Nelson|Nygaard
consulting associates

621 SW Morrison Street, Suite 950
Portland, Oregon 97205
(503) 227-3463 FAX: (503) 228-2320

M E M O R A N D U M

To: HCT Subcommittee

From: Thomas Brennan, HCT System Plan Consulting Team

Date: 12-04-08

Subject: Preliminary HCT Screening Results - DRAFT

Introduction

Different evaluation criteria and performance measures will be used at different points in the HCT System Plan process to narrow and prioritize corridors and projects to those most beneficial in meeting regional mobility and land use goals. Figure 1 summarizes key phases of the process.

The first criteria needed for the HCT plan development (the Screening Criteria) are those used to "screen" the initial long list of potential HCT corridors and system enhancement projects into a more workable short list. The screened long list of corridors includes all the corridors modeled in Scenario B (RTP modeling) and several others identified in the HCT public workshops summarized by Metro and the Public Involvement consulting team or suggested by agency partners or jurisdictions. This step in the evaluation creates a "short list" that should include any corridor or system enhancement projects that could reasonably support any type of HCT investment.

Potential HCT investments include:

MAX light rail extensions

New MAX light rail lines

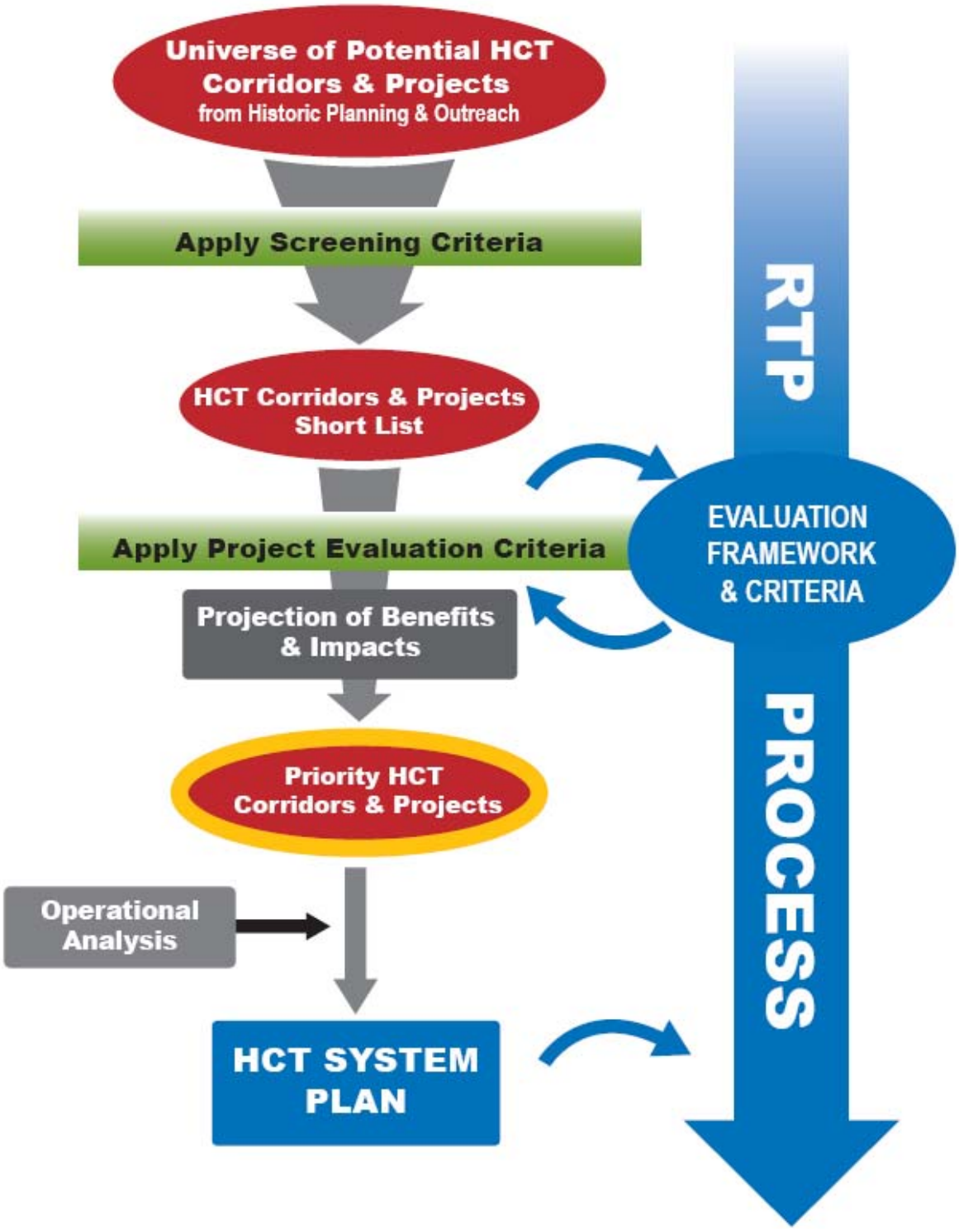
Commuter rail

High frequency, dedicated right-of-way streetcar

Bus Rapid Transit with mainly dedicated right of way

Other system enhancements (e.g., Rose Quarter, Steel Bridge, etc.)

Figure 1 Process Diagram



Eight initial screening criteria were applied to the long list of corridors:

1) **Ridership.** A rough estimate of ridership potential was generated using the Transit Orientation Index (TOI), which focuses on the residential, total jobs and retail job densities around potential HCT stations. Two estimates of ridership were made:

   - Current (2005) ridership potential under existing land uses.
   - Future (2035) ridership potential under adopted regional land use projections.

   Additional credit can be given through the System Connectivity assessment to corridors that would likely include park-and-ride capacity and/or regional bus feeder service, boosting ridership potential.

2) **Corridor Availability and Cost.** This qualitative assessment provides an order of magnitude ranking of cost and feasibility of constructing a dedicated right-of-way for each HCT line. Alignments or projects that require significant tunneling, bridge construction or new right-of-way acquisition are given low rankings when compared with projects that require less per mile capital investment.

3) **Environmental Constraints.** HCT projects that would require valuable habitat destruction or significant mitigation are disfavored. A qualitative assessment was completed based on length of alignment in sensitive habitat areas, open space and environmental protection zones.

4) **Equity.** This criterion assesses potential for an alignment to serve communities of concern. Alignments that serve census block groups identified by Metro as having high concentrations of low-income, senior and disabled, and minority and/or Hispanic populations are favored. These are well documented in the background paper, "Environmental Justice in Metro's Transportation Planning Process: Implications for the 2035 RTP and the 2008-2007 MTIP."

5) **Connectivity and System.** HCT lines that connect to important intermodal centers, key regional transit centers, other HCT lines, park-and-ride opportunities and regional intercity transit sevices are favored.

6) **Congestion.** HCT corridors that parallel arterials or throughways where high levels of congestion are forecasted receive higher rankings. This is based on predicted 2035 volume to capacity ratios for regional throughways and arterial streets.

7) **2040 Land Use.** Corridors that serve 2040 centers, main streets and corridors that are designated to accommodate future growth are given priority ranking.

8) **Origin-Destination Transit Demand.** Results from the 2035 Scenario B modeling outputs were used to gauge future demand between anchor points on proposed HCT alignments.

Figure 2 summarizes the eight criteria and their application. Following sections provide more detail on criteria analysis and ranking methods.

Figures 3 and 4 present the potential HCT corridors and corridor segments that were taken through the screening process.

Figure 2 Screening Criteria

CRITERION	MEASUREMENT	PROPOSED SCREENING TARGET	
Existing Potential Ridership *	Transit Orientation Index	High	> 5.0 riders per acre
		Medium-High	4.0-5.0 riders per acre
		Medium	3.0-4.0 riders per acre
		Low-Medium	1.5-3.0 riders per acre
		Low	< 1.5 rider per acre
Future Potential Ridership *	Transit Orientation Index	High	> 5.0 riders per acre
		Medium-High	4.0-5.0 riders per acre
		Medium	3.0-4.0 riders per acre
		Low-Medium	1.5-3.0 riders per acre
		Low	< 1.5 rider per acre
Corridor Availability and Cost	Qualitative assessment of right of way availability and associated access improvements (Includes geological hazards)	High	Minimal right of way or few structures required
		Medium	Moderate right of way or structures required
		Low	Major land acquisition, tunneling, bridge work or extensive ROW required
Transit Demand	Origin-Destination Transit Trips	High	4500 +daily transit origins and destinations
		Medium-High	3001 – 4500
		Medium	1501 – 3000
		Low-Medium	501 – 1500
		Low	< 500
Environmental Constraints	Qualitative assessment of impact on natural resources	High	Minimal potential negative impacts to natural resources
		Medium	Moderate potential negative impacts to natural resources
		Low	Significant potential negative impacts to natural resources
Equity	Qualitative assessment of social equity needs	High	Directly serves low-income and minority communities
		Medium	Provides indirect access to low-income and minority communities
		Low	No access provided to low-income and minority communities
Connectivity and System *	Qualitative assessment of transit system connectivity,	High	Strong connectivity and/or system benefits

	intermodal connectivity, maintenance yard site or other transit system needs.	Medium	Moderate connectivity and/or system benefits
		Low	Poor connectivity, and/or system benefits
Congestion	Recognition of congestion parallel to proposed corridor	High	LOS F (2035 PM Peak 2-Hour; Mid-Day 1-Hour); Vehicle/Capacity Ratio
		Medium-High	LOS E (2035 PM Peak 2-Hour; Mid-Day 1-Hour); Vehicle/Capacity Ratio
		Medium	LOS D (2035 PM Peak 2-Hour; Mid-Day 1-Hour); Vehicle/Capacity Ratio
		Low-Medium	LOS C (2035 PM Peak 2-Hour; Mid-Day 1-Hour); Vehicle/Capacity Ratio
		Low	LOS A-B (2035 PM Peak 2-Hour; Mid-Day 1-Hour); Vehicle/Capacity Ratio
2040 Land Use	Support Region 2040 land use designations	High	Central city Regional centers Industrial areas Freight and Passenger Intermodal facilities
		Medium	Employment areas Town centers Station Communities Corridors Main Streets
		Low	Inner neighborhoods Outer neighborhoods

Figure 3 List of Corridors / Segments for Screening

Segment / Corridor ID	Segment / Corridor Name
6	(Amber Glen to Tanasbourne)
8	(CTC - OCTC) via I-205
9	(Park - OCTC) via McLoughlin
10	(Portland Mall - Gresham) via Powell
10A	(Portland Mall - I-205) via Powell
10B	(I-205 - Gresham) via Powell
11	(Portland to Sherwood) via Barbur Hwy 99w
11A	(Portland to Terwilliger) via Barbur Hwy 99W
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w
11C	(Multnomah to Tigard) via Barbur Hwy 99w
11D	(Tigard -King City) via Barbur Hwy 99w
11E	(King City - Sherwood) via Barbur Hwy 99w
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w
12	(Hillsboro - Forest Grove)
13	(Gresham - Troutdale MHCC) via Kane Dr
15	(Lents to Pleasant Valley) via Foster Road
16	(CTC - Damascus)
16A	(CTC - Damascas) via Sunnyside
16B	(Gresham - Damascus) via 232nd/242nd Ave
16C	(CTC - Damascas) via Hwy 212/224
17	(STC - Hillsboro)
17A	(Shute - St Vincent) via Evergreen/US26
17B	(Hillsboro -Shute) via Evergreen
17C	(Hillsboro-Shute) via Cornel/Shute
17D	(Tanasbourne - Blue Line)
18	Improvements to Steel Bridge
19	Bridge Improvements
27	(Oregon City - Clac CC) - via Hwy213/RRROW
28	(Oregon City - WSTC)
28A	(Oregon City - West Linn) via new bridge
28B	(West Linn - Tualatin) via I-205
28C	(Tualatin - Tigard) via WES
28D	(Tigard - WSTC) via WES
29	(CTC - Clackamas)
29A	(CTC - Milwaukie) via Hwy 224
29B	(Milwaukie - Lake O) via RR bridge
29C	(Lake O - Tigard TC) via RR ROW
29D	Tigard TC - WSTC) via WES ROW
29E	(Boones Ferry - Tualatin) via RR ROW
29F	(Milwaukie - Clackamas)
32	(Hillsboro - Hillsdale)
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy
32B	(Barbur - Lake O connector)
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale
34	(Beaverton - Wilsonville)
34A	(Beaverton - Washington Sq) via Hall
34B	(Washington Sq - Tigard) via Hall

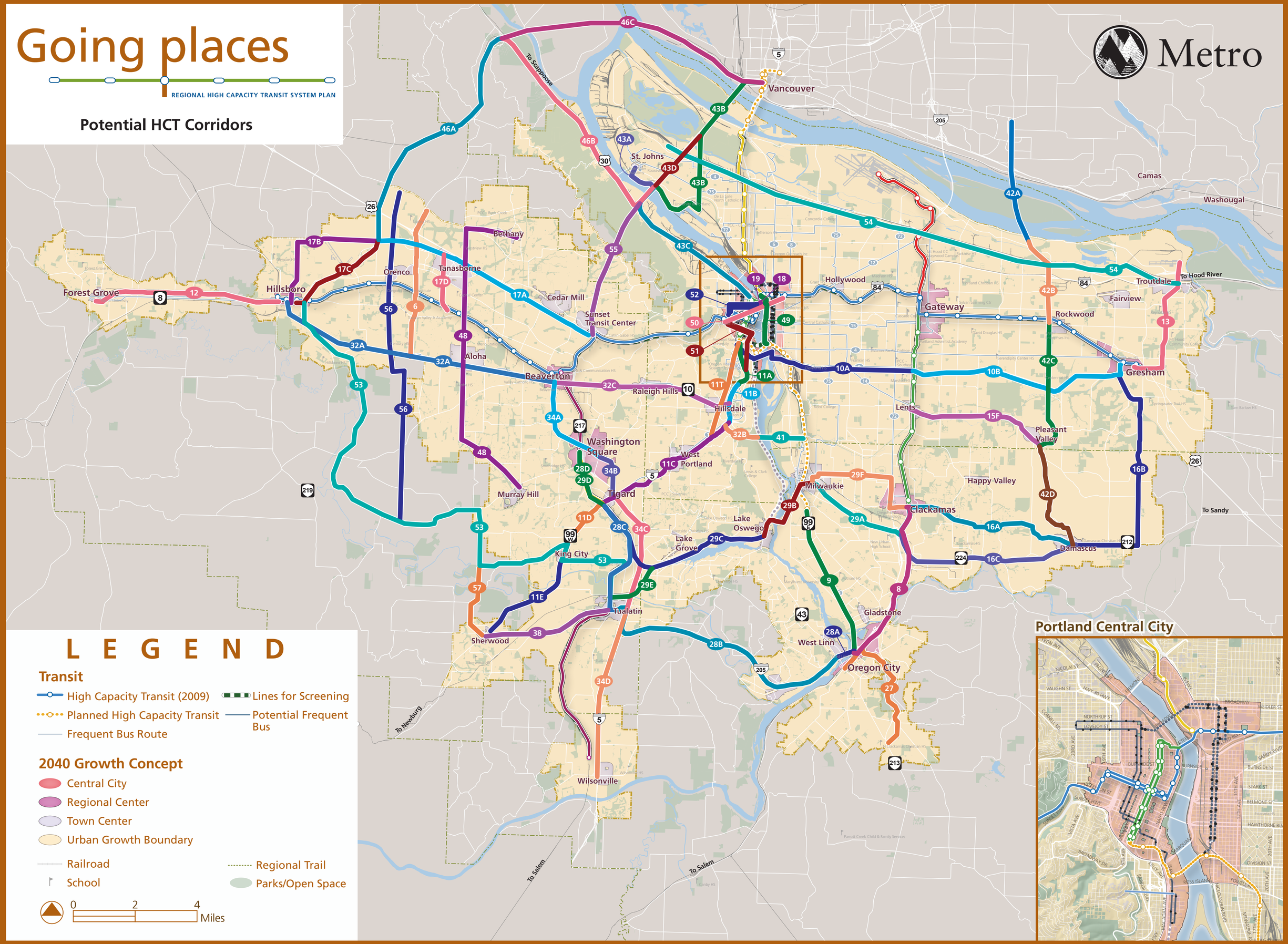
Segment / Corridor ID	Segment / Corridor Name
34C	(Tigard - Tualatin) via 217/I5
34D	(Tualatin - Wilsonville) via I5
38	(Tualatin - Sherwood) via Sherwood Rd
41	(Lake O - McLoughlin connector)
42	(Vancouver - Damascus)
42A	(Marine Drive - Vancouver) via 182nd
42B	(Marine Drive - Rockwood) via 182nd
42C	(Rockwood - Pleasant Valley) via 182nd
42D	(Pleasant Valley - Damascas) via Foster
43	(St. Johns - Vancouver/Union Station)
43A	(St. Johns to RR)
43B	(RR to Vancouver) via UPRR Railroad Bridge
43C	(Union Station - St. Johns) via RR Bridge
43D	(St. Johns - Vancouver) via Freight Corridor
46	(Cornell - St. Johns)
46A	(Cornell to UPRR) via Corn Pass Tunnel
46B	(UPRR - St. Johns) via Freight
46C	(Corn Pass - St. Johns) via Northern Bridge
48	(Murray Hill - Bethany)
49	Eastside Connector
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th
51	Downtown Jefferson/Columbia via 1st Ave
52	Downtown Everett/Glisan to 18th Ave
53	(Hillsboro - Tualatin)
54	(Troutdale - St. Johns)
55	(Sunset TC - St. Johns)
56	(Orenco - Clark Hill Rd)
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd
28A+28B	(Oregon City - Tualatin)
17C+46A+46B+43B	(Hillsboro - Vancouver)
41+32B+32C	(McLoughlin - Beaverton)

