600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Agenda*

Meeting: Transportation Policy Alternatives Committee (TPAC)
Date: Friday, January 29, 2015
Time: 9:30 a.m. to 12 p.m. (noon)
Place: Metro Regional Center, Council Chamber

9:30 AM	**1.**		**CALL TO ORDER AND DECLARATION OF A QUORUM**	**John Williams, Chair**
9:35 AM	**2.**		**COMMENTS FROM THE CHAIR AND COMMITTEE MEMBERS**	**John Williams, Chair**
9:45 AM	**3.**		**CITIZEN COMMUNICATIONS ON AGENDA ITEMS**	
9:50 AM	**4.**	*	**CONSIDERATION OF THE TPAC MINUTES FOR DECEMBER 18, 2015**	
9:55 AM	**5.**		**MTIP QUARTERLY AMENDMENT SUMMARY REPORT (10/1 TO 12/31/2015)** • Information	**Ken Lobeck, Ted Leybold, Metro**
10:05 AM	**6.**	*	**MTIP OBLIGATION & PERFORMANCE REPORT** • Provide quarterly summary of Transportation Improvement Program amendments, programming adjustments and financial plan adjustments. Information	**Ken Lobeck, Ted Leybold, Metro**
10:15 AM	**7.**	**	**RTO STRATEGIC PLAN AND 2017-19 GRANT PROGRAM** • Discuss the RTO Strategic Plan update and timeline for grant funding. Information/Discussion	**Dan Kaempff, Ted Leybold, Metro**
10:45 AM	**8.**	#	**2018 RTP UPDATE: 2016 ACTIVITIES AND MILESTONES** • Brief TPAC on 2016 activities and engagement, Information/Discussion	**Kim Ellis, Metro**
11:00 AM	**9.**	*	**TRANSIT-ORIENTED DEVELOPMENT PROGRAM UPDATE** • Provide an update on the Transit-Oriented Development Program Strategic Plan Information/Discussion	**Jonathan Williams, Megan Gibb, Metro**
11:30 AM	**10.**	*	**SW CORRIDOR DRAFT MODE RECOMMENDATION** • Provide an update on the SW Corridor project and the draft mode recommendation Information/Discussion	**Malu Wilkinson, Chris Ford, Metro**
12:00 PM	**11.**		**ADJOURN**	**John Williams, Chair**

Upcoming TPAC Meetings:
- Friday, February 26, 2016
- Friday, March 25, 2016
- Friday, April 29, 2016

* Material will be emailed with meeting notice
** Material will be emailed at a later date after notice
# Material will be distributed at the meeting.

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សេចក្តីជូនដំណឹងអំពីការមិនរើសអើងរបស់ Metro

ការគោរពសិទ្ធិពលរដ្ឋរបស់ ។ សំរាប់ព័ត៌មានអំពីកម្មវិធីសិទ្ធិពលរដ្ឋរបស់ Metro ឬដើម្បីទទួលពាក្យបណ្តឹងរើសអើងសូមចូលទស្សនាគេហទំព័រ www.oregonmetro.gov/civilrights។
បើលោកអ្នកត្រូវការអ្នកបកប្រែភាសានៅពេលអង្គប្រជុំសាធារណៈ សូមទូរស័ព្ទមកលេខ 503-797-1890 (ម៉ោង 8 ព្រឹកដល់ម៉ោង 5 ល្ងាច ថ្ងៃធ្វើការ) ប្រាំពីរថ្ងៃថ្ងៃធ្វើការ មុនថ្ងៃប្រជុំដើម្បីអាចឲ្យគេសម្រួលតាមសំណើរបស់លោកអ្នក ។

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November 2014

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2016 TPAC Work Program

As of 1/22/15

NOTE: *Items in* ***italics*** *are tentative;* ***bold*** *denotes required items*

February 26, 2016 • 2018 RTP Update: Background for Regional Leadership Forum #1 Information/Discussion (Kim Ellis; 40 mins) • MTIP & RFFA Policy Update Information/Discussion (Dan Kaempff; Grace Cho; 40 mins) • Vehicle Electrification Project Options Information/Discussion (Ted Leybold, Caleb Winter, 20 mins.) • DEI - Equity Strategy Draft Presentation Information/Discussion (Juan Carlos Ocaña-Chíu; 30 mins)	**March 25, 2016** • MTIP & RFFA Policy Update Recommendation (Dan Kaempff; Grace Cho; 30 mins) • Draft Regional Transit Vision Information/Discussion (Jamie Snook, TriMet, SMART; 35 mins.) • WSDOT Update Information/Discussion (Michael Williams; 25 mins • RFFA Criteria Options Information/Discussion (Dan Kaempff; Ted Leybold; 30 mins) • Transit Budget Process Update Information/Discussion (Eric Hesse, Ted Leybold;15 mins)
April 29, 2016 • DEI - Equity Strategy Presentation Information/Discussion (Juan Carlos Ocaña-Chíu; 30 mins) • ODOT Region 1 ACT prioritization Information/Discussion (30 mins Grace Cho, Ted Leybold) Event: April 22 – 8am-12pm at OCC: RTP Regional Leadership Forum #1 (Trends, Challenges and Vision for the Future)	**May 27, 2016** • 2018 RTP Update: Background for Regional Leadership Forum #2 Information/Discussion (Kim Ellis, 40 mins)
June 24, 2016 • 2018 RTP Update: Transportation Equity Priority Outcomes Information/Discussion (Grace Cho, Metro; 35 mins)	**July 29, 2016** Event: RTP Regional Leadership Forum #2 (date TBD)
August 26, 2016 • 2018 RTP Update: Background for Regional Leadership Forum #3 Information/Discussion (Kim Ellis, 30 mins) • 2018 RTP Update: Performance Targets Information/Discussion (John Mermin; 40 mins)	**September 30, 2016**

Parking Lot:

- MAP-21 Implementation
- ODOT Enhance/Fix-It Process
- TAP project delivery contingency fund pilot update (Leybold, Cho)
- Special Transportation fund Allocation Process (Cho)
- Coordinated Transportation Plan for Elderly and People with Disabilities (Cho)

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TRANSPORTATION POLICY ALTERNATIVES COMMITTEE
December 18, 2015
Metro Regional Center, Council Chamber

MEMBERS PRESENT	AFFILIATION
John Williams	Metro
Judith Gray	City of Portland
Nancy Kraushaar	City of Wilsonville, representing Cities of Clackamas County
Katherine Kelly	City of Gresham
Eric Hesse	TriMet
Chris Deffebach	Washington County
Karen Buehrig	Clackamas County
Don Odermott	City of Hillsboro, representing Cities of Washington Co.
Adrian Esteban	Community Representative
Cora Potter	Community Representative
Carol Gossett	Community Representative
Steve White	Community Representative
Dave Nordberg	Oregon Department of Environmental Quality
Joanna Valencia	Multnomah County
Nick Fortey	Federal Highway Administration

MEMBERS EXCUSED	AFFILIATION
Lynda David	Southwest Washington Regional Transportation Council

ALTERNATES PRESENT	AFFILIATION
Phil Healy	Port of Portland
Jason Gibbens	Washington State Department of Transportation
Alan Snook	ODOT

STAFF: Ted Leybold, Dan Kaempff, Kim Ellis, Grace Cho, Ken Lobeck, Jeffrey Raker, Jamie Snook, Lisa Hunrichs, Lake McTighe, John Mermin

1. CALL TO ORDER AND DECLARATION OF A QUORUM

Chair John Williams declared a quorum and called the meeting to order at 9:33 a.m.

2. COMMENTS FROM THE CHAIR AND COMMITTEE MEMBERS

John Mermin (Metro) announced the Performance Measures Workshop on January 25. Cities, counties and regions are using performance measures to inform their transportation plans and investment decisions. The workshop will be an opportunity to share ideas that will inform local transportation plans and discussions about performance measures in the Regional Transportation Plan.

Chair Williams also noted that a flyer regarding the implementation of the Climate Smart is available to committee members and the public.

3. CITIZEN COMMUNICATIONS ON AGENDA ITEMS.

There were no citizen communications.

4. CONSIDERATION OF THE TPAC MINUTES FOR OCTOBER 30, 2015

MOTION: Ms. Judith Gray moved and Ms. Carol Gossett seconded the motion to adopt the TPAC minutes from November 20, 2015.

ACTION: With all in favor, the motion passed.

5. 2018 REGIONAL TRANSPORTATION PLAN UPDATE

Ms. Kim Ellis provided the committee with an update on RTP technical work groups and next steps. She presented a roster for the technical work groups and noted that the schedule for the year will be posted on the Metro calendar and website. Some groups (freight, transit, equity) will begin meeting in January, others will begin in February or later in the year. She noted that Metro Council approved the RTP work plan and engagement plan on December 8. The roles of the work groups are important, as they help provide input on the planning work, shape materials, and identify topics for TPAC and MTAC discussions. Work group members also have a key role in keeping their jurisdictions and organizations informed and identifying issues or concerns raised by those entities for discussion by the work groups throughout the process. Work group leads will identify opportunities for collaboration and Metro communications staff will send out quarterly e-mails to interested parties lists to provide information and updates about project progress. In January, Ms. Ellis will return to TPAC with more information about 2016 activities.

6. PORTLAND METRO AREA HIGHWAY PERFORMANCE PROJECT

Ms. Lainie Smith provided an update on the highway performance measures project. The project aims to recommend highway performance measures that address safety, mobility, and decision-making tools for application in long range planning and development review in the Portland metro area. The end products for recommendation will include:

- a small set of performance measures for mobility and safety for application in the Portland metropolitan area
- a decision-making framework that shows where, under what circumstances, and how certain the performance measures could apply in long range planning and development review.

Members requested and Ms. Smith provided clarification about the timeline for the project and Ms. Smith answered questions about how the changes might apply to various project in their specific jurisdictions. Members also suggested working group sessions that would allow opportunities for involvement so that the outcome would be reflective of input from around the region prior to finalization. Ms. Smith noted that ODOT would be reaching out to regional partners as the project progressed. She also provided a flyer for the project (included in the packet) which outlines the goals, objectives and timeline for the project.

7. FEDERAL TRANSPORTATION LEGISLATION UPDATE

Mr. Ted Leybold provided a briefing on the new federal legislation and its impacts on funding and future planning work program. Committee members appreciated the clarification on past and current issues and reviewed items that might directly impact their individual jurisdictions. Mr. Leybold's

PowerPoint presentation that highlighted the specific changes will be added to the meeting packet available online.

8. MPO CONSIDERATON OF ODOT ENHANCE FUNDING

Mr. Ted Leybold presented an update on ODOT Enhance process and discussed potential MPO communication to Region 1 ACT as proposed in a draft comment letter. The next steps include discussion at JPACT in January 2016, submission of a comment letter to ODOT Region 1 ACT before February 1, 2016. Following those activities, Region 1 ACT will narrow to a 100% list by May 2016. TPAC members provided comments on the draft letter, requesting that it be simplified and to clarify that projects that are a part of corridor shared investment strategies within the region are not of higher priority than projects outside of those shared investment strategy areas.

9. ADJOURN Chair Williams noted that the next meeting be held on January 29, 2016. The meeting was adjourned at 11:50. a.m.

Respectfully submitted,

Lisa Hunrichs, Planning and Development

ATTACHMENTS TO THE PUBLIC RECORD FOR THE MEETING OF DECEMBER 18, 2015

ITEM	DOCUMENT TYPE	DOC DATE	DOCUMENT DESCRIPTION	DOCUMENT NO.
1	Agenda	12/18/15	12/18/15 TPAC Agenda	121815T-01
2	Work Program	12/10/15	2016 TPAC Work Program	121815T-02
3	Meeting Summary	11/20/15	11/20/15 TPAC meeting summary	121815T-03
4	Handout	12/9/15	2018 RTP Update Technical Work Groups (Member Rosters)	121815T-04
5	Handout	12/10/15	2018 RTP Update Technical Work Groups (Flyer)	121815T-05
6	Handout	12/14/15	Climate Smart Strategy Flyer	121815T-06
7	Handout	November 2015	Portland Metro Area Highway Performance Project Flyer and Attachment (Table 7)	121815T-07
8	Handout	12/11/15	Association of MPOs Fixing America's Surface Transportation (FAST) Act Summary	121815T-08
9	Memo	12/16/15	To: TPAC and Interested parties From: Grace Cho, Associate Transportation Planner and Ted Leybold, Resource Development Director Re: 2018-2021 MTIP Coordination Policy – Participation and Key Message for ODOT Allocation Process	121815T-09
10	Handout	11/20/15	2019-2021 Enhance Proposals (Submitted 11/20/15)	121815T-10
11	Draft Letter	January 2016	To: Commissioner Roy Rogers, Chair Region 1 Area Commision on Transporation From: Craig Dirksen, Metro Councilor / JPACT Chair Re: MPO Comments on ODOT Allocation of Federal Transportation Funding	121815T-11

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Metro | *Memo*

Date: January 19, 2016
To: TPAC and Interested Parties
From: Ken Lobeck and Pamela Blackhorse
Subject: TIP adjustments for October – December 2015

BACKGROUND:

Attached is the summary of Transportation Improvement Program amendments, programming adjustments and financial plan adjustments for October through December 2015. These adjustments are distributed to TPAC on a quarterly basis.

Please contact us if you have any questions.

2015-18 MTIP Programming Adjustments: First Quarter of FFY 2016
The following FFY15-18 MTIP amendments, programming adjustments or financial plan adjustments were processed in the period October through December 2015.

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1st Quarter FFY 2016 (October 1 - December 31, 2015)

MTIP Amendment Summary Report

AMENDMENT NUMBER	ODOT KEY	PROJECT NAME	MODIFICATION TYPE	AGENCY	REQUESTED BY	REQUESTED ACTION
1056	19466	NW Brookwood Pkwy: NW Meek Rd - NW Shute Rd	Administrative	Washington County	Vaughan Rademeyer	Slip RW phase to 2016
1057	19531	I-84/I-5: BANFIELD INTERCHANGE DECK OVERLAY & BRIDGE RAIL RETROFIT	Formal - Reso No 15-4642	ODOT	Anna Dunlap	Add new project to 2015-2018 STIP as approved by OTC in April. To be funded from bottom line of State Bridge FP.
1058	19533	I-405: FREMONT BRIDGE APPROACH RAMPS MODULAR JOINT REPLACEMENT	Formal - Reso No 15-4642	ODOT	Anna Dunlap	Add new project to 2015-2018 STIP as approved by OTC in April. PE from Key 18589. CN from bottom line of State Bridge FP.
1059	19633	AMTRAK CASCADES PASSENGER RAIL OPERATION 2015-2018	Formal - Reso No 15-4642	ODOT	Amanda Sandvig	Amend the 15-18 STIP to add Amtrak Cascades Passenger Rail Operation 2015-2018 by transferring $8,588,799 from the Statewide FP and federal match from ODOT Rail.
1060	15598	OR 99-E Bridge at Kellogg Lake	Formal - Reso No 15-4646	ODOT	Amanda Sandvig	Cancel the PE phase of K15598 OR-99E Bridge at Kellogg Lake and add $1,175,749 to increase the CN phase of K18018 17th Ave Trail: SE Ochoco - SE McLoughlin to $2,936,639.
1061	18018	17th Avenue Multi-use Trail: SE Ochoco - SE McLoughlin	Formal - Reso No 15-4646	ODOT	Vaughan Rademeyer	Cancel the PE phase of K15598 OR-99E Bridge at Kellogg Lake and add $1,175,749 to increase the CN phase of K18018 17th Ave Trail: SE Ochoco - SE McLoughlin to $2,936,639.
1062	18795	US26 (Powell Blvd) SE 20th - SE 34th	Administrative	ODOT	Vaughan Rademeyer	Amend K18795 US26: SE 20th Ave-34th Ave to move $350,000 from K18840 Powell-Division Corridor Safety & Access to Transit to increase CN on K18795 to $2,863,455. Move $290,000 from K18840 to the Region 1 FP due to scope reduction and change match ratio for K18840 to 11.93%.
1063	18840	Powell-Division Corridor Safety & Access to Transit	Administrative	ODOT	Vaughan Rademeyer	Amend K18795 US26: SE 20th Ave-34th Ave to move $350,000 from K18840 Powell-Division Corridor Safety & Access to Transit to increase CN on K18795 to $2,863,455. Move $290,000 from K18840 to the Region 1 FP due to scope reduction and change match ratio for K18840 to 11.93%.
1064	14429	Kinsman Road: SW Boeckman to SW Barbur	Administrative	Wilsonville	Amanda Sandvig	Combine K19399 into K14429 Kinsman Rd: SW Boeckman - SW Barbur to add a construction phase of $4,730,000
1065	19399	Kinsman Rd: Boeckman Rd - SW Barber (Wilsonville)	Administrative	Wilsonville	Vaughan Rademeyer	Combine K19399 into K14429 Kinsman Rd: SW Boeckman - SW Barbur to add a construction phase of $4,730,000
1066	18796	US30BY(Sandy Blvd): NE 105th Ave (Portland)	Administrative	ODOT	Vaughan Rademeyer	Amend K18796 to change the project name to US30BY (Sandy Blvd): NE 105th Ave (Portland) CMR-02 and mile points to 11.58 -11.63
1067	18778	US30: NW McNamee Rd - NW Bridge Ave	Administrative	ODOT	Vaughan Rademeyer	Amend K18778 US30: NW McNamee Rd - NW Bridge Ave to increase CN to $6,387,000 by adding $25,000 Bike/Ped Quick Fix funds from K17599.
1068	17516	FFO - I-5: Interstate Bridge - Hassalo St	Administrative	ODOT	Vaughan Rademeyer	Add the project to the 15-18 STIP. Increase PE to $711,671 and add RW for $120,000 by moving $531,671 from the OT phase per Charter & CMR01. This project was already in the MTIP so we just make the programming changes in TT. MKA
1069	19702	Regional Signal System-ConOps & Implementation	Administrative	ODOT	Vaughan Rademeyer	Add K19702 Regional Signal System-ConOps & Implementation with $167,168 from K19287 and $947,286 from K19289. Increase K17458 ITS Network with $14,488 from K17459 and $5,572 from K19287
1070	9287/1928	Transportation System Management & Operations Program	Administrative	Metro	Caleb Winter	Add K19702 Regional Signal System-ConOps & Implementation with $167,168 from K19287 and $947,286 from K19289. Increase K17458 ITS Network with $14,488 from K17459 and $5,572 from K19287
1071	17458	ITS Network Equipment	Administrative	ODOT	Vaughan Rademeyer	Add K19702 Regional Signal System-ConOps & Implementation with $167,168 from K19287 and $947,286 from K19289. Increase K17458 ITS Network with $14,488 from K17459 and $5,572 from K19287
1072	17459	TTIP Enhancement for Arterial Traveler Information	Administrative	ODOT	Vaughan Rademeyer	Add K19702 Regional Signal System-ConOps & Implementation with $167,168 from K19287 and $947,286 from K19289. Increase K17458 ITS Network with $14,488 from K17459 and $5,572 from K19287
1073	19201	2016 Interstate Sign Replacement	Administrative	ODOT	Vaughan Rademeyer	Cancel K17718 and K19202 to move $2,140,000 to K19201 2016 Interstate Sign Replacement increasing PE to $540,000 and CN to $3,600,000. (Keys 17718 and 19202 are Non-MPO projects).
1074	17268	Red Electric Trail: SW Bertha - SW Vermont Sec	Administrative	Portland	Vaughan Rademeyer	Cancel K14440 and add $208,660 of unobligated funds to K17268 Red Electric Trail: SW Bertha - SW Vermont Sec to increase PE to $642,643. Correct rounding on K17268.
1075	14440	SW Capitol Highway: Multnomah to Taylors Ferry	Administrative	Portland	Vaughan Rademeyer	Cancel K14440 and add $208,660 of unobligated funds to K17268 Red Electric Trail: SW Bertha - SW Vermont Sec to increase PE to $642,643. Correct rounding on K17268.
1076	18802	I-84 Jordan Rd - Multnomah Falls	Administrative	ODOT	Vaughan Rademeyer	Combine K18803 into K18802 and rename to I-84: Jordan Rd. - Multnomah Falls. Change milepoints to reflect the combined project. This project was not in the MTIP so we migrated the project from 12-15.

Metro

1st Quarter FFY 2016 (October 1 - December 31, 2015)

MTIP Amendment Summary Report

AMENDMENT NUMBER	ODOT KEY	PROJECT NAME	MODIFICATION TYPE	AGENCY	REQUESTED BY	REQUESTED ACTION
1077	18563	US26: Ross Island Intchg NB Conn Deck Overlay	Administrative	ODOT	Vaughan Rademeyer	Add $35,700 to PE phase from State Bridge FP & $11,000 to CN from K17601. This is a duplicate, see Amendment Number 1050 from last quarter.
1078	17306	SMART Preventive Maintenance FY13	Administrative	SMART	Patty Fink	Amend K17306 SMART Preventative Maintenance FY13 to cancel project as requested by Patty Fink 7/29/15
1079	18414	SE 120th Ave Extension: S of SE Capps Rd.	Administrative	Clackamas County	Christina Hopes	Slip K18414 SE 120th Ave Extension: S of SE Capps Rd to 2016 and add to 2015-18 STIP
1080	18804	I-205: Johnson Creek - Glenn Jackson Bridge	Administrative	ODOT	Vaughan Rademeyer	Amend K18804 I-205: Johnson Creek - Glenn Jackson Bridge to increase PE to $540,000 and CN to $10,966,000 by adding $100,000 from IM plan $90,000 from Bridge plan and $316,000 from K17697. Advance CN to 2017 per ODOT Charter.
1081	17697	US26: SE Powell Blvd at 116th Ave	Administrative	ODOT	Vaughan Rademeyer	Amend K18804 I-205: Johnson Creek - Glenn Jackson Bridge to increase PE to $540,000 and CN to $10,966,000 by adding $100,000 from IM plan $90,000 from Bridge plan and $316,000 from K17697. Advance CN to 2017 per ODOT Charter.
1082	18806	US26: Cornelius Pass Rd - NW 185th Ave	Administrative	Hillsboro	Vaughan Rademeyer	Amend K18806 US26: Cornelius Pass Rd - NW 185th Ave to increase CN to $30,931,636 with $5M JTA from the FP per SB270 and $9M Local Agency Funds. Change state match on Urban STP to JTA.
1083	19301	Southwest in Motion (SWIM)	Administrative	Portland	Vaughan Rademeyer	Slip funding to 2016
1084	19299	Portland Central City Safety Project - Phase 2	Administrative	Portland	Amanda Sandvig	Amend K19299 Portland Central City Safety Project - Phase 2 to increase PL to $949,515 by moving $670,901 from PE. Slip PE to 2017.
1085	18311	Durham Rd/Upper Boones Ferry Rd. OR99W - I-5	Administrative	Tigard	Vaughan Rademeyer	Slip CN to 2017
1086	19327	Fanno Crk Trail: Woodard Pk to Bonita Rd/85th Ave - Tualatin BR	Administrative	Tigard	Amanda Sandvig	Amend K19327 to correct the project name to: Fanno Crk Trail: Woodard Pk-Bonita Rd/85th Ave-Tualatin Br.
1087	19280	SE 129th Avenue - Bike Lane and Sidewalk Project	Administrative	Happy Valley	Kelly Jacobsen	Change $1,597,491 of CN fed funds to Urban STP as requested by Kelly Jacobsen. Slip RW to 2017 and CN to 2018.
1088	19100	US26 ATMS/ITS	Administrative	ODOT	Matt Freitag	Amend K19100 Region 1 Active Traffic Management (ATM) (TIGER) to increase CN to $14,105,000 by adding $2.5M (shown as A/C) award from Oct 2015 OTC meeting.
1089	19099	OR224/OR212 Corridor ITS	Administrative	ODOT	Vaughan Rademeyer	Amend K19099 OR224/OR212 Corridor ITS to add a CN phase of $700,000 as awarded by the OTC in October 2015.
1090	19204	I-205 Pacific Hwy - Abernathy Bridge	Administrative	ODOT	Vaugan Rademeyer	Amend K19204 I-205: Pacific Hwy - Abernethy Bridge to add a CN phase of $7M as awarded by the OTC in October 2015.
1091	17757	Main St Ph2: Rail Corridor-Scoffins	Administrative	Tigard	Seth Brumley	Slip PE to 2017 and ROW and CN to 2018 for project K17757
1092	18841	OR217: Allen-Denney Southbound Split Diamond	Administrative	ODOT	Ana Jovanovic	Amend K18841 OR217: Allen-Denney Southbound Split Diamond to reduce CN to $5,095,832 to match the Draft IGA by removing $20,473 Enhance Federal funds and $525,685 Statewide Enhance Match and reducing local agency funds by $2,008
1093	19356	OR212: UPRR Structure - Rock Creek	Administrative	ODOT	Matt Freitag	Amend K19356 OR212: UPRR Structure - Rock Creek to change the highway to no.171
1094	16150	OR213: Intersection Improvements Couch - Division	Administrative	ODOT	Vaughan Rademeyer	Amend K16150 OR213: Intersection Improvements Couch - Division to increase CN to $4,912,740 by adding $438,740 Regional funds.
1095	18306	East Metro Connections ITS	Administrative	Gresham	Sam Hunaidi	For project K18306 move $120k from OTH phase and $175k from CN phase to increase PE to $355,000
1096	18795	US26 (Powell Blvd) SE 20th - SE 34th	Administrative	ODOT	Nate Scott	Slip K18795 US26 (Powell Blvd): SE 20th-34th CN to 2017
1097	19691	I-84 AND I-205 BARRIER INSTALLATION	Administrative	ODOT	Vaughan Rademeyer	Add new project Key19691 I-84 and I-205 Barrier Installation with $5,600,000 award from the OTC in October 2015

600 NE Grand Ave.
Portland, OR 97232-2736

Metro | *Memo*

Date: January 20, 2016
To: TPAC and Interested Parties
From: Ken Lobeck, Funding Programs Lead, 503-797-1785
Subject: Metropolitan Transportation Improvement Program (MTIP) Federal Fiscal Year 2015 Obligation and Performance Report

BACKGROUND:

Attached with this staff memo are the 2015 Annual Listing of Federally Obligated Projects and Obligation Performance Summary for projects that obligated their Federal funds from October 1, 2014 to September 30, 2015.

Attachment 1 provides a summary of the FFY 2015 Obligation Performance. The summary explains associated issues that arose during FFY 2015 preventing Federal transportation fund obligations resulting in MTIP "slip" amendments to move the 2015 programmed funds into 2016.

Attachment 2 is the Annual Listing of Federally Obligated Projects that occurred during the period from October 1, 2014 to September 30, 2015.

Please note the request at the end of Attachment 1 for TPAC input on the idea of initiating a work group to discuss and provide guidance on addressing issues in the project obligation and delivery process.

Please contact Ken Lobeck at if you have any questions.

Metropolitan Transportation Improvement Program (MTIP) Federal Fiscal Year 2015 Obligation and Performance Report

Attachment 1: Obligation Performance Summary

Overview:

Programming in the MTIP is based on an approved forecast of revenues expected to be available through annual appropriations of Federal transportation funds. Federal funds are obligated by their respective programming phase: Planning, Preliminary Engineering (PE), Right-of-Way, Utility Relocation, Construction, or Other phase within the MTIP. The approved obligation represents the Federal government's legal commitment to pay the Federal share of the project costs. Two methods exist for the lead agency to obligate their Federal funds for a specific MTIP project phase.

For Federally funded planning and roadway capital improvement projects, the lead agency will work with ODOT's Local Agency Program to complete the requirements to obligate their funds. The ODOT Local Agency Program fulfills FHWA stewardship responsibilities and supports Local Public Agencies (LPA) in the delivery of their Federal-aid transportation projects.

For Federal Transit Administration (FTA) projects, obligation occurs when the FTA grant is awarded. The grant award approval date represents the "obligation" date for the project. The lead agency works directly with FTA to obtain their grant approval by utilizing FTAs Transit Award Management System (TrAMS).

Once funds have been obligated, the project sponsor/lead agency begins incurring eligible project expenses and then requests reimbursement. The reimbursement request must demonstrate that the recipient incurred the costs consistent with the project agreement and all Federal requirements.

Obligation Performance Review Findings:

From October through November 2015, ODOT and Metro staff reviewed the project obligation process with a focus on Metro funded projects examining why 2015 funding had to be "slipped" into 2016. The review covered how well Metro and ODOT forecasted project obligations, the level of difficulty to complete the obligation process, and evaluated why some projects were not ready to obligate their Federal funds and had to be "slipped" out to 2016. A summary of the reasons why project funds were not obligated during 2015 included the following:

- ***Unrealistic Project Schedules:*** MTIP programming is based on the project schedule that identifies the estimated start dates for the applicable phase (i.e. Planning, Preliminary Engineering, R/W, Utility Relocation, and Construction). Several projects that required phase slips into 2016 were due to overly optimistic schedules that did not fully consider the time and requirements to either start the phase or complete the phase scope elements.
- ***Project Scoping Issues:*** By far, most of the delays to initiate the Planning or Preliminary Engineering (NEPA & final design) phases resulting in slips into 2016 were due to inadequate project scoping. Project scoping is the process that identifies specific project

work/scope elements needed to complete the phase. As a result of the poor scoping, delays resulted in completing the required Intergovernmental Agreement (IGA) enabling the project to move forward to obligate its Planning or Preliminary Engineering Federal funds.

- ***Project Cost Methodology Issues:*** Several project costs estimates especially for the Preliminary Engineering and Construction phases were incorrect. Until the phase cost issues are resolved, the project phase cannot move forward.
- ***Staffing Capacity to Manage and Deliver Projects:*** Some project delays were due to the lead agency not having adequate staff to lead and manage the project due to other existing commitments.
- ***Staff Inexperience with the Federal Transportation Project Delivery Process:*** Some delays were due to staff inexperience with the Federal transportation project delivery process requiring additional time to complete required obligation steps.
- ***External Factors Not Anticipated:*** A few delays also occurred as a result of external factors not anticipated (e.g. delays from other agencies involved in the project delivery process) and outside of the lead agency or ODOT's control that prevented the fund obligation from occurring.

Out of 160 projects with funds programmed in phases during FFY 2015, a total of seventy-one projects (both Metro and ODOT projects) did not obligate their 2015 phase funding as programmed, and required an amendment during September/October to slip their 2015 phase funding into 2016. The "slip" percentage was 44.4%.

As a result of the project slips and delays to obligate project funds, Metro and the ODOT Region 1 Local Agency Liaisons (LAL) have cooperatively begun addressing the delays. Several process improvements have been initiated to reduce the obligation delays which include:

- Establishing improved lines of communications between Metro, ODOT, and the lead agency to help identify potential projects issues and solutions as early as possible.
- Clarifying roles and responsibilities concerning obligation responsibilities.
- Initiating Metro staff participation on monthly ODOT project delivery review meetings.
- Initiating a quarterly Metro/LAL process meeting to discuss policies, issues, and needed process corrections to improve the Federal transportation obligation and delivery process.
- Developing specialized project monitoring worksheets to help improve project obligation estimates.
- Approaching the Federal transportation project delivery process utilizing closer coordination and communication between Metro and ODOT from initial project funding award through MTIP/STIP programming, fund obligations, fund expenditure/ reimbursements to the delivery of the project scope elements, and finally to close-out.

As Metro and the ODOT LALs have explored possible improvements, another idea has emerged which Metro staff is requesting TPAC input. The idea involves creating a TPAC working group that would be comprised of Metro and ODOT staff, plus local agency public works directors, transportation engineers, or other agency staff involved with the Federal transportation project delivery process. Project delivery issues, concerns, policies, etc. could be addressed through this working group. If the idea of a working group is of interest to the TPAC, staff could bring back a more detailed overview of the concept at a future TPAC meeting.

www.oregon**metro.gov**

Annual listing of federally obligated projects

Federal Fiscal Year 2015
(October 1, 2014 - September 30, 2015)

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Metro is a Federally Mandated metropolitan planning organization designated by the governor to develop an overall transportation plan and to allocate federal funds for the region. The Joint Policy Advisory Committee on Transportation (JPACT) is a 17-member committee that provides a forum for elected officials and representatives of agencies involved in transportation to evaluate transportation needs in the region and to make recommendations to the Metro Council. The established decision-making process assures a well-balanced regional transportation system and involves local elected officials directly in decisions that help the Metro Council develop regional transportation policies, including allocating transportation funds.

JPACT Committee Members: http://www.oregonmetro.gov/regional-leadership/metro-advisory-committees/joint-policy-advisory-committee-transportation

The preparation of this report was financed in part by the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration. The opinions, findings and conclusions expressed in this report are not necessarily those of the U.S. Department of Transportation, Federal Highway Administration and Federal Transit Administration.

ABOUT THIS DOCUMENT

The 2015 Annual Listing of Federally Obligated Projects lists the Metro area programs and projects for which Federal transportation funds have been obligated. The programs and projects listed in this report are organized by location, either as serving the region as a whole, or as located in Clackamas, Multnomah or Washington County. Table 1 lists the projects obligated through the Federal Highway Administration (FHWA). Table 2 lists projects obligated through The Federal Transit Administration FTA).

This report provides a yearly update about the progress of projects scheduled for construction or implementation and is useful for understanding the process by which federal investments are made in the communities of this region.

This document is available for downloading on the Metro website at: www.oregonmetro.gov/mtip.

REGIONAL TRANSPORTATION PLAN (RTP)

The RTP is the guiding policy document which outlines the long-range vision of the region's urban transportation system. As a component of the policy document, it identifies priority transportation investments (i.e. projects and programs) for the next 25 years which will help achieve the long-range vision. The RTP list represents priorities beyond what can be afforded by the region in any given year. As a result, Metro is required to develop a four-year expenditure plan known as the Metropolitan Transportation Improvement Program (MTIP) for the Portland urban area For projects to receive federal transportation funding, they must be included in the Regional Transportation Plan (RTP).

METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM (MTIP)

The Metropolitan Transportation Improvement Program (MTIP) is the federally mandated four year schedule of expenditures (i.e., spending) of federal transportation funds as well as significant state and local funds in the Portland metropolitan region. As a report, the MTIP provides the upcoming four-year implementation schedule of transportation projects in the Portland region. The MTIP also demonstrates how the transportation projects to be implemented comply with federal regulations regarding project eligibility, air quality impacts, environmental justice and public involvement. The MTIP serves as the implementation strategy for the first four years of the region's long-range transportation plan (RTP).The MTIP coordinates spending of federal and state transportation funds for four different public agencies: Metro, the Oregon Department of Transportation (ODOT), Tri-County Metropolitan Transportation District (TriMet), and South Metro Area Regional Transit (SMART).

Programming in the MTIP is based on a forecast of revenues expected to be available through annual appropriations and apportionments of federal transportation funds. Forecasted revenues are assigned to forecasted costs by project phase, such as design and engineering, right-of-way acquisition, and construction. As funding actually becomes available each federal fiscal year, programming is adjusted for that year based on project readiness, with some projects slipping to future years while others move to the current year. Projects in this report are also in the MTIP.

ABOUT OBLIGATIONS

An obligation in the context of this report is the Federal government's legal commitment to pay the Federal share of a project's cost. An obligated project is one that has been authorized by the Federal agency as meeting eligibility requirements for federal funds. Projects for which funds have been obligated are not necessarily initiated or completed in the program year. For obligations on a construction project, typically the project needs to complete a competitive bid process and begin construction if an acceptable bid is received. Alternatively, projects may have obtained permission to proceed to construction using local funds, with the ability to be obligated and reimbursed with federal funds at a later date. Some of those projects in this report may already have been constructed.

The amount of the obligation usually does not equal the total cost of the project. An obligation may be for only one phase of a multi-phased project, and the obligation amount listed does not account for local funding spent on a project.

For Federal Transit Administration (FTA) projects, obligation occurs when the FTA grant is awarded. For Federal Highway Administration (FHWA) projects, obligation occurs by phase when a project agreement is executed and FHWA authorizes the federal funds. A project agreement defines specific project elements that are eligible for funding; how financing will occur; and agency roles, responsibilities and liabilities.

Once funds have been obligated, the project sponsor/lead agency begins incurring eligible project expenses and then requests reimbursement. The reimbursement request must demonstrate that the recipient incurred the costs consistent with the project agreement and all federal requirements.

Occasionally, an agency may request that funds be "de-obligated" from a project. This occurs most frequently when the sponsor agency has completed the phase of a project without using all the obligated funds. It also occurs if the agency has decided not to proceed with that project or if an agency decides to change sources of funding for a project. In the case of changing sources of funds, there may be a report entry showing the obligation of the second funding category to the project. De-obligations are shown on the obligation table in parenthesis ( ).

Following are the projects in the Portland metropolitan area that were obligated in Federal Fiscal Year 2015 (October 1, 2014 – September 30, 2015),

Frequently used fund types

In the Annual Listing of Federally Obligated Projects table, there are a number of fund types that are listed as acronyms or use initials. Here is a list of frequently used fund types found in the tables.

- CMAQ – Congestion Mitigation Air Quality funds
- HPP – High Priority Project funds
- HSIP – Highway Safety Improvement Program
- NHS – National Highway Safety funds
- STP - Surface Transportation Program funds
- TAP – Transportation Alternatives Program funds

For further information on these fund types: http://www.fhwa.dot.gov/federalaid/projects.cfm

Further information

For additional information regarding specific projects contained within this report, please contact the lead agency.

