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Date of Meeting	September 25, 2018

West Seattle and Ballard
Link Extensions

Alternatives Evaluation Criteria – Draft 5

June 2018

SOUNDTRANSIT

Table 1 Level 1 Screening Evaluation Criteria, Measures and Methods (by segment) – COMPLETE

Purpose and Need [1]/ Evaluation Criteria [2]	Measure [3]	Quantitative or Qualitative [4]	Methods [5]
Provide high quality rapid, reliable, and efficient peak and off-peak light rail transit service to communities in the project corridors defined in ST3			
Reliable Service	Potential service interruptions and recoverability	Qualitative	Number of service interruptions during peak and off-peak travel periods (e.g., number of movable bridge openings, at-grade crossings, etc.) and redundancy and ability to re-route service
Travel Times	LRT travel times	Quantitative	Estimated travel times within segments based on alignment characteristics
Improve regional mobility by increasing connectivity and capacity through downtown Seattle to meet projected transit demand			
Regional Connectivity	Network integration and operational flexibility to meet future demand	Qualitative	Ability to accommodate spine segmentation for regional LRT system connectivity and operational flexibility to meet future demand
Transit Capacity	Passenger carrying capacity in downtown	Qualitative	Combined carrying capacity of downtown transit tunnels
Projected Transit Demand	Ridership potential	Quantitative/ Qualitative	Future 2040 total population and employment within 0.5-mile buffer of WSBLE Project stations
Connect regional centers as described in adopted regional and local land use, transportation, and economic development plans and Sound Transit's Long-Range Plan			
Regional Centers Served	Station proximity to PSRC-designated regional centers	Quantitative	Number of PSRC-designated regional growth centers and manufacturing/industrial centers served by stations
Sound Transit Long-Range Plan Consistency	Accommodates future LRT extension beyond ST3	Qualitative	Ability to accommodate expansion potential of future LRT extensions identified in *Sound Transit Long-Range Plan*
Implement a system that is consistent with the ST3 Plan that established transit mode, corridor, and station locations and that is technically feasible and financially sustainable to build, operate, and maintain			
ST3 Consistency	Mode, route and general station locations per ST3	Qualitative	Consistency of mode, route and general station locations per ST3
	Potential ST3 operating plan effects	Qualitative	Integration of WSBLE Project into existing LRT spine and overall system (e.g., special trackwork, movable bridge implications, etc.)
Technical Feasibility	Engineering constraints	Qualitative	Compliance with *Sound Transit Design Criteria Manual*, design criteria from agencies with jurisdiction and federal regulations; engineering obstacles associated with major infrastructure constraints
	Constructability issues	Qualitative	Major constructability issues based on potential conflicts and technical challenges (e.g., utility conflicts, existing infrastructure, geotechnical, tunnel portals, etc.)
	Operational constraints	Qualitative	Consideration of operational constraints (e.g., access to maintenance facility, vertical grade, horizontal curvature, movable bridge, etc.)
Financial Sustainability	Qualitative capital cost comparison	Qualitative	ST3 cost consistency based on identification of major capital cost drivers (e.g., route miles, route configuration, bridge type, etc.)
Expand mobility for the corridor and region's residents, which include transit dependent, low income, and minority populations			
Historically Underserved Populations	Opportunities for historically underserved populations	Qualitative	Assessment of improved access to opportunities (i.e., employment, housing and transit) for historically underserved populations (i.e., environmental justice populations) within station areas, as well as along the frequent transit network that would serve the station
Encourage equitable and sustainable urban growth in station areas through support of transit-oriented development, station access, and modal integration in a manner that is consistent with local land use plans and policies			
Station Area Land Use Plan Consistency	General station locations consistent with local land use plans	Qualitative	Compatibility and consistency of station locations with local land use plans
	Station proximity to Seattle-designated Urban Centers and Villages	Qualitative	Proximity of station locations to centroid of defined urban centers and villages as identified in *City of Seattle Comprehensive Plan*
Modal Integration	Bus/rail and rail/rail integration	Qualitative	Potential ability to integrate with bus and rail service and ease of transfers for transit customers
	Bicycle, pedestrian and persons with limited mobility connectivity	Qualitative	Accessibility of station locations to major existing and planned bicycle and pedestrian facilities and identification of major physical barriers to walking and biking within general station areas for bicyclists and pedestrians, including persons with limited mobility
Station Area Development Opportunities	Development potential	Qualitative	Likelihood of land potentially available for future development within station areas based on zoning composition
Preserve and promote a healthy environment and economy by minimizing adverse impacts on the natural, built and social environments through sustainable practices			
Environmental Effects	Protected natural resources	Qualitative	Impacts to known natural resources (e.g., waterbodies, wetlands, etc.)
	Protected built and social environment	Qualitative	Impacts to known built and social resources (e.g., parks, historic properties/districts, Section 4(f)/6(f), construction impacts, etc.) and potential for residential and business displacements
	Burden on historically underserved populations	Qualitative	Assessment of how potential acquisitions and displacements would affect historically underserved populations (i.e., environmental justice populations) relative to other communities and displacement risk from station area redevelopment