Going places

REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN

Potential HCT Corridors

Metro



LEGEND

Transit

- High Capacity Transit (2009)
- Planned High Capacity Transit
- Frequent Bus Route
- Lines for Screening
- Potential Frequent Bus

2040 Growth Concept

- Central City
- Regional Center
- Town Center
- Urban Growth Boundary

- Railroad
- School
- Regional Trail
- Parks/Open Space

0 2 4 Miles

Portland Central City

Summary and Methodology of Screening Process

All screening criteria play an important role in determining the viability of proposed HCT corridors. However, certain criteria naturally have a higher weight in determining the viability of a corridor or project for future advancement through local and federal planning and funding processes. In particular, ridership potential and supporting measures such as system connectivity are critical in ensuring that the HCT system investments provide the highest benefit in supporting regional economic, environmental and community development goals. Several other criteria are directly supported by the ridership potential measure and are therefore given lower weight in the evaluation. The following table describes the weighting given to each criteria for purposes of ranking projects and projects:

Criteria	Weighting	Description
Connectivity	Double	Key indicator of ability to access alignment by foot or bicycle; to make connections to existing HCT and frequent service transit lines; and to provide system access from park-and-rides/intercity transit feeders.
O-D	Single	High level indicator of transit demand not captured in the ridership (TOI) criteria.
2005 Ridership Potential	Double	Important indicator of corridor viability, but not as important as future (2035 TOI) ridership potential.
2035 Ridership Potential	Triple	Primary indicator of future ridership potential; ridership is fundamental indicator of HCT viability; all other benefits are diminished if ridership is low. Selecting highest ridership lines will maximize HCT system role in meeting regional economic, environmental and community development goals.
Cost and Corridor Availability	Double	Important factor in measuring cost effectiveness of project/corridor, particularly when matched with ridership potential.
Environmental	Single	High level environmental impact assessment; more detailed environmental impact assessment would be required for any project.
Equity	Single	Tracks very closely with TOI score, so is already given high priority.
Congestion	Single	Important criteria for measuring disincentive to driving, but spot level assessment does not account for complex travel patterns. Modeling work in next phase will more accurately represent relationship.
2040 Land Use	Single	Important indicator of compliance with RTP; supported by 2035 TOI score which accounts for future growth in 2040 Center.

The weightings were applied to a corridor or segment score calculated by assigning a numeric value to each high, medium and low rank as follows:

Rank	Score
High	5
Medium-High	4
Medium	3
Low-Medium	2
Low	1

Figures 5 and 6 provide a graphic and tabular summary of the screening results. Corridors are separated into four categories at this phase of the evaluation (1) Central City projects recommended for advancement, (2) Corridors recommended for advancement, (3) Corridors to

considered for advancement by Hillsboro, and (4) Corridors considered but not recommended for advancement. Corridors that exceed a threshold score of 30 points advance. There is no attempt to rank corridors beyond these four categories at this point in the evaluation. Corridors advancing beyond this phase will undergo modeling and conceptual engineering level cost analysis as well as a detailed evaluation as described in the HCT System Plan Evaluation Criteria Memo.

Figures 7 and 8 provide more detail summary of screening results.

Figure 5. Screening Results

Going places

REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN

High Capacity Transit Plan: Corridor and Project Ranking Against Screening Criteria

DISCUSSION DRAFT
12/01/2008

Metro

LEGEND

Transit
- High Capacity Transit (2009)
- Planned High Capacity Transit (adopted)
- Existing Frequent Bus Route

2040 Growth Concept
- Central City
- Regional Center
- Town Center
- Urban Growth Boundary
- Railroad
- School

HCT Corridors
- Corridors Recommended For Advancement
- Corridors Not Recommended For Advancement
- Pending Agency Review
- RTC HCT Corridors
- Central City Improvements
- Regional Trail
- Parks/Open Space

0 2 4 Miles

Portland Central City

Date: 11.29.2008
Location: HCT Plan\GIS\Illustrator Maps\HCT_Overall_Ranks.ai
Author: Alan Gunn

Figure 6. Screening Results

High Capacity Transit System Plan
Initial Screened Transit Corridors
Metro Council Review 11/25/08

Not in priority order

Segment / Corridor ID*	Segment / Corridor Name
18	Improvements to Steel Bridge
19	Bridge/Rose Quarter Access Improvements
49	Eastside Connector
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th
51	Downtown Jefferson/Columbia via 1st Ave
52	Downtown Everett/Glisan to 18th Ave
8	(CTC - OCTC) via I-205
9	(Park - OCTC) via McLoughlin
10	(Portland - Gresham) via Powell
11	(Portland to Sherwood) via Barbur Hwy 99w
12	(Hillsboro - Forest Grove)
13	(Gresham - Troutdale MHCC) via Kane Dr
16	(CTC - Damascus)
17	(STC - Hillsboro)
28	(Oregon City - WSTC)
29	(Washington Square - Clackamas)
32	(Hillsboro - Hillsdale)
34	(Beaverton - Wilsonville)
43	(St. Johns - Vancouver/Union Station)
54	(Troutdale - St. Johns)
6	(Amber Glen to Tanasbourne)
48	(Murray Hill - Bethany)
56	(Orenco - Clark Hill Rd)
17D	(Red Line extension to Tanasbourne)
15	(Lents to Pleasant Valley) via Foster Road
27	(Oregon City - Clac CC) - via Hwy213/RRROW
38	(Tualatin - Sherwood) via Sherwood Rd
41	(Lake O - McLoughlin connector)
42	(Vancouver - Damascus)
46	(Cornell - St. Johns)
53	(Hillsboro - Tualatin)
55	(Sunset TC - St. Johns)
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd
17C+46A+46B+43B	(Hillsboro - Vancouver)
41+32B+32C	(McLoughlin - Beaverton)

*Note: Corridors extending to neighboring cities were not considered in this analysis

LEGEND
Central City improvement - staff/Subcomittee recommended for advancement
Corridor - staff/Subcomittee recommended for advancement
Corridor - staff/Subcomittee - one Corridor to be determined by Hillsboro
Corridor - staff/Subcomittee considered, but not recommended for advancement

Figure 7. Screening Results by Corridor

		Screening Results									
		1-3	1-5	1-5	1-5	1-3	1-3	1-3	1-5	1-5	1-3
Segment / Corridor ID	Segment / Corridor Name	Connectivity and System Score	O-D	Existing Potential Ridership	Future Potential Ridership	Corridor Availability and Cost	Environmental Constraints	Equity	Congestion (Midday)	Congestion (Peak)	2040 Land Use
6	(Amber Glen to Tanasbourne)	Low	Low	Low	Low-Medium	Medium	High	Low	Low	Medium-High	Low
8	(CTC - OCTC) via I-205	High	Medium	Low	Low-Medium	Medium	Medium	Medium	Medium-High	High	Medium
9	(Park - OCTC) via McLoughlin	High	Low	Low	Low	Medium	Medium	Low	Low	High	Medium
10	(Portland Mall - Gresham) via Powell	Medium	Low-Medium	Low-Medium	Medium	Medium	Medium	High	High	High	High
11	(Portland to Sherwood) via Barbur Hwy 99w	Low	Low-Medium	Low-Medium	Medium	Medium	Medium	Low	High	High	High
12	(Hillsboro - Forest Grove)	Medium	Medium	Low	Low	High	Medium	High	Medium-High	High	Medium
13	(Gresham - Troutdale MHCC) via Kane Dr	Medium	Low	Low	Low-Medium	Medium	Medium	Low	Low	High	Medium
15	(Lents to Pleasant Valley) via Foster Road	Low	Low	Low	Low	Medium	Medium	Low	Medium-High	High	Low
16	(CTC - Damascus)	Medium	Low-Medium	Low	Low	High	Medium	High	High	High	Medium
17	(STC - Hillsboro)	Low	Low-Medium	Low	Low-Medium	High	Medium	Low	Medium-High	High	Medium
18	Improvements to Steel Bridge	High	High	High	High	High	High	Low	Low	Medium	High
19	Bridge Improvements	High	High	High	High	Medium	Low	Medium	Low	Medium	High
27	(Oregon City - Clac CC) - via Hwy213/RRROW	Low	Low	Low	Low	Medium	Low	Low	Medium-High	High	Low
28	(Oregon City - WSTC)	Low	Low	Low	Low-Medium	High	Medium	Low	High	High	Medium
29	(CTC - Clackamas)	Medium	Low	Low	Low-Medium	High	Medium	High	Medium-High	High	Medium
32	(Hillsboro - Hillsdale)	Low	Low	Low	Low-Medium	High	Medium	Medium	Medium-High	High	Medium
34	(Beaverton - Wilsonville)	Low	Low	Low	Low-Medium	Medium	Medium	Medium	High	High	Medium
38	(Tualatin - Sherwood) via Sherwood Rd	Low	Low	Low	Low	Medium	High	Low	Medium	High	Low
41	(Lake O - McLoughlin connector)	Medium	Low	Low	Low	Low	Medium	Low	High	High	Low
42	(Vancouver - Damascus)	Low	Low	Low	Low	Medium	Low	Medium	Medium-High	High	Medium
43	(St. Johns - Vancouver/Union Station)	Low	Medium-High	Low-Medium	Medium	High	Low	High	High	High	High
46	(Cornell - St. Johns)	Low	Low	Low	Low	High	Low	Low	High	High	Medium
48	(Murray Hill - Bethany)	Low	Low	Low	Low	Low	Medium	Low	Medium	High	Low
49	Eastside Connector	High	Medium	High	High	Low	Medium	High	Low	Medium	High
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	High	Low-Medium	High	High	Low	Medium	High	Low	Low	High
51	Downtown Jefferson/Columbia via 1st Ave	Low	High	High	High	Low	Medium	Medium	Low	Medium	High
52	Downtown Everett/Glisan to 18th Ave	Low	High	High	High	Low	High	Medium	Medium	Medium	High
53	(Hillsboro - Tualatin)	Low	Low	Low	Low	Medium	Low	High	Low	High	Medium
54	(Troutdale - St. Johns)	Low	Low	Low	Low	High	Low	High	Low	Medium-High	Medium
55	(Sunset TC - St. Johns)	High	Low	Low	Low	Low	Low	Low	High	High	Low
56	(Orenco - Clark Hill Rd)	Low	Low	Low	Low	Medium	Low	Medium	Low	High	Low
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	Low	Low	Low	Low	Medium	Low	Low	High	High	Low
28A+28B	(Oregon City - Tualatin)	High	Low	Low	Low	Low	Medium	Low	Medium-High	High	Medium
17C+46A+46B+43B	(Hillsboro - Vancouver)	Low	Low	Low	Low	High	Low	High	Medium-High	High	High
41+32B+32C	(McLoughlin - Beaverton)	Medium	Low	Low	Low-Medium	Low	Medium	Low	Medium-High	High	Medium

Note: Methods for determining High, Medium, Low rankings are described in detail in the Screening Results Technical Memorandum
Note: All High ratings indicate positive results as related to project viability; all low ratings indicated negative results

