

Appendix I

Mitigation Plan

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Appendix I. Mitigation Plan

The mitigation plan for the West Seattle Link Extension Project (the project) describes Sound Transit's mitigation commitments that will be implemented to avoid or minimize the impacts of the Preferred Alternative identified in the Final Environmental Impact Statement (EIS). Many of the potential impacts identified through the EIS process will be mitigated through incorporation of avoidance, minimization, or improvement elements that are now included in the definition and design of the project. If the Sound Transit Board ultimately selects another alternative to build that is different from the Preferred Alternative described in the Final EIS, the mitigation plan will be modified accordingly.

This plan describes the mitigation measures associated with the operating (long-term) impacts of the project and the mitigation measures associated with construction impacts. The final mitigation measures will be included as conditions of the Federal Transit Administration's (FTA) Record of Decision (ROD) for the project. FTA will incorporate them in any future grant agreement that FTA may award Sound Transit for construction of the project. Sound Transit will track these measures and report regularly to FTA to ensure that the mitigation commitments are being met. Where appropriate, Sound Transit will incorporate mitigation requirements into its contracting documents for final design and construction.

The mitigation measures described in Table I-1 are based on the potential mitigation measures identified in the Final EIS for the Preferred Alternative. As the project moves into final design and construction, additional design features may be identified that avoid or minimize project impacts. The table also includes measures that Sound Transit proposes to take but that require the agreement of other parties. For instance, Sound Transit has identified certain traffic improvements, traffic management, safety, and parking strategies to mitigate project-related impacts, but Sound Transit does not have the sole authority to make those improvements when the facilities are owned and managed by others. Others may also have alternative plans or projects to address future conditions with or without the project. In these cases, Sound Transit would coordinate with these other agencies and jurisdictions to further define and implement improvements to mitigate the project's impacts.

Table I-1. Mitigation Plan

| Resource | Final EIS Section | Impact Topic | Period | Description of Mitigation for Preferred Alternative |
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| Transportation | 3.3 and 3.11 | Regional Context and Travel | Long-term | No mitigation is required for operation. |
| | | | Construction | Mitigation for short-term (less than 1 year) construction closures of regional roadways would consist of Sound Transit providing information to drivers about closure timing and alternate routes. Because closures of nearby arterials would not result in impacts to regional facilities, no other mitigation is needed beyond what is identified in this table under Section 3.5, Arterials and Local Streets Operations, for the arterials themselves. |
| | 3.4, 3.11, and Appendix N.1, Section 3.4 | Transit | Long-term | <p>Sound Transit would lead coordination with transit service providers as the project advances to maintain efficient transit operations, including refinements to the transit service plan as described in the Transit Service and Facilities section of Section 3.3.2.1 of Appendix N.1, Transportation Technical Report. Impacts to transit facilities would be addressed through ongoing coordination between Sound Transit, the City of Seattle, King County Metro Transit (Metro), and the FTA to identify capital, routing, and access management strategies that would be implemented before transit service operations would be affected. Sound Transit would implement agreed-upon improvements that mitigate impacts directly associated with the project.</p> <p>Closure of the SODO Busway with Preferred Option SODO-1c would impact transit speed and reliability, and layover in the SODO area. Sound Transit has coordinated with the City of Seattle and Metro on the following mitigation strategies:</p> <ul style="list-style-type: none"> • Implementation of transit speed and reliability strategies on 4th Avenue South between South Spokane Street and South Royal Brougham Way. Potential strategies could include business access and transit lanes, freight and bus lanes, or queue jump lanes. • Implementation of improved pedestrian access and bus stop passenger amenities at bus stops along 4th Avenue South near the following intersections: South Royal Brougham Way, South Holgate Street, and South Lander Street. Improved bus stop passenger amenities are also identified on South Spokane Street near 4th Avenue South. Potential strategies could include wider sidewalks, moving poles and other obstructions in the bus stop zones, new or relocated transit benches and shelters, and revised curb ramps and crosswalks. • Replacement layover in the SODO area could use off-street properties currently being used by Sound Transit Express buses that may not be necessary for Sound Transit use in the future and on-street layover near the Atlantic/Central Bus Base. |
| Construction | Sound Transit would lead coordination with Metro, the City of Seattle, and the FTA, where appropriate, to identify and confirm to bus service and associated infrastructure modifications and transit facility improvements that maintain transit service and access through construction areas. This would include continuing to coordinate on construction-related impacts to Metro's transit operations to determine the potential mitigation required, | | | |

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| | | | | <p>as many of the alternatives close roadways served by transit and restrict access to transit facilities for varying durations.</p> <p>Sound Transit would maintain access to existing bus stops, layover areas, and comfort stations to the extent feasible and coordinate with Metro and the City of Seattle to minimize impacts and disruptions. Where needed, this coordination would include other transit operators. Where bus stops and layover cannot be maintained in existing locations, Sound Transit would implement temporary facilities to maintain service and access. Information would be communicated to riders in advance of construction at these locations.</p> <p>Sound Transit would maintain non-motorized access to transit, where feasible, through construction areas, such as providing dedicated walkways or alternative bike facilities around the construction area. Where non-motorized access is not able to be maintained through construction areas, Sound Transit would implement temporary non-motorized facilities to maintain non-motorized access to transit. Sound Transit would also notify the public of any closures.</p> <p>Construction-related transit service impacts such as the SODO Busway closure (whether permanent or temporary), as well as other transit pathway closures identified in the document, would be coordinated with Metro, the City of Seattle, and other relevant service providers. Sound Transit will coordinate with the City of Seattle, Metro, and other agencies as necessary to develop a transit operations plan for construction-related closures to transit pathways. These transit operations plans would identify bus detour routes and minimize impacts and disruptions to bus facilities and service performance and hours during project construction. This would include identifying associated improvements needed to implement these service and facility modifications, such as speed and reliability treatments (e.g., new transit lanes, transit signal priority, or similar). Sound Transit would continue to coordinate with the City of Seattle and Metro during final design to finalize a construction transit operations plan that would define specific transit reroutes, and identify agreed-upon speed and reliability improvements, bus stop modifications, temporary layover and comfort stations, and pavement management plans.</p> <p>For Preferred Option SODO-1c, Sound Transit is coordinating with Metro and the City of Seattle to refine mitigation strategies for the following construction transit operations and facilities impacts:</p> <ul style="list-style-type: none"> • Short-term partial closures of 4th Avenue South to construct the South Lander Street overpass of the new and existing light rail tracks and for the light rail guideway over 4th Avenue South near South Spokane Street. <ul style="list-style-type: none"> - Sound Transit is coordinating with the City of Seattle and Metro to identify ways to shift travel lanes and implement business access and transit lanes, freight and bus lanes, and/or transit queue jump lanes at strategic locations. • Long-term (2-year) closure of South Lander Street over the light rail tracks and to facilitate construction of the SODO Station. |