Table 1 Level 1 Screening Evaluation Criteria, Measures and Methods (by segment) – COMPLETE			
Purpose and Need (1)/ Evaluation Criteria (2)	**Measure (3)**	**Quantitative or Qualitative (4)**	**Methods (5)**
Traffic Operations	Traffic circulation and access	Qualitative	Effects on traffic and transit (i.e., bus and streetcar) operations, including potential lane restrictions, turn restrictions, and parking
Economic Effects	Freight movement and access on land and water	Qualitative	Effects on freight mobility and future freight capacity expansion opportunities, including both on land and water
	Business and commerce effects	Qualitative	Effects on local businesses, as well as commercial and industrial areas

Notes:
(1) Based on Draft Purpose and Need Statement (dated January 24, 2018), with revisions incorporated from feedback received during early scoping.
(2) Criteria are subject to change as alternatives are refined and screened at each level, as well as to incorporate stakeholder input.
(3) Screening criteria and associated measures get progressively more detailed and quantitative as the alternatives are screened through Level 1, Level 2 and Level 3.
(4) Measures ranked from high to low based on comparison to ST3 Representative Project; “High” = higher performance, “Comparable” = comparable performance, “Low” = lower performance.
(5) Agency and stakeholder input will be considered in the overall alternatives evaluation and screening process.

Table 2 Level 2 Screening Evaluation Criteria, Measures and Methods (by segment)

Purpose and Need [1]/ Evaluation Criteria [2]	Measure [3]	Quantitative or Qualitative [4]	Methods [5]
Provide high quality rapid, reliable, and efficient peak and off-peak light rail transit service to communities in the project corridors defined in ST3			
Reliable Service	Potential service interruptions and recoverability	Quantitative	Number of service interruptions during peak and off-peak travel periods (e.g., frequency and duration of movable bridge openings, at-grade crossings, etc.) and redundancy and ability to re-route service
Travel Times	LRT travel times	Quantitative	Estimated travel times within segments based on alignment characteristics
Improve regional mobility by increasing connectivity and capacity through downtown Seattle to meet projected transit demand			
Regional Connectivity	LRT network integration	Qualitative	Ability to accommodate spine segmentation for regional LRT system connectivity and operational flexibility to meet future demand
Transit Capacity	Passenger carrying capacity in downtown	Qualitative	Combined passenger carrying capacity of downtown transit tunnels
Projected Transit Demand	Ridership potential	Quantitative	Future PSRC-forecasted 2040 total population and employment within 10-minute walkshed of WSBLE Project stations
Connect regional centers as described in adopted regional and local land use, transportation, and economic development plans and Sound Transit's Long-Range Plan			
Regional Centers Served	Station proximity to PSRC-designated regional growth centers	Quantitative	Number of PSRC-designated regional growth centers served by stations
	Station proximity to PSRC-designated manufacturing/industrial centers	Quantitative	Number of PSRC-designated manufacturing/industrial centers served by stations
Sound Transit Long-Range Plan Consistency	Accommodates future LRT extension beyond ST3	Qualitative	Ability to accommodate expansion potential of future LRT extensions identified in *Sound Transit Long-Range Plan*
Implement a system that is consistent with the ST3 Plan that established transit mode, corridor, and station locations and that is technically feasible and financially sustainable to build, operate, and maintain			
ST3 Consistency	Mode, route and general station locations per ST3	Qualitative	Consistency of mode, route and general station locations per ST3
	Potential ST3 implementation schedule effects	Qualitative	Constructability, environmental or other issues/challenges that may cause WSBLE Project schedule risks (e.g., right-of-way [ROW] acquisition needs, in-water work restrictions, regulatory compliance process, etc.)
	Potential ST3 operating plan effects	Qualitative	Integration of WSBLE Project into existing LRT spine and overall system (i.e., special trackwork, movable bridge implications, etc.)
Technical Feasibility	Engineering constraints	Quantitative/ Qualitative	Compliance with *Sound Transit Design Criteria Manual*, design criteria from agencies with jurisdiction and federal regulations and engineering obstacles associated with major infrastructure constraints; incorporate findings of engineering feasibility studies
	Constructability issues	Quantitative/ Qualitative	Constructability issues based on potential conflicts and technical challenges (e.g., utility conflicts, existing infrastructure, geotechnical, tunnel portals, etc.); incorporate findings of engineering feasibility studies
	Operational constraints	Qualitative	Assessment of operational constraints (e.g., access to maintenance facility, vertical grade, horizonal curvature, movable bridge, etc.); incorporate findings of engineering feasibility studies
Financial Sustainability	Conceptual capital cost comparison	Quantitative	ST3 cost consistency and conceptual capital cost comparison based on conceptual design quantities and current Sound Transit unit pricing
	Operating cost impacts	Qualitative	Assessment of operations and maintenance (O&M) cost impacts, including annual and lifecycle costs
Expand mobility for the corridor and region's residents, which include transit dependent, low income, and minority populations			
Historically Underserved Populations	Opportunities for low-income and minority populations	Qualitative	Assessment of improved access to opportunities (activity nodes served, as described below) for low-income and minority populations within station areas and how the project would improve access for low-income and minority populations along the system to these nodes, as well as access for low-income and minority populations in the study area to major regional employment and educational destinations
		Quantitative	Number of rent-restricted or subsidized rental units 10-minute walkshed (i.e., rent- and income-restricted housing units)
	Low-income population	Quantitative	Low-income population (i.e., households below 2 times the federal poverty level) within 10-minute walkshed and 15-minute ride on connecting high frequency transit
	Minority population[1]	Quantitative	Minority population within 10-minute walkshed and 15-minute ride on connecting high frequency transit
	Youth population (under 18)	Quantitative	Youth population (under 18) within 10-minute walkshed and 15-minute ride on connecting high frequency transit