Figure 8. Screening Results by Segment/Project

		Screening Results									
		1-3	1-5	1-5	1-5	1-3	1-3	1-3	1-5	1-5	1-3
Segment / Corridor ID	Segment / Corridor Name	Connectivity and System Score	O-D	Existing Potential Ridership	Future Potential Ridership	Corridor Availability and Cost	Environmental Constraints	Equity	Congestion (Midday)	Congestion (Peak)	2040 Land Use
6	(Amber Glen to Tanasbourne)	Low	Low	Low	Low-Medium	Medium	High	Low	Low	Medium-High	Low
8	(CTC - OCTC) via I-205	High	Medium	Low	Low-Medium	Medium	Medium	Medium	Medium-High	High	Medium
9	(Park - OCTC) via McLoughlin	High	Low	Low	Low	Medium	Medium	Low	Low	High	Medium
10	(Portland Mall - Gresham) via Powell	Medium	Low-Medium	Low-Medium	Medium	Medium	Medium	High	High	High	High
10A	(Portland Mall - I-205) via Powell	High	High	Medium	High	Low	Medium	Low	High	High	High
10B	(I-205 - Gresham) via Powell	Medium	Low-Medium	Low	Low	Medium	High	High	High	High	High
11	(Portland to Sherwood) via Barbur Hwy 99w	Low	Low-Medium	Low-Medium	Medium	Medium	Medium	Low	High	High	High
11A	(Portland to Terwilliger) via Barbur Hwy 99W	Medium	Medium-High	High	High	Low	Medium	Low	Low	High	High
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	Low	Medium	Low	Low	Low	Medium	Low	Low	High	High
11C	(Multnomah to Tigard) via Barbur Hwy 99w	Low	Low	Low	Low-Medium	Medium	Medium	Low	Medium-High	High	High
11D	(Tigard -King City) via Barbur Hwy 99w	Low	Low	Low	Low	Medium	High	Low	High	High	High
11E	(King City - Sherwood) via Barbur Hwy 99w	Low	Low	Low	Low	Medium	High	Low	High	High	High
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	Medium	Medium-High	Medium	High	Low	Medium	Low	Low	High	High
12	(Hillsboro - Forest Grove)	Medium	Medium	Low	Low	High	Medium	High	Medium-High	High	Medium
13	(Gresham - Troutdale MHCC) via Kane Dr	Medium	Low	Low	Low-Medium	Medium	Medium	Low	Low	High	Medium
15	(Lents to Pleasant Valley) via Foster Road	Low	Low	Low	Low	Medium	Medium	Low	Medium-High	High	Low
16	(CTC - Damascus)	Medium	Low-Medium	Low	Low	High	Medium	High	High	High	Medium
16A	(CTC - Damascas) via Sunnyside	Medium	Low-Medium	Low	Low-Medium	Medium	High	Low	Medium	High	Medium
16B	(Gresham - Damascus) via 232nd/242nd Ave	Low	Low	Low	Low	High	High	Low	Medium	High	Medium
16C	(CTC - Damascas) via Hwy 212/224	Medium	Low-Medium	Low	Low	Medium	Medium	High	High	High	Medium
17	(STC - Hillsboro)	Low	Low-Medium	Low	Low-Medium	High	Medium	Low	Medium-High	High	Medium
17A	(Shute - St Vincent) via Evergreen/US26	Medium	Low-Medium	Low	Low-Medium	Medium	Medium	Low	Medium-High	High	Medium
17B	(Hillsboro -Shute) via Evergreen	Low	Medium	Low	Low	Medium	High	Low	Medium	High	Medium
17C	(Hillsboro-Shute) via Cornel/Shute	Low	Medium	Low	Low-Medium	High	Medium	Low	Medium	High	Medium
17D	(Tanasbourne - Blue Line)	Low	Medium	Low	Medium	Medium	Medium	Low	Low	Medium-High	Medium
18	Improvements to Steel Bridge	High	High	High	High	High	High	Low	Low	Medium	High
19	Bridge Improvements	High	High	High	High	Medium	Low	Medium	Low	Medium	High
27	(Oregon City - Clac CC) - via Hwy213/RRROW	Low	Low	Low	Low	Medium	Low	Low	Medium-High	High	Low
28	(Oregon City - WSTC)	Low	Low	Low	Low-Medium	High	Medium	Low	High	High	Medium
28A	(Oregon City - West Linn) via new bridge	Low	Low	Low	Low	Low	Low	Low	High	High	Medium
28B	(West Linn - Tualatin) via I-205	Low	Low-Medium	Low	Low	Medium	Medium	Low	Medium	High	Medium
28C	(Tualatin - Tigard) via WES	Medium	Low	Low-Medium	Low-Medium	High	High	Low	High	High	Medium
28D	(Tigard - WSTC) via WES	Low	Low-Medium	Low-Medium	Medium	High	High	Low	Low	High	Medium
29	(CTC - Clackamas)	Medium	Low	Low	Low-Medium	High	Medium	High	Medium-High	High	Medium
29A	(CTC - Milwaukie) via Hwy 224	Medium	Low-Medium	Low	Low-Medium	Medium	Medium	Medium	Medium	Medium-High	Medium
29B	(Milwaukie - Lake O) via RR bridge	High	Low	Low	Low-Medium	High	Medium	Medium	Medium-High	High	Medium
29C	(Lake O - Tigard TC) via RR ROW	Medium	Low	Low	Low-Medium	High	Medium	Low	Medium-High	High	Medium
29D	Tigard TC - WSTC) via WES ROW	Low	Low-Medium	Low-Medium	Medium	High	Medium	Low	Medium-High	High	Medium
29E	(Boones Ferry - Tualatin) via RR ROW	Low	Low-Medium	Low-Medium	Low-Medium	High	Medium	Low	Medium-High	High	Medium
29F	(Milwaukie - Clackamas)	High	Low-Medium	Low	Low-Medium	Medium	High	Low	Low	Low	Medium
32	(Hillsboro - Hillsdale)	Low	Low	Low	Low-Medium	High	Medium	Medium	Medium-High	High	Medium
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	Medium	Low-Medium	Low	Low-Medium	High	Medium	High	Medium-High	High	Medium
32B	(Barbur - Lake O connector)	Low	Low	Low	Low	Medium	Medium	Low	Medium-High	High	Medium
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	Low	Low-Medium	Low	Low-Medium	Medium	Medium	Low	Medium	High	Medium
34	(Beaverton - Wilsonville)	Low	Low	Low	Low-Medium	Medium	Medium	Medium	High	High	Medium
34A	(Beaverton - Washington Sq) via Hall	Medium	Medium	Low-Medium	Medium	Medium	High	Low	Medium	High	Medium
34B	(Washington Sq - Tigard) via Hall	Low	Low-Medium	Low	Low-Medium	Medium	High	Low	Medium-High	High	Medium
34C	(Tigard - Tualatin) via 217/I5	Low	Low	Low-Medium	Medium	Medium	Medium	Low	High	High	Medium
34D	(Tualatin - Wilsonville) via I5	Low	Low	Low	Low	Medium	High	Low	High	High	Medium
38	(Tualatin - Sherwood) via Sherwood Rd	Low	Low	Low	Low	Medium	High	Low	Medium	High	Low
41	(Lake O - McLoughlin connector)	Medium	Low	Low	Low	Low	Medium	Low	High	High	Low
42	(Vancouver - Damascus)	Low	Low	Low	Low	Medium	Low	Medium	Medium-High	High	Medium

		Screening Results									
		1-3	1-5	1-5	1-5	1-3	1-3	1-3	1-5	1-5	1-3
Segment / Corridor ID	Segment / Corridor Name	Connectivity and System Score	O-D	Existing Potential Ridership	Future Potential Ridership	Corridor Availability and Cost	Environmental Constraints	Equity	Congestion (Midday)	Congestion (Peak)	2040 Land Use
42A	(Marine Drive - Vancouver) via 182nd	Low	Low	Low	Low	Low	Low	Low	Low	Medium-High	Low
42B	(Marine Drive - Rockwood) via 182nd	Low	Low-Medium	Low	Low-Medium	Medium	Medium	Low	Low	Medium-High	Medium
42C	(Rockwood - Pleasant Valley) via 182nd	Low	Low	Low	Low	Medium	Medium	Medium	Low	High	Medium
42D	(Pleasant Valley - Damascas) via Foster	Low	Low	Low	Low	High	High	Low	Medium-High	High	Low
43	(St. Johns - Vancouver/Union Station)	Low	Medium-High	Low-Medium	Medium	High	Low	High	High	High	High
43A	(St. Johns to RR)	Low	Medium	Low	Low-Medium	High	Medium	Low	Low	Low	High
43B	(RR to Vancouver) via UPRR Railroad Bridge	Low	Low	Low	Low-Medium	High	Low	Medium	Low	Medium	High
43C	(Union Station - St. Johns) via RR Bridge	Medium	High	Low-Medium	High	High	Medium	Medium	High	High	High
43D	(St. Johns - Vancouver) via Freight Corridor	Medium	Low	Low	Low	High	Low	Low	Low	High	High
46	(Cornell - St. Johns)	Low	Low	Low	Low	High	Low	Low	High	High	Medium
46A	(Cornell to UPRR) via Corn Pass Tunnel	Low	Low	Low	Low	High	Low	Low	High	High	Medium
46B	(UPRR - St. Johns) via Freight	Low	Low	Low	Low	High	Low	Medium	High	High	Medium
46C	(Corn Pass - St. Johns) via Northern Bridge	Low	Low	Low	Low	High	Low	Low	Low	Low	Medium
48	(Murray Hill - Bethany)	Low	Low	Low	Low	Low	Medium	Low	Medium	High	Low
49	Eastside Connector	High	Medium	High	High	Low	Medium	High	Low	Medium	High
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	High	Low-Medium	High	High	Low	Medium	High	Low	Low	High
51	Downtown Jefferson/Columbia via 1st Ave	Low	High	High	High	Low	Medium	Medium	Low	Medium	High
52	Downtown Everett/Glisan to 18th Ave	Low	High	High	High	Low	High	Medium	Medium	Medium	High
53	(Hillsboro - Tualatin)	Low	Low	Low	Low	Medium	Low	High	Low	High	Medium
54	(Troutdale - St. Johns)	Low	Low	Low	Low	High	Low	High	Low	Medium-High	Medium
55	(Sunset TC - St. Johns)	High	Low	Low	Low	Low	Low	Low	High	High	Low
56	(Orenco - Clark Hill Rd)	Low	Low	Low	Low	Medium	Low	Medium	Low	High	Low
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	Low	Low	Low	Low	Medium	Low	Low	High	High	Low
28A+28B	(Oregon City - Tualatin)	High	Low	Low	Low	Low	Medium	Low	Medium-High	High	Medium
17C+46A+46B+43B	(Hillsboro - Vancouver)	Low	Low	Low	Low	High	Low	High	Medium-High	High	High
41+32B+32C	(McLoughlin - Beaverton)	Medium	Low	Low	Low-Medium	Low	Medium	Low	Medium-High	High	Medium

Note: Methods for determining High, Medium, Low rankings are described in detail in the Screening Results Technical Memorandum
Note: All High ratings indicate positive results as related to project viability; all low ratings indicated negative results

Segments Excluded from Passing Corridors

In the course of the evaluation, some specific segments were eliminated from corridors that were advanced. These segments are listed below with the reason for elimination:

- 16B - (Gresham - Damascus) via 232nd/242nd Ave: Very low ridership potential and connectivity benefit.
- 16C – (CTC - Damascas) via Hwy 212/224: Duplicated by stronger segment 16A.
- 17B - (Hillsboro-Shute) via Cornel/Shute: Duplicated by stronger segment 17C.
- 17D - (Tanasbourne - Blue Line): Very low ridership potential and connectivity benefit.
- 29F - (Milwaukie - Clackamas): Duplicated by stronger segment 29A.
- 43 B - (RR to Vancouver) via UPRR Railroad Bridge: Technical feasibility issues due to single track tunnel.

Individual Criteria Application and Results

This section provides a detailed overview of criteria assessment methodology and outputs for each of the eight criteria. Data results that support the higher level screening are provided here to show how high, medium, low rankings were arrived at by the HCT team.

Ridership Potential Evaluation (2005 and 2035)

A rough estimate of ridership potential was generated using the Transit Orientation Index (TOI), which predicts the potential for land use mixes to generate transit ridership. Direct data inputs include residential, total jobs and retail job densities around potential HCT corridors. Estimates of ridership were made for the current year (2005) and future year (2035). This analysis was conducted in the following steps:

Step 1: Conduct GIS analysis

- Calculate area of TAZs within a half mile of each alignment
- Create a half mile buffer around alignments
- For the segment analysis, split buffers into smaller segments
- Join employment, household and retail data with TAZs in GIS. All TAZs are assigned 2005 and 2035 data
- Clip TAZs using the half mile buffer
- Calculate an area of the clipped TAZs
- Calculate the percentage of TAZ area that falls within the half mile buffer
- Export the output into Excel for further calculations

Step 2: Calculate TOI score in Excel

- Multiply the area percentage of TAZs with employment, retail and household data for each TAZ
- Sum the values to calculate a total employment, retail and households value for each alignment
- Calculate a total area of TAZs for each alignment
- Calculate densities of employment, retail, and household (per acre) for the entire alignment
- Apply the equation below to each alignment:

Ridership/acre = 0.162648 * employment/acre
+ 0.000185 * employment/acre, squared
+ 0.046332 * households/acre, squared
+ 0.001648 * retail employment/acre, cubed

Step 3: Categorize corridors/segments by the following scores

TOI Score (2005 and 2035)	Rank
> 5.0 riders per acre	High
4.0-5.0 riders per acre	Medium-High
3.0-4.0 riders per acre	Medium
1.5-3.0 riders per acre	Low-Medium
< 1.5 rider per acre	Low

Figure 9 presents the results of this analysis in tabular format. Figures 10 and 11 show the results graphically for 2005 and 2035 respectively.

Figure 9. Ridership Results (2005 and 2035)

SEGMENT	DESCRIPTION	Category	TOI 2005	Category	TOI 2035
5		Low	0.91	Low	1.46
6	(Amber Glen to Tanasbourne)	Low	0.81	Low-Medium	1.92
8	(CTC - OCTC) via I-205	Low	1.03	Low-Medium	1.91
9	(Park - OCTC) via McLoughlin	Low	0.84	Low	1.29
10	(Portland Mall - Gresham) via Powell	Low-Medium	2.02	Medium	3.42
10A	(Portland Mall - I-205) via Powell	Medium	3.55	High	6.29
10B	(I-205 - Gresham) via Powell	Low	0.89	Low	1.43
11	(Portland to Sherwood) via Barbur Hwy 99w	Low-Medium	1.75	Medium	3.12
11A	(Portland to Terwilliger) via Barbur Hwy 99W	High	9.14	High	26.93
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	Low	0.98	Low	1.48
11C	(Multnomah to Tigard) via Barbur Hwy 99w	Low	1.04	Low-Medium	1.72
11D	(Tigard -King City) via Barbur Hwy 99w	Low	0.96	Low	1.49
11E	(King City - Sherwood) via Barbur Hwy 99w	Low	0.41	Low	0.73
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	Medium	3.43	High	5.29
12	(Hillsboro - Forest Grove)	Low	0.61	Low	1.18
13	(Gresham - Troutdale MHCC) via Kane Dr	Low	0.84	Low-Medium	1.55
15	(Lents to Pleasant Valley) via Foster Road	Low	0.23	Low	0.63
16	(CTC - Damascus)	Low	0.45	Low	1.13
16A	(CTC - Damascas) via Sunnyside	Low	0.67	Low-Medium	1.64
16B	(Gresham - Damascus) via 232nd/242nd Ave	Low	0.21	Low	0.77
16C	(CTC - Damascas) via Hwy 212/224	Low	0.57	Low	1.21
17	(STC - Hillsboro)	Low	1.00	Low-Medium	2.15
17A	(Shute - St Vincent) via Evergreen/US26	Low	1.22	Low-Medium	2.51
17B	(Hillsboro -Shute) via Evergreen	Low	0.57	Low	1.26
17C	(Hillsboro-Shute) via Cornel/Shute	Low	0.85	Low-Medium	1.92
17D	(Tanasbourne - Blue Line)	Low	1.45	Medium	3.41
18	Improvements to Steel Bridge	High	7.97	High	24.81
19	Bridge Improvements	High	14.08	High	49.69
27	(Oregon City - Clac CC) - via Hwy213/RRROW	Low	0.41	Low	0.91
28	(Oregon City - WSTC)	Low	0.96	Low-Medium	1.56
28A	(Oregon City - West Linn) via new bridge	Low	0.63	Low	1.45
28B	(West Linn - Tualatin) via I-205	Low	0.39	Low	0.79
28C	(Tualatin - Tigard) via WES	Low-Medium	1.59	Low-Medium	2.31
28D	(Tigard - WSTC) via WES	Low-Medium	2.19	Medium	3.42
29	(CTC - Clackamas)	Low	1.31	Low-Medium	2.19
29A	(CTC - Milwaukie) via Hwy 224	Low	1.24	Low-Medium	1.83
29B	(Milwaukie - Lake O) via RR bridge	Low	0.89	Low-Medium	1.57
29C	(Lake O - Tigard TC) via RR ROW	Low	1.15	Low-Medium	1.81
29D	Tigard TC - WSTC) via WES ROW	Low-Medium	2.27	Medium	3.69
29E	(Boones Ferry - Tualatin) via RR ROW	Low-Medium	1.50	Low-Medium	2.72