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| | | | | <ul style="list-style-type: none"> - The South Lander Street closure would require the reroute of Route 50 to either 4th Avenue South or 6th Avenue South. <p>Construction could result in the potential long-term closure of the existing 1 Line SODO Station while the new SODO Station is built.</p> <ul style="list-style-type: none"> • Sound Transit is committed to maintaining the regional transit access provided by the SODO Station. Mitigation measures to maintain this access are still being identified by Sound Transit and agency partners, but could include the following: <ul style="list-style-type: none"> - Studying the feasibility of building an interim station/platforms in the vicinity of the existing SODO Station with connections to transit routes on 4th Avenue South and South Lander Street. Key factors that require further study are whether there are adequate access routes to an interim station given the construction in the area and the operations/regulatory considerations to build and operate an interim station. - Implementing a transit shuttle between the SODO Station area and Stadium Station. - Working with Metro to adjust routing of buses near the SODO Station to provide a convenient connection from the SODO Station area to an adjacent 1 Line station (Stadium and/or Beacon Hill stations). <p>Preferred Option WSJ-5b requires short-term partial closure of Southwest Alaska Street to construct stations and guideways.</p> <ul style="list-style-type: none"> • Sound Transit would implement traffic control measures to minimize congestion impacts on bus operations along Southwest Alaska Street. <p>Preferred Option WSJ-5b would require a full closure of 35th Avenue Southwest between the West Seattle Bridge and Southwest Avalon Way to construct the Avalon Station.</p> <p>Sound Transit would work with the City of Seattle and Metro on construction reroutes for Route 21X to navigate the closure of 35th Avenue Southwest. A potential pathway along Southwest Avalon Way to Southwest Spokane Street would not require any changes to signals or pavement.</p> |
| | 3.5, 3.11, and Appendix N.1, Section 4.4 | Arterials and Local Streets | Long-term | <p>Mitigation could be required at intersections where the intersection level of service (L.O.S.) would not meet agreed-to project-specific L.O.S. thresholds when compared to the No Build Alternative. For Build Alternatives, affected intersections are identified and defined as locations expected to degrade from L.O.S. D or better in the No Build Alternative to L.O.S. E or F with the project, or if the intersection already operates at L.O.S. E or F in the No Build Alternative have noticeably worse vehicle delays in the Build Alternative (10 percent or higher vehicle delay than in the No Build Alternative). In addition to the impacted intersections, the transit treatment measures that could be implemented to mitigate the permanent closure of the SODO Busway with Preferred Option SODO-1c could potentially impact the arterial street system.</p> <p>Sound Transit will continue to work with the City of Seattle and the FTA as project design progresses to minimize project-related intersection delays. Where additional project-</p> |

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| | | | | <p>related delays are unavoidable, Sound Transit will work with the City of Seattle to identify potential mitigation, with the intent of either meeting agreed-upon L.O.S. thresholds during the a.m. and p.m. peak hours or attaining a similar vehicle delay as the No Build Alternative.</p> <p>The intersection mitigation treatments would likely vary depending on the intersection location and cause of the increased vehicular delay. At intersections or movements where the delay is the result of vehicular operations such as pick-up/drop-off activity or additional transit buses, mitigation measures could include corridor signal optimization, upgraded signal technologies, implementation of corridor intelligent transportation system strategies, traffic movement and turn restrictions, or added intersection capacity, where feasible. For intersections or movements where increased delay is due primarily to increased non-motorized activity associated with the station, mitigation could be focused instead on strategies such as signal optimization for pedestrians, intersection crossing enhancements, pedestrian and/or bicycle facility modifications, reducing conflicts between vehicles and non-motorized users, or wayfinding, with the goal of improving safety and providing more efficient movement of pedestrians and cyclists.</p> <p>Final mitigation would be determined and agreed upon by Sound Transit and the City of Seattle, in coordination with the FTA and may include Sound Transit contributing a proportionate share of costs to improve intersections based on the project's proportionate ratio of trips at the intersection or another equitable method.</p> <p>The following sections describe mitigation measures that are being considered for specific impacted locations associated with the Preferred Alternative.</p> <p>SODO Segment</p> <p>As described above, the mitigation measures being considered for 4th Avenue South to address the transit travel time impact of closing the SODO Busway could impact arterial operations. This impact could be avoided by implementing transit treatment measures that do not reduce the general-purpose traffic capacity of 4th Avenue South though that may result in trade-offs in the extent to which the transit travel time impact could be mitigated. Specific mitigation for the permanent closure of the SODO Busway would be determined through coordination between Sound Transit, City of Seattle, and Metro.</p> <p>Delridge Segment</p> <p>This section identifies potential mitigation measures for intersections that are expected to be impacted by the project. Potential intersection mitigation options below apply to the Preferred Alternative. While these measures could reduce the magnitude of the impact, any modifications would be coordinated with the City of Seattle to determine whether they are consistent with City priorities and preferable given other trade-offs and modal priorities:</p> <ul style="list-style-type: none"> • Delridge Way Southwest and 23rd Avenue Southwest |

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| | | | | <ul style="list-style-type: none"> - The main cause of the traffic operations impact at this location is southbound delay during the p.m. peak hour as high volumes of vehicles exit the West Seattle Bridge. With the No Build Alternative, that southbound delay is associated with the Delridge Way Southwest/Southwest Andover Street signal as it is the first signalized intersection after exiting the bridge. By implementing a new signal upstream at 23rd Avenue Southwest, the southbound delay assigned to the Southwest Andover Street only includes the stretch of roadway between Southwest Andover Street and 23rd Avenue Southwest and the remaining delay is shifted to the 23rd Avenue Southwest signal. In other words, while the Preferred Alternative includes a new impact to this location, the broader effect on traffic operations would not differ substantially. - Although this intersection would experience increased levels of delay by becoming the new access point for Nucor Steel, the station area, and any associated transit-oriented development, it is expected to provide better circulation, safety, and traffic operations than if the Preferred Alternative did not include this new signal and circulation concept. This circulation concept has been developed in coordination with the City of Seattle and Metro and any modifications could create secondary impacts to other modes or conflict with agency priorities or policies. Sound Transit will continue to refine the station concept through final design in partnership with the City of Seattle and Metro and determine whether further mitigation to reduce vehicle delay is included in the project. • Delridge Way Southwest and Southwest Dakota Street <ul style="list-style-type: none"> - Vehicles turning from Southwest Dakota Street onto Delridge Way Southwest at this side-street stop control intersection would experience increased delay as they wait for gaps in traffic on Delridge Way Southwest. This impact could be mitigated by adding a signal at this location. Sound Transit will continue to work with the City of Seattle and Metro regarding transit treatments and signal operations at this location and determine whether further mitigation to reduce vehicle delay is included in the project. • Delridge Way Southwest and Southwest Genesee Street <ul style="list-style-type: none"> - Adding an eastbound right-turn pocket on Southwest Genesee Street to allow more vehicles to move through the intersection during the eastbound green time would mitigate this impact. <p>West Seattle Junction Segment</p> <p>This section identifies potential mitigation measures for intersections that are expected to be impacted by the project. Potential intersection mitigation options below apply to the Preferred Alternative. While these measures could reduce the magnitude of the impact, any modifications would be coordinated with the City of Seattle to determine whether they are consistent with the City's priorities and preferable given other trade-offs and modal priorities:</p> <ul style="list-style-type: none"> • Fauntleroy Way Southwest and 35th Avenue Southwest |

