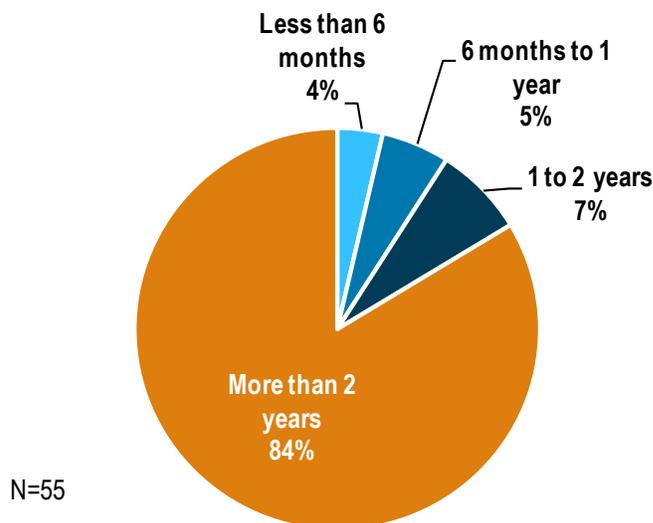
Figure 4-31 Trip purpose by the frequency of ridership



**Line 96 Usage Patterns – Time Span of Use**

In addition to being frequent transit users, the majority of survey respondents were also long time transit users. Eighty-four percent (84%) of survey respondents noted that they have been riding transit for more than two years. New transit riders make up only a small share of survey respondents.

Figure 4-32 How long respondents have been riding transit



The majority of survey respondents had a car available to them (56%); for 16% the car was only available with inconveniences to others, and 44% did not have a car available to them. Of the survey respondents, most had a driver's license (87%).

Without Line 96, survey respondents would have made the trip in a variety of ways. About a third (32%) would have taken WES and about a quarter (26%) would have driven alone. About 18% of respondents would have used SMART Route 2X and almost as many (16%) would not have made the trip. Only 4% would have used a carpool or vanpool, 2% would have been driven by someone else, and 2% would have biked.

### **Alternate Use of Route 2X**

Survey respondents were asked if they ever take Route 2X and, if yes, under what circumstances. Of the respondents with origins or destinations in Wilsonville, 57% did not take the Route 2X. Common reasons that the remaining 43% did take the Route 2X included:

- “I take [Line 96] to Commerce Circle two times a week when I stay late at work”
- “I wanted to try [Line] 96 to get back to Wilsonville directly”
- “I’m aware of [Route] 2X, but think there is [too] much time between transfers and the Line 12 to Barbur [takes too] long”
- “Usually take [Route] 2X, but sometimes [Line] 96 gets me to destination quicker depending on time of day”

### **Service to Other Destinations**

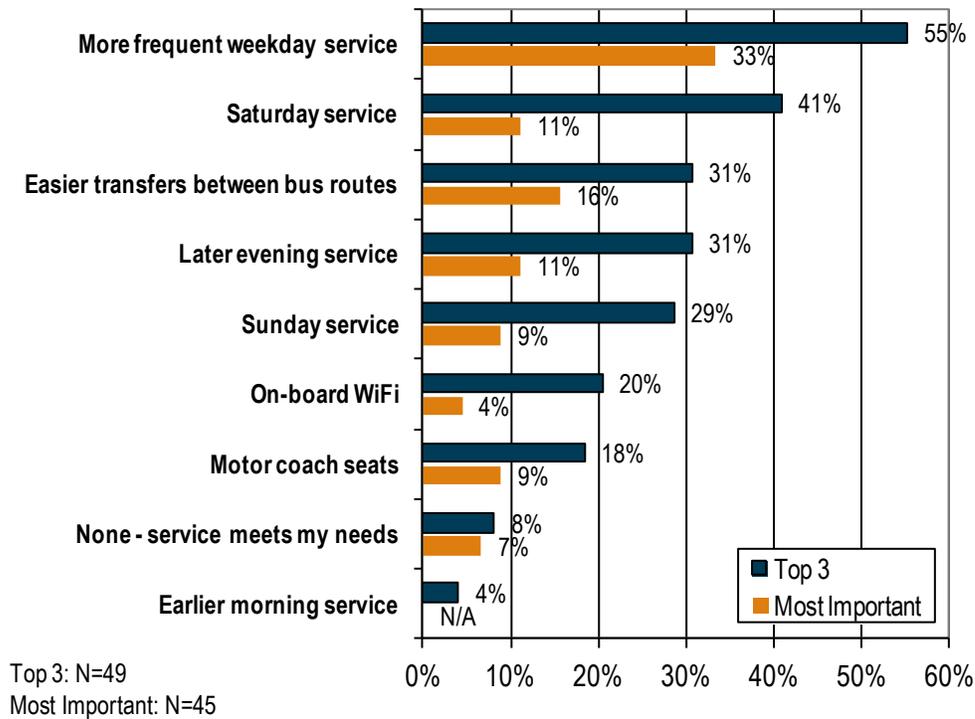
Respondents were asked to prioritize up to three locations in the Portland region where they would like to have a single-seat ride (i.e., no transfer required); thirty-four survey respondents identified locations. By far the most popular priority location was a single-seat trip to Downtown Portland (50%) followed by Portland State University (9%), Lloyd Center (9%), and OHSU (9%). Other priorities included Beaverton, SE Portland, and Barbur TC on weekends. In ranking a secondary location there were fewer total responses (21), with Downtown Portland being the most common (29%). Downtown Beaverton and Clackamas Town Center followed Downtown Portland, both identified by 14% of respondents. Thirteen respondents identified a tertiary location. While there was no clear common choice, respondents identified Clackamas Town Center (15%) and Downtown Portland (15%) as locations to which they would like a single seat ride.

### **Suggested Service Improvements**

Survey respondents were asked to choose three improvements that would help them ride transit more often. Figure 4-33 summarizes all of the improvements that survey respondents identified, indicated in blue. When prioritizing three improvements the most common responses were more frequent weekday service (55%) and more frequent Saturday service (41%). Easier transfers and later evening service were each identified by 31% of respondents. Two improvements, earlier morning service (2%) and later evening service (13%), prompted people to identify what times they would prefer service to begin and end. Service as early as 5 a.m. and as late as 10 p.m. would serve the needs of most respondents who identified these improvements as priorities.

Survey respondents were also asked to identify the most important improvement that would help them choose to ride transit more often, indicated in orange in Figure 4-33. One-third (33%) of respondents stated that more frequent weekday service would encourage them to ride transit more often. The next most common response was easier transfers between bus routes (16%).

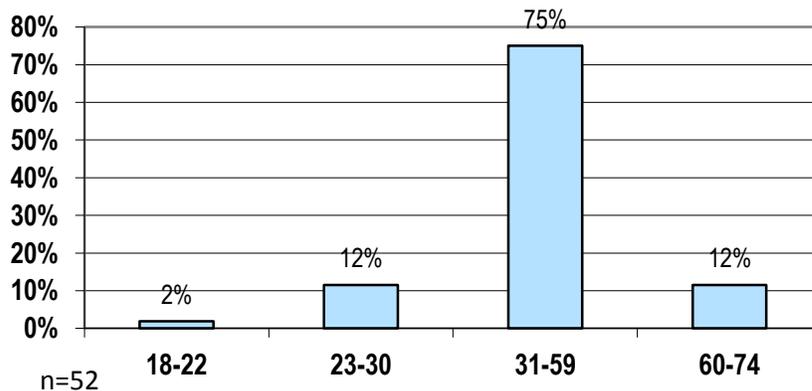
Figure 4-33 Top 3 and most important improvements that would help respondents ride transit more



### Line 96 Online Survey Demographics

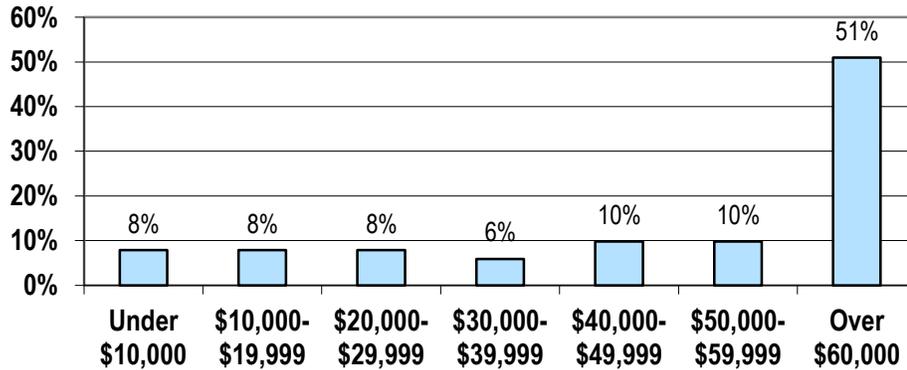
Survey respondents were asked basic demographic questions to aid in understanding the profile of riders on Line 96. Overwhelmingly, the most common age bracket for Line 96 survey respondents was between 31-59 (75% of respondents). Shouldering that age bracket, both the 23-30 and 60-74 age brackets had 12% of survey respondents. Figure 4-34 illustrates the breakdown of survey respondents by age. By gender, survey respondents were evenly distributed, 50% female and 50% male.

Figure 4-34 Age of survey respondents



The majority (51%) of survey respondents fell into the highest available income bracket on the survey, having a household income of over \$60,000. The \$40,000-\$49,999 and \$50,000-\$59,999 income brackets followed, both with 10% of respondents. Figure 4-35 displays the distribution of income brackets of survey respondents.

Figure 4-35 Household incomes of respondents



n=51

Two-thirds of survey respondents (67%) were employed full-time followed by 13% of respondents who were employed part-time. Five-percent (5%) of respondents were not employed.

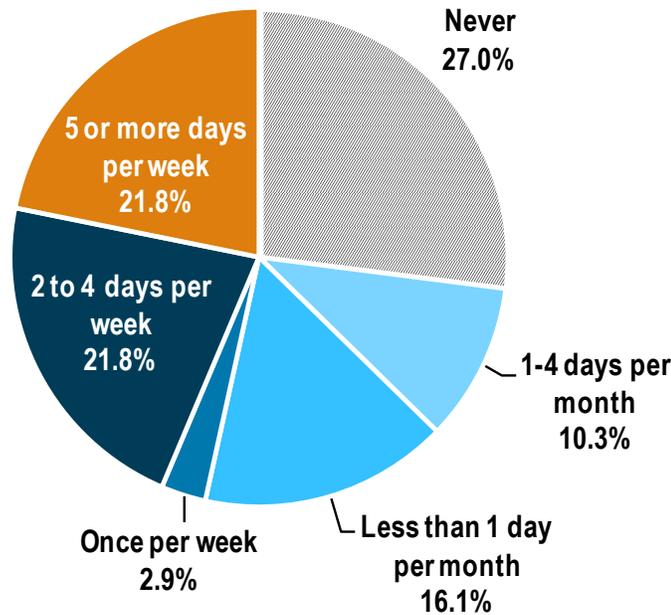
## COMMUNITY ONLINE SURVEY

During April-June, 2013, a “general” community survey was conducted to solicit input on the project, with a total of 174 responses received – an excellent response rate for a self-administered survey. The survey was developed using SurveyMonkey and promoted via the project website hosted on the SMART website. To encourage response, a drawing was advertised to win one of the four \$75 gift certificates to be provided by the City. The following sections summarize the community inputs via this survey. Appendix C provides additional detail on the open-ended questions.

## Use of SMART

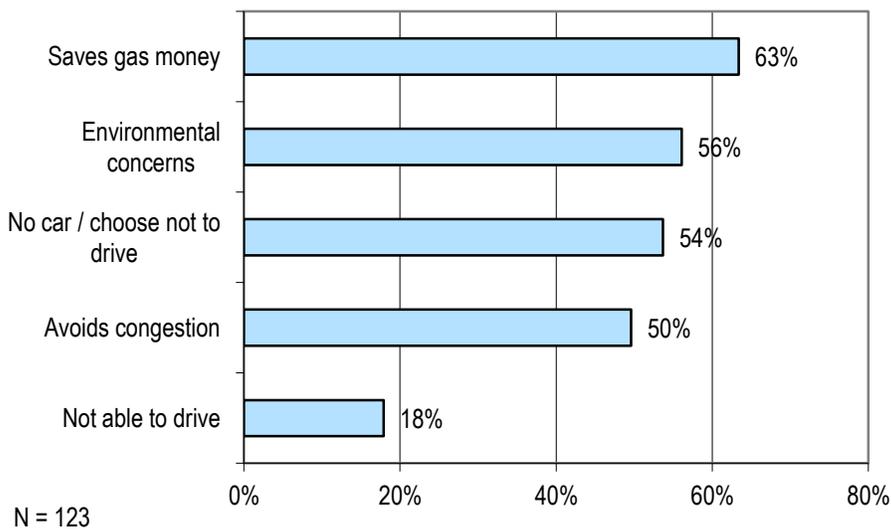
Almost half the respondents use SMART transit service at least once per week (see Figure 4-36), with almost one quarter being daily (week day) riders accessing employment sites in Wilsonville.

**Figure 4-36** In the past year, how often have you used SMART transit scheduled (fixed route) and/or Dial-A-Ride (door-to-door) services?



As illustrated in Figure 4-37 those that do use SMART’s transit services do so for financial reasons (saves money), to avoid congestion, because they have no car or choose not to drive, and for environmental reasons—all these reasons being relatively equal among respondents.

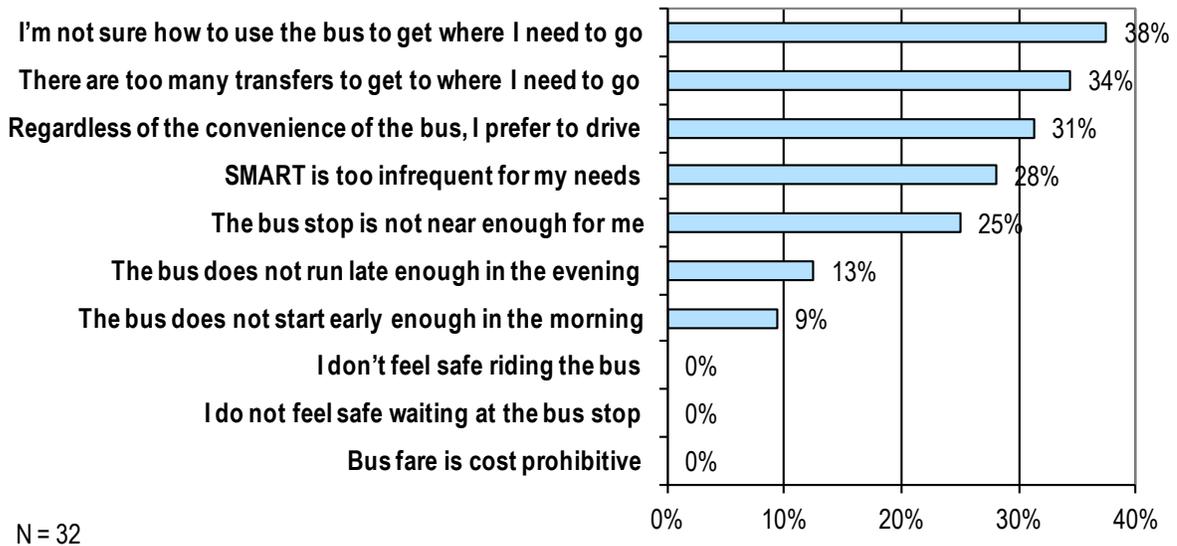
**Figure 4-37** How important are the following factors in your decision to use SMART?



Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

Those who do not ever or rarely use SMART transit indicate that the frequency, location and convenience of service are the primary limiting factors (see Figure 4-38). Interestingly, over one-third of the respondents do not use SMART transit because of lack of awareness of routes/areas served. Cost is not cited as a limiting factor. When providing comments, multiple respondents cite long travel times on transit and the focus on employment transit services (limited stops and schedules).

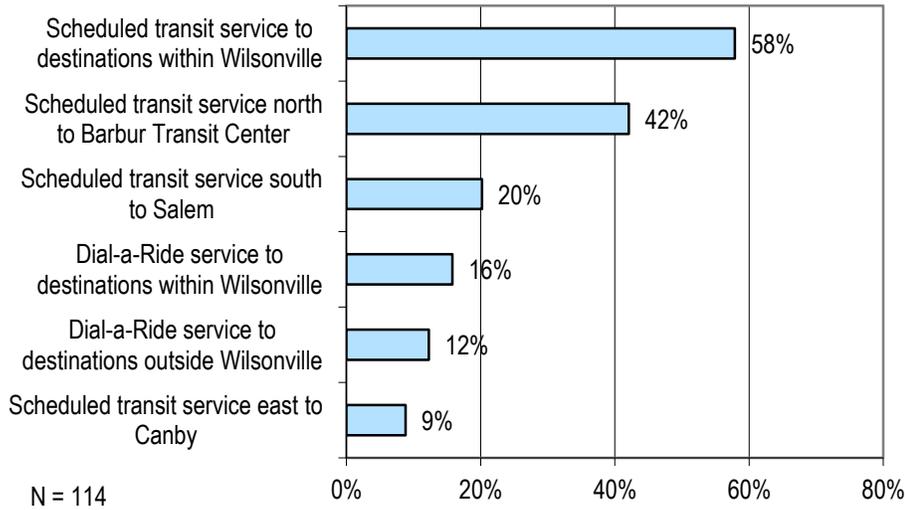
**Figure 4-38** If you indicated that you never or rarely ride SMART, please indicate which factors impact your decision to not ride at this time?



Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

Use of fixed-route transit services is strongest both within Wilsonville and to/from Barbur Transit Center (see Figure 4-39), with significant use of service to the south to/from Salem. Dial-a-ride service use is evenly split within and outside of Wilsonville.

**Figure 4-39 What SMART services do you most frequently use?**

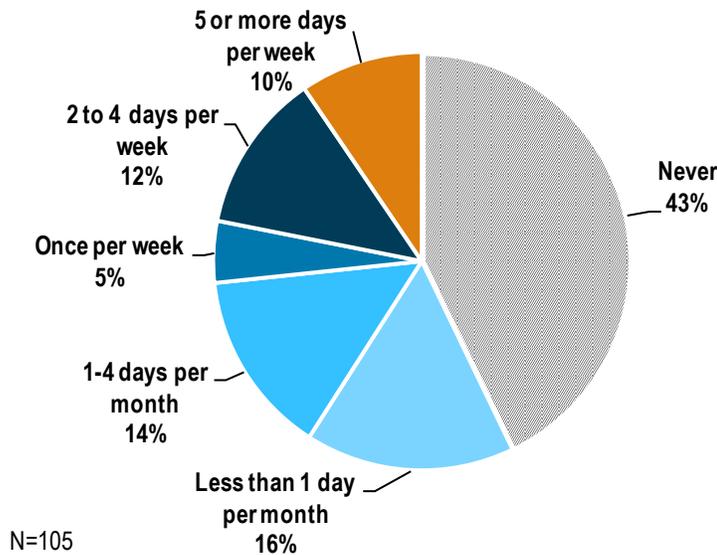


Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

## Use of SMART's 2X Route

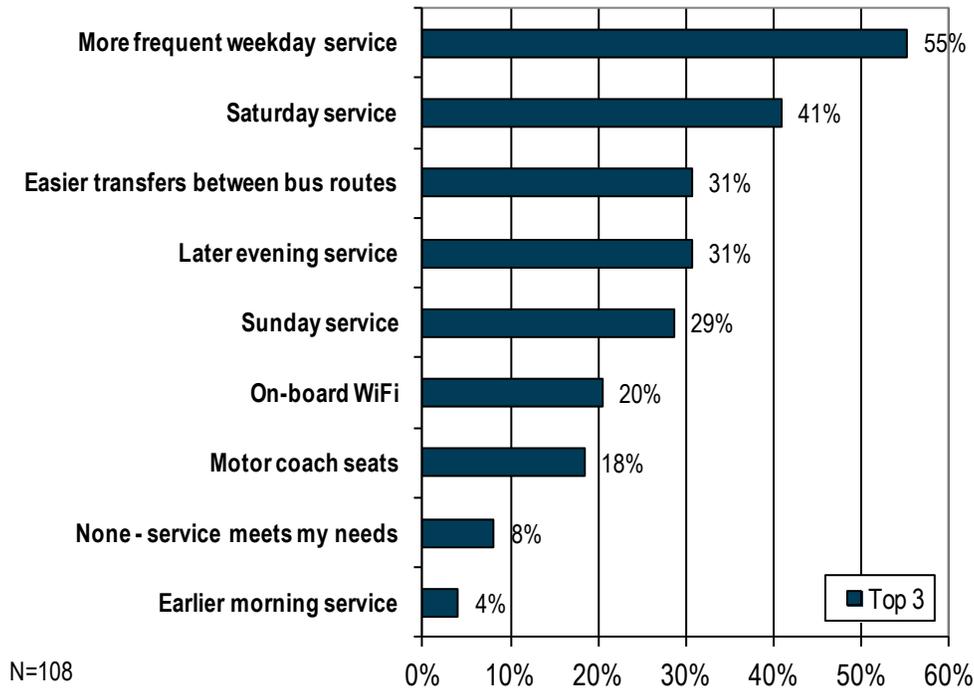
Over 40% of those responding do not use Route 2X, while approximately one-quarter use it at least once per week (see Figure 4-40).

**Figure 4-40 How often do you ride SMART's Route 2X?**



Respondents would be more likely to use the route or use it more often if there were more frequency and expanded hours of service, expanded Saturday service and institution of Sunday service (see Figure 4-41). Earlier morning service was not a priority among respondents. A number of respondents provided unsolicited suggestions for service to Downtown Portland when answering this question.

**Figure 4-41 What improvements would make you more likely to use Route 2X or use it more often?**

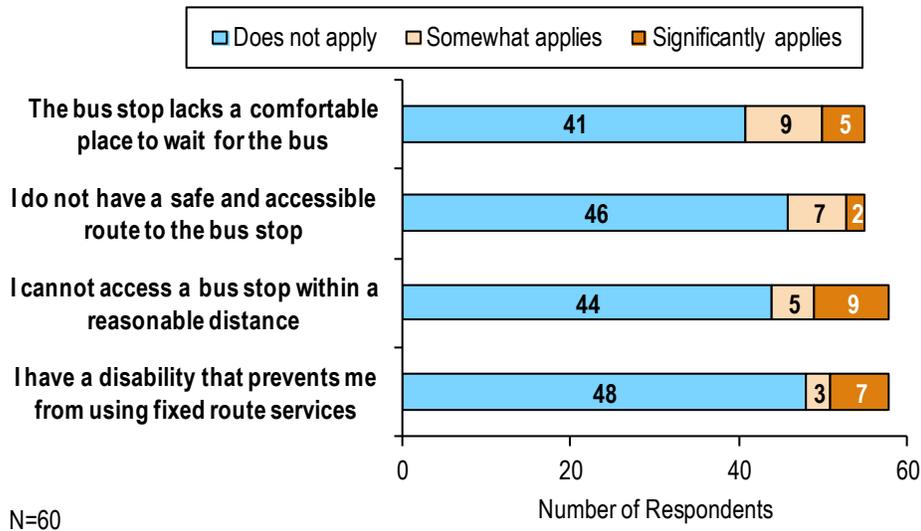


Note: Respondents could choose more than one answer, so percentages do not add up to 100%.

## Use of Dial-a-Ride Services

DAR users infrequently cited limitations to using fixed route buses when indicating why they choose the demand response service (see Figure 4-42). Since a significant majority of those responding indicate that the factors cited did not apply along with some of the comments received, users may use DAR to complete trips not available via fixed route, or do not perceive their limitations as a disability. The combination of answers and comments suggests that convenience is a key factor influencing use of Dial-a-Ride rather than fixed-route service.

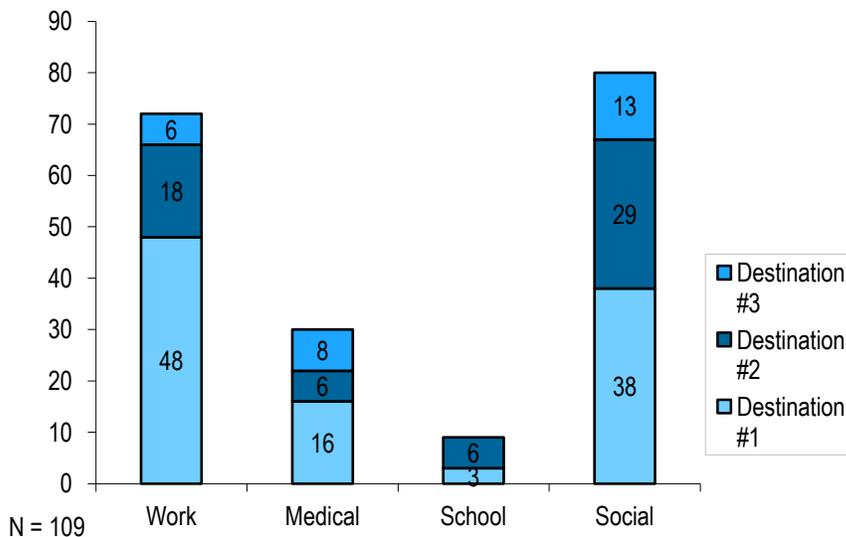
**Figure 4-42** How do each of the following factors influence your decision to use Dial – A – Ride instead of the fixed route bus?



### Potential New Locations for SMART Services

While a wide variety of destinations are identified, shopping and medical services in Downtown Portland are the most desired destinations for users of fixed-route bus service. Transit centers, light rail, train station, and educational institutions are also popular destinations. Access to Eastside services, specifically County services in Oregon City, is also desired. These destinations are primarily for work and social purposes, with medical purposes a distant third priority.

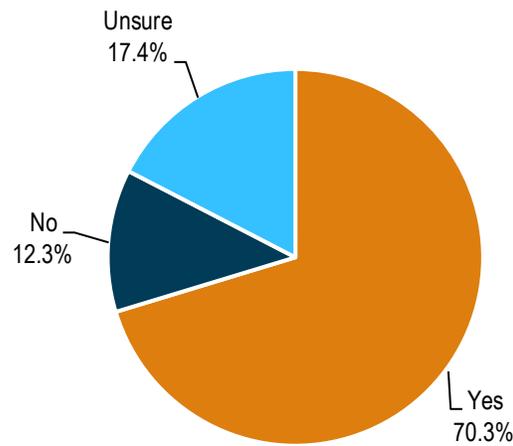
**Figure 4-43** What type of destination(s) are the options you provided?



## Support for Additional Local Funding

As highlighted in Figure 4-44, there is very strong support for additional local funding for improvements to SMART services to the previously identified. Some comments indicate support for increased fare to provide the local funding. In general, the comments suggest strong support for public transportation and a desire to ensure the continuation of what is perceived to be excellent service by SMART.

**Figure 4-44** Would you support additional local funding for SMART services to provide the improvements or service to additional destinations that you identified?

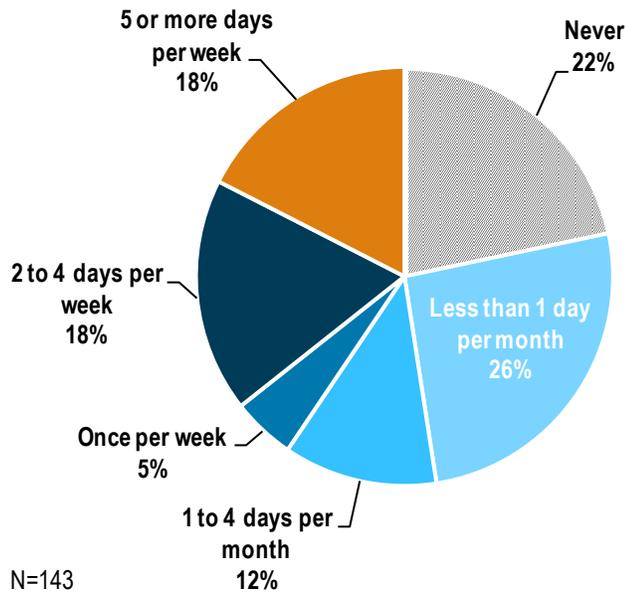


N = 138

## Use of Other Public Transportation Services

Approximately 40% of respondents are regular (at least once per week) users of other public transportation services in the greater Portland area.

**Figure 4-45** In the past year, how often have you used TriMet WES, buses, or MAX?



## General Comments

When asked if they had any additional comments, respondents provided nearly 100 inputs. Most of the feedback expresses gratitude for the available services and commendations for SMART staff. Respondents offered a number of suggestions for increased service levels at a variety of times and to a variety of destinations. A comprehensive list of these comments is provided in Appendix C.

## Respondent Demographics

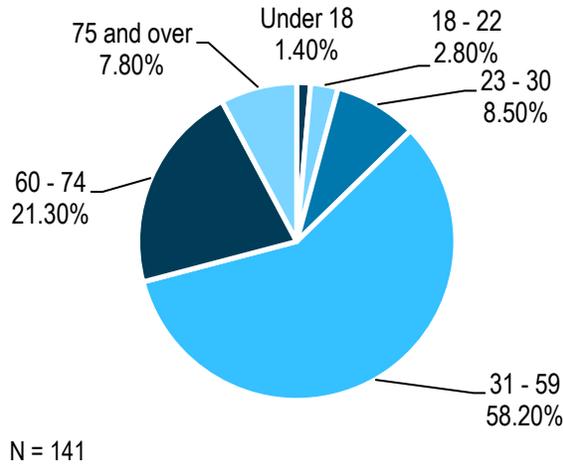
A majority of the respondents provided a Wilsonville-based home zip code but inputs were received from across the region. Figure 4-46 highlights the top home locations.

**Figure 4-46** Respondent Home Zip Codes

Zipcode	City	Respondents	Percent of Total
97070	Wilsonville	81	58%
97219	Portland	6	4%
97201	Portland	5	4%
97008	Beaverton	3	2%
97013	Canby	3	2%
97062	Tualatin	3	2%
97209	Portland	3	2%
97224	Portland/Tigard/King City	3	2%
97301	Salem	3	2%

Figure 4-47 through Figure 4-50 highlight that the respondents represent a variety of age groups, generally do not have mobility limitations and cover a range of income brackets.