SEGMENT	DESCRIPTION	Category	TOI 2005	Category	TOI 2035
29F	(Milwaukie - Clackamas)	Low	1.44	Low-Medium	2.80
32	(Hillsboro - Hillsdale)	Low	1.10	Low-Medium	1.92
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	Low	1.13	Low-Medium	2.13
32B	(Barbur - Lake O connector)	Low	0.64	Low	1.01
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	Low	1.18	Low-Medium	1.83
34	(Beaverton - Wilsonville)	Low	1.40	Low-Medium	2.46
34A	(Beaverton - Washington Sq) via Hall	Low-Medium	2.04	Medium	3.14
34B	(Washington Sq - Tigard) via Hall	Low	1.39	Low-Medium	2.70
34C	(Tigard - Tualatin) via 217/I5	Low-Medium	2.00	Medium	3.35
34D	(Tualatin - Wilsonville) via I5	Low	0.67	Low	1.49
38	(Tualatin - Sherwood) via Sherwood Rd	Low	0.80	Low	1.34
41	(Lake O - McLoughlin connector)	Low	1.05	Low	1.47
42	(Vancouver - Damascus)	Low	0.46	Low	1.17
42A	(Marine Drive - Vancouver) via 182nd	Low	0.84	Low	1.29
42B	(Marine Drive - Rockwood) via 182nd	Low	0.84	Low-Medium	1.67
42C	(Rockwood - Pleasant Valley) via 182nd	Low	0.55	Low	1.28
42D	(Pleasant Valley - Damascas) via Foster	Low	0.05	Low	0.75
43	(St. Johns - Vancouver/Union Station)	Low-Medium	1.60	Medium	3.09
43A	(St. Johns to RR)	Low	1.10	Low-Medium	1.66
43B	(RR to Vancouver) via UPRR Railroad Bridge	Low	1.09	Low-Medium	1.92
43C	(Union Station - St. Johns) via RR Bridge	Low-Medium	2.56	High	5.91
43D	(St. Johns - Vancouver) via Freight Corridor	Low	0.51	Low	0.74
46	(Cornell - St. Johns)	Low	0.21	Low	0.44
46A	(Cornell to UPRR) via Corn Pass Tunnel	Low	0.09	Low	0.28
46B	(UPRR - St. Johns) via Freight	Low	0.16	Low	0.27
46C	(Corn Pass - St. Johns) via Northern Bridge	Low	0.37	Low	0.74
48	(Murray Hill - Bethany)	Low	0.74	Low	1.41
49	Eastside Connector	High	8.40	High	19.03
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	High	16.67	High	40.98
51	Downtown Jefferson/Columbia via 1st Ave	High	14.57	High	32.50
52	Downtown Everett/Glisan to 18th Ave	High	21.04	High	62.50
53	(Hillsboro - Tualatin)	Low	0.34	Low	0.60
54	(Troutdale - St. Johns)	Low	0.69	Low	1.07
55	(Sunset TC - St. Johns)	Low	0.33	Low	0.81
56	(Orenco - Clark Hill Rd)	Low	0.32	Low	0.96
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	Low	0.11	Low	0.25
28A+28B	(Oregon City - Tualatin)	Low	0.41	Low	0.85
17C+46A+46B+43B	(Hillsboro - Vancouver)	Low	0.42	Low	0.84
41+32B+32C	(McLoughlin - Beaverton)	Low	0.85	Low-Medium	1.78

Going places

REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN

2005 Potential Ridership Results

Metro

Corridor	TOI 2005	Category
5	0.91	Low
6	0.81	Low
8	1.03	Low
9	0.84	Low
10	2.02	Low-Medium
11	1.75	Low-Medium
12	0.61	Low
13	0.84	Low
15	0.23	Low
16	0.45	Low
17	1.00	Low
18	7.97	High
19	14.08	High
27	0.41	Low
28	0.96	Low
29	1.31	Low
32	1.10	Low
34	1.40	Low
38	0.80	Low
41	1.05	Low
42	0.46	Low
43	1.60	Low-Medium
46	0.21	Low
48	0.74	Low
49	8.40	High
50	16.67	High
51	14.57	High
52	21.04	High
53	0.34	Low
54	0.69	Low
55	0.33	Low
56	0.32	Low
57	0.11	Low

L E G E N D

Transit

- High Capacity Transit (2009)
- Planned High Capacity Transit
- Frequent Bus Route
- Lines for Screening
- Potential Frequent Bus

2040 Growth Concept

- Central City
- Regional Center
- Town Center
- Urban Growth Boundary

- Railroad
- School
- Regional Trail
- Parks/Open Space

0 2 4 Miles

Newberg Senior HS

Vancouver
Camas
Washougal
To Scappoose
St. Johns
Bethany
Forest Grove
Hillsboro
Orenco
Tanasbourne
Cedar Mill
Sunset Transit Center
Aloha
Beaverton
Raleigh Hills
Hillsdale
Washington Square
West Portland
Tigard
Murray Hill
Lake Oswego
Lake Grove
King City
Tualatin
Sherwood
Wilsonville
To Newburg
To Salem
Hollywood
Gateway
Troutdale
To Hood River
Fairview
Rockwood
Gresham
Lents
Pleasant Valley
Happy Valley
Clackamas
Milwaukie
Damascus
To Sandy
Gladstone
West Linn
Oregon City

Portland Central City

Going places

REGIONAL HIGH CAPACITY TRANSIT SYSTEM PLAN

2035 Potential Ridership Results

Metro

Corridor	TOI 2035	Category
5	1.46	Low
6	1.92	Low-Medium
8	1.91	Low-Medium
9	1.29	Low
10	3.42	Medium
11	3.12	Medium
12	1.18	Low
13	1.55	Low-Medium
15	0.63	Low
16	1.13	Low
17	2.15	Low-Medium
18	24.81	High
19	49.69	High
27	0.91	Low
28	1.56	Low-Medium
29	2.19	Low-Medium
32	1.92	Low-Medium
34	2.46	Low-Medium
38	1.34	Low
41	1.47	Low
42	1.17	Low
43	3.09	Medium
46	0.44	Low
48	1.41	Low
49	19.03	High
50	40.98	High
51	32.50	High
52	62.50	High
53	0.60	Low
54	1.07	Low
55	0.81	Low
56	0.96	Low
57	0.25	Low

L E G E N D

Transit

- High Capacity Transit (2009)
- Planned High Capacity Transit
- Frequent Bus Route
- Lines for Screening
- Potential Frequent Bus

2040 Growth Concept

- Central City
- Regional Center
- Town Center
- Urban Growth Boundary

- Railroad
- School
- Regional Trail
- Parks/Open Space

0 2 4 Miles

Portland Central City

Origin-Destination Transit Demand Evaluation

Results from the 2035 Scenario B modeling outputs were used to gauge future demand between anchor points on proposed HCT alignments. Ranking of potential alignments was done by visually examining the data and determining the most appropriate natural breaks. The following breaks were used to rank the alignments:

OD Transit Demand	Rank
< 500	Low
501 – 1500	Low-Medium
1501 – 3000	Medium
3001 – 4500	Medium-High
4500 +	High

The origin-destination analysis focused primarily on the anchor ends of corridors, which may overlook some strong interim travel pairs. The analysis was conducted using the zones shown in the map below.

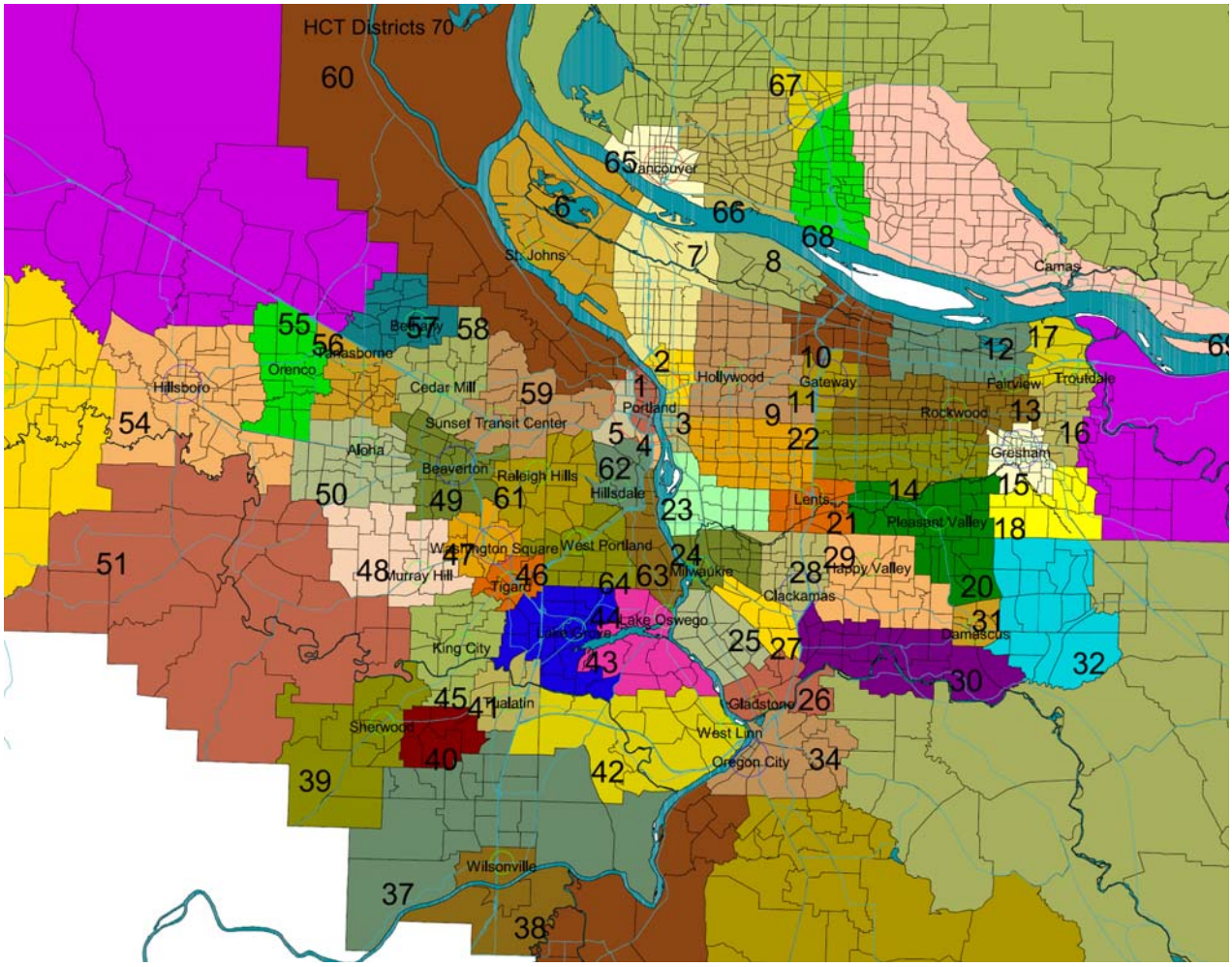


Figure 12. O-D Transit Demand Results

SEGMENT	DESCRIPTION	End Dist 1	OD Transit Demand	Rank
6	(Amber Glen to Tanasbourne)	55-53	358	Low
8	(CTC - OCTC) via I-205	28-34	2464	Medium
9	(Park - OCTC) via McLoughlin	25-34	215	Low
10	(Portland Mall - Gresham) via Powell	15-1	1039	Low-Medium
10A	(Portland Mall - I-205) via Powell	14-1	4699	High
10B	(I-205 - Gresham) via Powell	14-15	1091	Low-Medium
11	(Portland to Sherwood) via Barbur Hwy 99w	39-1	688	Low-Medium
11A	(Portland to Terwilliger) via Barbur Hwy 99W	64-1	3126	Medium-High
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	62-62	1712	Medium
11C	(Multnomah to Tigard) via Barbur Hwy 99w	46-62	169	Low
11D	(Tigard -King City) via Barbur Hwy 99w	45-46	279	Low
11E	(King City - Sherwood) via Barbur Hwy 99w	39-45	173	Low
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	64-1	3126	Medium-High
12	(Hillsboro - Forest Grove)	52-54	1558	Medium
13	(Gresham - Troutdale MHCC) via Kane Dr	15-17	245	Low
15	(Lents to Pleasant Valley) via Foster Road	20-21	133	Low
16	(CTC - Damascus)	28-31	585	Low-Medium
16A	(CTC - Damascas) via Sunnyside	28-31	585	Low-Medium
16B	(Gresham - Damascus) via 232nd/242nd Ave	15-31	227	Low
16C	(CTC - Damascas) via Hwy 212/224	28-31	585	Low-Medium
17	(STC - Hillsboro)	54-59	784	Low-Medium
17A	(Shute - St Vincent) via Evergreen/US26	55-59	1163	Low-Medium
17B	(Hillsboro -Shute) via Evergreen	54-55	2613	Medium
17C	(Hillsboro-Shute) via Cornel/Shute	54-55	2613	Medium
17D	(Tanasbourne - Blue Line)	56-56	2181	Medium
18	Improvements to Steel Bridge	1-2	12525	High
19	Bridge Improvements	1-2	12525	High
27	(Oregon City - Clac CC) - via Hwy213/RRROW	34-35	281	Low
28	(Oregon City - WSTC)	34-47	95	Low
28A	(Oregon City - West Linn) via new bridge	34-42	327	Low
28B	(West Linn - Tualatin) via I-205	41-42	950	Low-Medium
28C	(Tualatin - Tigard) via WES	41-46	451	Low
28D	(Tigard - WSTC) via WES	46-47	670	Low-Medium
29	(CTC - Wash Sq)	28-47	119	Low
29A	(CTC - Milwaukie) via Hwy 224	24-28	958	Low-Medium
29B	(Milwaukie - Lake O) via RR bridge	24-43	225	Low
29C	(Lake O - Tigard TC) via RR ROW	43-46	118	Low
29D	Tigard TC - WSTC) via WES ROW	46-47	670	Low-Medium
29E	(Boones Ferry - Tualatin) via RR ROW	41-44	1014	Low-Medium
29F	(Milwaukie - Clackamas)	24-28	958	Low-Medium
32	(Hillsboro - Hillsdale)	54-62	259	Low
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	54-59	784	Low-Medium
32B	(Barbur - Lake O connector)	63-63	336	Low
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	49-62	934	Low-Medium

SEGMENT	DESCRIPTION	End Dist 1	OD Transit Demand	Rank
34	(Beaverton - Wilsonville)	49-38	112	Low
34A	(Beaverton - Washington Sq) via Hall	49-47	1983	Medium
34B	(Washington Sq - Tigard) via Hall	46-47	670	Low-Medium
34C	(Tigard - Tualatin) via 217/I5	46-41	451	Low
34D	(Tualatin - Wilsonville) via I5	38-41	184	Low
38	(Tualatin - Sherwood) via Sherwood Rd	39-41	425	Low
41	(Lake O - McLoughlin connector) -sellwood br	23-63	147	Low
42	(Vancouver - Damascus)	65-31	3	Low
42A	(Marine Drive - Vancouver) via 182nd	69-12	22	Low
42B	(Marine Drive - Rockwood) via 182nd	13-12	905	Low-Medium
42C	(Rockwood - Pleasant Valley) via 182nd	13-20	257	Low
42D	(Pleasant Valley - Damascas) via Foster	20-31	182	Low
43	(St. Johns - Vancouver/Union Station)	1-6	3311	Medium-High
43A	(St. Johns to RR)	6-6	1557	Medium
43B	(RR to Vancouver) via UPRR Railroad Bridge	65-6	237	Low
43C	(Union Station - St. Johns) via RR Bridge	6-1	7301	High
43D	(St. Johns - Vancouver) via Freight Corridor	65-6	237	Low
46	(Cornell - St. Johns) from Orenco dist	55-6	88	Low
46A	(Cornell to UPRR) via Corn Pass Tunnel	60-54	74	Low
46B	(UPRR - St. Johns) via Freight	60-6	336	Low
46C	(Corn Pass - St. Johns) via Northern Bridge	60-65	62	Low
48	(Murray Hill - Bethany)	48-57	43	Low
49	Eastside Connector	2-3	1806	Medium
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	4-5	767	Low-Medium
51	Downtown Jefferson/Columbia via 1st Ave	1-1	34961	High
52	Downtown Everett/Glisan to 18th Ave	1-1	34961	High
53	(Hillsboro - Tualatin)	54-41	70	Low
54	(Troutdale - St. Johns)	17-6	23	Low
55	(Sunset TC - St. Johns)	59-6	167	Low
56	(Orenco - Clark Hill Rd)	51-53	7	Low
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	51-39	12	Low
28A+28B	(Oregon City - Tualatin)	41-34	223	Low
17C+46A+46B+43B	(Hillsboro - Vancouver)	65-54	7	Low
41+32B+32C	(McLoughlin - Beaverton)	23-49	190	Low

Corridor Availability and Cost Assessment

This assessment is qualitative and focuses on the cost of construction for a HCT dedicated right-of-way. Alignments or projects that require significant tunneling, bridge construction or new right-of-way acquisition were disfavored. The analysis was conducted in the following steps:

Corridor segments were ranked subjectively into three categories: “high,” “medium,” and “low.” In this case a “high” ranking suggests that project costs are low and vice a versa.

- **High** rankings are primarily on existing tracks or within railroad right-of-way. Construction cost would be minimal and no property acquisition would be needed.

