

# Federal Way Transit Center to Tacoma Dome Light Rail

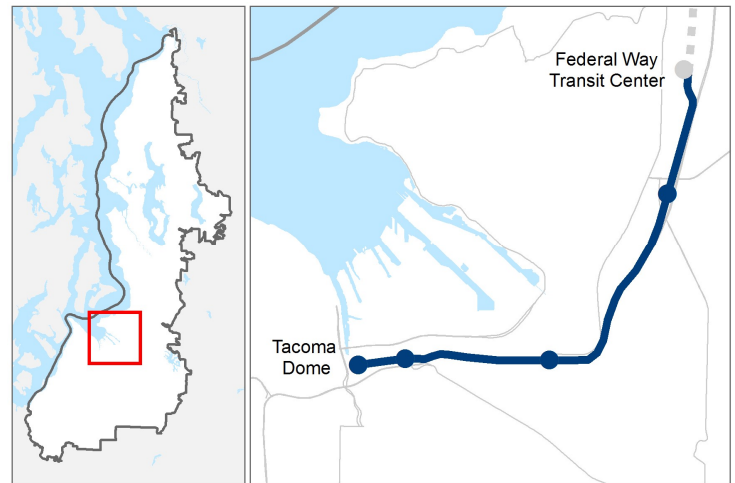
<b>Subarea</b>	South King/Pierce
<b>Primary Mode</b>	Light Rail
<b>Facility Type</b>	Corridor
<b>Length</b>	9.7 miles
<b>Date Last Modified</b>	July 1, 2016

## SHORT PROJECT DESCRIPTION

This project would extend light rail from the Federal Way Transit Center to Tacoma adjacent to I-5 with three elevated stations at South Federal Way, Fife, and East Tacoma and one at-grade/retained station at Tacoma Dome.

*Note: The elements included in this representative project will be refined during future phases of project development and are subject to change.*

## PROJECT AREA AND REPRESENTATIVE ALIGNMENT



## KEY ATTRIBUTES

<b>REGIONAL LIGHT RAIL SPINE</b> <i>Does this project help complete the light rail spine?</i>	Yes
<b>CAPITAL COST</b> <i>Cost in Millions of 2014 \$</i>	\$1,894 — \$2,026
<b>RIDERSHIP</b> <i>2040 daily project riders</i>	27,000 — 37,000
<b>PROJECT ELEMENTS</b>	<ul style="list-style-type: none"> <li>• Approximately 9.7 miles of light rail in a mixture of at-grade and elevated guideway</li> <li>• 3 elevated stations: South Federal Way, Fife, and East Tacoma (in the vicinity of Portland Avenue), sized to accommodate 4-car trains</li> <li>• 1 at-grade/retained cut station: Tacoma Dome sized to accommodate 4-car trains</li> <li>• Parking garages at the South Federal Way and Fife stations, each with approximately 500 stalls; the scope of the transit parking components included in this project could be revised to include a range of strategies for providing rider access to the transit facility; along with, or instead of, parking for private vehicles or van pools, a mix of other investments could be accomplished through the budget for this project</li> <li>• A pedestrian bridge connecting the Tacoma Dome Station to Freighthouse Square</li> <li>• A new light rail bridge over the Puyallup River</li> <li>• Peak headways: 6 minutes</li> <li>• 1 percent for art per Sound Transit policy</li> <li>• Non-motorized access facilities (bicycle/pedestrian), transit-oriented development (TOD)/planning due diligence, bus/rail integration facilities, and sustainability measures (see separate document titled “Common Project Elements”)</li> </ul>
<b>NOT INCLUDED</b>	<ul style="list-style-type: none"> <li>• Light rail vehicles not included</li> <li>• Costs for operations and maintenance facility not included, but assumed to be built along corridor</li> <li>• See separate documents titled “Common Project Elements,” “Light Rail Operations and Maintenance Facilities,” and “Light Rail Vehicles”</li> </ul>
<b>ISSUES &amp; RISKS</b>	<ul style="list-style-type: none"> <li>• Potential future WSDOT project at I-5/SR 161/SR 18 (Triangle project, Phase 2) and ongoing WSDOT planning for the Puget Sound Gateway Project (SR 167 Extension)</li> </ul>