**Figure 4-47 What is your age?**



**Figure 4-48 Do you have a disability which prevents you from using fixed route services?**

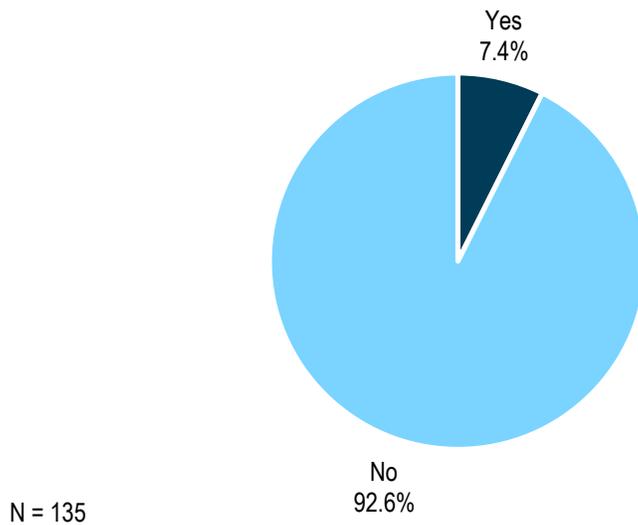


Figure 4-49 If yes, type of disability?

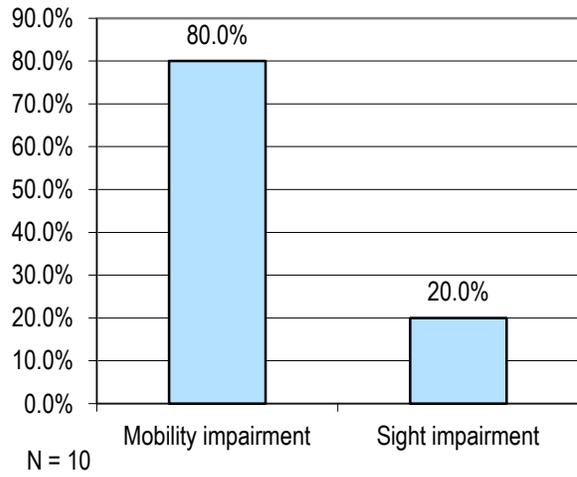
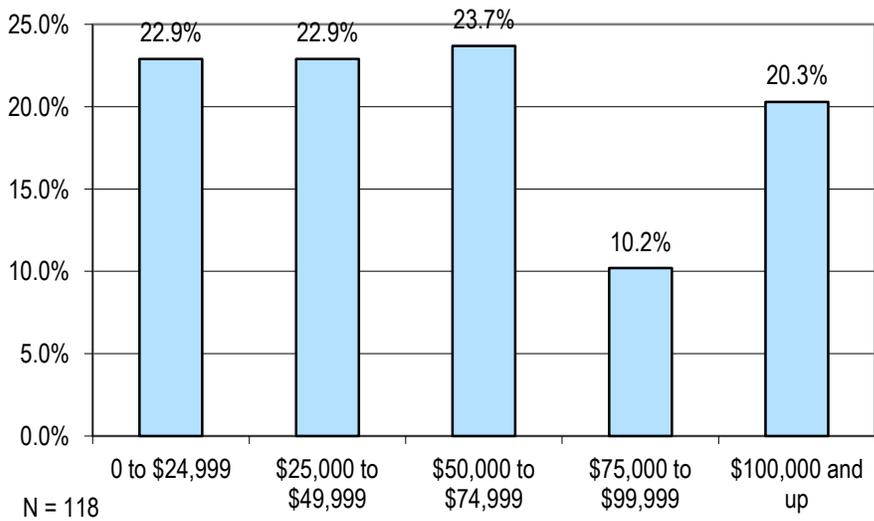


Figure 4-50 What is your income range?



## **STAKEHOLDER INPUTS**

A total of 18 in-person or telephone interviews were conducted with key partners and stakeholders. Interviewees included three representatives of human service providers for seniors and mobility-challenged, two transportation service providers (i.e. TriMet, Ride Connection), five major employers in Wilsonville, five representatives of potential new service destinations, and two public agencies. The goal of the interviews was to inform partners and key stakeholders of the project, obtain input to inform the needs assessment, identify other potential partners and interested parties, and begin to identify service delivery options.

Potential interviewees were initially identified by SMART staff and the consultant team. A personalized letter from Stephan Lashbrook, Transit Director, provided project background and solicited participation in the interviews. Interview questions were tailored to the particular audience and results were recorded with attribution to encourage candidness. Interview results are compiled in Appendix D and summarized below. Figure 4-51 identifies each of the contacted stakeholders.

In addition, a presentation was made at a Wilsonville Community Seniors, Inc. meeting to inform them of the project and to solicit input on senior travel needs. The project team also presented a project overview to the City's Community Development Team, and engaged staff in a group discussion around questions related to future transit demand, potential destinations for future service outside of Wilsonville, and opportunities and constraints for integrating special needs transportation with fixed-route services in the I-5 corridor. Summary notes from the staff discussion are included in Appendix D. SMART staff also provided an update on the project at a City Council work session.

**Figure 4-51 Stakeholder List**

Interviewee	Affiliation
Human Service Providers	
Cindy Becker	Clackamas County Health, Housing & Community Services – Social Services Division
Mary Beth Taennler	Marquis Care Center
Anna Bourne	Springridge Court
Transportation Service Providers	
Tom Mills & Jeff Owen	TriMet
Julie Wilcke and Elaine Wells	Ride Connection
Major Employers/Academic Institutions	
Bill Chown	Mentor Graphics
Joyce Sorlien	Precision Interconnect/Tyco Electronics
Scott Sloat	FLIR Systems
Mateo Aboy & Abbie Allan	Oregon Tech
Jillene Jensen	Stream Global Services
Potential New Destinations	
Pete Collins	South Waterfront TMA
John Landolfe	Oregon Health Sciences University
Dusty Johnson	Providence / St. Vincent
Jeffrey Davis	Veterans Affairs
Paul Smith	City of Portland / Portland Bureau of Transportation
Ian Stude	Portland State University
Public Agencies	
Sherrin Coleman	Oregon Department of Transportation – Public Transit Division
Elissa Gertler & Matt Bihn	Metro
Teresa Christopherson	Clackamas County (interviewed at same time as Cindy Becker)

## **Major Stakeholder Findings**

The findings discussed in this section are based on the comments and opinions of the stakeholders interviewed. The findings are not reported as facts, but rather as key themes that were related to the project team by invited stakeholders. It is also important to note that these interviews may not represent the sentiments of all potential stakeholders, only those that were interviewed.

### **General Comments**

Given that interviewees were selected based upon some assumed connection to SMART or other regional transit services, a high awareness of SMART service was expected and confirmed by the interviews. Of note was the general lack of awareness that SMART provides medical trips outside of Wilsonville, except by those involved in serving seniors and persons with disabilities.

When asked to identify SMART’s strengths, connections to other transit services, convenience of service, and service to seniors and persons with disabilities were cited. “They believe in universal access – their service is designed as much as possible, for people regardless of physical, mental, or economic disadvantage; not trying to segregate parts of the population.” Improvements identified generally relate to expanded hours of operation, more service during peak periods, and more access to medical appointments outside of Wilsonville.

(Note: Both TriMet and Ride Connection representatives were interviewed as transportation providers. However, comments are incorporated into Public Agency and Elderly-Disabled Community responses below rather than in a separate section.)

### **Major Employers**

Major employers in Wilsonville draw employees from a wide commute shed extending from Salem to Vancouver, WA, with a notable component from Washington County. Employers did not anticipate significant changes in commute patterns over the next 5-10 years, although additional use of transit by students to the area’s educational institutions is expected. In addition, new employers who move in to both existing and newly developed employment areas may have unique commute patterns and demand for transit, exemplified by Stream Global’s move to Wilsonville (see above).

Subsidizing transit passes was identified as the primary approach to meet state requirements related to reducing single-occupant vehicle use.

Free parking is identified as a disincentive to transit use by employees. There are attitudinal constraints as well: “The company tends to be relatively high-paying, so people are in possession of their own vehicles and drive to work. There is a mental picture that “we aren’t the people who use public transportation”. Other disincentives cited include:

- A large group of employees drop kids off at day-care and they need their vehicle in case of emergencies.
- Employees working a multiple of shifts starting or ending at times when transit is not available.

For those employers with limited parking, transit is of high value. “We have huge parking constraints; with our move, we will be decreasing the amount of parking available for employees. Public transit ridership will be key to addressing this issue.”

Expanded hours of operation, discounted fares, more convenient service and safety generally are identified as needed to make transit use more attractive to employees. “The only reasons we hear for not using transit is the number of connections that have to be made. Services that provide fewer connections might have more success.” The lack of supportive commercial services in close proximity, e.g. restaurants, is also cited as a disincentive.

When asked what options SMART should explore to finance expanded transit services to businesses, business representatives responded, it was suggested that SMART make a better return on investment pitch -- what’s the cost of employees using vehicles versus using transit.

Using established points of contact is cited as the best way for SMART to outreach to business employees.

### **Elderly and Disabled Community**

Because of increasing physical challenges associated with aging, local senior and disabled population representatives indicate that use of SMART services by the elderly and persons with disabilities in Wilsonville has been declining, i.e., as disabled populations age they tend to require more specialized transportation, e.g., MetroWest. The greatest demand for services is for medical/dental appointments, primarily in Tualatin, Wilsonville, Tigard and Portland. While there is demand for medical trips to Portland facilities, demand for recreation and supportive services is generally outside of Portland, as there is a reluctance to go downtown. Providers note that there is good access to support services such as grocery shopping within Wilsonville.

County offices in Oregon City are identified as a key destination for expanded services. Access to dialysis treatment centers is another need. Access to job placement sites for persons with developmental disabilities is particularly challenging due to their locations.

Transit use (fixed route or Dial-a-Ride) would be more attractive to seniors and persons with disabilities if there were increased frequency of and more convenient access points to services. For paratransit, barriers include timing issues for transfers and amenities at stops. “What’s needed is a seamless transfer system to go from one vehicle to the next without significant delay in service.”

To integrate special needs transportation with fixed route services in the I-5 corridor, interviewees suggest larger vehicles, travel training and timely connections. Services in the Wilsonville-Portland I-5 corridor that would be most beneficial to seniors and persons with disabilities include more reliable connections among medical facilities and standard service improvements such as: “having stops and routes go near areas where low income populations live, stops close by, services operating at hours useful to people, good transfers without waiting, and basic amenities available at bus stops.”

Connectivity is most important to primary transit centers like Barbur rather than direct service to Downtown Portland. “While direct connections to medical facilities and entertainment centers would be nice, they may not be best use of resources.” It is suggested that accessing hubs (Barbur Transit Center, Clackamas County Services Center, OHSU) would make more sense than SMART expanding its service area. “Beef up what exists, especially for dialysis and medical visits.” It is also suggested that SMART explore partnerships with other transportation providers, such as Ride Connection.

If SMART is no longer financially able to provide services outside of Wilsonville, current users would be most impacted financially, as they would have to pay for services like EMS or

MetroWest to take them to their appointments or pay private parties. Options to explore include increasing the charge for services.

Using established points of contact at social service agencies, especially those at the County, is cited as a good way for SMART to outreach to seniors and persons with disabilities. For the independent living, mail delivery works well to convey information.

### **Representatives of Potential New Destinations**

Direct connections to Marquam Hill (OHSU, VA and Shriners), PSU and to South Waterfront are identified as the most desirable new connections for SMART services. As two of the potential new destinations for SMART service, both OHSU and PSU are interested in working with SMART to increase transit services to their facilities. At OHSU, approximately 40% of trips are via transit, with transit use expected to increase over the next 5-10 years. There is significant demand for transit services for employees, including from the Wilsonville area. In terms of what type of service would be most beneficial, a direct route from Wilsonville without having to go downtown is identified.

No specific issues are identified related to integrating special needs transportation with fixed route services. “As long as information is provided (pamphlets) to patients with route information and dial-a-ride options, there shouldn't be many issues.”

### **Public Agencies**

In terms of plan or policy direction related to services within or affecting transit services within the Wilsonville-Portland I-5 corridor, it is recommended that SMART be aware of the state's focus on intermodal transportation planning, Metro's Southwest Corridor Plan, and TriMet's Southwest Service Enhancement Plan.

Regional travel patterns show significant movement from South Hillsboro in an arc down to Tualatin-Sherwood and on into Wilsonville. Surveys conducted for the Southwest Corridor Plan show strong cross corridor (east-west) demand for services. They also indicate a greater demand for local service than for downtown service. The Plan is evaluating enhanced bus service rather than BRT or LRT. PCC Sylvania is a potential node in the corridor. It is recommended that Wilsonville participate in the corridor plan process.

Direct service from Wilsonville to Oregon City is a missing link in the system.

Portland is supportive of expanded transit services to downtown and other South Portland locations. Dedicated bus or HOV lane will be needed to make travel through the Portland portion most functional.

TriMet is undertaking preparation of a Southwest Service Enhancement Plan this fall. The planning area will be larger than that for the SW Corridor Study. Route 76 service will not change except that there will be more service in the future. The Plan could consider the potential to extend Route 2X to downtown. Route 2X could also help feed Tualatin-Sherwood service.

In terms of SMART services, TriMet would support drop off only (closed door) service to Portland that does not siphon off TriMet customers. TriMet is interested in coordinating services with SMART for Stream Global.

Ride Connection is developing an IT clearinghouse as a pilot project that SMART may want to investigate.

Demand is expected to increase for both fixed-route commuter and demand responsive services within the I-5 corridor. When asked about opportunities for integrating special needs transportation with fixed route services in the I-5 corridor, it is suggested that SMART coordinate with TriMet's Lift program. Downtown Portland and South Waterfront are identified as the most important destinations to be served by both fixed-route or demand responsive services.

Periodic briefings are identified as the best mechanism for communication on the project.

### **Wilsonville Community Seniors**

On May 8, 2013, the consultant team and SMART staff made a presentation on the project to the Board of Directors of Wilsonville Community Seniors as part of their monthly meeting. Following the presentation, the consultant team conducted intercept surveys with approximately 20 senior citizens. Key input included:

- There is strong support for SMART. “We love their services”
- More opportunity for medical transport options to Downtown Portland is desired.
- More convenient service in terms of stops and frequency would result in more use.
- Being able to access multiple medical facilities in one trip is desired.
- There is some reluctance to go into Downtown Portland.
- Drivers are exceptionally courteous and helpful.
- Access to shopping is a critical service.

## **SUMMARY OF STAKEHOLDER AND COMMUNITY INPUT**

- Over one third (35%) of surveyed passengers on SMART Route 2X were traveling solely within Wilsonville.
- Of those traveling out of Wilsonville, 18% of the Route 2X respondents were going to SW Portland, 13% to Tualatin, 6% to NE Portland, and 5% to Downtown Portland.
- Over a quarter of Route 2X respondents indicated they would like to see direct service to Downtown Portland.
- Sunday service, more Saturday service and improved frequency of service on weekdays were the most requested improvements to Route 2X.
- Almost half of the community-wide general public survey respondents ride SMART at least once a week.
- More than a third of those not currently using SMART cite a lack of knowledge of the system and how to use it.
- Community survey respondents who use SMART fixed-route transit service do so primarily to access employment sites in Wilsonville, the Portland metropolitan area, or Salem. They do so for financial reasons, to avoid congestion, because they have no car or choose not to drive, and for environmental reasons.
- Those who do not ever or rarely use SMART transit indicate that the frequency, location, and convenience of service are the primary limiting factors. There is also a relatively high lack of awareness of routes/areas served. Cost does not appear to be a limiting factor.
- Many community survey respondents that use DAR do so for convenience reasons rather than because of an inability to use fixed-route alternatives.

- While community survey respondents cited a wide variety of destinations for expanded service, shopping and medical services in Downtown Portland are the most desired fixed-route locations. Direct connections to Marquam Hill, PSU, and South Waterfront are the most desirable new locations for DAR services.
- There is very strong support among community survey respondents for additional local funding for improvements to SMART services to destinations in the greater Portland area identified as desired by respondents. Some comments indicate support for increased fare to provide the local funding. In general, the comments suggest strong support for public transportation and a desire to ensure the continuation of what is perceived to be excellent service by SMART.
- Stakeholders generally conveyed that SMART had an excellent reputation with the community and enthusiastically provided inputs at this early stage of the project when there are no specific proposals to react to.
- Good connections to other transit services, convenience of service, and service to seniors and persons with disabilities are cited as SMART's strengths. Desired improvements include expanded hours of operation, more service during peak periods, and more access to medical appointments outside of Wilsonville.
- Employers in Wilsonville who participated in interviews see high value in the transit service provided by SMART, although free employee parking, shift hours and attitudinal issues limit employee use of it. The number of connections that have to be made is the greatest disincentive to employee use of SMART transit services.
- There is a wide commute shed to/from employment in Wilsonville, extending from Salem to Vancouver, WA, with a notable component from Washington County. Regional travel patterns show significant movement from South Hillsboro in an arc down to Tualatin-Sherwood and on into Wilsonville. Surveys conducted for the Southwest Corridor Plan show strong cross corridor (east-west) demand for services. They also indicate a greater demand for local service than for downtown service.
- Stakeholders feel demand is expected to increase for both fixed-route commuter and demand responsive services within the I-5 corridor.
- With the exception of the Wilsonville senior and disabled community and County service providers, there is a general lack of awareness among stakeholders that SMART provides dial-a-ride services outside of Wilsonville. County health and social services offices in Oregon City are identified as a key destination for expanded services. Access to dialysis treatment centers is another need. Access to job placement sites for persons with developmental disabilities clients is particularly challenging due to their locations.
- Stakeholders feel that while there is demand for medical trips to Portland facilities, demand for recreation and supportive services is generally outside of Portland, as there is a reluctance to go downtown among seniors.
- Stakeholders feel that connectivity to primary transit centers like Barbur is more important to current SMART users than is direct service to south or downtown Portland locations. Participants indicate that accessing hubs (Barbur Transit Center, Clackamas County Services Center, OHSU) is preferable to expanding SMART's service area.
- In terms of plan or policy direction related to services within or affecting transit services within the Wilsonville-Portland I-5 corridor, stakeholders recommend that SMART be aware of the state's focus on intermodal transportation planning, Metro's Southwest Corridor Plan, and TriMet's Southwest Service Enhancement Plan.

- The City of Portland is supportive of expanded transit services to downtown and other South Portland locations. TriMet would support drop off only (closed door) service to Portland that does not siphon off TriMet customers. And TriMet is open to consider the potential to extend Route 2X to downtown and to have Route 2X help feed Tualatin-Sherwood service.

## 5 MARKET ASSESSMENT

The purpose of this chapter is identify and characterize different transit markets that SMART currently serves or could serve in the future. The market for transit is driven by factors including the aggregate need to travel to and from major activity centers, the type of transit services that are provided, who they serve, and how well those services meet travel needs. This evaluation includes an assessment of existing transit use relative to overall travel demand, e.g., as indicated by demographic data, Census journey-to-work (LEHD) data and travel demand data from Metro.

### DEMOGRAPHIC ANALYSIS

Understanding the current and projected distribution and density of population and employment is an integral part of understanding travel and public transportation needs in Wilsonville. This section considers demographic characteristics, including segments of the population that typically have a greater propensity to use transit services.

#### Population

As of 2010, the population of Wilsonville was over 19,500 residents (and over 20,000 as of 2012). While Wilsonville's population is growing and growing older, the population is younger than regional averages. Wilsonville has a marginally smaller share of residents age 65 or older compared to Clackamas County (13.7%) or Oregon as a whole (13.8%), with 13.2% of the population in this age group. A relatively small share of this elderly population is living in poverty, at just under 3%. Wilsonville has a large share of young working age residents, ages 20-39. In 2010, nearly 32% of Wilsonville's population was in this age bracket compared to less than 30% for Washington County and about 23% for Clackamas County.

Population projections provided by the Oregon State Office of Economic Analysis forecast growth in the elderly population of Clackamas County over the next 10 and 20 years. By 2020, 16% of the County's population is anticipated to be age 65 or older, and by 2030 this share is estimated to grow to 18%.

About one in ten of Wilsonville's residents are living below the poverty level. However, on average in 2009 households in Wilsonville were spending more than 30% of their household income on housing and more than 45% of their household income on housing and transportation costs combined, which are the affordability benchmarks in the Center for Neighborhood Technology's H+T Affordability index.<sup>9</sup> On average, Wilsonville residents spend nearly 28% of their income on housing, which is below the affordability threshold, but over 52% of their income on combined housing and transportation costs, which is considered unaffordable.

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<sup>9</sup> The Center for Neighborhood Technology's Housing + Transportation (H+T) Affordability Index uses 2009 American Community Survey 5-year estimates. This statistic is based on 77% of the households in Wilsonville. The rest of the households had insufficient data.

Just over 9% of households have no access to a vehicle, which is a larger share of the population compared to the County (5.6%) and State (7.6%). Half of Wilsonville’s residents rent their homes. This proportion is significantly larger than Clackamas County (29.3%) or the State (36.2%).

Compared to the region and Clackamas County, Wilsonville has more nonfamily households. Forty-percent (40%) of households in Wilsonville are nonfamily, compared to 38% in the region, and 30% in Clackamas County. With multiple workers, it is possible that this may contribute to higher vehicle ownership per household.

**Figure 5-1 Demographics, 2010**

	Population	% Population age 20-30 years	% Population 65 years or older	% Population in poverty	% Population 65 years or older in poverty	% Households without access to a vehicle	% Renter-occupied housing units
Wilsonville	19,509	31.7%	13.2%	11.4%	2.8%	9.3%	50.5%
Clackamas County	375,992	22.9%	13.7%	9.5%	6.2%	5.6%	29.3%
Oregon	3,831,074	26.9%	13.8%	14.8%	8.3%	7.6%	36.2%

Note: Data on disability status for Wilsonville residents will be available toward the end of 2013, in the ACS 2008-2012 5-Year Average.

Source: US Census, 2010; American Community Survey (ACS) estimates, 2007-2011 5-Year Average.

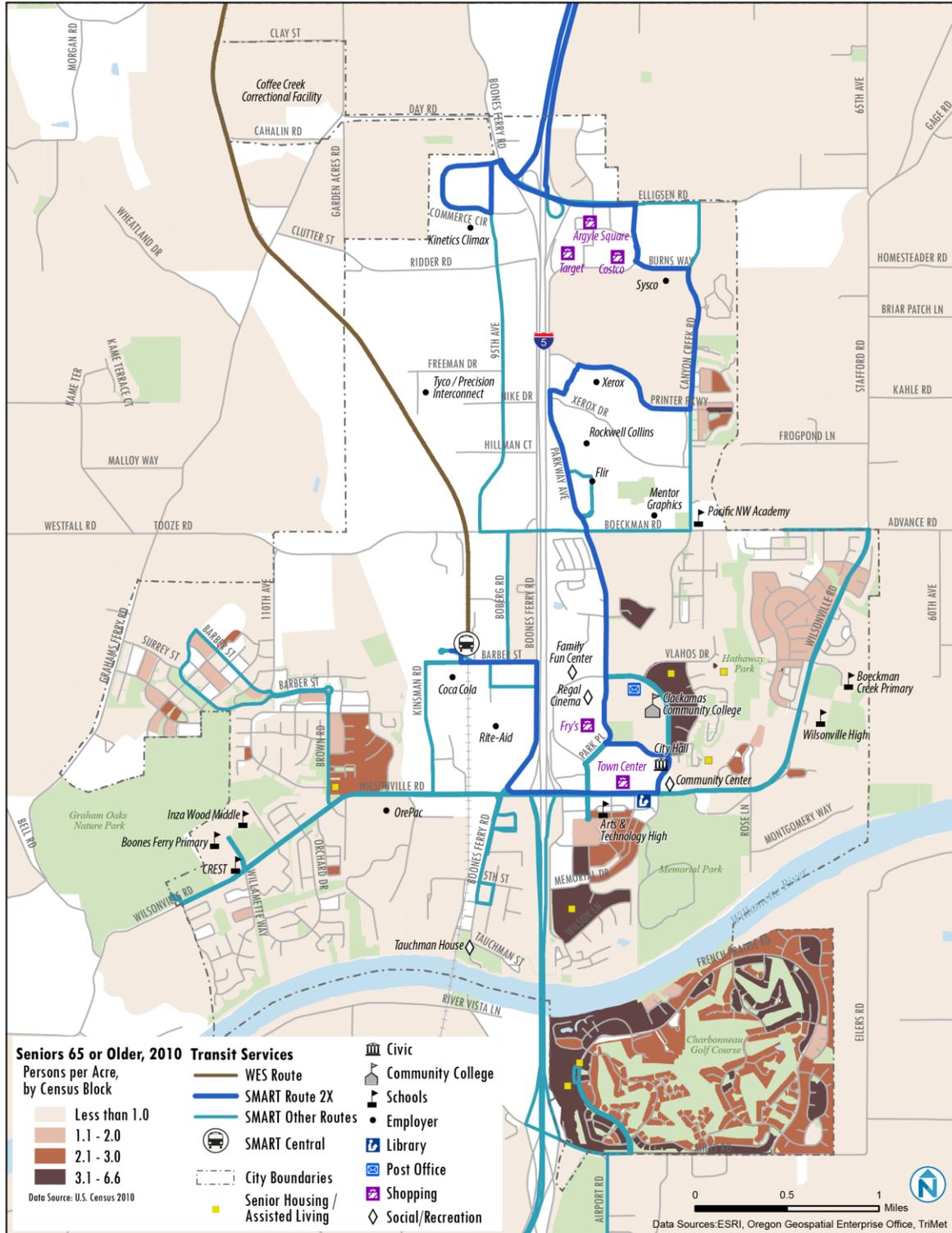
### Population Density

Wilsonville is 6.9 square miles and has a population density of 2,827 people per square mile (4.4 people per acre). This is comparable to neighboring Tualatin (3,404 people per mile; 5.3 people per acre) and less dense than Portland (4,375 people per square mile; 6.8 people per acre) and Tigard (4,496 people per square mile; 7.0 people per acre). Housing is largely separate from industrial and commercial uses, concentrating residential density in the southern parts of the City. Figure 5-2 highlights areas in the city with the highest population density. These locations align with the addresses of Wilsonville’s largest apartment complexes. Analysis of housing density, apartment complex locations, and existing transit service shows that many of Wilsonville’s apartment complexes are located along fixed-route bus service. SMART Route 4 services many of these apartments, operating near 30-minute headways throughout the day. The Illahee Apartments and other locations south of the Willamette River are served by Route 3 which operates at 60-minute headways.

Figure 5-3 shows the population density of older adults in Wilsonville. The map illustrates concentrations of older adults in the Charbonneau neighborhood. Residents along the eastern side of the development are not currently served by transit. Other locations with high densities of older adults are the Windfield Village assisted living and retirement community and Marquis Wilsonville, a long-term care and nursing home. While Windfield Village is accessible by the Route 4, Marquis Wilsonville is more than a quarter-mile from a fixed-route bus line.



Figure 5-3 Senior Population Density, 2010



## Housing Characteristics

Compared to the region, Wilsonville has a wider range of housing types available. Forty-two-percent (42%) of dwelling units in Wilsonville are attached, 5+ unit apartments, compared to the regional average of 23%. Another 42% of Wilsonville’s housing stock consists of single-family detached homes, much lower than the 65% regional average. Most of the single-family detached homes are owner-occupied (77%) while most multifamily housing is renter-occupied (80%).<sup>10</sup>

## SMART ROUTE 2X AND TRIMET LINE 96 ORIGIN DESTINATION ANALYSIS

Origins and destination pairs for SMART Route 2X and TriMet Line 96 were analyzed using data collected as part of the Route 2X on-board survey and the Line 96 online survey. Origin destination pairs from Route 2X survey respondents are documented in Figure 5-4 (local) and Figure 5-5 (regional).

Locally, passengers’ major non-residential origins or destinations are Wilsonville Town Center, Wilsonville City Hall, the Community Center, Argyle Square, and the concentration of employers and Oregon Tech between SW Parkway and Canyon Creek, north of Boeckman. Figure 5-4 shows that residential origins or destinations are most concentrated in the Canyon Creek Apartments. Figure 5-5 highlights some of the regional travel patterns north and south of Wilsonville. The darkest colors show the concentration of trips within Wilsonville and Downtown Portland. To the south, passengers traveled to or from Salem. To the north of Wilsonville, passengers used the Route 2X to connect to points throughout downtown, Northeast, and Southeast Portland.

Line 96 provides regional service, connecting Wilsonville-bound passengers to Commerce Circle. Line 96 passenger trip origins and destinations in Wilsonville include Xerox, Fry’s, Commerce Circle, and a variety of residential locations. Outside of Wilsonville, passengers were making connections to Downtown Portland, OHSU, PCC- Sylvania, Washington Square Mall, Greenway Town Center, and points throughout Tualatin, Hillsdale, Multnomah Village, and along the Barbur corridor.

The origin destination pairs noted by survey respondents demonstrate strong trip flows between Wilsonville and Downtown Portland followed by points along the 99W and I-5 corridor.