- **Medium** rankings include segments in suburban or rural roadway corridors. New track would have to be constructed within or adjacent to the roadway. Some property acquisition may be needed. Construction would be at-grade with few if any structures required.

- **Low** rankings include urban segments where construction would be complex and property acquisition costs could be significant. Segments that require major bridges or tunnels were also scored high.

Objective, engineered cost estimates were not prepared as part of this scoring task; more detailed conceptual engineering cost estimates will be developed in the next phase of the project. Aerial photos available on-line through the “Windows Live Local” site were used to assess corridor characteristics.

Figure 13 presents the corridor availability and cost ranking for each potential HCT alignment.

Figure 13. Corridor Availability and Cost Results

SEGMENT	Description	MILES	Ranking	Notes
6	(Amber Glen to Tanasbourne)	4.86	Medium	On suburban arterial
8	(CTC - OCTC) via I-205	5.62	Medium	On Existing RR/ 205 corridor
9	(Park - OCTC) via McLoughlin	4.87	Medium	On suburban arterial (is a new bridge req'd ?)
10	(Portland Mall - Gresham) via Powell		Medium	
10A	(Portland Mall - I-205) via Powell	6.26	Low	Includes urban corridor and new bridge
10B	(I-205 - Gresham) via Powell	7.41	Medium	On suburban arterial
11	(Portland to Sherwood) via Barbur Hwy 99w		Medium	
11A	(Portland to Terwilliger) via Barbur Hwy 99W	1.52	Low	Urban, Probable structure
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	1.32	Low	Urban, Probable structure
11C	(Multnomah to Tigard) via Barbur Hwy 99w	5.04	Medium	On suburban arterial
11D	(Tigard -King City) via Barbur Hwy 99w	2.23	Medium	On suburban arterial
11E	(King City - Sherwood) via Barbur Hwy 99w	3.59	Medium	On suburban arterial
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	3.09	Low	Tunnel
12	(Hillsboro - Forest Grove)	6.06	High	On Existing RR
13	(Gresham - Troutdale MHCC) via Kane Dr	4.56	Medium	Suburban
15F	(Lents to Pleasant Valley) via Foster Roac	4.67	Medium	Suburban to rural, difficult topo at east end
16	(CTC - Damascus)		High	
16A	(CTC - Damascas) via Sunnyside	5.91	Medium	Suburban to rural
16B	(Gresham - Damascus) via 232nd/242nd Ave	8.09	High	Mostly rural
16C	(CTC - Damascas) via Hwy 212/224	6.35	Medium	Suburban to rural
17	(STC - Hillsboro)		High	
17A	(Shute - St Vincent) via Evergreen/US26	7.60	Medium	Assume use of Hwy R/W
17B	(Hillsboro -Shute) via Evergreen	4.63	Medium	Rural to suburban residential (possibly 1 ?)
17C	(Hillsboro-Shute) via Cornel/Shute	3.51	High	Crosses Hillsboro Airport
17D	(Tanasbourne - Blue Line)	1.86	Medium	On suburban arterial
18	Improvements to Steel Bridge	0.14	High	
19	Bridge Improvements	0.17	Medium	
27	(Oregon City - Clac CC) - via Hwy213/RRROW	4.92	Medium	Topo issues in Oregon City
28	(Oregon City - WSTC)		High	
28A	(Oregon City - West Linn) via new bridge	0.58	Low	New bridge over Willamette
28B	(West Linn - Tualatin) via I-205	9.35	Medium	Assume within I-205 R/W, several structures req'd
28C	(Tualatin - Tigard) via WES	4.11	High	On Existing RR
28D	(Tigard - WSTC) via WES	2.05	High	On Existing RR
29	(CTC - Clackamas)		High	
29A	(CTC - Milwaukie) via Hwy 224	4.34	Medium	On suburban arterial
29B	(Milwaukie - Lake O) via RR bridge	2.74	High	On Existing RR
29C	(Lake O - Tigard TC) via RR ROW	6.59	High	On Existing RR
29D	Tigard TC - WSTC) via WES ROW	1.76	High	On Existing RR
29E	(Boones Ferry - Tualatin) via RR ROW	1.84	High	On Existing RR
29F	(Milwaukie - Clackamas)	4.42	Medium	On suburban arterial
32	(Hillsboro - Hillsdale)		High	
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	9.38	High	On Existing RR
32B	(Barbur - Lake O connector)	1.19	Medium	Suburban (Plan not shown on maps provided)
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	5.72	Medium	On suburban arterial
34	(Beaverton - Wilsonville)		Medium	
34A	(Beaverton - Washington Sq) via Hall	3.27	Medium	On suburban arterial
34B	(Washington Sq - Tigard) via Hall	1.56	Medium	On suburban arterial
34C	(Tigard - Tualatin) via 217/I5	4.27	Medium	Assume within 217/I-5 R/W, several structures req'd
34D	(Tualatin - Wilsonville) via I5	5.36	Medium	Assume within I-5 R/W, several structures req'd
38	(Tualatin - Sherwood) via Sherwood Rd	4.19	Medium	
41	(Lake O - McLoughlin connector)	1.47	Low	New bridge or retrofit to existing
42	(Vancouver - Damascus)		Medium	
42A	(Marine Drive - Vancouver) via 182nd	3.98	Low	New Columbia River crossing
42B	(Marine Drive - Rockwood) via 182nd	2.90	Medium	On suburban arterial
42C	(Rockwood - Pleasant Valley) via 182nd	4.42	Medium	On suburban arterial
42D	(Pleasant Valley - Damascas) via Foster	3.76	High	Rural (possibly 2 due to topo)

SEGMENT	Description	MILES	Ranking	Notes
43	(St. Johns - Vancouver/Union Station)		High	
43A	(St. Johns to RR)	1.13	High	On Existing RR
43B	(RR to Vancouver) via UPRR Railroad Bridge	7.20	High	On Existing RR
43C	(Union Station - St. Johns) via RR Bridge	5.49	High	On Existing RR
43D	(St. Johns - Vancouver) via Freight Corridor	2.15	High	On existing ? (Plan not shown on maps provided)
46	(Cornell - St. Johns)		High	
46A	(Cornell to UPRR) via Corn Pass Tunnel	8.49	High	On Existing RR and rural roads
46B	(UPRR - St. Johns) via Freight	7.84	High	On Existing RR
46C	(Corn Pass - St. Johns) via Northern Bridge	9.04	High	On existing ? (Plan not shown on maps provided)
48	(Murray Hill - Bethany)	10.99	Low	Significant takes of residential property at Murray Hill and Betha
49	Eastside Connector	3.47	Low	Urban, structures req'd
50T	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	2.03	Low	Tunnel under river
51	Downtown Jefferson/Columbia via 1st Ave	2.99	Low	Urban
52	Downtown Everett/Glisan to 18th Ave	2.41	Low	Urban
53	(Hillsboro - Tualatin)	21.59	Medium	Rural roadsand suburban arterials
54	(Troutdale - St. Johns)	17.37	High	On Existing RR
55	(Sunset TC - St. Johns)	4.62	Low	No defined corridor; crosses Forest Park
56	(Orenco - Clark Hill Rd)	11.80	Medium	Rural roadsand suburban arterials
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	4.6	Medium	Rural roadsand suburban arterials
28A+28B	(Oregon City - Tualatin)	9.93	Low	New bridge over Willamette; Assume within I-205 R/W, several s
17C+46A+46B+4	(Hillsboro - Vancouver)	27.04	High	Crosses Hillsboro Airport; On Existing RR and rural roads
41+32B+32C	(McLoughlin - Beaverton)	8.38	Low	New bridge or retrofit to existing; On suburban arterial

Environmental Constraints Assessment

Potential HCT projects that would require valuable habitat destruction are disfavored. This qualitative assessment was conducted estimating the length of each potential alignment that falls within sensitive habitat areas, open space and environmental protection zones. This analysis was conducted in two steps:

Step 1: Calculation of corridor / segment length with an environmental constraint area

- The table below identifies the data sources used to identify environmental constraints as well as the subset of the data used, if applicable.

Data Source	Data Subset (if applicable)
City of Portland Environmental Zone	None (both conservation and preservation zones)
Parks	Park = 1 (Developed Park Site), 2 (Open Space or Natural Area), 3 (Trail/Path)
Rivers	None
Metro Open Space Acquisitions	None
Metro National Wetlands Inventory	System = Riverine, Palustrine, or Lacustrine
Metro Exception Land	Zone_Class = FF (Agriculture or Forestry)
Metro Resource Land	Zone_Class = FF (Agriculture or Forestry)

- HCT routes were clipped to the various features (without any buffer) and the length of overlap in miles was calculated for each matching route segment.
- A union of all of the above features was created to determine the overall length of each segment with an area environmental constraint. Areas of overlap were not double counted. HCT routes were clipped to the union of the features and the length of overlap in miles was calculated.

Step 2: Scoring

In order to rank the corridors and segments based on corridor mileage and overlap with the multiple data sources identified above, the following method was used:

Scoring Methodology	Ranking
0 miles of the corridor in natural resources/preservation/conservation zones	High
Either 0.1 - 1.0 miles or 20% of total corridor length, in natural resources / preservation / conservation zones	Medium
Either 1.1+ Miles or 40% of total corridor length, in natural resources/preservation/conservation zones	Low

Figure 14 presents the results of the environmental constraints analysis for each potential HCT alignment.

Figure 14. Environmental Constraints Results

SEGMENT	Corridor Name	Total Miles	City of Portland Environmental Zone		Parks		Rivers		Metro Open Space Acquisition		Wetlands		Exception Farm & Forest Land		Farm & Forest Land		Overall			
			Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Categorie	Rating
6	(Amber Glen to Tanasbourne)	4.9	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
8	(CTC - OCTC) via I-205	5.6	0.0	0.0%	0.0	0.3%	0.0	0.5%	0.0	0.0%	0.0	0.5%	0.0	0.0%	0.0	0.0%	0.1	1.1%	3	Medium
9	(Park - OCTC) via McLoughlin	4.9	0.0	0.0%	0.0	0.0%	0.0	0.9%	0.0	0.0%	0.0	0.9%	0.0	0.0%	0.0	0.0%	0.1	1.2%	2	Medium
10	(Portland Mall - Gresham) via Powell	22.6	0.7	3.0%	0.3	1.5%	0.0	0.1%	0.1	0.6%	0.0	0.1%	0.0	0.0%	0.0	0.0%	0.8	3.7%	5	Medium
10A	(Portland Mall - I-205) via Powell	6.3	0.0	0.0%	0.0	0.0%	0.2	3.9%	0.0	0.0%	0.2	3.9%	0.0	0.0%	0.0	0.0%	0.2	3.9%	2	Medium
10B	(I-205 - Gresham) via Powell	7.4	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
11	(Portland to Sherwood) via Barbur Hwy 99w	13.7	0.6	4.3%	0.3	2.5%	0.0	0.2%	0.1	1.0%	0.0	0.2%	0.0	0.0%	0.0	0.0%	0.7	5.3%	5	Medium
11A	(Portland to Terwilliger) via Barbur Hwy 99W	1.5	0.1	6.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	6.6%	1	Medium
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	1.3	0.5	36.8%	0.3	18.9%	0.0	0.0%	0.1	10.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.5	37.1%	3	Medium
11C	(Multnomah to Tigard) via Barbur Hwy 99w	5.0	0.0	0.0%	0.1	1.9%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	1.9%	1	Medium
11D	(Tigard -King City) via Barbur Hwy 99w	2.2	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
11E	(King City - Sherwood) via Barbur Hwy 99w	3.6	0.0	0.0%	0.0	0.0%	0.0	0.8%	0.0	0.0%	0.0	0.8%	0.0	0.0%	0.0	0.0%	0.0	1.2%	2	High
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	3.1	0.8	27.0%	0.5	16.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.9	29.7%	2	Medium
12	(Hillsboro - Forest Grove)	6.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.5%	0.0	0.2%	0.1	1.7%	0.1	2.4%	3	Medium
13	(Gresham - Troutdale MHCC) via Kane Dr	4.6	0.0	0.0%	0.1	1.7%	0.0	0.0%	0.0	0.0%	0.0	0.6%	0.0	0.0%	0.0	0.0%	0.1	2.3%	2	Medium
15F	(Lents to Pleasant Valley) via Foster Road	4.7	0.9	19.4%	0.0	0.0%	0.0	0.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.9	19.4%	2	Medium
16	(CTC - Damascus)	20.4	0.0	0.0%	0.1	0.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	0.4%	2	Medium
16A	(CTC - Damascas) via Sunnyside	5.9	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
16B	(Gresham - Damascus) via 232nd/242nd Ave	8.1	0.0	0.0%	0.0	0.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.3%	2	High
16C	(CTC - Damascas) via Hwy 212/224	6.4	0.0	0.0%	0.1	1.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	1.0%	1	Medium
17	(STC - Hillsboro)	17.6	0.0	0.0%	0.5	2.9%	0.0	0.0%	0.0	0.0%	0.4	2.1%	0.0	0.0%	0.0	0.0%	0.9	4.9%	3	Medium
17A	(Shute - St Vincent) via Evergreen/US26	7.6	0.0	0.0%	0.1	1.6%	0.0	0.0%	0.0	0.0%	0.2	2.6%	0.0	0.0%	0.0	0.0%	0.3	3.7%	2	Medium
17B	(Hillsboro -Shute) via Evergreen	4.6	0.0	0.0%	0.0	0.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.7%	2	High
17C	(Hillsboro-Shute) via Cornel/Shute	3.5	0.0	0.0%	0.1	1.7%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	1.7%	1	Medium
17D	(Tanasbourne - Blue Line)	1.9	0.0	0.0%	0.3	16.3%	0.0	0.0%	0.0	0.0%	0.2	9.4%	0.0	0.0%	0.0	0.0%	0.5	25.6%	2	Medium
18	Improvements to Steel Bridge	0.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
19	Bridge Improvements	0.2	0.0	0.0%	0.0	0.0%	0.2	87.8%	0.0	0.0%	0.2	88.6%	0.0	0.0%	0.0	0.0%	0.2	89.4%	2	Low
27	(Oregon City - Clac CC) - via Hwy213/RRROW	4.9	0.0	0.0%	1.0	20.0%	0.0	0.0%	0.7	14.5%	0.0	0.0%	0.0	0.0%	1.0	21.0%	1.5	29.8%	3	Low
28	(Oregon City - WSTC)	16.1	0.0	0.0%	0.0	0.0%	0.3	1.9%	0.0	0.0%	0.3	2.0%	0.0	0.0%	0.0	0.0%	0.4	2.3%	3	Medium
28A	(Oregon City - West Linn) via new bridge	0.6	0.0	0.0%	0.0	1.3%	0.2	37.1%	0.0	0.0%	0.2	34.8%	0.0	0.0%	0.0	0.0%	0.2	40.2%	3	Low
28B	(West Linn - Tualatin) via I-205	9.3	0.0	0.0%	0.0	0.0%	0.0	0.5%	0.0	0.0%	0.1	0.6%	0.0	0.0%	0.0	0.0%	0.1	0.6%	2	Medium
28C	(Tualatin - Tigard) via WES	4.1	0.0	0.0%	0.0	0.0%	0.0	0.8%	0.0	0.0%	0.0	0.7%	0.0	0.0%	0.0	0.0%	0.0	1.1%	2	High
28D	(Tigard - WSTC) via WES	2.1	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	2.0%	0.0	0.0%	0.0	0.0%	0.0	2.0%	1	High
29	(CTC - Clackamas)	21.7	0.0	0.0%	0.2	0.9%	0.2	0.8%	0.0	0.1%	0.6	2.6%	0.0	0.0%	0.0	0.0%	0.8	3.6%	4	Medium
29A	(CTC - Milwaukie) via Hwy 224	4.3	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	1.3%	0.0	0.0%	0.0	0.0%	0.1	1.3%	1	Medium
29B	(Milwaukie - Lake O) via RR bridge	2.7	0.0	0.0%	0.1	4.0%	0.1	4.9%	0.0	0.6%	0.2	6.2%	0.0	0.0%	0.0	0.0%	0.3	10.5%	4	Medium
29C	(Lake O - Tigard TC) via RR ROW	6.6	0.0	0.0%	0.1	1.0%	0.0	0.0%	0.0	0.0%	0.2	3.0%	0.0	0.0%	0.0	0.0%	0.3	3.9%	2	Medium
29D	Tigard TC - WSTC) via WES ROW	1.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	3.3%	0.0	0.0%	0.0	0.0%	0.1	3.3%	1	Medium
29E	(Boones Ferry - Tualatin) via RR ROW	1.8	0.0	0.0%	0.0	0.0%	0.0	1.7%	0.0	0.0%	0.1	4.2%	0.0	0.0%	0.0	0.0%	0.1	4.8%	2	Medium
29F	(Milwaukie - Clackamas)	4.4	0.0	0.0%	0.0	0.5%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.5%	1	High
32	(Hillsboro - Hillsdale)	16.3	0.5	3.0%	0.2	1.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.6	3.7%	2	Medium
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	9.4	0.0	0.0%	0.1	1.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	1.2%	1	Medium
32B	(Barbur - Lake O connector)	1.2	0.2	14.7%	0.0	2.4%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.2	15.1%	2	Medium
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	5.7	0.3	5.4%	0.0	0.6%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.3	5.4%	2	Medium

