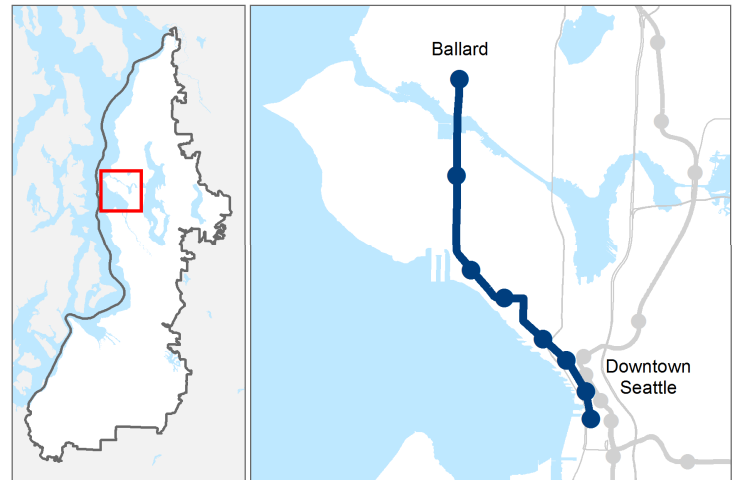


C-01a: Downtown Seattle to Ballard (Market Street vicinity) LRT, primarily at-grade along Elliott and 15th Avenue

Project Number	C-01a
Subarea	North King
Primary Mode	Light Rail
Facility Type	Corridor
Length	6.3 miles
Version	ST Board Workshop
Date Last Modified	11-25-2015

PROJECT AREA AND REPRESENTATIVE ALIGNMENT



SHORT PROJECT DESCRIPTION

This project would build light rail from Downtown Seattle to Ballard’s Market Street area via the Uptown neighborhood. It would include a rail-only movable bridge over Salmon Bay and at-grade light rail in exclusive lanes on 15th Avenue NW and Elliott Avenue West, with signal priority so trains would generally stop only at stations. Eight stations are included – seven at-grade and one aerial.

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

KEY ATTRIBUTES

REGIONAL LIGHT RAIL SPINE <i>Does this project help complete the light rail spine?</i>	No
CAPITAL COST <i>Cost in Millions of 2014 \$</i>	\$1,827 — \$1,955
RIDERSHIP <i>2040 daily boardings</i>	35,000 — 43,000
PROJECT ELEMENTS	<ul style="list-style-type: none"> • Approximately 6.3 miles of mostly at-grade light rail • One elevated station: Interbay South • Seven at-grade stations: Ballard, Interbay North, Uptown, Belltown, Westlake, Midtown, Pioneer Square • Stations are approximately 200 feet long to accommodate 2-car trains • New rail-only movable bridge over Salmon Bay • Operations and maintenance facility • Purchase of 21 light rail vehicles • Peak headways: 6 minutes • 1 percent for art per Sound Transit policy • 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”)
NOT INCLUDED	<ul style="list-style-type: none"> • Parking not included • See separate document titled “Common Project Elements”
ISSUES & RISKS	<ul style="list-style-type: none"> • Risk and complexity associated with alignment through Fisherman’s Terminal/Salmon Bay and construction of a new movable bridge • Displacing vehicle travel lanes for the alignment • Requires close coordination with Seattle Department of Transportation to maintain speeds in at-grade