# Federal Way Transit Center to Tacoma Dome Light Rail

KEY ATTRIBUTES	
ISSUES & RISKS	<ul style="list-style-type: none"><li>• Clearance of the Bonneville Power Administration high-voltage transmission lines</li><li>• At-grade profiles included in this project could result in more potential conflicts with other modes; this could affect speed and reliability</li><li>• Requires FHWA/WSDOT approvals for use of interstate right-of-way</li><li>• Complexity of the Puyallup River bridge crossing will require coordination and approval from the Puyallup Tribe of Indians; the new bridge may also require coordination with Coast Guard if levee is impacted</li><li>• Geotechnical challenges and potential archeological discoveries at/near the Puyallup River and Tacoma Dome area</li><li>• Construction near active freight and passenger rail lines</li><li>• Potential impacts of climate change and future sea level rise in the vicinity of the Puyallup River</li><li>• Light rail is not currently a permitted use in Federal Way but is specifically defined as an essential public facility; the Comprehensive Plan includes light rail</li><li>• Light rail is not currently a permitted use in Milton; Milton considers transit facilities special uses</li><li>• In Fife, light rail is not defined as an essential public facility but would be permitted in certain zones as a conditional use under EPF definition; the Comprehensive Plan includes light rail.</li><li>• Light rail currently operates in Tacoma and specific station area standards are codified; the Comprehensive Plan includes light rail</li></ul>

# Federal Way Transit Center to Tacoma Dome Light Rail

Sound Transit developed a conceptual scope of work for this project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information was developed to assist the Sound Transit Board as it developed the ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

## Long Description:

This project would construct an extension of Link light rail from the Federal Way Transit Center to the Tacoma Dome Station generally along or near I-5. The alignment would begin at the Federal Way Transit Center and have stations at South Federal Way, Fife, East Tacoma, and the Tacoma Dome. From the Federal Way Transit Center Station the alignment would curve east to meet I-5 near S 324<sup>th</sup> Street. It would have a short at-grade section from S 322<sup>nd</sup> Street to S 333<sup>rd</sup> Street in order to cross underneath the Bonneville Power Administration high-voltage transmission lines. The alignment would then parallel the west side of I-5 with the South Federal Way Station located just south of the I-5/SR 18 interchange at S 352<sup>nd</sup> Street. The station platform would be elevated and adjacent to a 500-stall parking garage.

The alignment would continue adjacent to the west side of I-5 and be elevated. The alignment would have short at-grade sections where I-5 curves to the west as it enters Fife, where the alignment would be located underneath the proposed WSDOT – Puget Sound Gateway Project (SR 167 Extension), and between approximately 70<sup>th</sup> Avenue E and 62<sup>nd</sup> Avenue E in Fife. The alignment would remain elevated. The Fife Station would be located east of 54<sup>th</sup> Avenue E above the I-5 southbound off-ramp, and a 500-stall parking garage would be located just west of the Emerald Queen Casino.

From the Fife Station, the alignment would remain elevated. It would follow I-5 until it crosses the Puyallup River where it would follow E Bay Street to a station in East Tacoma in the vicinity of E Portland Avenue. Alternatively, the East Tacoma Station could be located on E 27<sup>th</sup> Street and E Portland Avenue. A parking facility would not be associated with either East Tacoma Station location. The alignment would continue along East 26<sup>th</sup> Street to the Tacoma Dome Station area. The station is located parallel to the existing Tacoma Dome Station and Freighthouse Square on East 26<sup>th</sup> Street between East F Street and East D Street. The station has an at-grade/retained cut platform with a pedestrian bridge connecting to Freighthouse Square.