For questions about this report, please contact Pamela Blackhorse, pamela.blackhorse@oregonmetro.gov

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
Beaverton	0535039-00	14400	SW Rose Biggi: Hall Blvd - Crescent St	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	($206,925)	$4,918,360
				Right of Way	STP- URBANIZED AREAS S-LU EXT	$0	($243,100)	
				Construction	SURFACE TRANS FLEX- MAP-21 EXT	$0	$439,527	
Beaverton	0535035-00	17460	OR8 & OR10: Hocken - 107th/Western (SCATS)	Other	CONGESTION MITIGATION S-LU EXT	$0	$116,012	$835,841
				Preliminary Engineering	CONGESTION MITIGATION S-LU EXT	$0	($119,492)	
Clackamas County	S171030-00	15555	FFO-OR212/224:Sunrise Corridor(I-205-SE 122nd Ave)	Construction	STP R/H PROT DEV - STEA03	$0	$4,181	$106,825,979
				Construction	STP - R/H HAZ ELIM - TEA21		$219,809	
				Construction	STP - R/H HAZ ELIM - STEA03		$313,455	
				Construction	RAIL HWY CROSSING HAZARD ELIM		$379,828	
				Construction	STP-RL-HWY-CROSSING HAZ. ELIM		$389,010	
				Construction	RL HWY CROSS HAZ ELIM S-LU EXT		$1,125,207	
Clackamas County	C005065-00	15599	OR213, Harmony, Sunnyside Rds, **Sidewalk**/Signals	Preliminary Engineering	STP- URBANIZED AREAS S-LU EXT	$0	($222,530)	$0
				Right of Way	TAP -URBANIZED AREAS POP >200K	$233,298	$233,298	$784,000
DEQ	0000234-00	19108	Portland Metro Area Clean Diesel Upgrade	Other	CONGESTION MITIGAT MAP-21 EXT	$500,000	$500,000	$1,971,500
Forest Grove	2620010-00	16063	B Street: 23rd Ave - Primrose Ln	Construction	TAP -URBANIZED AREAS POP >200K	$35,000	$7,573	$470,198
				Construction	TRANSP ALTERNATIVES PROG FLEX	$258,665	$86,776	
				Construction	TRANSP ALTERNATIVES PROG FLEX		$172,786	
Forest Grove	2620009-00	18003	OR8 @ Quince St - Turn Lanes & **Pedestrian** Crossing	Right of Way	MIN GUARANTEE-EXEMPT-TEA21	$61,374	$61,374	$4,171,382
				Preliminary Engineering	STP- URBANIZED AREAS S-LU EXT	$321,882	$81,654	
				Other	STP- URBANIZED AREAS S-LU EXT	$89,730	$89,730	
				Right of Way	STP-URBANIZED >200K MAP-21 EXT	$701,331	$701,331	

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
Gresham	3125053-00	14393	NE Cleveland Ave: Stark St - Powell Blvd	Right of Way	STP- URBANIZED AREAS S-LU EXT	$157,028	$157,476	$1,885,000
Gresham	3125041-00	14413	Max **Trail**: Ruby Jct. - Cleveland Station	Construction	SURFACE TRANS FLEX - MAP-21	$0	$15,302	$3,951,135
				Construction	SURFACE TRANS FLEX - MAP-21		$28,807	
Gresham	3125051-00	15601	190th Dr: Pleasant View/Highland - Willow Parkway	Construction	STP-URBANIZED >200K MAP-21	$442,973	$175,443	$1,536,380
				Construction	STP-URBANIZED >200K MAP-21		$267,530	
Gresham	3125052-00	18306	East Metro Connections ITS	Preliminary Engineering	NATL HIGHWAY SYS - TEA21	$53,838	$53,838	$1,075,000
Gresham	3125056-00	19279	Sandy Blvd: NE 181st Ave To East Gresham City Limit	Preliminary Engineering	STP-URBANIZED >200K MAP-21 EXT	$596,350	$596,350	$3,993,202
Hillsboro	0000244-00	19185	Rock Creek CNG Fueling Infrastructure (Hillsboro)	Other	CONGESTION MITIGATION	$1,169,000	$530	$3,269,333
				Other	CONGESTION MITIGATION S-LU EXT		$17,198	
				Other	CONGESTION MITIGAT MAP-21 EXT		$1,151,268	
Lake Oswego	4055012-00	17148	Pilkington Pathway: Jean Rd-Dawn St	Construction	SAFE ROUTES TO SCHOOL S-LU EXT	$0	$10,613	$495,000
Lake Oswego	4055014-00	18809	Boones Ferry Rd: Oakridge Rd/Reese Rd - Madrona St **Bike/Ped** Improvements	Preliminary Engineering	EQ BONUS SPEC LIM S-LU EXT	$2,000,000	$2,000,000	$26,440,000
Metro	IGA 30814	15584	Livable Streets Policy and Guidebooks (2010)	Planning	Urban STP	$0	$219,898	$278,614
Metro	0000201-00	15586	Westside **Trail** Master Plan	Planning	STP- URBANIZED AREAS S-LU EXT	$0	($7,036)	$334,336
Metro	0000209-00	17457	Arterial Performance Measure RCTO	Planning	CONGESTION MITIGATION S-LU EXT	$0	($12,671)	$150,000
Metro	IGA 30814	18005	Regional Freight Passenger Rail Investment Strategy (2013)	Planning	Urban STP	$0	$200,000	$417,920
Metro	PR17003-00	18008	State Planning And Research Program FFY2015.	Planning	STP-URBANIZED >200K MAP-21	$0	$2,541,190	$1,268,806
				Planning	STP-URBANIZED >200K MAP-21 EXT		$2,320,131	
				Planning	STP- URBANIZED AREAS S-LU EXT		($1,022,675)	
Metro	IGA 30814	18008	Metro Planning 2015	Planning	Urban STP	$1,138,500	$1,138,500	$1,268,806
Metro	IGA 30814	18016	Corridor & Systems Planning (Powell/Division)	Planning	Urban STP	$0	$500,000	$557,277

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
Metro	IGA 30814	18089	Metro Planning (2013)	Planning	Urban STP	$0	$270,505	$1,161,262
Metro	IGA 30814	18312	2014 Regional TSMO Program	Planning	Urban STP	$0	$52,288	$66,687
Metro	IGA 30814	18313	2015 Regional TSMO Program	Planning	Urban STP	$60,000	$60,000	$66,687
Metro	IGA 30814	18314	2014 Regional ITS Architectural Update	Planning	Urban STP	$50,000	$50,000	$55,723
Metro	IGA 30814	18315	2014 Regional ITS Communication Master Plan	Planning	Urban STP	$0	$50,000	$55,723
Metro	0000243-00	19529	I-84 Multimodal Integrated Corridor Management	Other	INTELLIGENT TRANS SYS MAP-21	$191,680	$191,680	$239,600
Metro	S000978-00	19551	Metro Drive Less Connect Outreach Program (2015-17)	Other	SURFACE TRANS FLEX- MAP-21 EXT	$318,000	$318,000	$354,397
Milwaukie	4865014-00	14064	SE Lake Rd: Oatfield Rd-Where Else Ln	Construction	HIGH PRIORITY PROJ SEC 1702	$0	$38,966	$4,746,643
Milwaukie	4864016-00	18018	17th Ave **Trail**: SE Ochoco - SE Mcloughlin - Link Trolley & Springwater Corridor **Trail**	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	$42,442	$3,308,814
				Preliminary Engineering	STP- URBANIZED AREAS S-LU EXT		$220,883	
				Right of Way	STP- URBANIZED AREAS S-LU EXT	$143,568	$143,568	
Multnomah County	C051101-00	16196	Broadway St: Willamette R (Broadway) Br Painting	Construction	SURFACE TRANS FLEX - MAP-21	$7,914,186	$29,809	$10,500,000
				Construction	SURFACE TRANS FLEX - MAP-21		$535,340	
Multnomah County	C051105-00	18019	Arata Road: 223rd - 238th (Fairview/Wood Village) **Sidewalks**, Lighting & Landscape	Right of Way	SURFACE TRANS FLEX S-LU EXT	$502,488	$502,488	$4,468,201
Multnomah County	S000936-00	19043	NE 244th Ave Rail Crossing	Construction	RAIL HWY PROTECT DEV MAP-21	$60,000	$12,937	$410,000
				Construction	RAIL HWY PROTECT DEV MAP-21		$62,084	
ODOT	S000771-00	13739	2009 Signal Upgrades Various Highways Various Counties	Construction	SURFACE TRANS FLEX S-LU EXT	$0	$19,622	$3,303,000
				Construction	SURFACE TRANS FLEX - MAP-21		$43,751	
ODOT	S064043-00	14856	FFO - I-205 @ NE Airport Way Interchange	Construction	NATIONAL HWY PERF PROGRAM EXT	$0	$275,987	$10,000,000
ODOT	S029022-00	15044	OR8: Minter Bridge Rd - SW 331st Ave	Construction	SURFACE TRANS FLEX - MAP-21	$0	($127,415)	$15,976,212
				Construction	SURFACE TRANS FLEX - MAP-21		$385,911	

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
				Construction	SURFACE TRANS FLEX- MAP-21 EXT		$811,935	
ODOT	S001374-00	15140	I-5: Holladay - Marquam & I-405: Fremont Bridge	Construction	BRIDGE 85% ON/OFF S-LU EXT	$0	$150,992	$22,666,000
ODOT	S091078-00	15190	OR99W: N Victory Blvd - N Argyle St	Other	SURFACE TRANS FLEX S-LU EXT	$0	$7,860	$9,668,000
				Preliminary Engineering	SURFACE TRANS FLEX S-LU EXT	$0	$215,040	
ODOT	S091062-00	16142	FFO - OR99W: I-5 NB Ramps	Construction	HIGHWAY SAFETY IMP PROG	$0	$215,257	$2,414,000
ODOT	S068007-00	16150	OR213:Cascade Hwy N @ Stark & Washington - Access Mgmt; Median/Curbs	Preliminary Engineering	HIGHWAY SAFETY IMP PROG	$0	$4,853	$7,354,928
				Preliminary Engineering	HIGHWAY SAFETY IMP PROG		$1,405,346	
				Right of Way	HIGHWAY SAFETY IMP PROG	$703,327	$167,844	
				Construction	STP OPTIONAL SAFETY - STEA03	$4,085,634	$495,573	
				Construction	HIGHWAY SAFETY IMP PROG EXTENS		$776,411	
				Construction	STP OPTIONAL SAFETY-RE.		$1,115,960	
				Construction	HIGHWAY SAFETY IMP PROG EXTENS		$2,053,545	
ODOT	7365011-00	16968	OR99W: Gaarde/McDonald - Intersection Imprvmts	Preliminary Engineering	NATL HIGHWAY SYS - STEA03	$0	$3,380	$10,357,816
ODOT	C005090-00	17034	Henrici Rd Stormwater Improvement Project	Construction	EMERGENCY RELIEF	$0	$40,622	$192,000
ODOT	S001392-00	17516	I-5: Interstate Bridge - Hassalo St	Preliminary Engineering	INTERSTATE MAINTENANCE STEA03	$0	$259,004	$1,300,000
ODOT	S091076-00	17521	OR99W: Tualatin River Bridge #01417S	Construction	NATIONAL HWY PERF PROGRAM EXT	$2,502,570	$51,963	$3,125,000
				Construction	BRIDGE 85% ON/OFF S-LU EXT		$126,331	
				Construction	BRIDGE 85% ON/OFF S-LU EXT		$747,313	
ODOT	S064047-00	17524	I-205: Columbia Slough & NE Alderwood Rd Brs	Construction	NHS- NATL HIGHWAY SYS S-LU EXT	$0	$21,697	$1,275,999
				Construction	HIGH PRIORITY PROJ SEC 1702	$2,090,692	$511,695	$18,959,981
				Construction	STP-URBANIZED >200K MAP-21 EXT	$6,505,425	$7,250,000	

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
ODOT	S068014-00	17568	OR213 (82nd Ave): King Rd - Lake Rd	Preliminary Engineering	EQ BONUS SPEC LIM S-LU EXT	$0	$61,142	$1,996,998
ODOT	S000769-00	17697	2014 & 2015 Signal Upgrades	Preliminary Engineering	EXTENSION OF ALLOC PROGRAMS	$0	$88,429	$816,000
				Preliminary Engineering	REDISTRIB CERTAIN AUTHORIZE		$106,115	
ODOT	S143006-00	17703	OR210: OR217 To Cascade Ave Scholls Intersection Improvements, **Sidewalks**	Construction	HIGHWAY SAFETY IMP PROG	$0	$409	$2,916,789
				Construction	HIGHWAY SAFETY IMP PROG		$4,306	
				Construction	HIGHWAY SAFETY IMP PROG		$90,190	
				Construction	HWY SAFETY IMP PROG S-LU EXT		$147,967	
ODOT	S029020-00	17704	OR8: SW 185th Ave Tualatin Valley	Preliminary Engineering	HIGHWAY SAFETY IMP PROG	$0	$89,453	$4,947,999
				Right of Way	HIGHWAY SAFETY IMP PROG	$0	$163,002	
				Construction	SEC 164 PEN -HSIP MAP-21 EXT	$2,939,587	$519,636	
				Construction	SEC 164 PEN -HSIP MAP-21 EXT		$2,039,315	
ODOT	S068024-00	17707	OR 213 (82nd Ave): Sandy Blvd	Construction	HIGHWAY SAFETY IMP PROG EXTENS	$698,056	$130,607	$1,169,946
				Construction	HIGHWAY SAFETY IMP PROG EXTENS		$626,349	
				Preliminary Engineering	HIGHWAY SAFETY IMP PROG	$0	$163,373	
ODOT	S068029-00	17708	OR 213 (82nd Ave): SE Duke Street	Construction	SURFACE TRANS FLEX- MAP-21 EXT	$15,300	$80,579	$1,228,000
				Construction	SEC 164 PEN -HSIP MAP-21 EXT	$688,053	$102,860	
				Construction	SEC 164 PEN -HSIP MAP-21 EXT		$533,554	
ODOT	S029021-00	18000	OR8: SW 331st Ave - Quince St	Construction	NATIONAL HWY PERF PROGRAM EXT	$0	$30,225	$4,900,000
				Construction	NHS- NATL HIGHWAY SYS S-LU EXT		$32,957	
ODOT	S001479-00	18262	I-5 SB: Broadway-Weidler Exit Ramp	Other	EQ BONUS SPEC LIM S-LU EXT	$41,276	$45,816	$2,327,546
ODOT	S000877-00	18307	Traffic Signal Sysytem Software Upgrade	Other	STP-URBANIZED >200K MAP-21	$0	($2,716)	$111,445

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
ODOT	S000826-00	18309	I-5/I-205 Bi-State Travel Time Signage	Preliminary Engineering	SURFACE TRANS FLEX S-LU EXT	$110,664	$25,659	$619,480
				Construction	STP-URBANIZED >200K MAP-21	$430,237	$200,000	
				Construction	CONGESTION MITIGATION MAP-21		($200,000)	
ODOT	S001447-00	18379	I-5: Marquam Bridge - Capitol Highway	Preliminary Engineering	INTERSTATE MAINTENANCE	$0	$171,090	$10,955,999
				Construction	NATIONAL HIGHWAY PERF PROGRAM	$0	$8,771	
				Construction	NATIONAL HIGHWAY PERF PROGRAM		$553,751	
ODOT	S000885-00	18433	Interstate Operations Improvements	Preliminary Engineering	SURFACE TRANS FLEX- MAP-21 EXT	$0	$460,639	$2,700,000
ODOT	S001472-00	18564	I-5 Over NE Hassalo & NE Holladay St - Deck Overlay	Preliminary Engineering	NATIONAL HIGHWAY PERF PROGRAM	$462,692	$386,757	$3,093,895
ODOT	S026122-00	18583	US26: Boring Road Oxing Bridge Repair	Preliminary Engineering	NATIONAL HIGHWAY PERF PROGRAM	$1,095,000	$1,075,885	$6,351,000
ODOT	S068028-00	18757	OR213 Operational Improvements	Preliminary Engineering	SURFACE TRANS FLEX - MAP-21	$945,754	$1,035,601	$4,058,000
ODOT	S029027-00	18758	OR8 Operational Improvements	Preliminary Engineering	MIN GUAR-SPECIAL LIM-TEA21	$148,055	$25,452	$964,000
				Preliminary Engineering	STP - STATE FLEXIBLE - STEA03		$32,882	
				Preliminary Engineering	REDIST CERTAIN AUTH MAP-21 EXT		$39,376	
				Preliminary Engineering	EQUITY BONUS LIMITATION		$50,344	
ODOT	S144027-00	18761	OR217: SW Allen Blvd & SW Denny Rd	Preliminary Engineering	MIN GUARANTEE-EXEMPT-TEA21	$43,070	$47,808	$205,000
ODOT	S174013-00	18772	OR212: SE Richey Rd - US26 Clackamas	Preliminary Engineering	NHS- NATL HIGHWAY SYS S-LU EXT	$241,374	$264,304	$2,666,000
ODOT	S092053-00	18778	US30: NW McNamee Rd - NW Bridge Ave	Preliminary Engineering	NHS- NATL HIGHWAY SYS	$0	$98,254	$6,945,000
				Right of Way	NHS- NATL HIGHWAY SYS	$148,055	$29,476	
				Right of Way	SURFACE TRANS FLEX- MAP-21 EXT		$132,643	
ODOT	S026117-00	18795	US26: SE 20th Ave - SE 33rd Ave - **Crosswalk Signals/ADA Upgrades**	Right of Way	HIGHWAY SAFETY IMP PROG	$368,880	$409,457	$3,407,655
ODOT	S064052-00	18804	I-205: Johnson Creek To Glen Jackson Bridge	Preliminary Engineering	INTERSTATE MAINTENANCE STEA03	$448,650	$504,905	$500,000

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
ODOT	S064054-00	19070	I-205: I-84 - SE Stark/Washington Street	Preliminary Engineering	EQ BONUS SPEC LIM S-LU EXT	$681,099	$36,007	$759,054
ODOT	S171040-00	19099	OR224/OR212 Corridor ITS	Preliminary Engineering	EQ BONUS SPEC LIM S-LU EXT	$134,595	$147,382	$150,000
ODOT	S047113-00	19100	Regional Active Traffic Management (ATM)	Preliminary Engineering	NATL INFRA INVEST TIGER VI	$661,123	$200,000	$13,042,225
ODOT	S068030-00	19141	OR213: King Rd Mt Scott Creek Bridge **ADA Ramps**	Right of Way	SURFACE TRANS FLEX- MAP-21 EXT	$476,466	$528,878	$1,431,000
ODOT	S064053-00	19204	I-205: Pacific Hwy - Abernathy Bridge	Preliminary Engineering	EQ BONUS SPEC LIM S-LU EXT	$368,880	$563,003	$400,000
ODOT	S064051-00	19265	I-205 **Shared Use Path** At Maywood Park - **ADA**	Preliminary Engineering	SURFACE TRANS FLEX S-LU EXT	$44,865	$49,127	$350,000
ODOT	S001471-00	19266	I-5 **Shared Use Path**: N. Jantzen Drive-Tomahawk Island	Preliminary Engineering	SURFACE TRANS FLEX S-LU EXT	$94,216	$106,030	$395,000
ODOT	S081070-00	19442	OR99E: Crystal Springs Creek Bridge	Preliminary Engineering	BRIDGE PROGRAM - 85% ON/OFF	$39,514	$3,005	$44,036
				Preliminary Engineering	NATIONAL HIGHWAY PERF PROGRAM		$40,262	
ODOT	S143008-00	19528	2016 Region 1 Local Roads Signal Upgrades (HSIP) Scholls Signal Safety Enhance	Preliminary Engineering	HIGHWAY SAFETY IMP PROG	$327,842	$363,905	$1,602,672
				Preliminary Engineering	BRIDGE 85% ON/OFF S-LU EXT	$448,650	$2,357	$1,372,500
				Preliminary Engineering	NATIONAL HWY PERF PROGRAM EXT		$115,521	
				Preliminary Engineering	BRIDGE PROGRAM - 85% ON/OFF		$379,865	
ODOT	S001481-00	19535	I-5/OR217: Bridge Deck Overlays	Preliminary Engineering	NATIONAL HWY PERF PROGRAM EXT	$517,652	$574,594	$576,900
Oregon City	5520029-00	17013	Main St: 5th St - 10th St	Construction	SURFACE TRANS FLEX S-LU EXT	$0	$869,777	$2,221,000
Portland	5900276-00	13502	NE Columbia Blvd At MLK Jr Blvd - **Sidewalk**, ADA Ramps	Right of Way	STP- URBANIZED AREAS S-LU EXT	$650,543	$650,543	$3,086,270
Portland	5900234-00	14407	Springwater **Trail:** SE Umatilla St - SE 19th Ave (Multi-Use Path)	Preliminary Engineering	HIGH PRIORITY PROJ SEC 1702	$0	$5,565	$690,000
Portland	5900222-00	14408	N Lombard St: Columbia Slough O-Xing	Construction	STP- URBANIZED AREAS S-LU EXT	$0	$108,051	$2,255,909
				Construction	STP- URBANIZED AREAS S-LU EXT		($181,041)	
Portland	5900220-00	15589	NE/SE 50's Bikeway: NE Thompson To SE Woodstock **(Bike Route)**	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	$14,270	$1,522,344
				Right of Way	STP- URBANIZED AREAS>200,000	$0	($2,302)	

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
Portland	5900274-00	16253	**Pedestrian** Crossings At 4 Schools	Construction	TAP -URBANIZED AREAS POP >200K	$0	$115,607	$801,938
Portland	5900211-00	16771	102nd Ave: NE Glisan - SE Washington **(Sidewalks)**	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	($17,504)	$2,072,885
Portland	5900248-00	17041	Safe Routes To Schools - **Bike/Ped**	Construction	STP-URBANIZED >200K MAP-21	$0	$86,366	$656,024
				Construction	SAFE ROUTES TO SCHOOL S-LU EXT		$96,251	
Portland	5900243-00	17374	N Willamette Greenway **Trail**: Columbia Blvd-Steele Bridge	Planning	STP- URBANIZED AREAS S-LU EXT	$0	($89,704)	$495,709
Portland	5900272-00	17463	Active Corridor Management (Various City Streets)	Construction	CONGESTION MITIGATION MAP-21	$1,097,139	$870,695	$1,522,890
Portland	5900277-00	17888	SE Holgate & Ramona:122nd-136th Ave - **Sidewalks**	Other	TAP -URBANIZED AREAS POP >200K	$40,378	$40,379	$1,711,631
				Construction	TRANSP ALTERNATIVES PROG FLEX	$43,070	$43,070	
				Construction	TAP -URBANIZED AREAS POP >200K	$913,379	$241,685	
				Construction	TAP -URBANIZED AREAS POP >200K		$665,467	
Portland	5900279-00	18023	Burgard/Lombard @ North Time Oil Road - **Bike** Lanes & **Sidewalks**	Right of Way	SURFACE TRANS FLEX- MAP-21 EXT	$211,946	$211,946	$2,633,456
Portland	5900278-00	18024	Regional Over-Dimensional Truck Route Plan	Other	STP-URBANIZED >200K MAP-21	$125,000	$125,000	$139,307
Portland	5900256-00	18025	Portland **Bike** Sharing Project	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	($42,442)	$4,042,000
Portland	5900260-00	18340	NW Thurman St: Macleay Park Bridge	Construction	SURFACE TRANS FLEX - MAP-21	$2,887,224	$338,579	$4,540,000
Portland	0000241-00	19187	Kerby CNG & RNG Fueling Infrastructure (Portland)	Other	CONGESTION MITIGAT MAP-21 EXT	$577,000	$576,864	$1,154,000
PSU	S000791-00	17456	Portal Archived Data User Services	Other	CONGESTION MITIGATION MAP-21	$0	($451)	$100,000
PSU	0000235-00	18318	Portal Archived Data User Services	Other	STP- URBANIZED AREAS>200,000	$125,000	$125,622	$139,307
Sherwood	6710005-00	18026	Cedar Creek/Tonquin **Trail**: OR99W - Murdock Rd	Preliminary Engineering	CONGESTION MITIGAT MAP-21 EXT	$949,483	$949,483	$5,230,092
Sherwood	6710006-00	18280	Cedar Creek/Tonquin **Trail**: OR99W - Murdock Rd	Other	CONGESTION MITIGAT MAP-21 EXT	$419,039	$419,039	$467,000
Tigard	7365009-00	15600	Main Street: Rail Corridor To 99W - **Pedestrian** Amenities	Preliminary Engineering	STP- URBANIZED AREAS>200,000	$0	$4,870	$3,553,866
Tigard	C067105-00	18311	Durham Rd/Upper Boones Ferry Rd: OR99W - I-5	Other	STP-URBANIZED >200K MAP-21 EXT	$262,909	$262,909	$1,114,454

FEDERAL HIGHWAY ADMINISTRATION (FHWA)

Lead Agency	FHWA Project No.	ODOT Key No.	Project Title	Project Phase	Fund Type	Federal Amount Programed 2015	Federal Amount Obligated 2015	Total Project Cost Estimate
Tualatin Hills P&R	0000233-00	17273	Westside **Trail**: Rock Creek **Trail** - Bronson Creek **Trail**	Construction	TRANSP ALT PROG FLEX MAP21 EXT	$1,597,491	$385,362	$2,673,954
				Construction	TRANSP ALT PROG FLEX MAP21 EXT		$1,212,129	
Washington County	C067101-00	17461	Tualatin-Sherwood Rd: OR99W-Teton Ave	Construction	STP-URBANIZED >200K MAP-21	$911,795	$109,747	$2,100,000
				Construction	STP-URBANIZED >200K MAP-21		$802,048	
Washington County	C067104-00	17461	Tualatin-Sherwood Rd: OR99W-Teton Ave	Other	STP- URBANIZED AREAS S-LU EXT	$224,325	$224,325	
Wilsonville	8280013-00	17264	French Prairie Bridge: Boones Ferry Rd-Butteville Rd-**Bike/Ped/**Emer Veh Xing	Other	STP-URBANIZED AREAS RE.	$1,250,000	$1,250,000	$1,393,068
Wilsonville SMART	8280014-00	19193	Wilsonville SMART: CNG Fueling Station Upgrade	Other	CONGESTION MITIGATION MAP-21	$70,000	$70,000	$120,000

FEDERAL TRANSIT ADMINISTRATION (FTA)

Lead Agency	FTA Grant No.	ODOT Key No.	Project Name	FTA Section Code - FTA Fund Type	Amount Programmed	Obligation Amount	Total Project Cost Estimate
Metro	OR-95-X051	18013	Region Travel Options Program 2014 - STP	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$1,750,684	$1,750,684	$1,951,058
ODOT-Public Transit	OR-95-X063	19551	Metro Drive Less Connect Outreach Program (State STP)	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$318,000	$318,000	$354,397
ODOT-Public Transit	OR-65-X012	19557	Ride Connection - 5310 E&D Transit Capital STP Tsfr (2015-17)	49 USC 5310 - Elderly and Individuals with Disabilities (FHWA xfer)	$4,144,495	$4,144,495	$4,618,851
ODOT-Public Transit	OR-65-X012	19558	TriMet - 5310 E&D Capital STP Tsfr (2015-17)	49 USC 5310 - Elderly and Individuals with Disabilities (FHWA xfer)	$2,284,757	$2,284,757	$2,546,258
ODOT-Public Transit	OR-65-X012	19559	Wilsonville - 5310 E&D Capital STP Tsfr (2015-17)	49 USC 5310 - Elderly and Individuals with Disabilities (FHWA xfer)	$68,195	$68,195	$76,000
Portland State University	OR-26-7012	N/A	Portland State University Project	Miscellaneous R&D	$0	$943,984	$943,984
SMART/Wilsonville	OR-90-X178	18027	SMART Bus Capital, Assoc Imp & Prev Maint	49 USC 5307 - Urbanized Area Formula	$376,000	$309,284	$470,000
				49 USC 5307 - Urbanized Area Formula		$60,000	
SMART/Wilsonville	OR-16-X044	19134	FY13 & FY14 - 5310 Mobility Management	49 USC 5310 - Elderly and Individuals with Disabilities	$20,141	$16,113	$20,141
SMART/Wilsonville	OR-16-X044	19136	FY13 & FY14 - 5310 Mobility Management	49 USC 5310 - Elderly and Individuals with Disabilities	$19,466	$15,573	$19,466
SMART/Wilsonville	OR-34-0004	19137	FY14 5339 Software	49 USC 5339 - Alternatives Analysis Program	$56,839	$45,471	$56,839
SMART/Wilsonville	OR-95-X031	19054	14-15 CMAQ/STP - TDM Program (STP)	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$82,924	$74,408	$82,924
TriMet	OR-95-X054	18010	FY15 STP Preventive Maintenance	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$2,975,000	$2,975,000	$3,315,502
TriMet	OR-95-X038	19053	TriMet Employer Program (RTO) STP - FY15	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$459,973	$459,973	$512,619
TriMet	OR-95-X053	18043/18047	2015 Regional Rail Debt Service Bond (CMAQ)	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$10,000,000	$10,000,000	$11,144,545
TriMet	OR-95-X053	18045	2015 Regional Rail Debt Service Bond (STP)	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$5,000,000	$5,000,000	$5,572,272
TriMet	OR-03-0126	18055	5309NS Portland to Milwaukie Light Rail (FY15)	49 USC 5309 - Fixed Guideway Modernization	$100,000,000	$100,000,000	$1,490,350,173
TriMet	OR-90-X166	18039	FY15 5307 Bus Preventive Maintenance	49 USC 5307 - Urbanized Area Formula	$37,642,864	$23,583,751	$47,053,580
TriMet	OR-34-0001	18704	FY15 5339 Bus Purchase	49 USC 5339 - Alternatives Analysis Program	$2,900,000	$1,825,429	$28,625,000
TriMet	OR-16-X042	18049	FY15 (5310) TriMet Enhanced Mobility Program	49 USC 5310 - Elderly and Individuals with Disabilities	$1,931,250	$762,545	$3,862,500
TriMet	OR-95-X054	17905	Hillsboro **Bike** and Ride (Orenco Station) STP	49 USC 5307 - Urbanized Area Formula (FHWA xfer)	$80,000	$80,000	$89,156
TriMet	OR-54-0001	18041	Rail Preventive Maintenance (2015)	49 USC 5337 - State of Good Repair	$18,500,000	$11,704,950	$52,325,000
TriMet	OR-54-0001	18454	2015 State of Good Repair Program	49 USC 5337 - State of Good Repair	$585,000	$6,691	$731,250

About Metro

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

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2015

Annual Report

July 2014 – June 2015

MAKING A GREAT PLACE

Metro

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Transit-Oriented Development Program

Rendering of HUB 9

The year in review

With demand for housing outstripping supply, Metro's Transit Oriented Development (TOD) Program had a busy year supporting opportunities to live and work in transit served neighborhoods. Four projects opened, three projects started construction, and three more received funding approval.

A highlight was the opening of The Rose, a four-story apartment complex in Portland's Gateway neighborhood. Through a combination of TOD funding, Portland Development Commission funding for new streets, and support from the city's Multiple Unit Tax Exemption program, the developer was able to set aside 36 of the 90 units for households earning 60 percent or less of area median income.

A second milestone occurred in December 2014 with the TOD program's acquisition of the Furniture Store property at 82nd Avenue and Division Street in Portland to create transit served affordable housing. Located in the heart of the Jade District, the site will be served by the future Powell-Division bus rapid transit service. A developer for the property will be selected in early 2016.

This fiscal year featured the opening of four innovative projects:

- The Rose, a four-story mixed income apartment project in Portland's Gateway neighborhood. The project includes 36 regulated affordable units among its 90 residential units.
- The Radiator, a five-story development with 29,300 square feet of offices and 2,900 square feet of retail. To minimize its environmental footprint, The Radiator features an innovative timber construction technique and uses waste heat from the neighboring New Seasons market to power its heat and cooling systems.
- Hub 9, a six-story development with 124 residential units, 1,483 square feet of office space, and 8,403 square feet of retail space. Hub 9 is located immediately adjacent to Hillsboro's Orenco MAX Station.
- Moreland Station, a four-story development with 68 residential units in southwest Portland. Residents will be able to walk to the new MAX Orange Line service.

Three projects under construction:

- Northwood, a 57-unit project steps from the Kenton Yellow Line MAX station.
- Block 75, a 10-story, mixed-use project with 75 residential units, 31,000 square feet of office space, and 8,300 square feet of retail at the intersection of Martin Luther King Boulevard and Burnside Avenue.
- Clay Creative, a five-story creative office space at the edge of Portland's Inner East Side.

The seven TOD projects completed or under construction represent approximately $120 million in direct investment and 422 full time equivalent construction jobs.

FY 2014-15

Projects opened

Moreland Station
Portland

The Rose
Portland

The Radiator
Portland

Hub 9
Hillsboro

Under construction

Northwood
Portland

Block 75
Portland

Clay Creative
Portland

Projects approved

The Signal
Beaverton

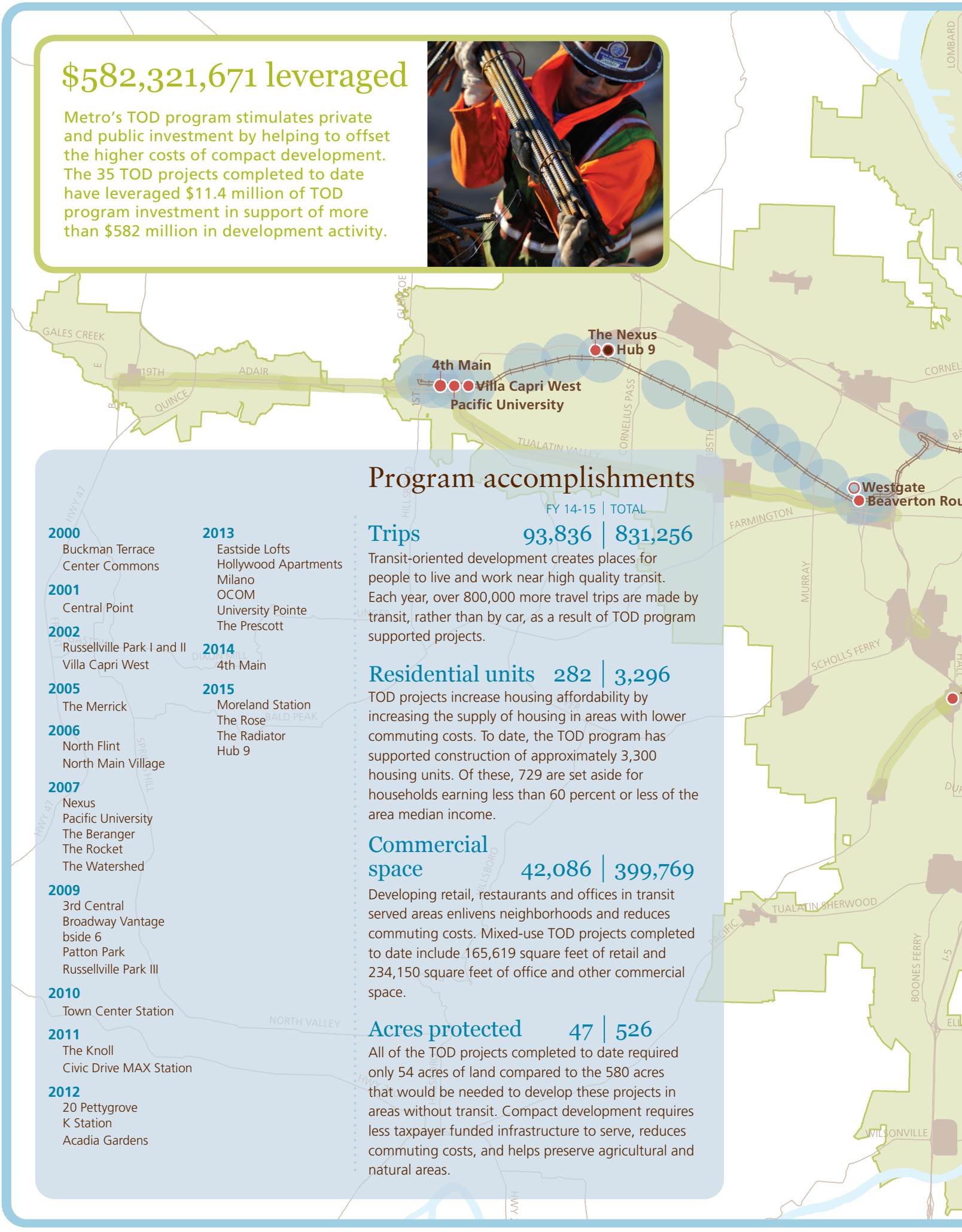
First and Lombard
Beaverton

Concordia
Portland

Southeast 82nd Avenue and Division Street land acquisition (the Furniture Store)
Portland

$582,321,671 leveraged

Metro's TOD program stimulates private and public investment by helping to offset the higher costs of compact development. The 35 TOD projects completed to date have leveraged $11.4 million of TOD program investment in support of more than $582 million in development activity.



Program accomplishments

2000
- Buckman Terrace
- Center Commons

2001
- Central Point

2002
- Russellville Park I and II
- Villa Capri West

2005
- The Merrick

2006
- North Flint
- North Main Village

2007
- Nexus
- Pacific University
- The Beranger
- The Rocket
- The Watershed

2009
- 3rd Central
- Broadway Vantage
- bside 6
- Patton Park
- Russellville Park III

2010
- Town Center Station

2011
- The Knoll
- Civic Drive MAX Station

2012
- 20 Pettygrove
- K Station
- Acadia Gardens

2013
- Eastside Lofts
- Hollywood Apartments
- Milano
- OCOM
- University Pointe
- The Prescott

2014
- 4th Main

2015
- Moreland Station
- The Rose
- The Radiator
- Hub 9

	FY 14-15	TOTAL
Trips	93,836	831,256
Residential units	282	3,296
Commercial space	42,086	399,769
Acres protected	47	526

Trips

Transit-oriented development creates places for people to live and work near high quality transit. Each year, over 800,000 more travel trips are made by transit, rather than by car, as a result of TOD program supported projects.

Residential units

TOD projects increase housing affordability by increasing the supply of housing in areas with lower commuting costs. To date, the TOD program has supported construction of approximately 3,300 housing units. Of these, 729 are set aside for households earning less than 60 percent or less of the area median income.

Commercial space

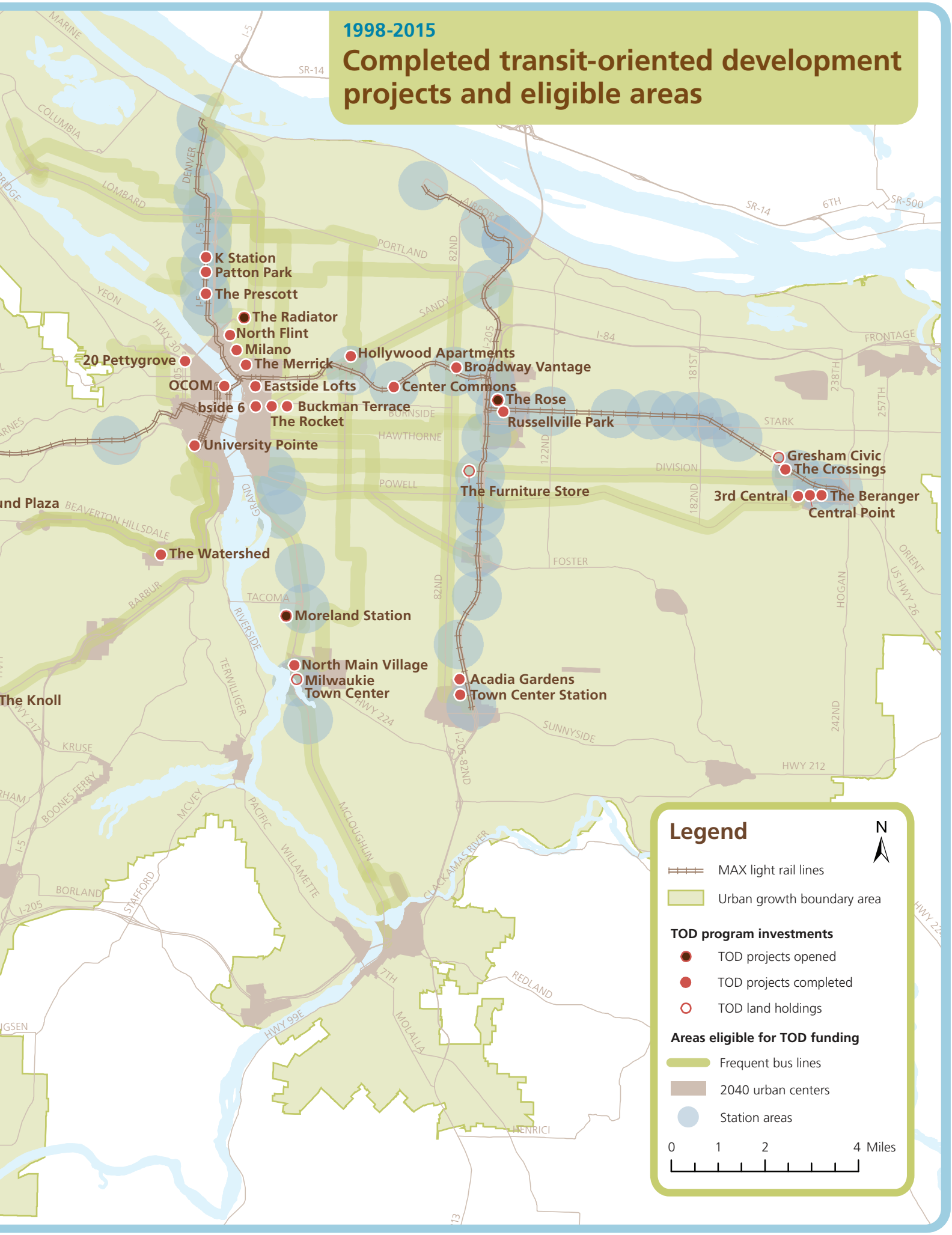
Developing retail, restaurants and offices in transit served areas enlivens neighborhoods and reduces commuting costs. Mixed-use TOD projects completed to date include 165,619 square feet of retail and 234,150 square feet of office and other commercial space.

Acres protected

All of the TOD projects completed to date required only 54 acres of land compared to the 580 acres that would be needed to develop these projects in areas without transit. Compact development requires less taxpayer funded infrastructure to serve, reduces commuting costs, and helps preserve agricultural and natural areas.

1998-2015

Completed transit-oriented development projects and eligible areas



Metro
Making a great place

Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy, and sustainable transportation and living choices for people and businesses in the region. Voters have asked Metro to help with the challenges and opportunities that affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together, we're making a great place, now and for generations to come.

Stay in touch with news, stories and things to do.

oregonmetro.gov/subscribe

The core mission of the TOD program is to stimulate private sector investment to create the vibrant communities envisioned in the Region's 2040 Growth Concept.

For more information, call 503-797-1757 or visit **oregonmetro.gov/tod**

Printed on recycled-content paper.
16047 Nov. 2015


The Radiator

Metro's support turned the corner for the lending institutions, appraisers and investors. As a result, The Radiator is a leader in carbon reduction, job creation, energy conservation, and office space all coming together in northeast Portland.

Ben Kaiser
Kaiser Group, Inc.


The Rose

The Metro TOD grant helped us provide a viable mixed income, transit oriented development in Gateway without the use of LIHTC (Low-Income Housing Tax Credit) funds. Because of this support, 36 housing units will remain affordable for 60 years.

Gordon Jones
Developer


The Kenton

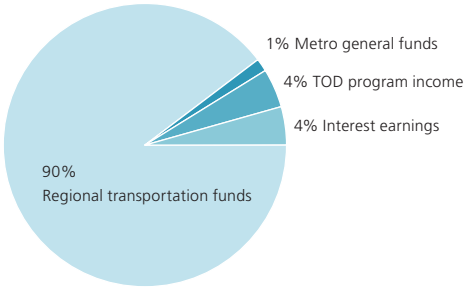
TOD program support allowed us to respond to growing demand for rental housing by bringing 57 housing units to the Kenton station area with a design that fits well with the neighborhood's historic character.

Mary Hanlon
Hanlon Development, LLC

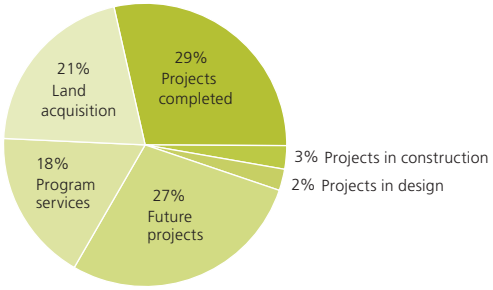
Program financing

Over the seventeen years since the TOD program's inception in 1998, program financing has totaled more than $43 million cumulatively. Regional partners have allocated federal transportation funds to support the TOD program as part of the Metropolitan Transportation Improvement Program planning process. MTIP funds, currently $3 million annually, are then exchanged to provide local funding for project investments and program operations. Historically, other funding sources have included direct federal transportation grants, income from property transactions, interest earnings and Metro general funds.

Sources of funds



Uses of funds



GREAT PLACES
SW Corridor
Portland • Sherwood • Tigard • Tualatin
Beaverton • Durham • King City
Washington County • ODOT • TriMet • Metro

Southwest Corridor High Capacity Transit Mode Comparison

December 31, 2015

The goal of this document is to present detailed technical information on a wide range of considerations for bus rapid transit (BRT) and light rail transit (LRT) travel modes. This document does not provide a recommendation or weigh the factors against each other. The information included in this memo will be synthesized and referenced within a staff recommendation report, to be released by the end of January 2016.

In late February 2016, the Southwest Corridor Steering Committee is scheduled to decide whether bus rapid transit or light rail is the preferred high capacity transit mode for further study. The preferred transit mode will be incorporated into a draft 'Preferred Package' of investments for the Southwest Corridor for further public review. The Preferred Package will be finalized at the May 2016 steering committee meeting.

CONNECT
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@SWCorridor
swcorridorplan@oregonmetro.gov
503-797-1756

HOW TO NAVIGATE THIS DOCUMENT ELECTRONICALLY

Many of the considerations at play in the decision between bus rapid transit and light rail are inextricably linked. To help you understand these relationships, this document includes several interactive features to make it easier to navigate.

Keep an eye out for these elements to help you explore the information in a "choose your own adventure" style:

Buttons in the graphic table of contents:

ridership, p. 26

Links to related information in the sidebar and body text:

service frequency, p. 31

Links in the summary tables:

equity, p. 24

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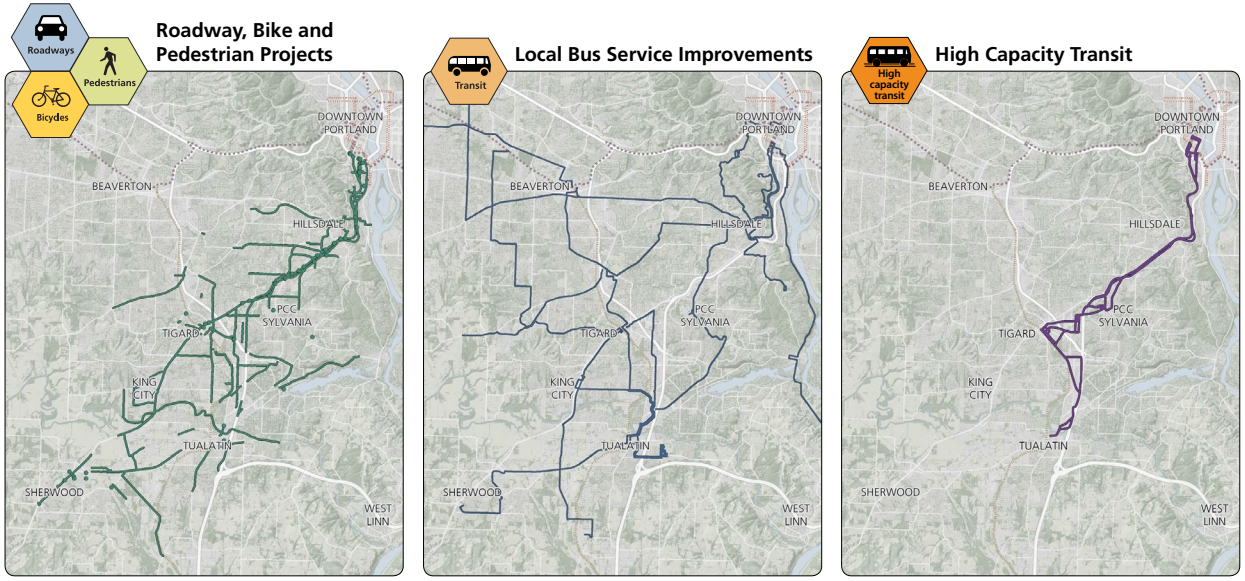
The Southwest Corridor Plan is a collaborative effort between project partners Portland, Sherwood, Tigard, Tualatin, Beaverton, Durham, King City, Washington County, ODOT, TriMet and Metro. It is a comprehensive approach to achieving community visions through integrated land use and transportation planning. The Plan is rooted in the adopted local land use plans of the corridor communities, including the Barbur Concept Plan, the Tigard High Capacity Transit Land Use Plan, Linking Tualatin and the Sherwood Town Center Plan. In support of these community visions, the Southwest Corridor Plan Steering Committee has recommended a Shared Investment Strategy that includes key investments in transit, roadways, active transportation, parks, trails and natural areas.



Roadway, bike and pedestrian projects

Project partners have identified a list of priority projects to improve safety and connectivity throughout the corridor. Staff are working to identify potential funding strategies for these projects.