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<sup>10</sup> ECONorthwest, Wilsonville Housing Needs Analysis, April 2013

Figure 5-4 Route 2X Rider Origin-Destination Locations – Local

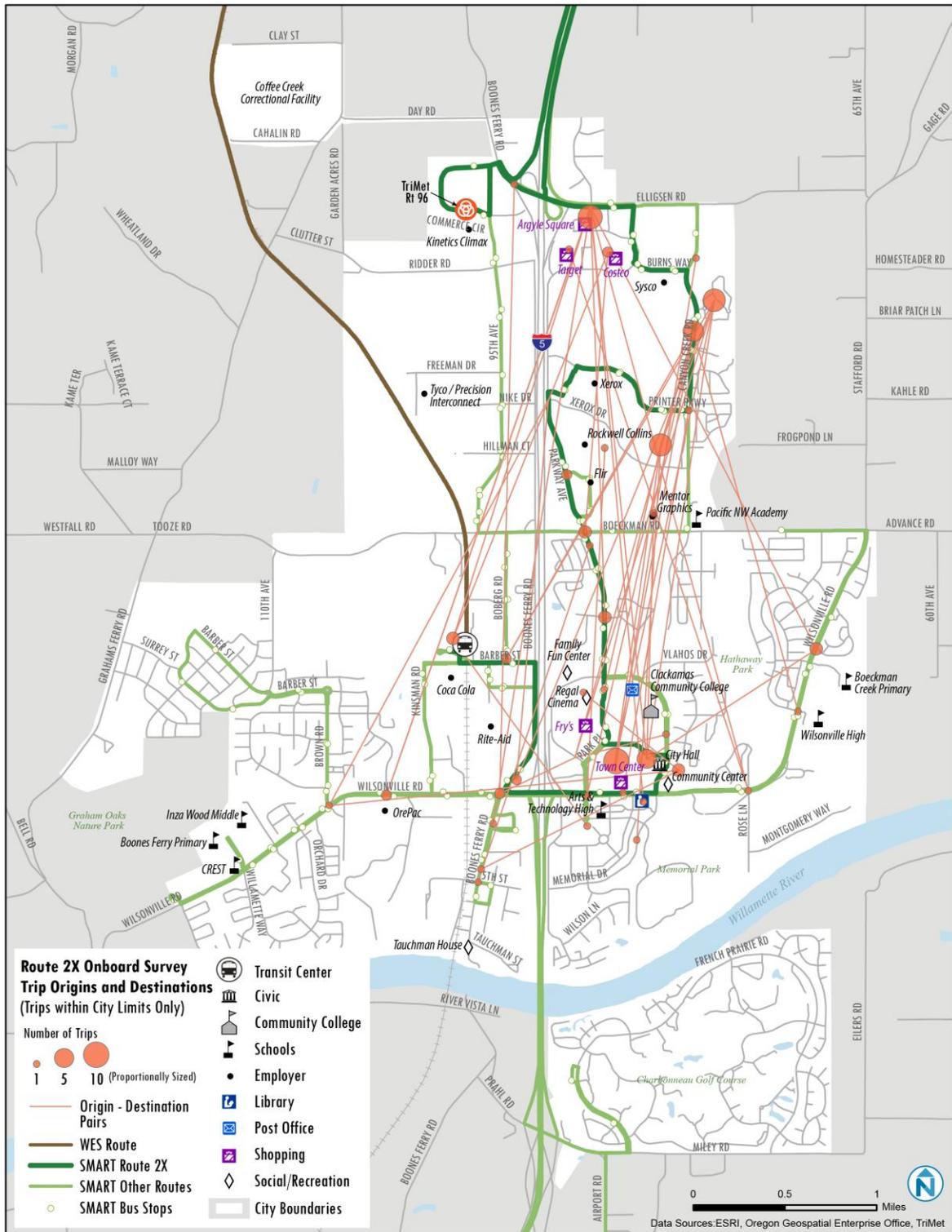
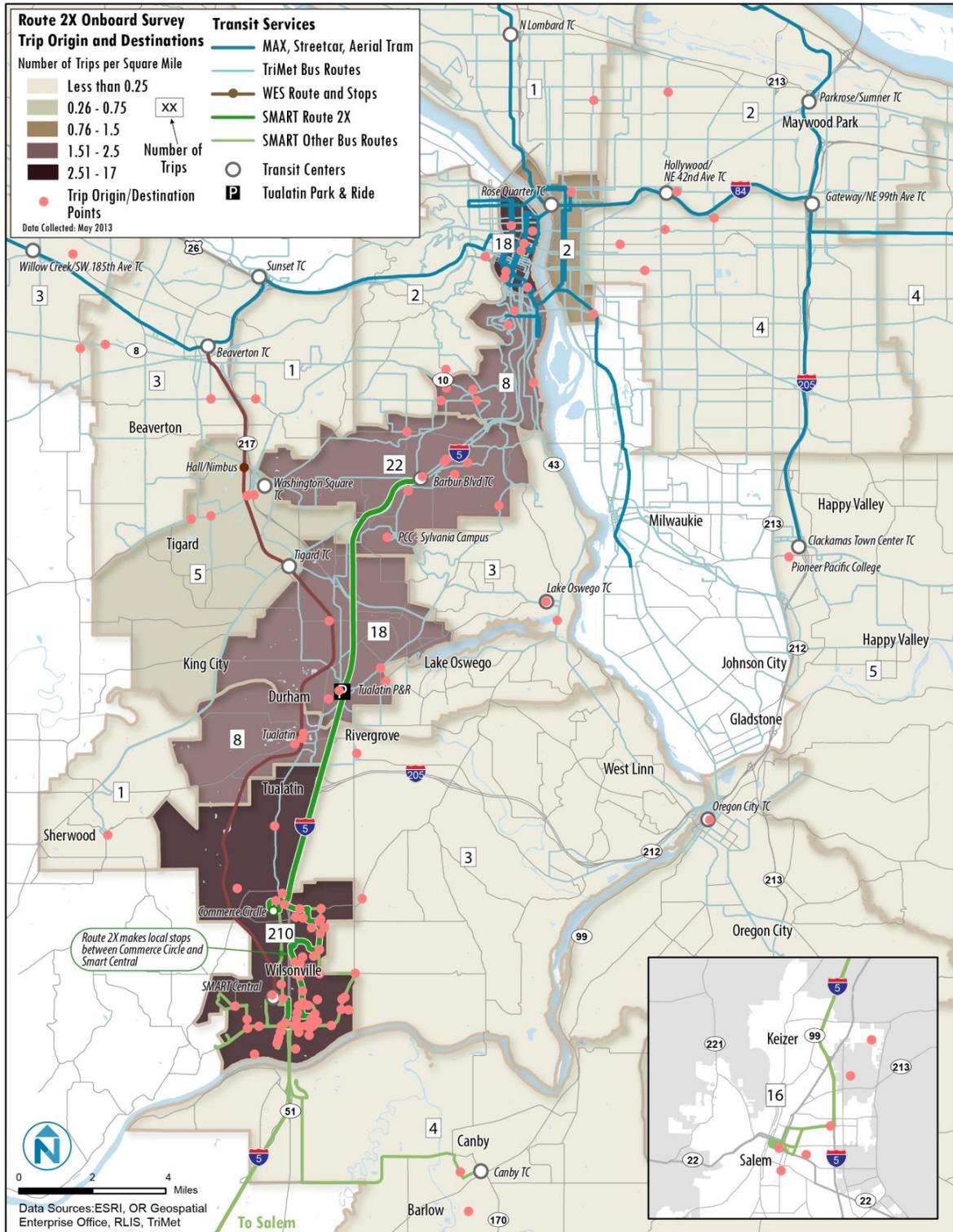


Figure 5-5 Route 2X Rider Origin-Destination Locations – Regional



## MEDICAL TRIP ANALYSIS

Dial-a-Ride medical trips bring Wilsonville residents to destinations throughout the region for medical visits. Analysis of the origins and destinations of DAR medical trips, illustrated in Figure 5-6, shows that major trip origins for medical passengers are in the senior living communities in Wilsonville with destinations including:

- Legacy Meridian Park Medical Center, Advanced Dermatology of Oregon, and Tualatin Dialysis. These locations are clustered near the confluence of I-5 and I-205 in Tualatin, about 2 miles south of the Tualatin Park & Ride.
- Providence Bridgeport Health Center, located about a third of a mile south of Tualatin Park & Ride.
- Oregon Health Sciences University and the Portland Veteran’s Administration Medical Center.
- Providence Hospital in Sherwood.

Fixed-route transit connections to most of these locations from Wilsonville require multiple transfers. For example, residents could take Route 2X to Tualatin Park & Ride, transferring to TriMet Line 76 serving Meridian Park Medical Center, a trip of between 50 to 70 minutes including waiting time required for the transfer (scheduled time on the bus is about 40 minutes).<sup>11</sup> When WES is in operation, the trip is about 40 minutes, including transfer time between WES and Line 76. To access OHSU and the VA Medical Center by fixed-route service from Wilsonville a passenger would need to make two or more transfers, a one-way trip totaling more than 100 minutes. A fixed-route transit connection to Sherwood is not practical.

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<sup>11</sup> Southbound Route 2X is timed to southbound Line 76 arrivals at Tualatin Park & Ride during hours when WES is not in operation, and vice-versa for the northbound direction, however the trip between Wilsonville and Meridian Park Medical Center requires a transfer between the northbound Route 2X and the southbound Line 76, and vice-versa.



## WORK TRIP ANALYSIS

This section describes existing home-work travel patterns, based primarily on U.S. Census Bureau Longitudinal Employer-Household Dynamics (LEHD) data.

### Work Locations

As of May 2013, there were 25 companies with 100 or more employees in Wilsonville. In total, there are 986 business licenses in the city, directly employing about 13,500 FTE (full-time equivalent) employees. The average number of employees at each business was 14.3 FTE employees.<sup>12</sup> Figure 5-7 lists the top employers in Wilsonville. Many of Wilsonville’s largest employers are located in large office parks, in the northeastern part of the City. SMART service, including Route 2X, circulates along most of the main thoroughfares that access the work locations. Most of the employers listed in the table are served by multiple SMART routes.

**Figure 5-7 Top Employers by FTE Employees**

Name of Business	SMART Route(s)	Approximate Number of FTE Employees
Xerox Corporation	2X, 6	1,000-1,250
Mentor Graphics	2X, 6	751-1,000
Tyco		501-750
Sysco Food Services	2X, 6	501-750
Rockwell Collins	2X, 6	251-500
Precision Interconnect	5	251-500
FLIR Systems, Inc.	2X, 6	251-500
Fry’s Electronics	2X, 4	100-250
Rite Aid Distribution Center	1X, 2X, 3, 4	100-250
Costco Wholesale, Store # 766	2X, 6	100-250
Kinetics Climax Inc.	5	100-250
Coca Cola	All	100-250

Note: May 2013. FTE = Full-Time Equivalent.

Sources: City of Wilsonville Business License Database; Wilsonville Area Chamber of Commerce

Analysis of the employment locations of Wilsonville workers and the residential locations of workers employed in Wilsonville was performed using U.S. Census Bureau LEHD data, which identifies residential and work locations by Census block. Based on LEHD data, a total of 17,739 individuals work within Wilsonville.

<sup>12</sup> City of Wilsonville Business License Database, <http://www.ci.wilsonville.or.us/Index.aspx?page=244>, Wilsonville Area Chamber of Commerce, Top Employers, <http://www.wilsonvillechamber.com/?Doing-Business/Top-Employers>

Figure 5-9 shows where Wilsonville residents work in Wilsonville.<sup>13</sup> Local employment sites appear to generally be within relatively close walking distance of the SMART fixed-route system. Coffee Creek Prison is one of the more distant locations from transit (approximately 0.9 mile walk).<sup>14</sup>

Figure 5-8 lists where Wilsonville residents work across the region, and Figure 5-10 illustrates the wide distribution of work locations around the region. Of the 8,609 workers living in Wilsonville, 22.1% work in Portland and 16.1% work in Wilsonville. A total of 2,056 Wilsonville residents (nearly 24%) work in nearby communities (Tigard (6.4%), Tualatin (5.4%), Hillsboro (3.6%), and Lake Oswego (3.3%)) -more than work in Portland. Nearly 300 workers (about 3.5%) work in Woodburn or Salem.

**Figure 5-8 Work Locations of Wilsonville Residents (1% or more of workers)**

City	Number of Workers	Share of Workers
Portland	1,905	22.1%
Wilsonville	1,380	16.0%
Tigard	551	6.4%
Tualatin	469	5.4%
Beaverton	441	5.1%
Hillsboro	307	3.6%
Lake Oswego	288	3.3%
Woodburn	153	1.8%
Eugene	147	1.7%
Salem	143	1.7%
Oregon City	114	1.3%
Canby	110	1.3%
Milwaukie	97	1.1%
Sherwood	89	1.0%
Newberg	87	1.0%
West Linn	87	1.0%
Other Locations	2,241	73.8%
<b>TOTAL</b>	<b>8,609</b>	<b>100%</b>

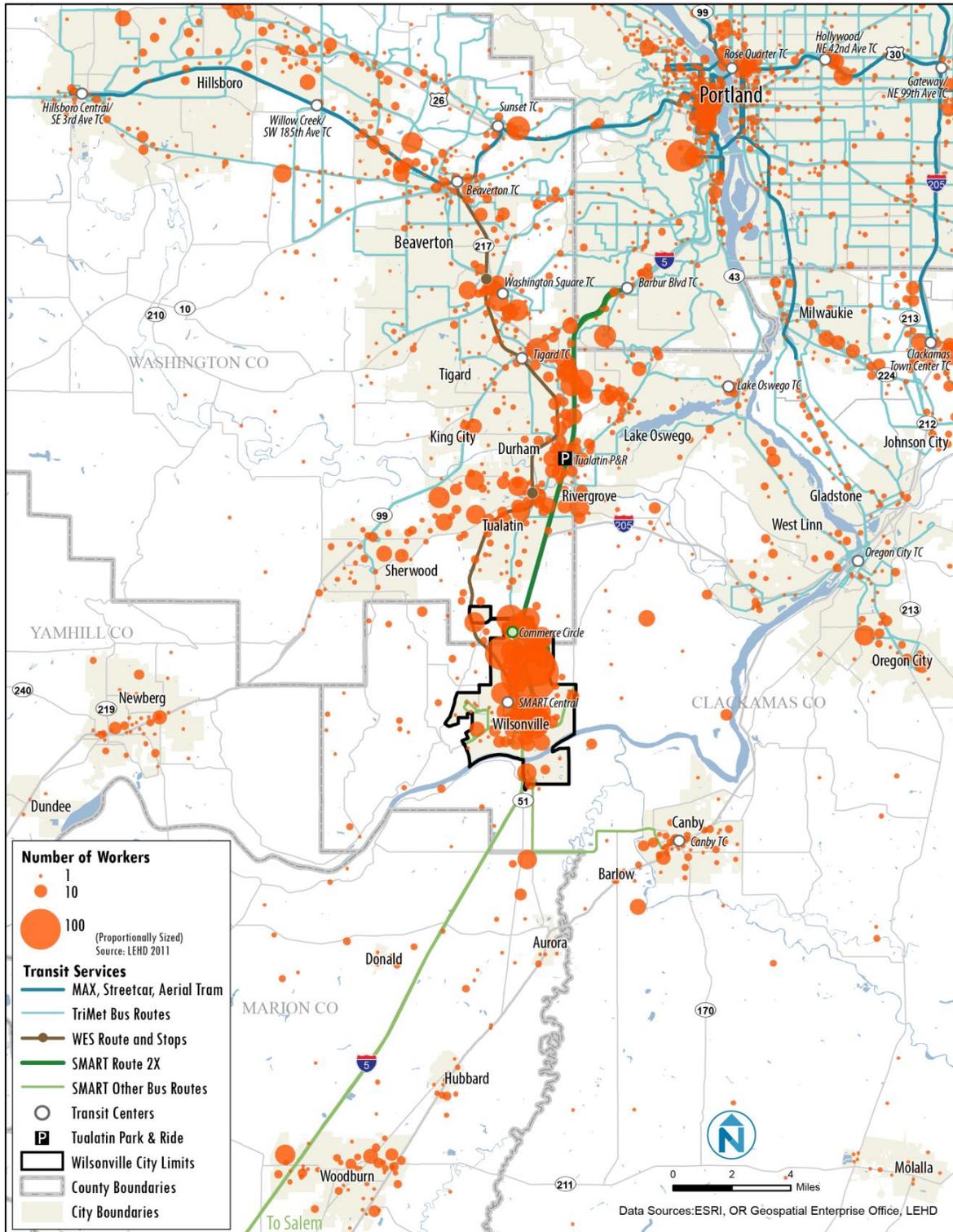
Source: LEHD, 2011

<sup>13</sup> Note that this map does not include work locations in Wilsonville for non-Wilsonville residents. For the purposes of this document it is assumed that work locations are comparable between Wilsonville residents and non-residents. In addition, an LEHD analysis of the area east of I-5 and north of Boeckman Road indicated that work destinations appear to be similar for the region as for Wilsonville residents.

<sup>14</sup> Coffee Creek is within Wilsonville city limits but is in the TriMet service area.



Figure 5-10 Regional Work Locations for Wilsonville Residents



## Residential Locations

A total of 17,739 individuals work within Wilsonville. Figure 5-12 illustrates local (within Wilsonville) home locations for Wilsonville workers by Census block. With some exceptions, these locations are served by transit. Regional home locations for Wilsonville workers, listed in Figure 5-11 and shown in Figure 5-13, are broadly distributed around the region. Overall, the largest percentage of workers in Wilsonville come from Portland (11.6%) followed by Wilsonville itself (7.8%). A combined nearly 3,000 workers (almost 17%) live in Beaverton (3.9%), Tigard (3.8%), Tualatin (3.8%), Hillsboro (2.8%), and Lake Oswego (2.4%)—more than live in Portland. Over 1,000 Wilsonville workers (5.7%) live in Woodburn or Salem.

**Figure 5-11 Home Locations of Wilsonville Workers (100 or more workers)**

City	Number of Workers	Share of Workers
Portland	2,054	11.6%
Wilsonville	1,380	7.8%
Beaverton	698	3.9%
Tigard	675	3.8%
Tualatin	670	3.8%
Salem	571	3.2%
Hillsboro	502	2.8%
Woodburn	444	2.5%
Sherwood	431	2.4%
Lake Oswego	420	2.4%
West Linn	419	2.4%
Canby	390	2.2%
Aloha	386	2.2%
Oregon City	323	1.8%
Newberg	308	1.7%
Gresham	258	1.5%
Vancouver, WA	220	1.2%
Eugene	181	1.0%
Bull Mountain	169	1.0%
Keizer	169	1.0%
Albany	150	0.8%
Milwaukie	147	0.8%
Molalla	137	0.8%
McMinnville	119	0.7%
Other Locations	6,312	35.5%
<b>TOTAL</b>	<b>17,739</b>	<b>100%</b>

Source: LEHD, 2011

Figure 5-12 Local Home Locations for Wilsonville Workers

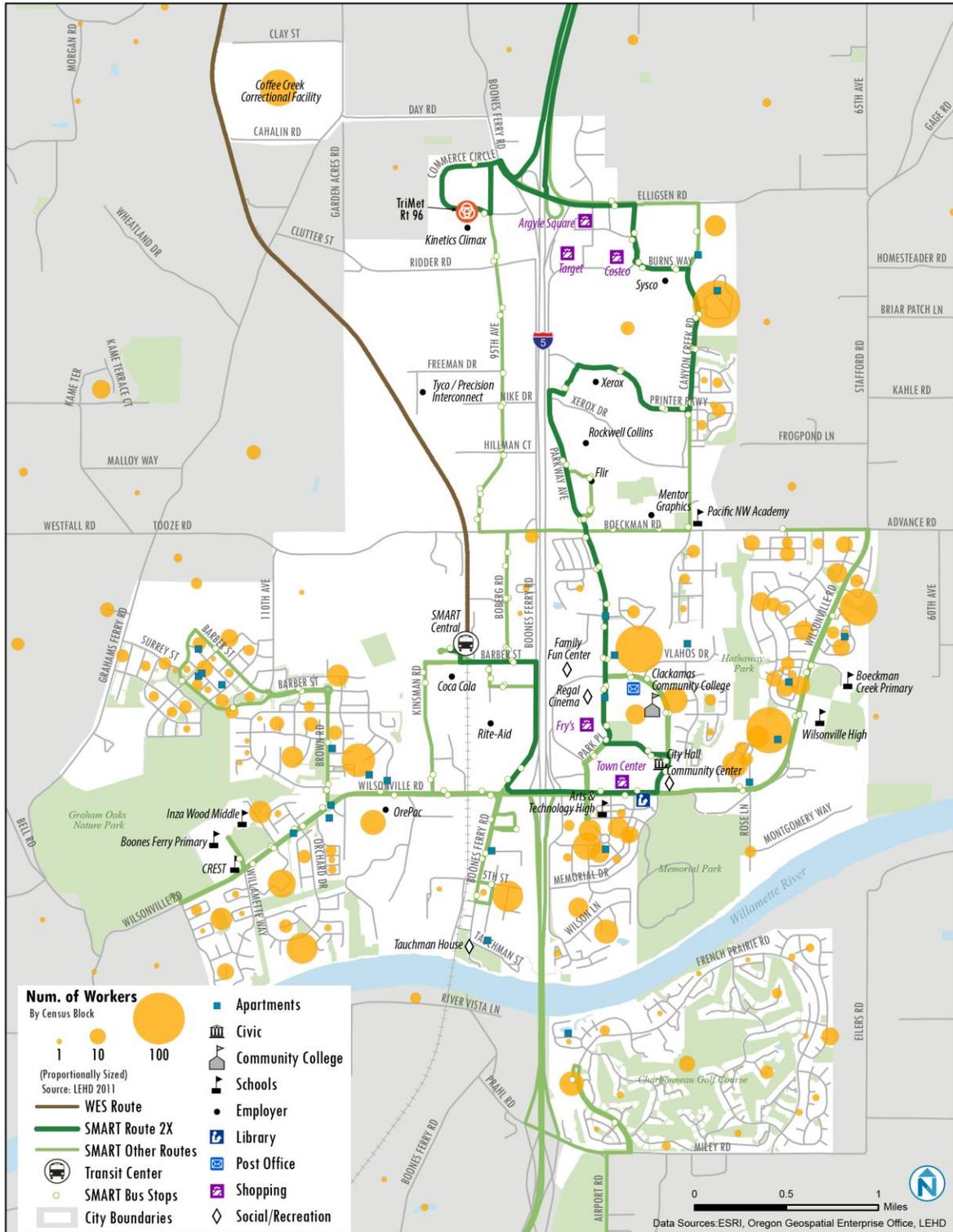
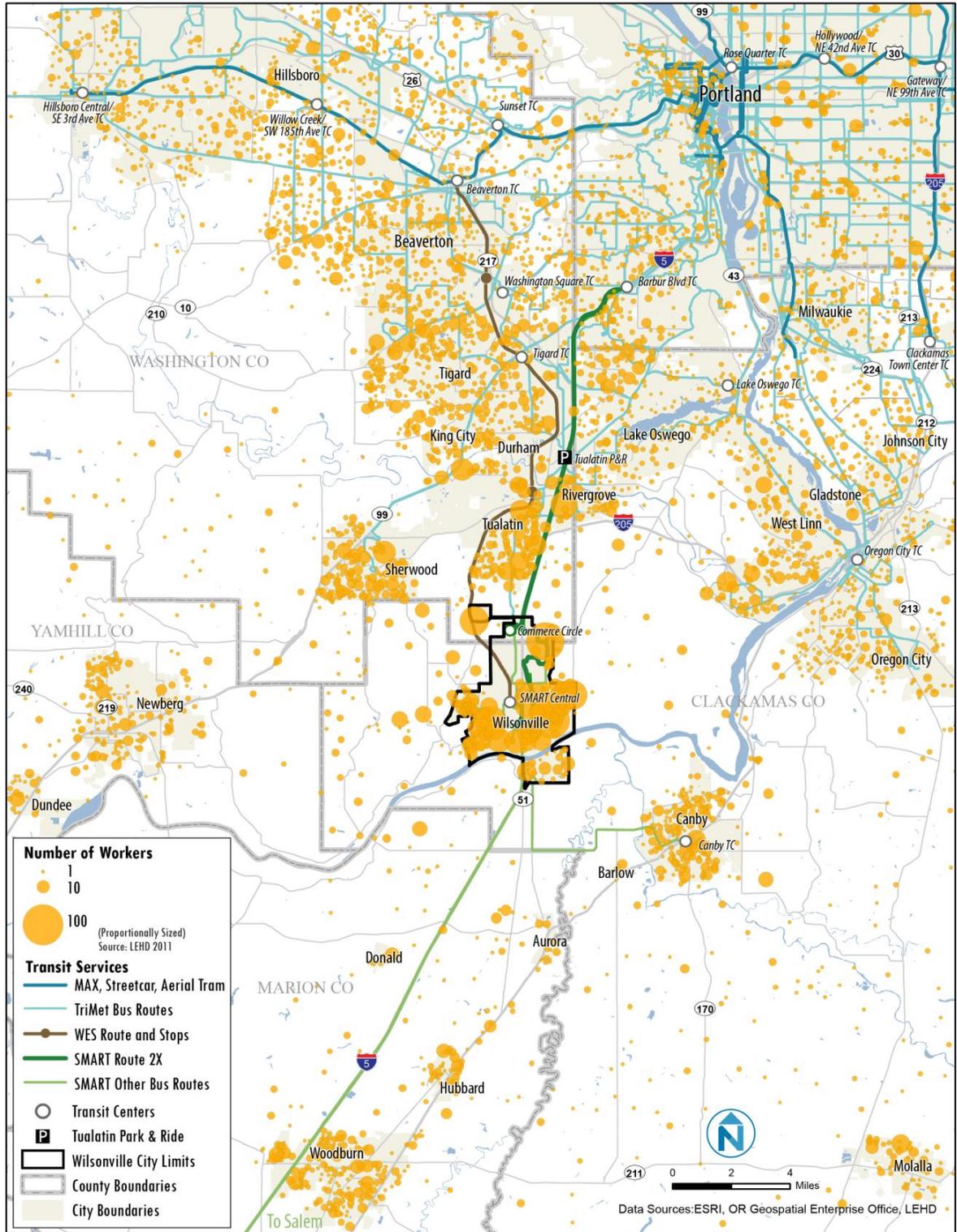


Figure 5-13 Regional Home Locations for Wilsonville Workers



## TRAVEL DEMAND ANALYSIS OVERVIEW

Projected travel demand analysis has been performed by Metro, the regional government and Metropolitan Planning Organization (MPO). Metro’s four-step, trip-based travel demand modeling predicts trip frequency, origins and destinations, modal choice, and travel by time of day. Using travel demand models, Metro sets regional priorities and guides investments. The trip-based model allows for the analysis of home-based and non home-based trip.

Metro projects that future travel markets will remain geographically similar, focusing connections between Wilsonville and Downtown Portland. The number of person trips will increase as Wilsonville grows. More trips outside of Wilsonville are expected to destinations throughout Tualatin, Tigard, and Beaverton. In 2035, Downtown Portland is predicted to be the strongest transit market connected to Wilsonville. Other than Downtown Portland, transit trips are expected to make increased connections to points in Southeast Portland, Tigard, Washington Square Mall, and points throughout Hillsboro and Forest Grove.

### Metro 2035 Person Trips and Transit Trips Projections

Metro has modeled the number of overall person trips and transit trips between transportation analysis “districts.” The discussion in this section focuses on trips to and from Wilsonville, which is analysis district 8. District 8, which is illustrated with a yellow border in the maps provide in this section (e.g., Figure 5-16), includes all of Wilsonville and the southern neighborhoods of Tualatin and unincorporated Washington County. In developing a transportation demand model Metro uses “person trips,” which represent the number of trips made by individuals not the number of vehicles, and the number of transit vehicle trips that may be made in the region. These projections reflect changes in population and a host of travel needs in the region.

A more detailed discussion of the data follows. References to Wilsonville in the discussion are used interchangeably with District 8 in the travel demand model analysis, although as noted this District extends slightly north of Wilsonville into Tualatin.

### Home-based Work Trips in 2035

Figure 5-14 and Figure 5-15 provide the travel demand model data for home-based work trips in tabular form:

- Figure 5-14 provides data for all person trips and transit trips in 2035.
- Figure 5-15 provides data for the change in person and transit trips from 2010-2035.

Three maps are provided to illustrate the travel demand for trips between home and work locations:

- Figure 5-16 illustrates projected home-based work *person* trips in 2035.
- Figure 5-17 shows the projected change in work *person* trips between 2010 and 2035.
- Figure 5-18 illustrates home-based work *transit* trips in 2035.

On these maps, the label for each district provides the projected number of trips to/from the Wilsonville district (8) in 2035, or the change between 2010 and 2035. The shading of each zone indicates the combined density of trips to and from the Wilsonville district. Since some zones are large, the density of trips provides useful context for the absolute number of trips.

The data indicates that absolute and growth in work travel demand to/from Wilsonville is projected to be strongest from Tualatin, Tigard, and Southwest/Downtown Portland. Strong growth is projected from the Sherwood area, including portions of unincorporated Clackamas and Washington Counties, and the Lake Oswego area. On a district-by-district basis:

- **Within Wilsonville (District 8).** There are 8,693 projected home-based work person trips within District 8. This represents about 29% of home-based work trips from District 8 and about 18% of trips to District 8. Transit is expected to capture about 2.2% of these trips.
- **To/From Portland Area:**
  - **Downtown Portland (District 1).** There are a total of 1,357 home-base work trips projected to/from District 1, primarily originating from District 8. Transit is expected to capture nearly 60% of trips from District 8 and nearly 26% of trips to District 8.
  - **SW Portland (Districts 2 and 12) and Inner Eastside (District 17).** District 2 (Marquam Hill and South Waterfront), District 12 (west of downtown), and the Inner Eastside (including Rose Quarter and Lloyd District) represent only 3.6% of all projected trips to/from Wilsonville (3,046) but after Downtown Portland have the highest projected transit mode shares for travel to District 8—17.1%, 10.8%, and 28.5%, respectively, given high transit accessibility from these zones to Downtown Portland. Demand to the two SW Portland zones is relatively balanced while a larger share of Inner Eastside trips originate in Wilsonville.
  - **SW Portland (District 3).** District 3, which includes Barbur Transit Center (current Route 2X terminus), the PCC – Sylvania Campus, and part of unincorporated Washington County and Tigard, is projected to have 1,874 trips to/from Wilsonville. A larger share of trips for this district is to work destinations in Wilsonville. The overall projected transit mode share is about 5%.
  - **North/East Portland (Districts 18, 19, 20, 21).** The other Portland Eastside districts account for 3,294 trips with projected transit mode shares ranging from 6.9% to 9.4%. These districts (along with District 22 – outer east Portland and Gresham) have good MAX or bus connections to Downtown Portland; the future MAX Orange line would improve connections to district 18 as well as District 23 (includes Milwaukie).
- **To/From Tigard, Tualatin, and Lake Oswego (Districts 4, 5, and 7).** Tigard covers District 4 (Washington Square and Tigard Transit Center) and a portion of District 5. Tualatin covers District 7 (includes Tualatin-Sherwood Road corridor, Tualatin Town Center, and the Legacy Meridian Park Medical Center), a portion of District 5, and a portion of District 8 north of Wilsonville. Lake Oswego covers most of District 16 and a portion of District 5. District 5 includes Tualatin Park & Ride, Bridgeport Village, the Tigard Triangle, and Kruse Way in Lake Oswego. These zones comprise nearly 17% of trips to/from District 8 (13,309 trips). Transit is projected to capture 8.7% of travel demand from Wilsonville to Zone 4, which includes Washington Square.
- **To/From Beaverton and US 26 Corridor (Districts 9, 10, and 14).** District 9 is the primary Beaverton district (west of Hwy 217), including Beaverton and Sunset Transit Centers. There are 2,368 projected trips with an overall 8.1% transit mode share (12.4% for trips originating in Wilsonville). Although District 14 is large and the density of trips is low, there are 3,722 trips along the US 26 corridor west of Beaverton, e.g., Hillsboro.