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KEY ATTRIBUTES

ISSUES & RISKS

- alignment through Downtown Seattle
- Side-platform stations would partially occupy existing sidewalk and would be space-constrained
- Limited left turns along the alignment
- Track crossing locations for driveway access and turns at intersections may need to be maintained in some locations
- Maintaining access for businesses for deliveries
- At-grade stations could create complexity for future system expansion potential
- Constructing a new movable bridge over Salmon Bay
- Maintenance of traffic during construction on arterials
- US Coast Guard approval is needed for Salmon Bay crossing
- An alignment running west of the Ballard Bridge could require acquiring property from the Fisherman's Terminal and impact buildings, docks, vessels, and equipment associated with maritime businesses
- A number of existing roadway structures may need to be replaced to accommodate the alignment, depending on its location: W Dravus Street over 15th Avenue W, the Magnolia Bridge flyover over 15th Avenue W, and 1st Avenue over the Battery Street Tunnel
- The alignment would need to vertically clear certain intersections, including 15th Avenue NW/NW Leary Way, 15th Avenue W/W Emerson Street, and Elliott Avenue W/W Mercer Place
- An alignment on 1st Avenue between Stewart and Union would be located in the same location as the Center City Connector; light rail could potentially conflict with the Connector in terms of stations, platforms, and overhead catenary system
- Potential conflicts with existing utilities
- Impacted by: C-03b: West Seattle to Downtown Seattle At-grade
- At-grade profiles included in this project could result in more potential conflicts with other modes; this could affect speed and reliability
- Light rail currently operates in Seattle and specific station area standards are codified; light rail is included in the Comprehensive Plan and other planning documents
- Due to the constrained right-of-way available in areas such as Downtown Seattle and Uptown, cross-sections below city minimum width requirements are assumed; coordination and possible exemptions would be needed from the City of Seattle, otherwise, as an alternative to seeking an exemption, acquisition of additional, high-value right-of-way would be required
- Coordination with the City of Seattle to identify an appropriate parallel replacement bicycle facility in Uptown would be required

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Sound Transit has developed a conceptual scope of work for this candidate 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 is being developed to assist the Sound Transit Board as it develops an ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, number of stations, 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 build light rail from downtown Seattle to Ballard's Market Street area via the Uptown neighborhood. It would include at-grade light rail in exclusive lanes on 15th Avenue NW and Elliott Avenue W, with signal priority so trains would generally stop only at stations. A new movable bridge adjacent to the Ballard Bridge would be included. The representative alignment for this light rail project would be at-grade along 15th Avenue NW starting at Market Street, transitioning to an elevated alignment before crossing Salmon Bay on a new rail-only bridge near the Ballard Bridge. The alignment would transition back to a primarily at-grade alignment through the Interbay corridor along 15th Avenue NW and Elliott Avenue W. The alignment would continue at-grade through the Uptown neighborhood and then along 1st Avenue through downtown Seattle in exclusive lanes, terminating at approximately Royal Brougham Way.

The City of Seattle has requested information regarding additional costs associated with replacing the Ballard Bridge in conjunction with this project. See Evaluation section for information on these potential additional costs, for which the City of Seattle would be solely responsible.

Assumptions:

- Alignment generally along existing arterials
- No parking provided
- Deviation from ST station criteria may be needed for the station near 1st Avenue and Virginia Street due to steep grade
- Traction power substations are generally placed at 1-mile intervals, close to stations, if possible, with additional right-of-way acquisition included
- Elevated sections are located approximately 30 feet above existing grade or structure
- Modifications to existing bus service and stops would be coordinated with partner agencies
- For non-motorized station access allowances, the Ballard and Uptown stations are categorized as Urban stations and stations in Belltown, Pike Place Market, Midtown, and Pioneer Square stations are characterized as Urban/CBD stations; the Interbay North and Interbay South stations are categorized as Urban stations with a Major Bicycle Intercept
- For bus/rail integration, facilities have been assumed at the Ballard and Interbay South stations
- Due to the constrained right-of-way available in areas such as Downtown Seattle and Uptown, cross-sections below city minimum width requirements are assumed
- The cost of replacing the existing bicycle lanes that would be displaced by this project have been assumed in the capital costs

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:

- The alignment would require displacing vehicle travel lanes, and would not expand ROW except at some intersections and stations
- Potential property acquisitions anticipated at stations and intersections where protected turns are to be maintained
- The alignment would require property acquisition for the operations and maintenance facility, access to the facility, and traction power substations
- Property acquisition for bus/rail integration facility

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)
- Master use

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- Land use approvals (Conditional use, design review, site plans, Comprehensive Plan or development code consistency, Special Use Permits)
- USCG Bridge Permit
- US Army Corps of Engineers Section 10
- FAA/Air Navigation Review
- All required local, state, and federal environmental permits
- NEPA/SEPA and related regulations

Project Dependencies:

Requires development of independent operations and maintenance facility. However, if this project is combined with project C-03b, then cost savings could be achieved with construction of only one new OMF.