Local bus service improvements

Through the Southwest Service Enhancement Plan, TriMet has evaluated the existing bus routes throughout the Southwest Corridor and recommended an array of improvements, including service upgrades, route changes and new routes. These improvements will be phased in as funding allows, starting with the new Line 97 between Sherwood and Tualatin opening in summer 2016.

High capacity transit (HCT)

Bus rapid transit (BRT) and light rail transit (LRT) alternatives are being considered for several alignments that connect downtown Portland, Southwest Portland, Tigard and Tualatin. The purpose of this document is to explore the advantages and disadvantages of these two HCT modes.

PROJECT GOALS

The Southwest Corridor Plan Purpose and Need statement, adopted January 2014, includes thirteen project goals:

1. Serve the existing and projected transit demand in the corridor
2. Improve transit service reliability in the corridor
3. Improve transit frequency and travel times
4. Provide options that reduce overall transportation costs
5. Improve multimodal access to a range of housing types and businesses in growing communities
6. Improve potential for housing and commercial development in the corridor and encourage development in centers and transit-oriented development at stations along the corridor
7. Ensure benefits and impacts promote community equity
8. Increase multimodal transportation options and improve mobility in the corridor
9. Complete multimodal transportation networks in the corridor
10. Advance transportation projects that increase active transportation and encourage physical activity
11. Provide transit service that is cost effective to build and operate with limited local resources
12. Advance transportation projects that are sensitive to the environment, improve water and air quality and help reduce carbon emissions
13. Catalyze improvements to natural resources, habitat and parks in the corridor

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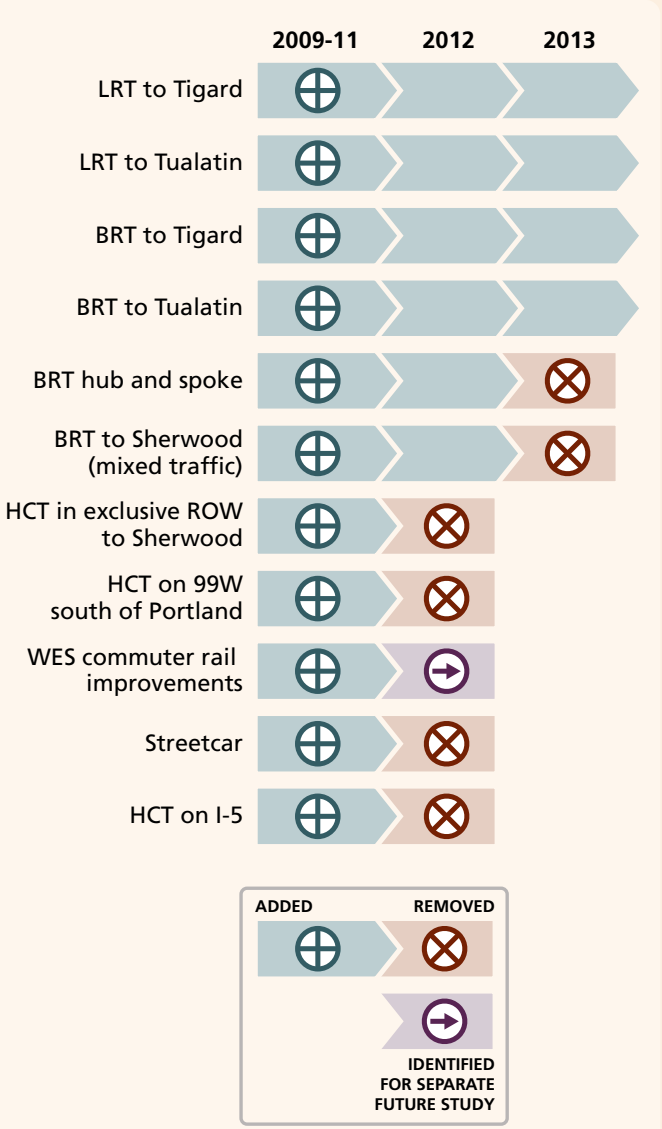
EARLY NARROWING OF MODE AND ALIGNMENT

In the early stages of the Southwest Corridor project, many HCT modes and alignments were evaluated. The diagram below shows when rapid streetcar and WES commuter rail improvements were removed from consideration for this project, as well as HCT on 99W in Tigard. Since 2013, the project has focused on LRT or BRT to Tigard or Tualatin.



After the steering committee's 2013 Shared Investment Strategy recommendation, a refinement study was initiated to narrow high capacity transit (HCT) options and identify a list of roadway and active transportation projects to support the HCT project. Through this refinement phase, the steering committee has made several narrowing decisions, and further decisions will be made in early 2016.

March 2014

The steering committee removed several options with 'fatal flaws' prior to more detailed analysis leading up to the June 2014 decision, including BRT along the south side of the PCC Sylvania campus and LRT on Hunziker Street in Tigard.

June 2014

The steering committee removed several HCT alignment options and requested additional refinement work from staff on the remaining options. The options removed included a tunnel to Marquam Hill from South Waterfront, a "long tunnel" that served Multnomah Village, BRT in mixed traffic through Hillsdale, and an Upper Boones Ferry option west of Bridgeport Village.

July 2015

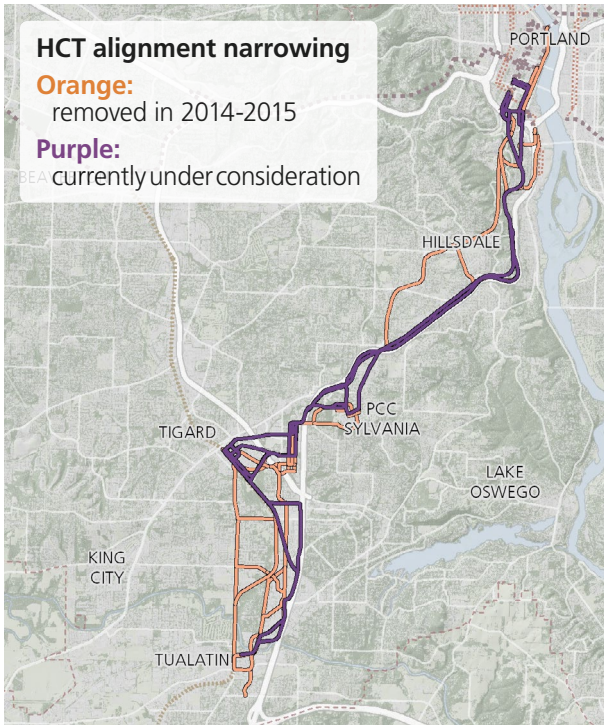
The steering committee removed tunnels to Marquam Hill and Hillsdale and accepted technical modifications to the remaining options.

January 2016

The steering committee is scheduled to consider which HCT alignment and terminus options to study further in Tigard and Tualatin.

February 2016

The steering committee is scheduled to consider whether LRT or BRT is the preferred HCT mode to study further, as well as whether to continue studying an LRT tunnel to PCC Sylvania. This mode will be incorporated into a draft Preferred Package of transportation investments to support community land use goals for further public review.



May 2016

The steering committee is anticipated to recommend a Preferred Package, which will include the recommended HCT project and a funding strategy for priority roadway and active transportation projects.

Future analysis

Once the HCT project and associated road, bike and pedestrian projects are undergoing federal review through the National Environmental Policy Act, staff will assess a wide array of positive and negative impacts and compare to not investing in transportation improvements for the Corridor.

BUS RAPID TRANSIT

EmX bus rapid transit in Eugene

For the purpose of this memo, a bus rapid transit (BRT) line in the Southwest Corridor is assumed to include:

- 11 to 12 mile alignment serving 14 to 15 stations between downtown Portland and Bridgeport Village
- Operations in exclusive transitway for 78 to 85 percent of the alignment
- 60-foot articulated buses that carry up to 86 passengers (fuel/propulsion type to be determined)
- Special BRT system branding
- Advance fare collection with upcoming e-fare system, boarding through all doors and level boarding
- Most stations spaced around ½ to ¾ mile apart
- Improved bike and pedestrian access to stations and along the line
- Service frequency of 15 minutes or better all day
- New and expanded park-and-ride lots

LIGHT RAIL

MAX light rail in Portland

For the purpose of this memo, a light rail (LRT) line in the Southwest Corridor is assumed to include:

- 11 to 12 mile alignment serving 14 to 15 stations between downtown Portland and Bridgeport Village (including existing Lincoln Street station)
- Operations in exclusive transitway for 100 percent of the alignment
- Two-car trains (electric) that carry up to 266 passengers
- Branding consistent with existing MAX system
- Advance fare collection with upcoming e-fare system, boarding through all doors and level boarding
- Most stations spaced around ½ to ¾ mile apart
- Improved bike and pedestrian access to stations and along the line
- Service frequency of 15 minutes or better all day
- New and expanded park-and-ride lots

HIGH CAPACITY TRANSIT IN THE PORTLAND METRO REGION

Whether BRT or LRT, a Southwest Corridor line would tie into a region-wide high capacity transit network with a history stretching back to the 1980s. In 2016, C-TRAN will open The Vine, the region's first BRT line in Vancouver. The Powell-Division project is anticipated to add another BRT line to the region, and the first for TriMet. A BRT line in the Southwest Corridor would be a bigger investment than The Vine or Powell-Division, with an exclusive busway for most of the line.

1986 Eastside MAX Blue Line

1998 Westside MAX Blue Line

2001 Airport MAX Red Line

2004 Interstate MAX Yellow Line

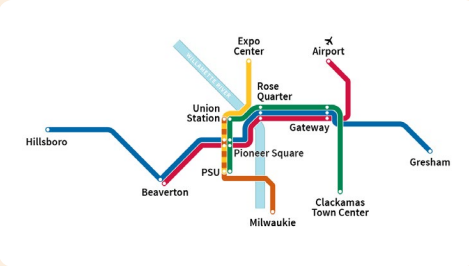
2009 WES Commuter Rail
I-205 MAX Green Line

2015 MAX Orange Line

2016 The Vine BRT in Vancouver (C-TRAN)

~2020 Powell-Division BRT

~2025 Southwest Corridor BRT or LRT



TriMet MAX light rail system today

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For the purpose of this document, certain assumptions have been made about which alignments to use for ridership projections, travel times and costs. Both modes share the same 'base' alignment, to provide as much of an 'apples-to-apples' comparison as possible. In addition to the base, this document includes the alignment options that serve the PCC Sylvania campus directly because they are considerably different between BRT and LRT and the steering committee is scheduled to consider a decision on the LRT tunnel to PCC at the same time as the mode decision. A memo evaluating several alternative connections to PCC Sylvania is being released concurrently with this document.

***Note**: these alignments are for analysis purposes only and do not indicate a preferred alignment.*

For more information on the performance of the other alignment options not included in the base or PCC alignments, see previously released Key Issues Memos and Evaluation Reports on the project website at www.swcorridorplan.org.

Base alignment for BRT and LRT:

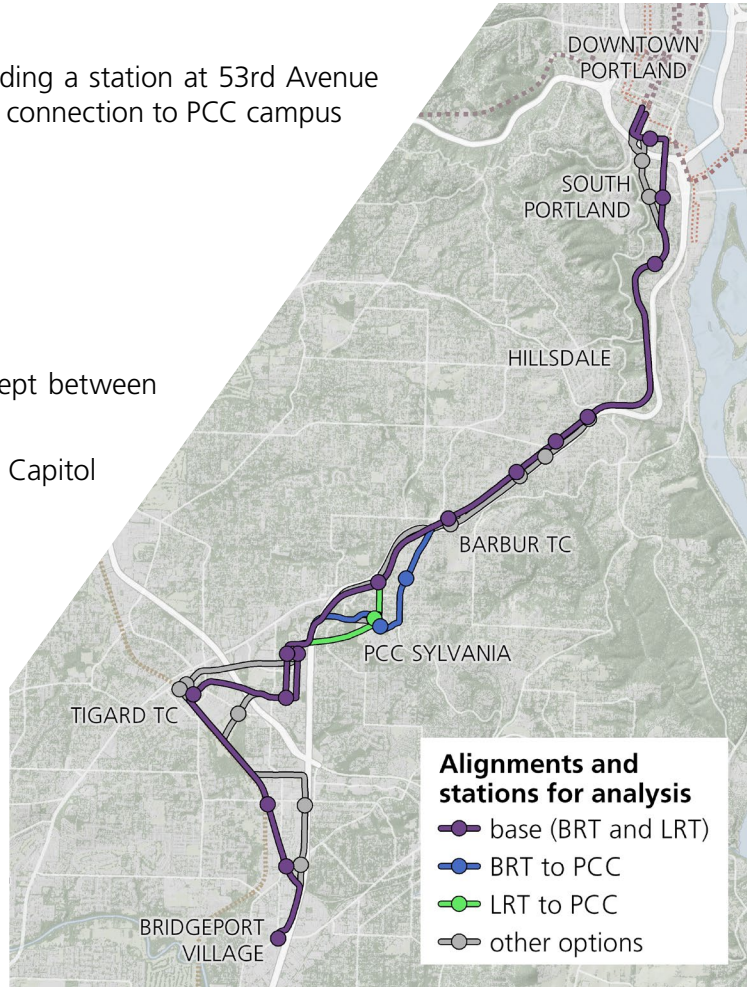
- Naito Parkway in South Portland
- Barbur Boulevard from Naito to 60th Avenue, including a station at 53rd Avenue with a park-and-ride lot and an enhanced walk/bike connection to PCC campus
- 68th/70th Avenue couplet in the Tigard Triangle
- Ash Avenue option in downtown Tigard
- Adjacent to freight rail in Southeast Tigard
- Terminus at Bridgeport Village

PCC alignment for BRT: same as base alignment except between Barbur Transit Center and Tigard Triangle

- Capitol Highway / 49th Avenue with a station near Capitol Hill Library and Holly Farm Park
- Station at "front door" of Sylvania campus
- Connection to Tigard Triangle via new bridge over I-5 from Lesser Road

PCC alignment for LRT: same as base alignment except between 53rd Avenue and Tigard Triangle

- Long bored tunnel from 53rd Avenue to Tigard Triangle (similar costs and travel times for short bored tunnel)
- Station with park-and-ride lot at 53rd Avenue
- Underground station on north side of campus



HCT TERMINUS & OTHER DECISIONS CURRENTLY UNDER REVIEW

In November 2015, staff recommended removing the downtown Tualatin terminus for consideration at the January 2016 steering committee meeting. In order to provide up-to-date information for a February mode decision, the base and PCC alignments analyzed in this memo assume steering committee agreement with the recommendation and terminate at Bridgeport Village for both BRT and LRT.

The other alignments recommended for removal in the November report, which include the two loop options in downtown Tigard and a portion of the adjacent to I-5 option, are not included in the base alignment and thus are not discussed in this document.

ASSUMED IMPACTS

HCT would be able to provide fast, reliable travel times by operating mostly in exclusive transit lanes. The transitway itself would require an extra 26 to 28 feet of width, plus more at stations and where upgraded bike lanes and sidewalks are needed. In some areas, vacant land or under-utilized parking would make it easy to find this extra width with few impacts, but in others it may be necessary to convert one or two auto lanes to transit use or widen the roadway and purchase the adjacent properties.

Converting auto lanes to transit use is only under consideration in areas where preliminary traffic analysis indicates that doing so would not negatively impact traffic. Accordingly, two auto lanes would be maintained in each direction along Barbur Boulevard from the Barbur Transit Center to Naito Parkway. South of Tigard, LRT and BRT would be mostly out of roadways altogether.

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Summary table: project goals

		bus rapid transit (BRT)		light rail (LRT)	
		base*	**PCC***	**base***	**PCC***
land use	**land use and development, p. 11**	While BRT would include many amenities that attract development, there is insufficient research nationally to quantify the amount of private investment.		Introduction of LRT has a documented impact on development, attracting private investment to station areas.	
	access to key places, p. 13	Access to PCC Sylvania via BRT would require a half mile walk or a transfer to another connection.	Would include on-campus BRT station to serve PCC Sylvania.	Access to PCC Sylvania via LRT would require a half mile walk or a transfer to another connection.	Would include underground on-campus LRT station to serve PCC Sylvania.
mobility	**travel time, p. 16** *2035 PSU to Bridgeport Village*	38 min peak 34 min off-peak	42 min peak 37 min off-peak	31 min peak 30 min off-peak	32 min peak 31 min off-peak
	reliability, p. 17	Generally less reliable, especially during peak periods, due to mixed traffic segments and limited signal priority. Less likely to be disrupted in extreme circumstances, such as unusually hot weather.		Generally more reliable, due to 100% exclusive transitway and signal priority. More likely to be disrupted by unusually hot weather, blocked tracks and other extreme circumstances.	
	rider experience, p. 18	Both modes would include enhanced station amenities, level boarding, and boarding through all doors. LRT would provide a smoother ride.			
	capacity for current & future demand, p. 19	BRT would have limited capacity to serve rush hour ridership growth beyond 2035 because of its smaller vehicle size.		LRT could increase service frequencies to serve future rush hour ridership growth beyond 2035.	
	road, bike & pedestrian projects, p. 20	Both modes would include road, bike and pedestrian improvements along the length of the alignment and to provide access to stations.			
	local bus service, p. 21	For both BRT and LRT, local bus service would be optimized to improve connections to key locations and transit stations.			
community	**public opinion, p. 23**	In a December 2015 survey, 25 percent of 600 respondents moderately or strongly favored BRT for the Southwest Corridor.		In a December 2015 survey, 61 percent of 600 respondents moderately or strongly favored LRT for the Southwest Corridor.	
	equity, p. 24	Both BRT and LRT would increase access to many educational opportunities and job centers throughout the corridor for a range of demographic groups, including those with higher than average rates of poverty, English as a second language, seniors and youth.			
cost-effectiveness	**ridership, p. 26** *2035 average daily new system transit trips and line riders*	9,800 new transit trips 28,500 line riders	9,900 new transit trips 28,300 line riders	12,800 new transit trips 39,700 line riders	15,500 new transit trips 42,500 line riders
	capital cost, p. 27 *current estimate in 2014$, w/o finance & escalation*	$1.0 billion	$1.0 billion	$1.8 billion	$2.1 billion
	operating and maintenance costs, p. 28 *current estimate based on 2035 ridership*	$2.32 per rider	$2.24 per rider	$1.59 per rider	$1.48 per rider

*see *Alignment assumptions, p.7, for more information on the base and PCC alignments*

Summary table: logistics

		bus rapid transit (BRT)		light rail (LRT)	
		base*	**PCC***	**base***	**PCC***
operations	**vehicle capacity, p. 30**	86 passengers per vehicle		266 passengers per vehicle	
	service frequency, p. 31 *2035 PSU to Tigard* *(see p. 29 for frequencies south of Tigard)*	3.0 min peak *(demand for 2.9 min)* 12 min off-peak	3.3 min peak 12 min off-peak	6.7 min peak 15 min off-peak	
	transit mall capacity, p. 32	To meet demand, 18 to 20 BRT vehicles would be added to the Transit Mall in each direction during the peak hour in 2035, which could result in bus bunching at stations and at the northern terminus.		Because a Southwest Corridor LRT line would interline with an existing MAX line, there would be little to no increase in hourly LRT vehicles on the Transit Mall, which would preserve capacity for future system growth.	
	transit signal treatment, p. 34	Higher service frequencies would limit how often buses would receive signal priority, especially during rush hour.		Less frequent service would allow LRT vehicles to receive signal priority or preemption through most intersections.	
	interlining, p. 33	Would not interline with another transit line because there would be no BRT line to connect to from the north end of the Transit Mall.		Would interline with the MAX yellow or green line.	
finance	**federal funding, p. 36**	The absence of comparable high-level BRT projects in the United States makes it more difficult to gauge the competitiveness of a Southwest Corridor BRT project for federal funding.		The Portland region's history of receiving federal New Starts funding for MAX projects, paired with the anticipated strength of a Southwest Corridor LRT line, suggests that LRT could be competitive for federal funding.	
	local funding, p. 37	While a BRT project would cost less to construct than an LRT project, LRT would outperform BRT in terms of ridership, travel time and capacity for future ridership growth. Due to this difference in both costs and benefits between the two modes, it is difficult to assess the relative feasibility of receiving the necessary local funding.			

*see *Alignment assumptions, p.7, for more information on the base and PCC alignments*

land use and development, p. 11

access to key places, p. 13

RELATED PROJECT GOALS

- Improve potential for housing and commercial development in the corridor and encourage development in centers and transit-oriented development at stations along the corridor
- Improve multimodal access to a range of housing types and businesses in growing communities

Why does land use matter?

The Southwest Corridor Plan is rooted in the adopted local land use plans of the corridor communities, including the Barbur Concept Plan, the Tigard High Capacity Transit Land Use Plan, Linking Tualatin and the Sherwood Town Center Plan. The project could support these land use visions by encouraging private investment in residential and commercial development along the HCT alignment. In addition to land use and development goals, each city identified and prioritized key places throughout the corridor to connect to the high capacity transit alignment, including Marquam Hill, Crossroads (Barbur Transit Center), downtown Tigard and Bridgeport Village.

Key questions:

- How well would BRT and LRT support the land use visions of the corridor communities? How much private investment would BRT or LRT encourage along the HCT alignment?
- What differences are there between the key places that BRT or LRT would serve? How would access to PCC Sylvania differ between BRT and LRT?

Key findings:

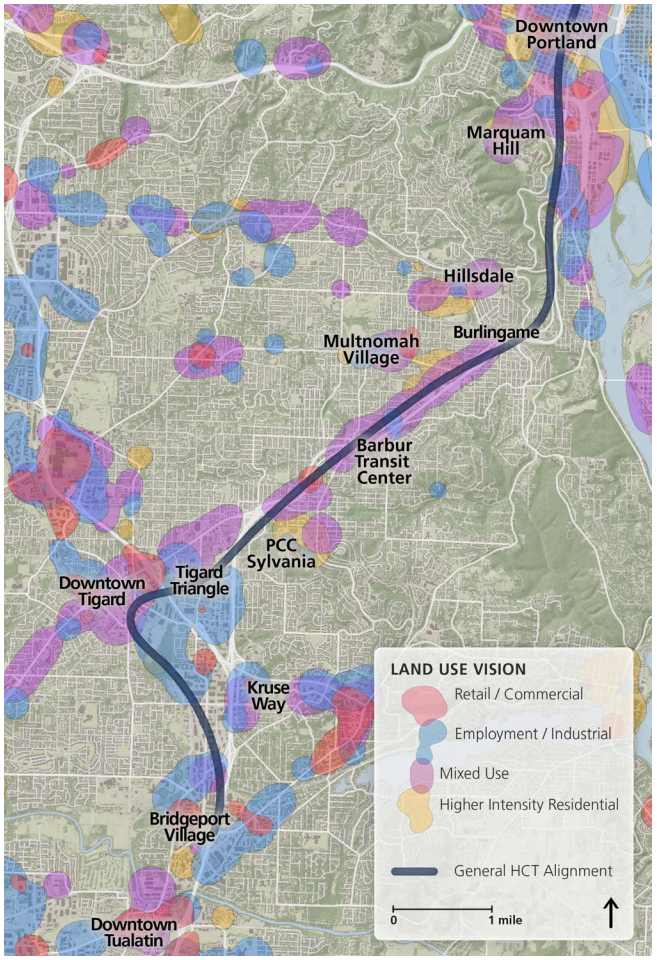
- Both BRT and LRT would serve many of the areas prioritized for future development in the corridor land use vision.
- Introduction of LRT has a documented impact on development, attracting private investment to station areas. While BRT includes many of the same amenities as LRT and streetcar that attract development, there is insufficient research nationally to quantify the amount of private investment.
- Both modes would directly or indirectly improve transit access to several 'essential' key places throughout the corridor, including Marquam Hill, the Tigard Triangle and Bridgeport Village.
- BRT and LRT would have stations in similar locations, with the exception of the PCC Sylvania area. BRT could serve the Sylvania campus directly at little additional capital cost, while LRT would require a tunnel in order to provide direct service to the campus. Several concepts are under consideration for improving access to the campus with HCT on Barbur (base alignment), including a bus hub on campus, an aerial tram to a station at Barbur/53rd and a special branded bus that could share the HCT transitway in certain areas to bypass traffic.

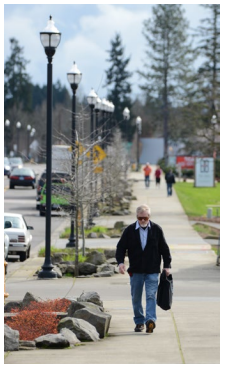
How well would BRT and LRT support the land use visions of the corridor communities?

To create the Southwest Corridor Plan, representatives of cities and counties throughout the corridor looked to local land use plans and policies to identify areas where the communities wanted to focus new development. The resulting 'land use vision' compiled and coordinated these plans. The map on the right illustrates these land use goals for the corridor, highlighting areas where communities envision retail, commercial, employment, industrial, mixed use and higher intensity residential development.

As a result of this land use focused process, the HCT alignments have been designed to improve access to the places in the corridor that have been prioritized for future development. Locations identified for future development in the land use vision that could be served by the HCT line include Marquam Hill (with a bike/pedestrian connection), the historic segment of Barbur Boulevard, the PCC Sylvania area, downtown Tigard, the Tigard Triangle and Bridgeport Village.

In addition to the HCT line under consideration, project partners have identified many priority roadway, bike and pedestrian projects that would improve access to the key destinations in the corridor and further support the land use vision. These projects would improve access not only along the HCT line and to its stations, but also in other areas not directly served by HCT, such as Sherwood and King City. See road, bike & pedestrian projects, p. 20, for more information on these projects.





RELATED CONSIDERATIONS

- access to key places, p. 13
- equity, p. 24

return to the table of contents, p. 3

How much private investment would BRT or LRT encourage along the HCT alignment?

In an attempt to quantify the effects of HCT on potential future development outcomes, Metro commissioned Johnson Economics to run a predictive development model for the corridor. The results of that work are summarized here.

Existing literature is extensive on the effects of LRT on development, with years of statistically relevant data that point to a clear value premium associated with this particular transit investment. Consequently, the LRT outputs from the model show impacts on development in the corridor that align with national trends and are grounded by local experience. The following table summarizes the assumed average value premiums for properties within the impact radius, for both a low range and a high range estimate:

		LRT value premium (base)	
use type	**impact radius**	low range	high range
ownership residential	1/4 mile	4.0%	6.0%
rental residential	1/4 mile	5.6%	8.4%
office	1/8 mile	9.6%	14.4%
retail	1/8 mile	8.0%	12.0%

The table below summarizes the predictive increase in development activity that could happen over 20 years as a result of an LRT investment in the Southwest Corridor. The model estimates that the value premiums associated with LRT would effectively increase development outcomes along the corridor by approximately 13 to 15 percent overall.

	increased development with LRT over 20 years (base)			
	construction investment	residential units	commercial space	change in real market value
low range	$574 million	5,100	23,100	$836 million
high range	$642 million	5,600	75,400	$930 million

The land development impacts of BRT have not been extensively studied. Since there are few BRT lines in the United States with a design similar to that of the proposed Southwest Corridor BRT, there is a lack of viable data to establish value premiums for the model. However, the BRT envisioned for the Southwest Corridor would include many of the design elements of light rail and streetcar projects that are known to encourage private investment, including stations with shelters, benches, and real-time arrival information, a permanent alignment largely in exclusive right-of-way, branding, and high projected ridership. Based on the quality of the BRT line under consideration, it can be assumed that it would induce some level of development, but there is insufficient data to quantify an amount.

RELATED CONSIDERATIONS

- access to key places, p. 13
- equity, p. 24

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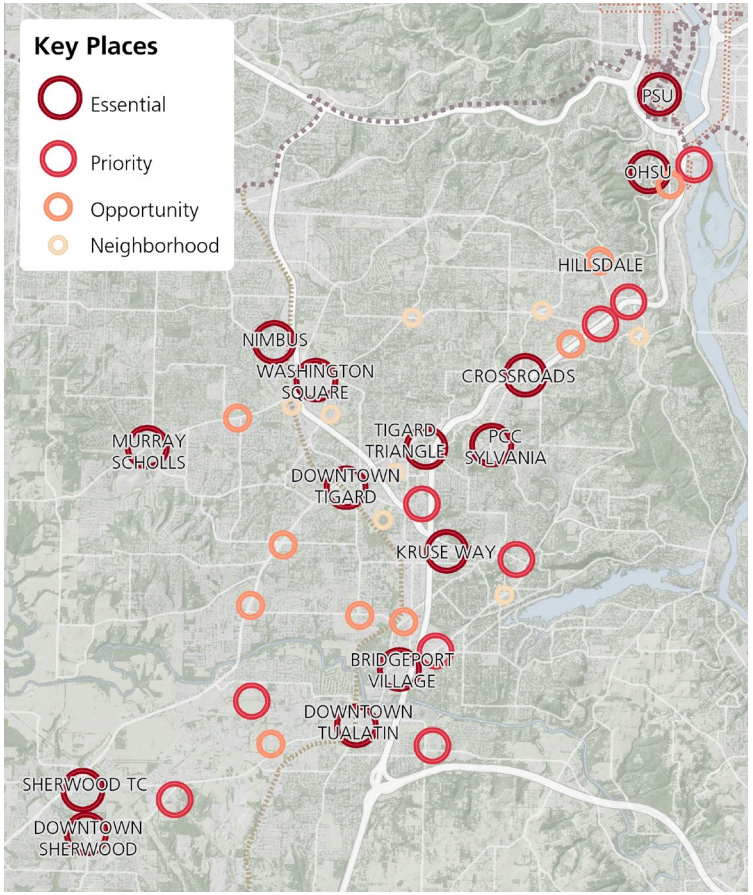
What differences are there between the key places that BRT or LRT would serve?

Early on in the Southwest Corridor Plan, project partners identified and prioritized key places to directly or indirectly connect to an HCT line. Both the BRT and LRT alignments provide access to several of the 'essential' key places, including Marquam Hill (OHSU and the Veterans Hospital), Crossroads (Barbur Transit Center), the Tigard Triangle, downtown Tigard and Bridgeport Village. Several other essential places would be connected to either BRT or LRT indirectly with local bus lines, such as Sherwood, downtown Tualatin and Washington Square. The Portland Community College (PCC) Sylvania campus is the only essential place where there is a notable difference in the options available for routing BRT or LRT directly to the campus.



Marquam Hill

Marquam Hill, which is home to both the Oregon Health Sciences University (OHSU) and the Veterans Affairs Medical Center (VA), would require a special connection for HCT access due to the steep grades separating the area from Barbur Boulevard. Several LRT tunnel options with an underground Marquam Hill station have been studied, but were removed from consideration by the steering committee in 2014 and 2015 because the high costs and impacts of tunneling were not justified by the projected gains in travel time and ridership. Current cost estimates assume some form of mechanized connection near Gibbs Street for pedestrians and bicyclists to access OHSU and the VA from an HCT station on either Barbur or Naito Parkway.

Sherwood

High capacity transit to Sherwood in exclusive ROW was removed from consideration by the steering committee in 2012, and BRT to Sherwood in mixed traffic was removed in 2013 (see page 5 for a timeline of HCT project narrowing). Since then project partners have continued to identify ways of improving access to Sherwood, in particular along Tualatin-Sherwood Road, which is an important employment area. TriMet's Southwest Service Enhancement Plan recommended a new bus line on Tualatin-Sherwood Road, which will be opening as the Line 97 in July 2016 and would connect to the HCT line at Bridgeport Village (see local bus service, p. 21). The list of roadway, bike and pedestrian projects prioritized for the corridor also includes a project to widen Tualatin-Sherwood Road to two lanes in each direction with bike lanes and sidewalks (see road, bike & pedestrian projects, p. 20).

RELATED CONSIDERATIONS

- land use and development, p. 11
- travel time, p. 16
- public opinion, p. 23
- equity, p. 24
- ridership, p. 26
- capital cost, p. 27

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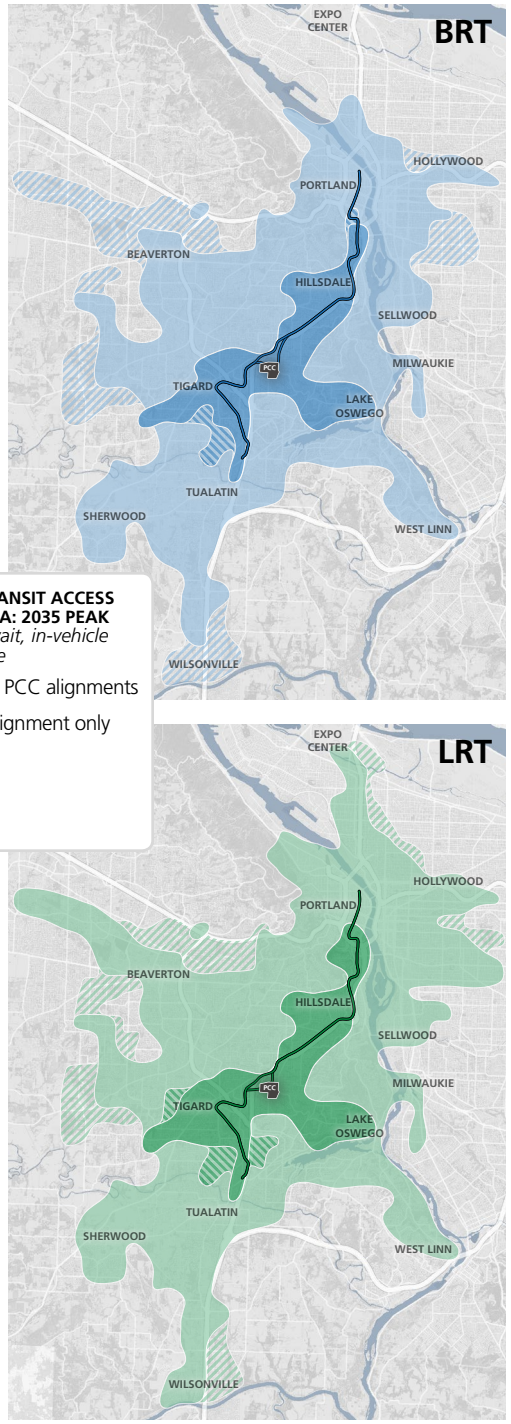
Sylvania has the largest enrollment of the four PCC campuses. In the fall 2015 term, the campus had 14,200 students, or a full-time equivalent of 3,100. Yet due to its location in a residential area on a hill, the Sylvania campus is challenging to serve with transit. While some students, teachers and staff ride the line 78 and 44 buses or use the hourly PCC shuttles today, a majority drive alone.

As part of the City of Portland's Comprehensive Plan update (in progress), PCC Sylvania is recommended to receive the "Institutional Zone" designation on the Comprehensive Plan Map. High capacity transit service to the PCC Sylvania campus would support this new designation and subsequent classification as a Campus Institutional Zone on the City's zoning map. Application of the Campus Institutional Zone to the Sylvania campus would enable additional transit-supportive campus development, including new educational facilities and potentially student housing.



How would access to PCC Sylvania differ between BRT and LRT?

BRT could serve the Sylvania campus directly via Capitol Highway and a new bridge over I-5, at little additional capital cost compared to the base BRT alignment. Although the PCC alignment would be slower than the base, the two would have similar ridership due to the on-campus station and an additional station on Capitol Highway (see ridership, p. 26).

For LRT, providing an on-campus station would require a tunnel because the grades dropping from the campus down to the Tigard Triangle would be too steep for trains. Because the tunnel would only add an extra minute of travel time, it would attract more line riders than the base LRT alignment (see ridership, p. 26).

Project staff have studied several other approaches to improving access to PCC in conjunction with an HCT alignment on Barbur. The base alignment in this memo assumes an enhanced walk and bike connection from a station at Barbur and 53rd Avenue for the purpose of modeling and cost estimates. The other concepts under consideration, which could be combined, include a bus hub on campus, an aerial tram or a special branded bus that could run on the light rail transitway to bypass traffic. For more information, see the technical memo 'PCC Sylvania Enhanced Light Rail Connection Options' on the project website at www.swcorridorplan.org.

RELATED CONSIDERATIONS

- land use and development, p. 11
- travel time, p. 16
- public opinion, p. 23
- equity, p. 24
- ridership, p. 26
- capital cost, p. 27

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travel time, p. 16

reliability, p. 17

rider experience, p. 18

capacity for current & future demand, p. 19

road, bike & pedestrian projects, p. 20

local bus service, p. 21

RELATED PROJECT GOALS

- Serve the existing and projected transit demand in the corridor
- Improve transit service reliability in the corridor
- Improve transit frequency and travel times
- Provide options that reduce overall transportation costs
- Improve multimodal access to a range of housing types and businesses in growing communities
- Increase multimodal transportation options and improve mobility in the corridor
- Complete multimodal transportation networks in the corridor
- Advance transportation projects that increase active transportation and encourage physical activity

Why does mobility matter?

Many of the project goals focus on improving mobility throughout the corridor by providing a range of safe, fast, reliable and accessible options for getting around. Mobility encompasses not only the improvements that HCT would provide, but also roadway, bike and pedestrian projects and local bus service changes that could be implemented along with HCT. Because the corridor and region are growing, it is also important to assess whether each mode will provide the capacity to serve future transit demand.

Key questions:

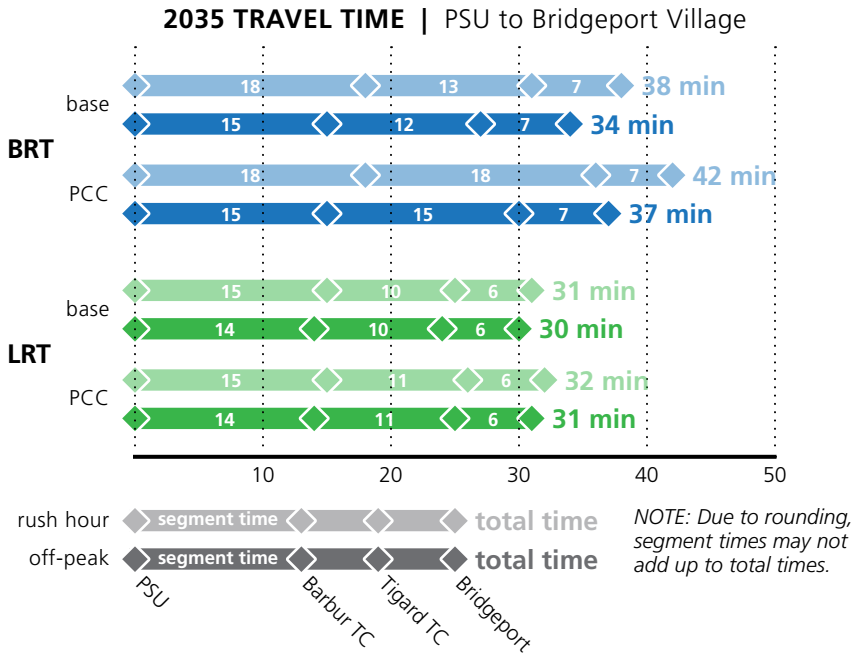
- How would travel time compare between BRT and LRT? Why would BRT be slower than LRT?
- How would reliability compare between BRT and LRT?
- How would the rider experience differ from standard buses and between BRT and LRT?
- Would each mode serve the projected ridership demand both today and into the future?
- What road, bike and pedestrian projects are included in the Southwest Corridor Plan? Would either mode allow for more roadway, bike and pedestrian projects in the corridor?
- What local bus service changes are proposed for the corridor? What differences would there be between BRT and LRT in terms of local bus service?

Key findings:

- For the base alignment, LRT would usually be around 4 minutes faster than BRT, but 7 minutes faster during rush hour. Direct HCT service to PCC Sylvania campus would add 1 minute for LRT and 3 to 4 minutes for BRT.
- LRT would be more reliable day-to-day, but BRT would be less likely to be disrupted in extreme circumstances such as unusually hot weather or obstacles blocking the transitway.
- Both modes would include enhanced station amenities compared to local bus stops, level boarding and boarding through all doors, but LRT would provide a smoother ride.
- BRT would have limited capacity to serve rush hour ridership growth beyond 2035 because of its smaller vehicle size. LRT could increase service frequencies to double its peak capacity beyond 2035.
- Both BRT and LRT would include bike and pedestrian improvements along the alignment and to provide access to stations.
- For either mode, local bus service would be adjusted with HCT to optimize service and allocate operating hours efficiently and equitably throughout the corridor. The lower per-rider operating cost of LRT may help allow for more of the local bus improvements identified in the Service Enhancement Plan.

How would travel time compare between BRT and LRT?

The chart on the right shows the estimated peak (rush hour) and off-peak travel times for the base and PCC alignments for each mode in 2035. For the base alignment, LRT would usually be around 4 minutes faster than BRT, but 7 minutes faster during rush hour. Direct HCT service to PCC Sylvania would add 1 minute for LRT and 3 to 4 minutes for BRT.



Travel times would differ between the peak and off-peak periods because of the extra delay time HCT would experience at some signalized intersections during rush hour. Signal delay times have been estimated for both BRT and LRT and are at least partially included in the travel times presented here and the assumptions for the travel demand model. BRT is estimated to experience an average of 6 minutes of delay in the peak and 2 minutes in the off-peak in 2035. For LRT, the range of signal delay is estimated to be 40 seconds to 2 minutes in the peak only. This 40 seconds of peak delay has been incorporated into the travel times and the ridership assumptions. With the full 2 minutes of peak delay at signals, LRT ridership would be slightly lower.

Why would BRT be slower than LRT?

BRT would be 4 to 7 minutes faster than LRT for three primary reasons:

- LRT would run exclusively in its own transitway and interact with auto traffic only at intersections, which would allow for reliable travel times. For BRT, these travel times assume 16 percent of the alignment would operate in mixed traffic in order to reduce costs and minimize impacts. (See reliability, p. 17, for a map of where BRT could potentially operate in mixed traffic.) Congestion in the mixed traffic segments could slow down the BRT vehicles and affect reliability.
- There is more operator variability for BRT than for LRT due to the additional need to guide the BRT vehicles from side to side in a dedicated transitway, as well as interactions with other vehicles while in mixed traffic.
- Particularly during the peak periods, the higher service frequency of BRT would result in extra delay time at signals because not all vehicles could receive signal priority (see transit signal treatment, p. 34).

RELATED CONSIDERATIONS

- access to key places, p. 13
- reliability, p. 17
- rider experience, p. 18
- public opinion, p. 23
- service frequency, p. 31
- transit signal treatment, p. 34

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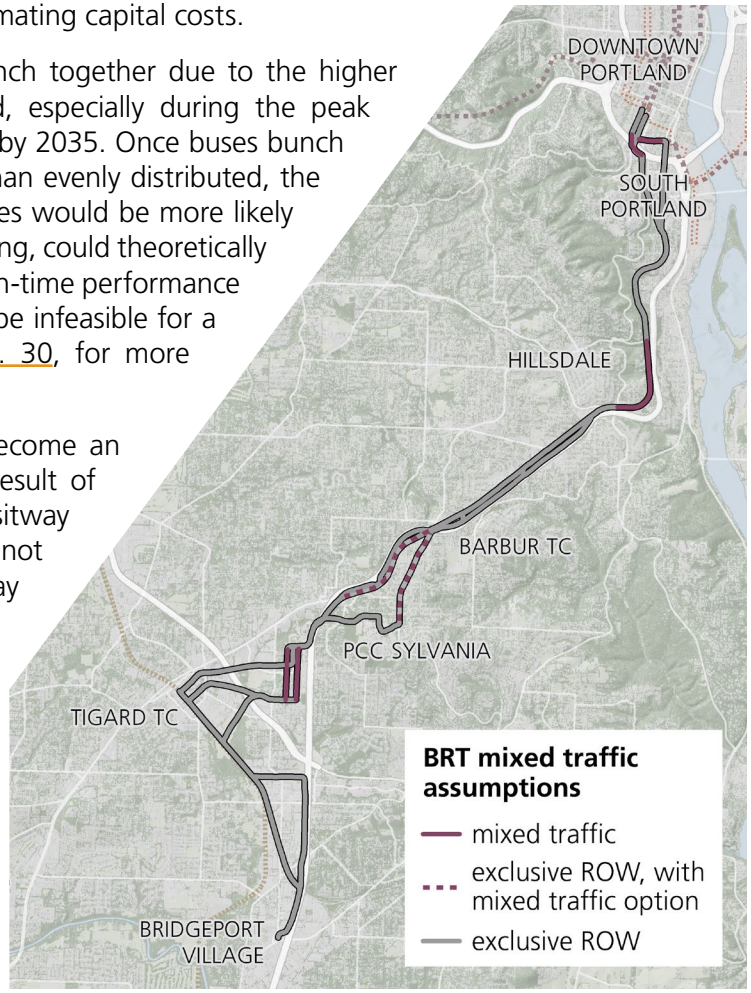
How would reliability compare between BRT and LRT?