These trips are relatively balanced between directions and have a projected 6.2% transit mode share.

- **To/From Districts 15, 24, and 25.** These expansive districts cover largely unincorporated areas of Clackamas Counties on the east side of Wilsonville, as well as West Linn, Oregon City, and Canby. District 15 includes West Linn and the I-205 Corridor to Oregon City. The model projects 5,780 trips from District 15, but a transit mode share of less than 1%. Oregon City is included in District 24 which has 2,317 projected trips and a 2.3% transit mode share. Canby is within District 25, which has 5,181 trips and a 1.4% projected transit mode share. Owing in part to their geographic size, the density of trips is relatively low in both of these zones.
- **To/From Sherwood.** District 6 consists primarily of Sherwood and has a moderate density of projected work trips— 3,163 trips (4.0% of all home-based work person trips)— but just a 1.2% transit mode share.
- **To/From District 13.** District 13 covers a broad north-south area comprised of unincorporated Washington and Clackamas Counties, west of Wilsonville, Tualatin, Tigard, and Beaverton. Although the model projects over 4,000 trips, including significant growth in trips between 2010 and 2035, the density of trips is low within this geographic area.

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**Figure 5-14 Home-Based Work Trips, 2035: All Trips, Transit Trips, and Transit Share of All Trips**

District	All Home-Based Work Person Trips						Home-Based Work Transit Trips						Transit Share of Home-Based Work Trips		
	From 8 to:		To 8 from:		To/from 8:		From 8 to:		To 8 from:		To/from 8:		From 8 to:	To 8 from:	To/from 8:
	#	%	#	%	#	%	#	%	#	%	#	%			
1	1,098	3.7%	260	0.5%	1,357	1.7%	658	33.2%	67	4.5%	725	20.9%	59.9%	25.9%	53.4%
2	791	2.6%	491	1.0%	1,282	1.6%	171	8.6%	48	3.2%	219	6.3%	21.6%	9.7%	17.1%
3	456	1.5%	1,418	2.9%	1,874	2.4%	23	1.2%	65	4.4%	88	2.5%	5.0%	4.6%	4.7%
4	1,502	5.0%	3,122	6.4%	4,625	5.9%	130	6.6%	99	6.7%	229	6.6%	8.7%	3.2%	4.9%
5	3,208	10.7%	2,043	4.2%	5,252	6.7%	107	5.4%	59	4.0%	166	4.8%	3.3%	2.9%	3.2%
6	1,037	3.5%	2,126	4.4%	3,163	4.0%	10	0.5%	26	1.8%	36	1.1%	1.0%	1.2%	1.2%
7	2,846	9.5%	587	1.2%	3,432	4.4%	42	2.1%	18	1.2%	60	1.7%	1.5%	3.1%	1.7%
8	8,693	29.1%	8,693	17.8%	17,386	22.1%	195	9.9%	195	13.2%	391	11.3%	2.2%	2.2%	2.2%
9	904	3.0%	1,465	3.0%	2,368	3.0%	112	5.7%	79	5.3%	191	5.5%	12.4%	5.4%	8.1%
10	440	1.5%	524	1.1%	964	1.2%	18	0.9%	25	1.7%	44	1.3%	4.1%	4.9%	4.5%
11	301	1.0%	714	1.5%	1,015	1.3%	18	0.9%	28	1.9%	46	1.3%	5.8%	4.0%	4.5%
12	449	1.5%	774	1.6%	1,223	1.6%	66	3.4%	65	4.4%	132	3.8%	14.8%	8.4%	10.8%
13	436	1.5%	4,238	8.7%	4,674	5.9%	0	0.0%	42	2.8%	42	1.2%	0.1%	1.0%	0.9%
14	1,689	5.6%	2,033	4.2%	3,722	4.7%	138	7.0%	92	6.2%	230	6.6%	8.2%	4.5%	6.2%
15	1,102	3.7%	4,678	9.6%	5,780	7.3%	7	0.3%	47	3.2%	54	1.6%	0.6%	1.0%	0.9%
16	554	1.9%	2,626	5.4%	3,180	4.0%	15	0.7%	54	3.6%	68	2.0%	2.6%	2.0%	2.2%
17	409	1.4%	132	0.3%	541	0.7%	131	6.6%	23	1.6%	154	4.5%	32.0%	17.7%	28.5%
18	128	0.4%	305	0.6%	433	0.6%	6	0.3%	24	1.6%	30	0.9%	4.7%	7.8%	6.9%
19	411	1.4%	467	1.0%	878	1.1%	18	0.9%	48	3.2%	66	1.9%	4.5%	10.3%	7.6%
20	241	0.8%	434	0.9%	675	0.9%	21	1.0%	43	2.9%	63	1.8%	8.5%	9.9%	9.4%
21	297	1.0%	1,011	2.1%	1,308	1.7%	17	0.8%	99	6.7%	116	3.3%	5.6%	9.8%	8.8%
22	168	0.6%	560	1.1%	727	0.9%	11	0.5%	31	2.1%	42	1.2%	6.4%	5.6%	5.8%
23	525	1.8%	1,262	2.6%	1,787	2.3%	17	0.8%	37	2.5%	54	1.6%	3.2%	2.9%	3.0%
24	497	1.7%	1,820	3.7%	2,317	2.9%	9	0.5%	44	2.9%	53	1.5%	1.8%	2.4%	2.3%
25	699	2.3%	4,482	9.2%	5,181	6.6%	6	0.3%	69	4.6%	75	2.2%	0.9%	1.5%	1.4%
26	690	2.3%	1,668	3.4%	2,358	3.0%	24	1.2%	35	2.3%	59	1.7%	3.5%	2.1%	2.5%
27	56	0.2%	349	0.7%	405	0.5%	0	0.0%	2	0.1%	2	0.1%	0.3%	0.5%	0.5%
28	194	0.6%	46	0.1%	240	0.3%	5	0.2%	2	0.1%	7	0.2%	2.5%	4.1%	2.8%
29	92	0.3%	422	0.9%	514	0.7%	5	0.3%	14	1.0%	20	0.6%	5.8%	3.4%	3.8%
<b>TOTAL</b>	<b>29,910</b>	<b>100.0%</b>	<b>48,749</b>	<b>100.0%</b>	<b>78,661</b>	<b>100.0%</b>	<b>1,980</b>	<b>100.0%</b>	<b>1,482</b>	<b>100.0%</b>	<b>3,463</b>	<b>100.0%</b>	<b>3.0%</b>	<b>3.0%</b>	<b>4.4%</b>

Source: Nelson\Nygaard, analysis of Metro 2035 Travel Demand Model data by Southwest Corridor District

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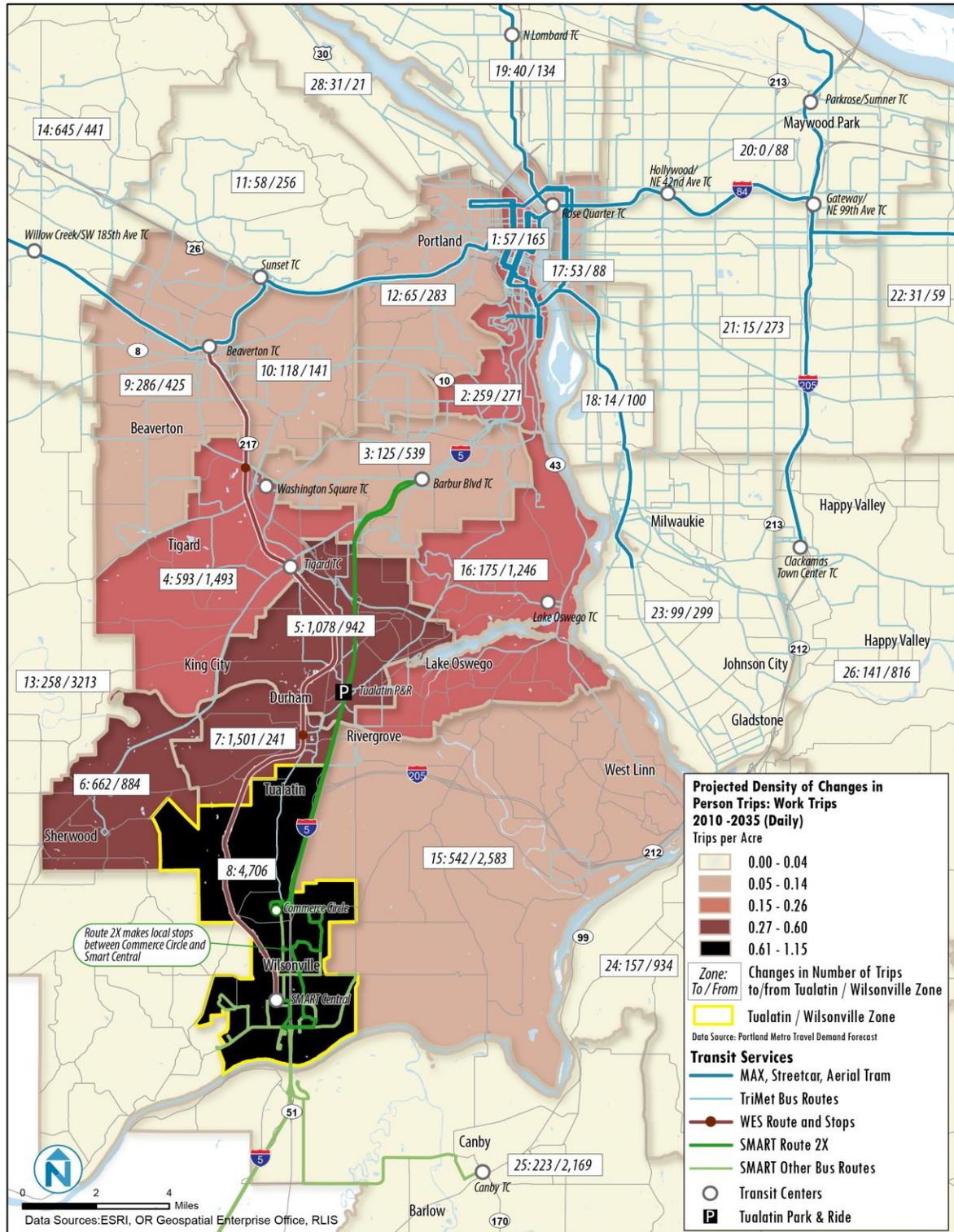
**Figure 5-15 Change in Home-Based Work Trips, 2010-2035: All Trips and Transit Trips**

District	Change in Home-Based Work Person Trips, 2010-2035						Change in Home-Based Work Transit Trips, 2010-2035					
	From 8 to:		To 8 from:		To/from 8:		From 8 to:		To 8 from:		To/from 8:	
	#	%	#	%	#	%	#	%	#	%	#	%
1	57	5.5%	165	175.0%	223	19.6%	180	37.6%	45	198.7%	225	44.9%
2	259	48.7%	271	122.8%	530	70.4%	86	101.7%	27	127.3%	113	106.8%
3	125	37.7%	539	61.4%	664	54.9%	11	95.2%	26	66.9%	37	73.4%
4	593	65.1%	1,493	91.7%	2,086	82.2%	76	138.9%	55	123.8%	130	132.2%
5	1,078	50.6%	942	85.5%	2,020	62.5%	60	128.0%	36	159.2%	96	138.2%
6	662	176.7%	884	71.1%	1,546	95.6%	7	250.4%	13	92.3%	20	119.9%
7	1,501	111.6%	241	69.9%	1,742	103.1%	30	248.8%	8	75.7%	38	168.3%
8	4,706	118.0%	4,706	118.0%	9,412	118.0%	105	116.3%	105	116.3%	210	116.3%
9	286	46.2%	425	40.8%	710	42.8%	60	114.6%	32	68.5%	92	92.8%
10	118	36.6%	141	36.7%	259	36.7%	9	100.4%	10	63.7%	19	77.2%
11	58	23.8%	256	56.0%	314	44.8%	8	79.2%	13	86.6%	21	83.7%
12	65	17.0%	283	57.7%	348	39.8%	31	88.1%	29	79.5%	60	83.8%
13	258	144.9%	3,213	313.6%	3,471	288.7%	0	83.2%	25	149.3%	25	148.7%
14	645	61.7%	441	27.7%	1,086	41.2%	65	88.1%	15	19.6%	80	53.1%
15	542	96.7%	2,583	123.3%	3,125	117.7%	4	124.9%	21	79.5%	25	84.2%
16	175	46.1%	1,246	90.3%	1,421	80.7%	6	79.3%	26	94.2%	33	90.8%
17	53	14.9%	88	197.4%	141	35.2%	76	136.7%	16	236.6%	92	147.9%
18	14	12.0%	100	49.2%	114	35.9%	1	26.2%	10	69.7%	11	58.7%
19	40	10.7%	134	40.3%	174	24.7%	3	22.8%	17	54.5%	20	44.3%
20	(0)	-0.2%	88	25.5%	88	14.9%	5	34.5%	13	41.4%	18	39.1%
21	15	5.4%	273	37.0%	288	28.3%	1	6.4%	33	50.4%	34	42.0%
22	31	22.5%	59	11.7%	90	14.0%	4	50.1%	5	19.5%	9	26.1%
23	99	23.2%	299	31.1%	398	28.6%	10	147.8%	8	26.0%	18	48.6%
24	157	46.3%	934	105.3%	1,091	89.0%	4	78.2%	21	92.1%	25	89.6%
25	223	46.9%	2,169	93.8%	2,393	85.8%	3	69.8%	32	86.5%	34	84.9%
26	141	25.6%	816	95.7%	956	68.3%	13	124.1%	11	46.6%	24	70.7%
27	11	24.4%	39	12.4%	50	14.0%	0	42.5%	(0)	-3.9%	(0)	-1.2%
28	31	19.1%	21	83.6%	52	27.8%	3	142.7%	1	129.2%	4	138.8%
29	2	1.9%	26	6.4%	27	5.6%	1	14.1%	4	44.0%	5	34.5%
<b>TOTAL</b>	<b>11,942</b>	<b>66.5%</b>	<b>22,875</b>	<b>88.4%</b>	<b>34,818</b>	<b>79.4%</b>	<b>862</b>	<b>77.0%</b>	<b>656</b>	<b>79.5%</b>	<b>1,518</b>	<b>78.1%</b>

Source: Nelson\Nygaard, analysis of Metro 2035 Travel Demand Model data by Southwest Corridor District



Figure 5-17 Projected Density of Change in Home-based Work Person Trips, 2010-2035





## **Non Home-based Work Trips in 2035**

Metro separates analysis between home-based and non home-based work trips. Non home-based work trips include all other trip purposes, such as to run an errand from work during the day or on the way to/from work or trips between home and non-work destinations.

- Figure 5-19 provides data for non home-based work person trips and non home-based work transit trips in 2035.
- Figure 5-20 provides data for the change in non home-based work person trips and non home-based work transit trips from 2010-2035.
- Figure 5-21 illustrates the change in non-home-based work trips.

Based on Metro's 2035 travel model for non home-based work person trips about 49% of all trips are anticipated to be within District 8, with a transit mode share of 1.2%. For non home-based work trips from District 8 to/from another district the following districts are expected to have the largest shares of non home-based work trips to/from Wilsonville:

- District 15 (Tigard): 8%
- District 15 (east of Wilsonville, West Linn): 7.2%
- District 5 (Tigard, Lake Oswego/Tualatin): 5.9%
- District 4 (Tigard): 4.2%
- District 7 (Tualatin): 4.1%
- District 13 (Unincorporated Clackamas and Washington Counties): 4.0%

Change in non home-based work person trips includes:

- The most significant projected growth in non-work travel includes non-work trips between Wilsonville and Tualatin/Tigard (Districts 5 and 7) and Sherwood (District 6).
- More moderate increases in non-work travel include to/from Tigard, Southwest Portland, and Lake Oswego.
- Although dispersed over a broad area, significant growth is projected from District 13 (Unincorporated Clackamas and Washington Counties) and moderate growth from the Canby area (District 25).

Metro's 2035 model forecasts that transit will capture the largest share of all non home-based work trips between Wilsonville (District 8) and the following districts:

- District 1 (Downtown Portland): 8.4%
- District 3 (SW Portland – Barbur Transit Center and Barbur Boulevard Corridor): 3.3%
- District 17 (Inner Eastside/Lloyd District): 1.9%

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**Figure 5-19 Non-Work Trips, 2035: All Trips, Transit Trips, and Transit Share of All Trips**

District	All Non Home-Based Work Person Trips						Non Home-Based Work Transit Trips						Transit Share of Non Home-Based Work Trips		
	From 8 to:		To 8 from:		To/from 8:		From 8 to:		To 8 from:		To/from 8:		From 8 to:	To 8 from:	To/from 8:
	#	%	#	%	#	%	#	%	#	%	#	%			
1	745	0.5%	477	0.3%	1,223	0.4%	84	6.8%	18	2.1%	103	4.9%	11.3%	3.9%	8.4%
2	1,821	1.2%	851	0.6%	2,672	0.9%	26	2.1%	16	1.9%	43	2.0%	1.5%	1.9%	1.6%
3	5,331	3.4%	1,687	1.2%	7,018	2.4%	206	16.5%	24	2.8%	230	10.9%	3.9%	1.4%	3.3%
4	8,158	5.2%	4,249	3.1%	12,407	4.2%	69	5.6%	35	4.0%	104	4.9%	0.8%	0.8%	0.8%
5	12,331	7.8%	5,270	3.8%	17,601	5.9%	81	6.5%	38	4.5%	120	5.7%	0.7%	0.7%	0.7%
6	4,986	3.2%	4,755	3.4%	9,741	3.3%	16	1.3%	14	1.6%	29	1.4%	0.3%	0.3%	0.3%
7	8,570	5.4%	3,679	2.7%	12,249	4.1%	42	3.4%	24	2.8%	66	3.1%	0.5%	0.6%	0.5%
8	72,970	46.3%	72,970	52.7%	145,940	49.3%	483	38.7%	483	56.1%	967	45.8%	0.7%	0.7%	0.7%
9	3,579	2.3%	1,518	1.1%	5,097	1.7%	37	3.0%	22	2.5%	59	2.8%	1.0%	1.4%	1.2%
10	1,700	1.1%	694	0.5%	2,394	0.8%	10	0.8%	7	0.8%	17	0.8%	0.6%	1.0%	0.7%
11	967	0.6%	707	0.5%	1,673	0.6%	5	0.4%	5	0.6%	11	0.5%	0.6%	0.8%	0.6%
12	1,556	1.0%	709	0.5%	2,265	0.8%	18	1.5%	13	1.6%	32	1.5%	1.2%	1.9%	1.4%
13	3,741	2.4%	7,969	5.8%	11,710	4.0%	11	0.8%	16	1.9%	27	1.3%	0.3%	0.2%	0.2%
14	2,953	1.9%	1,991	1.4%	4,944	1.7%	24	1.9%	16	1.9%	40	1.9%	0.8%	0.8%	0.8%
15	8,662	5.5%	12,627	9.1%	21,289	7.2%	33	2.7%	44	5.1%	77	3.6%	0.4%	0.3%	0.4%
16	3,817	2.4%	4,073	2.9%	7,890	2.7%	22	1.8%	19	2.2%	41	1.9%	0.6%	0.5%	0.5%
17	1,126	0.7%	262	0.2%	1,388	0.5%	20	1.6%	6	0.7%	26	1.2%	1.8%	2.3%	1.9%
18	473	0.3%	265	0.2%	738	0.2%	3	0.2%	4	0.5%	8	0.4%	0.7%	1.7%	1.0%
19	954	0.6%	505	0.4%	1,458	0.5%	8	0.7%	9	1.0%	17	0.8%	0.9%	1.8%	1.2%
20	869	0.6%	442	0.3%	1,311	0.4%	8	0.6%	6	0.7%	13	0.6%	0.9%	1.3%	1.0%
21	1,554	1.0%	623	0.4%	2,177	0.7%	13	1.1%	14	1.7%	27	1.3%	0.8%	2.3%	1.3%
22	608	0.4%	348	0.3%	956	0.3%	5	0.4%	4	0.5%	8	0.4%	0.7%	1.1%	0.9%
23	2,059	1.3%	1,356	1.0%	3,415	1.2%	5	0.4%	8	0.9%	13	0.6%	0.2%	0.6%	0.4%
24	2,082	1.3%	1,971	1.4%	4,053	1.4%	4	0.3%	3	0.4%	7	0.3%	0.2%	0.2%	0.2%
25	2,674	1.7%	6,677	4.8%	9,351	3.2%	4	0.3%	9	1.0%	12	0.6%	0.1%	0.1%	0.1%
26	2,347	1.5%	1,491	1.1%	3,838	1.3%	7	0.5%	3	0.4%	10	0.5%	0.3%	0.2%	0.3%
27	128	0.1%	183	0.1%	311	0.1%	0	0.0%	0	0.0%	0	0.0%	0.0%	0.1%	0.0%
28	176	0.1%	114	0.1%	290	0.1%	1	0.1%	0	0.1%	1	0.1%	0.5%	0.4%	0.5%
29	496	0.3%	112	0.1%	608	0.2%	2	0.1%	1	0.1%	2	0.1%	0.3%	0.6%	0.4%
<b>TOTAL</b>	<b>157,433</b>	<b>100.0%</b>	<b>138,573</b>	<b>100.0%</b>	<b>296,007</b>	<b>100.0%</b>	<b>1,247</b>	<b>100.0%</b>	<b>862</b>	<b>100.0%</b>	<b>2,109</b>	<b>100.0%</b>	<b>0.3%</b>	<b>0.6%</b>	<b>0.7%</b>

Source: Nelson\Nygaard, analysis of Metro 2035 Travel Demand Model data by Southwest Corridor District

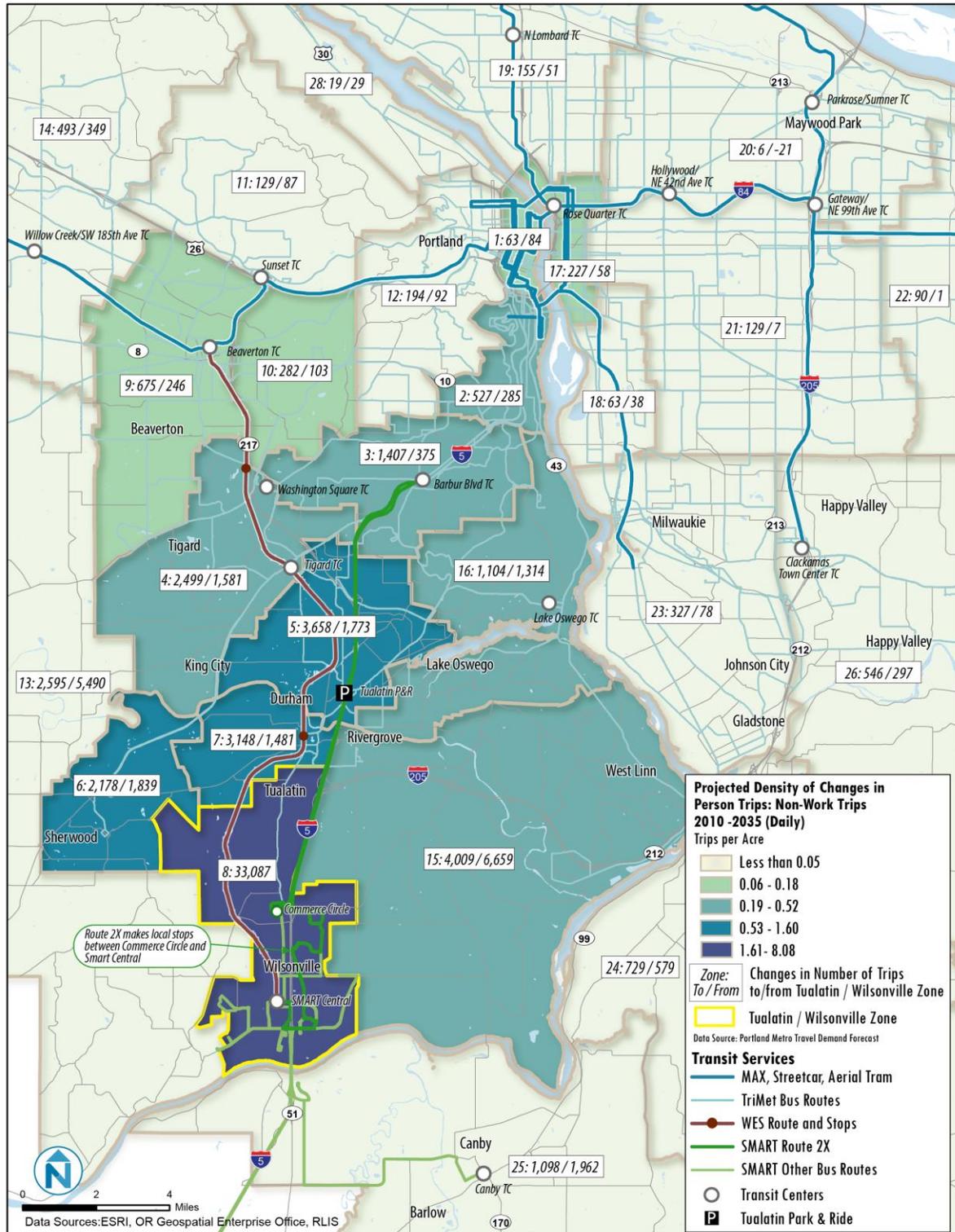
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**Figure 5-20 Change in Non-Work Trips, 2010-2035: All Trips and Transit Trips**

District	Change in Non-Work Person Trips, 2010-2035						Change in Non-Work Transit Trips, 2010-2035					
	From 8 to:		To 8 from:		To/from 8:		From 8 to:		To 8 from:		To/from 8:	
	#	%	#	%	#	%	#	%	#	%	#	%
1	63	9.3%	84	21.4%	148	13.7%	10	13.3%	8	69.8%	18	20.6%
2	527	40.7%	285	50.4%	812	43.7%	7	38.5%	9	112.9%	16	59.9%
3	1,407	35.8%	375	28.6%	1,782	34.0%	116	129.4%	13	111.0%	129	127.3%
4	2,499	44.2%	1,581	59.2%	4,080	49.0%	40	137.6%	20	131.1%	60	135.4%
5	3,658	42.2%	1,773	50.7%	5,431	44.6%	44	120.1%	22	140.8%	67	126.4%
6	2,178	77.6%	1,839	63.1%	4,017	70.2%	7	73.4%	4	46.2%	11	59.7%
7	3,148	58.1%	1,481	67.3%	4,629	60.7%	23	126.5%	12	106.9%	36	119.0%
8	33,087	83.0%	33,087	83.0%	66,174	83.0%	205	73.7%	205	73.7%	410	73.7%
9	675	23.3%	246	19.3%	921	22.1%	18	93.9%	11	99.0%	29	95.7%
10	282	19.9%	103	17.5%	386	19.2%	5	80.9%	3	94.5%	8	86.1%
11	129	15.3%	87	14.0%	215	14.8%	1	34.5%	2	63.9%	3	47.9%
12	194	14.2%	92	15.0%	286	14.4%	5	41.8%	6	82.3%	11	56.5%
13	2,595	226.3%	5,490	221.4%	8,084	223.0%	6	135.4%	7	71.6%	13	92.3%
14	493	20.1%	349	21.3%	843	20.6%	8	52.0%	6	53.7%	14	52.7%
15	4,009	86.1%	6,659	111.6%	10,667	100.4%	19	136.3%	19	76.8%	38	98.3%
16	1,104	40.7%	1,314	47.6%	2,418	44.2%	14	174.3%	8	77.4%	22	119.3%
17	227	25.2%	58	28.6%	285	25.9%	7	49.9%	3	102.1%	10	59.4%
18	63	15.3%	38	16.6%	100	15.7%	0	4.9%	2	70.6%	2	35.7%
19	155	19.3%	51	11.2%	205	16.4%	1	7.2%	4	69.1%	4	32.1%
20	6	0.6%	(21)	-4.5%	(15)	-1.2%	(0)	-1.8%	1	30.1%	1	9.8%
21	129	9.0%	7	1.2%	136	6.7%	(1)	-8.2%	4	41.3%	3	12.3%
22	90	17.3%	1	0.4%	91	10.5%	0	11.8%	0	12.1%	1	12.0%
23	327	18.9%	78	6.1%	405	13.5%	1	29.7%	1	22.3%	3	25.1%
24	729	53.8%	579	41.6%	1,308	47.7%	1	55.0%	(0)	-1.0%	1	21.5%
25	1,098	69.6%	1,962	41.6%	3,060	48.6%	2	79.2%	(1)	-13.1%	0	2.5%
26	546	30.3%	297	24.9%	843	28.1%	2	41.0%	0	3.8%	2	26.4%
27	32	33.6%	(12)	-6.3%	20	6.9%	0	19.4%	(0)	-4.5%	0	0.7%
28	19	12.3%	29	33.6%	48	19.8%	1	159.7%	0	100.0%	1	134.0%
29	49	10.9%	(21)	-16.1%	27	4.7%	0	20.1%	0	26.0%	0	21.8%
<b>TOTAL</b>	<b>59,516</b>	<b>60.8%</b>	<b>57,890</b>	<b>71.8%</b>	<b>117,406</b>	<b>65.7%</b>	<b>543</b>	<b>77.1%</b>	<b>369</b>	<b>74.9%</b>	<b>912</b>	<b>76.2%</b>

Source: Nelson\Nygaard, analysis of Metro 2035 Travel Demand Model data by Southwest Corridor District

Figure 5-21 Projected Density of Change in Non-Work Person Trips, 2010-2035



## MARKET AND NEEDS ASSESSMENT SUMMARY

Key findings from the market assessment are described at local and regional scales.