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| | | | | <ul style="list-style-type: none"> - Adding an overlap phase to the northbound right turn during the westbound left phase, modifying the signal cycle length to 120 seconds, and/or maintaining a channelized right turn could potentially mitigate this impact. Sound Transit is coordinating with the City of Seattle and Metro to refine the intersection layout and signal operations to balance the needs of all modes. Effects to adjacent intersections whose signals are coordinated with this location would also need to be considered. • Southwest Genesee Street and Southwest Avalon - Revising the intersection to allow northbound left turns into the station area would result in increased delay for vehicles on Southwest Avalon Way. Modifying the signal cycle length to 120 seconds would mitigate the additional delay. |
| | | | Construction | <p>Sound Transit will develop a Construction Access and Traffic Management Plan for the project for whichever Build Alternative is selected. The plan would be developed as the project advances and include the overarching goals and objectives for the project's construction and the approach to partner agency coordination. It would include applicable mitigation commitments to be built by Sound Transit, finalized as part of the environmental documentation, as well as additional detail reflecting continued design for the project after the Final EIS. Components likely to be addressed in detail include maintaining business access; minimizing construction disruption during large events; providing alternate routes for freight, general traffic, and non-motorized access; parking management; pavement restoration as appropriate; and maintaining transit operations (such as bus and light rail).</p> <p>Potential construction mitigation measures will be consistent with the applicable City requirements. Sound Transit would prepare traffic control plans during subsequent design phases to coordinate on how all modes of transportation would be maintained and address pedestrian and bicycle access and safety. Mitigation measures will follow the Manual on Uniform Traffic Control Devices for Streets and Highways (Federal Highway Administration 2009) and the City of Seattle Traffic Control Manual (City of Seattle 2012) for maintenance of traffic plans. Potential measures to minimize construction traffic impacts could include the following practices:</p> <ul style="list-style-type: none"> • Install advance warning signs and highly visible construction barriers and use flaggers where needed. • Consider a variety of traffic and travel demand management strategies, such as supporting employer incentives or programs to use transit. • Clearly sign and provide detour routes when streets are fully or partially closed for elevated guideway and trench construction. The contractor would be required to keep nearby parallel facilities open to facilitate access and mobility. • For extended closures requiring substantial traffic detours, Sound Transit would coordinate with the City of Seattle to consider temporary physical treatments such as roadway rechannelization, traffic signals, and transit priority treatments. |

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| | | | | <ul style="list-style-type: none"> • Use lighted or reflective signage to direct drivers to truck haul routes to ensure visibility during nighttime work hours. Use special lighting for work zones and travel lanes, where required. • Communicate public information through tools such as print, radio, posted signs, websites, and email to provide information regarding street closures, hours of construction, business access, and parking impacts. • Coordinate access closures with affected businesses and residents. If access closures are required, property access to residences and businesses would be maintained to the extent possible. If access to the property cannot be maintained, the specific construction activity would be reviewed to determine if it could occur during non-business hours, or if the parking and users of this access (e.g., deliveries) could be accommodated at an alternative location. • Post advance notice signs prior to construction in areas where construction activities would affect access to surrounding businesses. • Provide regular updates to schools, emergency service providers, local agencies, solid waste utilities, and postal services, and assist school officials in providing advance and ongoing notice to students and parents concerning construction activity near schools. • Schedule traffic lane closures and high volumes of construction truck traffic during off-peak hours to minimize delays, where practical. In addition, closures of parallel arterials or access points would be coordinated with the goal of avoiding simultaneous closures. • Cover potholes and open trenches, where possible, and use protective barriers to protect drivers from open trenches. • To minimize potential freight impacts, coordinate with affected businesses throughout the construction period to notify them of lane and access closures and maintain business access as much as possible. • Provide construction information to Washington State Department of Transportation (WSDOT) for use in the state's freight notification system when construction activities could affect state facilities, such as State Route 99. Sound Transit would provide information in the format required by WSDOT. • Coordinate with the City of Seattle and other relevant agencies to disseminate construction closure information to the public. <p>The above mitigation measures could decrease vehicle demand, particularly peak hour demand, through the construction areas. The travel demand management strategies would help to mitigate the traffic operations impacts expected during construction. In addition to the measures described above which apply to all Build Alternatives, the following section describes mitigation measures that are being considered for specific locations expected to be impacted by the Preferred Alternative. Although the following discussion reflects the construction closures expected with the Preferred Alternative, the types of measures would also apply to other alternatives, for example, signal timing</p> |

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| | | | | <p>revisions, lane reconfigurations, and transit treatments such as queue jumps.</p> <p>In addition to the measures described above, the following list describes mitigation measures that are being considered for specific locations expected to be impacted by the Preferred Alternative.</p> <p>SODO and Duwamish Segments</p> <p>A VISSIM traffic microsimulation model was used to evaluate 4th Avenue South corridor operations under Construction Scenario 1 and 2. The results of the Construction Scenario 1 and 2 evaluations are described in Section 4.3.3.3 of Appendix N.1.</p> <p>For Construction Scenario 1, travel times on 4th Avenue South from South Spokane Street to the Interstate 90 Westbound Off-Ramp could increase by 1 minute for vehicles, freight, and transit due to increased congestion between South Lander Street and South Holgate Street. Based on the mitigation options tested for the 2042 Build conditions, a potential measure to minimize construction traffic impacts for buses could include constructing a northbound transit queue jump at 4th Avenue South/South Holgate Street, and a southbound transit queue jump at 4th Avenue South/South Lander Street. The VISSIM model indicated that the transit queue jumps could reduce transit travel time by about 30 seconds, and result in up to 30 seconds of delay for vehicle and freight travel times along 4th Avenue South. The impact to 6th Avenue South/South Spokane Street may be mitigated with signal timing revisions including lengthening the cycle from 110 to 130 seconds.</p> <p>For Construction Scenario 2, a transit improvement was incorporated into the analysis. The existing northbound bus stop just north of South Spokane Street was assumed to shift to a near-side stop in the northbound right-turn lane approaching the intersection, with a transit queue jump so that buses would not have to merge back into the northbound through lanes. With this transit treatment in place, travel times along 4th Avenue South for vehicles, freight, and transit were similar to no build conditions.</p> <p>Delridge Segment</p> <p>No location-specific construction impacts are expected with the Preferred Option DEL-6b; therefore, no mitigation measures are identified.</p> <p>West Seattle Junction Segment</p> <p>The construction analysis described in Section 4.3.3.5 of Appendix N.1 incorporates a variety of lane configuration and signal timing measures to improve traffic flow and minimize delay during the roadway closures required for Preferred Option WSJ-5b. As the project advances, Sound Transit will continue to refine its construction approach and seek ways to limit impacts on traffic operations. However, there are no additional location-specific mitigation measures identified at this time beyond those already included in the analysis.</p> |

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| | 3.6 and 3.11 | Parking | Long-term | All of the segments have areas of unrestricted parking that could be affected by light rail riders parking near the station. To mitigate this potential impact, Sound Transit would work with the City of Seattle to consider appropriate on-street parking measures within a 0.25-mile radius of each station to discourage hide-and-ride activity while retaining curb use functions to support area businesses or residents. Sound Transit would inventory on-street parking around each station before and after the start of light rail revenue service, and would then work with the City to determine where mitigation measures would be needed. Potential parking control measures include parking meters, restricted parking signage, time-limit signs, passenger and truck load zones, and restricted parking zone programs. Sound Transit would be responsible for the cost of installing the signage or other parking controls for 1 year after the light rail extension begins operation. The local jurisdiction would be responsible for monitoring, enforcing, and maintaining the parking controls. In addition, Sound Transit would coordinate with the City of Seattle to relocate affected Americans with Disabilities Act parking spaces. |
| | | | Construction | Through the permit process, Sound Transit would coordinate with the City of Seattle on measures to address temporary curbside management and project parking impacts during construction, in conjunction with the other infrastructure and development projects in the study area. This would include temporarily relocating affected Americans with Disabilities Act stalls or load zones that would continue to serve adjacent land uses. Increased bus service (such as bus bridges) implemented as mitigation for interruptions to transit service during construction could affect parking supply and would be coordinated with the City of Seattle and other relevant parties. Sound Transit would work with owners and operators of garages where parking could be removed or where ingress or egress could be blocked during construction. Sound Transit would prohibit construction worker parking on City streets outside of the staging areas and require the contractor to develop a Parking Plan describing where construction worker parking would be allowed. |
| | 3.7, 3.11, and Appendix N.1, Section 6.4 | Non-Motorized Facilities | Long-term | The West Seattle Link Extension is not expected to permanently impact existing designated bicycle facilities or routes. If impacts are identified as the project advances, Sound Transit will work with the City of Seattle to rebuild the affected facilities or develop alternate facilities or routes that achieve, to the extent feasible, a similar level of protection and comfort afforded by the facility being impacted. These replacements would be funded by Sound Transit and may include, for example, protected or standard bicycle lanes, trails, and neighborhood greenway treatments, along with associated design elements such as pavement markings and bike signals where needed. Under the full-build condition, no pedestrian facilities would have an L.O.S. impact with the West Seattle Link Extension. No pedestrian facilities would have an L.O.S. impact under the minimum operable segment. |