Based on modal characteristics and preliminary design, general assumptions can be made about reliability for BRT and LRT in the Southwest Corridor, both in terms of day-to-day performance and extreme circumstances.

In terms of day-to-day reliability, meaning both on-time performance and variation in travel times, LRT would likely outperform BRT on average because it would receive signal priority more often than BRT due to the ability of trains to hold more people than buses, resulting in more time between trains (see transit signal treatment, p. 34). Additionally, LRT would operate only in exclusive transitways while BRT would include portions in mixed traffic to reduce costs and property impacts. The current assumption is that about 2 miles (16 percent) of the BRT alignment would run in mixed traffic, or up to about 3 miles (24 to 27 percent) if mixed traffic options along Barbur Boulevard or Capitol Highway near PCC Sylvania are included. Within these mixed traffic areas BRT may be unable to bypass congestion. See the map below for the mixed traffic segments currently assumed for the purpose of modeling ridership and travel times and estimating capital costs.

Additionally, BRT vehicles would be more likely to bunch together due to the higher service frequency required to meet ridership demand, especially during the peak hours, when vehicles may need to run 3 minutes apart by 2035. Once buses bunch together, arriving at stations at the same time rather than evenly distributed, the wait time between bus arrivals would increase and buses would be more likely to run off schedule. (Note that bus bunching, or platooning, could theoretically be implemented intentionally as a means of improving on-time performance while sacrificing scheduled frequency, but would likely be infeasible for a Southwest Corridor BRT line). See vehicle capacity, p. 30, for more information.)

In extreme circumstances, the flexibility of BRT can become an asset. While a light rail train could be delayed as a result of blocked tracks, BRT vehicles could depart from the transitway to avoid an obstacle. Additionally, BRT vehicles would not be hindered by unusually hot weather, which can delay LRT by restricting maximum travel speeds. Both modes could be delayed as a result of power outages to traffic signals, though LRT would require substitute shuttle buses if the power supply to the train was lost.



RELATED CONSIDERATIONS

- travel time, p. 16
- rider experience, p. 18
- public opinion, p. 23
- service frequency, p. 31
- transit signal treatment, p. 34

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How would the rider experience differ from standard buses and between BRT and LRT?

BRT in the Southwest Corridor would be relatively similar to LRT in terms of station amenities and the boarding process. At stations, both modes would have shelters, benches and real-time arrival information. Both modes would provide level boarding using raised stations and low-floor vehicles, which improves accessibility and speeds up boarding times. BRT and LRT would both use advance payment with TriMet's upcoming electronic fare system, which also speeds up boarding times and allows people to board at any door.

BRT could include bike storage either within the vehicles, as seen on existing MAX trains, or on the front of the vehicles, like a standard TriMet bus. Bike storage on the front of the BRT vehicles would increase delay time at stations compared to what is currently assumed in the travel times and modeling results.

For both BRT and LRT, the exclusive transitway can improve the rider experience by providing a more prominent view of where the HCT line runs. Mixed-traffic sections of the BRT alignment may not provide as strong of a visual cue of where the route is going.

While modern BRT vehicles provide a comparable level of amenities to light rail, they are often challenged to provide an equal ride quality. Since trains run on tracks rather than pavement and turning movements are more gradual and less frequent, LRT vehicles typically deliver a smoother ride than buses, thus making it easier to read or work on board. Additionally, articulated BRT buses, which allow for more passengers than the standard TriMet buses, include a trailer that tends to sway, causing more vertical and horizontal movement for riders in the back.

RELATED CONSIDERATIONS

- travel time, p. 16
- reliability, p. 17
- public opinion, p. 23
- ridership, p. 26
- service frequency, p. 31
- interlining, p. 33

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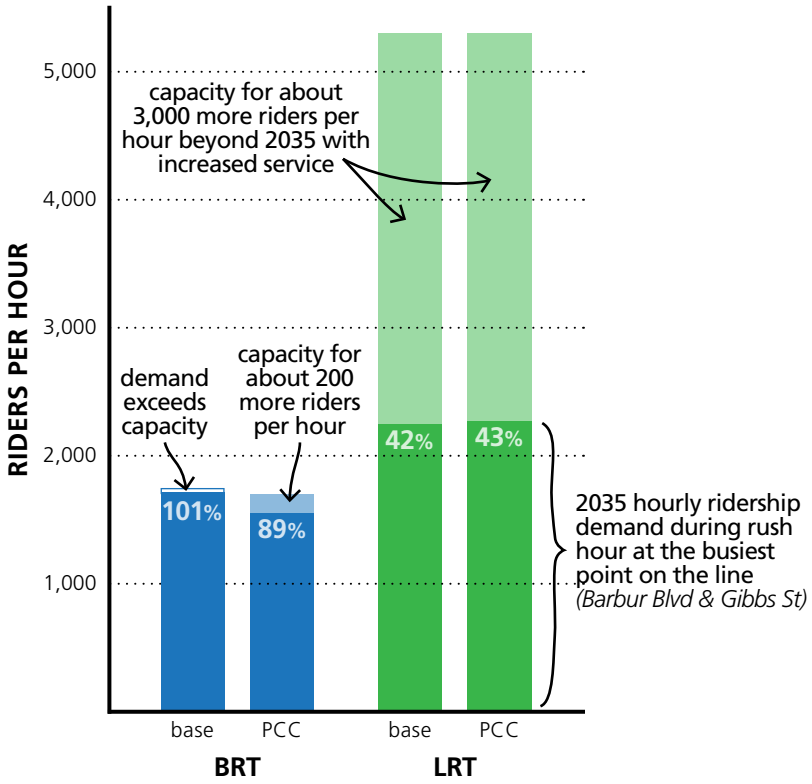
Would each mode serve the projected ridership demand both today and into the future?

Long-term ridership capacity for BRT and LRT would be constrained by the maximum service frequency that the Transit Mall in downtown Portland would allow. An analysis of Transit Mall operations found that either BRT or LRT could operate at a frequency of up to 3 minutes without significant issues on the Transit Mall. (See service frequency, p. 31, and transit mall capacity, p. 32, for more information.) For BRT, this 3 minute frequency restriction would result in overcrowding during weekday rush hours sooner because of the smaller vehicle size.

At 86 passengers per bus, the maximum hourly passenger capacity of BRT would be around 1,720. Ridership projections estimate a rush hour demand of approximately 1,540 to 1,740 passengers per hour at the busiest point on the line by 2035. The PCC alignment for BRT would have lower demand at the busiest point along the line, Barbur and Gibbs Street, because fewer people would take trips from south of PCC to north of Barbur/Gibbs as a result of the slower travel times compared to the base alignment. Ridership to the Sylvania campus would be higher with direct access, but many of these people would come from south and west of the campus and thus wouldn't contribute to the crowding at Barbur and Gibbs. Beyond 2035, there would be no additional rush hour capacity for the base alignment, but the PCC alignment would have room for around 180 additional riders per hour. In other words, 89 to 100 percent of the maximum rush hour capacity would be utilized by 2035 with BRT.

Light rail, with a vehicle capacity of 266 passengers, could accommodate a maximum of 5,320 riders per hour. Ridership projections estimate a rush hour demand of around 2,300 passengers per hour at the busiest point in 2035. Beyond 2035, the line could eventually serve over 3,000 more riders per hour by increasing the service frequency to up to 3 minutes. In other words, in 2035, the LRT line would be utilizing less than half of its long-term maximum rush hour capacity, allowing for significant growth in ridership for the future as the region grows.

(Note that service frequencies of 3 minutes could result in more signal delay than the 40 seconds to 2 minutes currently assumed for LRT with 6.7 minute headways during rush hour in 2035. See travel time, p. 16, for more information.)



RELATED CONSIDERATIONS

- ridership, p. 26
- vehicle capacity, p. 30
- service frequency, p. 31
- transit mall capacity, p. 32

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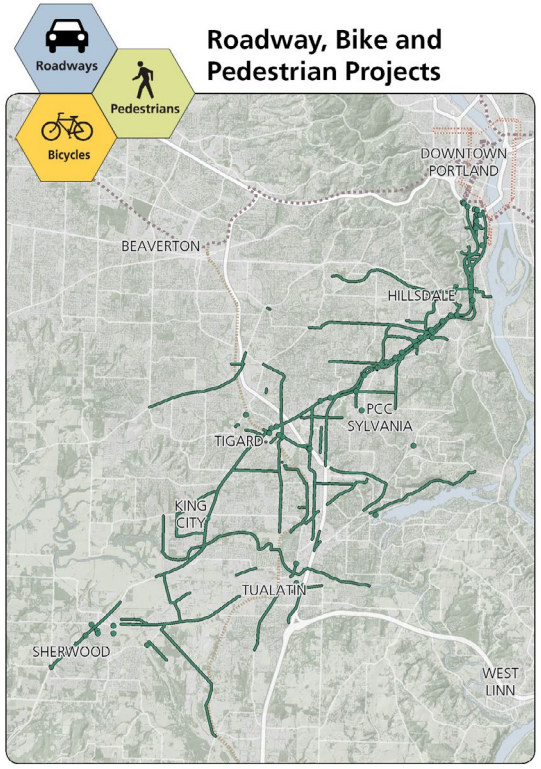
What road, bike and pedestrian projects are included in the Southwest Corridor Plan?

The current capital cost estimates already include approximately $75 million in road, bike and pedestrian projects that overlap with the HCT alignments, such as bringing bike lanes and sidewalks along Barbur Boulevard up to current standards and adding a new crossing over OR-217 for transit, bikes, pedestrians and potentially autos. Many other projects have been identified to improve access to HCT stations, and would also be eligible for federal transit funding, but haven't yet been incorporated into the HCT capital costs.

Project partners have also prioritized a list of projects that would improve access to key places and support the land use vision throughout the Southwest Corridor communities. This broader list includes projects such as widening Tualatin-Sherwood Road to improve connectivity along an important industrial employment corridor.

The map on the right shows all of the roadway, bike and pedestrian projects that have been prioritized for the Corridor, including the projects along the HCT alignment, the station-supportive projects and the broader land use supportive projects.



Would either mode allow for more roadway, bike and pedestrian projects in the corridor?

There is currently no assumption that either mode would allow for more roadway, bike and pedestrian projects than the other. Because the funding strategy for either mode has not yet been developed, it is too early to tell what implications the difference in project capital cost between BRT and LRT would have on the capacity to fund other projects around the corridor or the region.

RELATED CONSIDERATIONS

- equity, p. 24
- capital cost, p. 27
- local funding, p. 37

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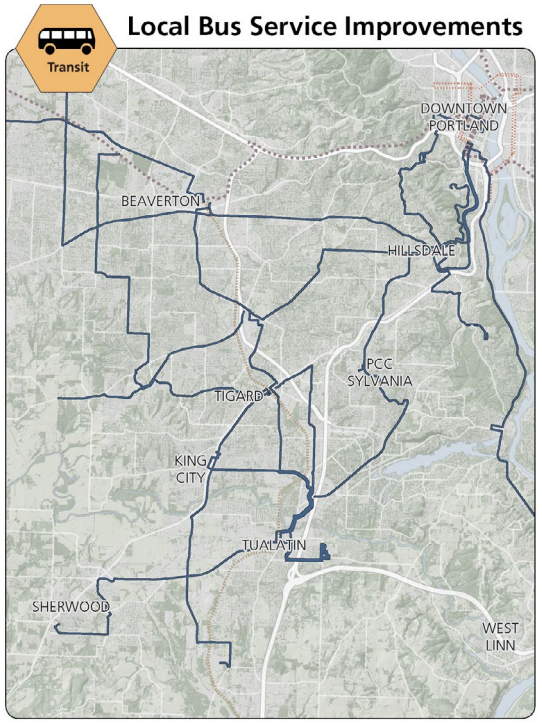
What local bus service changes are proposed for the corridor?

Alongside the Southwest Corridor HCT planning process, TriMet has developed the Southwest Service Enhancement Plan (SWSEP) to identify priorities for improving local bus service throughout the Southwest part of the region. The map on the right highlights the frequency upgrades and new bus lines that are proposed in the SWSEP. The new line 97 on Tualatin-Sherwood Road, which is expected to begin service in summer 2016, will provide an important connection between Sherwood and Tualatin, and eventually to a potential HCT terminus at Bridgeport Village. The remaining changes will be implemented over many years as necessary funding becomes available.



The Southwest Corridor HCT line would help allow for many of the proposed SWSEP improvements because it would attract new transit ridership in the corridor and could carry many riders more efficiently than local bus service does today. As a result, HCT could free up operating hours for new bus lines and service improvements in the under-served areas of the corridor.

Later in the HCT planning process, the proposed changes in the SWSEP would be revisited to account for the HCT line. Certain lines could be reduced in frequency, shortened, or rerouted in order to optimize service and allocate operating hours efficiently and equitably throughout the corridor.

What differences would there be between BRT and LRT in terms of local bus service?

While LRT would cost about the same as BRT to operate in total, LRT would attract more riders, resulting in a lower operating cost per rider than BRT (see operating and maintenance costs, p. 28). This higher cost efficiency might allow for more local bus service improvements across the corridor with LRT than with BRT.

Additionally, there may be opportunities to allow local buses to use the light rail transitway in certain areas to bypass congestion. BRT wouldn't be able to accommodate buses on the transitway because of the high service frequencies (see service frequency, p. 31). For more information on some potential shared transitway scenarios, see the technical memo 'PCC Sylvania Enhanced Light Rail Connection Options' on the project website at www.swcorridorplan.org.

RELATED CONSIDERATIONS

- operating and maintenance costs, p. 28
- transit mall capacity, p. 32

return to the table of contents, p. 3

public opinion, p. 23

equity, p. 24

RELATED PROJECT GOALS

- Provide options that reduce overall transportation costs
- Improve multimodal access to a range of housing types and businesses in growing communities
- Ensure benefits and impacts promote community equity

Why does community matter?

Decision makers consider technical and operational issues along with the public interest and support when determining the best mode for a corridor. Transportation models indicate that more riders would choose to ride light rail than bus rapid transit, but this should be considered along with input from the public. Ultimately the success of an HCT project relies on transit riders using the line since it meets their daily needs and supports desires for their communities.

Key questions:

- What is known about public preferences for BRT or LRT?
- What differences are there between BRT and LRT in terms of equity?

Key findings:

- To date, a majority of survey respondents moderately or strongly prefer LRT over BRT.
- The public has requested additional information regarding the trade-offs and details of both LRT and BRT, including more information on how either mode would impact traffic, cost-benefit analysis, how either mode may impact redevelopment opportunities and housing affordability, and how existing bus service would be impacted.
- Both BRT and LRT would increase access to many educational opportunities and job centers throughout the corridor for a range of demographic groups, including those with higher than average rates of poverty, English as a second language, seniors and youth.
- Based on current designs, both modes would improve bike and pedestrian facilities along the length of the HCT line.

What is known about public preferences for BRT or LRT?

To date, project partners have collected public input on a preferred mode for the Southwest Corridor through open-ended questionnaires, online surveys, and in-person dialogue. Closed-ended survey responses in May, June, October and November 2015 point to important factors and outcomes that the public wants decision makers to consider for the project, including:

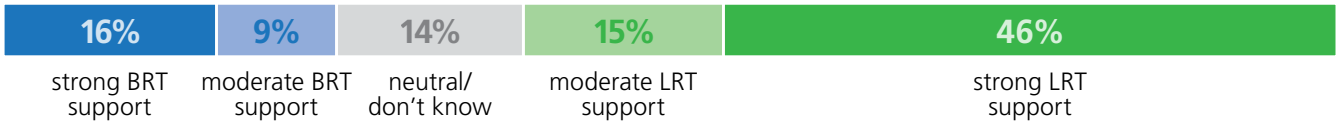
- reliable, fast travel times
- high ridership numbers that will result in fewer cars on the road
- access to employment and education centers

Open-ended survey questions and in-person discussions have provided a sense of how the public views the trade-offs between the mode options, and what further information people need in order to form an opinion about their preference. A sampling of comments include:

- Some respondents perceive BRT to be less noisy, more flexible and less expensive
- Some respondents feel that LRT is worth the upfront additional expense in order to have a system that will serve ridership long into the future
- Some respondents feel that LRT will be a more attractive option for the most riders
- Some respondents want more detail about how BRT would function in the corridor, including the location of transit stops and where BRT may run in mixed traffic
- Some respondents want more information on the costs and benefits of each option
- Some respondents want more information about how either mode option would impact existing local bus service
- Some respondents want more information about how each mode option would impact redevelopment potential for new retail, housing and employment in the area

In a December 2015 online survey, people were asked to indicate their preference between BRT and LRT for a Southwest Corridor HCT line. Respondents favored LRT over BRT at over a two to one ratio (61 percent LRT and 25 percent BRT), and 14 percent were unsure or neutral.

Results from December 2015 online survey (600 responses)



There will be several additional opportunities for the public to ask questions and provide feedback on their preferred mode choice in January and February.

RELATED CONSIDERATIONS

- access to key places, p. 13
- travel time, p. 16
- reliability, p. 17
- rider experience, p. 18

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What differences are there between BRT and LRT in terms of equity?

Populations with increased access to high capacity transit

Both BRT and LRT would increase access to many educational opportunities and job centers throughout the corridor for a range of demographic groups, including those with higher than average rates of poverty, English as a second language, seniors and youth. Because LRT would provide faster and more reliable travel times and people generally prefer riding in trains over buses, more people would view LRT as a viable mode of transportation and shift over from driving, biking or walking (see ridership, p. 26).

In the future, BRT would reach its maximum capacity at rush hour sooner than LRT (see capacity for current & future demand, p. 19). Over-crowded buses during the peak hour would lead people to wait longer for an emptier vehicle, adjust their travel schedules to avoid the busiest times, or choose a different way to travel.

Walk/bike improvements and access for seniors, youth and people who don't drive

Based on current designs, both modes would improve bike and pedestrian facilities along the length of the HCT line. Either mode would also include improvements to increase safety and access for people traveling to HCT stations, which would be eligible for 50 percent federal funding as part of the transit package. These projects would include bike lanes, sidewalks and new crosswalks. See road, bike & pedestrian projects, p. 20, for more information.

Access to education

Increasing access to educational opportunities in the corridor is one of the top priorities identified by the public when they are asked what benefits they want to see from the Southwest Corridor project. Either mode would connect people to a variety of high schools, colleges and universities throughout the corridor. These connections would increase access for a diverse group of residents to educational and career opportunities, which could impact family stability, earning potential, and regional economic development.

In particular, increasing region-wide access to PCC Sylvania has been identified as an important project outcome. Direct HCT access to the campus could be provided at little additional capital cost with BRT, but would require a costly tunnel for LRT. Other approaches to improving access to PCC along with an LRT alignment on Barbur Boulevard are also being studied, such as a bus hub concept, an aerial tram and a special branded bus that could share the LRT transitway. See access to key places, p. 13, for more information.

Access to job centers

Increasing access to job centers and employment opportunities in the corridor is also one of the top project priorities identified by the public. Selecting LRT or BRT as the preferred mode would not directly impact how the HCT line would connect to existing and future job centers in the corridor.

RELATED CONSIDERATIONS

- land use and development, p. 11
- access to key places, p. 13
- road, bike & pedestrian projects, p. 20
- ridership, p. 26

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ridership, p. 26

capital cost, p. 27

operating and maintenance costs, p. 28

RELATED PROJECT GOALS

- Provide transit service that is cost effective to build and operate with limited local resources

Why does cost-effectiveness matter?

Because there are considerable differences between BRT and LRT in terms of both costs and benefits, it is important to understand these trade-offs. This section includes the current estimates of ridership, capital cost and operating cost for each mode, but the goal of this report is not to provide a quantitative cost-benefit analysis of these factors. There is no simple approach to weighing the one-time cost of construction against the ongoing operating and maintenance costs, and such a comparison is further complicated due to the difference in funding sources between capital and operating costs.

It is also critical to understand that the estimates of ridership and operating cost represent one snapshot in time, namely 2035, and would change over time along with changes in population and travel patterns. The current project timeline estimates an opening year around 2025, so the estimates represent approximately 10 years after opening. Ridership demand would likely be lower in the opening year, and would continue to rise beyond 2035.

Key questions:

- How would ridership compare between modes? How would ridership differ with direct HCT service to PCC Sylvania?
- How would capital cost differ between BRT and LRT?
- How would the operating and maintenance cost differ between BRT and LRT?

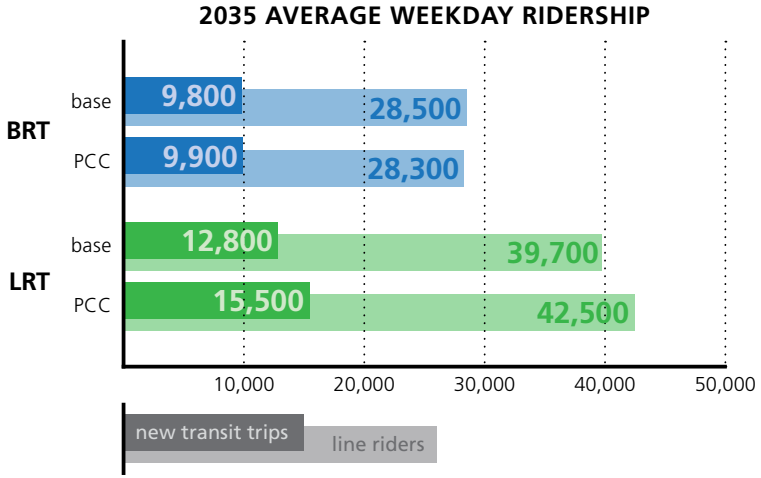
Key findings:

- Assuming the base alignment for both modes, LRT would attract approximately 31 percent more new system transit trips and 39 percent more line riders than BRT in 2035. The BRT alignment to PCC would have similar ridership to the base alignment because the trips gained by providing direct access to the campus would be offset by the trips lost as a result of the slower travel time. Compared to the base alignment, the LRT tunnel to PCC Sylvania would increase line ridership by 7 percent and new system trips by 13 percent.
- For the base alignment, LRT would cost about 80 percent more than BRT due to the costs of tracks, electrification, utility relocation, etc. The PCC tunnel would add around $330 million, or 18 percent, to the base cost for LRT, while the PCC option for BRT would only add about $10 million (2014$, not including finance costs and escalation). Assuming the PCC alignment for both modes, LRT would cost just over twice as much as BRT.
- Based on 2035 ridership, BRT would cost approximately $2.24 to $2.32 per rider to operate and maintain, and LRT would cost around $1.48 to $1.59.

Two key numbers are used to measure ridership performance: new system transit trips and line ridership. New system transit trips measures the overall growth in transit ridership across the system, calculated as the difference in the total number of daily transit trips between a scenario with the project and a no-build scenario without the project. These new transit trips could have otherwise been taken by car, bike or walking. Line ridership, in contrast, is the number of trips on the new HCT line each day, irrespective of how those trips would have been taken if the project didn't exist. This measure includes both the new transit trips and the existing transit riders who would benefit from the improved reliability and travel times that the HCT project would provide.

How would ridership compare between modes?

Assuming the base alignment for both modes, LRT would attract approximately 31 percent more new system transit trips and 39 percent more line riders than BRT on weekdays in 2035.



Why would LRT attract more riders?

Light rail is projected to attract more riders than BRT for three reasons. First, LRT service would be faster and more reliable than BRT service, especially during rush hour. Second, it is documented and accepted by the Federal Transit Administration that rail modes attract more riders than buses or BRT. This rider preference for LRT over BRT is programmed into Metro's travel demand model, as it is in other models utilized throughout the country. Third, LRT would interline with either the existing Green or Yellow MAX line, providing a one-seat ride between the Southwest Corridor and areas east of the Willamette River, which would require transfers with a BRT line that would terminate near Union Station.

How would ridership differ with direct HCT service to PCC Sylvania?

Compared to the base alignment, the LRT tunnel to PCC Sylvania would increase line ridership by 7 percent and new system trips by 13 percent. The BRT alignment to PCC would have similar ridership to the base alignment because the trips gained by providing direct access to the campus would be offset by the trips lost as a result of the slower travel time. In addition, a new park-and-ride lot along Barbur Boulevard near 53rd Avenue is assumed for both the BRT and LRT base alignments and the LRT to PCC alignment, which would all pass by the park-and-ride lot location. BRT to PCC, however, could not access the site because of its route along Capitol Highway, so the park-and-ride lot is not assumed to be included and the resulting ridership is not captured.

Ridership projections do not assume redevelopment at the PCC Sylvania campus location, which could be induced by new HCT service, or alternative connection options such as a PCC Sylvania bus hub or an aerial tram. Actual ridership could be higher depending on future campus development and other connection scenarios.

RELATED CONSIDERATIONS

- access to key places, p. 13
- rider experience, p. 18
- capacity for current & future demand, p. 19
- equity, p. 24
- service frequency, p. 31
- federal funding, p. 36

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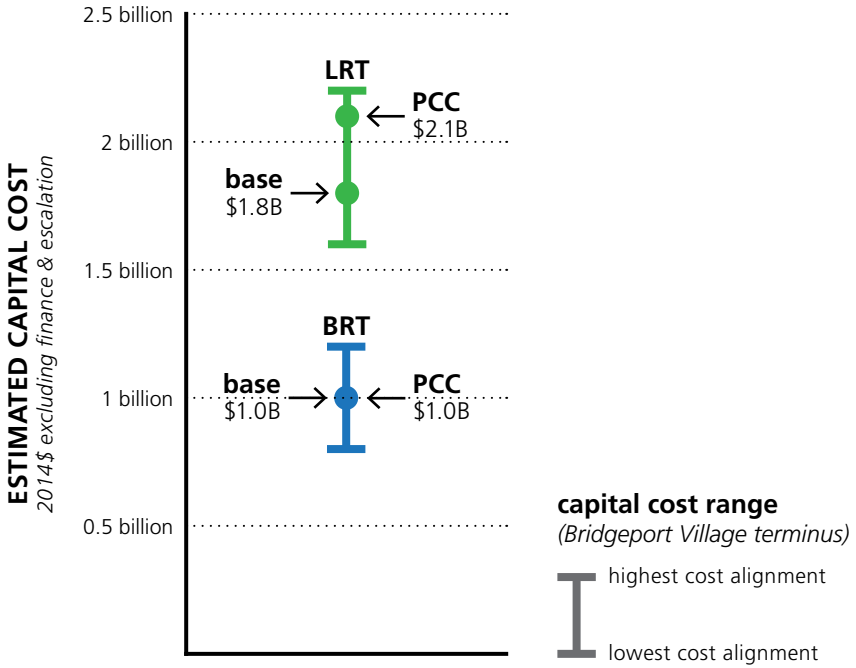
How would capital cost differ between BRT and LRT?

For the base alignment, LRT would cost about 80 percent more than BRT. The PCC tunnel would add around $330 million, or 18 percent, to the base cost for LRT, while the PCC option for BRT would add about $10 million (2014$, not including finance costs and escalation). With the PCC alignment included for both modes, LRT would cost just over twice as much as BRT.



Why is LRT more expensive than BRT?

In general, LRT is more expensive to construct than BRT because the trains require tracks, utility relocation, electrification systems, signal upgrades and more/wider structures. LRT would also include more property acquisition costs because the trains would require a slightly wider transitway and a wider turn radius than BRT.

Sixteen percent of the BRT alignment is assumed to run in mixed traffic for these cost estimates. (See reliability, p. 17, for a map of where BRT is currently assumed to operate in mixed traffic.) Operating in mixed traffic can reduce capital cost by avoiding the need to widen the roadway, which often requires rebuilding bridges or acquiring properties. For example, these cost estimates assume that BRT would operate in an exclusive busway on Capitol Highway and 49th Avenue for the PCC alignment and along Barbur Boulevard south of Crossroads for the base alignment. Shifting to a mixed traffic alignment in either of these segments would reduce the project capital cost by around $30 million (2014$, not including finance costs and escalation). Final decisions as to where BRT would run in mixed traffic have not been made.

RELATED CONSIDERATIONS

- access to key places, p. 13
- road, bike & pedestrian projects, p. 20
- federal funding, p. 36
- local funding, p. 37

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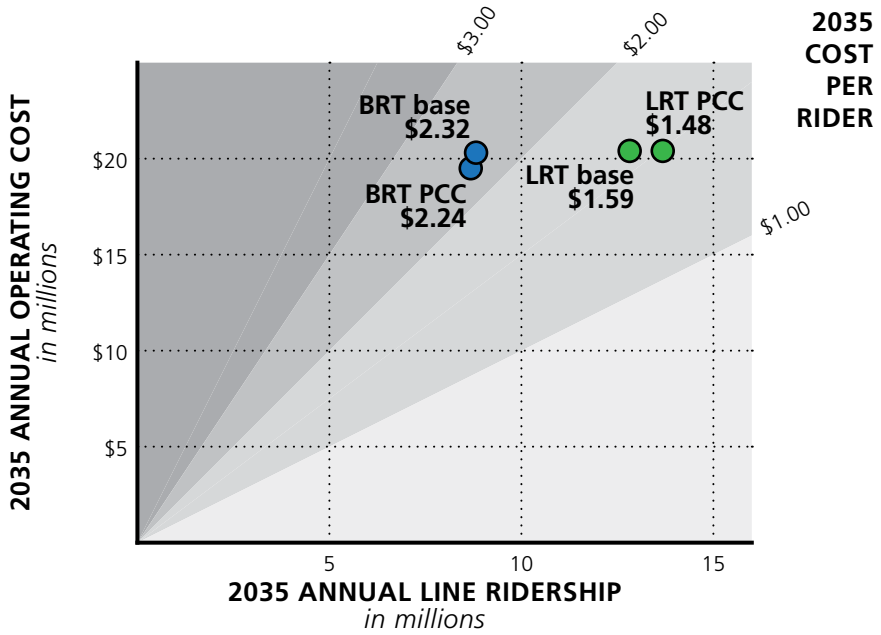
How would the operating and maintenance cost differ between BRT and LRT?

The chart below illustrates the differences in operating and maintenance (O&M) cost between BRT and LRT, in terms of both the total annual cost and the average cost per rider, based on ridership projections for 2035.



While each two-car LRT train would cost 153 percent more to operate per hour than each articulated BRT bus ($296 and $117 per hour, respectively), each train would hold 210 percent more passengers than each bus (see vehicle capacity, p. 30). As a result of its lower vehicle capacity, BRT would need to operate at a higher service frequency in order to meet the ridership demand, and accordingly would have a higher total number of operating hours than LRT (see service frequency, p. 31). This higher service frequency of BRT paired with a lower cost per vehicle hour balances out to a similar total annual operating cost for both modes of around $20 million. However, because LRT would attract more line riders than BRT (see ridership, p. 26), the per-rider O&M cost would be lower for LRT. While LRT would cost around $1.59 per ride for the base alignment, the BRT base would cost around $2.32 per ride, or 46 percent more than LRT.

For both BRT and LRT, the PCC alignment would have a lower O&M cost per rider than the base alignment. For LRT, this difference is a result of the higher ridership that the PCC station would attract, paired with no difference in the total O&M cost. For BRT, the line ridership would be similar between the two alignments while the total O&M cost would be lower with the PCC alignment because less frequent service would be required during rush hour than with the base alignment (see service frequency, p. 31).

RELATED CONSIDERATIONS

- local bus service, p. 21
- service frequency, p. 31
- interlining, p. 33
- federal funding, p. 36
- local funding, p. 37

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vehicle capacity, p. 30

service frequency, p. 31

transit mall capacity, p. 32

interlining, p. 33

transit signal treatment, p. 34

Why do operational considerations matter?

The technical details of how each mode would operate are important in evaluating whether BRT or LRT is the best fit for the Southwest Corridor.

Because TriMet has experience operating the MAX light rail network but not a BRT system, the operational logistics of a Southwest Corridor BRT alignment are less well understood. As a result, the information in this section addresses BRT in more detail than LRT.

Key questions:

- How would vehicle capacity compare between BRT and LRT? Would platooning, or running two buses together, be feasible?
- How frequently would HCT vehicles need to run in order to meet ridership demand? What is the most frequent service that BRT or LRT could provide?
- What effect would transit mall capacity have on BRT and LRT operations?
- How would interlining differ between BRT and LRT?
- How are signal treatments used for transit in the Metro region today? How would signal treatments differ between LRT and BRT?

Key findings:

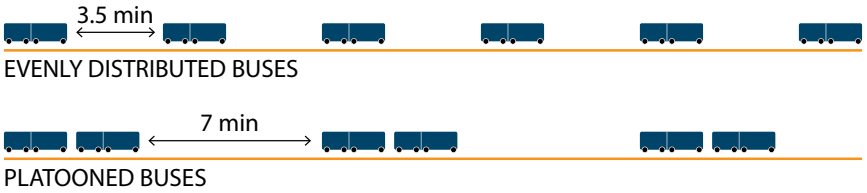
- Each BRT bus would have a maximum capacity of approximately one third the number of passengers as an LRT train. Platooning buses appears operationally infeasible.
- By 2035, BRT vehicles would need to run 3 to 3.3 minutes apart in order to meet ridership demand during the peak hour and LRT trains would run 6.7 minutes apart. It is assumed that 3 minutes is the maximum service frequency that either mode could accommodate.
- Transit Mall capacity is a concern for BRT in the peak periods at Union Station (the northern terminus) and at the intersection of SW Lincoln Street and 4th Avenue.
- LRT would interline with either the yellow or green MAX line, while BRT would not interline with another transit line because there would be no BRT lines from the north to connect to.
- Both LRT and BRT would have opportunities for enhanced transit signal treatments, but the high service frequency of BRT would limit how often the buses could receive signal priority during rush hour.

How would vehicle capacity compare between BRT and LRT?

Light rail would have a capacity of 266 passengers per two-car train. For BRT, the largest capacity vehicle available in the region would be an 86-passenger single-articulated bus. While larger-capacity buses are used in other countries, only 86-passenger vehicles are built in the United States, which is a requirement for federal New Starts funding.

Would platooning, or running two buses together, be feasible?

In order to increase the capacity of a BRT system, one idea is to operate buses in pairs, known as platooning. These pairs of buses would, ideally, arrive at each station together, and travel through intersections together.



With platooning, less frequent service could be provided while serving the same number of riders, as illustrated in the diagram above. This reduced frequency could potentially speed up travel times and improve reliability by reducing delay time at signals, because each pair of buses would be more likely to receive signal priority. However, platooning may not work as intended in practice, as it would be difficult to balance passenger loads and boarding times between the two paired buses, resulting in varying station dwell times (i.e. the time it takes for passengers to get on and off). Differing dwell times could lead to the platoon splitting up, thereby eliminating its intended benefits.

Los Angeles Metro considered platooning to address overcrowding on its Orange Line BRT, and concluded that the concept should not be implemented because the scheduled platoons can become delayed in an attempt to keep the pair of buses together, and platooning would increase dwell times at stations.

An additional challenge of platooning in the Portland region is the required length of the stations. A pair of buses would occupy a station platform of about two-thirds the length of a downtown Portland city block. In the Transit Mall, this would constrain locations suitable for Southwest Corridor BRT stations, and limit their use by other bus lines. Other bus lines, including new BRT lines such as Powell-Division, would mostly have to be consolidated in the remaining blocks not used by MAX or Southwest Corridor BRT.

RELATED CONSIDERATIONS

- capacity for current & future demand, p. 19
- service frequency, p. 31

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How frequently would HCT vehicles need to run in order to meet ridership demand?

The table below shows the service frequencies that would be required to meet the projected 2035 ridership demand while maintaining a minimum level of service of 15 minute frequencies. Because transit demand is higher closer to downtown Portland, more frequent service would be required along the northern portion of the alignment in order to provide sufficient passenger capacity without a disproportionate increase in operating and maintenance costs. (Today, many MAX and bus lines include some vehicles that turn around before the end of the line.) A more detailed service plan will be developed prior to project opening, including opening year service frequencies and locations where some vehicles may turn around before the end of the line.

		2035	
		peak (rush hour)	off-peak
BRT	Portland to Tigard	base: 2.9 PCC: 3.3	12
	south of Tigard	8.6	15
LRT	Portland to Tigard	6.7	15
	south of Tigard	15	15

Number of minutes between HCT vehicles in each direction

- Same frequency for base and PCC alignments unless noted otherwise
- 15 minute service frequencies reflect TriMet minimum standard for frequent service operations
- Numbers in red indicate frequencies that exceed the 3 minute limit

Why would BRT need to operate at a higher frequency than LRT?

Because BRT buses accommodate fewer passengers than LRT trains (86 to 266), BRT would need to run more frequently than light rail in order to meet the projected demand (see vehicle capacity, p. 30).

What is the most frequent service that BRT or LRT could provide?

The current assumption is that either BRT or LRT could operate at a frequency of up to 3 minutes, or 20 vehicles per hour, without significant issues on the Transit Mall (see transit mall capacity, p. 32). Ridership projections suggest that the BRT base alignment would need to provide a rush hour service frequency of 2.9 minutes, or 21 vehicles per hour, by 2035. In other words, ridership demand would exceed the capacity that 3 minute headways would provide (20 vehicles per hour). BRT to PCC would require 3.3 minute frequencies during rush hour in 2035 to meet the ridership demand, or 19 vehicles per hour. As a result, the BRT vehicles would likely be overcrowded during rush hour and some passengers may need to wait until the next bus (see capacity for current & future demand, p. 19).

RELATED CONSIDERATIONS

- travel time, p. 16
- rider experience, p. 18
- capacity for current & future demand, p. 19
- ridership, p. 26
- operating and maintenance costs, p. 28
- vehicle capacity, p. 30
- transit mall capacity, p. 32

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What effect would transit mall capacity have on BRT and LRT operations?

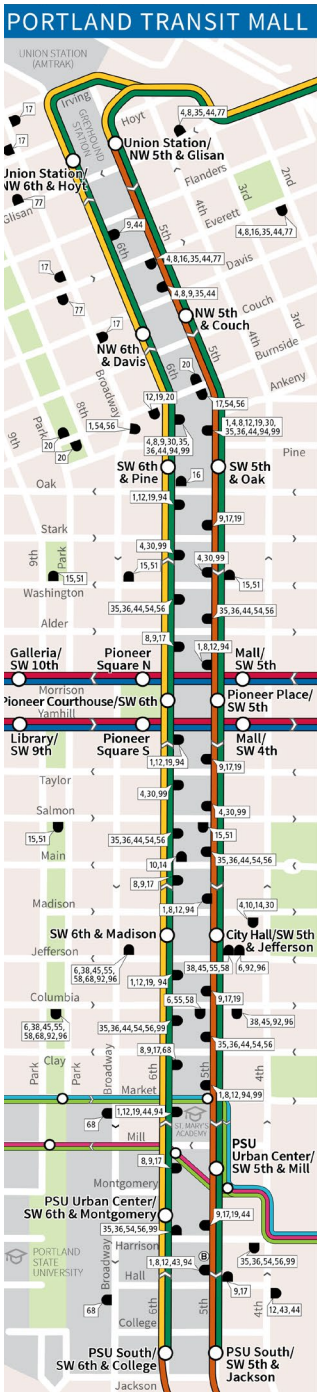
Today, the Transit Mall on 5th and 6th Avenues in downtown Portland carries 16 TriMet bus lines along with the Green and Orange/Yellow MAX lines all day, as well as five C-TRAN bus lines in the morning and afternoon. Estimates show that the mall can carry up to 120 buses per hour. Stations for LRT are separate from bus stops, and LRT vehicles and buses weave along the route, leapfrogging each other to reach their respective stop locations.

A Southwest Corridor LRT line would interline with either the existing Yellow or Green Line MAX. Southwest Corridor LRT would utilize the same MAX tracks and stations, and with similar service frequencies, which would result in few or no additional LRT vehicles on the Transit Mall. Local bus service planning with a light rail project will not occur until later in the planning process, but it is likely that duplicative local bus service would be reduced, resulting in fewer standard buses on the Transit Mall.

A Southwest Corridor BRT line would introduce new vehicles to the Transit Mall because it would not interline with any existing service and could not interline with the Powell-Division BRT route since both would connect to the southern end of the Transit Mall. Current plans assume the northern terminus of a Southwest Corridor BRT would be near Union Station. As with LRT, BRT service would likely result in fewer standard buses on the mall from reductions in duplicative local service.

Projected BRT service frequencies (see service frequency, p. 31) generate concerns about bus bunching at Transit Mall stations and at the northern terminus, where the vehicles would not only stop for passengers but also lay over to provide breaks for drivers. If BRT is chosen as the preferred mode, routing to the Transit Mall will be evaluated in detail during the Draft Environment Impact Statement.

The current assumption is that either BRT or LRT could operate at a frequency of up to 3 minutes, or 20 vehicles per hour, without significant issues on the Transit Mall. This 3-minute headway restriction is an estimate of the frequency threshold at which transit service would deteriorate because transit vehicles could not be granted sufficient signal priority at intersections outside of downtown Portland and the vehicle bunching entering and progressing along the Transit Mall would cause intersection blockages and delays at stations. A 3-minute headway provides a baseline to compare peak capacities of each mode.



TriMet map of the Transit Mall

RELATED CONSIDERATIONS

- capacity for current & future demand, p. 19
- local bus service, p. 21
- service frequency, p. 31
- interlining, p. 33

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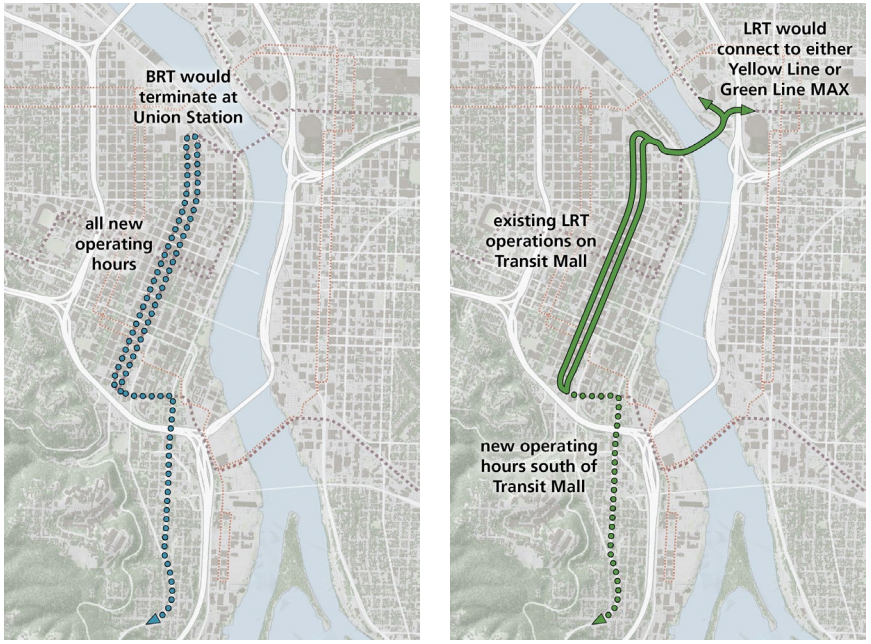
How would interlining differ between BRT and LRT?