### Local

- A relatively high share of the age 20-30 population, a high rate of renter-occupied housing units, and a relatively low rate of vehicle access point to increased propensity to use transit among Wilsonville residents:
  - The share of Wilsonville residents between the ages of 20 and 30 is higher than Clackamas County or the state. Recent studies and statistics have pointed to trends of less driving and increased use of transit (as well as walking and bicycling) among this demographic group. For example, the share of miles driven by people age 21-30 decreased from 20.8% in 1995 to just 13.7% in 2009,<sup>15</sup> while 20-somethings grew from 13.3% of the population to 13.9% during this time.<sup>16</sup> According to the Federal Highway Administration, 25% of “Millennials” (persons born between 1979 and 1996) did not have a driver’s license in 2010, compared to 20% in 2000.<sup>17</sup>
  - Over half of Wilsonville housing units are renter-occupied, significantly higher than Clackamas County or the state, and over 9% of households do not have access to a vehicle. SMART fixed-routes serve most major multi-family housing developments in Wilsonville.
- Several factors may contribute to lower use of SMART fixed-route transit among older adults. About 13% of Wilsonville’s population is 65 or older, comparable to Clackamas County and the state. However the poverty rate among this population is lower than either of these geographies. Although most of the senior housing or assisted living facilities in Wilsonville are located near transit, the concentrations of seniors in the eastern portion of the Charbonneau area do not have transit service in close proximity. Marquis Vintage Suites is also located about a third of a mile from a bus stop (straight-line distance), which is beyond a comfortable walking distance for some seniors. In addition, seniors who may not have used transit previously may be more comfortable using Dial-A-Ride service when they are unable or choose not to drive, particularly given that this service is available to the general public.
- The need to transfer (and perceived inconvenience of those transfers) may make transit less attractive for local work commutes to employment areas on either side of I-5. Travel to employment areas in the northern part of Wilsonville (either side of I-5) from residential areas concentrated in southern parts of the city typically requires a transfer. Because local routes are timed to WES trains during peak periods, the transfer requires a nearly 15-minute wait. This makes SMART less convenient for local work trips. Off-peak, when WES is not running, the wait is just over 5-minutes, which is likely more tolerable for passengers. Local origin-destination patterns from the on-board survey indicate that

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<sup>15</sup> U.S. Department of Transportation, Federal Highway Administration, National Household Travel Survey

<sup>16</sup> U.S. Census, 2010

<sup>17</sup> America’s Generation Y not driven to drive. Reuter’s 7/1/2012. Retrieved from: <http://news.yahoo.com/americas-generation-y-not-driven-drive-145632280--sector.html>

most local use of Route 2X is for access to destinations located directly along the route; only 8% of respondents transferred to SMART local routes (Route 4).

## Regional

- Route 2X is convenient for regional work trips serving employment areas east of I-5, but at the expense of faster, more direct regional access to other destinations in Wilsonville including the city center. Data from the LEHD illustrates that there is significant regional work travel demand to employment sites located along Route 2X in Wilsonville (northern part of the city east of I-5), and Route 2X provides convenient access to these employment sites from Portland or Tualatin Park & Ride. However, there are also major concentrations of employment west of I-5 and along Wilsonville Road for which Route 2X is a less attractive travel option. While Route 2X provides a direct trip between Barbur TC and Commerce Circle (about 20 minutes, compared to a driving time of about 13 minutes), there are 20 stops between Commerce Circle (or Argyle Square off-peak) and Wilsonville Civic Center. The southbound travel time on Route 2X is about 18 minutes between I-5 at Elligsen Road and the Civic Center stop, which is up to three times longer than a more direct driving trip between these points. For workers along 95<sup>th</sup> Avenue (west of I-5), a timed connection between Route 2X or TriMet Line 96 and SMART Route 5 provides service to west of I-5 work travel markets; southbound Route 5 departs Commerce Circle within about 5-15 minutes of Line 96 arrivals. Some but not all Route 2X trips have timed connections with Route 5, which only operates during peak periods. Route 5 also provides a faster travel time and direct route to SMART Central, about 7 minutes, for regional trips that do have a timed connection with it.
- Portland is the largest single market for work commute travel to and from Wilsonville (11.6% and 22.1%, respectively, based on LEHD data) but in aggregate other cities along the Hwy 217 and I-5 corridors (Beaverton, Tigard, Tualatin, Hillsboro, and Lake Oswego) represent a comparable-size travel market. WES serves the Hwy 217 corridor during peak hours but does not provide off-peak service (midday, early morning, or evening) needed for work shifts that start and/or end outside of peak commute periods or travel for non-work purposes. Connections with other TriMet routes, e.g., Line 76, are important for serving Hwy 217 corridor travel markets when WES is not in operation.
- Metro staff indicated that regional travel patterns show significant movement from south Hillsboro in an arc down to Tualatin-Sherwood and on into Wilsonville. Surveys conducted for the Southwest Corridor Plan show strong cross corridor (east-west) demand for services, and also indicate a greater demand for local service than for downtown service.
- Route 2X appears to be serving travel demand to destinations in the vicinity of Barbur Transit Center, but there appears to be strong potential to increase ridership with better access to transit connections and walking access to destinations. The majority of respondents indicate they are able to walk to access Route 2X and/or their destination, although over a third of respondents require another transit trip to access the route and/or their destination. The regional travel demand model indicates that there is stronger density of travel demand in districts north of the current Route 2X terminus than in the district where Barbur TC is located. This includes OSHU/Marquam Hill, Downtown Portland, and the Inner Eastside/Lloyd District. The Route 2X onboard survey indicates that some passengers are also accessing Route 2X from other surrounding Portland districts, and the model confirms work travel demand between

- these zones and Wilsonville. The model projects high 2035 transit mode shares for trips between these districts and Wilsonville. The transit projections assume only enhanced bus service (but not BRT or light rail) in Southwest Corridor (Tigard/Sherwood to Portland), but do assume future connections such as the MAX orange line and Eastside Streetcar Loop (which will serve South Waterfront).
- For travel south of Wilsonville, the Woodburn commute market is comparable in size to the Salem commute market, and may increase other market opportunities (such as to Woodburn factory outlets from Wilsonville or the Portland region). Based in LEHD data, nearly as many workers commute to Wilsonville from Woodburn (2.5% of Wilsonville workers) as commute to Wilsonville from Salem (3.2% of Wilsonville workers). Similarly, comparable shares of Wilsonville residents work in Woodburn and Salem (1.8% and 1.7%, respectively). Providing a Woodburn stop on the 1X route is an element of the Wilsonville TMP (2008), and providing a Woodburn stop on 1 out of 4 trips on the 1X (those that do not have a timed connection with WES) is a proposed element of the draft Salem-Keizer Transit long-range plan.
  - Given current passenger demand, the small buses currently used on most Route 2X trips provide appropriate capacity for Route 2X trips, but may limit its appeal to new riders. And possible increased demand from Stream Global, Oregon Tech, and other locations may create problems with passenger loading on trips served by smaller busses. The quality of the ride on cutaway vehicles is not ideal for attracting passengers on longer, regional trips, although only relatively small shares of current Route 2X and Line 96 riders cite these factors as among the most important Route 2X improvements, although a large share of Route 2X riders identify “motor coach seats” as a key improvement were those in higher income brackets.
  - Based on analysis of current medical trip destinations on SMART Dial-A-Ride service, the largest concentrations of regional medical trips are to medical destinations in the Tualatin area, followed by OHSU and the VA Hospital on Marquam Hill in Portland. For passengers able to use fixed-route service, some of these trips within the Tualatin area could be met with improved connections to existing TriMet service (Line 76) or expanded local stops provided by SMART Route 2X or another route. Similarly, medical trips to Portland and/or Marquam Hill could be served for some passengers by providing better connections to existing transit service such as the Portland Aerial Tram or TriMet Line 8.

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## 6 POTENTIAL STRATEGIES

### INTRODUCTION

There are a host of operational, cost, and social reasons to better integrate paratransit and fixed-route transit services. As the population of Wilsonville grows both in number and median age, stresses to the out-of-town medical service program will increase. The benefits of integration are manifold and include cost savings and program consolidation for SMART and social integration and independence for the customer. Disadvantages include the possibility of inconvenience or increased travel times for customers (including fixed-route passengers), difficulties of scheduling, and negative community reaction. This section outlines some of the integration options available and offers an assessment of the benefits and disadvantages of each option.

The following are important concerns for potential paratransit and fixed-route integration approaches:

- All alternative services and program options should consider the implications of integration on any special needs of those currently using demand response services and the necessary training of fixed-route operators.
- No program should be utilized to inappropriately steer customers toward other services when specialized transportation options are better suited. Programs should be offered as a palette of options available and utilizing any additional programs should be a benefit, not an exclusion from other services.
- Options that physically integrate fixed-route and paratransit services require a functional eligibility screening program. A strengthened screening program benefits the customer and SMART. Screening allows proper assessment of the customer's ability to walk or roll certain distances unassisted from their home to a transit stop (1/8 mile versus 1/4 mile, for example), the distance between the stop and common locations, the quality of the built environment along common routes, and other mitigating factors.

### OUT-OF-TOWN MEDICAL SERVICE STRATEGIES

#### **Integrate Out of Town Medical Dial-A-Ride and Fixed-Route Trips**

This strategy physically integrates demand response service with fixed-route service when dial-a-ride is needed at the rider's origin and/or destination. This may occur when the passengers cannot navigate to a fixed-route bus stop due to a disability or barriers in the path of travel to the stop but can otherwise travel on a fixed-route bus. It is also the case when fixed-route services are not nearby. The integration takes the form of demand-response feeder service connecting with fixed-route service and requiring passenger to transfer between the two modes. This approach can

greatly reduce costs and free up vehicles if the long-distance component of a long trip can be shifted to fixed route.

Implementation of feeder would require SMART to establish trip screen to identify what trips can be partially shifted to fixed route. Conditional eligibility is also required as part of this process to match rider capabilities with the transfer and fixed-route travel requirements. Depending on the customers' conditional eligibility status and ability to walk or roll short distances, a paratransit vehicle will bring them to a fixed-route bus stop or rail station and they will walk or roll to their destination. Alternatively, a paratransit vehicle may be employed on both ends of the fixed-route segment if the bus or train is not within easy access of the trip's final destination.<sup>18</sup>

### **Strategy Benefits and Concerns**

- **Benefits**
  - Adds capacity for demand response trips by reducing the time spent by dial-a-ride vehicles making long-distance trips
  - Lowers costs for long-distance travel
- **Concerns**
  - The fixed route options connecting popular Wilsonville origins and medical service destinations are limited
  - Destinations not along scheduled SMART or TriMet services will require demand response “last-mile” connections
  - Adds administrative costs to determine who can transfer between services and when
  - Customer pushback when faced with making one or two transfers and making long part of trip on fixed-route bus

### **Shift Out-of-Town Medical Dial-A-Ride trips to fixed route**

Transit trips made via demand-response, or dial-a-ride services are inherently more expensive than those completed on fixed-route services. Fixed route's ability to carry more riders per hour or mile of service leads to conditions where dial-a-ride trips cost five times as much. Therefore the first potential solution strategy strives to encourage out-of-town medical trip riders to use fixed route whenever they can. This strategy encompasses a number of well-accepted tactics used in the transit industry to reduce the demand for paratransit services. These include the following approaches:

#### **Conditional Eligibility and Trip Screening**

Through accurate assessment of eligibility, SMART may determine the conditions under which a consumer is best suited to use the higher-cost specialized services. Some customers will be considered conditionally eligible, meaning they are eligible to use paratransit service under certain conditions such as weather, night-time travel, long or difficult walks to destinations, and environmental barriers. While service must be streamlined, it is important to not negatively impact those in need of paratransit. In order to best serve those conditionally eligible, an enhanced eligibility process would complete one-on-one trip screening and path of travel reviews

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<sup>18</sup> For more information, see: Mistretta, J., et al. “Best Practices In Transit Service Planning.” National Center for Transit research, Center for Urban Transportation Research: Tampa, FL, 2009. Accessed online: <http://www.nctr.usf.edu/pdf/77720.pdf>

to identify any barriers a customer would encounter getting to and from a bus stop or rail station.<sup>19</sup>

### **Fare Free or Reduced Fare Programs**

To encourage current paratransit eligible customers to utilize fixed-route service a number of service providers offer fare free or reduced fare programs. These programs are offered to all ADA paratransit eligible customers; without limiting access to paratransit they offer increased options and flexibility. Customers may use whichever service fits their needs and ability.<sup>20</sup> Some systems limit the reduced or free fares for eligible customers to non-peak service hours to shift ridership to service hours when there is available capacity.

### **Travel Training and Promotion**

Helping individuals who can ride fixed-route service make appropriate trips on this mode will help SMART reduce costs by shifting passengers to the lower cost service. Beyond costs, there are tangible social benefits of riding fixed-route service including social integration. A daunting first step for customers with mobility or cognitive impairments may be learning safe and comfortable access to transit. Through one-on-one coaching, travel training aids paratransit eligible customers in navigating safe routes to and from transit for their common destinations. Training can include: reading schedules, wayfinding, and other information; emergency and service disruption education; and travel safety instruction. Promotion of the program is key to its success. Ideally, training and outreach takes places before a customer applies for paratransit, SMART currently provides elements of travel training and Ride Connection has a regional program.<sup>21</sup>

### **Transit Host**

Transit host programs can be coupled well with robust travel training program. A transit host is a transfer facilitator who is prescheduled to support customers in transfers between paratransit and fixed-route service at transit nodes, such as a transit center. Lane Transit District (LTD) partners with a local non-profit, Alternative Work Concepts (AWC) to provide this program. AWC employees are present at transit nodes to ensure the safe and comfortable transfer of customers from one service to another; these transit hosts are also qualified travel trainers, dovetailing programs to both facilitate the transfer and, if appropriate, educating the customer about how to safely make the transfer on their own.<sup>22</sup>

### **Strategy Benefits and Concerns**

- **Benefits**
  - Employs techniques currently in use by SMART or readily available to the agency

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<sup>19</sup> For more information, see: Sapper, D., J. Goodwill, and H. Carapella. "Impacts of More Rigerous ADA Paratransit Eligibility Assessments on Riders with Disabilities." National Center for Transit research, Center for Urban Transportation Research: tampa, FL, 2009. Accessed online: <http://www.nctr.usf.edu/pdf/77721.pdf>

<sup>20</sup> For more information see: Weiner, R. "TCRP Synthesis 76: Integration of Paratransit and Fixed-Route Transit Service: A Synthesis of Transit Practice." Transportation Research Board, National Academy of Sciences: Washington, DC, 2008. Accessed online: [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_syn\\_76.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_syn_76.pdf)

<sup>21</sup> For more information, see the RideWise Program: <http://www.rideconnection.org/ride/Services/RideWise.aspx>

<sup>22</sup> For more information, see: Alternative Work Concepts, "Travel Training and Transit Host Program" online fact sheet, accessed online: [http://www.travelinstruction.org/2007\\_Conference\\_Presentations/Travel%20Training%20&%20Transit%20Host%20Program%201.pdf](http://www.travelinstruction.org/2007_Conference_Presentations/Travel%20Training%20&%20Transit%20Host%20Program%201.pdf)

- **Concerns**
  - Increased administrative costs to manage programs and evaluate rider capabilities
  - Customer pushback when faced with losing custom trips and/or going through additional screen procedures
  - Requires good fixed-route options both in Wilsonville and at rider destinations in order to shift trips away from demand response services
  - Some rider disabilities require specialized services and cannot ride fixed route

## **Serve Primary Destination with Medical Shuttle**

This strategy addresses the limited productivity the out-of-town medical service by serving popular destination with scheduled service. This service can take to form of a point deviation system that stops at key locations (SMART Central, medical facilities etc) at scheduled times and is free to pick up additional passenger on an on-demand basis between. Or it can be a deviated route service that serves these key locations via a published fixed route and schedule, but also deviates to pick up passengers not on the route on an on-demand basis. Deviations to pick up or drop off passengers are often scheduled in advance.<sup>23</sup> This form of community transit service is typically used for shorter distance “routes” to shopping and medical destinations. The SMART Shopper Shuttle is an example of this type of service.

These services can provide more efficient service (carrying more riders at the same time) when serving a limited set of popular and nearby destinations. The fixed-route aspect of these services attracts riders who can plan travel around the scheduled stops and not be required to call in for a reserved ride. They also tend to provide more direct trips as compared to curb-to-curb demand response service that often carry single passengers over greater distances. Figure 6-1 illustrates a concept for the medical shuttle strategy.

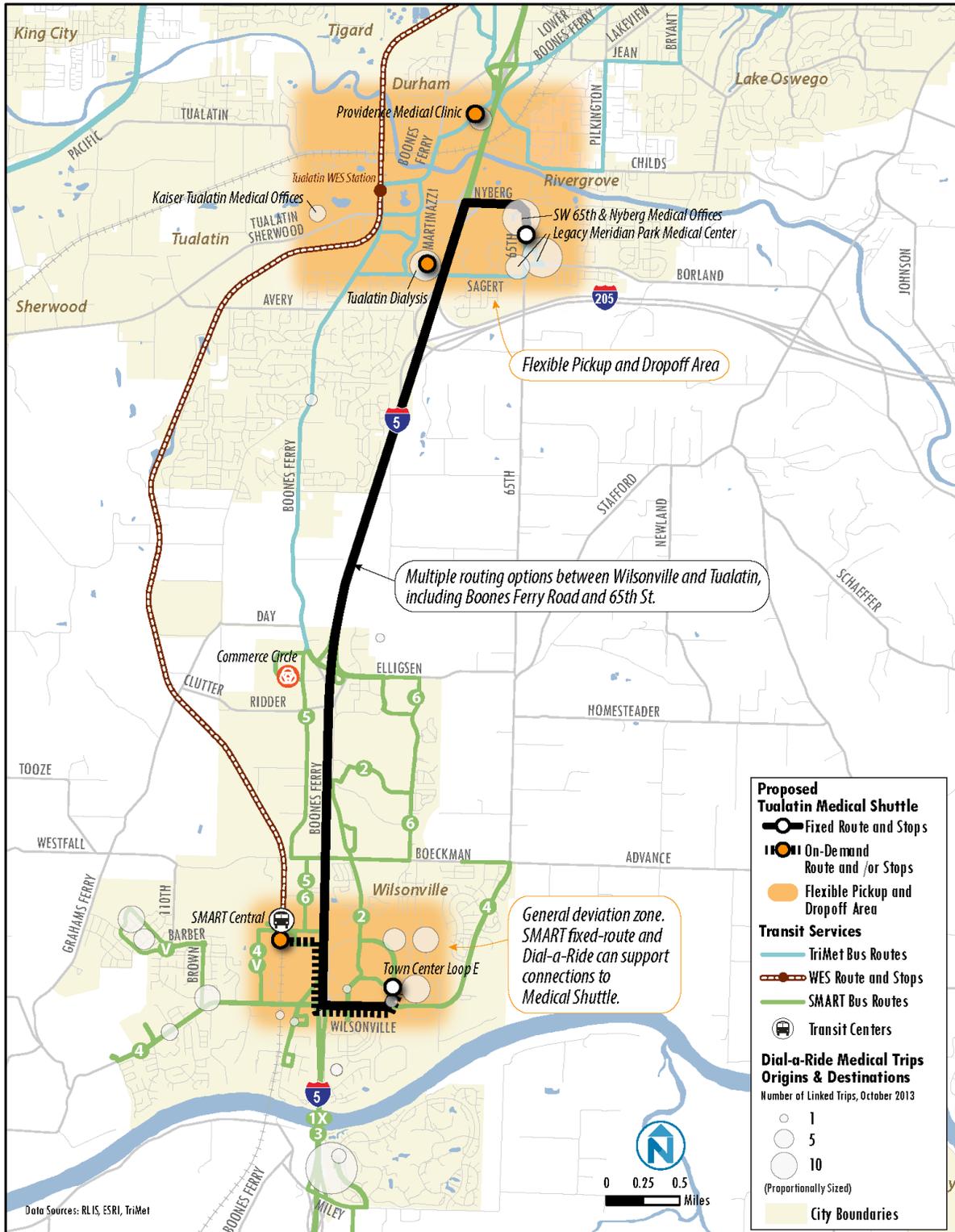
### **Strategy Benefits and Concerns**

- **Benefits**
  - Provides convenient access to popular destinations
  - Increases capacity for trips to popular destinations
- **Concerns**
  - Limits coverage area for medical service
  - Some customers will perceive scheduled times as a constraint

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<sup>23</sup> For more information, see: Urbitran Associates, Inc., et al “TCRP Report 55: Guidelines for Enhancing Suburban Mobility using Public Transportation.” Transportation Research Board, National Research Council: Washington, DC, 1999. Accessed online: [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_rpt\\_55-b.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_55-b.pdf)

Figure 6-1 Conceptual Medical Shuttle



## ROUTE 2X SERVICE STRATEGES

These strategies address the poor productivity (in terms of ridership per hour of service provided) on the Route 2X, especially on the out-of-town segment. The unattractiveness of the Barbur Transit Center as a final destination, the limited regional connections at the Barbur Transit Center, the cost of transferring to TriMet outside of Wilsonville, and the long distances traveled all lead to the poor ridership resulting in inefficiencies of the current Route 2X. The strategies presented in this section offers address one or more of these limiting factors. Some options seek to coordinate SMART services with existing TriMet regional services thereby eliminating overlapping services and improving efficiencies.

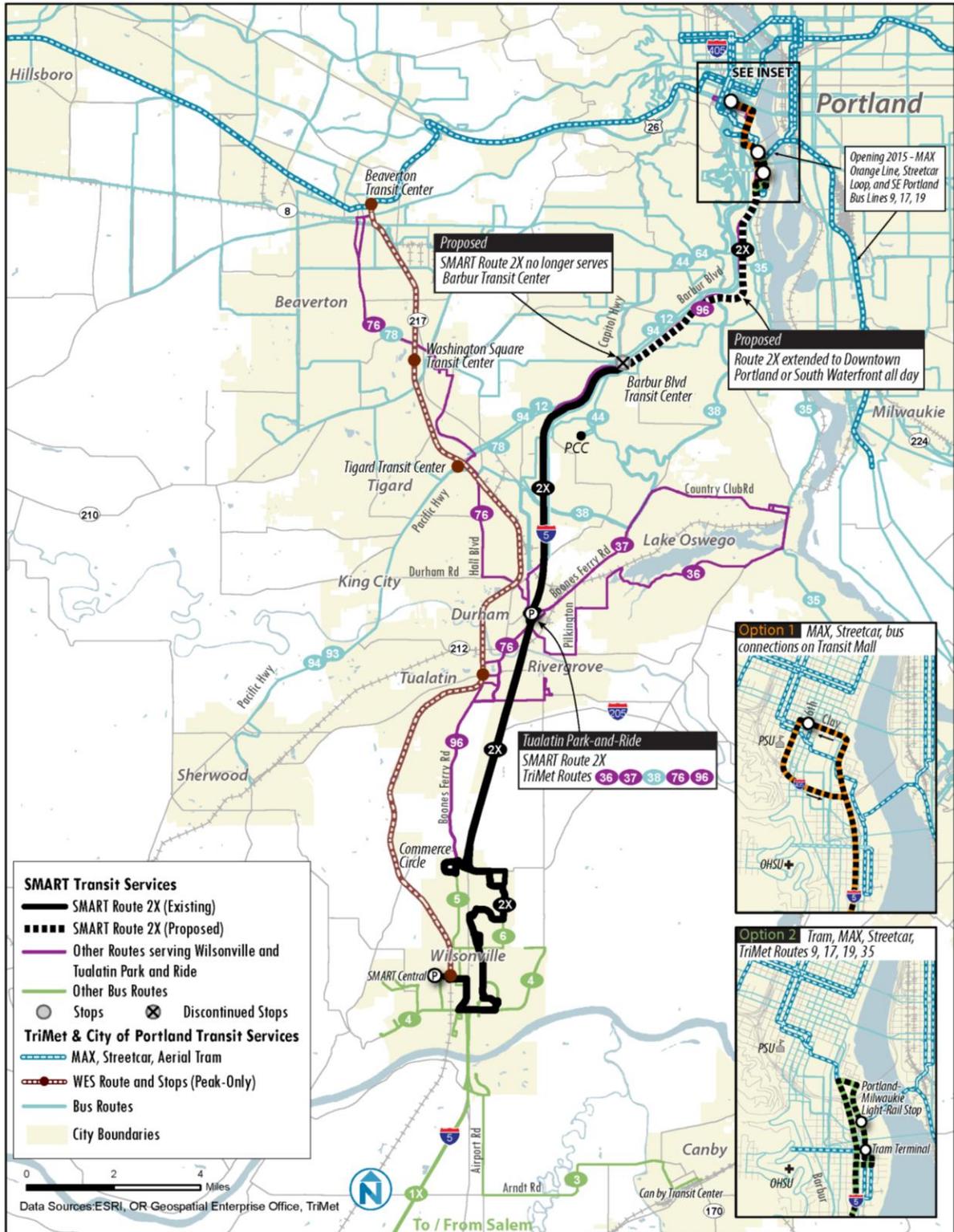
### Provide Direct Service to Portland

This strategy provides a “single-seat” ride (not requiring transfers) to Downtown Portland or the nearby South Waterfront area. This approach is attractive to Wilsonville residents looking to take transit on a regular basis for jobs in Downtown, or for occasional personal trips into Portland. It was highlighted as a recommendation in the 2008 SMART Transit Master Plan. Figure 6-2 illustrates the direct service to Portland strategy.

### Strategy Benefits and Concerns

- Benefits
  - Increases ridership potential by terminating in more attractive locations
  - Downtown and South Waterfront are key transit markets as they experience a greater degree of traffic congestion and have high parking costs
  - Singe seat rides are faster than those requiring transfers
  - Increases opportunities for connections (most regional services out of Downtown Portland, and OHSU and Southeast Portland/Milwaukie (2015 with opening of Portland-Milwaukie LRT) out of South Waterfront)
- Concerns
  - Longer distances will increase operating costs unless service hours or frequency of service are reduced
  - Majority of regional trips will still require a transfer and multiple fares
  - Service to Downtown Portland may duplicate other TriMet service

Figure 6-2 Direct Route 2X Service to Downtown Portland Strategy



## **Provide Integrated (Line 96/Route 2X) Service to Portland**

This strategy provides direct service to Downtown Portland only during the midday when TriMet's Line 96 is not providing this linkage. The goal of this option would be to avoid service duplication and save resources that SMART can use to enhance other services.

During AM/PM Peak Hours, Route 2X would terminate at Tualatin Park & Ride when Line 96 operates (about 5:30-9:30 AM and 3-8 PM). Line 96 would serve Downtown Portland, with connections to TriMet buses, MAX light rail, and Streetcar.

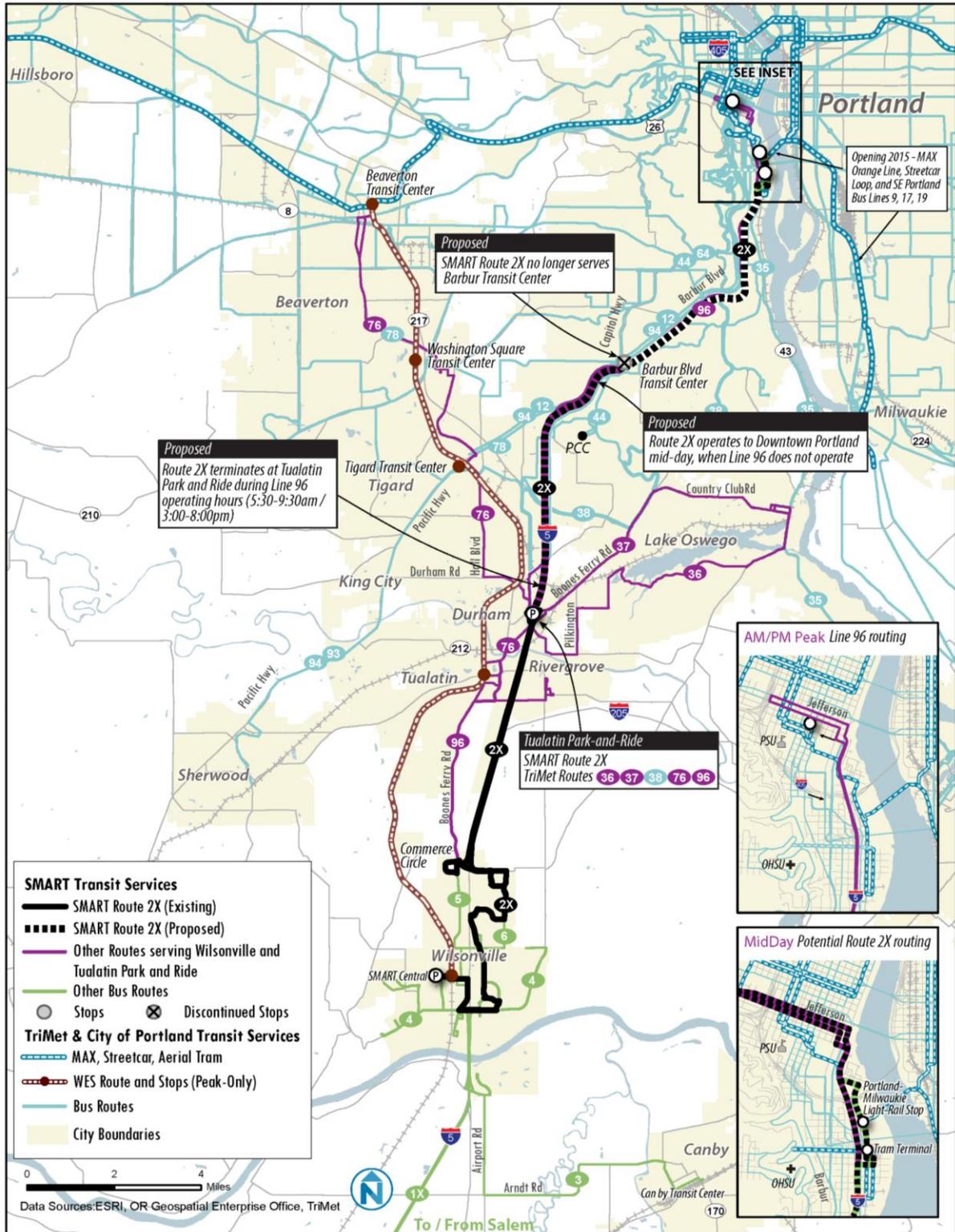
During the midday, Route 2X would be extended to Downtown Portland (about 9:30 AM – 3 PM). It would follow a similar route to Line 96. This service would be expected to be especially helpful to swing shift workers when Line 96 is not operating.