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| | | | | <p>The project may also have direct physical impacts to existing sidewalks and trails due to placement of guideway columns in the Duwamish and Delridge segments, and several streets in the Delridge and West Seattle Junction segments would be permanently closed, potentially eliminating pedestrian and bicycle access at those locations. As the project design is refined and potential column locations are identified with greater precision, additional pedestrian and bicycle visibility issues may emerge. These visibility issues could be mitigated with measures such as protected vehicle turns or restricting vehicle movements.</p> <p>Sound Transit will rebuild affected non-motorized facilities to meet Americans with Disabilities Act requirements as well as applicable local design standards at the time of permitting (such as Seattle Streets Illustrated [City of Seattle 2020] and the Seattle Land Use Code and Light Rail Facility Construction and Construction Impacts sections of the Seattle Municipal Code) or to a standard agreed to by Sound Transit and the City of Seattle.</p> <p>As the project design advances, if it is determined that a facility could not be rebuilt to applicable design standards and an alternate design cannot be agreed upon in the original location, Sound Transit would work with the City of Seattle to develop mitigation, such as an alternate route.</p> |
| | | | Construction | <p>When non-motorized facilities such as sidewalks and bicycle lanes must be temporarily closed for construction, Sound Transit would provide marked detours, such as dedicated walkways and alternate bicycle routes that may include treatments such as pedestrian and bicycle signals, signal optimization including leading pedestrian intervals, crosswalks, curb bulbs, rectangular rapid flashing beacons, pavement markings, and temporary signals. Where possible, temporary facilities will be designed to applicable design standards such as Seattle Streets Illustrated (City of Seattle 2020), Standard Plans for Municipal Construction (City of Seattle 2023), or as agreed to by the City of Seattle; at a minimum they will comply with Americans with Disabilities Act requirements.</p> <p>If maintaining a facility is not feasible, Sound Transit would work with the City of Seattle to develop and implement a construction management plan to provide alternate facilities that, to the extent feasible, offer a similar level of protection and comfort. Where already identified, specific mitigation measures are described by segment below. As design progresses, these detours will be refined in coordination with the City of Seattle.</p> <p>SODO Segment</p> <p>Under the SODO Trail construction closure (approximately 4 years), pedestrians and bicycles would be detoured to 6th Avenue South, approximately 280 feet to the east with east-west access maintained at adjacent street crossings. Sound Transit will work with the City of Seattle to identify and implement a design on 6th Avenue South that achieves, to the extent feasible, a similar level of protection and comfort as the affected facility.</p> |

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| | | | | <p>During the South Lander Street closure, Sound Transit would maintain a temporary pedestrian connection south of South Lander Street to allow access between 4th Avenue South and 6th Avenue South.</p> <p>Duwamish Segment</p> <p>Under Preferred Alternative DUW-1a, the Delridge Connector Trail from Delridge Way Southwest to the West Seattle Bridge Trail would be rerouted during construction. Rather than run along the east side of Delridge Way Southwest, the trail would be detoured along the 23rd Avenue Southwest pathway on the west side of Delridge Way Southwest (starting at roughly Southwest Charlestown Street). The 23rd Avenue Southwest pathway would connect to the trail on the north side of the West Seattle Bridge via a series of improvements Sound Transit is designing in coordination with the City of Seattle. The 22nd Avenue Southwest connection to the Delridge Connector and stairway from 22nd Avenue Southwest to Delridge Way Southwest would also be temporarily closed. Pedestrians and bicyclists would be detoured via Southwest Andover Street and 23rd Avenue Southwest, where they could use the new signal at Delridge Way Southwest and 23rd Avenue Southwest to access the detour route. These replacements will be located and designed in coordination with the City of Seattle and funded by Sound Transit.</p> <p>Pedestrian and bicycle facilities removed or damaged by construction would be replaced, to the extent feasible, by permanent facilities that meet applicable design standards or as agreed to by the City of Seattle when project construction is complete.</p> |
| | 3.8 and 3.11 | Safety | Long-term | In the SODO Segment, the space underneath the South Lander Street overpass would be designed in accordance with Crime Prevention Through Environmental Design principles, including adequate lighting and open sightlines to adjacent spaces, to ensure pedestrian visibility and security. Also see mitigation under Transit, Arterials and Local Streets, and Non-motorized Facilities. |
| Construction | | | During construction, Sound Transit would develop a Maintenance of Traffic Plan to adhere to federal and local agency guidelines. The Maintenance of Traffic Plan would be created to minimize safety concerns on the transportation system during construction as discussed in this table under the impact topic arterials. The mitigation discussed in this table for construction under the impact topics of transit and non-motorized facilities would also maximize safety. | |
| | 3.9 and 3.11 | Navigation | Long-term | During final design and the bridge permitting process, Sound Transit would determine mitigation actions in coordination with the Muckleshoot Indian Tribe, the Suquamish Tribe, and the United States Coast Guard (Coast Guard), and the United States Army Corps of Engineers. This would include identifying specific aids to navigation, such as signage and lighting. Proposed aids to navigation would be approved by the Coast Guard prior to installation. |

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| | | | Construction | <p>The FTA, in coordination with Sound Transit, will continue government-to-government consultation with the Muckleshoot Indian Tribe and the Suquamish Tribe to avoid or minimize impacts to Tribal treaty-protected fishing rights and access to Usual and Accustomed Areas during construction.</p> <p>Sound Transit would develop a construction navigation management plan in consultation with the Coast Guard, United States Army Corps of Engineers (Corps), and Port of Seattle to mitigate impacts to navigation during construction. Measures in the plan could include the following:</p> <ul style="list-style-type: none"> • Create a marine safety zone (to be approved by the Coast Guard and Corps) to help motorized and non-motorized waterway users pass through the Harbor Island Reach and East Waterway construction zones. • Provide a safe and easily recognizable path for non-motorized waterway users through the marine safety zone. • Set up the marine safety zone so all construction features or potential obstacles can be seen during inclement weather. • Coordinate with maritime stakeholders and emergency service providers, and conduct construction outreach prior to and throughout construction at key milestones or phases where navigation conditions could change. • Schedule navigation channel restrictions during a time of day or a day of the week with less vessel traffic. • Coordinate all maritime operations with the Coast Guard, Corps, Puget Sound Vessel Traffic Services, Puget Sound Harbor Safety Committee, and local mariners and advertise all changes to maritime operations in the Local Notice to Mariners publication. |
| | 3.10 and 3.11 | Freight Mobility and Access | Long-term | <p>Freight traffic could be affected by the mitigation options being considered on 4th Avenue South to address the impact to transit of the SODO Busway closure. Potential improvement options for the busway closure include modifying 4th Avenue South with bus queue jumps at key intersections, business access and transit lanes, and/or a freight and bus lane that could be shared by buses and trucks. The first two transit improvement options could increase delays to truck traffic on 4th Avenue South, and the third option could reduce delays for truck traffic on 4th Avenue South. Therefore, Sound Transit and the City of Seattle may choose to mitigate the effect to freight travel times by selecting freight and bus lanes as the improvement on 4th Avenue South.</p> <p>As part of the parking mitigation, Sound Transit would coordinate with the Seattle Department of Transportation to manage curb use in the station vicinities. This would include locating commercial vehicle and truck-only load zones to serve business needs.</p> |
| | | | Construction | <p>Prior to construction activities that fully or partially close a Major or Minor Truck Street, Sound Transit would work with the City of Seattle to accommodate truck turning maneuvers or to identify detour routes suitable for trucks. Construction activities that</p> |