## Assumptions:

- Reconstruction of the Federal Way/320<sup>th</sup> Park-and-Ride lot may be required; these anticipated costs are included in the cost estimate
- Raising the Bonneville Power Administration high-voltage transmission lines may be required; these anticipated costs are included in the cost estimate
- WSDOT noise wall replacement may be required, these anticipated costs are included in the cost estimate
- Completion of the WSDOT – Puget Sound Gateway Project (SR 167 Extension)
- A long span structure to cross the Puyallup River
- Reconstruction of E 26<sup>th</sup> Street may be required; these anticipated costs are included in the cost estimate
- Crossover and tail track storage are included
- For non-motorized station access allowances, the South Federal Way Station, the Fife Station, and the East Tacoma Station are categorized as Suburban stations and the Tacoma Dome station is characterized as an Urban station and an intermodal transit center
- For bus/rail integration, facilities have been assumed at the South Federal Way Station and the Fife Station
- Budget for operations is included in the cost estimate. An operations and a maintenance facility is assumed to be built along this corridor. (See project titled “Operations and Maintenance Facilities”)

## Environmental:

Sound Transit will complete project-level state and federal environmental reviews as necessary; provide mitigation for significant impacts; obtain and meet the conditions of all required permits and approvals; and strive to exceed compliance and continually improve its environmental performance.

## Utilities:

Utility relocation as needed to complete the project, including fiber optics, sewer, water, overhead electric/communications, etc.

## Right-of-Way and Property Acquisition:

Property acquisitions anticipated at stations and traction power substations

# Federal Way Transit Center to Tacoma Dome Light Rail

## Potential Permits/Approvals Needed:

- Building permits: electrical, mechanical, plumbing
- Utility connection permits
- Construction-related permits (clearing and grading, stormwater management, street use, haul routes, use of city right-of-way)
- Land use approvals (conditional use, design review, site plans, comprehensive plan or development code consistency, special use permits)
- Requires FHWA/WSDOT approvals for use of interstate right-of-way
- All required local, state and federal environmental permits
- NEPA/SEPA and related regulations
- US Coast Guard Bridge Permit
- Corps of Engineers Section 10

## Project Dependencies:

- Completion of Link Extension to the Federal Way Transit Center
- Purchase of additional light rail vehicles is required to operate service on this corridor
- Construction of new operations and maintenance base capacity is required to accommodate the fleet required for this corridor

## Potential Project Partners:

- City of Federal Way, Milton, Fife, and Tacoma
- Puyallup Tribe of Indians
- WSDOT
- FTA
- FHWA
- Bonneville Power Administration
- King County
- Pierce County
- Coast Guard
- Army Corps of Engineers
- Transit partners serving project: King County Metro, Pierce Transit

# Federal Way Transit Center to Tacoma Dome Light Rail

## Cost:

Sound Transit developed a conceptual scope of work for this project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information was developed to assist the Sound Transit Board as it developed the ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

In Millions of 2014\$

ITEM	COST	COST WITH RESERVE
Agency Administration	\$100.14	\$107.15
Preliminary Engineering & Environmental Review	\$62.73	\$67.12
Final Design & Specifications	\$124.62	\$133.34
Property Acquisition & Permits	\$72.71	\$77.80
Construction	\$1,271.12	\$1,360.10
Construction Management	\$112.16	\$120.01
Third Parties	\$25.72	\$27.52
Vehicles	\$0.00	\$0.00
Contingency	\$124.62	\$133.34
<b>Total</b>	<b>\$1,893.81</b>	<b>\$2,026.38</b>

**Design Basis:**












Conceptual

The costs expressed above include allowances for TOD planning and due diligence, Sustainability, Bus/rail integration facilities, and Non-Motorized Access. These allowances, as well as the costs for Parking Access included above, are reflected in the following table. Property acquisition costs are not included in the table below, but are included within the total project cost above. For cost allowances that are not applicable for this project, "N/A" is indicated.

ITEM	COST	COST WITH RESERVE
TOD planning and due diligence	\$1.22	\$1.30
Sustainability	\$12.85	\$13.75
Parking access	\$52.22	\$55.87
Non-motorized (bicycle/pedestrian) access	\$31.85	\$34.08
Bus/rail integration facilities	\$5.50	\$5.89