A Southwest Corridor LRT alignment would be interlined with either the MAX Yellow Line, which currently interlines with the Orange Line, or the Green Line, which currently terminates at the south end of the downtown Portland Transit Mall. The decision on which of these lines would interline with each other would be made at a later date based on service frequencies, travel patterns and public input.

Because there are no existing BRT alignments on the Transit Mall, a Southwest Corridor BRT alignment would terminate at the north end of the Transit Mall, near Union Station. A Southwest Corridor BRT alignment would not be able to interline with the Powell-Division BRT project currently under development because both lines would connect to the Transit Mall from the south. Either the Southwest Corridor or the Powell-Division BRT line could potentially be extended beyond the Transit Mall to the north as part of a future project, but there are no such plans at this time.



The opportunity to interline with an existing MAX line would provide three benefits for LRT: it would preserve Transit Mall capacity, reduce operating costs, and provide one-seat rides for transit riders crossing the Willamette River. Because the Yellow and Green lines already serve the Transit Mall to Portland State University, interlining with either of these would in effect be an extension of the existing service, so few or no additional LRT vehicles would be introduced onto the Transit Mall at any one time and the operating hours along the Transit Mall would already be accounted for by the Yellow or Green Line service. For a Southwest Corridor BRT line, the BRT buses on the mall and the operating costs would both be new to the system. Finally, LRT would provide a one-seat ride across the Willamette River, while BRT would require a transfer because it would terminate at Union Station.

RELATED CONSIDERATIONS

- rider experience, p. 18
- operating and maintenance costs, p. 28
- transit mall capacity, p. 32

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How are signal treatments used for transit in the Metro region today?

There is a range of transit signal treatments in use around the world, from cautious and minimally effective to aggressive and highly effective. The Metro region uses a fairly aggressive signal treatment on the MAX light rail system – preemption – but MAX has never run on a state-owned five-lane arterial, which could occur in some segments of this project. TriMet uses several types of signal priority on the local bus system, including queue jumps and green extensions, which are more cautious.

How would signal treatments differ between LRT and BRT?

LRT and BRT would have opportunities for enhanced transit signal treatments, but the type of treatments would likely differ between the two transit modes and the transit treatments cannot supersede emergency vehicle preemption or terminate an active pedestrian clearance phase.

If the selected mode is LRT, it may have the ability to preempt traffic signals, extend green time, and/or utilize other signal treatments. The ability to skip side street or turn phases may be limited in some segments of the corridor to avoid potential safety issues, such as queuing on I-5 exit ramps.

If the selected mode is BRT, the signal treatments would likely be less aggressive due to operational differences between the modes. Serving the forecasted future transit demand in the corridor would require a high frequency of BRT vehicles during the peak hour. Each instance of a bus receiving priority at a traffic signal would require a recovery period in order to adequately serve cross traffic that has been held. Due to the high frequency needed for BRT (up to every 3 minutes in each direction during rush hour) and projected signal cycle lengths of 1.5 to 2 minutes along Barbur Boulevard, consistent signal preemption or priority would not be feasible. Some BRT vehicles would not receive priority, likely resulting in slower and less reliable operations for BRT during peak periods compared to light rail. (This is not expected to be an issue during off-peak periods due to less frequent BRT service.) LRT also would experience this issue during peak periods, but to a lesser degree than BRT.

See travel time, p. 16, for an overview of the estimated 2035 travel times for each mode, including signal delay time.

As the project progresses, it is expected that continued review, coordination, and analysis will determine the appropriate transit signal treatments at specific locations throughout the corridor.

RELATED CONSIDERATIONS

- travel time, p. 16
- reliability, p. 17
- service frequency, p. 31

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federal funding, p. 36

local funding, p. 37

Why does finance matter?

Both local and federal sources of funding for high capacity transit projects are becoming increasingly scarce and competitive. Although a detailed funding strategy for the Southwest Corridor project has not yet been developed and will continue to be discussed throughout the federal environmental review process, it is important to begin to understand how the operating and capital costs of LRT and BRT relate to the potential sources of funding.

Key questions:

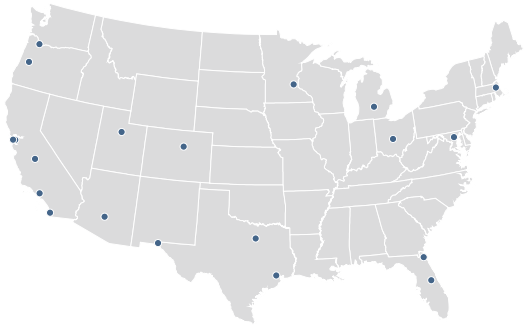
- How would access to federal funding differ between BRT and LRT?
- Where has local funding come from for past high capacity transit projects in the region? How would access to local funding sources differ between BRT and LRT?

Key findings:

- The Portland region's history of receiving federal New Starts funding for MAX projects, paired with the anticipated strength of a Southwest Corridor LRT line, suggests that LRT could be competitive for federal funding. The absence of comparable high-level BRT projects in the United States makes it more difficult to gauge the competitiveness of a Southwest Corridor BRT project for federal funding.
- While a BRT project would cost less to construct than an LRT project, LRT would outperform BRT in terms of ridership, travel time and capacity for future ridership growth. Due to this difference in both costs and benefits between the two modes, it is difficult to assess the relative feasibility of receiving the necessary local funding.

How would access to federal funding differ between BRT and LRT?

Federal funding for high capacity transit projects typically comes from the Federal Transit Administration (FTA) through their competitive New Starts and Small Starts grant programs. New Starts requires a total project capital cost of over $250 million, and at least 50 percent of the alignment must be in exclusive transitway, while Small Starts is geared toward smaller projects with a maximum grant award of $75 million. Current New Starts practice allows projects to receive up to 50 percent federal funding for the capital cost. The Portland region has been successful at securing New Starts funding for all but one of its MAX light rail projects. (Airport MAX Red Line did not apply for federal funds because a large portion of the project was privately funded.) Currently there are over 20 projects across the country that may be seeking New Starts funding in the near future (see map on the right).



Location of high capacity transit projects likely competing for New Starts funding

The communities in the Southwest Corridor already contain a high concentration of people and jobs, significant traffic congestion and areas for future business and residential growth. These elements lead to strong transit ridership projections and support a project's competitiveness nationally. The anticipated strength of an LRT project as currently assumed, paired with the Portland region's history of successful New Starts grant applications, suggests that a Southwest Corridor LRT project could be competitive for federal funding. However, based on 50 percent local funding match, a Southwest Corridor LRT alignment as envisioned currently could require a New Starts grant around $1 billion. Although a number of light rail projects have been awarded around $1 billion from the New Starts program, many of those have provided a local share greater than 50 percent.

BRT is a new concept for the Portland metro region, and a Southwest Corridor BRT line would be a larger investment than other BRT projects considered for the United States so far. A BRT line is being concurrently planned for the Powell-Division corridor, and C-TRAN is constructing The Vine BRT in Vancouver, but both of these are expected to operate mostly in mixed traffic. As envisioned, a Southwest Corridor BRT line would achieve a higher standard due largely to extensive exclusive busway operations – 84 percent in current assumptions. In fact, the Southwest Corridor BRT as planned would likely score the highest in the United States on a scale developed by the Institute for Transportation & Development Policy. Only five lines in the United States score highly enough on the scale to be ranked according to the BRT Standard, with one line, the Cleveland Health Line, achieving the "silver" level and the other four achieving "bronze." The absence of comparable high-level true BRT projects in the United States makes it more difficult to gauge likelihood of FTA funding. Over the last decade only three BRT projects have received funding in the New Starts category of the FTA grant program, and those received $275 million from FTA. Based on 50 percent local match, a Southwest Corridor BRT alignment as envisioned currently would require a $500 million New Starts grant.

WHAT IS NEW STARTS?

- Fixed guideway projects such as light rail, busway, subway and commuter rail
- Funded by FTA discretionary funding
- Very competitive program – five times as many projects as funds available

RELATED CONSIDERATIONS

- ridership, p. 26
- capital cost, p. 27
- operating and maintenance costs, p. 28
- local funding, p. 37

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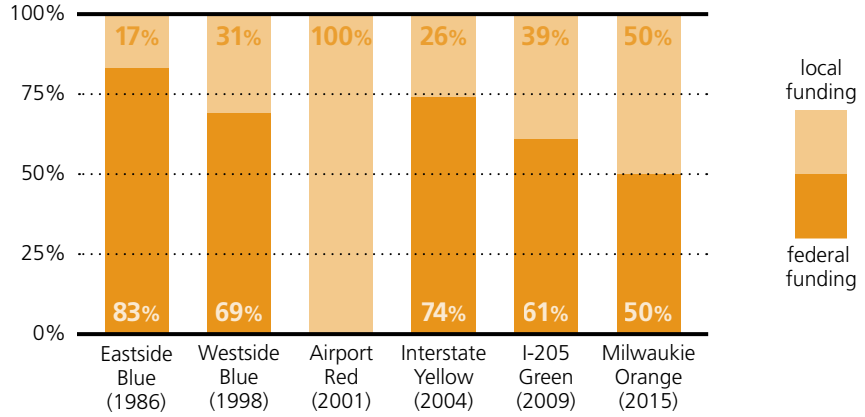
Where has local funding come from for past high capacity transit projects in the region?

Current New Starts practice would allow a Southwest Corridor HCT project to receive up to 50 percent federal funding for the capital cost, so the remaining half would require local funding. Although previous MAX light rail projects have received up to 83 percent federal funding, the federal share has decreased over time, so the local share has increased. (No federal funding was sought for the Airport Red Line MAX because a large portion was privately funded.)

Local & federal funding shares for TriMet MAX projects



The local funding share for past MAX light rail projects' construction costs has come from a number of sources, including the State of Oregon, TriMet, Metro, counties and local cities benefiting from a project. While recent projects in this region did not rely on general obligation bonds for local funding, a bond measure may be necessary to contribute to the local share of a Southwest Corridor HCT line and the associated roadway, bike and pedestrian projects.

How would access to local funding sources differ between BRT and LRT?

Both capital and operating requirements must be considered in comparing the local funding aspects of the alternative modes. The capital finance plan for either LRT or BRT may include a regional funding measure, a state contribution and local funding contributions. Funding plans in support of previous Portland region transit projects found that generally each of these potential funding contributors preferred investing in light rail over bus alternatives. This preference must be weighed against the additional local funding requirement associated with LRT.

While up to half of the capital cost is eligible for federal funding, operating costs are almost entirely locally funded for the lifetime of service. The estimated annual operating costs of LRT and BRT are relatively similar for 2035, but by 2035 LRT would carry four to five million more riders annually than BRT (see operating and maintenance costs, p. 28). Additionally, BRT would have little capacity to increase service after 2035, so future growth in the corridor would need to be accommodated with regular bus service, which is less cost-efficient to operate than BRT or LRT. In comparison, LRT would have substantial capacity for cost-efficient service increases beyond 2035 as ridership demand grows. (See capacity for current & future demand, p. 19.)

RELATED CONSIDERATIONS

- road, bike & pedestrian projects, p. 20
- public opinion, p. 23
- capital cost, p. 27
- operating and maintenance costs, p. 28
- federal funding, p. 36

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REFINEMENT PHASE

January 2016

Decision on HCT alignment and terminus options in Tigard and Tualatin

Public feedback to inform decision on HCT mode and light rail tunnel to PCC Sylvania

February 2016

Decision between light rail or bus rapid transit as the mode choice for the corridor

Decision on whether to continue studying light rail tunnel to PCC Sylvania

Recommendation on strategy to fund road, bikeway, sidewalk and trail projects to serve the entire corridor and on land use and development strategy

March to April 2016

Public feedback to inform adoption of Preferred Package of Alternatives

May 2016

High Capacity Transit Preferred Package of Alternatives: Identify high capacity transit alignments and terminus options to receive further study, associated road, bikeway, sidewalk and trail projects, and choice between light rail or bus rapid transit

Corridor Connections: Potential funding source and timeframe for each of the roadway, bike, sidewalk and trail projects in the Shared Investment Strategy

ENVIRONMENTAL REVIEW PHASE

2017-2018

10% high capacity transit design, analysis of potential impacts, ongoing public outreach and selection of Locally Preferred Alternative

PROJECT DEVELOPMENT PHASE

2019-2020

Local funding commitments, 30% high capacity transit design and application for federal funding

ENGINEERING AND CONSTRUCTION PHASE

2021-2025

Final design and construction of high capacity transit line

OTHER DOCUMENTS

A separate memo addressing the LRT tunnel to PCC and other PCC connection options is being released concurrently with this document, and can be accessed on the project website at www.swcorridorplan.org.

By the end of January 2016 a staff recommendation memo will be released for the February 2016 steering committee decisions. The committee is scheduled to consider which HCT mode to study further and whether to continue studying the LRT tunnel to PCC.

After the February decision, the preferred transit mode will be incorporated into a draft 'Preferred Package' of investments for the Southwest Corridor for further public review, which will be finalized at the May 2016 steering committee meeting.

UPCOMING PUBLIC ENGAGEMENT OPPORTUNITIES

An online comment period will be open from early January through early February for the public to provide input for the Steering Committee's February 29th decisions regarding mode and whether to continue study of an underground transit station to serve the PCC Sylvania campus.

Project staff will also be attending multiple neighborhood, business and civic meetings in January and February to present information about the project and engage with interested stakeholders. Please let us know if you are interested in scheduling a presentation by project staff by emailing swcorridorplan@oregonmetro.gov.

return to the table of contents, p. 3

GREAT PLACES
SW Corridor
Portland • Sherwood • Tigard • Tualatin
Beaverton • Durham • King City • Lake Oswego
Multnomah County • Washington County
ODOT • TriMet • Metro

Southwest Corridor Plan

Summary of options to improve transit access to PCC Sylvania

January 7, 2016

Overview

There are several options currently under consideration for improving transit service to the PCC Sylvania campus. High capacity transit could connect directly to the PCC Sylvania campus via Capitol Highway or an underground transit tunnel, or could remain on Barbur Blvd If high capacity transit remains on Barbur Blvd there are several options for utilizing a high capacity transit investment to improve transit service to the campus.

Options include:

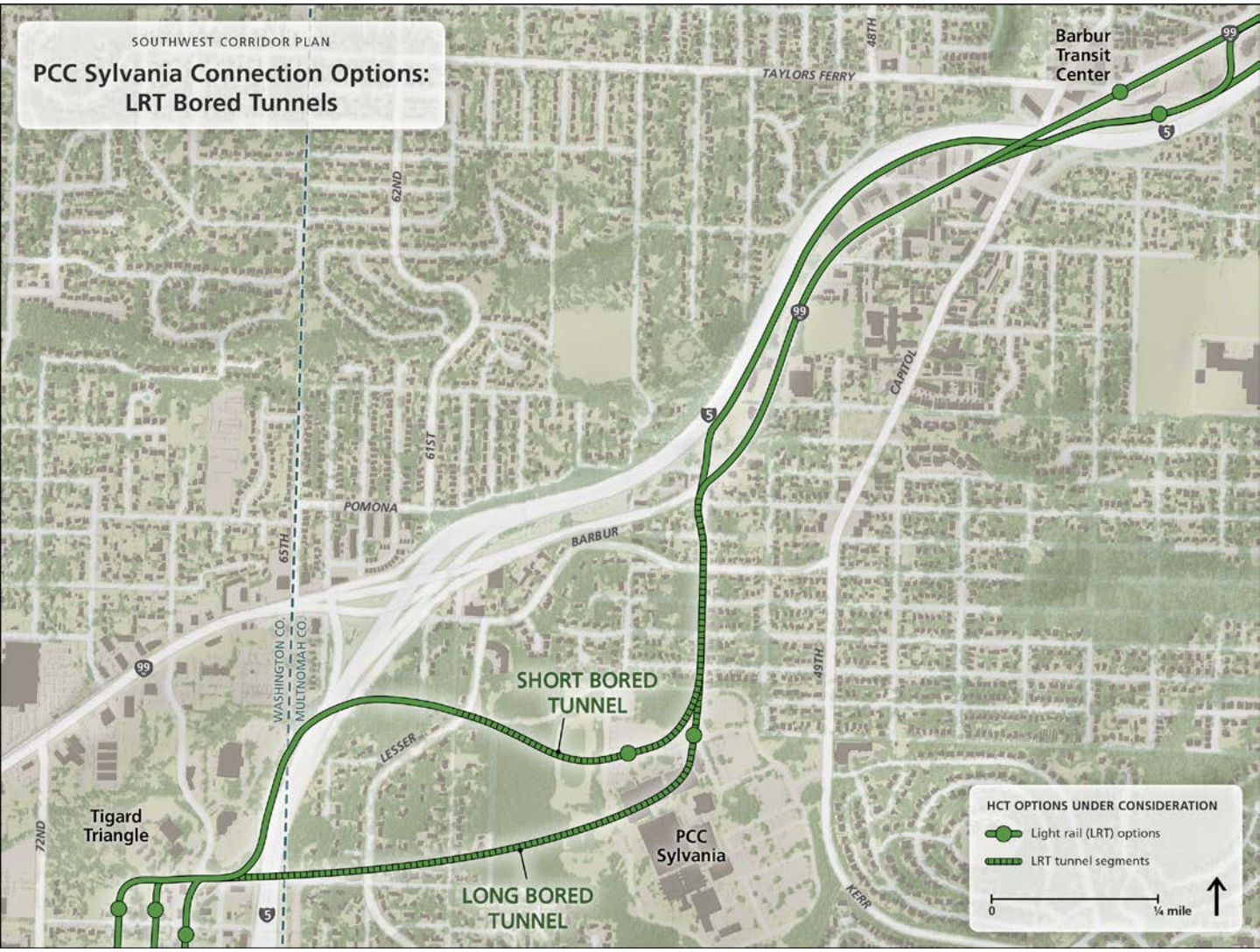
- Light rail cut-and-cover tunnel directly to PCC Sylvania campus
- Light rail bored tunnel directly to PCC Sylvania campus
- Bus rapid transit on Capitol Hwy with station on PCC Sylvania campus
- Bus rapid transit on Barbur Blvd + SW 53rd Ave walk/bike connection to campus
- Light rail on Barbur Blvd + SW 53rd Ave walk/bike connection to campus. This could be accompanied by one of the following:
    - aerial tram from Barbur to campus
    - "branded" bus routes that would include all day frequent service, use of the light rail transitway on Barbur, signal prioritization and special signage
    - local bus hub on PCC Sylvania campus with buses timed at light rail arrivals, a busway on campus, a bus-only bridge across I-5 and use of the light rail transitway in central Tigard

The information in this summary is derived from reports previously published by project staff and available on the project library (www.swcorridorplan.org) and via the links below.

- Key Issues memo: PCC Sylvania area (4/13/15, updated 5/4/15). Describes the alignment options for bus rapid transit and light rail in and around campus. *Note that some information has become outdated; e.g. the Key Issues memo only analyzes a cut and cover tunnel option, whereas bored tunnel options are now under consideration.*
- PCC Sylvania Light Rail Connection Options technical memo (8/14/15). Reports on further investigation of ways to reduce tunnel impacts, costs and risks while maintaining or improving performance. Introduces the bored tunnel approach as an option and initial concepts for improved connection between a station on Barbur Blvd and the campus.
- PCC Sylvania Enhanced Connection Options technical memo (12/31/15). Describes alternative connection options that could augment an HCT alignment remaining on Barbur Boulevard or adjacent to I-5

In February 2016 the project steering committee will consider which connection options are most promising for further study and whether any light rail tunnel to the campus will continue to be studied.

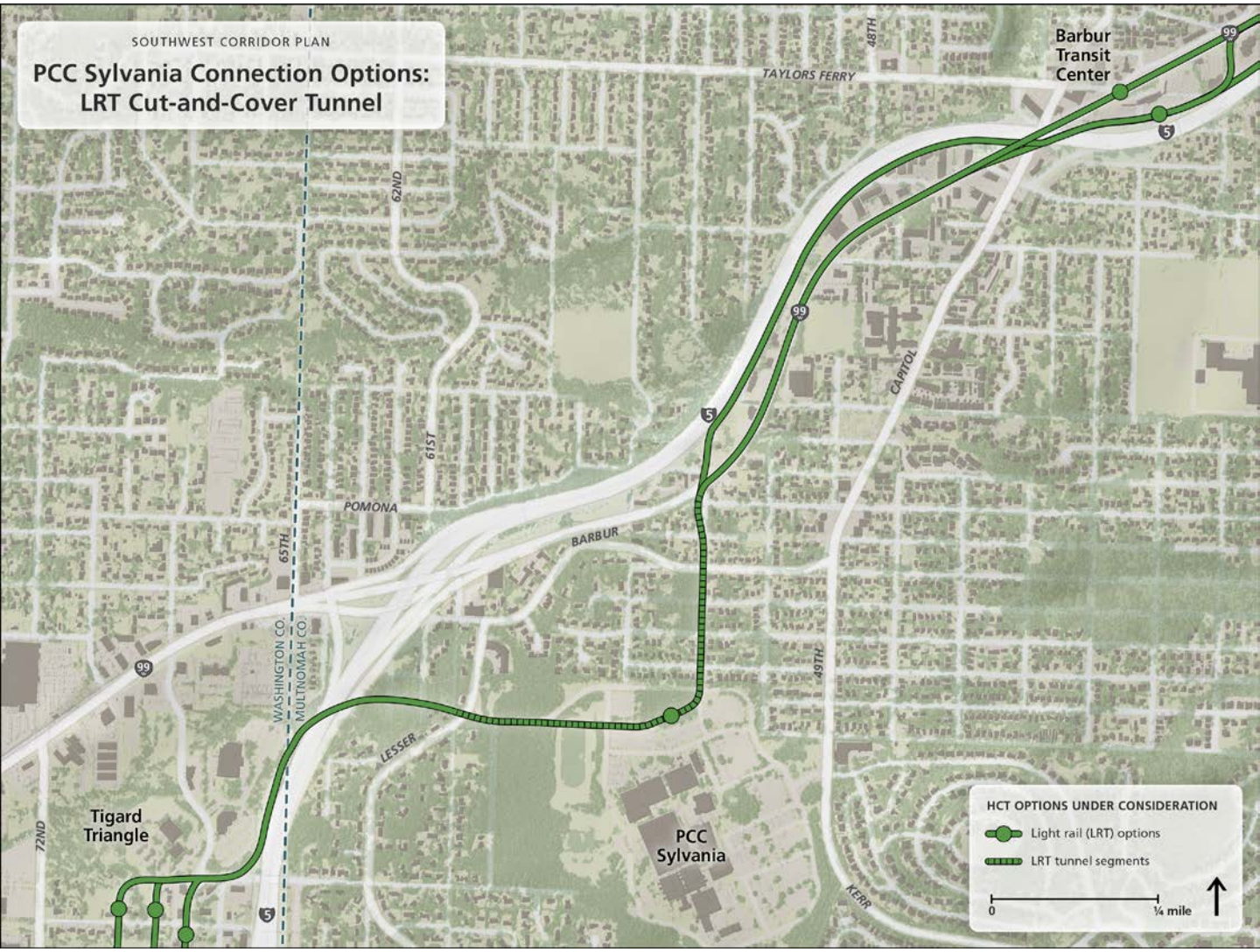
Light rail to campus via bored tunnel options



To serve PCC Sylvania campus directly with light rail (MAX) requires construction of an underground transit tunnel due to steep grades. A short bored tunnel would depart Barbur Blvd at a tunnel portal near SW 53rd Ave and exit at a portal near Lesser Road, with a bridge over I-5 connecting to the Tigard Triangle. A long bored tunnel would begin at the same location, travel under I-5 and exit in the Tigard Triangle.

- An underground station would serve PCC Sylvania near the northern edge of campus.
- The long bored tunnel option would have a shorter travel time and may cost less to construct compared to a cut-and-cover tunnel.
- Both bored tunnel options would result in higher ridership, but slower travel times compared to a Barbur light rail alignment, and significantly higher construction costs.
- A bored tunnel would have a shorter duration of construction and a reduced level of community impacts (fewer property displacements and traffic impacts) than a cut-and-cover tunnel. It would still have significant community impacts and construction risk.

Light rail to campus via cut-and-cover tunnel



This was the tunnel alignment considered by the Southwest Corridor Steering Committee in June 2015. A cut-and-cover tunnel would depart from Barbur Blvd, begin at a tunnel portal near SW 53rd Ave and exit through a portal near Lesser Road.

- An underground station would serve PCC Sylvania near the northern edge of campus.
- This option increases ridership and a slightly slower travel time compared to a Barbur light rail alignment; yet also significantly increases project costs.
- This option significantly increases construction risks and impacts including residential displacements, traffic disruption during construction, and complexities of the tunnel design and construction.
- Cut-and-cover tunnel construction involves excavating a trench and then covering up the transit tracks after construction.

Bus rapid transit to PCC campus via Capitol

This alignment is only being considered for bus rapid transit due to the steep slopes around the PCC campus that prohibit light rail operation. The route would depart Barbur Blvd and run in the center of Capitol Hwy and 49th Ave to the PCC Sylvania campus. Bus rapid transit would travel west through the campus to a new bridge structure stretching from Lesser Road across I-5 to the Tigard Triangle.

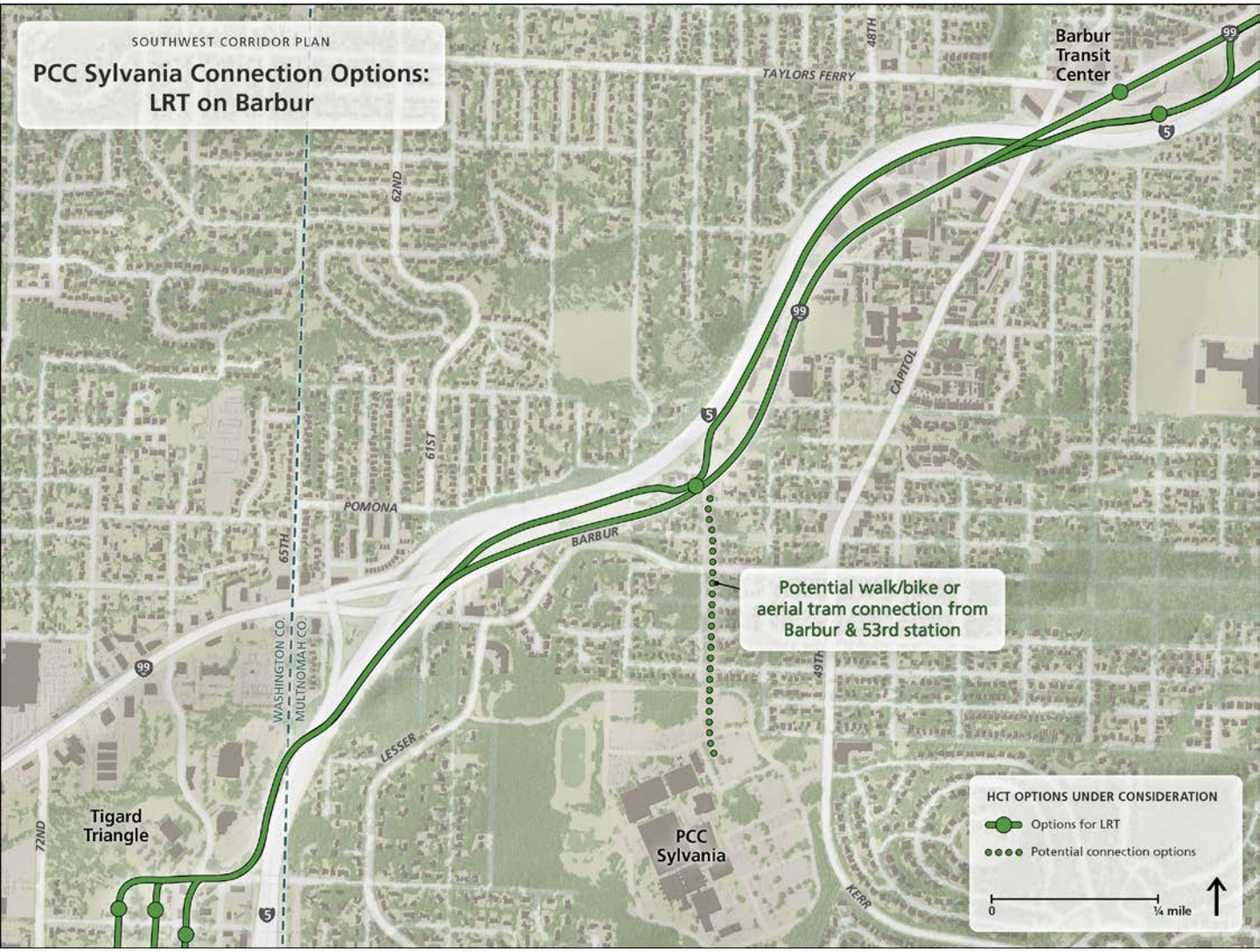
- The option could include conversion of one auto lane on Capitol Hwy in each direction for exclusive bus rapid transit use to limit impacts to adjacent properties, or not converting auto lanes with transit running in mixed traffic.
- A new bridge over I-5 could include bike and pedestrian facilities to provide a safe connection for those modes between PCC and the Tigard Triangle.

Bus rapid transit on Barbur + walk/bike connection

If bus rapid transit runs on or adjacent to Barbur Blvd between Capitol Highway and Tigard, a station will be located near SW 53rd Avenue. SW 53rd Ave is an unimproved local roadway north of campus that provides the shortest access to Barbur and is used informally as a route for pedestrians and bicyclists to travel to PCC Sylvania. Investment would be necessary to create a walkable and bikeable connection usable to the general public.

- The distance from Barbur/53rd to campus is approximately ½ mile with somewhat steep grades and limited paving and sidewalks.
- Improvements would include new bike lanes and sidewalks, lighting, safety and storm water management features; auto access would be maintained.
- Initial concepts for this walk/bike connection have been developed and would be refined into preliminary designs during the environmental review phase.
- This option is unlikely to be accompanied by additional connection options such as an aerial tram or enhanced bus service; a direct BRT connection to campus would cost less than those options.

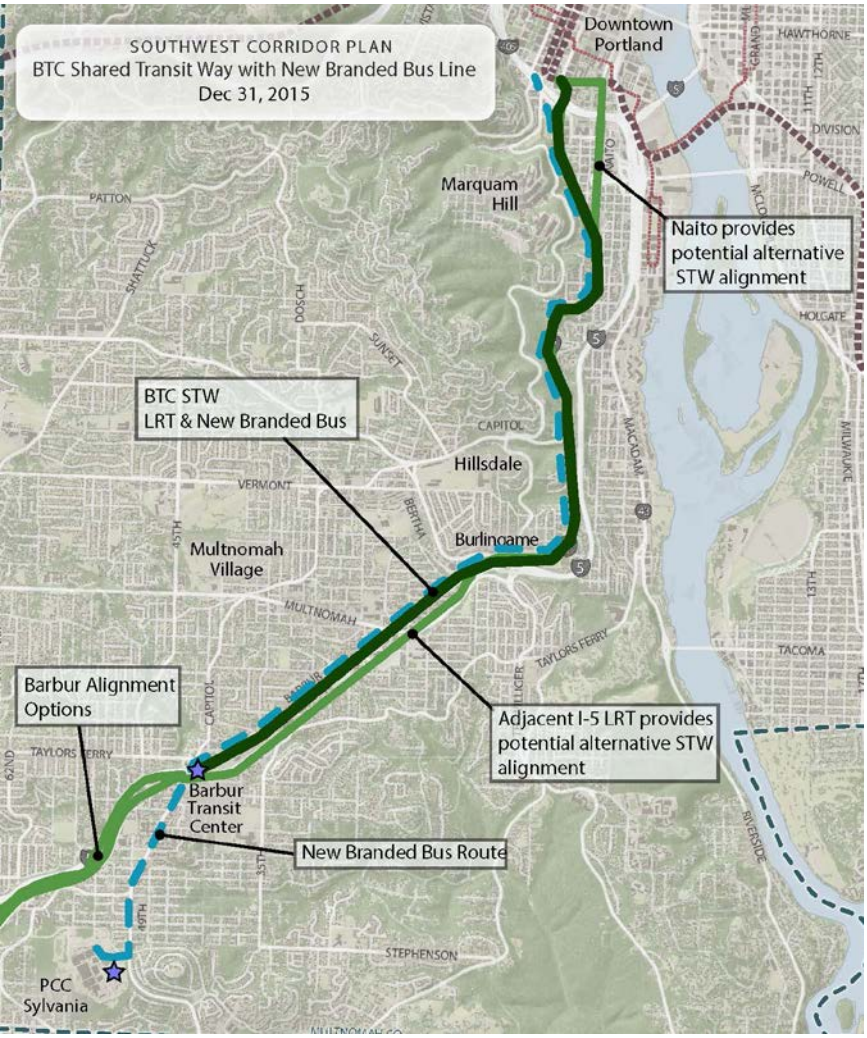
Light rail on Barbur + walk/bike connection



If light rail runs on or adjacent to Barbur Blvd between Capitol Highway and Tigard, a station will be located near SW 53rd Avenue. SW 53rd Ave is an unimproved local roadway north of campus that provides the shortest access to Barbur and is used informally as a route for pedestrians and bicyclists to travel to PCC Sylvania. Investment would be necessary to create a walkable and bikeable connection usable to the general public.

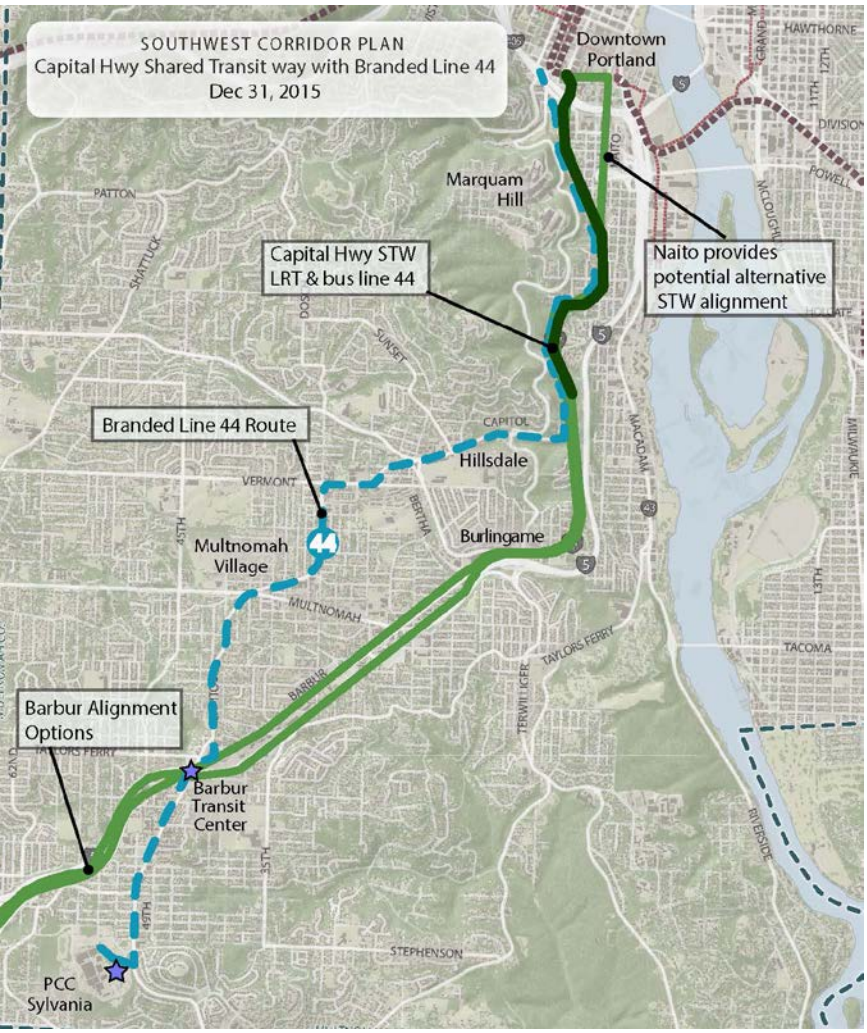
- The distance from Barbur/53rd to campus is approximately ½ mile with somewhat steep grades and limited paving and sidewalks.
- Improvements would include new bike lanes and sidewalks, lighting, safety and storm water management features; auto access would be maintained.
- Initial concepts for this walk/bike connection have been developed and would be refined into preliminary designs during the environmental review phase.
- This option could be accompanied by an aerial tram to connect a HCT stop on Barbur to campus.

Light rail on Barbur Blvd + new “branded” bus line to PCC Sylvania on shared transitway



- This route would include additional treatments for the buses and stops (“branding”) to distinguish the line from other frequent service routes.
- This new bus line would run on the light rail transitway from downtown Portland to the Barbur Transit Center, then continue in mixed traffic on Capitol Hwy to PCC Sylvania.
- The route could have five stops in the shared transitway section and three stops in the mixed traffic portion south of Barbur Transit Center.
- When on the shared transitway, the branded line would utilize transit signal improvements to enhance travel times and reliability.
- To share the transitway, longer and wider station platforms are required to accommodate buses, which increases property impacts and capital costs.
- The branded line could terminate at PCC Sylvania or extend to the Tigard Transit Center.
- Projected to improve travel times by approximately 2-3 minutes over the existing 44 line and increase bus ridership by 4,000 new system boardings per week.
- This option would also include new walk/bike improvements on SW 53rd Ave to connect light rail with campus.

Light rail on Barbur Blvd + “branded” line #44 to PCC Sylvania on shared transitway



- Under this option the existing line 44 route would be upgraded to frequent service (15 minutes or better all day) and have access to the light rail transitway between downtown Portland and Hillsdale.
- The route would include additional treatments for the buses and stops (“branding”) to distinguish the line from other frequent service routes.
- The route could have two stops in the shared transitway section and approximately eight stops in the mixed traffic portion.
- When on the shared transitway, the 44 line would utilize transit signal improvements to enhance travel times and reliability.
- To share the transitway, longer and wider station platforms are required to accommodate buses, which increases property impacts and capital costs.
- Possible terminus options for the branded 44 line include PCC Sylvania, Bridgeport Village and the Tigard Transit Center.
- Projected to improve travel times for the line 44 by 3-4 minutes . Future ridership has not yet been modeled.
- This option would also include new walk/bike improvements on SW 53rd Ave to connect light rail with campus.

Light rail on Barbur Blvd + PCC Sylvania bus hub with shared transitway

- This option would connect PCC Sylvania with communities to the north, south, east and west by extending a combination of existing local buses to create a bus hub on the campus and share a portion of light rail transitway west of I-5.
- Buses would connect with each incoming light rail vehicle at Barbur Transit Center.
- A busway could connect SW 49th Ave to Lesser Road to provide a designated path through campus and a central location for buses.
- A bus-only bridge would connect the PCC busway to the light rail transitway west of I-5.
- If the light rail alignment in Tigard constructs a new OR-217 crossing at Beveland Street , buses connecting to PCC could use it for additional time savings.
- Bus lines that could serve a PCC Sylvania bus hub include the 44, 78, 93 and new line 97; another combination of lines could be used. Changes to the route or level of service to any existing lines would require extensive community outreach and input.
- This option would also include new walk/bike improvements on SW 53rd Ave to connect light rail with campus.

What would bus rapid transit look like in the Southwest Corridor?

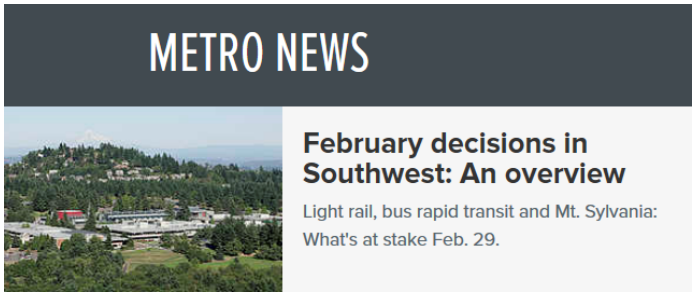
Southwest Corridor Plan partners are evaluating whether light rail or bus rapid transit is the best high capacity transit mode to serve Tualatin, Tigard, SW Portland and the surrounding communities. The project steering committee will decide at its February 29th public meeting. While many people in the region have seen or ridden on TriMet's MAX light rail system, fewer have experience with bus rapid transit systems.

Successful bus rapid transit systems are currently up and running in both Seattle and Eugene. Portland and Gresham-area planners are developing this region's first bus rapid transit system along the SE Powell-Division Corridor, expected to be in operation by 2020. The Vine bus rapid transit system in Vancouver, WA is currently under construction.

Bus rapid transit can describe a broad range of transit types, and the type of bus rapid transit system envisioned for the Southwest Corridor would have different features than other bus rapid transit systems in this region. Here are a few features you could expect if bus rapid transit is selected as the preferred high capacity transit mode for the Southwest Corridor.