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| | | | | <p>affect the City of Seattle's Over-Legal Network, including Southwest Avalon Way and Fauntleroy Way Southwest, would be coordinated with the City of Seattle to identify construction management measures to maintain an envelope to accommodate oversized trucks during construction or to identify suitable alternative routes that would be defined prior to freight movements as part of the City's over-legal permit process.</p> <p>Sound Transit would coordinate with the BNSF Railway and Union Pacific Railroad prior to construction over rail tracks or ground improvements for guideway columns close to the rail tracks. To the extent feasible, construction activity would adhere to schedule and minimum clearance requirements as agreed to by Sound Transit and BNSF Railway.</p> <p>Sound Transit would work with the Port of Seattle and Northwest Seaport Alliance to identify construction management measures to maintain adequate port terminal access and operations along its primary drayage routes between the marine and rail terminals. This could include identifying alternative routes for trucks if construction closures affect access or drayage routes along South Spokane Street and other streets that connect the Port terminals to local railyards. Sound Transit would coordinate with the Port of Seattle and Northwest Seaport Alliance on the construction schedule and sequencing to minimize major construction work on key freight corridors at the same time.</p> <p>For locations where truck-only load zones, commercial load zones, or general load zones would be eliminated but the businesses that rely on them remain, Sound Transit would coordinate with the City of Seattle to relocate these commercial load zones.</p> |
| Acquisitions, Displacements, and Relocations | 4.1 | | Long-term | <p>Sound Transit's policies and procedures comply with the federal Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 (Uniform Act) and the Washington state relocation and property acquisition requirements. In some cases, Sound Transit provides advisory services to property owners above the minimum requirements of federal and state law.</p> <p>Sound Transit would compensate affected property owners (and relocation would occur) in accordance with the Uniform Act and the Sound Transit <i>Real Property Acquisition and Relocation Policy, Procedures and Guidelines</i> (Sound Transit 2017). Benefits would depend on the level of impact, available relocation options, and other factors. With regard to property acquisitions at the Nucor Steel property (under Preferred Alternative DUW-1a, Preferred Alternative and Option DEL-6b), Sound Transit would coordinate with the property owner to maintain operations.</p> <p>Relocation would occur in accordance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 and the Sound Transit Real Property Acquisition and Relocation Policy, Procedures and Guidelines (Sound Transit 2017).</p> |
| | | | Construction | No mitigation is required for construction. |

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| Land Use | 4.2 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Economics | 4.3 | | Long-term | In most cases, with relocation assistance for business displacements, the project is not anticipated to result in adverse effects that would require mitigation. Where feasible, Sound Transit would explore ways to maintain water-dependent business operations. For Preferred Alternative DUW-1a, Sound Transit would work with affected businesses on the Riverside Millworks property to determine if they could continue to operate on the southern portion of the property or to find a suitable relocation site. |
| | | | Construction | <p>Construction management plans would be developed to address the needs of businesses and could include, but are not limited to, the following measures:</p> <ul style="list-style-type: none"> • Provide a 24-hour construction telephone hotline for community members to report issues to Sound Transit community engagement staff, who work with the construction team to resolve issues and respond to the community member. • Provide business cleaning services on a case-by-case basis. • Provide detour, open for business, and other signage as appropriate. • Establish effective communications with the public through measures such as meetings, construction updates, alerts, and schedules. • Implement promotion and marketing measures to help affected business districts maintain their customer base, consistent with Sound Transit policies, during construction. • Maintain access as much as possible to each business and coordinate with businesses during times of limited access. • Provide a community ombudsman consistent with Sound Transit policy. In the event that complaints arise about construction impacts that could not be resolved by community outreach staff or the relevant department director, the ombudsman policy provides a process for addressing those complaints in an impartial, fair, and timely manner that ensures effective stewardship of public resources and minimizes construction impacts. <p>Because project design could affect Tribal treaty-protected fishing rights and access to the Usual and Accustomed Areas of the Muckleshoot Indian Tribe, Sound Transit and the FTA would:</p> <ul style="list-style-type: none"> • Continue working with the Muckleshoot Indian Tribe to avoid and mitigate impacts to treaty fishing rights and access to the Usual and Accustomed Areas from construction of the Duwamish crossing through ongoing government-to-government consultation. Sound Transit will not authorize construction of the Duwamish Waterway crossing prior to reaching agreement with the Tribe on these measures. |

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| | | | | <p>Because project design could affect Tribal treaty-protected fishing rights and access to the Usual and Accustomed Areas of the Suquamish Tribe, Sound Transit and the FTA would:</p> <ul style="list-style-type: none"> Continue working with the Suquamish Tribe to avoid and mitigate impacts to treaty fishing rights and access to the Usual and Accustomed Areas from construction of the Duwamish crossing through ongoing government-to-government consultation. Sound Transit will not authorize construction of the Duwamish Waterway crossing before reaching agreement with the Tribe on these measures. |
| Social Resources, Community Facilities, and Neighborhoods | 4.4 | | Long-term | Sound Transit would coordinate with the SODO Business Improvement Area, 4Culture, and other community organizations to mitigate for the loss of the SODO Track murals with replacement murals or other public art in the area (where appropriate and feasible). |
| | | | Construction | No mitigation is required for construction. |
| Visual and Aesthetic Resources | 4.5 | | Long-term | <p>Sound Transit has developed mitigation measures for areas with visual impacts in the Duwamish Segment and the Delridge Segment. Site-specific mitigation measures are described below by segment. The design of structures associated with the preferred alternatives (including access ramps, traction power substation facilities and vent structures) will continue to be refined through preliminary design to minimize visual impacts to surrounding sensitive viewers. The areas for each segment where there would be visual impacts are identified on Figures 4.5-1, 4.5-2, and 4.5-12 (shown with ovals). Most of the visual quality impacts would be mitigated by planting screening vegetation where appropriate and where it meets the Sound Transit safety clear zone and setback requirements along the edge of construction footprints or within residential properties (if desired by residents). The vegetation would screen views of new project components and/or areas that are currently screened by vegetation that would be removed. Existing plant material would be protected to the extent possible to preserve a sense of scale and history. Plant material would be used to enhance the visual quality of the station areas and to integrate them with their surrounding environment. Plant selection would be adaptive plants that are suitable for the Northwest climate and the environment in which they are planted. Mitigation measures would be further refined if necessary in coordination with the City of Seattle as the project design advances.</p> |