# Federal Way Transit Center to Tacoma Dome Light Rail

## Evaluation Measures:

MEASURE	MEASUREMENT/RATING	NOTES
 <b>Regional Light Rail Spine</b> <i>Does project help complete regional light rail spine?</i>	Yes	
 <b>Ridership</b> <i>2040 daily project riders</i>	27,000 — 37,000	
 <b>Capital Cost</b> <i>Cost in Millions of 2014 \$</i>	\$1,894 — \$2,026	
 <b>Annual O&amp;M Cost</b> <i>Cost in Millions of 2014 \$</i>	\$22	
 <b>Travel Time</b> <i>In-vehicle travel time along the project (segment)</i>	19 min	
 <b>Reliability</b> <i>Quantitative/qualitative assessment of alignment/route in exclusive right-of-way</i>	High	100% in exclusive right-of-way
 <b>System Integration</b> <i>Qualitative assessment of issues and effects related to connections to existing local bus service and potential future integration opportunities</i>	Medium	Low to medium-high number of existing daily transit connections; multi-modal integration opportunities at Tacoma Dome
 <b>Ease of Non-motorized Access</b> <i>Qualitative assessment of issues and effects related to non-motorized modes</i>	Medium Low	Low to medium intersection density providing non-motorized access, freeways as barriers, improved arterial crossing of I-5 at 54 <sup>th</sup> Ave E
	<b>Percent of Non-motorized Mode of Access</b> <i>Percent of daily boardings</i>	20-35%
 <b>Connections to PSRC-designated Regional Centers</b> <i>Number of PSRC-designated regional growth and manufacturing/industrial centers served</i>	2 centers	Downtown Tacoma, Port of Tacoma MIC
 <b>Land Use and Development/TOD Potential</b> <i>Quantitative/qualitative assessment of adopted Plans &amp; Policies and zoning compatible with transit-supportive development within 0.5 mile of potential stations</i>	Medium	Moderate support in local and regional plans; approx. 35% land is compatibly zoned
	Low	Limited market support
	<i>Qualitative assessment of real estate market support for development within 1 mile of potential corridor</i>	
<i>Density of activity units (population and employment for 2014 and 2040) within 0.5 mile of potential station areas</i>	Pop/acre: 2014: 2; 2040: 5 Emp/acre: 2014: 5; 2040: 7 Pop+Emp/acre: 2014: 7; 2040: 12	
 <b>Socioeconomic Benefits</b> <i>Existing minority / low-income populations within 0.5 mile of potential station areas</i>	44% Minority; 17% Low-Income	
<i>2014 and 2040 population within 0.5 mile of potential station areas</i>	Pop: 2014: 4,800; 2040: 9,200	
<i>2014 and 2040 jobs within 0.5 mile of potential station areas</i>	Emp: 2014: 8,900; 2040: 14,700	

For additional information on evaluation measures, see <http://soundtransit3.org/document-library>

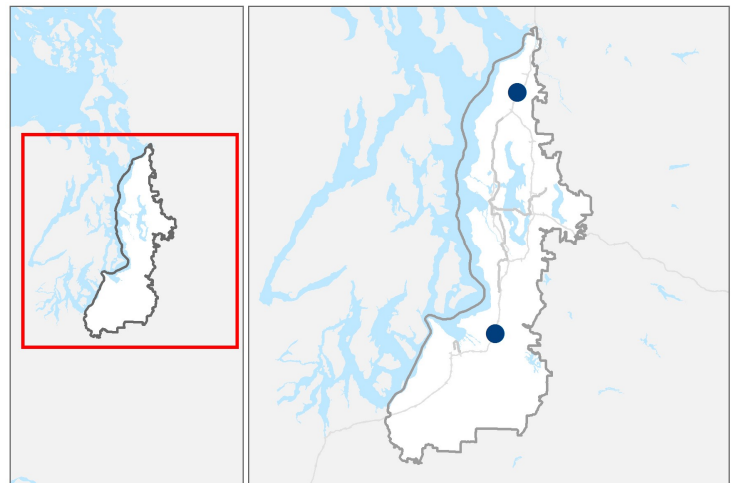
# Light Rail Operations and Maintenance Facilities

Subarea	All
Primary Mode	Light Rail
Facility Type	N/A
Length	N/A
Date Last Modified	July 1, 2016

## SHORT PROJECT DESCRIPTION

This project would construct two new light rail operations and maintenance facilities to accommodate additional fleet capacity.  
*Note: The elements included in this representative project will be refined during future phases of project development and are subject to change.*