[1] Minority population is defined in U.S. DOT Updated Environmental Justice Order 5610.2(a) as persons belonging to any of the following groups: Black, Hispanic, Asian American, and American Indian and Alaska Native.

Table 2 Level 2 Screening Evaluation Criteria, Measures and Methods (by segment)

Purpose and Need [1]/ Evaluation Criteria [2]	Measure [3]	Quantitative or Qualitative [4]	Methods [5]
	Elderly population (65 and over)	Quantitative	Elderly population (65 and over) within 10-minute walkshed and 15-minute ride on connecting high frequency transit
	Limited English Proficiency (LEP) population	Quantitative	LEP population within 10-minute walkshed and 15-minute ride on connecting high frequency transit
	Disabled population	Quantitative	Disabled population (includes those with hearing, vision, or ambulatory disability) within 10-minute walkshed and 15-minute ride on connecting high frequency transit
Encourage equitable and sustainable urban growth in station areas through support of transit-oriented development, station access, and modal integration in a manner that is consistent with local land use plans and policies			
Station Area Land Use Plan Consistency	Compatibility with Seattle designated Urban Centers and Villages	Quantitative	Percent of 10-minute station walkshed land area located within Seattle-designated Urban Centers and/or Villages
	Station locations consistent with current local land use plans	Qualitative	Compatibility and consistency of station locations with current local land use plans
	Activity nodes served	Quantitative	Number of activity nodes (e.g., points of interest, gathering spaces, food banks, educational institutions, parks and recreational resources) within 10-minute walkshed of stations
Modal Integration	Passenger transfers	Qualitative	Assessment of ease of passenger transfer for riders transferring between light rail lines, and between light rail and other motorized modes (bus, paratransit, drop-off/pick-up, transportation network companies [TNC]) at stations
	Bus/rail and rail/rail integration	Quantitative/ Qualitative	Percentage of peak-hour bus and rail trips that stop within one block of proposed station locations relative to the total number of peak-hour bus and rail trips within a 700 foot walk of proposed stations
	Bicycle accessibility	Quantitative	Ratio of bicycle facility miles (neighborhood greenway, bicycle lanes, protected bicycle lanes, and trails) to total roadway miles within 10-minute bikeshed of stations
	Pedestrian and persons with limited mobility accessibility	Quantitative/ Qualitative	Ratio of sidewalk and trail miles to total roadway miles within 10-minute walkshed of stations, and assessment of impediments to pedestrian and ADA access (i.e., large intersections with signal delay, significant topography or grade challenges)
Station Area Development Opportunities	Development potential	Quantitative	Development potential, incorporating zoned capacity and market conditions, within 10-minute walkshed of stations (5-minute walkshed in downtown)
	Equitable development opportunities	Qualitative	Assessment of unique opportunities for equitable development enabled by station location and/or conceptual configuration
Preserve and promote a healthy environment and economy by minimizing adverse impacts on the natural, built and social environments through sustainable practices			
Environmental Effects	National Register of Historic Places (NRHP) listed or eligible historic properties and Seattle City Landmarks	Quantitative	Number of intersected or adjacent NRHP-listed, NRHP-eligible, and Seattle City Landmark property impacts based on Department of Archaeology and Historic Preservation (DAHP) data and City of Seattle Landmark data
	Potential archaeological resources	Quantitative	Percent of alternative length within previously identified archaeology sensitive areas that are 500 feet (or 0.5 miles at water crossings) from alignment