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| | | | | <p>It should be noted that the use of vegetation to buffer or screen views of Build Alternative elements would not provide immediate mitigation. Depending upon the vegetation's location in relationship to sensitive viewers, distance to Build Alternative elements, size of the elements, and the growth rates of the vegetation selected, effective screening of the elements could take between 5 years and 10 years and perhaps as many as 15 years. Impacts associated with some of the higher elements of the alternatives, such as bridges crossing the West Duwamish Waterway, could not be completely mitigated by vegetative screening. The impacts of these elements on sensitive viewers could be lessened with the strategic planting of vegetation, but the elements themselves would be too large to screen and they would produce unavoidable impacts.</p> <p>Duwamish Segment</p> <p><u>Area 1: Residential Areas along 22nd Avenue Southwest and 23rd Avenue Southwest</u> Following construction, plant vegetation where appropriate to screen views of areas to the west, elevated guideway, and Delridge Way Southwest from remaining residences on 23rd Avenue Southwest.</p> <p>Delridge Segment</p> <p><u>Area 1: Residences along Delridge Way Southwest and 23rd Avenue Southwest from Eastern Edge of Segment to Southwest Andover Street</u> Following construction, plant vegetation where appropriate to screen views of areas to the west, the elevated guideway, and Delridge Way Southwest from remaining residences on 23rd Avenue Southwest.</p> <p><u>Area 3: Delridge Way Southwest, 25th Avenue Southwest, and 26th Avenue Southwest</u> Following construction, plant vegetation where appropriate to screen views of elevated guideway and station from remaining residences along Delridge Way Southwest, 25th Avenue Southwest and 26th Avenue Southwest.</p> <p><u>Area 6: Residential Areas North of Southwest Genesee Street and Longfellow Creek Natural Area</u> Following construction, plant vegetation where appropriate that would not conflict with the light rail operations in front of remaining residences on north side of Southwest Genesee Street to replace vegetation removed for construction. Following construction, plant screening vegetation where appropriate along perimeter of stormwater detention facility to block views from adjacent residences.</p> <p><u>Area 7: Southwest Avalon Way</u> Preferred Option DEL-6b would place an elevated guideway over the center of Southwest Avalon Way would be clearly seen by adjacent residents, but there would be no mitigation measures to reduce its impact. Therefore, no mitigation measures are proposed in this area.</p> |

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| | | | | <p><u>Area 8: Southwest Yancy Street</u> Following construction, plant vegetation where appropriate to help screen views of the elevated guideway from remaining industrial buildings on both sides of Southwest Andover Street and Southwest Yancy Street.</p> <p><u>Area 9: 32nd Avenue Southwest</u> Following construction, plant vegetation where appropriate to help screen views of the elevated guideway from remaining residences on both sides of 32nd Avenue Southwest.</p> |
| | | | Construction | No mitigation is required for construction. |
| Air Quality | 4.6 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Noise and Vibration | 4.7 | Noise | Long-term | <p>Sound Transit is committed to minimizing project noise levels at their source for all of its light rail corridors. When noise would exceed FTA moderate or severe impact criteria, Sound Transit would consider noise mitigation measures consistent with its Link Noise and Vibration Policy (Resolution No. R2023-15; Sound Transit 2023), the Transit Noise and Vibration Impact Assessment Manual (FTA 2018), and the Sound Transit Design Criteria Manual (2021).</p> <p>The Link Noise and Vibration Policy provides the hierarchy for implementation of mitigation measures. It prioritizes reduction at the noise source, followed by measures to disrupt the noise path, such as sound walls. Lastly, it considers residential sound insulation. The policy also guides coordination with the affected property owners and reconsideration of noise impacts and mitigation during final design.</p> <p>Sound walls are the primary noise mitigation option for project operations because they are effective at reducing noise near the source. Sound walls for elevated profiles would be along the side of the top of the guideway; for other profiles, they would be next to the guideway on the ground or retaining structures. Sound walls are proposed for all areas with residential land uses in all segments. They are also proposed adjacent to Fire Station 14 in the Duwamish Segment.</p> <p>Wheel squeal reduction measures, including non-oil-based lubrication and friction modifiers, would be included in the project design following the Sound Transit policy in the Design Criteria Manual. Under Sound Transit policy, curves with a radius of less than 600 feet near noise-sensitive properties must have track lubricators installed as part of the project. Curves with a radius of 600 feet to 1,250 feet must be built to allow for subsequent lubrication if needed.</p> <p>For noise from crossovers, recommended mitigation would include special trackwork, such as moveable-point or spring-rail “frogs” (a mechanical installation enabling trains to be guided from one track to another, such as at a junction or where a spur or siding</p> |

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| | | | | <p>branches off), to eliminate the noise- and vibration-causing gap between tracks.</p> <p>When source mitigation measures or sound barriers are infeasible or not entirely effective at reducing exterior noise levels below the FTA impact criteria, and where the affected building does not already achieve a sufficient exterior-to-interior reduction of noise levels, Sound Transit would consider residential sound insulation. Sound insulation is normally only used on older dwellings with single-paned windows or in buildings with double-paned windows that are no longer effective because of leakage. Most newer buildings have effective exterior-to-interior noise reduction, and additional sound insulation might not be necessary. For this analysis, however, any location not mitigated to within the FTA criteria with sound walls would be considered for sound insulation. Sound insulation would be designed to reduce the interior noise levels in sleeping and living quarters in residential land uses to within the 45-A-weighted decibel (dBA) day-night equivalent sound level (Ldn) guidelines set by the U.S. Department of Housing and Urban Development. Under these guidelines, fresh air exchange must be maintained within the units. Sound insulation would not reduce exterior noise levels.</p> <p>The project would mitigate the majority of noise impacts with sound walls along the guideway and with special trackwork at track crossover locations. To avoid noise impacts from light rail operations Sound Transit will incorporate sound walls between 4 and 8 feet in the Duwamish and Delridge segments and between 4 and 10 feet in the West Seattle Junction Segment. In the Duwamish Segment, Sound Transit will review locations for potential sound insulation. A sound wall is proposed adjacent to Fire Station 14 in the Duwamish Segment.</p> <p>The modeling process is conservative, and proposed mitigation is based on the current project design. During final design, the detailed noise analysis would be updated based on a more advanced design. All predicted noise levels and mitigation measures would be reviewed. Mitigation would be modified as needed to reduce noise levels to below the FTA impact criteria. If equivalent mitigation could be achieved by a less costly means or if the final design analysis shows no impact, then the mitigation measure may be modified or eliminated. After light rail operations begin, if the resulting noise were to exceed FTA criteria, Sound Transit would evaluate the need for additional mitigation. More details on light rail noise mitigation are available in Appendix N.3, Noise and Vibration Technical Report. Attachment N.3D, Maps of Noise Impact Assessment, shows detailed maps of noise impacts with proposed mitigation, and Attachment N.3F, Tables of Noise Predictions, shows tables of noise predictions and includes predicted levels with mitigation.</p> |
| | | | Construction | <p>Through compliance with applicable construction permits and management plans along with incorporating best management practices such as using broadband backup alarms during nighttime hours, minimizing the use of public address systems, ensuring internal combustion equipment are fitted with mufflers, and locating equipment away from noise-sensitive properties to the extent feasible, no additional mitigation for noise impacts would</p> |

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| | | | | <p>be needed. Sound Transit would obtain a noise variance from the Seattle Department of Construction and Inspections to complete work during nighttime hours. For the construction staging areas near tunnel portals, mitigation measures could include construction of temporary noise barriers adjacent to the staging area. Detailed information on construction noise mitigation can be found in Appendix N.3.</p> |
| | | Vibration | Long-term | <p>Sound Transit would mitigate vibration and groundborne noise impacts that exceed FTA criteria. Vibration impacts are projected at several special trackwork locations as the wheels travel through the gap between tracks at these locations. Sound Transit would use low-vibration designs for special trackwork, referred to as low-impact frogs, to mitigate these impacts.</p> <p>For vibration impacts not caused by special trackwork, high-resilience direct-fixation fasteners would be used to reduce vibration levels. Fasteners are used to attach the rail to the concrete track slab. Alternative vibration mitigation approaches that may be applied under specific circumstances include increasing the thickness of the concrete under the track, specifying straighter rails, and building the track on top of pile foundation systems where the track would traverse very soft sections of soil.</p> <p>With the potential mitigation, project vibration and groundborne noise levels are expected to be below FTA criteria. In addition, the modeling process is conservative, and additional measurement information at affected buildings might show no or reduced impact. As project design advances, some impacts may be eliminated or the type of mitigation needed may change. During final design, the detailed vibration analysis would be updated based on more advanced design and would evaluate the specific buildings, and alternative mitigation measures might be warranted. All predicted vibration levels and mitigation measures would be reviewed. Mitigation would be modified as needed to reduce vibration levels to below the FTA impact criteria. Recommended vibration mitigation includes low-impact frog for Preferred Alternative DUW-1a and high-resilience direct-fixation fastener for Preferred Options DEL-6b and WSJ-5b.</p> <p>Additional information on light rail vibration mitigation can be found in Appendix N.3. Attachment N.3E, Maps of Vibration Impact Assessment, shows detailed maps of vibration impacts with proposed mitigation, and Attachment N.3G, Tables of Vibration Predictions, shows tables of vibration predictions and includes predicted levels with mitigation.</p> |
| | | | Construction | <p>The primary means of mitigating vibration from construction activities are to conduct pre-construction surveys, locate equipment as far as possible from vibration-sensitive sites, use alternative low-vibration methods where practical, and conduct vibration monitoring. The contractor, when selected, would prepare and implement a detailed Construction Vibration Control Plan that provides more detail on the construction vibration mitigation measures. The Construction Vibration Control Plan would include Category 1 land uses and any other structures where predicted construction vibration would exceed the</p> |