## PROJECT AREA AND REPRESENTATIVE ALIGNMENT



## KEY ATTRIBUTES

<b>REGIONAL LIGHT RAIL SPINE</b> <i>Does this project help complete the light rail spine?</i>	N/A
<b>CAPITAL COST</b> <i>Cost in Millions of 2014 \$</i>	\$1,166 — \$1,248
<b>RIDERSHIP</b> <i>2040 daily project riders</i>	N/A
<b>PROJECT ELEMENTS</b>	<ul style="list-style-type: none"> <li>Two operations and maintenance facilities: one in Lynnwood to Everett corridor and one in Federal Way to Tacoma corridor</li> </ul>
<b>NOT INCLUDED</b>	<ul style="list-style-type: none"> <li>See separate document titled “Common Project Elements”</li> </ul>
<b>ISSUES &amp; RISKS</b>	<ul style="list-style-type: none"> <li>Facility siting could be near existing residential and/or commercial uses</li> <li>Current zoning may not be compatible with use</li> <li>Noise generation</li> <li>Facility siting and design should consider potential future expansion needs</li> <li>Jurisdictional coordination will be required for implementation of this project</li> </ul>

# Light Rail Operations and Maintenance Facilities

Sound Transit developed a conceptual scope of work for this project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information was developed to assist the Sound Transit Board as it developed the ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

## Long Description:

This project would construct two new light rail operations and maintenance facilities: one in the Lynnwood to Everett corridor and one in the Federal Way to Tacoma corridor. Specific locations will be determined as part of light rail project development in each corridor.

## Assumptions:

- North OMF would be sized to accommodate approximately 152 light rail vehicles
- South OMF would be sized to accommodate approximately 108 light rail vehicles
- Both facilities would be full service facilities and would include all heavy maintenance equipment
- Includes employee parking
- Additional future expansion could be accommodated

## Environmental:

Sound Transit will complete project-level state and federal environmental reviews as necessary; provide mitigation for significant impacts; obtain and meet the conditions of all required permits and approvals; and strive to exceed compliance and continually improve its environmental performance.

## Utilities:

Utility relocation as needed to complete the project, including fiber optics, sewer, water, overhead electric/communications, etc.

## Right-of-Way and Property Acquisition:

Property acquisition required

## Potential Permits/Approvals Needed:

- Building permits: Electrical, Mechanical, Plumbing
- Utility connection permits
- Construction-related permits (clearing and grading, stormwater management, street use, haul routes, use of city right-of-way)
- Land use approvals (Conditional use, design review, site plans, Comprehensive Plan or development code consistency, Special Use Permits)
- All required local, state, and federal environmental permits; NEPA/SEPA and related regulations.

## Project Dependencies:

This project requires construction of the Lynnwood to Everett and Federal Way to Tacoma light rail projects.

## Potential Project Partners:

- Local jurisdictions
- WSDOT



# Light Rail Operations and Maintenance Facilities

## Cost:

Sound Transit developed a conceptual scope of work for this project for the purpose of generating a representative range of costs, both capital and operating; and benefits, including ridership forecasts, TOD potential, multi-modal access and others. This information was developed to assist the Sound Transit Board as it developed the ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, station locations, and number of parking stalls) will be determined after completion of system planning, project level environmental review, and preliminary engineering during which additional opportunities for public participation will be provided. Therefore, this scope definition should not be construed as a commitment that all representative features will be included in the final developed project.

In Millions of 2014\$

## North OMF

ITEM	COST	COST WITH RESERVE
Agency Administration	\$35.76	\$38.27
Preliminary Engineering & Environmental Review	\$16.14	\$17.27
Final Design & Specifications	\$32.29	\$34.55
Property Acquisition & Permits	\$182.79	\$195.59
Construction	\$329.31	\$352.36
Construction Management	\$29.06	\$31.09
Third Parties	\$6.46	\$6.91
Vehicles	\$0.00	\$0.00
Contingency	\$32.29	\$34.55
<b>Total</b>	<b>\$664.09</b>	<b>\$710.58</b>

## Design Basis:

Conceptual

The costs expressed above include allowances for TOD planning and due diligence, Sustainability, Bus/rail integration facilities, and Non-Motorized Access. These allowances, as well as the costs for Parking Access included above, are reflected in the following table. Property acquisition costs are not included in the table below, but are included within the total project cost above. For cost allowances that are not applicable for this project, "N/A" is indicated.