SEGMENT	Corridor Name	Total Miles	City of Portland Environmental Zone		Parks		Rivers		Metro Open Space Acquisition		Wetlands		Exception Farm & Forest Land		Farm & Forest Land		Overall			
			Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%	Categorie	Rating
34	(Beaverton - Wilsonville)	14.5	0.0	0.0%	0.1	0.4%	0.0	0.1%	0.0	0.0%	0.1	0.4%	0.0	0.0%	0.0	0.0%	0.1	0.9%	3	Medium
34A	(Beaverton - Washington Sq) via Hall	3.3	0.0	0.0%	0.0	1.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	1.1%	1	High
34B	(Washington Sq - Tigard) via Hall	1.6	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
34C	(Tigard - Tualatin) via 217/I5	4.3	0.0	0.0%	0.0	0.6%	0.0	0.5%	0.0	0.0%	0.1	1.5%	0.0	0.0%	0.0	0.0%	0.1	2.1%	3	Medium
34D	(Tualatin - Wilsonville) via I5	5.4	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
38	(Tualatin - Sherwood) via Sherwood Rd	4.2	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
41	(Lake O - McLoughlin connector)	1.5	0.0	1.7%	0.0	3.2%	0.2	13.6%	0.0	1.2%	0.2	14.3%	0.0	0.0%	0.0	0.0%	0.3	18.6%	5	Medium
42	(Vancouver - Damascus)	15.1	0.7	4.4%	2.0	13.4%	0.9	6.3%	0.0	0.0%	2.0	13.0%	0.0	0.0%	1.6	10.4%	3.1	20.5%	5	Low
42A	(Marine Drive - Vancouver) via 182nd	4.0	0.0	0.6%	1.0	25.0%	0.9	23.6%	0.0	0.0%	1.4	36.4%	0.0	0.0%	1.6	39.3%	2.0	49.1%	5	Low
42B	(Marine Drive - Rockwood) via 182nd	2.9	0.6	22.1%	0.6	20.7%	0.0	0.0%	0.0	0.0%	0.5	17.6%	0.0	0.0%	0.0	0.0%	0.7	24.4%	3	Medium
42C	(Rockwood - Pleasant Valley) via 182nd	4.4	0.0	0.0%	0.4	9.6%	0.0	0.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.4	9.6%	2	Medium
42D	(Pleasant Valley - Damascas) via Foster	3.8	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
43	(St. Johns - Vancouver/Union Station)	16.0	3.1	19.3%	0.5	3.3%	1.1	6.7%	0.1	0.6%	1.1	7.1%	0.0	0.0%	0.0	0.0%	4.1	25.8%	5	Low
43A	(St. Johns to RR)	1.1	0.1	11.8%	0.1	9.2%	0.0	0.0%	0.1	9.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.2	20.9%	3	Medium
43B	(RR to Vancouver) via UPRR Railroad Bridge	7.2	1.6	22.3%	0.4	4.9%	0.8	10.5%	0.0	0.0%	0.8	10.8%	0.0	0.0%	0.0	0.0%	2.1	29.6%	4	Low
43C	(Union Station - St. Johns) via RR Bridge	5.5	0.2	3.2%	0.1	1.4%	0.3	5.1%	0.0	0.0%	0.3	5.9%	0.0	0.0%	0.0	0.0%	0.6	10.6%	4	Medium
43D	(St. Johns - Vancouver) via Freight Corridor	2.2	1.2	54.3%	0.0	0.0%	0.0	1.7%	0.0	0.0%	0.0	1.4%	0.0	0.0%	0.0	0.0%	1.2	54.3%	3	Low
46	(Cornell - St. Johns)	25.4	0.0	0.0%	1.0	4.1%	1.1	4.3%	0.4	1.4%	2.5	9.8%	3.2	12.7%	9.8	38.6%	14.7	57.9%	6	Low
46A	(Cornell to UPRR) via Corn Pass Tunnel	8.5	0.0	0.0%	0.4	4.2%	0.0	0.0%	0.4	4.2%	0.0	0.0%	0.7	8.0%	5.7	66.9%	6.4	75.0%	4	Low
46B	(UPRR - St. Johns) via Freight	7.8	0.0	0.0%	0.2	2.6%	0.3	3.5%	0.0	0.0%	0.4	4.9%	1.5	18.9%	1.1	14.4%	2.9	37.6%	5	Low
46C	(Corn Pass - St. Johns) via Northern Bridge	9.0	0.0	0.0%	0.5	5.3%	0.8	9.1%	0.0	0.0%	2.1	23.3%	1.1	11.7%	3.0	33.1%	5.4	59.5%	5	Low
48	(Murray Hill - Bethany)	11.0	0.0	0.0%	0.7	6.0%	0.0	0.0%	0.1	0.9%	0.1	1.2%	0.0	0.0%	0.0	0.0%	0.7	6.5%	3	Medium
49	Eastside Connector	3.5	0.0	0.0%	0.1	4.2%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	4.2%	1	Medium
50T	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	2.0	0.0	0.0%	0.0	1.8%	0.2	10.1%	0.0	0.0%	0.2	10.4%	0.0	0.0%	0.0	0.0%	0.2	11.9%	3	Medium
51	Downtown Jefferson/Columbia via 1st Ave	3.0	0.0	0.0%	0.1	3.1%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.1	3.1%	1	Medium
52	Downtown Everett/Glisan to 18th Ave	2.4	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0.0	0.0%	0	High
53	(Hillsboro - Tualatin)	21.6	0.0	0.0%	0.9	4.1%	0.0	0.2%	0.1	0.3%	0.2	0.9%	1.1	5.1%	5.3	24.5%	7.3	33.8%	6	Low
54	(Troutdale - St. Johns)	17.4	0.7	4.0%	1.1	6.6%	0.2	1.2%	0.0	0.0%	0.4	2.5%	0.0	0.0%	0.0	0.0%	1.7	9.6%	4	Low
55	(Sunset TC - St. Johns)	4.6	2.3	49.0%	1.1	23.4%	0.0	0.0%	0.0	0.0%	0.1	1.9%	0.0	0.0%	0.1	3.2%	2.4	52.4%	4	Low
56	(Orenco - Clark Hill Rd)	11.1	0.0	0.0%	0.4	3.3%	0.0	0.0%	0.0	0.0%	0.2	1.8%	0.2	2.1%	4.9	44.0%	5.5	49.4%	4	Low
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	2.5	0.0	0.0%	0.2	8.0%	0.0	0.9%	0.0	0.0%	0.0	1.4%	0.0	0.0%	1.1	44.4%	1.3	51.2%	4	Low
28A + 28B	(Oregon City - Tualatin)	30.9	0.5	100.0%	0.3	54.5%	0.0	6.3%	0.0	0.0%	0.3	68.4%	0.0	0.0%	0.0	0.0%	1.0	212.6%	4	Medium
O+46A+46B+4	(Hillsboro - Vancouver)	44.1	0.7	100.0%	2.1	308.8%	0.4	55.4%	0.1	10.5%	0.8	116.6%	1.1	159.3%	5.3	763.6%	9.3	1335.4%	7	Low
41+32B+32C	(McLoughlin - Beaverton)	24.1	0.7	100.0%	3.1	449.8%	1.9	272.7%	0.0	0.0%	3.4	492.8%	0.0	0.0%	3.1	452.3%	5.1	742.9%	5	Medium

Equity Assessment

This is a qualitative assessment of potential for an alignment to serve communities of concern. Potential alignments that serve census block groups identified by Metro as having high concentrations of three communities of concern would be favored: 1) low-income or very low income; 2) minority and/or Hispanic populations; and 3) disabled and senior populations. The analysis was conducted in the following steps:

Step 1: Calculate areas of concern within each corridor and segment

This analysis was based on the shapefiles previously created for Metro's Environmental Justice planning process. The GIS shapefiles contained census block groups with significant population of various racial groups, seniors, people with disabilities and low income populations. Significant population is defined as 2.5 times higher than the regional average. For this analysis, the shapefiles were grouped into three data categories:

- Minorities, including Hispanics, Asian, African-American, Hawaiian / and Pacific Islander
- Low income and very low income populations
- Seniors aged 65 year and older and people with disabilities

GIS was then used to calculate the total area of census block groups that overlap with a half mile buffer of all corridors and segments. The following steps were conducted for all alignments:

1. Create a half mile buffer around the corridors
2. Clip communities of concern census block groups using a half mile buffer
3. Calculate the area of the clipped census block groups
4. Sum the areas to calculate a total area of census block groups with significant population of communities of concern for each corridor and segment
5. Split corridors that have multiple segments

Step 2: Ranking the corridors

- For each data category (minorities, low income and senior/disabled) three data ranges (based on acreage) were set by removing the two lowest and two highest outlier values and creating three equal value increments. The following table shows how this data is split:

	Data Category		
	Minority	Low Income	Senior / Disabled
High	2001 +	351 +	301 +
Medium	1001 - 2000	175 - 350	150 - 300
Low	0 -1000	0-175	0 - 150

- For each data category, a Low, Medium and High ranking was applied in accordance with low, middle and high acreage ranges

- The following table shows how the corridors were given a single High, Medium or Low ranking based on the three data categories:

Combination of Scores	Ranking
L L L	LOW
L L M	LOW
L L H	MEDIUM
L M M	MEDIUM
L H H	HIGH
L M H	MEDIUM
M M M	MEDIUM
M M H	HIGH
M H H	HIGH
H H H	HIGH

Figure 15 presents the results of the equity analysis for each potential HCT alignment.

Figure 15. Equity Results

Segment	DESCRIPTION	ALL Area (sqft)	Minorities Area (sqft)	Low Income Area (sqft)	Senior and Disabled Area (sqft)	ALL Area (Acret)	Minorities Area (Acret)	Minorities RANK	Low Income Area (Acre)	Low Income RANK	Senior and Disabled Area (Acre)	Senior Disabled RANK	SUMMARY RANK
6	(Amber Glen to Tanasbourne)	57808367	57808367.45			1327	1327	L	0	L	0	L	Low
8	(CTC - OCTC) via I-205	44726411		31857510.9	12868899.8	1027	0	L	731	H	295	M	Medium
9	(Park - OCTC) via McLoughlin	4650348			4650347.63	107	0	L	0	L	107	L	Low
10	(Portland Mall - Gresham) via Powell	118020978	114112045.7	29888760	17410828.7	2709	2620	M	686	H	400	H	High
10A	(Portland Mall - I-205) via Powell	49112980.11	49112980.11	5652941.03	745188.718	1127.5	1127.5	M	129.8	L	17.1	L	Low
10B	(I-205 - Gresham) via Powell	68907998.25	64999065.54	24235819	16665640	1581.9	1492.2	M	556.4	H	382.6	H	High
11	(Portland to Sherwood) via Barbur Hwy 99w	94388194	74979767.3	9372370.01	14125326	2167	1721	L	215	L	324	M	Low
11A	(Portland to Terwilliger) via Barbur Hwy 99W	1229379.659	961075.4397	1229379.66	193820.766	28.2	22.1	L	28.2	L	4.4	L	Low
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w					0.0	0.0	L	0.0	L	0.0	L	Low
11C	(Multnomah to Tigard) via Barbur Hwy 99w	50910770.95	50910770.95			1168.8	1168.8	M	0.0	L	0.0	L	Low
11D	(Tigard -King City) via Barbur Hwy 99w	19918721.72	14497587.34		5421134.39	457.3	332.8	L	0.0	L	124.5	L	Low
11E	(King City - Sherwood) via Barbur Hwy 99w	8492664.287			8492664.29	195.0	0.0	L	0.0	L	195.0	M	Low
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	13836657.77	8610333.577	8142990.35	17706.5878	317.6	197.7	L	186.9	M	0.4	L	Low
12	(Hillsboro - Forest Grove)	153983678	153983677.8	38432746.1		3535	3535	H	882	H	0	L	High
13	(Gresham - Troutdale MHCC) via Kane Dr	29695709	27909666.73	19216603.1	1786042.41	682	641	L	441	M	41	L	Low
15	(Lents to Pleasant Valley) via Foster Road	26484303	26484303.03			608	608	L	0	L	0	L	Low
16	(CTC - Damascus)	109088333	53734225.43	31049894.9	27588782.1	2504	1234	L	713	H	633	H	High
16A	(CTC - Damascas) via Sunnyside	38306274.24	31694664.53	6611609.72		879.4	727.6	L	151.8	L	0.0	L	Low
16B	(Gresham - Damascus) via 232nd/242nd Ave	7434767.271	7434767.271	3284569.77		170.7	170.7	L	75.4	L	0.0	L	Low
16C	(CTC - Damascas) via Hwy 212/224	63347291.13	14604793.63	21153715.4	27588782.1	1454.3	335.3	L	485.6	H	633.4	H	High
17	(STC - Hillsboro)	135907805	135907805.2	9999582.8		3120	3120	M	230	L	0	L	Low
17A	(Shute - St Vincent) via Evergreen/US26	74911074.42	74911074.42			1719.7	1719.7	M	0.0	L	0.0	L	Low
17B	(Hillsboro -Shute) via Evergreen	17217688.34	17217688.34			395.3	395.3	L	0.0	L	0.0	L	Low
17C	(Hillsboro-Shute) via Cornel/Shute	26745205.16	26745205.16	9999582.8		614.0	614.0	L	229.6	M	0.0	L	Low
17D	(Tanasbourne - Blue Line)	17033837.27	17033837.27			391.0	391.0	L	0.0	L	0.0	L	Low
18	Improvements to Steel Bridge	21414225	21414224.97	13450835	6752284.96	492	492	L	309	M	155	L	Low
19	Bridge Improvements	22042076	22042076	16537393.8	10812870	506	506	L	380	M	248	M	Medium
27	(Oregon City - Clac CC) - via Hwy213/RRROW	2011165		2011164.95		46	0	L	46	L	0	L	Low
28	(Oregon City - WSTC)	133731082	133272353.5		458728.375	3070	3060	M	0	L	11	L	Low
28A	(Oregon City - West Linn) via new bridge					0.0	0.0	L	0.0	L	0.0	L	Low
28B	(West Linn - Tualatin) via I-205	29622488.75	29622488.75			680.0	680.0	L	0.0	L	0.0	L	Low
28C	(Tualatin - Tigard) via WES	60877169.04	60418440.66			1397.5	1387.0	M	0.0	L	0.0	L	Low
28D	(Tigard - WSTC) via WES	43231424.14	43231424.14			992.5	992.5	L	0.0	L	0.0	L	Low
29	(CTC - Clackamas)	149599677	117669866.9	16011402.2	15918407.7	3434	2701	M	368	M	365	H	High
29A	(CTC - Milwaukie) via Hwy 224	15765634.81		15765634.8		361.9	0.0	L	361.9	H	0.0	L	Medium
29B	(Milwaukie - Lake O) via RR bridge	17646216.9	1727809.193		15918407.7	405.1	39.7	L	0.0	L	365.4	H	Medium
29C	(Lake O - Tigard TC) via RR ROW	45226452.07	45226452.07			1038.3	1038.3	M	0.0	L	0.0	L	Low
29D	Tigard TC - WSTC) via WES ROW	41114966.94	41114966.94			943.9	943.9	L	0.0	L	0.0	L	Low
29E	(Boones Ferry - Tualatin) via RR ROW	29600638.73	29600638.73			679.5	679.5	L	0.0	L	0.0	L	Low
29F	(Milwaukie - Clackamas)	245767.3792		245767.379		5.6	0.0	L	5.6	L	0.0	L	Low
32	(Hillsboro - Hillsdale)	182411015	179266854.9	23888238.2	2786112.37	4188	4115	H	548	M	64	L	Medium
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	152854466.7	152854466.7	20713113.3	2755147.36	3509.1	3509.1	H	475.5	H	63.2	L	High
32B	(Barbur - Lake O connector)	177347.6037	177347.6037	3175124.87		4.1	4.1	L	72.9	L	0.0	L	Low
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	29379200.44	26235040.58		30965.0126	674.5	602.3	L	0.0	L	0.7	L	Low