Potential features of Southwest Corridor Bus Rapid Transit

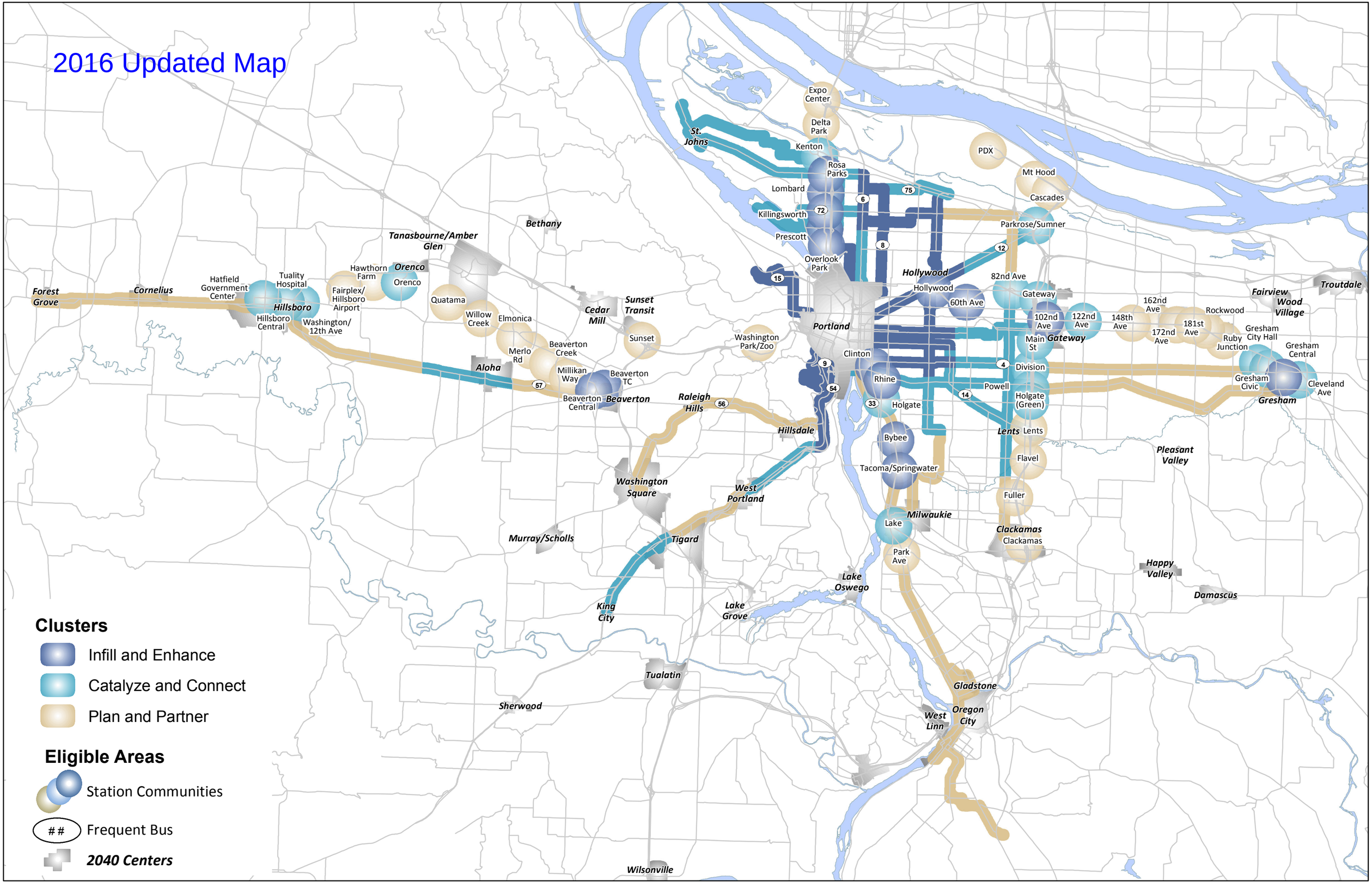
- Longer, articulated buses that look distinct from regular buses and carry 86 passengers (compared to 51 on local bus)
- MAX-like stations with shelters, real time arrival estimates, trash cans, more places to sit, bike parking and information kiosks
- Fast loading with electronic fare options
- Boarding through all doors (not just the front)
- Operates mostly in its own dedicated bus lane (current design indicates 80% dedicated lane)
- "Level boarding" where the floor of the bus matches the height of the station platform, so there are no stairs to climb during boarding
- Routes are fixed like MAX, but bus rapid transit can navigate around obstacles, unlike MAX
- "Signal priority" allows bus rapid transit vehicles through intersections faster by using dedicated traffic lights with sensors that know when a vehicle is approaching, and whether it is on time
- "Curb extensions" widen the curb and narrow the road at stops, which allows vehicles to remain in the driving lane to unload and not wait for a break in traffic to re-enter the lane.



Click on the image below to link to the Metro website for answers to frequently-asked questions about rapid transit choice in the Southwest Corridor.

Materials following this page were distributed at the meeting.

2016 Updated Map



Clusters

- Infill and Enhance
- Catalyze and Connect
- Plan and Partner

Eligible Areas

- Station Communities
- ## Frequent Bus
- *2040 Centers*

2018 REGIONAL TRANSPORTATION PLAN UPDATE
Regional Leadership Forum
Trends, challenges and a vision for the future

SAVE THE DATE

Regional Leadership Forum 1

8 to 12 a.m., Friday, April 22, 2016
Oregon Convention Center

Metro Council, MPAC and JPACT members and alternates,

The region is looking ahead to how our transportation system will accommodate future growth and change – and what investments we should make over the next 25 years to keep our economy moving with a transportation system that is safe, reliable and affordable for all users.

Join the **Metro Council** and regional leaders from the **Metro Policy Advisory Committee** and **Joint Policy Advisory Committee on Transportation** along with invited business and community leaders for the first of three Regional Leadership Forums this year to discuss the big issues impacting future travel in the Portland metropolitan region.

Trends, challenges and a vision for the future

R.T. Rybak, former three-term mayor of Minneapolis, will set the stage for **the first Regional Leadership Forum on April 22.** Rybak will share his experiences leading a diverse metropolitan area and responding to the collapse of the I-35W Mississippi River Bridge that was rebuilt to expand travel options in his community. He is currently head of Generation Next, a partnership of education, community, government and business leaders working to close the achievement gap between white and minority students.

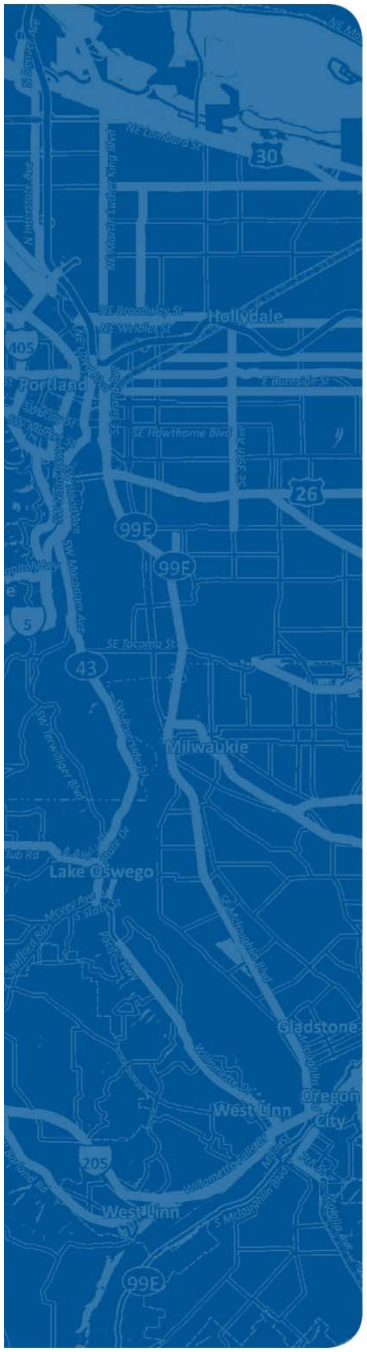
Additional information and a link for RSVP to follow. For more information on the 2018 Regional Transportation Plan update, visit oregonmetro.gov/rtp.

Regional Travel Options Update: Strategic Plan & Grant program

Presentation to TPAC

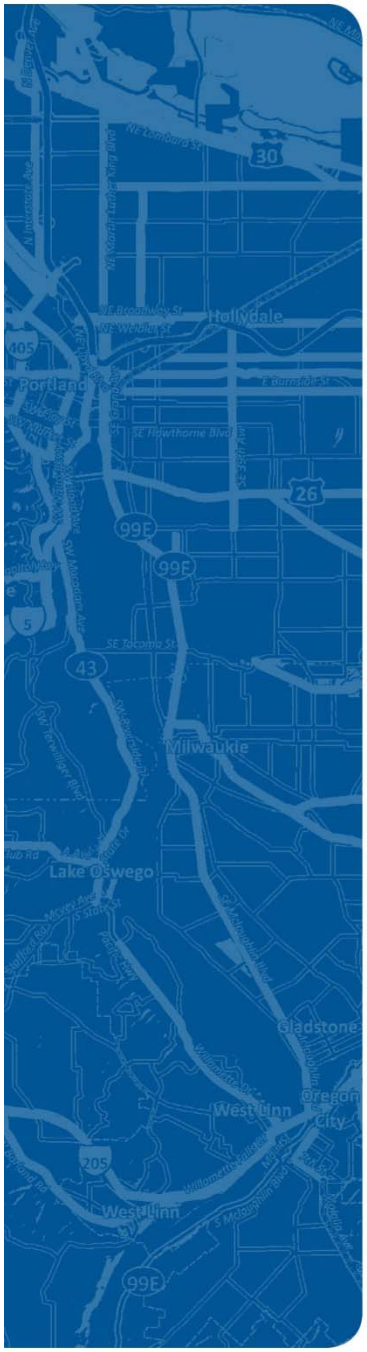
January 29, 2016

Dan Kaempff, Metro



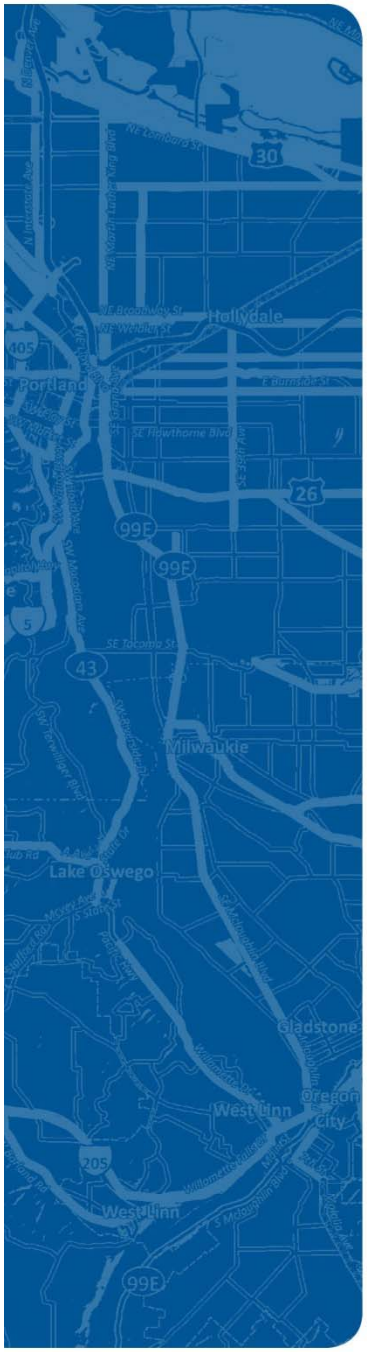
RTO Strategic Plan

- First plan: 2003
- Set program goals & objectives, established grant program
- Defined program coordination, evaluation, grantmaking roles
- Updated twice, on 5-yr intervals
- Current plan extends out to 2017



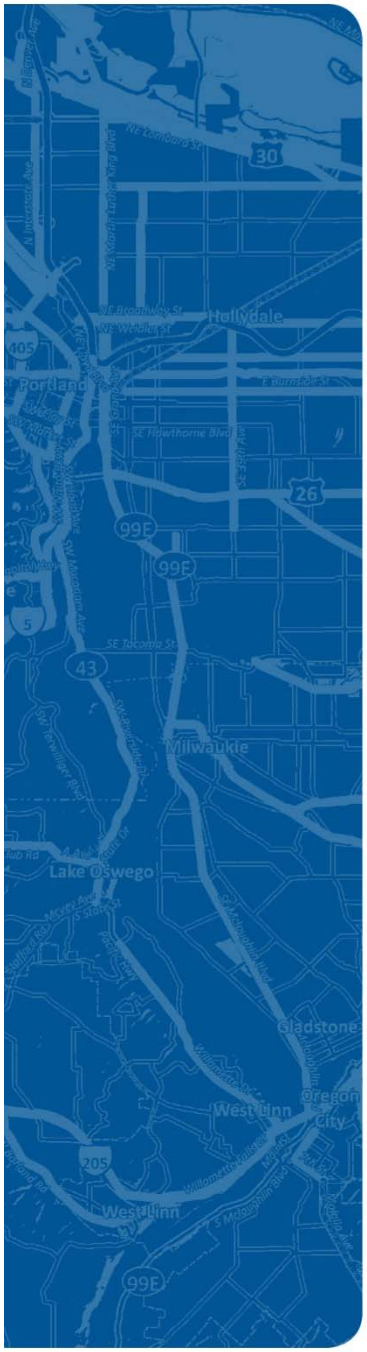
Program evolution

2003	2016
Commute trips	Multiple trips
VMR	Mult. meas.
Few partners	Many partners



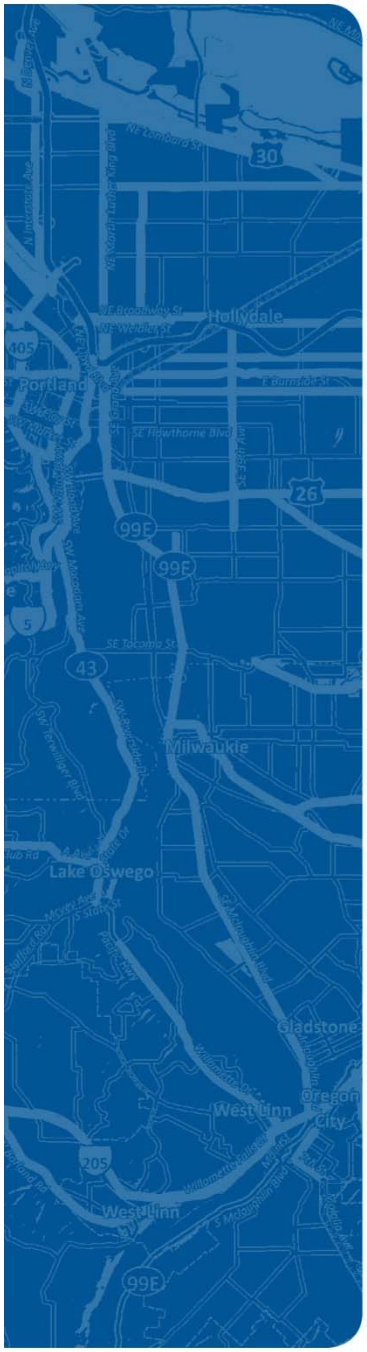
Strategic plan update process, timeline

- Begin process in early 2017, post-RTO grant awards, RFFA project selection
- Engage stakeholders in identifying program needs/goals/objectives – Spring/Summer 2017
- Create/discuss plan – Autumn 2017
- Adoption of final plan – Winter 2017-18



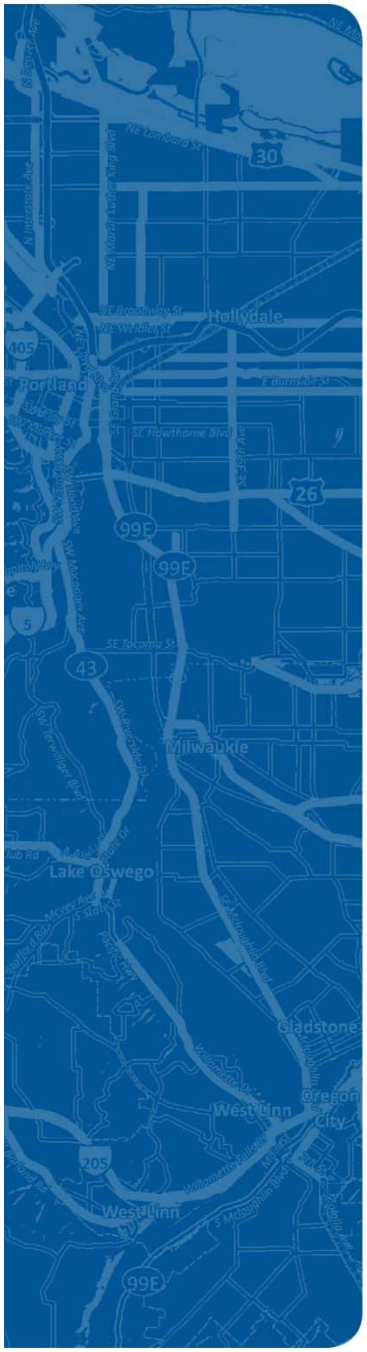
Why it's recommended to delay updating the plan

- RFFA outcome may impact the RTO program policy; Safe Routes to School/ Climate Smart Strategies
- 2018 RTP may provide new policy direction for the RTO program's role in the region
- Coordination with ODOT TO plan
- Take a longer look – 10 years
- Staff bandwidth issues – Metro & TPAC



2017-19 RTO grant program outline

- Follow 2012-17 Strategic Plan guidance
- Maintain 2015-17 criteria, evaluation structure
- Discuss details of process adjustments, funding levels at April TPAC meeting prior to creating final grant program



2017-19 grant timeline

- April – June: TPAC review process, develop criteria
- July: Project solicitation
- September: Proposals due
- October: Technical evaluation
- Nov./Dec.: Local priority projects id'd
- Jan. 2017: Final project list released
- July 2017: Projects begin

Questions?

Dan Kaempff

daniel.kaempff@oregonmetro.gov

503.813.7559

TOD Program
Strategic Plan Map & Work Plan Updates

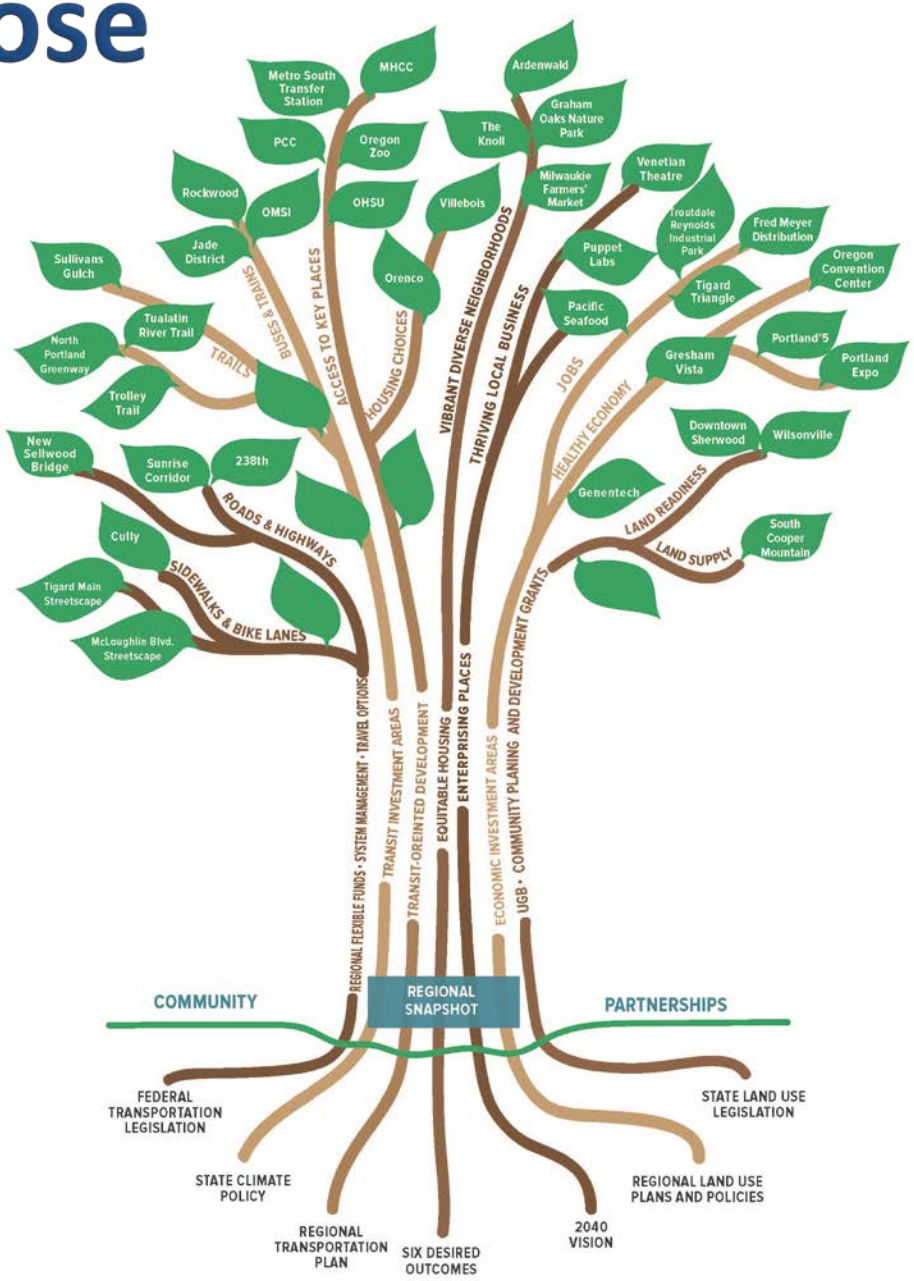
TPAC

January 29, 2016

HUB-9, Orenco, Hillsboro

TOD Program Purpose

Implements 2040 Growth Concept by investing in compact mixed use projects near high frequency transit and in town and regional centers.



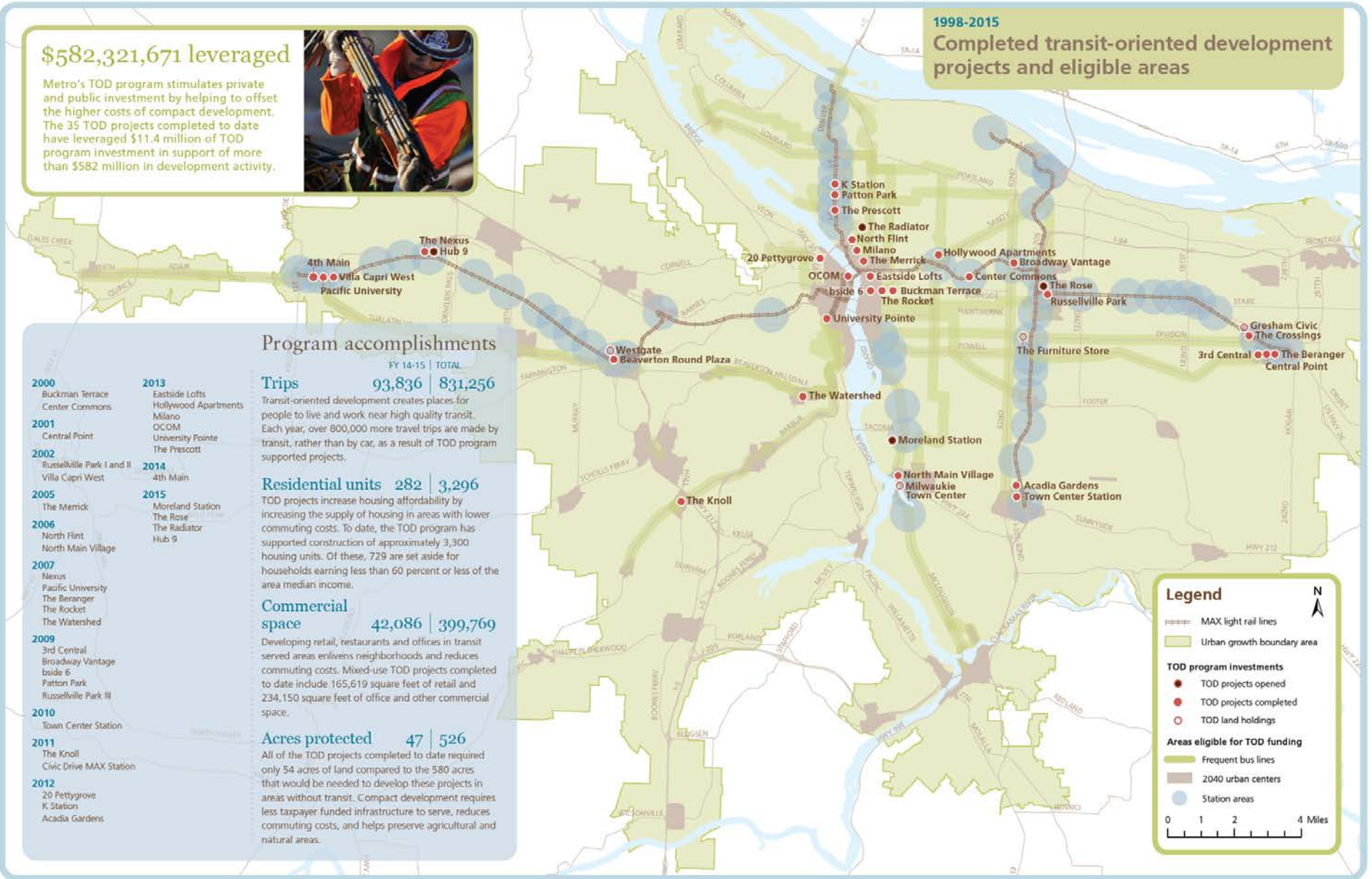
Investments

$582,321,671 leveraged

Metro's TOD program stimulates private and public investment by helping to offset the higher costs of compact development. The 35 TOD projects completed to date have leveraged $11.4 million of TOD program investment in support of more than $582 million in development activity.

1998-2015

Completed transit-oriented development projects and eligible areas



Program accomplishments

	FY 14-15	TOTAL
Trips	93,836	831,256
Residential units	282	3,296
Commercial space	42,086	399,769
Acres protected	47	526

Trips
Transit-oriented development creates places for people to live and work near high quality transit. Each year, over 800,000 more travel trips are made by transit, rather than by car, as a result of TOD program supported projects.

Residential units
TOD projects increase housing affordability by increasing the supply of housing in areas with lower commuting costs. To date, the TOD program has supported construction of approximately 3,300 housing units. Of these, 729 are set aside for households earning less than 60 percent or less of the area median income.

Commercial space
Developing retail, restaurants and offices in transit served areas enlivens neighborhoods and reduces commuting costs. Mixed-use TOD projects completed to date include 165,619 square feet of retail and 234,150 square feet of office and other commercial space.

Acres protected
All of the TOD projects completed to date required only 54 acres of land compared to the 580 acres that would be needed to develop these projects in areas without transit. Compact development requires less taxpayer funded infrastructure to serve, reduces commuting costs, and helps preserve agricultural and natural areas.

2000
Buckman Terrace
Center Commons

2001
Central Point

2002
Russellville Park I and II
Villa Capri West

2005
The Merrick

2006
North Flint
North Main Village

2007
Nexus
Pacific University
The Beranger
The Rocket
The Watershed

2009
3rd Central
Broadway Vantage
bside 6
Patton Park
Russellville Park III

2010
Town Center Station

2011
The Knoll
Civic Drive MAX Station

2012
20 Pettygrove
K Station
Acadia Gardens

2013
Eastside Lofts
Hollywood Apartments
Milano
OCOM
University Pointe
The Prescott

2014
4th Main

2015
Moreland Station
The Rose
The Radiator
Hub 9

TOD & Regional Goals

- Vibrant communities
  - Opportunities to live, work, and shop in transit served areas and centers
- Safe and reliable transportation
  - Housing options with low commuting costs
  - Increased farebox support for transit system
- Economic prosperity
  - Investment in downtowns, corridors, and centers
  - Construction related employment
- Equity
  - Housing choices that serve a range of income levels
  - Transit access to jobs
- Clean air and water
  - Reduced land consumption and vehicle emissions
- Leadership on climate change
  - Reduced VMT/carbon emissions

The Crossings, Gresham

Overview

- Background on TOD Program
  - Purpose and context
  - Results
  - Methodology
  - Strategic plan
- Updated Strategic Plan map
- Work Plan changes to support Housing Choice

Town Center Station, Clackamas County

Northwood, Portland

Results

- **Vibrant Communities**
  - 3,296 housing units
  - 399,769 commercial SF built
- **Equity**
  - 729 regulated affordable units at 60% AMI or less
  - Additional units at 80% AMI
- **Transportation choices**
  - 831,256 transit trips induced per year
- **Environment**
  - 54 acres used versus 580 required for non-transit served development
  - Reduced VMT
- Economy
  - $582 million of direct investment from $42 million in program expenditure (including overhead)

North Main Village, Milwaukie

Pacific University Health Campus, Hillsboro

Program approach

- Regional Flexible Funds
- Land acquisition and disposition and development of key sites
- Purchase of TOD Easements based on:
  - Induced transit trip value versus base case
  - Density/mixed use cost premiums
  - Financial need
  - Typical easement value of $200k to $500k

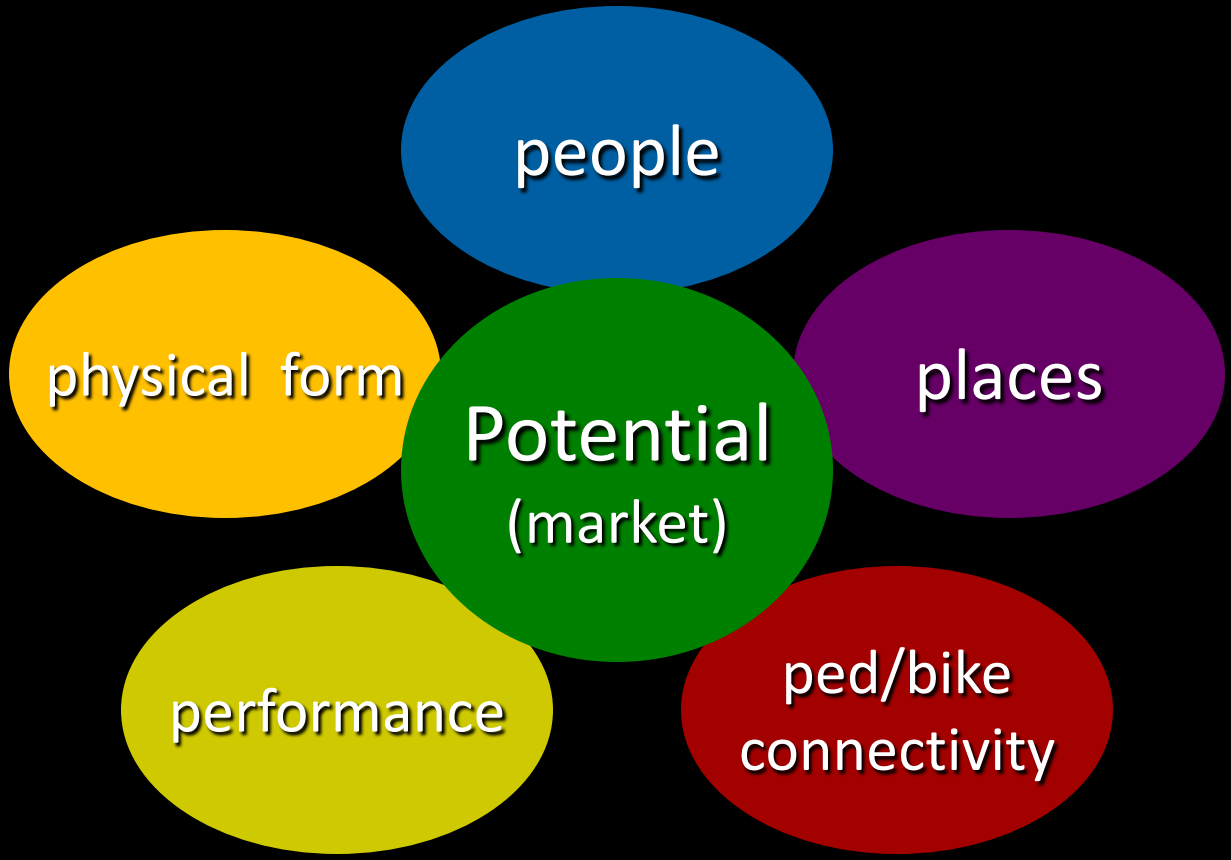
Fourth Main Village, Hillsboro

Acadia Gardens, Clackamas County

TOD Strategic Plan

- Created 2011
- Eligible areas:
  - ½ mile of MAX station
  - ¼ mile of frequent service bus or street car
  - 2040 Centers
- Approach tailored to TOD readiness
  - Market strength
  - Transit orientation

Measuring TOD Readiness



people


RYDER MINISTRIES
HOT
Grilled Sandwiches
Gelato

places


503-661-6069
COFFEE SHOP
BUY A $25 GIFT CERTIFICATE FOR ONLY $20


LOUNGE

ped/bike connectivity


TRIMET
MAX Yellow Line to City Center/PSU 4:20 pm 4:35 pm
MAX Green Line to City Center/PSU 4:28 pm 4:43 pm
MAX Mall Shuttle to PSU
TRIMET
TICKETS
Hollywood
NE 42nd Ave
Eastbound
224
Hillsboro
Eastbound
performance
TRIMET
2920
57 TV HWY
STOP
Zone 1
15
Frequent Service
18
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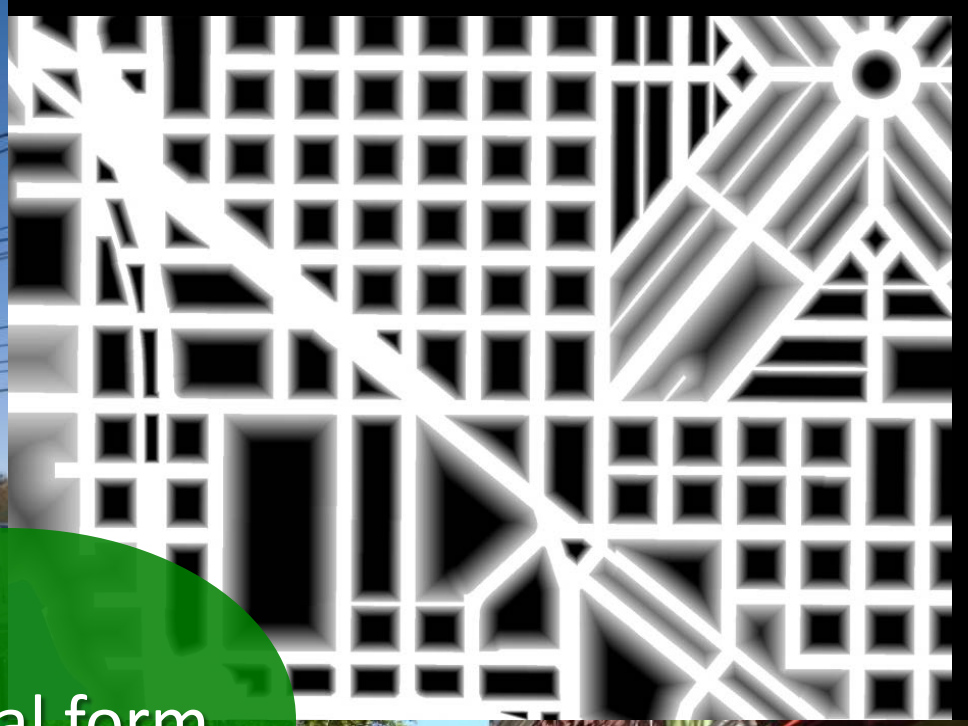
To Council Crest or Dosch & Hamilton
TRIMET
Zone 1
C-TRAN



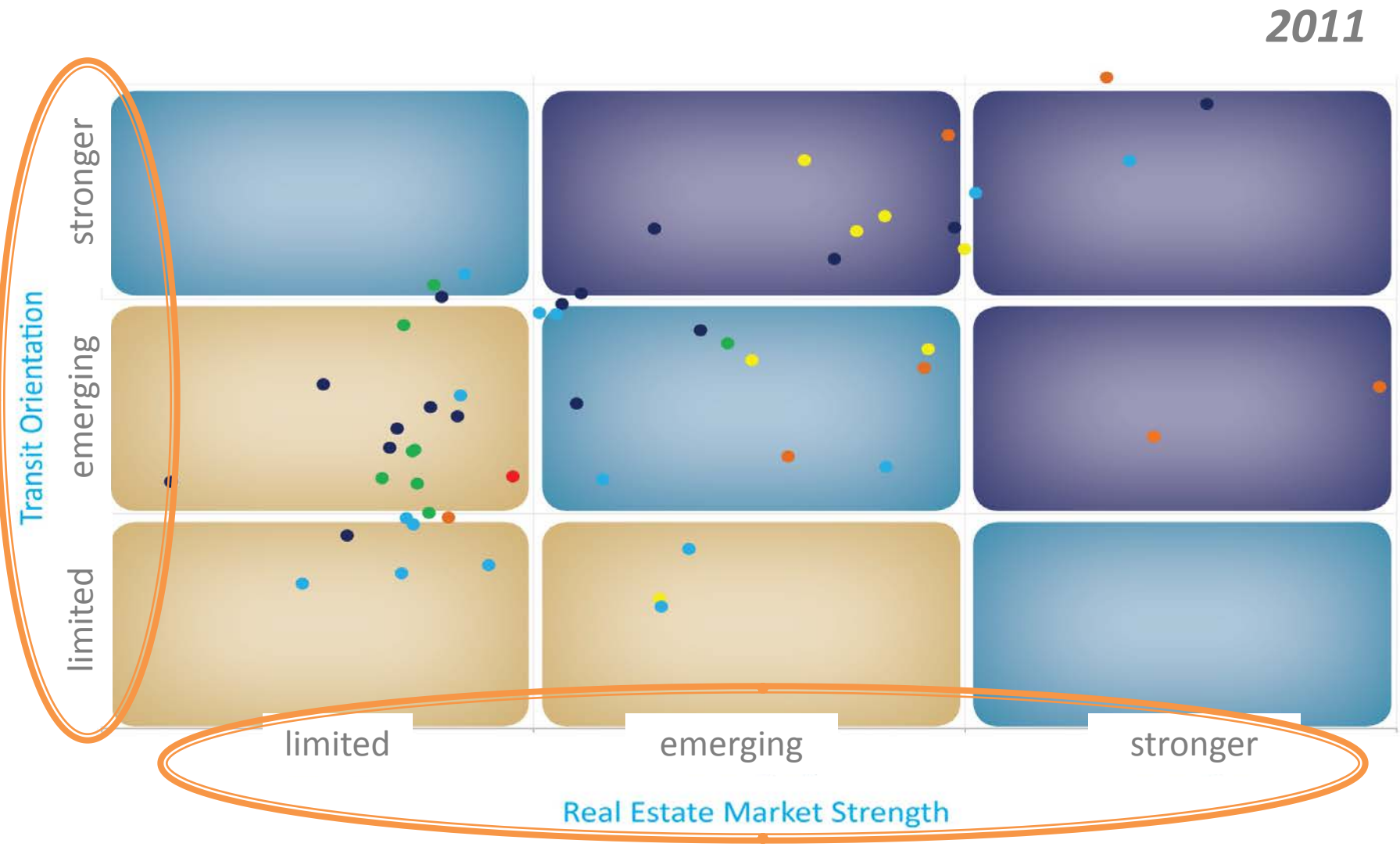
physical form

Measuring Market Strength

- Updated methodology
- Per square foot sales prices
  - Apartments
  - Commercial buildings
- Robust data set
- Consistent across region

- Ground truthing still needed:
  - ➢ Areas with limited sales
  - ➢ Areas with fast changing markets
  - ➢ As projects come in TOD staff verifies conditions with economist

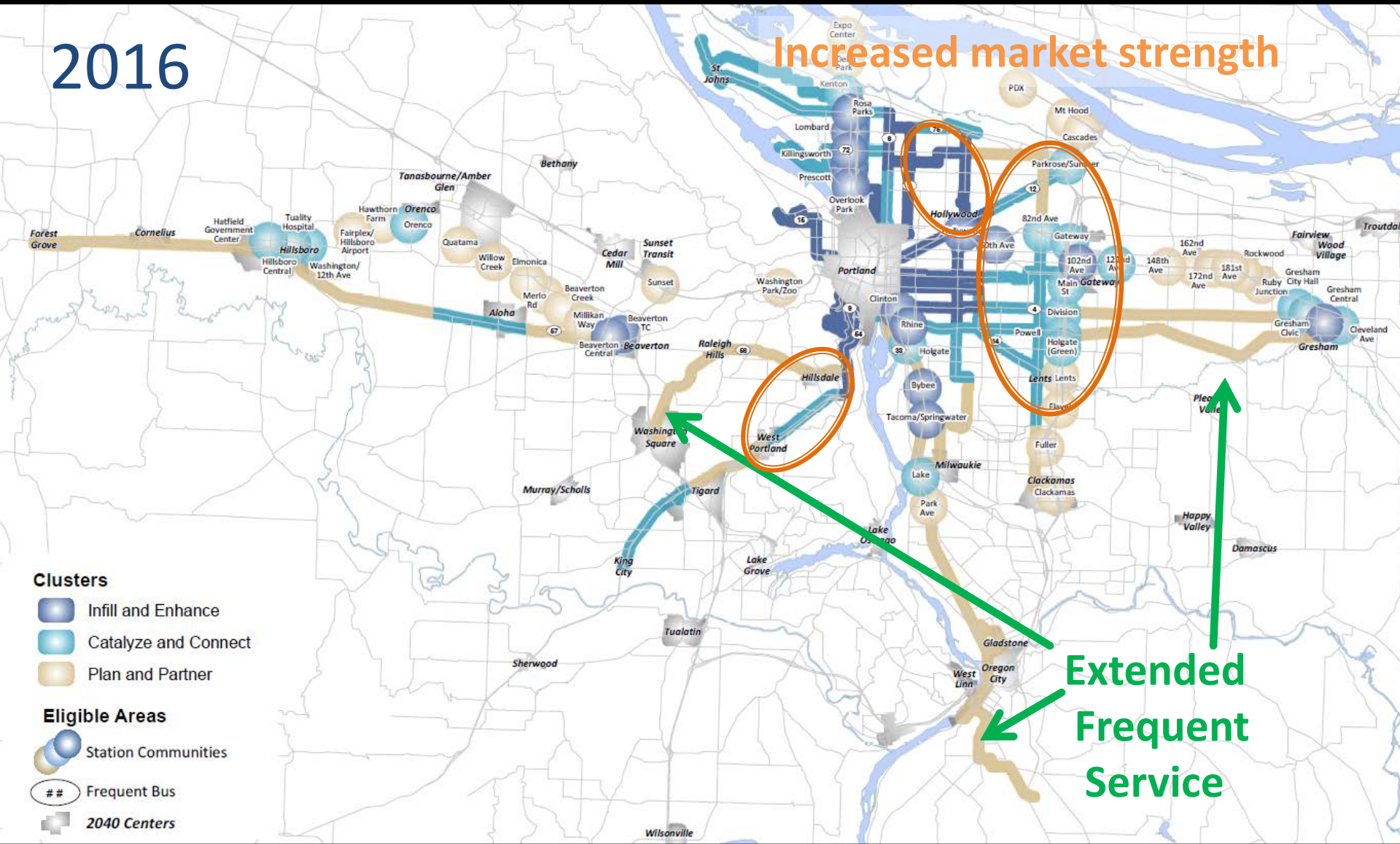
Station Community Typology



2016 Strategic Plan Update

- Changing market conditions
- Expansion of TriMet frequent service
- Updated market methodology

Updated Typology Map



TOD Work Plan: Housing Choice

- The TOD Work Plan promotes equity via "Housing Choice TOD Projects" that expand income diversity in an area by producing affordable or workforce housing without exacerbating concentration of poverty.
- 729 of 3,296 units are regulated affordable at 60% AMI or less.
- Additional units at 80% AMI

Patton Park Apartments, Portland

Housing Choice Challenges

- Affordable projects desired in close in and higher cost areas but:
  - Where rents support development at maximum allowed density, affordable projects cannot demonstrate induced transit ridership.
  - In high cost areas and gentrifying areas, affordable developers cannot pay higher land costs.

N Williams Street, Portland

Housing Choice Changes

- **In assessing value of transit ridership:** Utilize newly available data indicating that lower income households ride transit more.
- **In assessing cost premiums:** Recognize the land cost premiums associated with building affordable housing in higher cost areas.

Funding eligibility for affordable projects in higher cost and zoning constrained areas.