Figure 6-3 illustrates the integrated Line 96 / Route 2X strategy.

### **Strategy Benefits and Concerns**

- **Benefits**
  - Avoids duplication of service when TriMet Line 96 is in operation
  - Increases efficiency in terms of riders per hour by terminating in more attractive locations
  - Single seat rides during the midday
- **Concerns**
  - Creates need for peak-time transfers between SMART and TriMet services, requiring the need for a new fare structure to minimize impacts

Figure 6-3 Integrated Line 96/Route 2X Service



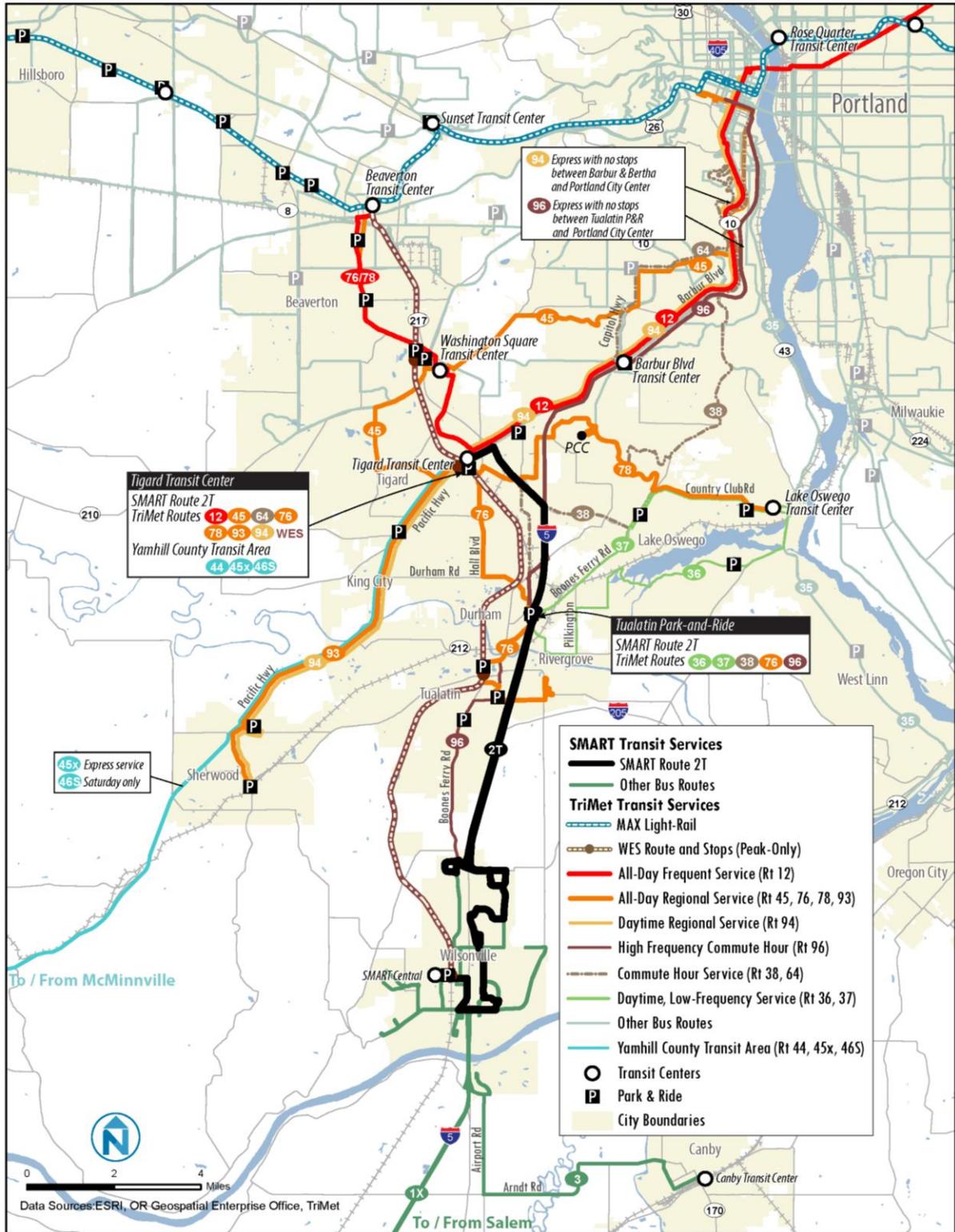
## **Connect with Regional Transit Network Closer to Wilsonville**

This strategy provides connections with the TriMet system close to Wilsonville to minimize travel distance and SMART operating costs. This would entail connections with existing regional service in Wilsonville, Tigard and/or Tualatin. Figure 6-4 illustrates this strategy, assuming a connection at Tigard Transit Center.

### **Strategy Benefits and Concerns**

- **Benefits**
  - Convenient connections to high travel demand destinations in westside communities
  - Potential for significant cost savings, especially if only filling in gaps to WES or Line 96 service
- **Concerns**
  - Most trips will involve transfers and require multiple fares
  - Some connecting services have limited hours of operation
  - Elimination of Route 2X creates need to replace local service currently provided by Route 2x
  - Southwest Corridor Project likely to change nature of connecting service in the future

Figure 6-4 Regional Transit Connections Closer to Wilsonville Strategy



## **Upgrade TriMet Line 96 Service to Provide All-Day Downtown Portland Service**

This strategy relies on the TriMet Line 96 service to connect Wilsonville with Downtown Portland. Line 96 would require additional trips each day to provide all-day service and would need to terminate at SMART Central or at the Town Center to optimize connections.

### **Strategy Benefits and Concerns**

- **Benefits**
  - Avoids duplicative service during parts of the day
  - Provides more service to Downtown Portland
  - Potential cost savings based on cost to SMART for additional trips on and/or extension of TriMet line
  - Provides TriMet with access to a driver break and restroom facility at SMART Central
- **Concerns**
  - Requires cost sharing agreements with TriMet
  - Concerns about TriMet providing local trips within Wilsonville if Line 96 is extended south of Commerce Circle (especially with respect to identifying and collecting fares from passengers traveling outside of Wilsonville)
  - Elimination of Route 2X creates need to replace local service currently provided by Route 2x

# 7 COMMUNITY INPUT ON ALTERNATIVES

## OVERVIEW OF OUTREACH

Following up on the earlier needs assessment outreach (Phase 1), a variety of public outreach efforts were conducted during the June-September 2014 period to engage with community members to raise awareness of the project and to obtain input on proposed service options (Phase 2). Public outreach efforts focused on two proposals to improve services within the Wilsonville to Portland I-5 corridor: improvements to SMART's 2X service and a new out-of-town medical shuttle for seniors and persons with disabilities. These outreach efforts included:

- Posting of informational materials.
  - Boone's Ferry Messenger articles.
  - Project web page.
  - Flyers (both comprehensive and specific to each of the service proposals).
  - Channel cards inside Route 2X buses.
  - Mobile display boards.
- Telephone interviews with key partners and stakeholders.
  - Interviewees were identified in consultation with SMART staff and included representatives from groups that had participated in the earlier needs assessment interviews. Several of the earlier participants, however, were non-responsive to repeated contacts to arrange interviews.
  - In preparation for the interviews, participants were provided with flyers describing the proposed service improvements. Those flyers included survey questions that largely replicated the interview questions.
- Surveys specific to both proposals.
  - Both surveys were posted on the project web site.
  - Route 2X surveys were distributed by a number of major employers to their employees.
  - Route 2X surveys were distributed by SMART drivers to Route 2X riders.
  - Medical shuttle surveys were direct mailed to all users of SMART's medical dial-a-ride service within the past six months.
  - Medical shuttle surveys were distributed to attendees of the weekly seniors' lunch at Wilsonville Community Center.
  - Medical shuttle surveys were available for pickup at the Community Center and at Wilsonville Public Library.

- SMART Dispatch advised medical dial-a-ride callers of the proposed medical shuttle proposal and directed those callers to the project web site for information and the surveys.
- Presentation to the board of directors of Wilsonville Community Seniors, Inc.

## **MAJOR FINDINGS**

This section highlights the findings from the various outreach activities. Appendix E and Appendix F provide additional details on inputs received during the interviews and surveys.

### **Proposed Out-Of-Town Medical Shuttle**

#### **Interviews**

The desirability and perceived feasibility of an out-of-town medical shuttle varied among health service providers, depending upon the ambulatory status of their clientele. For example, Marqui Health Services staff indicated that the proposed medical shuttle would be “amazing”, especially since their current demand for dial-a-ride service exceeds Metro West’s capacity and the shuttle would represent a less costly alternative. Conversely, Springridge Court representatives felt that a shuttle would be impractical because of the health limitations of their clientele (non- ambulatory) and the difficulty in coordinating health appointment schedules.

While the shuttle concept is generally viewed as a good idea if it preserves services that might otherwise be reduced or lost, interviewees did not desire to see the current dial-a-ride service entirely replaced by a shuttle service. Ride Connection cautioned SMART about the potential for a shuttle costing more than on-demand services. Ride Connection noted that it has had challenges making medical shuttles work due primarily to difficulties in scheduling with doctors’ offices and clinics. Scheduling is particularly difficult for dialysis patients. A very proactive outreach with senior centers, assisted living centers, doctors’ offices and medical clinics is required to make a shuttle service functional. For Springridge Court representatives, any loss of on-demand services in favor of a shuttle would be expected to adversely affect their clientele.

It is agreed that the Tualatin area is an appropriate shuttle destination, especially if there is improved Route 2X service to OHSU. Service demand is spread out during the week; generally 9:00 am – 4:00 pm. While there is a growing demand for Saturday service to dialysis and chemotherapy clinics, Monday-Friday service best corresponds with schedules for doctors’ offices and medical clinics. It is recommended that shuttle stops be located at centralized locations where clients can comfortably wait between arrivals, e.g. coffee shops. From this centralized location, clients can then transfer to taxis to reach their specific destinations.

Both Ride Connection and Clackamas County representatives suggested groupings of dial-a-ride trips in lieu of a shuttle. It was also suggested that, if a shuttle is provided, customers should be asked to pay a portion of the trip cost.

#### **Surveys**

Seventy-six (76) out-of-town medical shuttle surveys were completed, with about 30% of respondents using SMART’s dial-a-ride service for medical trips outside of Wilsonville at least 5 times per month and almost 68% using it less than once per month or never. Almost 75% of these respondents indicate that they would be likely to use a shuttle bus to access their out-of-town

medical trips. Use of the shuttle would be most affected by its route and schedule, with lack of other transportation to medical services cited as a key factor in using this service. Locational issues are most frequently cited by those who are unlikely to use the shuttle service.

A wide array of desired destinations are identified, with Legacy Meridian Park Hospital, St. Vincent's Hospital and Tualatin medical facilities generally cited most frequently. Lake Oswego destinations are also frequently cited; OHSU and Marquam Hill destinations are cited much less frequently. Weekdays are the most important days to run the shuttle, with only 10% of respondents identifying Saturday service as important.

When asked how they would expect other seniors and persons with disabilities to feel about the proposed shuttle bus service, 65% of respondents expect them to be supportive or able to live with it, with slightly more than 10% of respondents expecting them to oppose it.

Miscellaneous comments of note:

- Consider combining the shuttle with dial-a-ride by using the shuttle for more frequent runs and dial-a-ride for the less frequent destinations.
- Such services should be provided by the County health department rather than being subsidized by Wilsonville businesses.

## **Conclusions**

In the project's Needs Assessment phase, participants cited service to seniors and persons with disabilities as one of SMART's strengths. Increased frequency of service and convenient access to out-of-town medical services were identified as desired service improvements, with the greatest demand being for access to medical/dental services in Tualatin, Tigard, and Portland as well as to County health services in Oregon City. Accessing hubs of medical services was identified as more desirable than expanding SMART's service area.

Participants note that they very much appreciate the access to out-of-town medical services that SMART currently provides and hope that it will continue. There is strong support among survey respondents for the proposed out-of-town medical shuttle. However, it may not have been clear to all respondents that the shuttle would replace existing on-demand services and it is unclear how respondents would have reacted to a distinct choice between the two. Other conclusions include:

- Strong concerns will likely be expressed by some seniors and persons with disabilities, as well as by some service providers, to entirely replacing Wilsonville's existing out-of-town dial-a-ride service with a shuttle bus system. While the shuttle bus is generally viewed as a good idea if it preserves services that might otherwise be reduced or lost, there is concern that it will not be accessible to non-ambulatory persons and that it will not serve all current destinations.
- Concerns about the proposed shuttle focus on the timing and frequency of service. Coordinating schedules with doctors' offices and medical clinics is expected to be the greatest operational challenge.
- Monday-Friday service and Tualatin area destinations would be the most desirable.
- A response of 76 surveys indicates a relatively high level of awareness of the proposal among those populations associated with SMART's out-of-town medical services. However, expanded and ongoing public education is needed about how the provision of out-of-town medical transport is a voluntary (not required) community service provided

by SMART; the high and growing cost of that service; and that, to be able to continue to provide such service, SMART needs to implement significant changes in its existing medical dial-a-ride program.

- To address concerns about replacement of all medical dial-a-ride services with a shuttle bus service, consider phasing in the replacement service over a 1-2 year period and/or investigate the feasibility of replacing the existing dial-a-ride service with a volunteer driver program.

## **Proposed Route 2x Improvements**

### **Interviews**

Interviews with key Wilsonville employers and OHSU representatives suggest that a limited number of their employees use transit, with the majority of those relying upon WES for access to/from work. For those using Route 2X service, the Barbur Transit Center is a primary destination. The strongest opinion stressed in the interviews related to ensuring continuation of service to the Barbur Transit Center.

Some interviewees question the need for the proposed route improvements:

- Are these options a more cost-effective way of providing service than improving the frequency and hours of the existing Route 2X?
- SMART already has great connections; is this really needed?
- If low ridership on Route 2X is the issue, has SMART worked with employers to provide transit use incentives?

If the existing Route 2X service is modified, direct service (Option 1) to Downtown Portland is generally the preferred option: “the faster the access, the greater the likelihood of use.” Direct mid-day service to Portland could be beneficial for certain shifts of workers. The South Waterfront is expected to be an important destination/transfer point when TriMet’s Orange line is in operation. Mid-day service to South Waterfront would be expected to get some use by those accessing OHSU and the Veterans’ Hospital.

Human service providers note that these options would not take any significant amount of pressure off of the need to provide paratransit services. They also note that seniors might like the service for purposes of recreation/shopping/socialization.

### **Surveys**

Surveys on Route 2X improvements were distributed by major Wilsonville employers and OHSU to employees who were known to be Route 2X riders, and by Route 2X drivers to passengers. One hundred thirty one (131 surveys) were completed, with more than three quarters of respondents being regular Route 2X users.

Respondents indicate general support for direct service to Portland but note a very high level of concern about eliminating access to the Barbur Transit Station.

For 80% of respondents, Downtown, rather than South Waterfront, is the preferred destination for an extension of Route 2X. Downtown is seen as providing more options for connections to other destinations and better access to employment, shopping and entertainment.

If direct all-day Route 2X service to Portland (Option 1) is provided, it would be used regularly by almost 45% of respondents, with another 25% using it occasionally. (No quantitative information is available in the responses to translate occasional into weekly or monthly frequency.)

If direct all-day Route 2X service to Portland cannot be provided for cost or logistical reasons, 40% of respondents feel that integrated Route 2X/Line 96 service (Option 2) would work well or fairly well for them as an alternative. An equal number of respondents, however, identified concerns about the effectiveness of this integrated service, including issues about the frequency and slowness of Line 96 service, timing of connections, transfers adding time and cost to trips, and other convenience factors.

If the integrated Route 2X/Line 96 service was provided at peak times, only 25% of respondents indicate that they would use it regularly. Another 30% would use it occasionally. This 55% compares with 70% of respondents indicating regular or occasional use of direct Downtown service.

Limiting direct Route 2X service to Portland to the mid-day results in a significant decline in likely use -- to 16% regularly and 24% occasionally. More than half of the respondents indicate that they would be unlikely to use mid-day service.

Other options identified for consideration include expanded WES service, express service in the I-205 corridor, accessing Portland via Barbur Boulevard rather than I-5, weekend service, and extended service hours.

Other comments raise concerns about increased fare costs and the convenience and timing of the new service. The need for weekend service is also frequently mentioned.

## **Conclusions**

Outreach during the project's first phase revealed that frequency of service is the most desired improvement in Route 2X service; this is affirmed in follow-up input. Also affirmed is the needs assessment input that connectivity to primary transit centers, such as the Barbur Transit Center, is more important to current users than is direct service to Downtown Portland or the South Waterfront. Access to hubs is preferable to expanding SMART's service area. Both interviews and survey responses suggest that significant concern about and opposition to elimination of service to the Barbur Transit Station can be expected if implemented as part of Route 2X service improvements. A case will need to be more strongly made for the need for this proposed change in service. Other conclusions include:

- Direct all-day service to Portland (Option 1) is favored over trying to better integrate TriMet and SMART services (Option 2).
- Responses suggest that the different alternatives in Option 2 for AM/PM peak hours and for mid-day service are confusing.
- Low ridership would be likely on mid-day direct routes to Downtown Portland.
- Schedule and route details are desired.
- Given that respondents are primarily current Route 2X riders, neither Phase 1 or Phase 2 input provides much insight on the service needs of non-riders (what's it take to get them on a bus). Major Wilsonville employers note very low transit ridership among their employees, with the vast majority of their transit riders using WES. They also cite the challenges for shift workers of accessing convenient transit service and, most significantly, an auto-centric cultural attitude among their employees.

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# 8 ANALYSIS OF PROPOSED ALTERNATIVES

## EVALUATION CRITERIA

The study evaluated potential strategies to address the previously identified needs within the constraints placed on SMART. This chapter identifies the criteria used to evaluate the strategies and provides the evaluation results for both the out-of-town medical service and Route 2X strategies. The following criteria were used to evaluate the effectiveness of each strategy.

- **Maintains Existing Connections.** Assesses the strategy's ability to maintain regional connections currently available with existing out-of-town medical service or Route 2X.
- **Increases Connection Options.** Assesses the number of destinations potentially available to Wilsonville residents by transit, reachable via direct service or reasonable connections.
- **Improves Travel Times.** Assesses the strategy's ability to reduce transit travel times relative to the current system. It includes directness of routing, number of transfers required, and frequency of service.
- **Increases Customer Convenience.** Assesses the number of transfers required to travel outside of Wilsonville along with likely wait times for these transfers.
- **Increases Cost-effectiveness of Medical Service or Route 2X.** Assesses the potential for the service to carry more riders per unit cost of service.
- **Customer Cost.** Assesses the monetary cost to complete a regional trip in terms of total fare required (SMART and TriMet where applicable).
- **Cost to SMART.** Assesses the monetary cost to SMART as an incremental cost/savings relative to the current out-of-town medical and Route 2X services.
- **Avoids Duplication with Existing Services.** Assess the degree to which the strategy duplicates services in common transit markets.
- **Service to Downtown Portland.** Assess the strategy's ability to connect Wilsonville to Downtown Portland.
- **Service to Major Medical Institutions.** Assess the strategy's ability to connect Wilsonville to major medical facilities in the region.
- **Operational Feasibility.** Assesses the strategy's impacts on transit operations including layover locations, passenger capacity, and complexity of passenger eligibility and trip screening procedures.
- **Potential to Attract New Customers.** Assesses strategy's ability to attract new passengers not currently using SMART, especially among potential choice riders.

## **EVALUATION OF OUT-OF-TOWN MEDICAL SERVICE STRATEGIES**

Figure 8-1 shows how these strategies rate based on the evaluation criteria presented above. The table illustrates that the proposed alternative (medical shuttle service) maintains service to the major medical institutions closest to Wilsonville where the majority of existing out-of-town medical trips are taken. It increases the cost-effectiveness of the service, which is expected to allow it to serve more riders and currently unmet demand for the service.

**Figure 8-1 Effectiveness of Out-of-Town Service Strategies in Meeting Criteria**

Criteria/Objectives	Serve Primary Destinations with Medical Shuttle	Shift Out-of-Town Medical Dial-A-Ride trips to fixed route	Integrate Out of Town Medical Dial-A-Ride and fixed-route trips
Maintains Existing Connections		N/A	N/A
Increases Connection Options	N/A	N/A	N/A
Improves Travel Times		N/A	
Increases Customer Convenience			
Increases cost-effectiveness of Medical Service			
Customer Cost		N/A	N/A
Cost to SMART			
Avoids duplication with existing services	N/A	N/A	N/A
Service to Downtown Portland	N/A	N/A	N/A
Service to Major Medical Institutions		N/A	
Operational Feasibility		N/A	
Potential to attract new customers			



## EVALUATION OF ROUTE 2X STRATEGIES

Figure 8-2 shows how these strategies rate based on the evaluation criteria presented above. The table illustrates that the Direct Service to Portland or Integrated TriMet Line 96 / Route 2X options maintain most existing connections while providing a convenient travel option to Portland that should attract new customers.

These alternatives have tradeoffs.

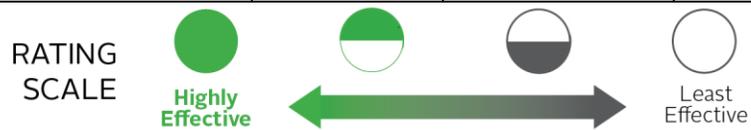
- **Direct Service to Portland** provides direct service without a transfer and would be the most convenient option for passengers, but would be more costly for SMART to provide, and duplicates TriMet service. Customers who need to transfer to a TriMet service in downtown Portland would also need to pay an additional fare.
- **Integrated TriMet Line 96 / Route 2X** would require that passengers transfer to Line 96 during peak periods but would be less expensive for SMART to operate and would complement rather than duplicate TriMet service. The fact that Route 2x would provide direct service midday, but require a transfer at other times may confuse some potential passengers. The TriMet fare paid in Tualatin would cover transfers in Downtown Portland if required.

Either option could improve connections to medical institutions in and around Downtown Portland for passengers able to use fixed-route transit services (with a connection to TriMet services or the Aerial Tram to OHSU/VA Hospital).

The option to upgrade TriMet Line 96 service to all-day would be cost effective for SMART and avoid service duplication, but create a number of challenging operational issues for the two agencies. Improved connections to the regional network closer to Wilsonville provides benefits to some customers but does not improve connections to Downtown Portland and does not reduce SMART's costs.

**Figure 8-2 Effectiveness of Route 2X Service Strategies in Meeting Criteria**

Criteria/Objectives	Provide Direct Service to Portland	Provide Integrated (Line 96/Route 2X) Service to Portland	Connect with Regional Transit Network Closer to Wilsonville	Upgrade TriMet Line 96 Service to Provide All-Day Downtown Portland Service
Maintains Existing Connections				
Increases Connection Options				
Improves Travel Times				
Increases Customer Convenience				
Increases cost-effectiveness of Route 2X				
Customer Cost				
Cost to SMART				
Avoids duplication with existing services				
Service to Downtown Portland				
Service to Major Medical Institutions			N/A	N/A
Operational Feasibility				
Potential to attract new customers				



## COST ANALYSIS

This section provides details on conceptual costs for the service options considered. The out-of-town medical service alternatives affect SMART costs in different ways. A medical shuttle is essentially cost neutral – shifting a bus from all-day demand response medical trip service to the dedicated shuttle service. The alternatives to shift out-of-town medical dial-a-ride trips to fixed route, or integrate out of town medical dial-a-ride and fixed-route trips have the potential to eliminate a van from the medical service (based on the number of riders able to shift to fixed route) but will greatly increase the administrative costs to manage these approaches.

The Route 2X alternatives will have a greater impact on SMART's operating costs. Figure 8-3 summarizes annual costs relative to an existing baseline for Route 2X (weekdays only). Costs are based on an hourly operating cost of \$79.85 for FY 2012-2013.

### Route 2X Conceptual Baseline

Baseline costs correspond to the number of vehicles currently in service.

- There are about 13,710 weekday service hours for existing Route 2X between Wilsonville and Barbur Transit Center (TC), which equates to an annual operating cost of \$1.1 million.
- Four vehicles are required during peak periods and two vehicles midday.

### Route 2X Strategies

Since travel time variability will be a key factor in the ultimate cost of service options, low and high ranges of costs are provided based on different methods of estimating travel times and allowances for layover and recovery time.

- Travel times between Wilsonville and Tualatin Park & Ride or Barbur TC were developed based on existing Route 2X schedules, which include a layover/recovery rate of 10% for the PM peak period and 30% at other times.
- Travel times between Tualatin P&R or Barbur TC and Downtown Portland or Tigard TC were estimated using travel time samples from Google Maps during different periods of the day, accounting for some the travel time variability, as well as schedules from other services including TriMet Line 96 (Tualatin P&R to Downtown Portland) and Line 76 (Tualatin P&R to Tigard TC).

Headways were kept consistent with existing Route 2X service, i.e., 30 minutes during peak periods and 60 minutes at other times. Service span was also kept consistent with the existing Route 2X service.

#### Strategy 1. Direct Service to Portland All-Day

In this strategy SMART Route 2X provides all-day direct service from Wilsonville to Portland.

- **A.** Assuming that there is no intermediate stop between Barbur TC and Downtown Portland (approximately SW 6<sup>th</sup> Avenue and SW Clay Street), at least one additional vehicle (five total) is required during peak hours. Given some assumptions a second additional vehicle could be required in the PM peak (six total). Two vehicles would be required during the midday time period. The estimated cost of this option is \$1.3 to \$1.4

- million annual, requiring an additional \$200,000 to \$300,000 in existing operating resources and one to two additional buses.
- **B.** Assuming an intermediate stop at Barbur TC, six vehicles would be required during peak periods and three vehicles midday. The annual total cost would be about \$1.6 million, or an additional \$540,000 beyond existing operating resources. The incremental cost is \$240,000 to \$340,000 in addition to Option 1A (eliminating stop at Barbur TC).
    - It is assumed that stopping at Barbur TC would add an estimated 8 to 12 minutes to the round-trip travel time using I-5; based on Google Maps travel time sampling, I-5 is generally faster than Barbur Blvd. as a route to Downtown Portland.

### **Strategy 2. Hybrid Route 2X / Line 96 Extension**

In this strategy SMART Route 2X terminates at Tualatin P&R during the AM and PM peak periods, where Portland-bound passengers can transfer to TriMet Line 96. During the midday period when Line 96 does not operate, Route 2X provides direct service to Portland. This is envisioned as following a comparable route to Line 96 in Downtown Portland.

- **A1.** Assuming that there is no intermediate stop between Barbur TC and Downtown Portland (approximately 6<sup>th</sup> Avenue and Clay Street), one fewer vehicle than existing (three total) is required during peak hours with the truncated Route 2X. Two vehicles would be required during the midday time period (same as existing). Estimated cost savings relative to existing Route 2X service are about \$210,000.
- **A2.** To bracket a higher-end cost this sub-option assumes a third vehicle would be required midday, e.g., intermediate stop(s) in the South Waterfront (tram and/or future MAX Orange Line and Streetcar Loop) and/or travel further east of SW 6<sup>th</sup> to the Line 96 terminus at SW 10<sup>th</sup> Avenue and SW Jefferson Street. This would reduce the cost savings to \$70,000 relative to the existing Route 2X cost. (There is some flexibility in the A1 option to accommodate additional stops or alternate routing with slightly less layover/recovery time.)
- **B.** Since TriMet Line 96 currently does not stop at Barbur TC, an intermediate stop at Barbur TC on a midday Route 2X is assumed to be of little utility and is not included.

### **Strategy 3. Enhance Regional Connections**

In this strategy, SMART would improve regional transit connections closer to Wilsonville; an extension of Route 2X from Tualatin Park & Ride to Tigard Transit Center was assumed. Based on initial analysis of traffic conditions and travel time variability, the project team concluded that this option would increase vehicle requirements and operating costs beyond a sustainable funding level. Based on the overall evaluation results and uncertainty over the impact of Metro's Southwest Corridor Transit study on regional service, the project team elected to make a related strategy a medium-term option (see below).

### **Strategy 4. Line 96 Extension and/or Midday Service Infill**

This strategy assumes that TriMet extends Line 96 from Commerce Circle to SMART Central and/or fills in the current midday gap in service on Line 96. The cost estimate includes only the impact to SMART costs (at the time of this analysis TriMet was still considering the cost implications and feasibility of these proposals).