Segment	DESCRIPTION	ALL Area (sqft)	Minorities Area (sqft)	Low Income Area (sqft)	Senior and Disabled Area (sqft)	ALL Area (Acret)	Minorities Area (Acret)	Minorities RANK	Low Income Area (Acre)	Low Income RANK	Senior and Disabled Area (Acre)	Senior Disabled RANK	SUMMARY RANK
34	(Beaverton - Wilsonville)	163772483	163772483.5	5305600.14	2786112.37	3760	3760	H	122	L	64	L	Medium
34A	(Beaverton - Washington Sq) via Hall	53188468.67	53188468.67	5305600.14	2786112.37	1221.0	1221.0	M	121.8	L	64.0	L	Low
34B	(Washington Sq - Tigard) via Hall	19280738.92	19280738.92			442.6	442.6	L	0.0	L	0.0	L	Low
34C	(Tigard - Tualatin) via 217/I5	77111899.23	77111899.23			1770.2	1770.2	M	0.0	L	0.0	L	Low
34D	(Tualatin - Wilsonville) via I5	14191376.66	14191376.66			325.8	325.8	L	0.0	L	0.0	L	Low
38	(Tualatin - Sherwood) via Sherwood Rd	46041198	46041198.08			1057	1057	L	0	L	0	L	Low
41	(Lake O - McLoughlin connector)	5654380	5654380.288			130	130	L	0	L	0	L	Low
42	(Vancouver - Damascus)	84778647	84400343.19	33046932.6		1946	1938	M	759	H	0	L	Medium
42A	(Marine Drive - Vancouver) via 182nd					0.0	0.0	L	0.0	L	0.0	L	Low
42B	(Marine Drive - Rockwood) via 182nd	13773044.24	13468316.23	9298745.17		316.2	309.2	L	213.5	M	0.0	L	Low
42C	(Rockwood - Pleasant Valley) via 182nd	68894221.19	68820645.35	23748187.4		1581.6	1579.9	M	545.2	H	0.0	L	Medium
42D	(Pleasant Valley - Damascas) via Foster	2111381.607	2111381.607			48.5	48.5	L	0.0	L	0.0	L	Low
43	(St. Johns - Vancouver/Union Station)	272522414	270198911.7	34846138.4	4317163.13	6256	6203	H	800	H	99	L	High
43A	(St. Johns to RR)	26742079.97	26742079.97	967528.577		613.9	613.9	L	22.2	L	0.0	L	Low
43B	(RR to Vancouver) via UPRR Railroad Bridge	85412058.36	83723283.73	17214300.8		1960.8	1922.0	M	395.2	H	0.0	L	Medium
43C	(Union Station - St. Johns) via RR Bridge	122341266	122341266	12763311.3	4317163.13	2808.6	2808.6	H	293.0	M	99.1	L	Medium
43D	(St. Johns - Vancouver) via Freight Corridor	38027009.33	37392282.06	3900997.62		873.0	858.4	L	89.6	L	0.0	L	Low
46	(Cornell - St. Johns)	132975008	132975008			3053	3053	M	0	L	0	L	Low
46A	(Cornell to UPRR) via Corn Pass Tunnel					0.0	0.0	L	0.0	L	0.0	L	Low
46B	(UPRR - St. Johns) via Freight	131586406.5	131586406.5			3020.8	3020.8	H	0.0	L	0.0	L	Medium
46C	(Corn Pass - St. Johns) via Northern Bridge	1388601.501	1388601.501			31.9	31.9	L	0.0	L	0.0	L	Low
48	(Murray Hill - Bethany)	134180956	134180956.4	6174741.61		3080	3080	M	142	L	0	L	Low
49	Eastside Connector	44463478	35510232.39	36114962.6	18705995.2	1021	815	L	829	H	429	H	High
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	51915468	42018244.49	35724471	22502719.2	1192	965	L	820	H	517	H	High
51	Downtown Jefferson/Columbia via 1st Ave	28578263	16862479.93	26236542.2	7569975.33	656	387	L	602	H	174	L	Medium
52	Downtown Everett/Glisan to 18th Ave	29055265	23540540.04	27266846	13849391.2	667	540	L	626	H	318	M	Medium
53	(Hillsboro - Tualatin)	129725978	102587101.1	12665041.9	27138876.7	2978	2355	M	291	M	623	H	High
54	(Troutdale - St. Johns)	341630475	340996702.7	27668376.5	6937369.82	7843	7828	H	635	H	159	L	High
55	(Sunset TC - St. Johns)	39246228	39246227.9			901	901	L	0	L	0	L	Low
56	(Orenco - Clark Hill Rd)	30713620	30713619.79			705	705	H	0	L	0	L	Medium
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd					0	0	L	0	L	0	L	Low
28A + 28B	(Oregon City - Tualatin)	29622488.75	29622488.75			680.0	680.0	L	0.0	L	0.0	L	Low
17C+46A+46B+43B	(Hillsboro - Vancouver)	270850044	269004041	28840840.9		6218	6175	H	662	H	0	L	High
41+32B+32C	(McLoughlin - Beaverton)	43768351	40624191	5930272.23	2786112.37	1005	933	L	136	L	64	L	Low

Connectivity and System Benefit Assessment

A qualitative assessment of intermodal connectivity, availability of a maintenance yard site or other transit system needs was conducted for all corridors and corridor segments. This criterion is more closely related to operations than land use. A group of TriMet and Metro planners were assembled to discuss and concur on scoring. The following methodology was used to develop scores:

1. First, corridors were broken into logical segments for analysis. Segments were then added together to score various termini.
2. Corridors that connect logically to terminus were ranked higher than those that connect in the middle, or would not make sense for operation. Corridors that connect two existing HCT corridors were ranked higher than those that only connect to one existing HCT corridor. Corridors that make new, difficult connections between two existing HCT corridors were also ranked higher than corridors that do not make these connections.
3. A score of “High”, “Medium” and “Low” was assigned to each corridor and corridor segment. A score of “High” indicates a corridor with good connectivity and system benefits, whereas a “Low” score indicates a corridor with generally poor connectivity and system benefits.

Figure 16. Connectivity and System Benefit Results

SEGMENT	Description	MILES	Ranking
6	(Amber Glen to Tanasbourne)	4.86	Low
8	(CTC - OCTC) via I-205	5.62	High
9	(Park - OCTC) via McLoughlin	4.87	High
10	(Portland Mall - Gresham) via Powell	13.67	Medium
10A	(Portland Mall - I-205) via Powell	6.26	High
10B	(I-205 - Gresham) via Powell	7.41	Medium
11	(Portland to Sherwood) via Barbur Hwy 99w	13.72	Low
11A	(Portland to Terwilliger) via Barbur Hwy 99W	1.52	Medium
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	1.32	Low
11C	(Multnomah to Tigard) via Barbur Hwy 99w	5.04	Low
11D	(Tigard -King City) via Barbur Hwy 99w	2.23	Low
11E	(King City - Sherwood) via Barbur Hwy 99w	3.59	Low
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	3.09	Medium
12	(Hillsboro - Forest Grove)	6.06	Medium
13	(Gresham - Troutdale MHCC) via Kane Dr	4.56	Medium
15F	(Lents to Pleasant Valley) via Foster Road	4.67	Low
16	(CTC - Damascus)	20.35	Medium
16A	(CTC - Damascas) via Sunnyside	5.91	Medium
16B	(Gresham - Damascus) via 232nd/242nd Ave	8.09	Low
16C	(CTC - Damascas) via Hwy 212/224	6.35	Medium
17	(STC - Hillsboro)	17.61	Low
17A	(Shute - St Vincent) via Evergreen/US26	7.60	Medium
17B	(Hillsboro -Shute) via Evergreen	4.63	Low
17C	(Hillsboro-Shute) via Cornel/Shute	3.51	Low
17D	(Tanasbourne - Blue Line)	1.86	Low
18	Improvements to Steel Bridge	0.14	High
19	Bridge Improvements	0.17	High
27	(Oregon City - Clac CC) - via Hwy213/RRROW	4.92	Low
28	(Oregon City - WSTC)	16.10	Low
28A	(Oregon City - West Linn) via new bridge	0.58	Low
28B	(West Linn - Tualatin) via I-205	9.35	Low
28C	(Tualatin - Tigard) via WES	4.11	Medium
28D	(Tigard - WSTC) via WES	2.05	Low
29	(CTC - Clackamas)	21.69	Medium
29A	(CTC - Milwaukie) via Hwy 224	4.34	Medium
29B	(Milwaukie - Lake O) via RR bridge	2.74	High
29C	(Lake O - Tigard TC) via RR ROW	6.59	Medium
29D	Tigard TC - WSTC) via WES ROW	1.76	Low
29E	(Boones Ferry - Tualatin) via RR ROW	1.84	Low
29F	(Milwaukie - Clackamas)	4.42	High
32	(Hillsboro - Hillsdale)	16.29	Low
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	9.38	Medium
32B	(Barbur - Lake O connector)	1.19	Low
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	5.72	Low
34	(Beaverton - Wilsonville)	14.47	Low
34A	(Beaverton - Washington Sq) via Hall	3.27	Medium
34B	(Washington Sq - Tigard) via Hall	1.56	Low
34C	(Tigard - Tualatin) via 217/I5	4.27	Low
34D	(Tualatin - Wilsonville) via I5	5.36	Low
38	(Tualatin - Sherwood) via Sherwood Rd	4.19	Low
41	(Lake O - McLoughlin connector)	1.47	Medium
42	(Vancouver - Damascus)	15.07	Low
42A	(Marine Drive - Vancouver) via 182nd	3.98	Low
42B	(Marine Drive - Rockwood) via 182nd	2.90	Low
42C	(Rockwood - Pleasant Valley) via 182nd	4.42	Low
42D	(Pleasant Valley - Damascas) via Foster	3.76	Low
43	(St. Johns - Vancouver/Union Station)	15.97	Low
43A	(St. Johns to RR)	1.13	Low
43B	(RR to Vancouver) via UPRR Railroad Bridge	7.20	Low
43C	(Union Station - St. Johns) via RR Bridge	5.49	Medium
43D	(St. Johns - Vancouver) via Freight Corridor	2.15	Medium
46	(Cornell - St. Johns)	25.37	Low
46A	(Cornell to UPRR) via Corn Pass Tunnel	8.49	Low
46B	(UPRR - St. Johns) via Freight	7.84	Low
46C	(Corn Pass - St. Johns) via Northern Bridge	9.04	Low
48	(Murray Hill - Bethany)	10.99	Low
49	Eastside Connector	3.47	High
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	2.03	High
51	Downtown Jefferson/Columbia via 1st Ave	2.99	Low
52	Downtown Everett/Glisan to 18th Ave	2.41	Low
53	(Hillsboro - Tualatin)	21.59	Low
54	(Troutdale - St. Johns)	17.37	Low
55	(Sunset TC - St. Johns)	4.62	High
56	(Orenco - Clark Hill Rd)		Low
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd		Low
28A+28B	(Oregon City - Tualatin)	9.93	High
17C+46A+46B+43B	(Hillsboro - Vancouver)	27.04	Medium
41+32B+32C	(McLoughlin - Beaverton)	8.38	Low

Congestion Assessment

Potential HCT alignments that parallel arterials or throughways where high levels of congestion are forecasted are favored. This assessment was conducted using predicted 2035 levels of congestion using the regional travel demand model. This analysis was conducted in the following steps:

Step 1: Identify worst level of congestion along potential alignments.

The highest volume-to-capacity (V/C) ratio for HCT corridors or segments during the 2035 two-hour PM peak period and one-hour midday period was obtained by overlaying a map of the routes on a map of the V/C ratio for the Portland Metro area. Level of service (LOS) designations were assigned to these figures based on the Metro 2035 RTP[1]

Step 2: Rank corridors and segments

Both the midday and PM peak corridor ratings were assigned a rank of "Low", "Low-Medium", "Medium," "Medium-High," and "High" based on the worst LOS designations along that corridor or segment.

The midday and PM peak are presented separately by potential HCT alignment in Figure 17.

[1] Metro RTP, Table 3.16, which states that: "LOS C = .8 or better; LOS D = .8 to .9; LOS E = .9 to 1.0; and LOS F = 1.0 to 1.1"