The Rose, Gateway, Portland

Coming TOD Activities in 2016

- Roll out Work Plan changes to advisory committees and stakeholders.
- Furniture Store developer selection
- City of Milwaukie- Texaco site developer selection
- City of Beaverton- Westgate disposition
- Land acquisition

82nd and Division "Furniture Store" Portland


Texaco Site Downtown Milwaukie


Westgate site, Beaverton

Discussion and comments

Infill & Enhance

Blue Line

- Hollywood
- 60th
- 102nd
- Beaverton TC
- Beaverton Central

Orange Line

- Clinton
- Rhine
- Bybee
- Tacoma/Springwater

Yellow Line

- Prescott
- Overlook Park
- Killingsworth
- Rosa Parks
- Lombard

Portland City Center

- All lines, all stations

Legend

Moved up from catalyze & connect

Catalyze & Connect

Blue Line

- 82nd
- Gateway
- 122nd
- Civic Drive
- Gresham City Hall
- Cleveland Ave
- Millikin way
- Orenco
- Tuality
- Washington/ SE 12th Ave.
- Hatfield
- Hillsboro central

Green Line

- Main St.
- Division
- Powell
- Holgate

Orange Line

- Holgate
- Lake

Red Line

- Parkrose/Sumner

Yellow Line

- Kenton

Legend

Moved up from Plan and Partner

Moved down from Infill and Enhance

Plan & Partner

Blue Line

- 148th
- 162nd
- 172nd
- 181st ⬇
- Rockwood
- Ruby Junction
- Washington Park
- Sunset ⬇
- Beaverton Creek
- Merlo Road
- Elmonica
- Willow Creek
- Quatama
- Hawthorne Farm
- Fairplex

Legend

⬇ Moved down from Catalyze and Connect

Green Line

- Lents
- Flavel ⬇
- Fuller
- Clackamas

Orange Line

- Park Ave.

Red Line

- Cascades
- Mt. Hood Ave.
- Portland Airport

Yellow Line

- Delta Park
- Expo center

Objective: Increase funding eligibility for affordable housing

- Proposed Work Plan change #2:
  - Utilize expert financial analysis to recognize the financial burdens unique to affordable projects.

6. *Financial need*
   a. *The project has cost premiums related to higher density, urban infill, or vertically integrated mixed use development, OR the project has* ***affordability covenants which reduce the project's value compared to a similar unregulated project****; AND*

Plan & Partner Example

A developer partners with a local jurisdiction to build a 30 unit mixed use building as part of a revitalization strategy in an area with low rents.

	If market rate	If affordable
Density and mixed use cost premiums	$200,000	$200,000
Foregone land value due to affordability restriction (Proposed Consideration)	NA	$0
Total of Cost Premiums and Forgone Land	***$200,000***	***$200,000***
Induced Ridership	$200,000	$200,000
Addi…ship due to affordability restriction (Proposed Consideration)	NA	$125,000
Total Induced Ridership	***$200,000***	***$325,000***
Current eligibility Lesser of	**$200,000**	**$200,000**
Proposed eligibility Lesser of	**$200,000**	**$200,000**

Result: No Change. Affordable and market projects qualify for similar funding

Catalyze & Connect Example

A developer is considering a 75 unit project, the first mixed use project with moderate rents.

	If market rate	If affordable
Density and mixed use cost premiums	$250,000	$250,000
Foregone land value due to affordability restriction (Proposed Consideration)	NA	$200,000
Total of Cost Premiums and Forgone	***$250,000***	***$450,000***
Induced [illegible] case	$300,000	$300,000
[illegible]cast ridership due to affordability restriction (Proposed Consideration)	NA	$334,000
Total Induced Ridership	***$300,000***	***$634,000***
Current eligibility	**$250,000**	**$250,000**
Proposed eligibility	**$250,000**	**$450,000**

Result: Affordable projects eligible for greater support than market projects

Lesser of

Lesser of

Infill & Enhance Example

A developer is considering a project with high rents and building to the maximum allowed density of 75 dwelling units.

	If market rate	If affordable
Density and mixed use cost premiums	$0	**$0**
Foregone land value due to affordability restriction (Proposed Consideration)	NA	$400,000
Total of Cost Premiums and Forgone Land Value	***$0***	***$400,000***
Induced Ridership [illegible]	***$0***	**$0**
Additional forecast ridership due to affordability restriction (Proposed Consideration)	NA	$334,000
Total Induced Ridership	***$0***	***$334,000***
Current eligibility	**$0**	**$0**
Proposed eligibility	**$0**	**$334,000**

Result: Affordable projects could qualify for funding even if market rate projects would not

Lesser of

Lesser of

GREAT PLACES

SW Corridor

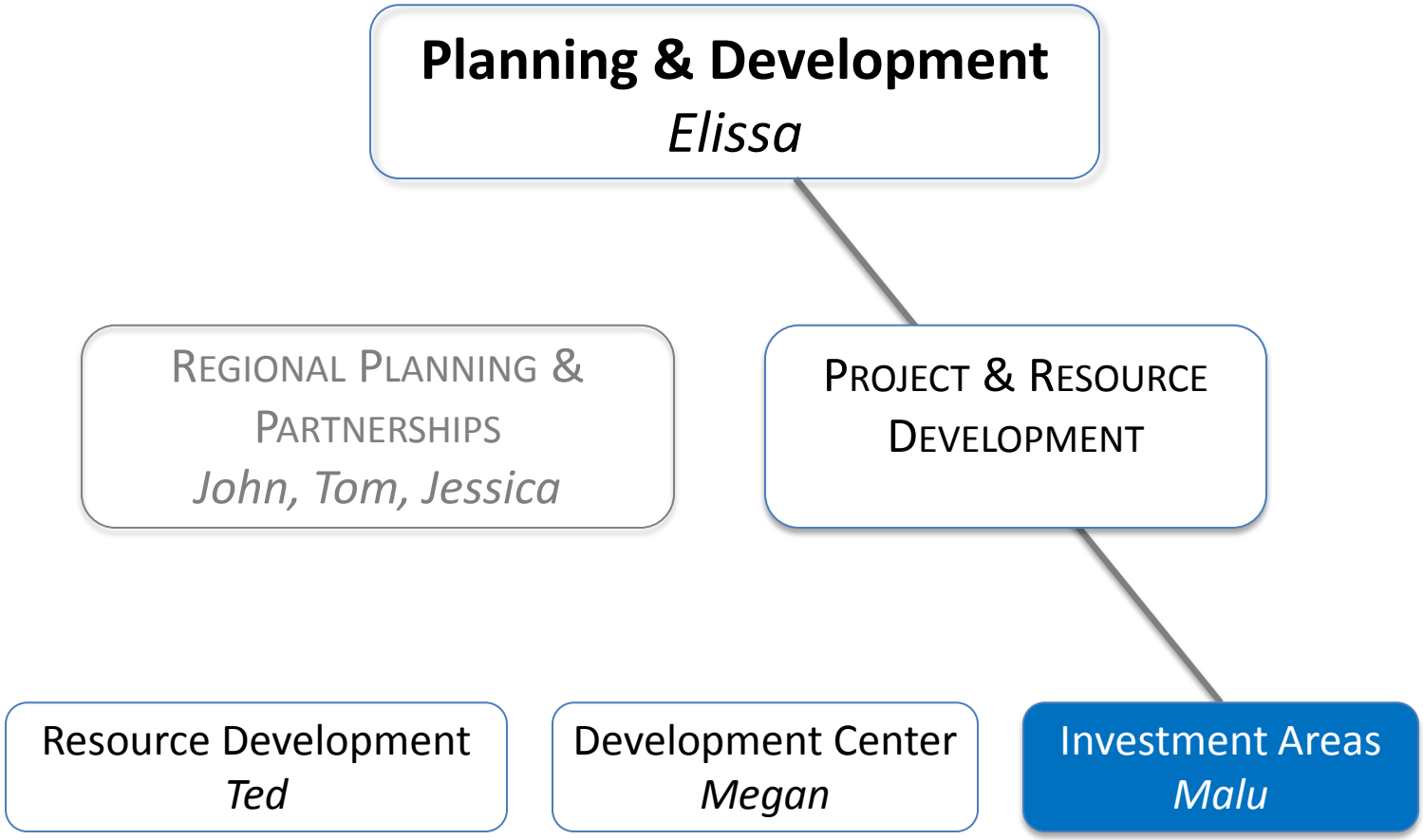
Portland • Sherwood • Tigard • Tualatin
Beaverton • Durham • King City • Lake Oswego
Multnomah County • Washington County
ODOT • TriMet • Metro

Southwest Corridor Plan Update

Transportation Policy Alternatives Committee

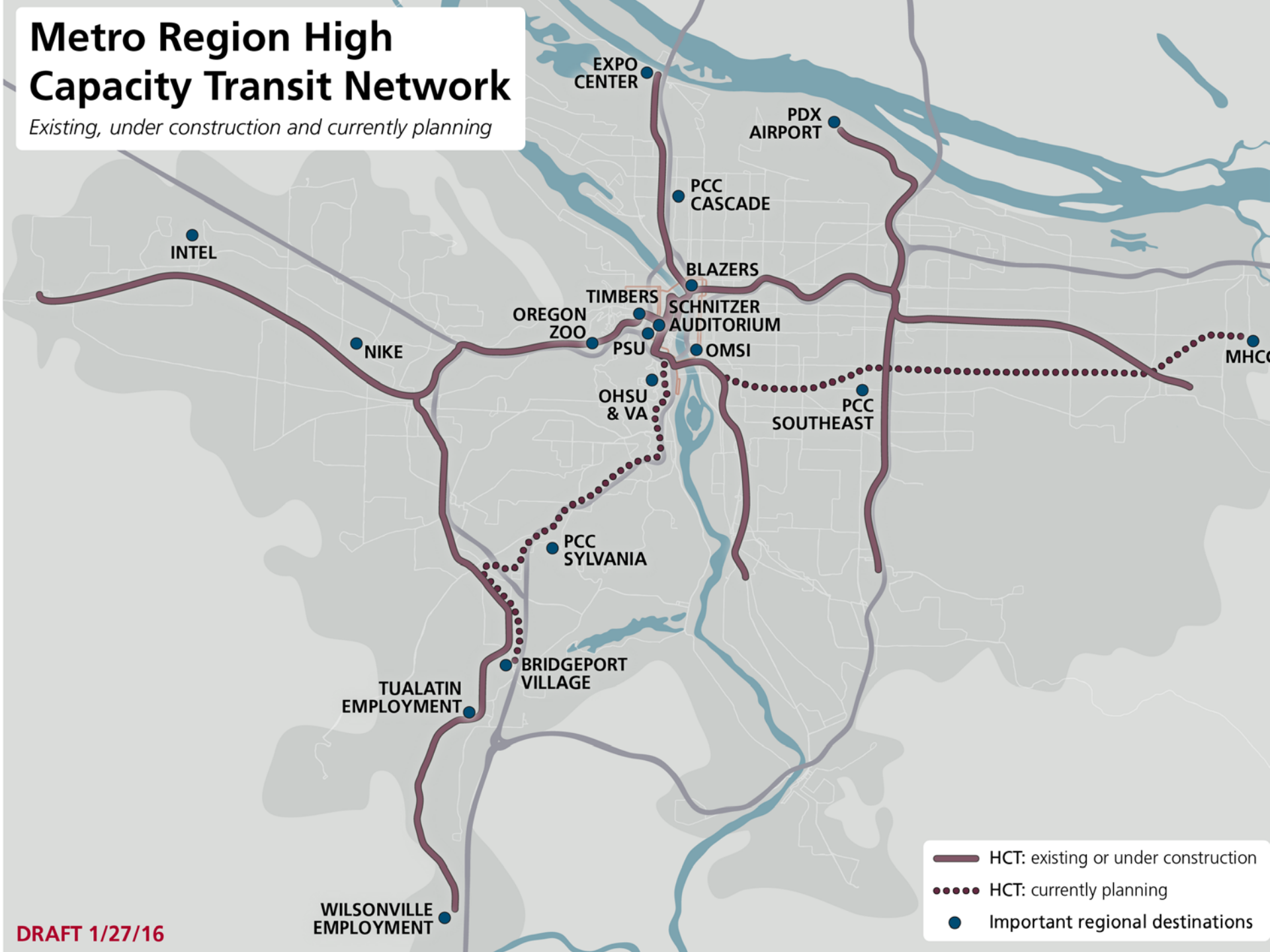
January 29, 2016

Investment areas in Metro



Metro Region High Capacity Transit Network

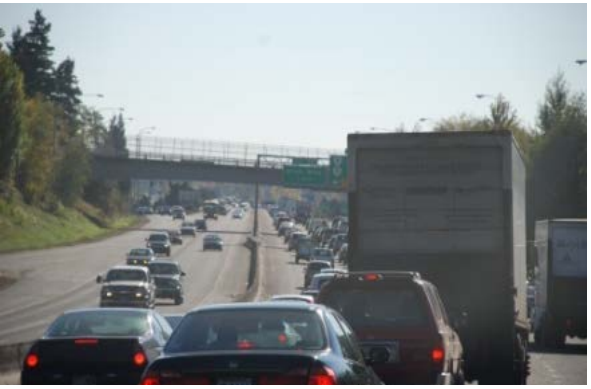
Existing, under construction and currently planning



DRAFT 1/27/16

GREAT PLACES
SW Corridor

Why Here, Why Now

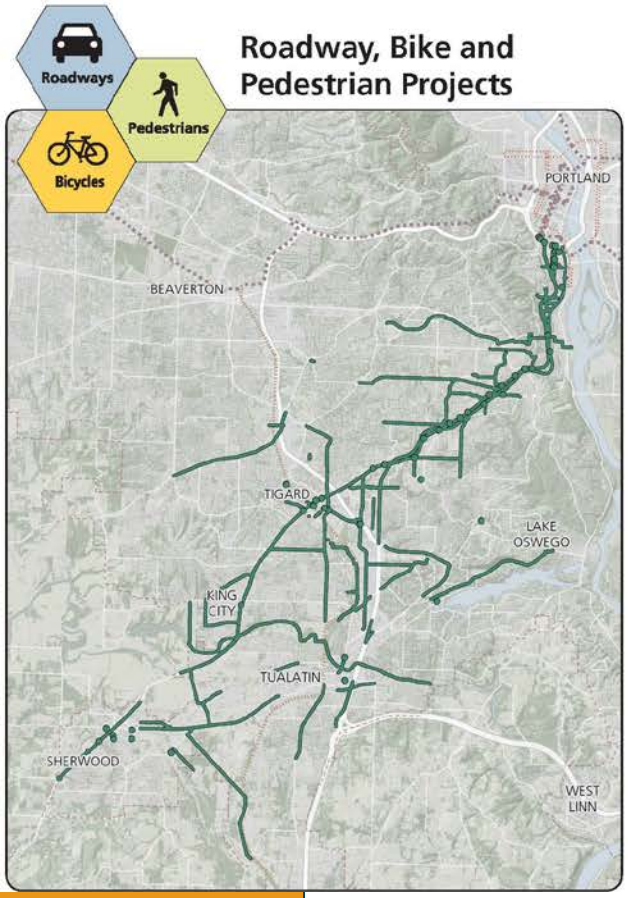


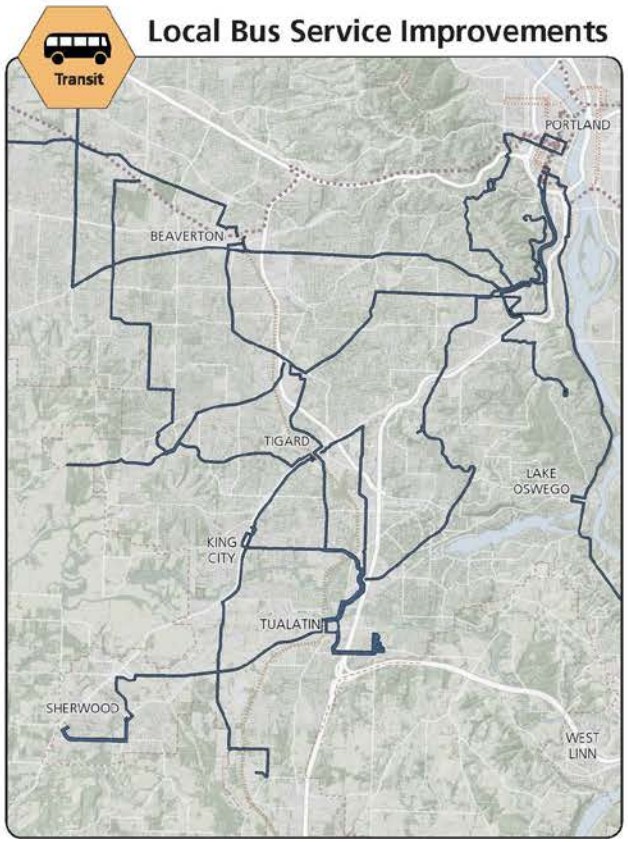
- High travel demand within and throughout the corridor
- Continued increases in residents and jobs
- Increased traffic congestion and unreliable travel times
- Lack of safe infrastructure and connectivity for walk, bike, drive
- Insufficient and unreliable transit

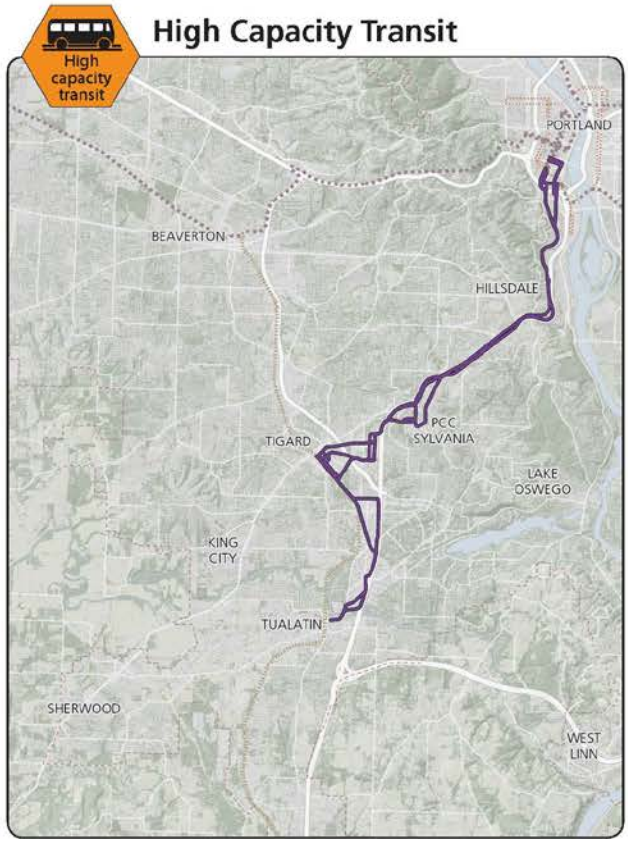
The Southwest Corridor Plan integrates high capacity transit, local buses and roadway, bicycle, pedestrian improvements to provide **more choices** and **improve access and safety** for all users of the transportation system

GREAT PLACES SW Corridor

A package of solutions to help you get around





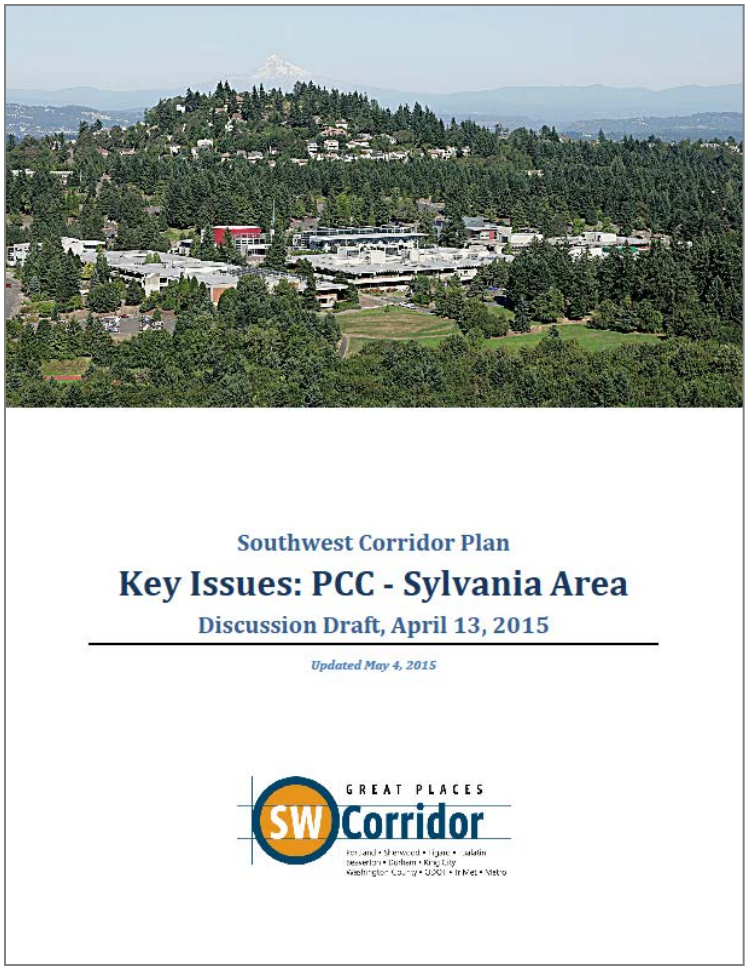


Other Benefits

- Link WC workers to jobs in Portland, and vice versa
- Spur high value development of the Tigard Triangle
- Expand abilities of the regional transit network
- More places for walkable, transit-accessible housing for all incomes
- Help create great places

Place-Based Approach

- South Portland
- Hillsdale
- Historic Barbur
- PCC Sylvania
- Downtown Tigard
- South Tigard
- Tualatin




GREAT PLACES
SW Corridor
Portland • Sherwood • Tigard • Tualatin
Beaverton • Durham • King City
Washington County • ODOT • TriMet • Metro
Why here?
Why now?
quality of life in the Southwest Corridor is compromised
traffic gridlock and a lack of mobility and connections
in communities for people driving, taking transit
or walking. • Improvements to
local land use

File Edit View Favorites Tools Help

Cancel

Graphic of the Marquam Hill-Hillsdale tunnel alignment

Comment now

Benefits

Tradeoffs

Next steps

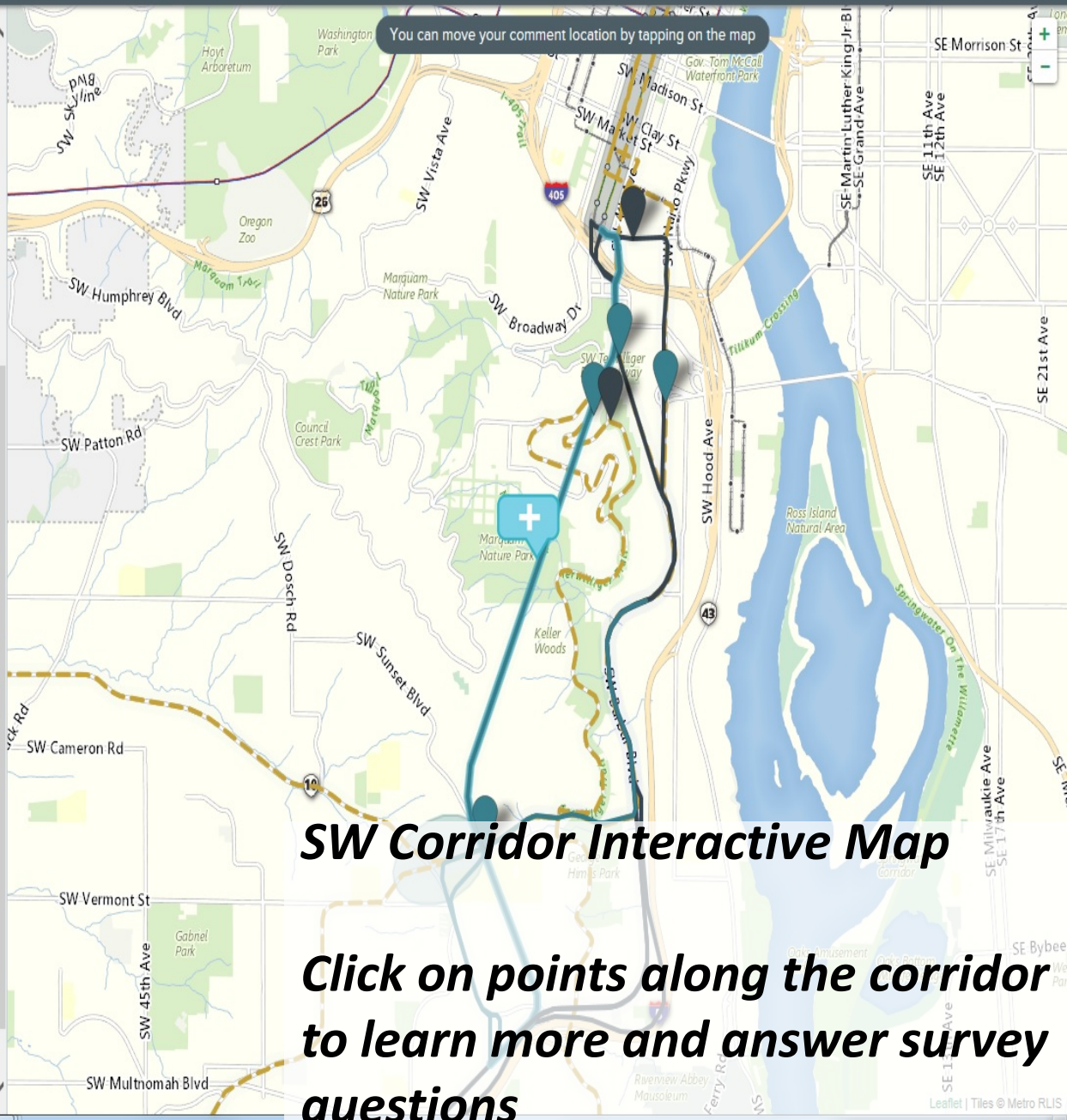
Comment now

Which three factors are most important in deciding if the light rail Marquam Hill-Hillsdale deep-bored tunnel will continue as part of the project?

- ☐ increases project cost by $750-950 million over compared to Barbur surface options
- ☐ would not include Marquam Hill walk/bike connection from Barbur or Naito
- ☐ provides direct connections to Marquam Hill and Hillsdale
- ☐ would not include South Portland walk/bike safety improvements along Naito or Barbur
- ☐ increases transit ridership more than other options
- ☐ causes tunnel construction impacts to institutions and neighborhoods
- ☐ offers faster travel time than other options

You may share additional comments as you leave the map.

Submit



SW Corridor Interactive Map

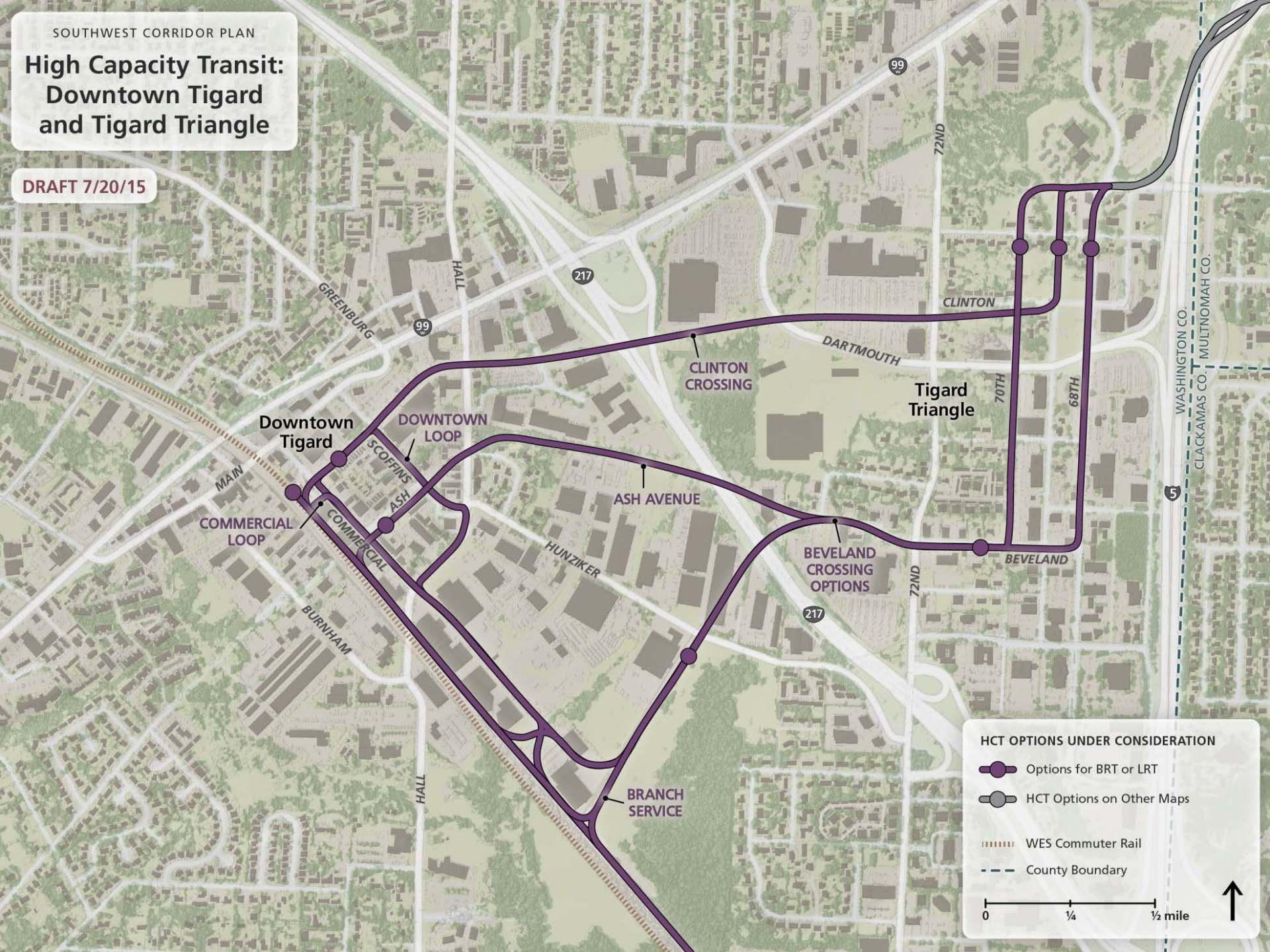
Click on points along the corridor to learn more and answer survey questions

12:21 PM
5/8/2015

SOUTHWEST CORRIDOR PLAN

High Capacity Transit: Downtown Tigard and Tigard Triangle

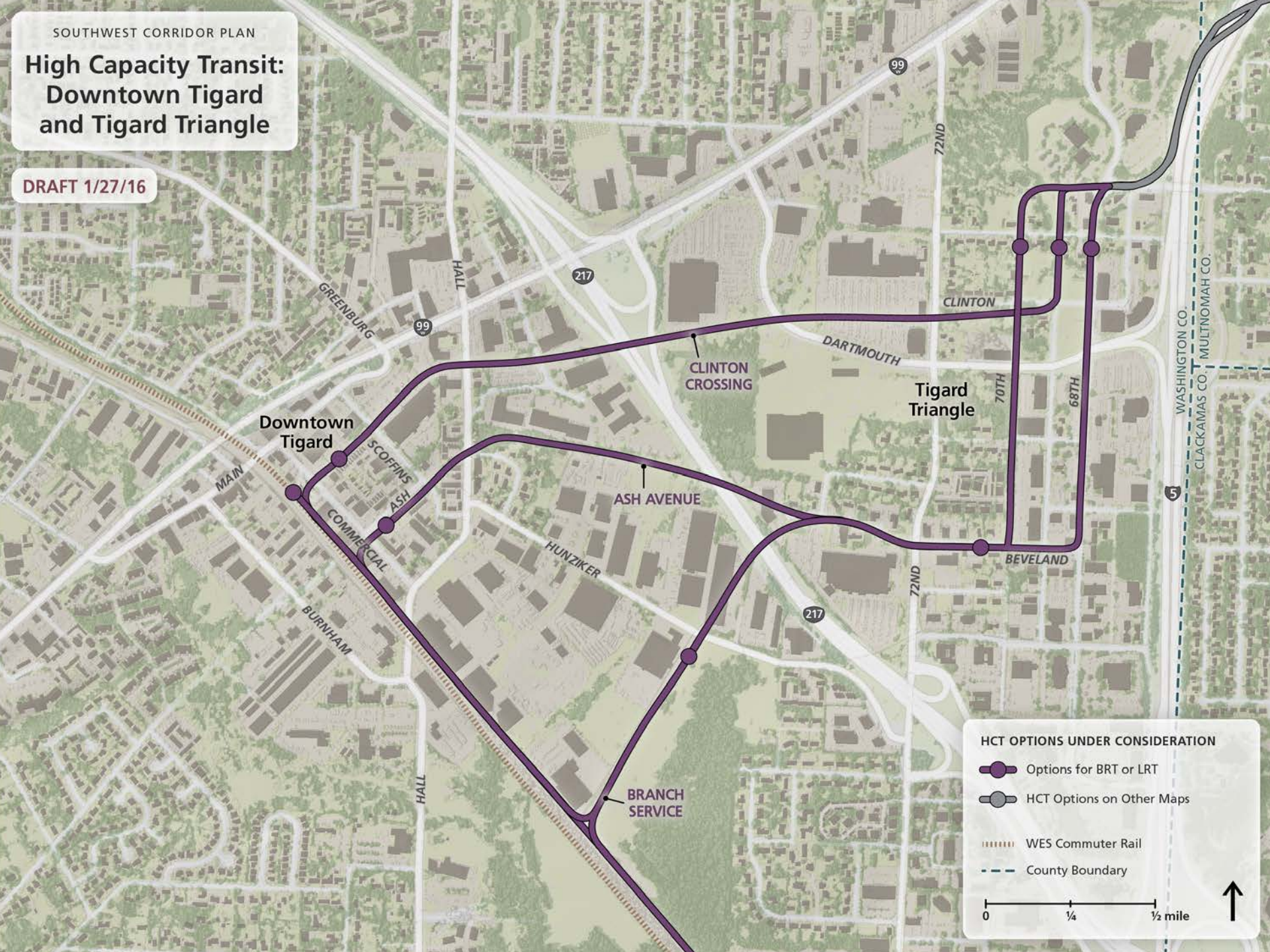
DRAFT 7/20/15

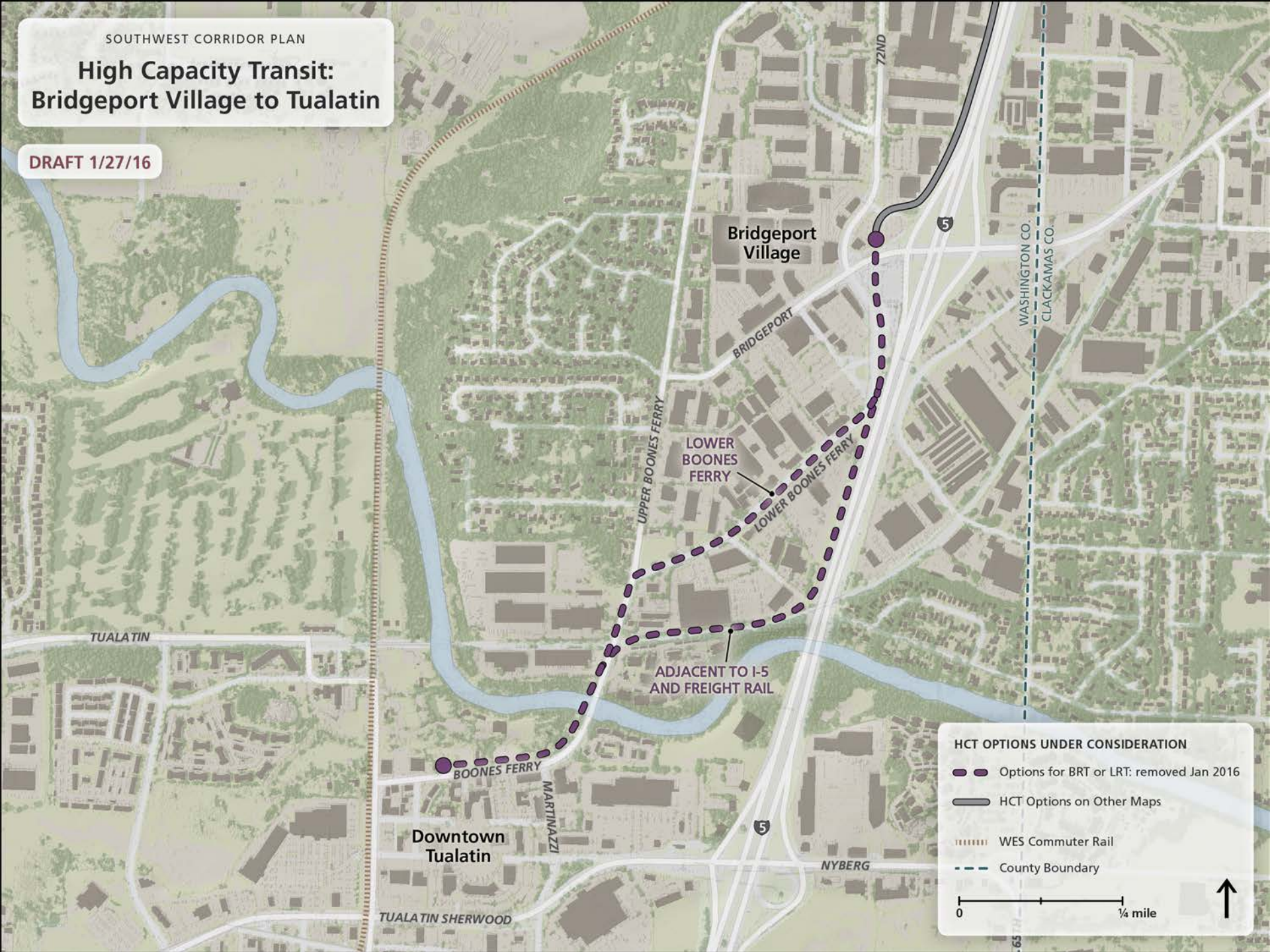


SOUTHWEST CORRIDOR PLAN

High Capacity Transit: Downtown Tigard and Tigard Triangle

DRAFT 1/27/16




SOUTHWEST CORRIDOR PLAN
High Capacity Transit:
Bridgeport Village to Tualatin
DRAFT 1/27/16
Bridgeport Village
72ND
5
WASHINGTON CO.
CLACKAMAS CO.
BRIDGEPORT
UPPER BOONES FERRY
LOWER BOONES FERRY
LOWER BOONES FERRY
TUALATIN
ADJACENT TO I-5 AND FREIGHT RAIL
BOONES FERRY
MARTINAZZI
Downtown Tualatin
5
NYBERG
TUALATIN SHERWOOD
HCT OPTIONS UNDER CONSIDERATION
Options for BRT or LRT: removed Jan 2016
HCT Options on Other Maps
WES Commuter Rail
County Boundary
0
¼ mile

GREAT PLACES SW Corridor

Light rail or BRT?