- Route 5, which provides peak-hour service between Commerce Circle and SMART Central on the west-side of I-5 can be eliminated, yielding cost savings of approximately \$160,000 annually.
- During the AM and PM peak periods, Route 2X no longer provides out-of-town service, which is assumed to be provided by Line 96 under a to-be-determined cost sharing arrangement. However, local Route 2X service is still required east of I-5. Since the current Route 2X local route cannot cycle in 30 minutes with a single bus, two buses are assumed to serve the local portion of the route during peak periods.
- Two sub-options are considered for the midday period:
  - **A1.** Assumes that TriMet fills the Line 96 midday service gap; includes a local Route 2X with an hourly headway. Estimated cost is about \$550,000, with a net cost of \$390,000 accounting for Route 5; this is a cost reduction of \$710,000 relative to existing Route 2X service.
  - **A2.** Assumes Route 2X serves Downtown Portland when Line 96 does not operate midday (Option 2.A1 cost with two vehicles). Estimated cost is about \$690,000, with a net cost of \$530,000 accounting for Route 5; this is a cost reduction of \$530,000 relative to existing Route 2X service.

## Other Service Concepts

This section outlines the costs provides potential medium-term service concepts that are complementary with the above strategies but beyond the direct scope of the I-5 corridor project.

### Strategy 5-A. Route Midday WES Infill to Tigard TC

Analogously to filling the gap in Line 96 service, this concept would fill the midday gap in WES service. In Option 2 (Hybrid), SMART would provide hourly service to Tualatin P&R and Tigard Transit Center in the midday period.

- If SMART increases midday frequency to Tualatin P&R it could improve transfers to Line 76 which operates 30 minute headways. Line 76 serves Tigard TC, where additional transit connections are available, including Lines 12 and 94 (Barbur Blvd/Hwy 99W) and PCC (78). However, this would require multiple transfers.
- Direct SMART service to Tigard TC was considered earlier in this project, but ruled out in part due to high costs given poor peak period reliability. If an additional hourly trip to Tualatin P&R is extended to Tigard, it would provide more one-transfer connections and improve convenience. The cost would be about \$240,000 annually (two buses for a six-hour service span).

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**Figure 8-3 Strategies and Conceptual Costs**

	Vehicle Requirements			Annual Hours	Annual Cost	Difference	
	AM	PM	Mid/Eve			From Existing 2X	From Sub-Options
<b>EXISTING ROUTE 2X</b>							
Route 2X Conceptual Baseline	4	4	2	13,716	\$1.10M	\$0	
<b>ROUTE 2X STRATEGIES</b>							
<b>1. Direct Service to Portland All-Day</b>							
A1. Bypassing Barbur TC - LOW	5	5	2	16,256	\$1.30M	\$200,000	
A2. Bypassing Barbur TC - HIGH	5	6	2	17,526	\$1.40M	\$300,000	
B. With service to Barbur TC	6	6	3	20,574	\$1.64M	\$540,000	\$240,000 (from A1) \$340,000 (from A2)
<b>2. Hybrid Option (Line 96 + 2X Midday)</b>							
A1. Bypassing Barbur TC	3	3	2	11,176	\$0.89M	-\$210,000	
A2. Bypassing Barbur TC w/additional stops, ext. route	3	3	3	12,954	\$1.03M	-\$70,000	
<b>3. Enhance Regional Connections (at Tigard TC)</b>	Future Potential Option - Not Quantified						
<b>4. Line 96 Extension (SMART only)</b>							
A. Route 5 Cost Savings	1	1	-	2,032	-\$160,000		
B1. Route 2X Peak Local All-Day	2	2	1	6,858	\$550,000		
B2. Route 2X Peak Local & Midday to Portland	2	2	2	8,636	\$690,000		
Net Costs A+B1					\$390,000	-\$710,000	
Net Costs A+B2					\$530,000	-\$570,000	
<b>OTHER POTENTIAL STRATEGIES</b>							
<b>5A. Midday WES Infill to Tigard TC</b>	-	-	2	3,048	\$240,000		

Note: Based on SMART FY 2012-2013 hourly cost.

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## 9 RECOMMENDATIONS

This chapter presents the final Transit Integration Project recommendations for SMART’s out-of-town medical and I-5 Corridor (Route 2X) services. These recommendations are based on the evaluation of the potential alternatives and community feedback on the various approaches.

### Out-of-Town Medical Service

Figure 9-1 summarizes recommendations for SMART’s out-of-town medical service and describes a phasing approach:

1. Develop a medical shuttle service using one of the two vans (Van #1) currently operating the out-of-town medical dial-a-ride service. The shuttle would consolidate trips to the Tualatin area, which includes about half of current out-of-town medical destinations, and increase capacity and efficiency. Figure 6-1 (above) illustrates the medical shuttle concept.
2. Pursue strategies to increase the efficiency and capacity of the second van, including reducing the out-of-town service area and targeting service in alternate geographic zones on different days. The aim would be to phase out the second van over time.
3. Explore use of Clackamas County’s currently-operating Transportation Reaching People (TRP) program.<sup>24</sup> Through the TRP program, volunteer drivers provide seniors and persons with disabilities with door-to-door transportation, including to medical appointments. Volunteer drivers could serve some medical trips more efficiently and cost-effectively than a dial-a-ride service or medical shuttle. Expand the capacity of this program over time by recruiting additional drivers.
4. Utilize the Route 2X strategies to improve all-day access to major medical institutions for ambulatory passengers, e.g., midday stops in South Waterfront (OHSU Wellness Center and Portland Aerial Tram to OHSU).

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<sup>24</sup> <http://www.clackamas.us/socialservices/transportation.html>

**Figure 9-1 Out-of-Town Medical Service Recommendations and Phasing**

Service Element	Short-Term (FY 2015-2016)	Mid-Term (FY 2017-2019)	Long-Term (FY 2020+)
<b>Primary Strategy</b>			
<b>Out-of-Town Medical Van #1</b>	Develop a pilot shuttle service to consolidate trips to Tualatin area, at least three days per week (e.g., Mon-Wed-Fri). This could then be expanded to five days per week.	Continue to refine shuttle service route/stops and market the service to customers	Consider expanding to Saturdays (linked to available funding and phasing out second van)
<b>Additional Considerations/Mitigation Strategies</b>			
<b>Out-of-Town Medical Van #2</b>	Provide door-to-door service within a more constrained service area. Consider using geographic zones (e.g., specific days of the week) to pool trips and increase efficiency	Phase out the second van (service hours, days of week) based on viability of the volunteer program	
<b>Volunteer Program</b>	Explore use of County TRP program to enable volunteer drivers to serve some medical trips	Further develop volunteer program capacity	
<b>Fixed-Route Integration</b>	Route 2X improvements to Downtown Portland improve access to major medical sites, with a transfer to TriMet services and/or other shuttle services, e.g., OHSU		

## **Route 2X I-5 Corridor Service**

Figure 9-3 summarizes recommendations for SMART's I-5 corridor service (Route 2X) and describes a phasing approach.

- **Short-Term:** Pursue the integrated (Route 2x/Line 96) option to extend service to Downtown Portland in the short-term. Figure 9-4 illustrates this concept, which would result in a net operating savings for SMART.
  - Modify Route 2X to connect to Line 96 service in Tualatin during Line 96 operating hours (peak periods).
  - Extend Route 2X to downtown Portland during the midday period.
  - There would be no service to Barbur TC, however existing WES service (peak periods), existing SMART connections to TriMet in Tualatin, and improved TriMet connections in Downtown Portland would help mitigate eliminating this stop.
- **Mid-Term:** Continue discussions with TriMet around extending Line 96 to SMART Central, with implementation in the mid-term time frame or possibly sooner. This option has the largest potential cost savings to SMART, depending on TriMet's costs.
  - Local service modifications (Route 2X and/or Route 5) would be required to integrate with the direct Line 96 service to SMART Central. Route 2X would no longer need to serve Tualatin P&R during periods when Route 96 is operating. Depending on whether Line 96 serves local stops in Wilsonville, continued operation of Route 5 may or may not be required.
  - If TriMet is not able to extend service to SMART Central in the midday, continue the midday extension of Route 2X to Downtown Portland, recommended for implementation in the short-term time frame.
- **Long-Term:** Monitor implementation of TriMet's Southwest Transit Enhancement Plan (likely mid-term or beyond) and Metro's Southwest Corridor Plan for future opportunities to improve regional transit connections and realize efficiencies.

**Figure 9-2 I-5 Corridor (Route 2X) Recommendations and Phasing**

Recommendation and Service Element		Time Period	Short-Term (FY 2015-2016)	Mid-Term (FY 2017-2019)	Long-Term (FY 2020+)
<b>Route 2X/TriMet Line 96 Integration – SMART Infill of Line 96 Service Gaps</b>	2X Out-of-Town	Peak Periods	Modify Route 2X to connect to Line 96 service at Tualatin P&R Work with TriMet on Line 96 extension to SMART Central	(a) If feasible, partner with TriMet to extend Line 96 to SMART Central (b) If not feasible, continue the short-term strategy	Connect to future Southwest Corridor service in Tualatin area
		Midday	Extend Line 2X Service to Downtown Portland, following Line 96 routing	(a) If feasible, partner with TriMet to fill in Line 96 service gap midday. (b) If not feasible, continue the short-term strategy. Based on demand, consider adding 1-2 trips on Route 2X to reduce headways at strategic times.	Connect to future Southwest Corridor service in Tualatin area
			Consider additional stops in South Waterfront (aerial tram; future MAX Orange Line, Streetcar Loop, buses to SE Portland)		
	2X Local	All	Incorporate planning for possible Line 96 extension to SMART Central into TMP Update	Line 96 extension would require modification of local service (restructuring could be coordinated with TMP Update)	
<b>Improve Connections to Regional Services</b>	TBD	All	Not viable at this time	Monitor implementation of TriMet Southwest Service Enhancement Plan	Monitor implementation of TriMet Southwest Service Enhancement Plan and Metro's Southwest Corridor plan.

Figure 9-3 I-5 Corridor Route 2X / Line 96 Hybrid Concept Map

## SMART Route 2X - Proposed Wilsonville to Downtown Portland Service

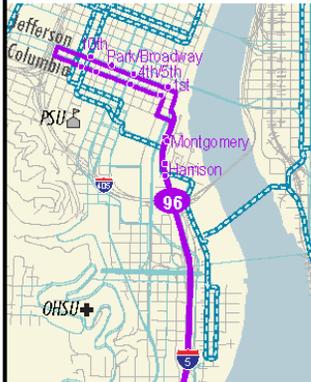
SMART currently operates service between Wilsonville and Barbur Transit Center in SW Portland (Route 2X). Starting in approximately Fall 2015, SMART is planning to terminate Route 2X service at Tualatin Park & Ride and provide a timed transfer to TriMet Line 96 service to Portland.

During midday hours, when TriMet Line 96 does not operate, SMART is planning to operate four midday round-trips to downtown Portland, including stops in the South Waterfront.

### SMART Route 2X/TriMet Line 96

**AM/PM Peak:** 5:30-9:30am / 1:30-8:00pm. Line 96 provides service to Downtown Portland. Route 2X provides a connection to TriMet Line 96 at Tualatin Park & Ride (or Commerce Circle). SMART fare of \$0.50 to Tualatin and TriMet fare of \$2.50 (\$3.00 total). TriMet fare includes transfers to other TriMet services.

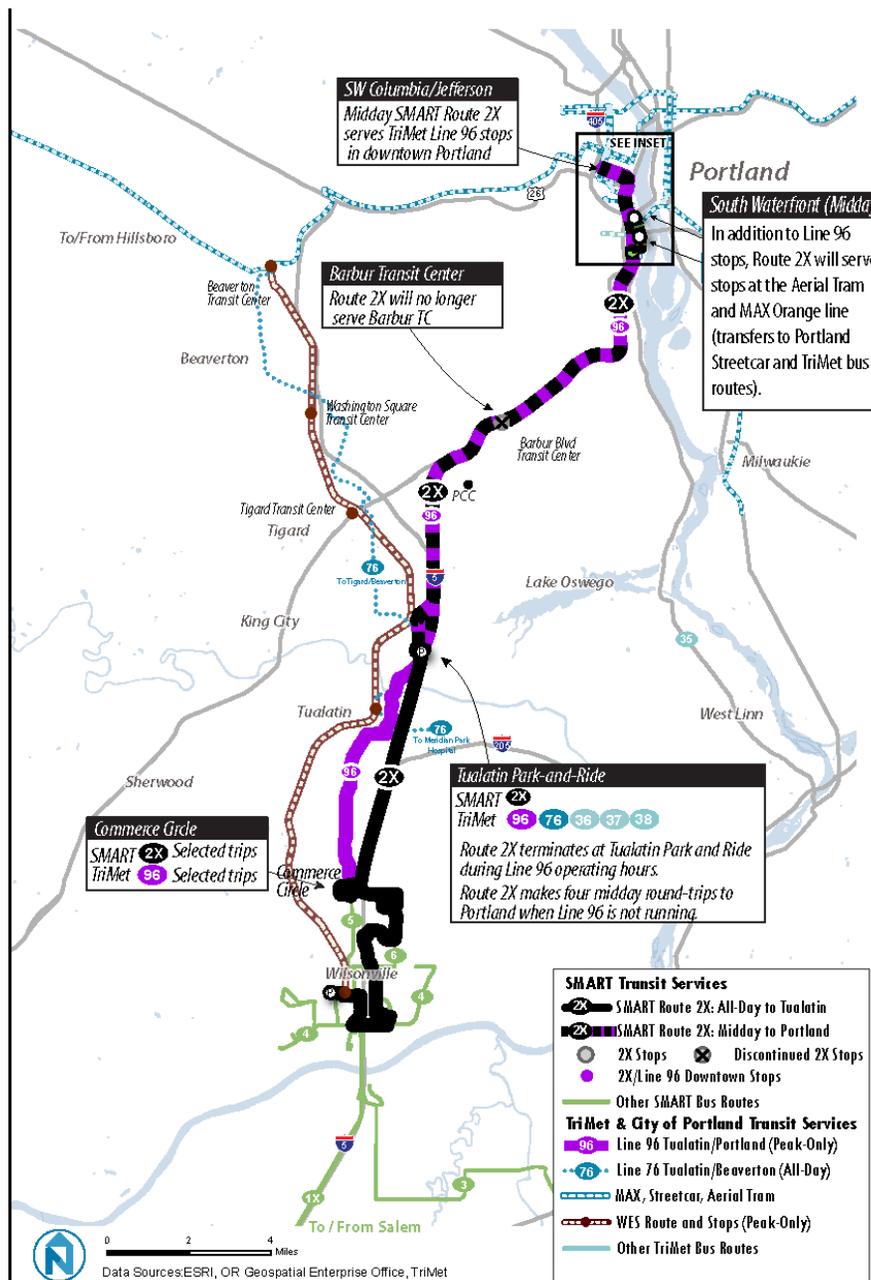
**AM/PM Peak:** Route 2X connects to Line 96 in Tualatin. Line 96 serves Downtown Portland.



**Midday:** 9:30am-2:30pm. Route 2X provides service into Portland when Line 96 doesn't operate. Stops include Aerial Tram (OHSU), MAX Orange Line, and Line 96 stops in Portland (along Harbor Drive and SW Jefferson/Columbia Streets). SMART fare of \$3.00. Transfers to TriMet services require a TriMet fare at additional cost.

Route 2X does not serve Barbur Transit Center.

**Midday:** Route 2X provides service into Portland, including stops at the Aerial Tram and MAX Orange Line.



## Barbur Transit Center Transit Options

One concern from existing riders is the elimination of Route 2X service to Barbur Transit Center. To help clarify this issue, this section provides an assessment of transit connection options to PCC, which is one of the destinations Route 2X riders can currently access from Barbur TC. Figure 9-5 lists existing travel options between SMART Central and PCC. It also provides a comparison to estimated future transit travel times. Key findings include:

### Existing:

- During morning and afternoon peak periods, Figure 9-5 illustrates that Route 2X is currently not the fastest or cheapest peak-hour travel option to PCC from SMART Central. During these times, WES and TriMet Line 78 provide a 37-minute single-transfer trip from SMART Central to PCC for a cost of \$2.50. A trip on Route 2X and TriMet Lines 12 or 44 would take slightly more than one hour and cost \$4.00 due to the need to pay both SMART and TriMet fares.
- When WES is not running, Figure 9-5 shows that there are three potential transit options to PCC using Route 2X. Two options require a transfer at Barbur TC, TriMet Line 44 or Line 12 (with ten-minute walk). A third option requires two transfers, to Line 76 at Tualatin P&R and Line 78 at Tigard TC, but generally takes about the same amount of time as the Barbur TC options.
- Line 12 also provides access to other destinations along the Barbur corridor other than PCC.

### Future:

- WES would continue to be the best travel option to PCC during peak periods.
- Connections to Lines 12 and 44 would no longer be available at Barbur TC, but for off-peak trips the Line 76/78 connection to PCC would continue to be available and provide a comparable travel time to the Barbur TC options.
- Midday Route 2X service to Downtown Portland would provide access to the same routes previously available at Barbur TC (Lines 12 and 44), plus the PCC shuttle. However, the Line 76/78 connection would generally provide a shorter travel time to PCC.
- Line 12 and other TriMet routes are also available at Tigard TC (with a transfer to Line 76 in Tualatin). Connections to Line 12 can also be made in Downtown Portland for destinations that are closer to downtown.

Figure 9-4 summarizes recommended strategies for mitigating elimination of Route 2X service to Barbur Transit Center.

**Figure 9-4 Recommended Barbur Transit Center Mitigation Strategies**

Service Element		Time Period	Short-Term (FY 2015-2016)	Mid-Term (FY 2017-2019)	Long-Term (FY 2020+)
<b>Service to Barbur TC</b>	2X Out-of-Town	Peak and Midday	Work with TriMet to improve coordination between Route 2X and Line 76 in Tualatin and/or midday 2X service to Downtown Portland and Barbur corridor services (in particular Line 44 to PCC)	TriMet Southwest Enhancement Plan (Proposed): Potential Line 44 frequent service and extension to Tualatin; Increased Line 76 frequency in Tualatin	

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**Figure 9-5 Barbur TC Transit Options, Selected Examples for SMART Central to PCC Sylvania Campus in Southwest Portland**

	Transfer Point(s)	Routes	Time Range	Travel Time <sup>1</sup>	Transfers	Fare(s)	Notes
<b>Existing</b>							
<b>SMART Central to PCC - Peak</b>	Barbur TC	2X-Line 44	8:00 – 8:44; 12 min wait 8:56 – 9:02	62 min (12 min wait)	1	\$4.00 (\$1.50 + \$2.50)	2
	Tigard TC	WES- Line 78	7:51 – 8:08; 8 min wait 8:16 – 8:28	37 min (8 min wait)	1	\$2.50	3
<b>SMART Central to PCC – Off-Peak</b>	Barbur TC	2X -Line 44	9:00 – 9:40; 18 min wait 9:58 – 10:04	64 min (18 min wait)	1	\$4.00 (\$1.50 + \$2.50)	-
	Barbur TC	2X -Line 12	9:00 – 9:40; 12 min wait 9:52 - 9:56 +10 min walk	66 min (12 min wait)	1	\$4.00 (\$1.50 + \$2.50)	-
	Tualatin P&R Tigard TC	2X-Line 76-Line 78	9:00 – 9:28; 5 min wait 9:33 – 9:43; 5 min wait 9:48 – 9:59	59 min (10 min wait)	2	\$4.00 (\$1.50 + \$2.50)	-
	Barbur TC	2X-Line 44	9:30 – 10:08; 10 min wait 10:18 - 10:24	54 min (10 min wait)	2	\$4.00 (\$1.50 + \$2.50)	-
	Barbur TC	2X -Line 12	9:30 – 10:08; 14 min wait 10:22 – 10:26 +10 min walk	66 min (8 min wait + 10 min walk)	1	\$4.00 (\$1.50 + \$2.50)	-
	Tualatin P&R Tigard TC	2X -Line 76-Line 78	9:30 – 9:58; 7 min wait 10:05-10:15; 6 min wait 10:21-10:32	62 min (13 min wait)	2	\$4.00 (\$1.50 + \$2.50)	-
	Barbur TC	2X -Line 44	10:05 – 10:43; 34 min wait 11:17 – 11:23	78 min (34 min wait)	1	\$4.00 (\$1.50 + \$2.50)	4
	Barbur TC	2X -Line 12	10:05 – 10:43; 8 min wait 10:51 – 10:55 +10 min walk	60 min (8 min wait + 10 min walk)	1	\$4.00 (\$1.50 + \$2.50)	4

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	Transfer Point(s)	Routes	Time Range	Travel Time <sup>1</sup>	Transfers	Fare(s)	Notes
	Tualatin P&R Tigard TC	2X-Line 76-Line 78	10:05 – 10:33; 4 min wait 10:37 – 10:48; 5 min wait 10:53 – 11:06	61 min	2	\$4.00 (\$1.50 + \$2.50)	4,5
	Barbur TC	2X -Line 44	14:37 – 15:15; 7 min wait 15:22 – 15:29	52 min (7 min wait)	1	\$4.00 (\$1.50 + \$2.50)	6
	Barbur TC	2X -Line 12	14:37 – 15:15; 5 min wait 15:20 – 15:24 +10 min walk	57 min (5 min wait)	1	\$4.00 (\$1.50 + \$2.50)	6
	Tualatin P&R Tigard TC	2X-Line 76-Line 78	14:37 – 15:05; 7 min wait 15:12 – 15:22; 27 min wait 15:49 – 16:03	86 min (34 min wait)	2	\$4.00 (\$1.50 + \$2.50)	6,7
<b>Future</b>							
<b>PCC – Off-Peak</b>	Tualatin P&R Tigard TC	2X – Line 76-Line 78	10:05 – 10:33; 4 min wait 10:37 – 10:48; 5 min wait 10:53 – 11:06 (Similar to existing)	61 min	2	\$3.00 (\$0.50 <sup>a</sup> + \$2.50)	
	Downtown Portland	2X – Line 12	10:05 – 10:55; 4 min wait 10:59 – 11:24 + 10 min walk	89 min (4 min wait + 10 min walk)	1	\$5.50 (\$3.00 <sup>a</sup> + \$2.50)	8,9
		2X – Line 44	10:05 – 10:55; 30 min wait 11:25 – 11:53	108 min (30 min wait)		\$5.50 (\$3.00 <sup>a</sup> + \$2.50)	8,9
		2X – PCC Shuttle (Orange)	10:05 – 10:55; 13 min walk + 12 min wait 11:20 – 11:45	100 min (13 min walk + 12 min wait)		\$3.00 <sup>a</sup>	8,10

Notes: (1) Travel time including waiting and walking time to final destination. (2) Representative of other travel times using Line 44 in the peak period; travel times for Line 44 connections increase when Line 44 headway (time between buses) increases to every 30 minutes after about 10 AM. (3) Representative of other travel times using WES and Line 78 in the AM peak period; the last morning WES departure is 8:51 AM. (4) Off-peak travel times for these travel options are comparable for 12:05 PM, 1:05 PM, and 2:05 PM Route 2X northbound departures. (5) Based on published schedules. The Google Transit trip planner does not assume this Route 2X to Line 76 transfer is possible. (6) 2:37 PM 2X departure from SMART Central does not appear to be available in Google Transit trip planner. (7) Longer travel time for this trip due to longer than typical waiting time for Line 78 at Tigard TC. (8) Conceptual schedules; transfer times would need to be refined based on final schedules. (9) 1 min walk from 4<sup>th</sup>/5<sup>th</sup> & Jefferson to 5<sup>th</sup> & Madison. (10) 3 min walk from 4<sup>th</sup>/5<sup>th</sup> & Jefferson to 5<sup>th</sup> & Clay. (11) 13 min walk from 4<sup>th</sup>/5<sup>th</sup> & Jefferson to 5<sup>th</sup> & Madison. (a) Proposed SMART fares in the recommended Route 2X strategy are \$0.50 to Tualatin Park & Ride and \$3.00 to Downtown Portland.

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**Figure 9-6 Additional Selected Barbur TC Transit Options**

	Transfer Point(s)	Routes	Time Range	Travel Time <sup>1</sup>	Transfers	Fare(s)	Notes
<b>Existing</b>							
<b>SMART Central to PCC - Peak</b>	Barbur TC	2X-Line 44	6:27 – 7:14; 8 min wait 7:22 – 7:28	61 min (8 min wait)		\$4.00 (\$1.50 + \$2.50)	2
	Tigard TC	WES- Line 78	8:51 – 9:08; 9 min wait 9:17 – 9:28	37 min (9 min wait)	1	\$2.50	3
	Barbur TC	2X-Line 44	11:05 – 11:43; 35 min wait 12:18 – 12:24	79 min (35 min wait)	1	\$4.00 (\$1.50 + \$2.50)	
	Barbur TC	2X-Line 12	11:05 – 11:43; 7 min wait 11: 50 – 11:54 + 10 min walk	59 min (7 min wait + 10 min walk)	1	\$4.00 (\$1.50 + \$2.50)	
	Tualatin P&R Tigard TC	2X-Line 76-Line 78	11:05 – 11:33; 5 min wait 11:38 – 11:49; 8 min wait 11:57 – 12:08	63 min (13 min wait)	2	\$4.00 (\$1.50 + \$2.50)	

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# 10 IMPLEMENTATION

## SUMMARY OF ACTIONS

Figure 10-1 identifies actions that will need to be led by SMART to implement recommended changes to the Medical Shuttle and Route 2X services and realize increased efficiencies and customer benefits. The table includes other agencies with which SMART will need to coordinate.

Subsequent sections of this chapter detail additional information related to implementation, including downtown routing and layover and stop locations options for the Route 2X service.

**Figure 10-1 Implementation Actions**

#	Description	Lead Implementer(s)*	Immed. 2015	Short Term 2016-2018	Med./ Long-Term (2018-2025)
<b>Medical Shuttle Service</b>					
MS-1	<b>Contract Out-of-Town Medical Service Boundary.</b> Reduce costs and increase capacity by limiting geographic coverage and the longest-haul, lowest-productivity trips to outlying destinations.	SMART – Stephan Lashbrook [1]	<b>X</b>		
MS-2	<b>Conduct Outreach to Medical Shuttle Destinations.</b>	SMART – Jen Massa Smith [1]	<b>X</b>	<b>X</b>	
MS-3	<b>Conduct Outreach to Medical Shuttle Passengers.</b>	SMART – Jen Massa Smith [1]	<b>X</b>	<b>X</b>	
MS-4	<b>Coordinate with Clackamas County TRP program.</b> Explore/consider use of volunteer drivers to serve some medical trips, such as return trips for Dialysis patients.	SMART – Jen Massa Smith [1]	<b>X</b>	<b>X</b>	
MS-5	<b>Finalize Shuttle Schedule and Implement three day/week service to Tualatin facilities.</b>	SMART – Steve Allen [1]		<b>X</b>	
MS-6	<b>Develop Medical Shuttle Scheduling Procedures.</b> Build final schedule into scheduling system to integrate scheduled stops with on-demand ones.	SMART – Steve Allen [1]	<b>X</b>		
MS-7	<b>Consider Expanding Shuttle Service to Additional Days and/or Service Areas.</b>	SMART – Stephan Lashbrook [1]		<b>X</b>	<b>X</b>

Notes: \* Implementation Responsibility: [1] Lead, [2] Support. SMART areas of responsibility include Policy/Management (Stephan Lashbrook), Transit Operations (Steve Allen), and Programs (Jen Massa Smith).

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#	Description	Lead Implementer(s)*	Immed. 2015	Short Term 2016-2018	Med./ Long-Term (2018-2025)
<b>Route 2X</b>					
2X-1	<b>Conduct Outreach Related to Route 2X Downtown Layover Locations (see Figure 10-7).</b> Layover locations have been discussed and vetted with TriMet, Portland Streetcar, and City of Portland staff. Conduct outreach to adjacent property owners prior to securing final agreement/approvals from affected agencies.	SMART – Jen Massa Smith [1]	X	-	-
2X-2	<b>Test SMART wheelchair lifts at representative Downtown Portland stops, particularly those shared with streetcar to verify compatibility with curb height (Moody &amp; Meade).</b>	SMART – Steve Allen [1]	X		
2X-3	<b>Finalize Route 2X Downtown Stop and Layover Locations.</b>	SMART – Steve Allen [1], Jen Massa Smith [2] TriMet – Ben Baldwin [2] City of Portland [2] Portland Streetcar [2]	X	-	-
2X-4	<b>Coordinate Route 2X Signage at Shared Stops with TriMet (Figure 10-5).</b> SMART would need to produce stickers, potentially in a couple of formats for different types of signs (see Figure 10-5 and Figure 10-6). It is recommended the stickers include a link to obtain online information on the service.	SMART – Jen Massa Smith [1] TriMet – Ben Baldwin [1]	X	-	-
2X-5	<b>Finalize Route 2X Schedule and Fare Structure.</b>	SMART – Steve Allen [1]			
2X-6	<b>Conduct Outreach to Route 2X Existing/Potential Riders.</b> Outreach should include promotion of midday trips to TriMet Line 96 riders.	SMART – Jen Massa Smith [1]	X	-	-
2X-7	<b>Line 96 Extension to SMART Central.</b> Coordinate with TriMet regarding potential to extend Line 96 to SMART Central. SMART would not need to run Route 2X service outside of Wilsonville to Tualatin P&R.	SMART – Stephan Lashbrook [1] TriMet – Kate Lyman [1]	X	X	-
2X-8	<b>Line 96 Midday Infill.</b> Coordinate with TriMet regarding potential to have Line 96 operate during midday hours. SMART would not need to run Route 2X service outside of Wilsonville to Tualatin P&R/Downtown Portland.	SMART – Stephan Lashbrook [1] TriMet – Kate Lyman [1]	-	X	X
2X-9	<b>Coordinate with TriMet on Future Integration with Fare Smart Card System.</b>	SMART – Stephan Lashbrook [1] TriMet – TBD [2]	-	X	X

Notes: \* Implementation Responsibility: [1] Lead, [2] Support. SMART areas of responsibility include Policy/Management (Stephan Lashbrook), Transit Operations (Steve Allen), and Programs (Jen Massa Smith).