ITEM	COST	COST WITH RESERVE
TOD planning and due diligence	N/A	N/A
Sustainability	N/A	N/A
Parking access	N/A	N/A
Non-motorized (bicycle/pedestrian) access	N/A	N/A
Bus/rail integration facilities	N/A	N/A

# Light Rail Operations and Maintenance Facilities

## South OMF

ITEM	COST	COST WITH RESERVE
Agency Administration	\$26.59	\$28.45
Preliminary Engineering & Environmental Review	\$16.11	\$17.24
Final Design & Specifications	\$32.23	\$34.48
Property Acquisition & Permits	\$30.68	\$32.83
Construction	\$328.71	\$351.72
Construction Management	\$29.00	\$31.03
Third Parties	\$6.45	\$6.90
Vehicles	\$0.00	\$0.00
Contingency	\$32.23	\$34.48
<b>Total</b>	<b>\$501.99</b>	<b>\$537.13</b>

**Design Basis:**












N/A

The costs expressed above include allowances for TOD planning and due diligence, Sustainability, Bus/rail integration facilities, and Non-Motorized Access. These allowances, as well as the costs for Parking Access included above, are reflected in the following table. Property acquisition costs are not included in the table below, but are included within the total project cost above. For cost allowances that are not applicable for this project, "N/A" is indicated.

ITEM	COST	COST WITH RESERVE
TOD planning and due diligence	N/A	N/A
Sustainability	\$0.08	\$0.08
Parking access	N/A	N/A
Non-motorized (bicycle/pedestrian) access	N/A	N/A
Bus/rail integration facilities	N/A	N/A

# Light Rail Operations and Maintenance Facilities

## Evaluation Measures:

MEASURE	MEASUREMENT/RATING	NOTES
 <b>Regional Light Rail Spine</b> <i>Does project help complete regional light rail spine?</i>	N/A	
 <b>Ridership</b> <i>2040 daily project riders</i>	N/A	
 <b>Capital Cost</b> <i>Cost in Millions of 2014 \$</i>	\$1,166 — \$1,248	
 <b>Annual O&amp;M Cost</b> <i>Cost in Millions of 2014 \$</i>	\$6	
 <b>Travel Time</b> <i>In-vehicle travel time along the project (segment)</i>	N/A	
 <b>Reliability</b> <i>Quantitative/qualitative assessment of alignment/route in exclusive right-of-way</i>	N/A	
 <b>System Integration</b> <i>Qualitative assessment of issues and effects related to connections to existing local bus service and potential future integration opportunities</i>	N/A	
	<b>Ease of Non-motorized Access</b> <i>Qualitative assessment of issues and effects related to non-motorized modes</i>	N/A
	<b>Percent of Non-motorized Mode of Access</b> <i>Percent of daily boardings</i>	N/A
 <b>Connections to PSRC-designated Regional Centers</b> <i>Number of PSRC-designated regional growth and manufacturing/industrial centers served</i>	N/A	
	<b>Land Use and Development/TOD Potential</b> <i>Quantitative/qualitative assessment of adopted Plans &amp; Policies and zoning compatible with transit-supportive development within 0.5 mile of potential stations</i>	N/A
	<i>Qualitative assessment of real estate market support for development within 1 mile of potential corridor</i>	N/A
	<i>Density of activity units (population and employment for 2014 and 2040) within 0.5 mile of potential station areas</i>	N/A
	<b>Socioeconomic Benefits</b> <i>Existing minority / low-income populations within 0.5 mile of potential station areas</i>	N/A
	<i>2014 and 2040 population within 0.5 mile of potential station areas</i>	N/A
	<i>2014 and 2040 employment within 0.5 mile of potential station areas</i>	N/A

For additional information on evaluation measures, see <http://soundtransit3.org/document-library>