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| | | | | applicable thresholds. If pile-driving is planned within 100 feet of structures, alternative methods of pile installation or vibration monitoring would be considered. Predicted vibration levels from the tunnel boring machine are below impact thresholds. If needed, options for reducing vibration from the supply train during tunneling are reducing the operation speed of the supply train, smoothing the running surface, or using rubber-tire supply train vehicles. Pre-construction surveys would be conducted to document the existing conditions of buildings, and the contractor would be responsible for repairing damage resulting from the project. During final design, all impacts and potential mitigation measures would be reviewed for verification. |
| Water Resources | 4.8 | | Long-term | Mitigation for unavoidable impacts in the Duwamish Waterway and Longfellow Creek would be approved by the appropriate permitting agencies and jurisdictions before construction. Compensatory mitigation for this impact is described in the Ecosystems mitigation row below. As plans for wetland mitigation adjacent to Longfellow Creek advance, the floodplain analysis will be updated to reflect modified grading plans and determine if a rise in the base flood elevation would still occur and to confirm if additional storage capacity would be needed. |
| | | | Construction | No mitigation is required. |
| Ecosystems | 4.9 | Wetlands | Long-term and Construction | To the extent that permanent impacts could not be avoided to wetlands or wetland buffers (as would occur under Preferred Alternative DUW-1a, and Preferred Option DEL-6b), Sound Transit would provide compensatory mitigation to achieve no net loss of wetland function. For instance, enhancing areas currently covered in invasive plants with native vegetation would improve the ability for these wetland buffers to support wildlife. All compensatory mitigation would include a monitoring period to ensure success of the mitigation. Preferred Alternative DUW-1a This alternative would have permanent impacts to wetlands and its buffer. Onsite wetland buffer mitigation could be provided through native plantings or weed control in the West Duwamish Greenbelt. These mitigation actions could improve wetland buffer habitat where buffers are dominated by non-native plants or where ground cover is sparse. Mitigation for wetland impacts could occur on property adjacent to Longfellow Creek in the Delridge Segment, between Southwest Andover Street and Southwest Yancy Street, if this property is acquired for project construction for Preferred Option DEL-6b. The property provides opportunity for habitat creation and enhancement adjacent to a stream, wetlands and greenbelt. Sound Transit would plan this mitigation area using applicable policies and regulations and coordination with the City of Seattle. If additional mitigation is needed (or if the property between Southwest Andover Street and Southwest Yancy Street is not acquired), Sound Transit plans to use one or more of |

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| | | | | <p>the following methods. The mitigation planning would follow the mitigation sequencing priorities outlined in Corps guidance or as agreed to with regulatory agencies:</p> <ul style="list-style-type: none"> • Approved In-Lieu Fee program such as the King County Mitigation Reserves Program or mitigation bank such as the Port of Seattle mitigation bank (currently in review), if available. The Port’s Wetland Mitigation and Habitat Conservation Umbrella Bank Prospectus lists two new mitigation sites within about 0.5 mile of all Duwamish Segment alternatives’ bridge impacts (Terminal 25 and Terminal 105), and two additional sites about 0.5 mile south, Terminal 107 and Terminal 108 (Port of Seattle and Anchor QEA 2021). • Compensatory mitigation at an advance mitigation site. • Project-specific mitigation developed by Sound Transit and approved by appropriate regulatory agencies. • Sound Transit would implement compensatory mitigation in accordance with applicable federal, state, and local requirements and guidelines. To the extent practical, wetland mitigation sites would be identified close to impacts and compensated in-kind for lost values. <p>Preferred Option DEL-6b</p> <p>These alternatives would have permanent impacts to wetland and wetland buffer. Onsite mitigation could occur on property adjacent to Longfellow Creek that would be acquired for project construction of these alternatives, between Southwest Andover Street and Southwest Yancy Street. The existing wetlands and wetland buffers along Longfellow Creek could also provide opportunities for mitigation where native plantings could improve existing wetland or buffer habitat. If additional mitigation area is needed, one of the mitigation options previously described would be applied. Sound Transit would determine final mitigation actions during final design and permitting.</p> |
| | | Aquatic Resources | Long-term and Construction | <p>Sound Transit would provide mitigation for unavoidable impacts to benthic habitat, streams, and stream buffers protected under federal, state, and local regulations. This mitigation would address permanent impacts, as well as temporary impacts as required.</p> <p>Preferred Alternative DUW-1a</p> <p>Preferred Alternative DUW-1a avoids permanent in-water impacts but would have permanent impacts to regulated shoreline along the Duwamish Waterway. Shoreline impacts could receive mitigation in the form of replanting near shorelines, which could improve conditions for juvenile salmonids in the Duwamish Waterway. The appropriate permitting agencies and jurisdictions would approve mitigation for impacts on shorelines prior to construction.</p> <p>Preferred Alternative DEL-6b</p> <p>Onsite mitigation could occur on property adjacent to Longfellow Creek between Southwest Andover Street and Southwest Yancy Street. At this location, currently paved</p> |

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| | | | | <p>portions of stream buffer could be changed to vegetated areas of native plants. The existing stream buffers along Longfellow Creek could also provide opportunities for mitigation where enhancement with native plantings could improve the ability of these areas to support wildlife. Plantings could also improve over-water shade to the creek, thus improving fish habitat.</p> <p>If additional mitigation is needed (or if the property between Southwest Andover Street and Southwest Yancy Street is not acquired), Sound Transit would use one or more of the other mitigation methods listed above. Sound Transit would determine final mitigation actions during final design and permitting.</p> |
| | | Upland Vegetation and Wildlife Resources | Long-term and Construction | <p>Mitigation would be required under all alternatives for impacts on trees. Sound Transit would coordinate with the City of Seattle on tree replacement requirements. For trees permanently removed, Sound Transit will replace them or provide payment in-lieu fees in compliance with (1) governing City regulations, Seattle Department of Construction and Inspections Director’s Rules, and Executive Orders, or (2) agreed upon in the West Seattle Link Extension Tree and Vegetation Management Plan. Tree replacement regulations include Seattle’s Executive Order 2023-03. Current Seattle Department of Transportation replacement ratios are 3:1 for any tree removed in the Seattle right-of-way and in Seattle parks. Seattle Department of Construction and Inspections would require appropriate replacement for trees meeting the Tier 1, 2, or 3 definitions on private property. It is expected that some of the area between Southwest Andover Street and Southwest Yancy Street could be used for tree replacement.</p> <p>Preferred Alternative DUW-1a</p> <p>To the extent that impacts cannot be avoided to acreage in the West Duwamish Greenbelt, Sound Transit would provide compensatory mitigation to achieve no net loss of ecosystem function. Sound Transit would mitigate for impacts on forested vegetation using applicable policy and regulations and would coordinate with the City of Seattle on tree replacement requirements as noted above. The onsite mitigation area proposed in Section above, on currently paved area between Southwest Andover Street and Southwest Yancy Street, could be used for upland habitat replacement.</p> <p>Preferred Alternative DEL-6b</p> <p>Similar to West Duwamish Greenbelt impacts, Sound Transit would mitigate for unavoidable impacts to greenbelt acreage along Longfellow Creek using applicable policy and regulations. As noted above, tree replacements would be coordinated with the City of Seattle. It is expected that some of the area proposed for riparian area mitigation between Southwest Andover Street and Southwest Yancy Street could be used for upland habitat replacement within the same contiguous greenbelt where the impacts would occur.</p> |
| | | Federally-listed Species, | Long-term and construction | No mitigation is required for operation or construction. |