	Parks and recreational resources	Quantitative	Number of and estimated area of potential permanent impacts to parks and recreational resources
	Water resources	Quantitative	Estimated area of potential permanent in-water impacts
	Fish and wildlife habitat	Quantitative	Estimated area of potential permanent impact to fish and wildlife habitat using city of Seattle environmentally critical areas
	Hazardous materials	Quantitative	Number of contaminated properties potentially impacted, including Superfund sites
	Visual	Quantitative/ Qualitative	Evaluation of the length of elevated guideway adjacent to residential or other visually sensitive areas, including parks and historic properties; an assessment of scale of elevated guideway in visually sensitive areas; and potential impacts to protected views as designated in Seattle Municipal Code
	Noise and vibration	Quantitative	Number of potentially affected noise and vibration sensitive receivers, including residences, libraries, performance halls, schools, churches, and selected parks within 350 feet of alignment; the presence of known noise and vibration sensitive laboratories will be noted
	Property acquisitions and displacements	Quantitative	Number of potentially affected properties, including potential residential and business displacements
	Construction impacts	Qualitative	Assessment of temporary construction impacts to community, including potential for transportation, access, noise, vibration, and visual effects that could disrupt the community (including existing residents, businesses, social service providers), including relative duration of construction and impacts to high volume traffic areas

Table 2 Level 2 Screening Evaluation Criteria, Measures and Methods (by segment)			
Purpose and Need [1]/ Evaluation Criteria [2]	**Measure [3]**	**Quantitative or Qualitative [4]**	**Methods [5]**
	Burden on low-income and minority populations	Qualitative	Assessment of how potential acquisitions and displacements and visual, noise and construction impacts would affect low-income and minority populations relative to other communities and displacement risk from station area redevelopment
Traffic Operations	Traffic circulation and access	Qualitative	Effects on traffic and transit (i.e., bus and streetcar) operations, including potential lane restrictions, lane eliminations, turn restrictions, driveways impacted, and parking taken
	Transportation facilities	Qualitative	Effects on existing transportation facilities, including bicycle lanes, sidewalks, traffic interchanges and other transportation infrastructure as warranted, and compatibility with planned facilities
Economic Effects	Freight movement and access on land and water	Qualitative	Effects on existing and future freight mobility and future freight capacity expansion opportunities, including both on land and water
	Business and commerce effects	Qualitative	Effects on businesses, as well as commercial and industrial areas, including potential impacts during construction and operations from changes in access, travel patterns and displacements

Notes:
(1) Based on Draft Purpose and Need Statement, with revisions incorporated from feedback received during the Level 1 evaluation.
(2) Criteria are subject to change as alternatives are refined and screened at each level, as well as to incorporate stakeholder input.
(3) Screening criteria and associated measures get progressively more detailed and quantitative as the alternatives are screened through Level 1, Level 2 and Level 3.
(4) Measures ranked from high to low based on anticipated ability to achieve evaluation measure; “High” = high ability to achieve measure, “Medium” = moderate ability to achieve measure, “Low” = low ability to achieve measure; no weighting will be applied.
(5) Agency and stakeholder input will be considered in the overall alternatives evaluation and screening process.