Figure 17. Congestion Results

Corridor ID	Corridor Name	Miles	MD LOS	Example Segment	PM LOS	Example Segment	MD Rating	PM Rating
6	(Amber Glen to Tanasbourne)	4.9	C		E		Low	Medium-High
8	(CTC - OCTC) via I-205	5.6	E		F	Hwy 224-99E SB	Medium-High	High
9	(Park - OCTC) via McLoughlin	4.9	C		F	Several sections of 99E	Low	High
10	(Portland Mall - Gresham) via Powell	13.7	F		F		High	High
10A	(Portland Mall - I-205) via Powell	6.3	F	Ross Island Br	F	Portland Mall to 52nd EB	High	High
10B	(I-205 - Gresham) via Powell	7.4	F	at 182nd	F	122nd to 172nd	High	High
11	(Portland to Sherwood) via Barbur Hwy 99w	13.7	F		F		High	High
11A	(Portland to Terwilliger) via Barbur Hwy 99W	1.5	C		F	I-5/99W	Low	High
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	1.3	C		F	I-5/99W	Low	High
11C	(Multnomah to Tigard) via Barbur Hwy 99w	5.0	E		F	I-5/99W	Medium-High	High
11D	(Tigard -King City) via Barbur Hwy 99w	2.2	F		F	I-5/99W	High	High
11E	(King City - Sherwood) via Barbur Hwy 99w	3.6	F		F	I-5/99W	High	High
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	3.1	C		F	I-5/99W	Low	High
12	(Hillsboro - Forest Grove)	6.1	E		F		Medium-High	High
13	(Gresham - Troutdale MHCC) via Kane Dr	4.6	C		F		Low	High
15F	(Lents to Pleasant Valley) via Foster Road	4.7	E	at 182nd	F	122nd to 172nd	Medium-High	High
16	(CTC - Damascus)	20.4	F		F		High	High
16A	(CTC - Damascas) via Sunnyside	5.9	D		F		Medium	High
16B	(Gresham - Damascus) via 232nd/242nd Ave	8.1	D		F	Sections from US 26 to Tillstrom	Medium	High
16C	(CTC - Damascas) via Hwy 212/224	6.4	F		F		High	High
17	(STC - Hillsboro)	17.6	E		F		Medium-High	High
17A	(Shute - St Vincent) via Evergreen/US26	7.6	E		F	At Cornell	Medium-High	High
17B	(Hillsboro -Shute) via Evergreen	4.6	D		F		Medium	High
17C	(Hillsboro-Shute) via Cornel/Shute	3.5	D		F		Medium	High
17D	(Tanasbourne - Blue Line)	1.9	C		E		Low	Medium-High
18	Improvements to Steel Bridge	0.1	C		D		Low	Medium
19	Bridge Improvements	0.2	C		D		Low	Medium
27	(Oregon City - Clac CC) - via Hwy213/RRROW	4.9	E		F	I-205 SB, Hwy 224-99E	Medium-High	High
28	(Oregon City - WSTC)	16.1	F		F		High	High
28A	(Oregon City - West Linn) via new bridge	0.6	F		F	At Cornell	High	High
28B	(West Linn - Tualatin) via I-205	9.3	D		F	Stafford - Hwy 43 EB	Medium	High
28C	(Tualatin - Tigard) via WES	4.1	F		F	I-5/99W	High	High
28D	(Tigard - WSTC) via WES	2.1	C		F	I-5/99W	Low	High
29	(CTC - Clackamas)	21.7	E		F		Medium-High	High
29A	(CTC - Milwaukie) via Hwy 224	4.3	D		E	One small section at Harmony at F	Medium	Medium-High
29B	(Milwaukie - Lake O) via RR bridge	2.7	E	Hwy 43; Taylors Ferry/Terwilliger	F	Hwy 43	Medium-High	High
29C	(Lake O - Tigard TC) via RR ROW	6.6	E	Boones Ferry	F	Kruse Way/Boones Ferry	Medium-High	High
29D	Tigard TC - WSTC) via WES ROW	1.8	E		F		Medium-High	High
29E	(Boones Ferry - Tualatin) via RR ROW	1.8	E		F		Medium-High	High
29F	(Milwaukie - Clackamas)	4.4	C		C		Low	Low
32	(Hillsboro - Hillsdale)	16.3	E		F		Medium-High	High
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	9.4	E		F	At 185th	Medium-High	High
32B	(Barbur - Lake O connector)	1.2	E		F		Medium-High	High
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	5.7	D		F	OR-217 to Scholls Ferry EB	Medium	High
34	(Beaverton - Wilsonville)	14.5	F		F		High	High
34A	(Beaverton - Washington Sq) via Hall	3.3	D		F		Medium	High
34B	(Washington Sq - Tigard) via Hall	1.6	E		F		Medium-High	High
34C	(Tigard - Tualatin) via 217/I5	4.3	F		F		High	High
34D	(Tualatin - Wilsonville) via I5	5.4	F		F	e.g. S. of I-205 Jcn	High	High
38	(Tualatin - Sherwood) via Sherwood Rd	4.2	D		F	At Boones-Ferry	Medium	High
41	(Lake O - McLoughlin connector)	1.5	F		F	e.g. Sellwood Bridge	High	High
42	(Vancouver - Damascus)	15.1	E		F		Medium-High	High
42A	(Marine Drive - Vancouver) via 182nd	4.0	C		E		Low	Medium-High
42B	(Marine Drive - Rockwood) via 182nd	2.9	C		E		Low	Medium-High
42C	(Rockwood - Pleasant Valley) via 182nd	4.4	C		F		Low	High
42D	(Pleasant Valley - Damascas) via Foster	3.8	E		F		Medium-High	High

Corridor ID	Corridor Name	Miles	MD LOS	Example Segment	PM LOS	Example Segment	MD Rating	PM Rating
43	(St. Johns - Vancouver/Union Station)	16.0	F		F		High	High
43A	(St. Johns to RR)	1.1	C		C		Low	Low
43B	(RR to Vancouver) via UPRR Railroad Bridge	7.2	C		D		Low	Medium
43C	(Union Station - St. Johns) via RR Bridge	5.5	F	St. Johns Bridge	F		High	High
43D	(St. Johns - Vancouver) via Freight Corridor	2.2	C		F	St John's Bridge	Low	High
46	(Cornell - St. Johns)	25.4	F		F		High	High
46A	(Cornell to UPRR) via Corn Pass Tunnel	8.5	F	Before Germantown/Cornelius Pass Split	F	Union to Bendemeer	High	High
46B	(UPRR - St. Johns) via Freight	7.8	F	St. Johns Bridge	F	US 30 @ St. Johns Bridge	High	High
46C	(Corn Pass - St. Johns) via Northern Bridge	9.0	C		C		Low	Low
48	(Murray Hill - Bethany)	11.0	D		F	TV Hwy to Walker	Medium	High
49	Eastside Connector	3.5	C		D		Low	Medium
50T	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	2.0	C		C		Low	Low
51	Downtown Jefferson/Columbia via 1st Ave	3.0	C		D		Low	Medium
52	Downtown Everett/Glisan to 18th Ave	2.4	D		D		Medium	Medium
53	(Hillsboro - Tualatin)	21.6	C		F	Roy Roger's Rd, 99W to Scholls Ferry	Low	High
54	(Troutdale - St. Johns)	17.4	C		E		Low	Medium-High
55	(Sunset TC - St. Johns)	4.6	F		F	St. Johns Bridge	High	High
56	(Orenco - Clark Hill Rd)		C		F		Low	High
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd		F		F		High	High
28A+28B	(Oregon City - Tualatin)	4.4	E		F		Medium-High	High
17C+46A+46B+43B	(Hillsboro - Vancouver)	44.1	E		F		Medium-High	High
41+32B+32C	(McLoughlin - Beaverton)	24.1	E		F		Medium-High	High

2040 Land Use

Corridors that serve 2040 centers, main streets and corridors that are designated to accommodate future growth are given priority ranking. This analysis was conducted in the following steps:

Step 1: Intersection of alignments with 2040 centers

- Potential HCT alignments intersecting polygons of City Center, Regional Centers, Industrial Centers, etc. from the RLIS Applied Concept areas shapefile were flagged in the attribute table. Additional segments of an alignment were also flagged.
- Since a buffer was not used, routes that clearly served a land use design type were also flagged by visual inspection.

Step 2: Identification of 2040 Main Streets and Corridors

- HCT routes were clipped to main street and corridor polygons from the RLIS Applied Concept areas shapefile.
- Matching routes were flagged in the attribute table and the length of overlap in miles was calculated for each matching route segment.
- Since a buffer was not used, routes that clearly followed main streets or corridors were also flagged by visual inspection.
- Routes that only crossed main streets or corridors were manually eliminated.

Step 3: Rank corridors and segments

- Each of the land use categories was given a point score based on their relative importance compared to other land use types:

Screening Category	Land Use Designation	Points for Ranking
High	City Center	40
	Regional Center	15
	Industrial Areas	5
Medium	Employment Areas	3
	Town Centers	3
	Station Communities	3
	Corridors	3
	Main Streets	3
Low	Inner Neighborhoods	1
	Outer Neighborhoods	1

- For each potential HCT alignment, a total score was then calculated based on how many land use types were served by the alignment.
- The following breaks were then used to rank the alignments. This results of this analysis is shown in Figure 18.

Rank	Score
High	40 +
Medium	20 – 40
Low	< 20

Figure 18. 2040 Land Use Results

				High				Medium					Low	
Segment / Corridor ID	Corridor Name	Rating	Score	Central City	Regional Center	Industrial Area	Intermodal Facility	Employment Area	Town Center	Station Community	Corridor	Main Street	Inner Neighborhood	Outer Neighborh
6	(Amber Glen to Tanasbourne)	Low	16.0			✓		✓	✓	✓			✓	✓
8	(CTC - OCTC) via I-205	Medium	28.0		✓	✓		✓		✓			✓	✓
9	(Park - OCTC) via McLoughlin	Medium	26.0		✓	✓		✓			✓			
10	(Portland Mall - Gresham) via Powell	High	68.0	✓	✓			✓		✓	✓	✓	✓	
10A	(Portland Mall - I-205) via Powell	High	68.0	✓	✓			✓		✓	✓	✓	✓	
10B	(I-205 - Gresham) via Powell	High	68.0	✓	✓			✓		✓	✓	✓	✓	
11	(Portland to Sherwood) via Barbur Hwy 99w	High	61.0	✓		✓		✓	✓	✓	✓	✓	✓	
11A	(Portland to Terwilliger) via Barbur Hwy 99W	High	58.0	✓		✓		✓	✓	✓	✓		✓	
11B	(Terwilliger to Multnomah) via Barbur Hwy 99w	High	58.0	✓		✓		✓	✓	✓	✓		✓	
11C	(Multnomah to Tigard) via Barbur Hwy 99w	High	61.0	✓		✓		✓	✓	✓	✓	✓	✓	
11D	(Tigard -King City) via Barbur Hwy 99w	High	61.0	✓		✓		✓	✓	✓	✓	✓	✓	
11E	(King City - Sherwood) via Barbur Hwy 99w	High	58.0	✓		✓		✓	✓	✓	✓		✓	
11T	(Portland to Multnomah) via TUNNEL Barbur hwy 99w	High	58.0	✓		✓		✓	✓	✓	✓		✓	
12	(Hillsboro - Forest Grove)	Medium	31.0		✓	✓			✓		✓	✓	✓	✓
13	(Gresham - Troutdale MHCC) via Kane Dr	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
15	(Lents to Pleasant Valley) via Foster Road	Low	17.0			✓		✓	✓		✓	✓		
16	(CTC - Damascus)	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
16A	(CTC - Damascas) via Sunnyside	Medium	30.0		✓	✓		✓	✓		✓		✓	
16B	(Gresham - Damascus) via 232nd/242nd Ave	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
16C	(CTC - Damascas) via Hwy 212/224	Medium	34.0		✓	✓		✓	✓	✓	✓		✓	✓
17	(STC - Hillsboro)	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
17A	(Shute - St Vincent) via Evergreen/US26	Medium	31.0		✓	✓		✓	✓	✓			✓	✓
17B	(Hillsboro -Shute) via Evergreen	Medium	34.0		✓	✓		✓	✓	✓		✓	✓	✓
17C	(Hillsboro-Shute) via Cornel/Shute	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
17D	(Tanasbourne - Blue Line)	Medium	31.0		✓	✓		✓	✓	✓			✓	✓
18	Improvements to Steel Bridge	High	40.0	✓										
19	Bridge Improvements	High	40.0	✓										
27	(Oregon City - Clac CC) - via Hwy213/RRROW	Low	19.0		✓			✓						✓
28	(Oregon City - WSTC)	Medium	34.0		✓	✓		✓	✓		✓	✓	✓	✓
28A	(Oregon City - West Linn) via new bridge	Medium	28.0		✓	✓		✓	✓				✓	✓
28B	(West Linn - Tualatin) via I-205	Medium	28.0		✓	✓		✓	✓				✓	✓
28C	(Tualatin - Tigard) via WES	Medium	31.0		✓	✓		✓	✓		✓		✓	✓
28D	(Tigard - WSTC) via WES	Medium	31.0		✓	✓		✓	✓			✓	✓	✓
29	(CTC - Clackamas)	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
29A	(CTC - Milwaukie) via Hwy 224	Medium	33.0		✓	✓		✓	✓	✓	✓		✓	
29B	(Milwaukie - Lake O) via RR bridge	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
29C	(Lake O - Tigard TC) via RR ROW	Medium	33.0		✓	✓		✓	✓	✓	✓		✓	
29D	Tigard TC - WSTC) via WES ROW	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
29E	(Boones Ferry - Tualatin) via RR ROW	Medium	33.0		✓	✓		✓	✓	✓	✓		✓	
29F	(Milwaukie - Clackamas)	Medium	36.0		✓	✓		✓	✓	✓	✓	✓	✓	
32	(Hillsboro - Hillsdale)	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
32A	(Hillsboro - Aloha - Beaverton) via TV Hwy	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
32B	(Barbur - Lake O connector)	Medium	31.0		✓	✓		✓	✓	✓			✓	✓
32C	(Beaverton - Raleigh Hills - Hillsdale) via Beaverton Hillsdale	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓

				High				Medium					Low	
Segment / Corridor ID	Corridor Name	Rating	Score	Central City	Regional Center	Industrial Area	Intermodal Facility	Employment Area	Town Center	Station Community	Corridor	Main Street	Inner Neighborhood	Outer Neighborh
34	(Beaverton - Wilsonville)	Medium	34.0		✓	✓		✓	✓		✓	✓	✓	✓
34A	(Beaverton - Washington Sq) via Hall	Medium	34.0		✓	✓		✓	✓		✓	✓	✓	✓
34B	(Washington Sq - Tigard) via Hall	Medium	31.0		✓	✓		✓	✓		✓		✓	✓
34C	(Tigard - Tualatin) via 217/I5	Medium	31.0		✓	✓		✓	✓		✓		✓	✓
34D	(Tualatin - Wilsonville) via I5	Medium	31.0		✓	✓		✓	✓		✓		✓	✓
38	(Tualatin - Sherwood) via Sherwood Rd	Low	12.0			✓		✓	✓				✓	
41	(Lake O - McLoughlin connector)	Low	6.0							✓		✓		
42	(Vancouver - Damascus)	Medium	21.0			✓		✓	✓	✓	✓	✓	✓	
42A	(Marine Drive - Vancouver) via 182nd	Low	15.0			✓		✓	✓	✓			✓	
42B	(Marine Drive - Rockwood) via 182nd	Medium	21.0			✓		✓	✓	✓	✓	✓	✓	
42C	(Rockwood - Pleasant Valley) via 182nd	Medium	21.0			✓		✓	✓	✓	✓	✓	✓	
42D	(Pleasant Valley - Damascas) via Foster	Low	18.0			✓		✓	✓	✓	✓		✓	
43	(St. Johns - Vancouver/Union Station)	High	70.0	✓	✓	✓		✓	✓		✓		✓	
43A	(St. Johns to RR)	High	70.0	✓	✓	✓		✓	✓		✓		✓	
43B	(RR to Vancouver) via UPRR Railroad Bridge	High	67.0	✓	✓	✓		✓	✓				✓	
43C	(Union Station - St. Johns) via RR Bridge	High	70.0	✓	✓	✓		✓	✓		✓		✓	
43D	(St. Johns - Vancouver) via Freight Corridor	High	67.0	✓	✓	✓		✓	✓				✓	
46	(Cornell - St. Johns)	Medium	28.0		✓	✓		✓			✓		✓	✓
46A	(Cornell to UPRR) via Corn Pass Tunnel	Medium	25.0		✓	✓		✓					✓	✓
46B	(UPRR - St. Johns) via Freight	Medium	28.0		✓	✓		✓			✓		✓	✓
46C	(Corn Pass - St. Johns) via Northern Bridge	Medium	25.0		✓	✓		✓					✓	✓
48	(Murray Hill - Bethany)	Low	11.0						✓	✓	✓		✓	✓
49	Eastside Connector	High	40.0	✓										
50	Downtown Tunnel - Lloyd 11th to Goose Hollow 18th	High	40.0	✓										
51	Downtown Jefferson/Columbia via 1st Ave	High	47.0	✓						✓	✓		✓	
52	Downtown Everett/Glisan to 18th Ave	High	46.0	✓						✓		✓		
53	(Hillsboro - Tualatin)	Medium	37.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
54	(Troutdale - St. Johns)	Medium	21.0			✓		✓	✓	✓	✓	✓	✓	
55	(Sunset TC - St. Johns)	Low	7.0						✓	✓				✓
56	(Orenco - Clark Hill Rd)	Low	19.0			✓		✓	✓	✓			✓	✓
57	(Scholls Ferry - Sherwood) via Roy Rogers Rd	Low	5.0						✓				✓	✓
28A+28B	(Oregon City - Tualatin)	Medium	36.0		✓	✓		✓	✓				✓	✓
[illegible]+46A+46B+[illegible]	(Hillsboro - Vancouver)	High	77.0		✓	✓		✓	✓	✓	✓	✓	✓	✓
41+32B+32C	(McLoughlin - Beaverton)	High	61.0		✓	✓		✓	✓	✓	✓	✓	✓	✓