Potential Project Partners:

- City of Seattle
- King County
- U.S. Army Corps of Engineers
- Transit partner serving this project: King County Metro
- U.S. Coast Guard
- FTA
- Port of Seattle

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Cost:

Sound Transit has developed a conceptual scope of work for this candidate 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 is being developed to assist the Sound Transit Board as it develops an ST3 system plan, including phasing of investments and financial plan, for voter consideration. Final decisions on project elements (e.g., alignment, profile, number of stations, 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	\$98.04	\$104.90
Preliminary Engineering & Environmental Review	\$48.37	\$51.76
Final Design & Specifications	\$95.32	\$101.99
Property Acquisition & Permits	\$301.69	\$322.80
Construction	\$972.27	\$1,040.33
Construction Management	\$85.79	\$91.79
Third Parties	\$19.26	\$20.61
Vehicles	\$111.30	\$119.09
Contingency	\$95.32	\$101.99
Total	\$1,827.36	\$1,955.28

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.

ITEM	COST	COST WITH RESERVE
TOD planning and due diligence	\$0.91	\$0.98
Sustainability	\$17.44	\$18.66
Parking access	N/A	N/A
Non-motorized (bicycle/pedestrian) access	\$40.64	\$43.49
Bus/rail integration facilities	\$5.51	\$5.89

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Evaluation Measures:

MEASURE	MEASUREMENT/RATING	NOTES	
 Regional Light Rail Spine <i>Does project help complete regional light rail spine?</i>	No		
 Ridership <i>2040 daily station boardings</i>	35,000 — 43,000		
 Capital Cost <i>Cost in Millions of 2014 \$</i>	\$1,827 — \$1,955	Additional cost of optional Ballard Bridge replacement is \$260m - \$500m; Sound Transit would not be responsible for this additional cost	
 Annual O&M Cost <i>Cost in Millions of 2014 \$</i>	\$34.88		
 Travel Time <i>In-vehicle travel time along the project (segment)</i>	23 min		
 Reliability <i>Quantitative/qualitative assessment of alignment/route in exclusive right-of-way</i>	Medium-High	Primarily at-grade; reliability could be affected by cross street traffic	
 System Integration <i>Qualitative assessment of issues and effects related to connections to existing local bus service and potential future integration opportunities</i>	Medium-High	Low to high number of existing daily transit connections from Ballard to Pioneer Square and opportunities for integration with realigned bus service	
	Ease of Non-motorized Access <i>Qualitative assessment of issues and effects related to non-motorized modes</i>	Medium-High	Medium to high intersection densities providing non-motorized access, with rail lines and steep hills as barriers
	Percent of Non-motorized Mode of Access <i>Percent of daily boardings</i>	75-85%	
 Connections to PSRC-designated Regional Centers <i>Number of PSRC-designated regional growth and manufacturing/industrial centers served</i>	3 centers	Ballard-Interbay MIC, Uptown, Seattle CBD	
	Land Use and Development/TOD Potential <i>Quantitative/qualitative assessment of adopted Plans & Policies and zoning compatible with transit-supportive development within 0.5 mile of potential stations</i>	Medium	Strong support in local and regional plans; approx. 30% land is compatibly zoned
	<i>Qualitative assessment of real estate market support for development within 1 mile of potential corridor</i>	High	Very strong market support
	<i>Density of activity units (population and employment for 2014 and 2040) within 0.5 mile of potential station areas</i>	Pop/acre: 2014: 21; 2040: 30 Emp/acre: 2014: 64; 2040: 94 Pop+Emp/acre: 2014: 85; 2040: 124	
	Socioeconomic Benefits <i>Existing minority / low-income populations within 0.5 mile of potential station areas</i>	30% minority; 17% low-income	
	<i>2014 and 2040 population within 0.5 mile of potential station areas</i>	Pop: 2014: 55,600; 2040: 78,300	
	<i>2014 and 2040 employment within 0.5 mile of potential station areas</i>	Emp: 2014: 170,500; 2040: 249,800	

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