MAX light rail in Portland

EmX bus rapid transit in Eugene

$$$$ Higher construction cost	$$ Lower construction cost
$$ Lower operating cost per passenger	$$$ Higher operating cost per passenger
266 passengers per vehicle	86 passengers per vehicle
100% in its own right-of-way	50-80% in its own right-of-way
Attracts more new transit riders	Attracts fewer new transit riders

CONSIDERATIONS: PROJECT GOALS

LAND USE

- land use and development
- access to key places

COMMUNITY

- **public opinion**
- equity

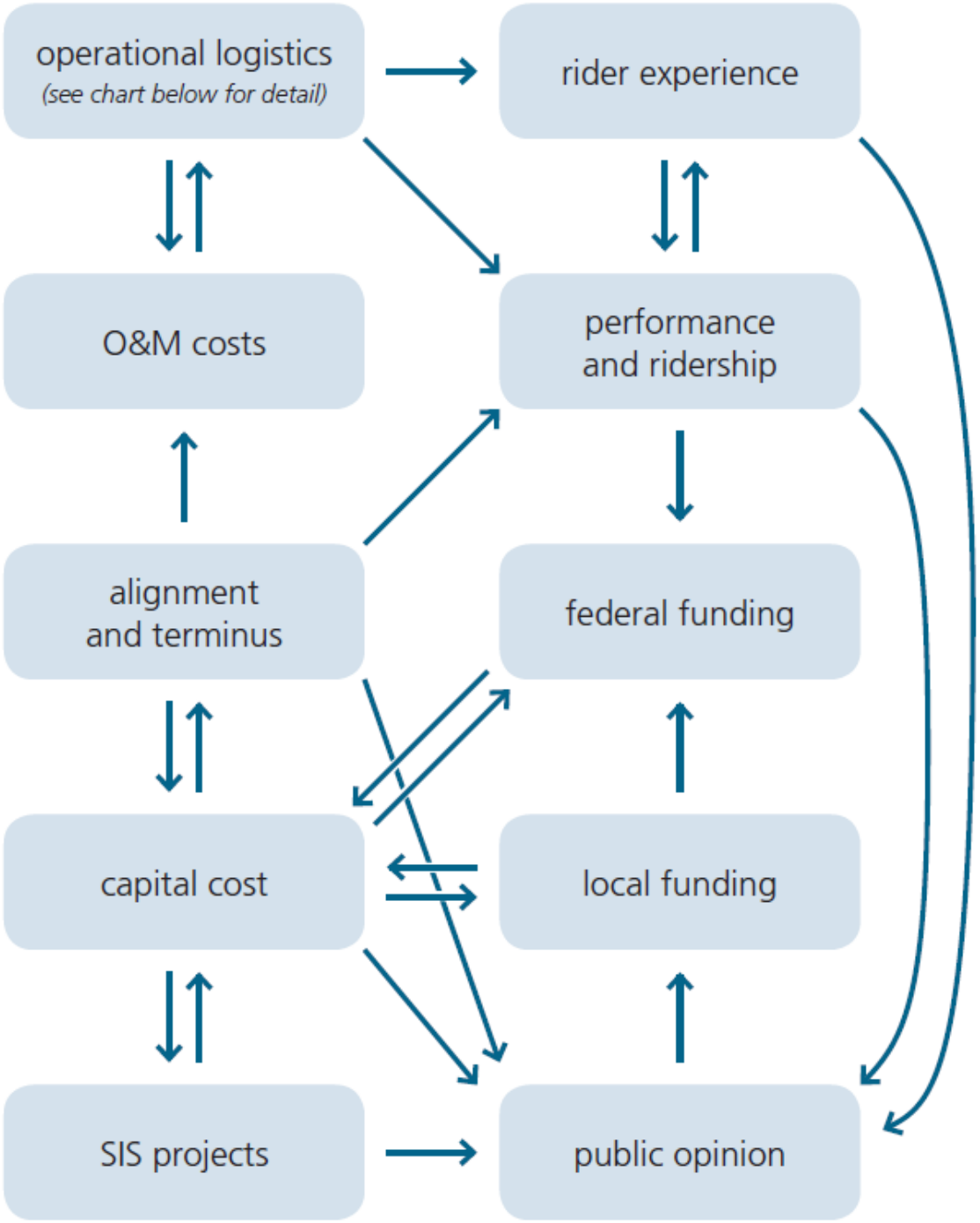
MOBILITY

- **travel time**
- reliability
- rider experience
- **capacity for current & future demand**
- road, bike & pedestrian projects
- local bus service

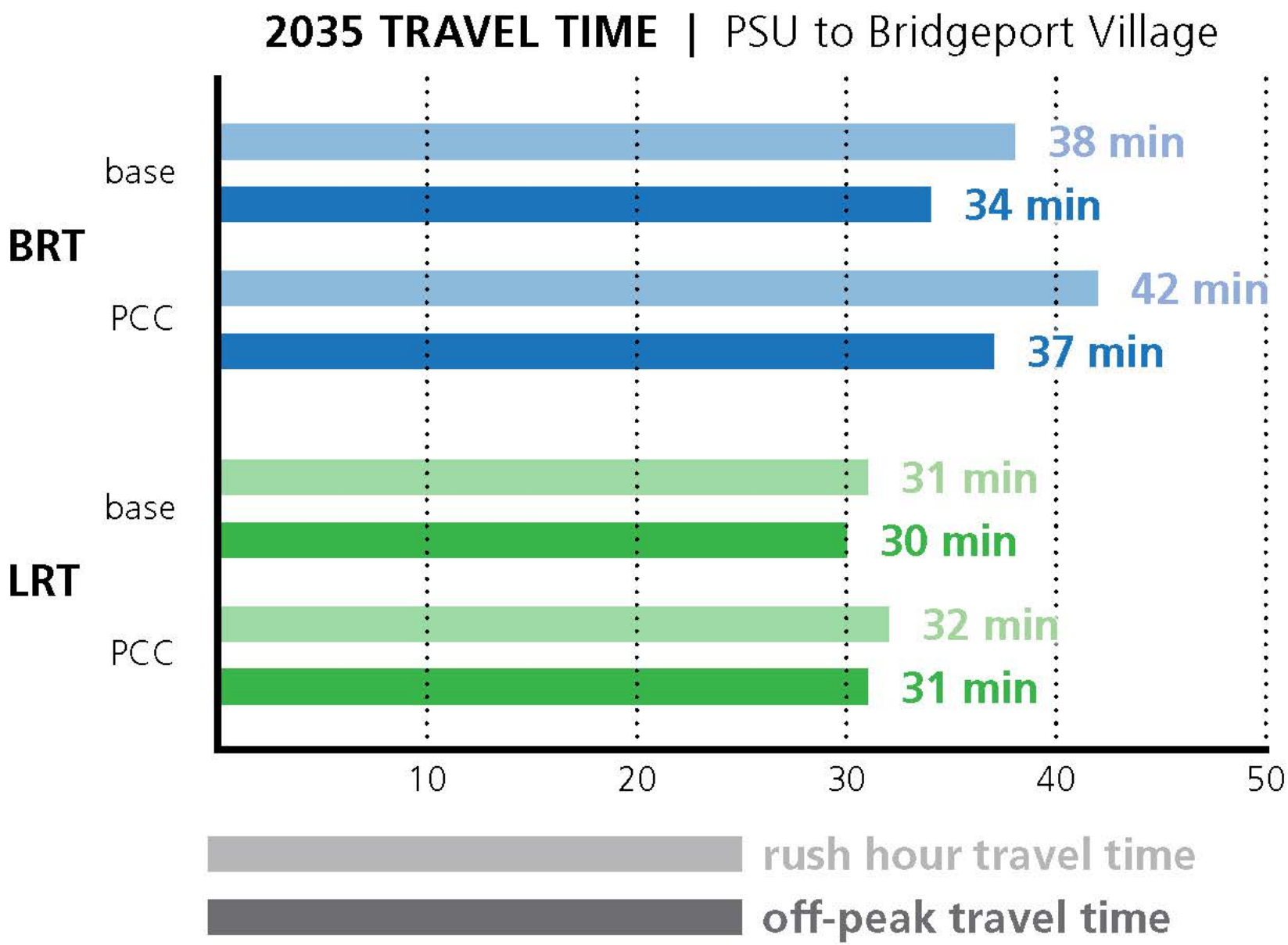
COST-EFFECTIVENESS

- **ridership**
- **capital cost**
- **operating and maintenance costs**

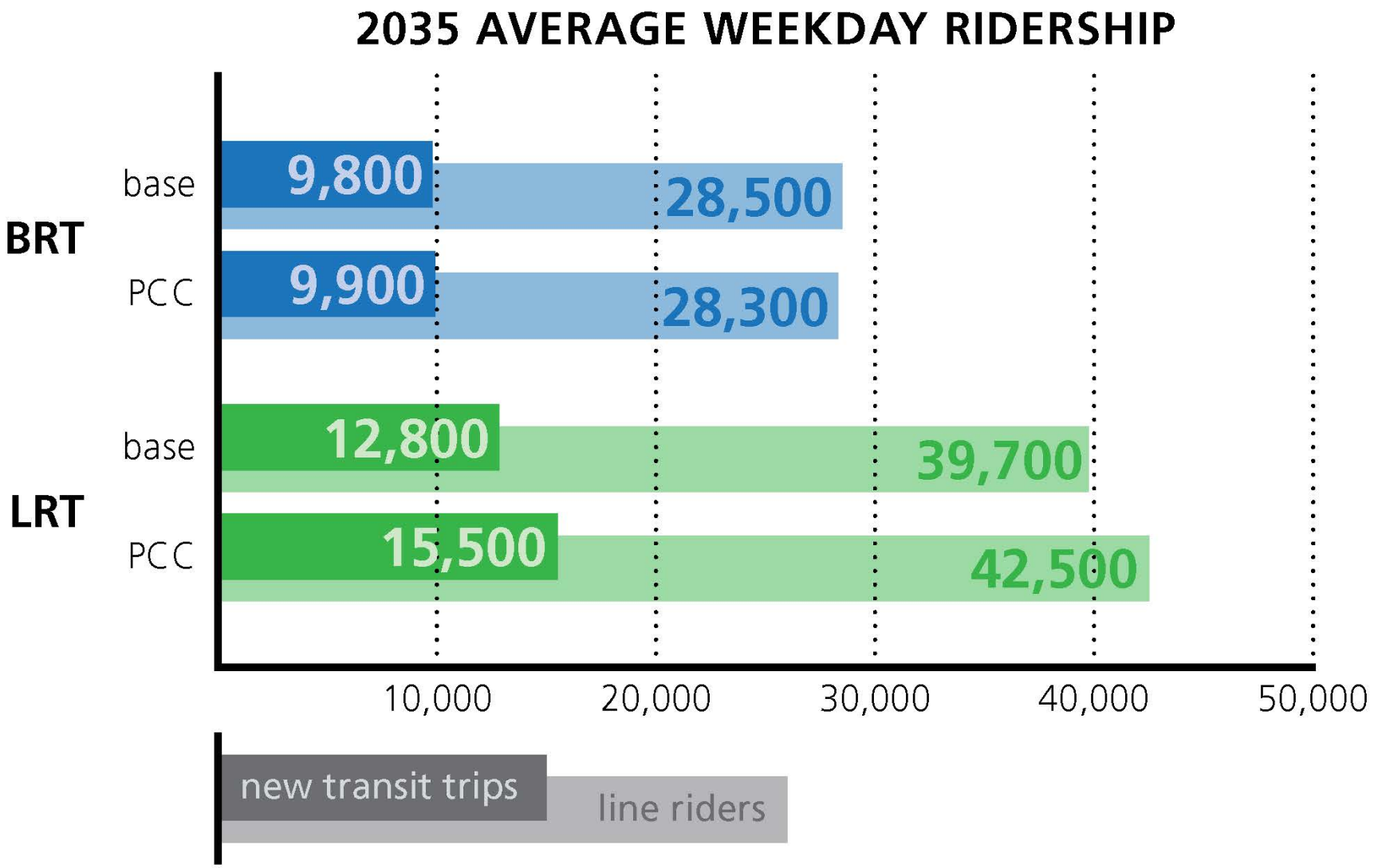
GREAT PLACES SW Corridor



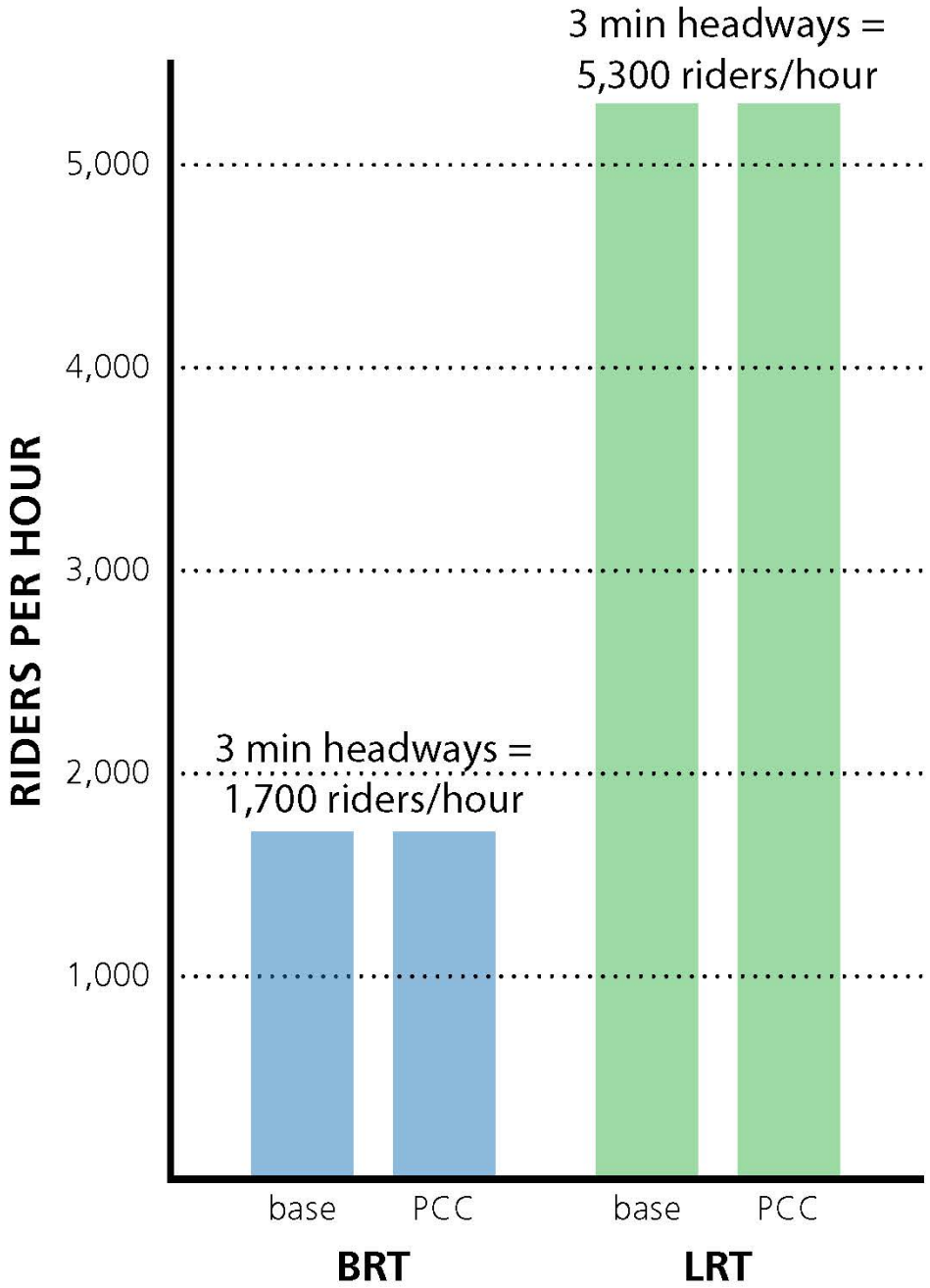
TRAVEL TIME


2035 TRAVEL TIME | PSU to Bridgeport Village
BRT
base
38 min
34 min
PCC
42 min
37 min
LRT
base
31 min
30 min
PCC
32 min
31 min
10
20
30
40
50
rush hour travel time
off-peak travel time

RIDERSHIP

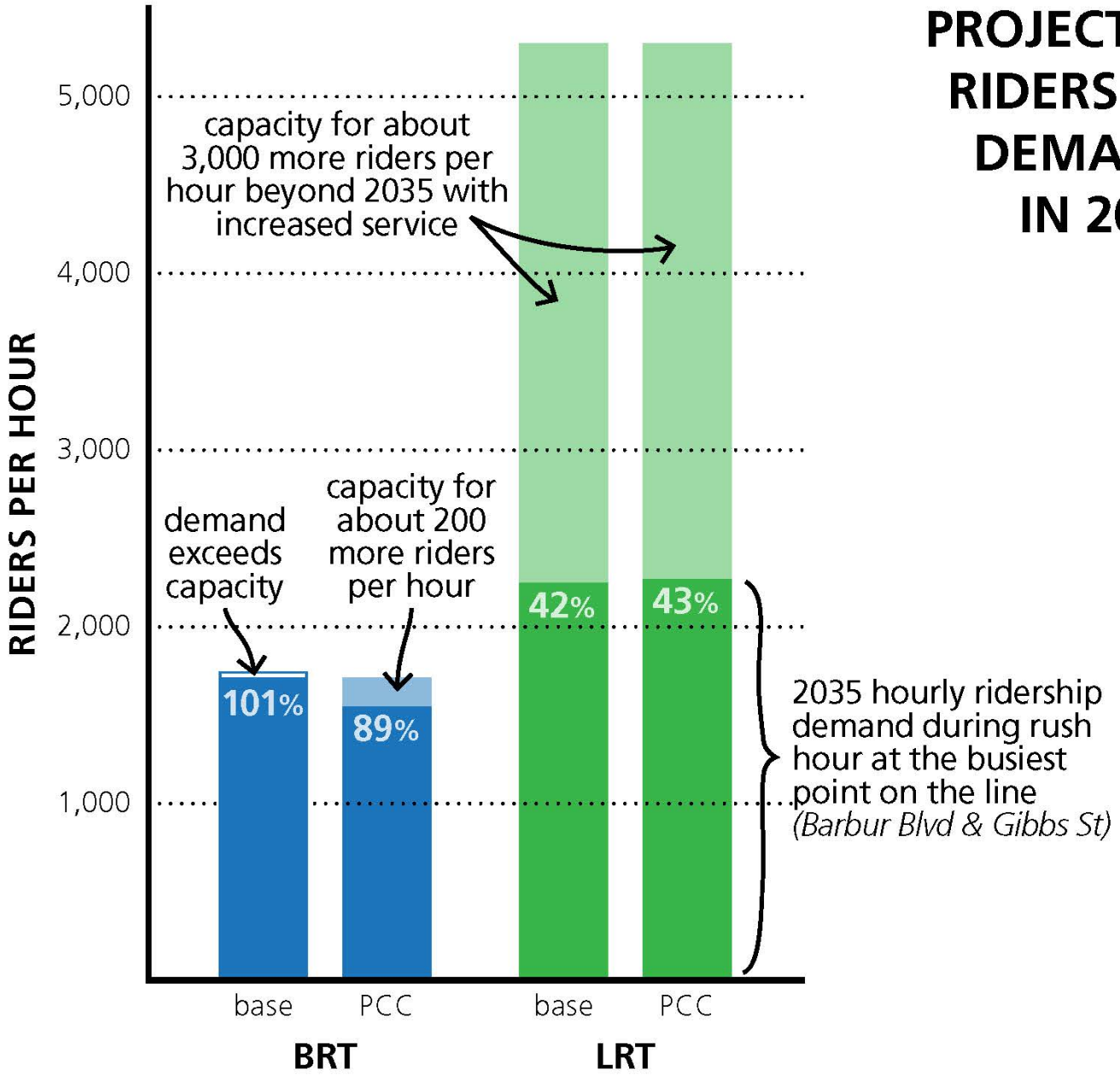

2035 AVERAGE WEEKDAY RIDERSHIP
BRT
base
9,800
28,500
PCC
9,900
28,300
LRT
base
12,800
39,700
PCC
15,500
42,500
10,000
20,000
30,000
40,000
50,000
new transit trips
line riders

CAPACITY FOR LONG-TERM RIDERSHIP GROWTH

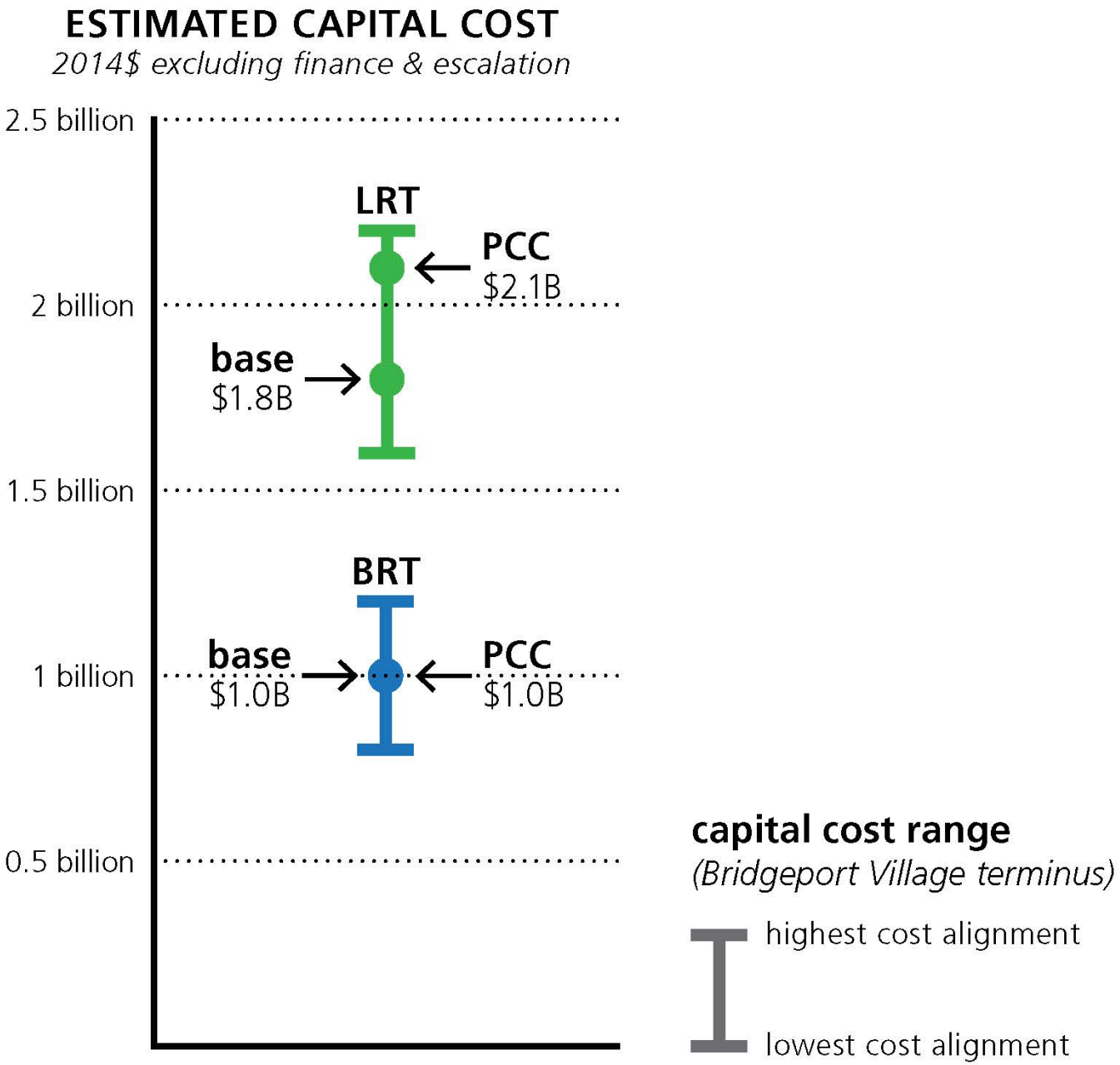


LONG-TERM RIDERSHIP CAPACITY

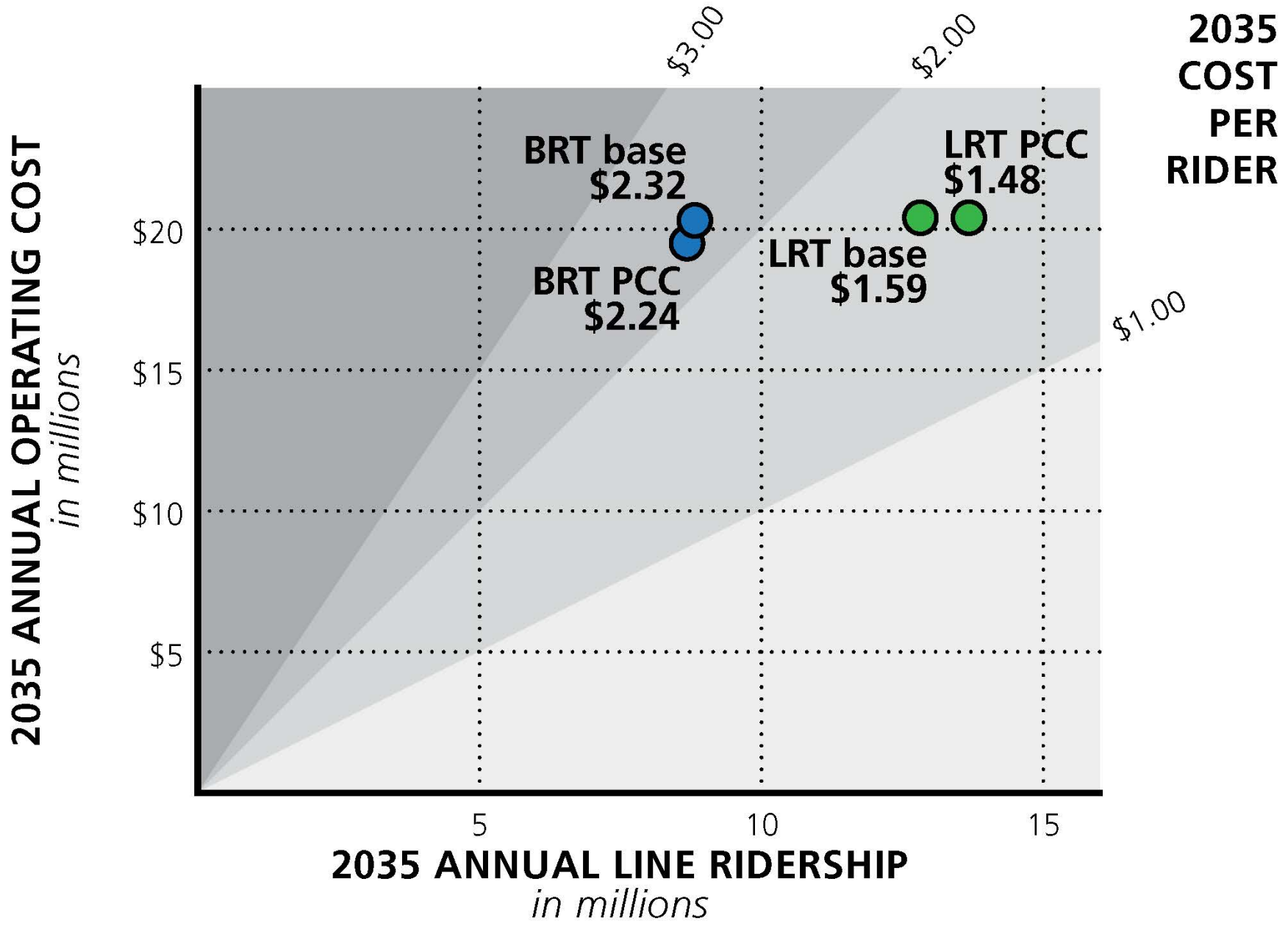
CAPACITY FOR LONG-TERM RIDERSHIP GROWTH



CAPITAL COST



OPERATING AND MAINTENANCE COSTS



PUBLIC OPINION

ONLINE SURVEY RESULTS
December 2015, 600 responses

16%
strong BRT support

9%
moderate BRT support

14%
neutral / don't know

15%
moderate LRT support

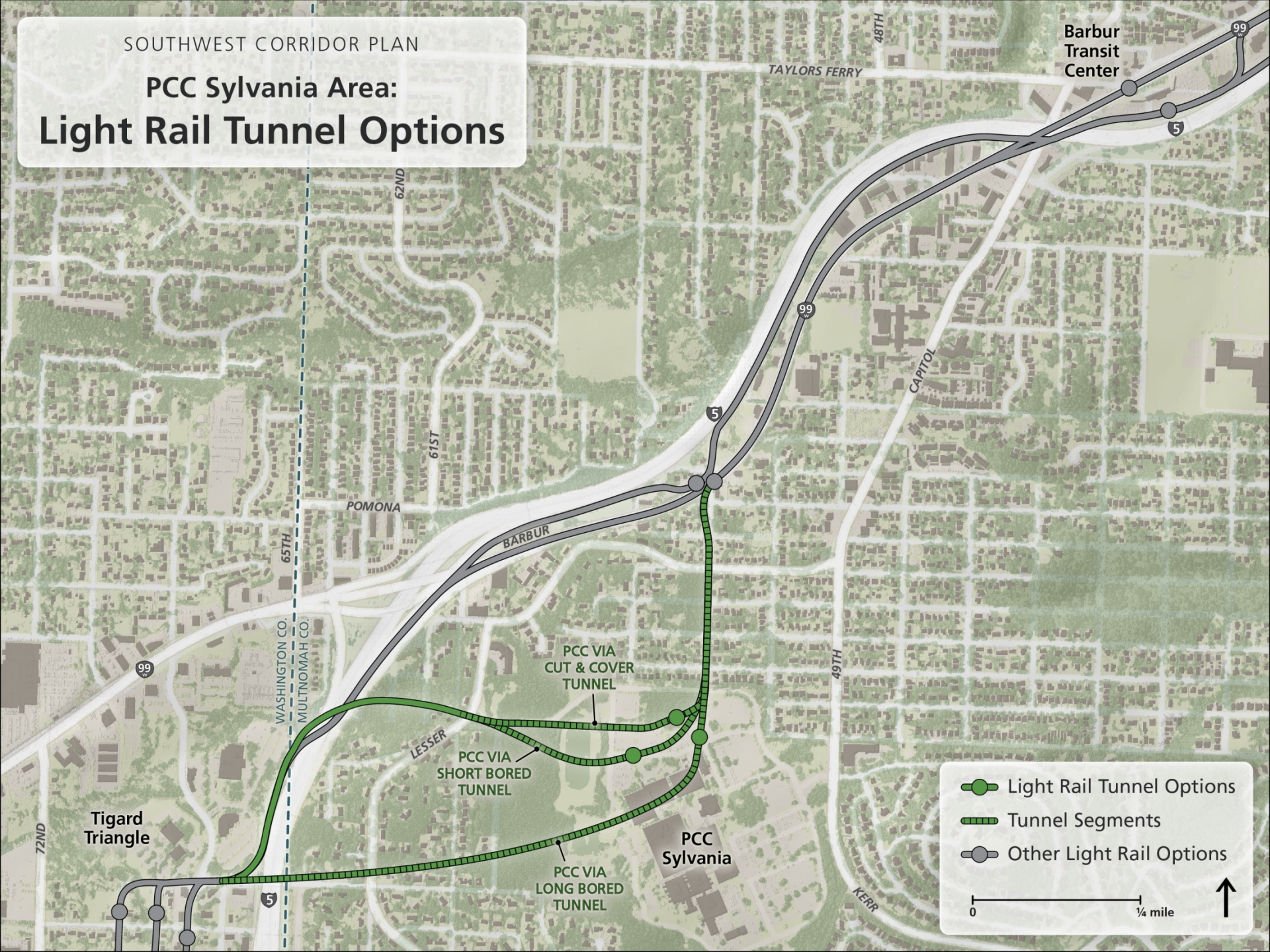
46%
strong LRT support

December 2015 survey:
Over 2 to 1 support for light rail over BRT

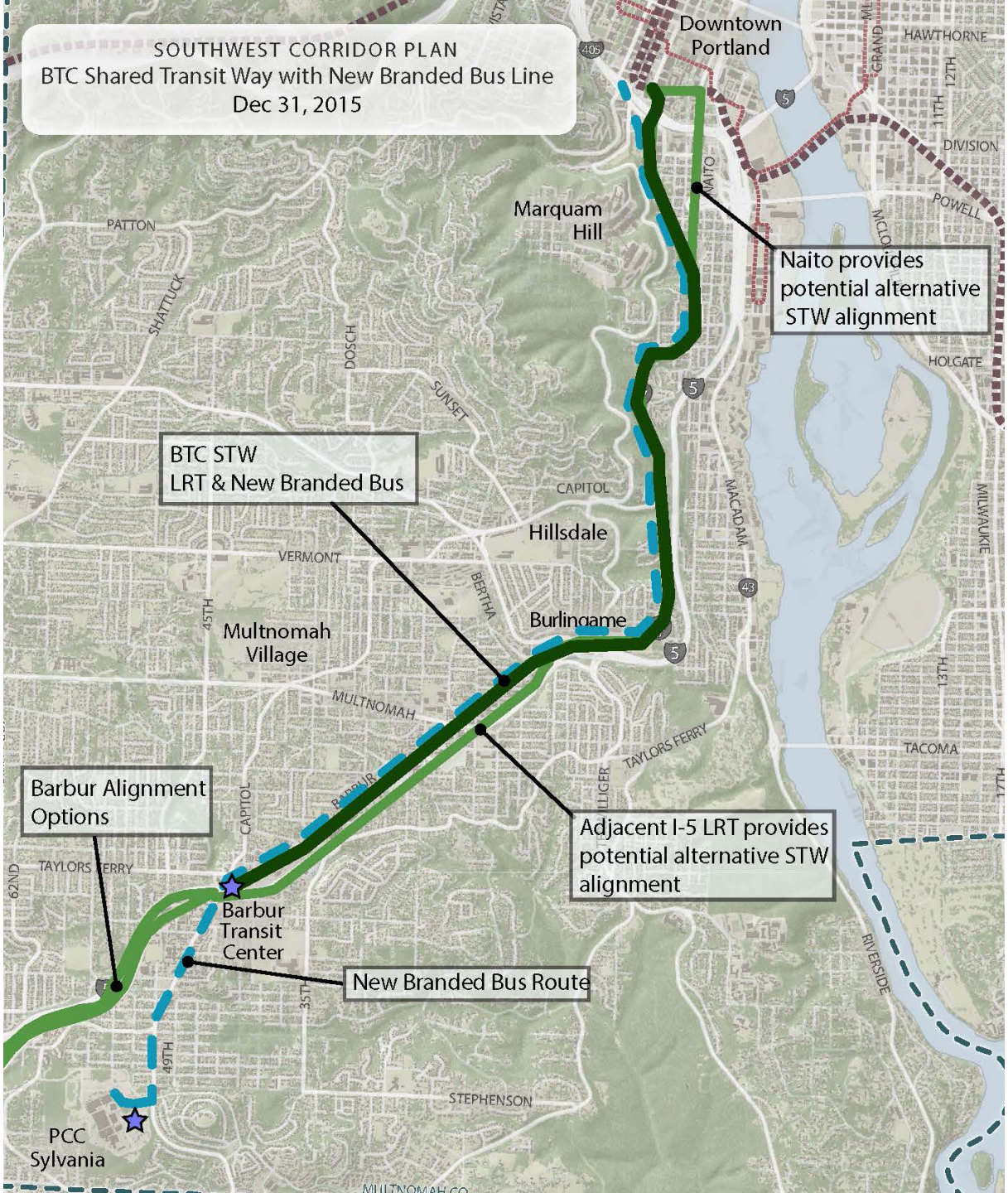
Further outreach:
Online comment period in January and February will continue to gather public opinion on mode preference

PCC Sylvania connection

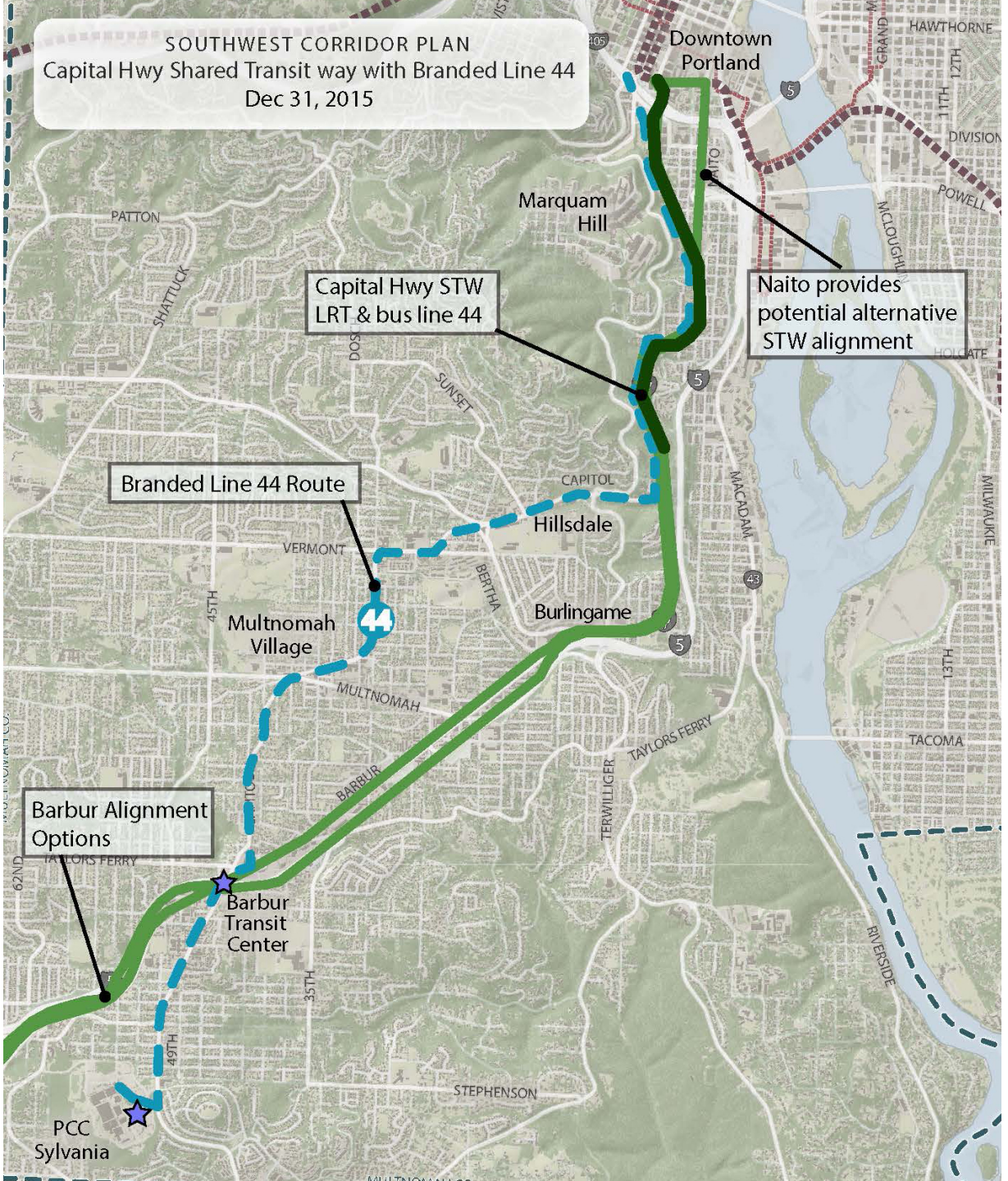

SOUTHWEST CORRIDOR PLAN
PCC Sylvania Connection Options:
BRT to Campus via Capitol Highway
Barbur
Transit
Center
TAYLORS FERRY
48TH
62ND
61ST
65TH
POMONA
BARBUR
CAPITOL
49TH
LESSER
KERR
72ND
WASHINGTON CO.
MULTNOMAH CO.
Tigard
Triangle
PCC
Sylvania
99
5
HCT OPTIONS UNDER CONSIDERATION
Bus rapid transit (BRT) options
0
¼ mile


SOUTHWEST CORRIDOR PLAN
PCC Sylvania Area:
Light Rail Tunnel Options
Barbur Transit Center
TAYLORS FERRY
48TH
62ND
61ST
65TH
POMONA
BARBUR
CAPITOL
49TH
KERR
72ND
WASHINGTON CO.
MULTNOMAH CO.
LESSER
PCC VIA CUT & COVER TUNNEL
PCC VIA SHORT BORED TUNNEL
PCC VIA LONG BORED TUNNEL
Tigard Triangle
PCC Sylvania
99
5
Light Rail Tunnel Options
Tunnel Segments
Other Light Rail Options
0
¼ mile

GREAT PLACES SW Corridor

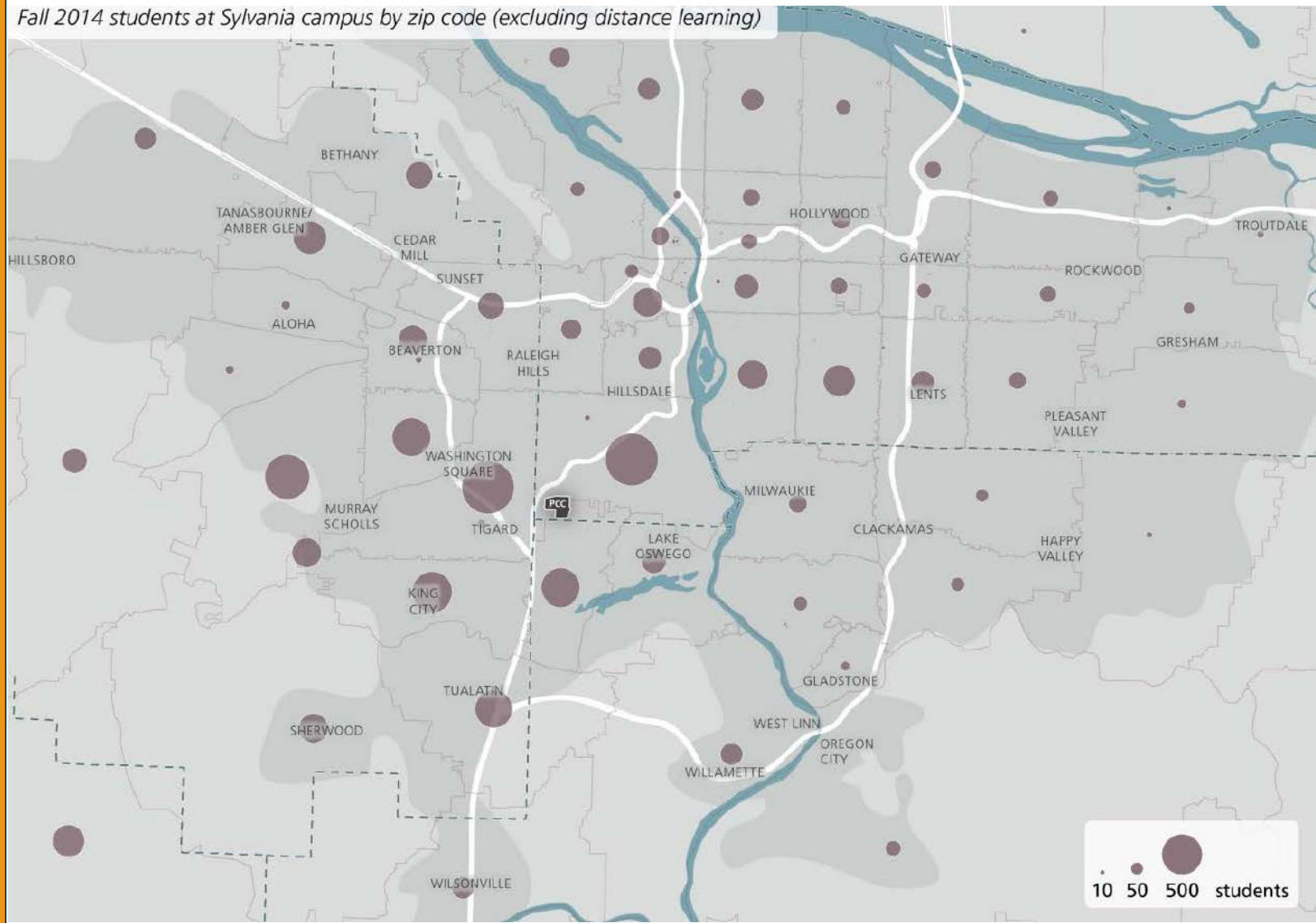


GREAT PLACES SW Corridor

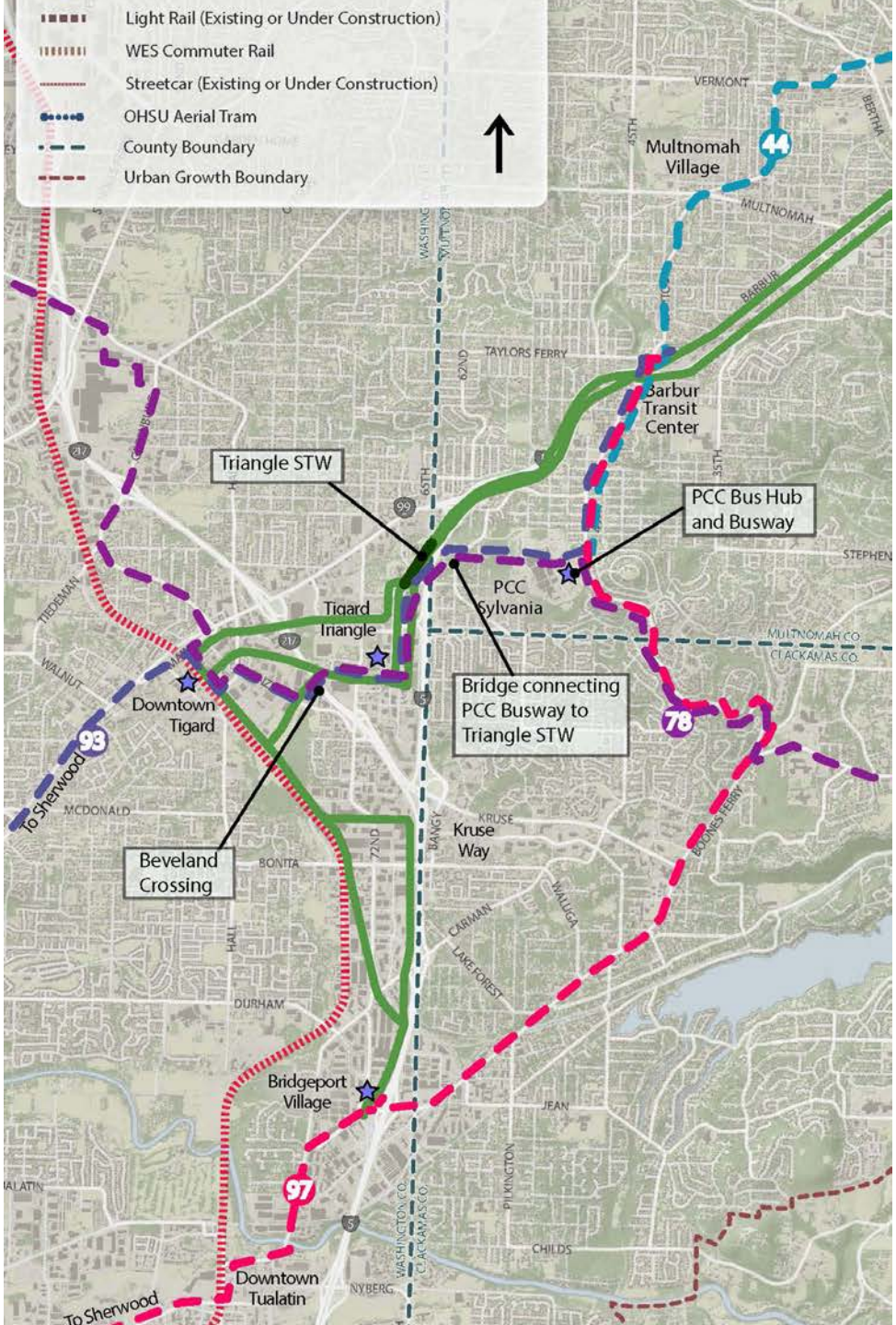


GREAT PLACES SW Corridor

Challenge – trip origination



GREAT PLACES
SW Corridor



Upcoming Schedule

Spring 2016 (date TBD)

- Decision on mode
- Decision on whether to continue study of direct light rail tunnel to PCC Sylvania

Summer 2016

- DEIS Scoping
- Advance HCT design (10%)

Future Schedule