## MEDICAL SHUTTLE IMPLEMENTATION DETAILS

### Conceptual Shuttle Service Design and Conceptual Schedule

Figure 10-2 provides a conceptual weekday schedule that was developed to illustrate operation of a medical shuttle serving medical institutions in the Tualatin area with high demand for out-of-town medical trips to/from Wilsonville. As proposed, this service would operate three weekdays, e.g., Monday, Wednesday, and Friday. Figure 10-3 reproduces the map (from Chapter 6) that illustrates the potential stop locations.

Conceptually, the shuttle would have a fixed origin in Wilsonville, such as Wilsonville Town Center, which is in close proximity to high-demand locations for the existing medical Dial-A-Ride service. Time would be built into the shuttle schedule to allow for some pickups and drop-offs in Wilsonville. Other passengers could transfer from fixed-route service or SMART’s in-city Dial-A-Ride service. Meridian Park Hospital (and/or other medical facilities in the vicinity of the hospital campus) is identified as the primary fixed stop in Tualatin. Other facilities are initially identified as on-demand. The schedules and destinations/stop type should be refined based on further outreach to medical destinations, passengers, and other stakeholders.

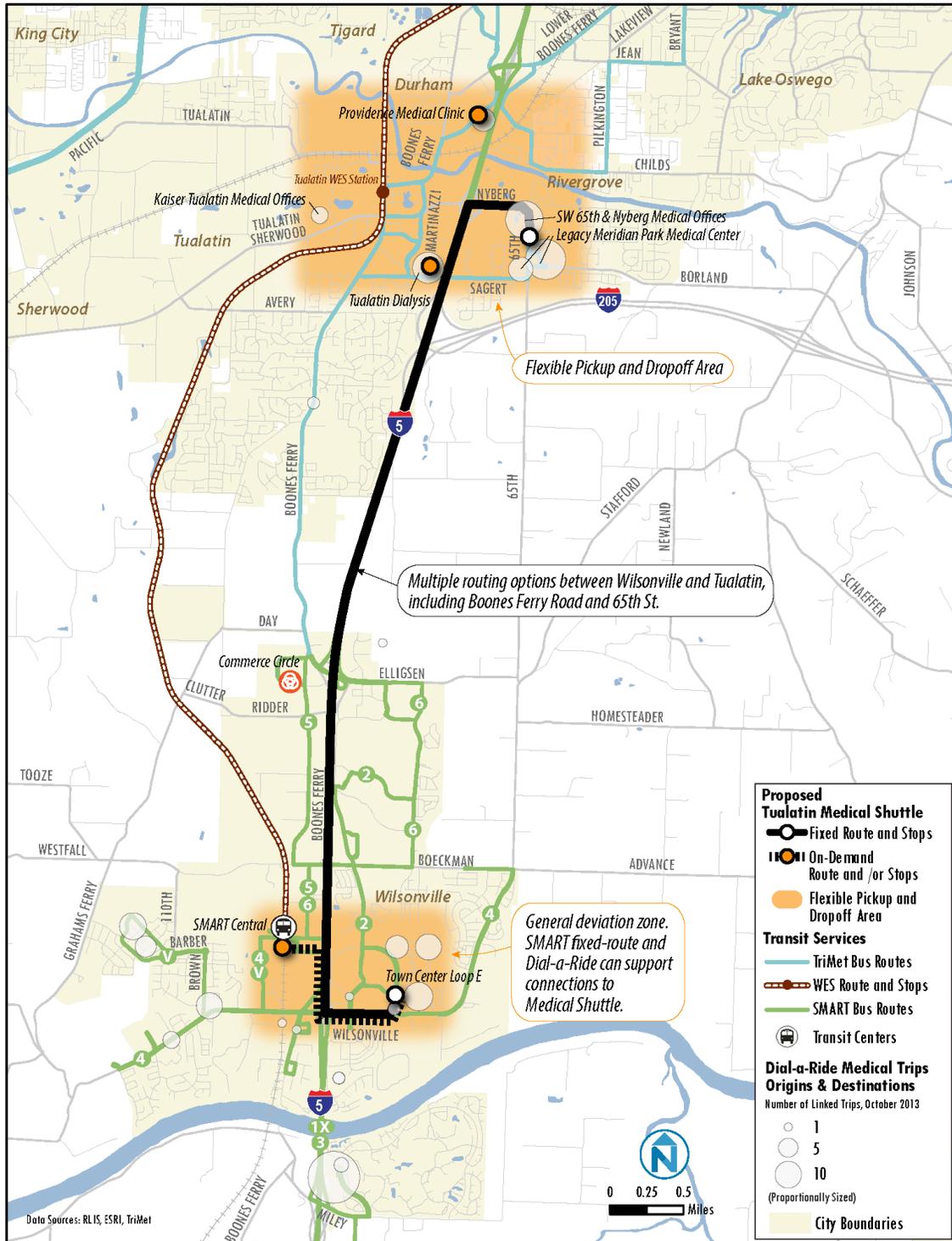
A conceptual Saturday schedule is also provided, however Saturday service is not part of the short-term service recommendation. Dialysis patients typically have appointments three days per week, e.g. Monday-Wednesday-Friday or Tuesday-Thursday-Saturday. Future expansion of the shuttle service to include additional weekday could create additional demand for Saturday trips. Any such expansion would be contingent on additional funding and/or funding sources. Finally, due to the staggered nature of when appointments complete, it may be desirable to complement the service with volunteer drivers to bring dialysis patients back to Wilsonville when possible.

**Figure 10-2 Tualatin Area Medical Shuttle Conceptual Schedule**

Layover/ Pickups	Pickups	Wilsonville	Meridian Park	Tualatin Dialysis	Providence Clinic	Wilsonville	Dropoffs / Layover
Approx. Times Between Stops		0:15	0:15	0:15	0:15	0:15	0:15
Potential Stop Type		Fixed	Fixed	On-Demand	On-Demand	Fixed	-
<b>WEEKDAY</b>							
-	8:45	9:00	9:15	9:30	9:45	10:00	--
0:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15
0:15	12:45	13:00	13:15	13:30	13:45	14:00	14:15
0:30	--	15:00	15:15	15:30	15:45	16:00	16:15
			<b>7.5 Vehicle Hours per Day</b>				
<b>SATURDAY*</b>							
-	8:45	9:00	9:15	9:30	9:45	10:00	--
0:30	10:45	11:00	11:15	11:30	11:45	12:00	12:15
0:30	--	13:00	13:15	13:30	13:45	14:00	14:15
			<b>5.5 Vehicle Hours per Day</b>				

Note: \* Saturday service is not part of the proposed concept and would be contingent on successful implementation of the weekday shuttle concept and additional funding.

Figure 10-3 Medical Shuttle Concept Map



Note: Duplicate of map provided in Figure 6-1

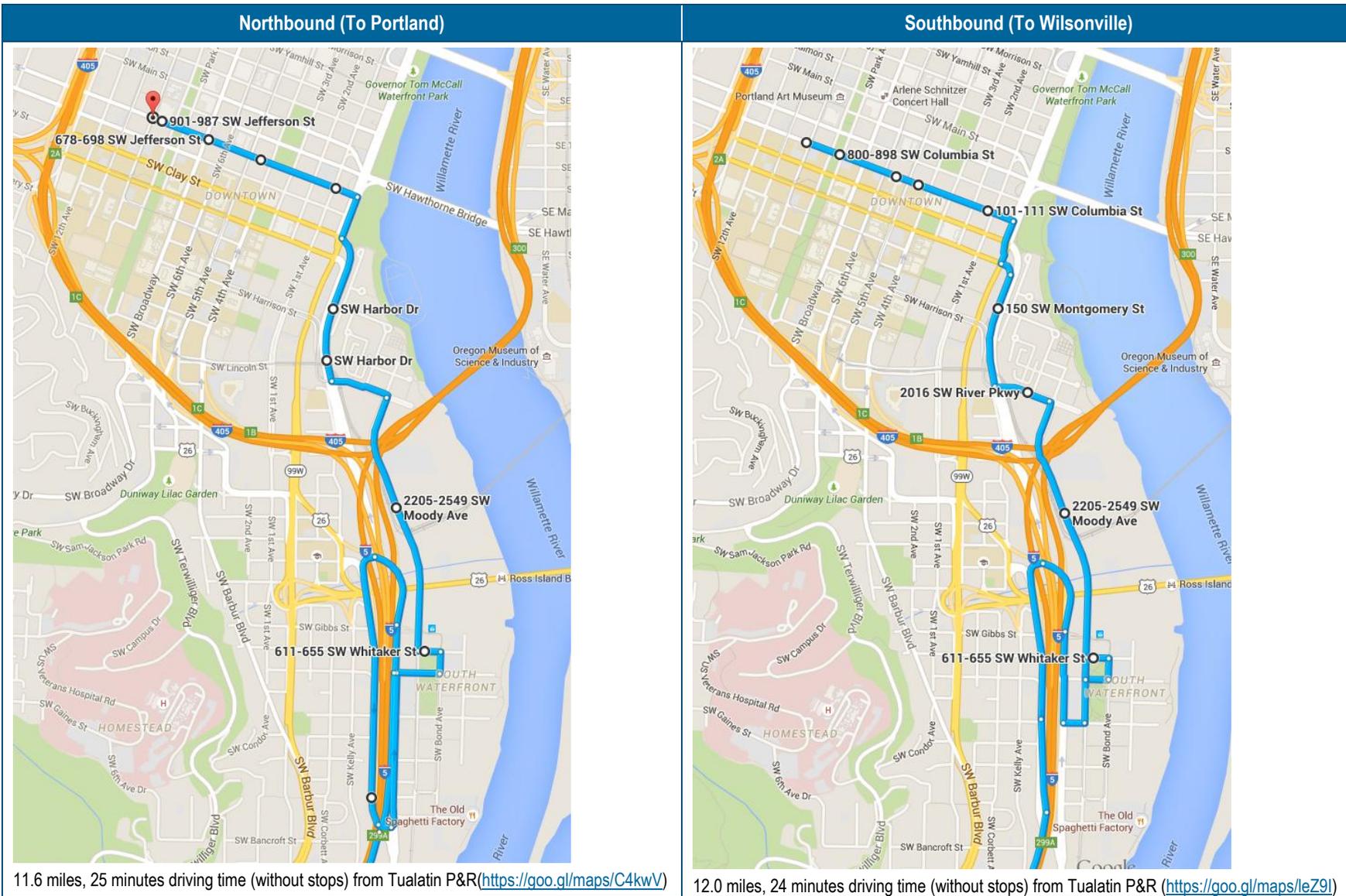
## ROUTE 2X IMPLEMENTATION DETAILS

### Route 2X Downtown Portland Routing

Figure 10-4 illustrates proposed Route 2X routing in Downtown Portland with stops at the Portland Aerial Tram and MAX Orange Line in the South Waterfront District. Final routing should be field verified by SMART Operations staff, particularly from I-5 to/from/within South Waterfront.

In the northbound direction, the conceptual routing assumes use of the OR-43 N/SW Macadam Avenue exit from I-5 (Exit 299) and a loop using SW Hood Avenue to Macadam and right-turn onto SW Curry Street to access the South Waterfront. Direct access to a right-turn onto SW Curry Street from the I-5 OR-43 N/SW Macadam Avenue exit, identified in previous conceptual maps developed for this study, is no longer permitted (prevented by a barrier). The Corbett exit from I-5 could also be used, but would require an unprotected left-turn across Highway 43 (Macadam Avenue).

Figure 10-4 Downtown Route 2X Routing



## **Route 2X Stop Locations**

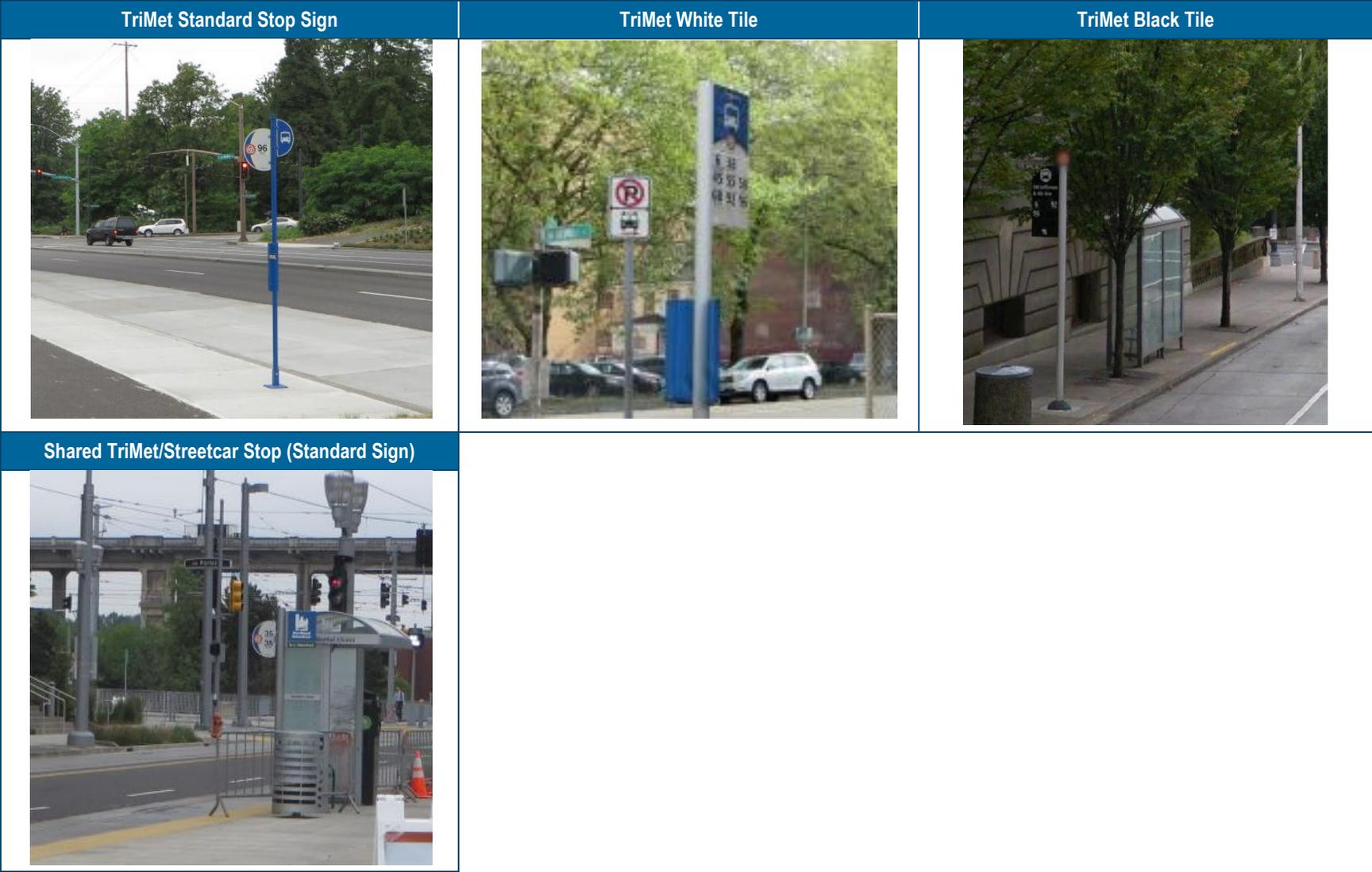
Figure 10-5 identifies planned Route 2X stops along the TriMet Line 96 route and in the South Waterfront, including other transit service utilizing these stops and the type of sign and pole (SMART would need to develop various types of stickers for use on these signs). TriMet and Portland Streetcar have indicated they do not anticipate conflicts between existing services and SMART's use of these stops during the midday period. The table also identifies the need for outreach to adjacent property owners related to use of these stops. Primarily, outreach to OHSU is still needed regarding use of the existing bus zone on Whitaker (east side of the OHSU Wellness Center) to ensure SMART's use of this zone is compatible with current and future planned uses.

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**Figure 10-5 Route 2X Downtown Portland Stop Locations Implementation Matrix**

NB Order	SB Order	Location	Activity Centers	Direction	Other Scheduled Transit Services at Stop	Stop Pole / Sign Type	Outreach to Adjacent Property Owners?	Potential Conflicts
1	8	SW Whitaker, SW Bond-SW Moody	Aerial Tram, OSHU Wellness Center	NB/WB and SB/EB	None (used by LIFT)	Bus Zone	OHSU	Vehicle Pickups/Dropoffs
1 - Alternative	-	SW Moody/SW Gibbs		NB/WB	None	None Existing	N/A	
	8 - Alternative	SW Moody/SW Gibbs		SB/EB	Portland Streetcar, TriMet 35/36	Portland Streetcar/ TriMet Standard	N/A	
-	8 - Alternative	SW Moody/SW Whitaker		SB/EB	TriMet 35/36	TriMet Standard	N/A	
2		SW Moody/SW Meade	Orange Line	NB/WB	Portland Streetcar	Portland Streetcar	N/A	
-	7	SW Moody/SW Meade	Orange Line	SB/EB	Portland Streetcar, TriMet 35/36	Portland Streetcar / TriMet Standard	N/A	
3	-	SW Harbor Dr & SW Harrison	RiverPlace	NB/WB	TriMet 96	TriMet Standard	N/A	
-	6	SW River Pkwy & SW Moody	RiverPlace	SB/EB	TriMet 35/36	TriMet Standard	N/A	
4	-	SW Harbor Dr & SW Montgomery	RiverPlace	NB/WB	TriMet 96	TriMet Standard	N/A	
-	5	SW Harbor Dr & SW Montgomery	RiverPlace	SB/EB	TriMet 96	TriMet Standard	N/A	
5	-	SW Jefferson & SW 1 <sup>st</sup>		NB/WB	TriMet 96 (38, 45, 55, 92)	TriMet White Tile	N/A	
	4	SW Columbia & SW 1 <sup>st</sup>		SB/EB	TriMet 96 (38, 45, 55, 92)	TriMet White Tile	N/A	
6	-	SW Jefferson & SW 4 <sup>th</sup> /5 <sup>th</sup>	Transit Mall	NB/WB	TriMet 96 (6, 92)	TriMet Black Tile	N/A	
	3	SW Columbia & SW 5 <sup>th</sup> /4 <sup>th</sup>	Transit Mall	SB/EB	TriMet 96 (38, 45, 92)	TriMet Black Tile	N/A	
7	-	SW Jefferson & SW Broadway		NB/WB	TriMet 96 (6, 38, 45, 55, 58, 68, 92)	TriMet White Tile	N/A	
-	2	SW Columbia & SW Park		SB/EB	TriMet 96 (6, 38, 45, 55, 58, 68, 92)	TriMet White Tile	N/A	
8	-	SW Jefferson & SW 10 <sup>th</sup>		NB/WB	TriMet 96 (38, 45, 55, 92)	TriMet White Tile	N/A	
-	1	SW Columbia & SW 10 <sup>th</sup>		SB/EB	TriMet 96 (6, 38, 45, 55, 58, 68, 92)	TriMet White Tile	N/A	

Figure 10-6 Stop Sign Types



## **Route 2X Layover Locations**

The recommended downtown layover locations for Route 2x are SW Jefferson Street & SW 16<sup>th</sup> Avenue or SW Jefferson Street & SW 10<sup>th</sup> Avenue. Both locations include TriMet stops and designated bus zones, for approximately 100' of combined linear extent at each location, and are located near establishments where drivers could likely access restroom facilities. Comparing these two locations, Jefferson & 16<sup>th</sup> does not have a conflict with the shared bus/bike lane that exists at the Jefferson & 10<sup>th</sup> location. TriMet lines 6, 45, and 58 would serve either stop during the midday.

TriMet does not anticipate conflicts with its bus operations for midday layovers, but recommends obtaining approval from the City of Portland, Goose Hollow Neighborhood Association, and/or adjacent business owners, as noted in Figure 10-7. TriMet also advised considering new on-street zones, e.g., SW 14<sup>th</sup> Avenue. <sup>25</sup> A disadvantage of SW 14<sup>th</sup> Avenue is the lack of a nearby restroom facility.

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<sup>25</sup> Kate Lyman, TriMet, Email Communication, June 11, 2015

**Figure 10-7 Route 2X Downtown Portland Layover Locations Selection Matrix**

Location	Overall Feasibility/ Desirability	Approximate Linear Length	Street Curb Use/Designation	Driver Break (Restroom) Facilities within 1 Block	Other Transit Services	Outreach to Adjacent Property Owners	Potential Multimodal or Land Use Conflicts	Outreach to Neighborhood Associations?
<b>Recommended Layover Locations (Acceptable to TriMet)</b>								
SW Jefferson & 16 <sup>th</sup>	Best	100 feet (including stop)	Bus Zone	Yes - Laughing Planet (17 <sup>th</sup> & Jefferson)	TriMet: 6, 45, 55, 58, 68	Leaky Roof Gastropub, Taylor-Zeller Insurance, Milne Properties, Crossfit, Jefferson Plaza	Future Powell-Division BRT Project	Goose Hollow
SW Jefferson & 10 <sup>th</sup>	High	100 feet (including stop)	Bus / Bike Lane	Yes -Safeway/Starbucks (10 <sup>th</sup> & Jefferson)	TriMet: 6, 38, 45, 55, 58, 68, 92, 96	Art Museum, Honey's Café, St. James Lutheran Church	Bike/Bus Lane, Future Powell-Division BRT Project	No
<b>Other Potential Layover Locations (Further Discussion Needed)</b>								
SW 14 <sup>th</sup> , Jefferson-Columbia	Low	Requires parking restriction during hours needed for layover	On-Street Parking	No	None	Residential	None	Goose Hollow
SW Columbia between SW 13 <sup>th</sup> and SW 12 <sup>th</sup>	TBD (Medium)	~60 feet (not including 60 feet clearance for stop)	Bus Zone	No – 2.5 blocks to Safeway/Starbucks	TriMet: 6, 45, 55, 58, 68, 96	New Avenues for Youth, Gretchen Kafoury Commons, Commercial building at SE corner and residential building at NE corner of 12 <sup>th</sup> .	Future Powell-Division BRT Project	Goose Hollow
SW Columbia & 10 <sup>th</sup>	TBD (Low)	85 feet (including stop)	Bus / Bike Lane	Yes -Safeway/Starbucks (10 <sup>th</sup> & Columbia)	TriMet: 6, 38, 45, 55, 58, 68, 92, 96		Future Powell-Division BRT Project	No
<b>Other Layover Locations Considered but Ruled Out</b>								
SW Columbia, SW 17 <sup>th</sup> -16 <sup>th</sup>	Poor	150 feet	Bus Zone	PGE Facility	No Scheduled Services	PGE	Future Powell-Division BRT Project	Goose Hollow

Figure 10-8 SW Jefferson & SW 10<sup>th</sup>



Source: Google Earth

Figure 10-9 SW Jefferson & SW 16<sup>th</sup>



Source: Google Earth

## **Route 2X Conceptual Schedules**

Figure 10-10 provides SMART's draft schedule (as of April 2015) for the Route 2X service extended to Downtown Portland during the midday time period.

**Figure 10-10 SMART Draft Route 2X Schedule, April 2015**

**DRAFT**

Frequency Book #  
 Effective: Fall, 2015  
 Original

SMART Transit Service  
 Route 2X  
 Wilsonville Transit Center – Barbur Blvd. Transit Center

Page 3  
 Northbound  
 Mon.-Fri. except Hol.

Run No.	Sch. No.	Train Arrival	Wilsonville Transit Ctr.	Town Ctr. E./ Wilsonville Rd.	Mentor Graphics	Xerox	95 <sup>th</sup> / Commerce	Tualatin Park & Ride	Line 76 Connection @ Tualatin P&R	Line 96 Connection @ Tualatin P&R	South Waterfront	Downtown Portland
	202	----	4:49a	4:56a	5:01a	5:04a	----	5:18a	----	5:23a		----
	204	----	5:17a	5:32a	5:29a	5:32a	----	5:48a	----	5:53a		----
	206	----	5:48a	5:55a	6:00a	6:03a	----	6:19a	----	6:24a		----
	208	6:25a	6:30a	6:37a	6:42a	6:45a	----	7:01a	----	7:07a		----
	210	6:55a	7:00a	7:07a	7:12a	7:15a	----	7:31a	----	7:37a		----
	212	7:25a	7:30a	7:37a	7:42a	7:45a	----	8:01a	----	8:14a		----
	214	#	7:53a	8:00a	8:05a	8:08a	----	8:24a	----	8:29a		----
	216	#	8:18a	8:25a	----*	8:32a	----	8:48a	----	8:53a		----
	218	#	8:53a	9:00a	----*	9:07a	----	9:22a	----	9:27a		----
	220	9:25a	9:30a	9:37a	----*	9:44a	----	9:58a	----	----	10:28a	10:33a
	222	9:55a	10:05a	10:12a	----*	10:19a	----	10:33a	10:37a	----	10:58a	11:08a
	224	----	11:05a	11:12a	----*	11:19a	----	11:33a	11:38a	----	11:58a	12:08a
	226	----	12:05p	12:12p	----*	12:19p	----	12:33p	12:44p	----	12:58p	1:08p
	228	----	1:10p	1:17p	----*	1:24p	----	1:38p	1:50p	----		----
	230	----	2:10p	2:17p	----*	2:24p	----	2:38p	2:47p	2:58p		----
	232	----	2:37p	2:44p	----*	2:52p	----	3:05p	----	----		----
	234	----	3:07p	3:14p	3:19p	3:22p	3:31p	3:43p	----	3:58p		----
	236	----	3:37p	3:44p	3:49p	3:52p	4:01p	4:13p	----	4:25p		----
	238	----	4:07p	4:14p	4:19p	4:22p	4:31p	4:43p	----	5:00p		----
	240	4:32p	4:37p	4:44p	4:49p	4:52p	5:01p	5:13p	----	5:36p		----
	242	5:02p	5:07p	5:14p	5:19p	5:22p	5:31p	5:43p	----	6:07p		----
	244	5:32p	5:37p	5:44p	5:49p	5:52p	6:01p	6:13p	----	----		----
	246	6:02p	6:07p	6:14p	6:19p	6:22p	6:31p	6:43p	----	6:54p		----
	248	6:32p	6:37p	6:44p	6:49p	6:52p	7:01p	7:13p	----	----		----
	250	7:02p	7:05p	7:12p	----*	7:19p	----	7:35p	7:45p	----		----
	252	8:02p	8:05p	8:12p	----*	8:19p	8:28p	8:40p	9:02p	----		----
	254	----	9:05p	9:12p	----*	9:19p	----	9:32p	9:48p	----		----

# For train transfers, take Route 4 or 6

\* Stops on Parkway Ave.

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Frequency Book #  
 Effective: Fall, 2015  
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SMART Transit Service  
 Route 2X  
 Wilsonville Transit Center – Barbur Blvd. Transit Center

Page 4  
 Southbound  
 Mon.-Fri. except Hol.

Run No.	Sch. No.	Downtown Portland	South Waterfront	Line 76 Connection @ Tualatin P&R	Line 96 Connection @ Tualatin P&R	Tualatin Park & Ride	95 <sup>th</sup> /Commerce	Xerox	Mentor Graphics	Town Ctr. E./Wilsonville Rd.	Wilsonville Transit Ctr.	Train Departure
	201	----		----	----	(Burns/Canyon Crk.) 4:59a		5:02a	----*	5:08a	5:15a	5:21a
	203	----		----	----	5:20a	----	5:31a	----*	5:37a	5:44a	5:51a
	207	----		----	----	5:50a	----	6:02a	----*	6:08a	6:15a	6:21a
	209	----		----	----	6:10a	6:20a	6:29a	6:32a	6:37a	6:44a	6:51a
	211	----		----	6:15a	6:25a	6:35a	6:44a	6:47a	6:52a	6:59a	7:21a
	213	----		----	7:05a	7:10a	7:20a	7:29a	7:32a	7:37a	7:44a	7:51a
	215	----		----	7:22a	7:32a	7:42a	7:51a	7:54a	7:59a	8:06a	8:21a
	217	----		----	7:43a	8:02a	8:12a	8:21a	8:24a	8:29a	8:36a	8:51a
	219	----		----	8:18a	8:28a	8:38a	8:47a	8:50a	8:55a	9:04a	----
	221	----		----	8:50a	9:00a	9:10a	9:19a	9:22a	9:27a	9:34a	----
	223	----		----	----	9:30a	----	9:42a	----*	9:49a	9:56a	----
	225	----		10:16a	----	10:21a	----	10:33a	----*	10:40a	10:47a	----
	227	10:46a	10:51a	----	----	11:21a	----	11:33a	----*	11:40a	11:47a	----
	231	11:31a	11:36a	11:53a	----	12:06a	----	12:18a	----*	12:25p	12:32p	----
	233	12:31p	12:36p	12:59p	----	1:06p	----	1:18p	----*	1:25p	1:32p	----
	235	1:31p	1:36p	----	----	2:06p	----	2:18p	----*	2:25p	2:32p	----
	237	----		----	2:57p	3:06p	----	3:20p	----*	3:27p	3:34p	3:58p
	239	----		3:15p	3:26p	3:36p	----	3:50p	3:53p	3:58p	4:05p	4:28p
	241	----		----	3:55p	4:06p	----	4:20p	4:23p	4:28p	4:35p	----
	259	----	----	----	4:13p	4:23p	----	4:37p	4:40p	4:45p	4:52p	4:58p
	243	----		----	4:44p	4:53p	----	5:07p	5:10p	5:15p	5:22p	5:28p
	245	----		----	5:10p	5:20p	----	5:34p	5:37p	5:42p	5:49p	5:58p
	247	----		----	5:43p	5:53p	----	6:07p	6:10p	6:15p	6:22p	6:28p
	249	----		----	5:56p	6:06p	----	6:20p	6:23p	6:28p	6:35p	6:58p
	251	----		----	6:24p	6:34p	6:44p	6:53p	----*	6:59p	7:06p	----
	253	----		----	7:06p	7:16p	7:24p	7:33p	----*	7:41p	7:47p	----
	255	----		----	----	7:36p	7:44p	7:52p	----*	7:58p	8:05p	----
	257	----		8:00p	7:57p	8:07p	8:20p	8:28p	----*	8:34p	8:41p	----

\* Stops on Parkway Ave.

Future Service\14\Midday service to Portland