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| | | Species of Concern, Priority Species, and Species of Local Importance | | |
| Energy | 4.10 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Geology and Soils | 4.11 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Hazardous and Materials | 4.12 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Electromagnetic Fields | 4.13 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Public Services, Safety, and Security | 4.14 | | Long-term | If Preferred Alternative DUW-1a would require permanent relocation of Fire Station 36 or the Seattle Fire Department Commissary and Utility Shop, Sound Transit would work closely with fire department officials to identify a suitable property within the surrounding area and ensure operations continue with minimal impacts during relocation. Permanent relocation of Fire Station 36 and the Seattle Fire Department Commissary and Utility Shop would occur in accordance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970 and the Sound Transit Real Property Acquisition and Relocation Policy, Procedures, and Guidelines (Sound Transit 2017). |
| | | | Construction | <p>Sound Transit would coordinate with the Seattle Fire Department on temporary relocation of Fire Station 36, if needed, with Preferred Alternative DUW-1a. Sound Transit would also coordinate with the Seattle Fire Department regarding temporary relocation of parking and the transformer at Fire Station 14 during construction for Preferred Alternative DUW-1a.</p> <p>Sound Transit would coordinate with public service providers before and during construction to maintain reliable emergency access and alternative plans or routes to minimize delays in response times. This would include coordination with Seattle Police Harbor Patrol prior to and throughout construction at key milestones or phases where navigation conditions could change.</p> <p>Sound Transit would also coordinate with solid waste and recycling companies and schools should rerouting of collection or school bus routes need to occur.</p> |

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| Utilities | 4.15 | | Long-term and Construction | No mitigation is required for operation or construction. |
| Historic and Archaeological Resources | 4.16 | | Long-term | <p>Mitigation for adverse effects to Historic and Archaeological resources is addressed in a Section 106 programmatic agreement. Where adverse effects to National Register of Historic Places (National Register)-eligible or -listed resources cannot be avoided or minimized, a Section 106 memorandum of agreement or programmatic agreement is developed through ongoing consultation to resolve adverse effects through mitigation. FTA and Sound Transit, in consultation with the Advisory Council on Historic Preservation, State Historic Preservation Officer, Tribes, and other consulting parties are developing a programmatic agreement to resolve adverse effects to historic properties for the project. The programmatic agreement will be executed prior to FTA issuing a ROD for the West Seattle Link Extension. Sound Transit is also addressing potential impacts to previously undocumented archaeological resources through a phased archaeological survey work plan, including pre-construction inventory work that will occur in coordination with Tribes and the State Historic Preservation Officer. This pre-construction inventory work will be phased to coordinate with property acquisition and project construction according to the process outlined in the Archaeological Survey and Inventory Plan and as stipulated in the Section 106 programmatic agreement. The agreement will include an Archaeological Treatment Plan to address the discovery of archaeological and historic resources during project activities. Should National Register-eligible properties be identified as the project advances, FTA will apply the adverse effect criteria to determine effects to resources. In summary, FTA, in coordination with Sound Transit and in consultation with the State Historic Preservation Officer, Tribes, and other consulting parties, will resolve adverse effects pursuant to the terms of the Section 106 programmatic agreement.</p> <p>Typical mitigation measures that are included in the programmatic agreement are listed below.</p> <ul style="list-style-type: none"> • Modifying the undertaking through redesign, re-orientation, or other similar changes to avoid, minimize, or mitigate impacts • Documenting historic properties or resources that would be impacted • Installing interpretive/educational signage or other options that provide a direct public benefit (e.g., exhibits, HistoryLink essays, documentaries, or historic property nominations) • Implementing data recovery of archaeological or architectural information and materials • Preparing a National Register nomination for an archaeological site • Preparing City of Seattle landmark nominations for potentially eligible buildings, structures, objects, and/or sites • Preparing an ethnographic study, historic essays, documentaries, or formal documentation |

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| | | | | <ul style="list-style-type: none"> • Developing museum exhibits • Offering lecture series, trainings, or workshops • Performing additional consultation to ensure compatible replacement buildings or structures • Supporting preservation non-profit organizations |
| | | | Construction | Sound Transit will develop a detailed monitoring and inadvertent discovery plan, in consultation with the State Historic Preservation Officer and Tribes. The plan will outline protocols to ensure the proper treatment of archaeological resources that may be identified during construction. |
| Parks and Recreational Resources | 4.17 | | Long-term | <p>According to City of Seattle Ordinance 118477, City park land acquired by the project would need to be replaced with land of equivalent or better size, value, location, and usefulness. Sound Transit would continue to work with the City to identify appropriate replacement property for mitigation where park property would be permanently acquired for the West Seattle Link Extension consistent with Ordinance 118477.</p> <p>It is assumed that replacement park land in the West Duwamish Greenbelt would be purchased by Sound Transit and conveyed to the City of Seattle as agreed to by the City. However, if agreed to by the City of Seattle and consistent with Ordinance 118477, Sound Transit would provide funds for purchase of replacement property.</p> <p>Sound Transit would also coordinate with the Washington State Recreation and Conservation Office regarding mitigation for parks and recreation resources they have funded. Two parcels in the West Duwamish Greenbelt that could be affected received funding from this office.</p> <p>Sound Transit would work with the Pigeon Point community and the City of Seattle to identify opportunities to replace the 22nd Avenue Street-end for Preferred Alternative DUW-1a which would displace this resource.</p> |
| | | | Construction | Restoration of park facilities is assumed to be part of the project, and Sound Transit would coordinate with the resource owner to restore temporarily disturbed parks and recreational resources after construction, consistent with clear zone requirements for trees near the guideway. During construction, pedestrian access to parks and trails would be routed to the remaining open portions of the facilities. |
| Section 4(f) | Appendix H | | Operations and Construction | Sound Transit would provide replacement park land consistent with City of Seattle Ordinance 118477 with such modifications as approved by Seattle City Council. ^a Replacement park land would have similar recreational functions and characteristics, and would serve the same geographic area. Sound Transit would provide improvements as necessary for property to be of equivalent recreational use as the acquired greenbelt property. |

| Resource | Final EIS Section | Impact Topic | Period | Description of Mitigation for Preferred Alternative |
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| | | | | <p>Replacement park land would be purchased by Sound Transit and conveyed to the City of Seattle as mutually agreed to by Sound Transit and the City. However, if agreed to by the City, Sound Transit could provide funds for purchase of replacement property, demolition of any structures thereon, cleanup of any contamination and necessary improvements for property to be of equivalent use as the acquired greenbelt property.</p> <p>The temporarily impacted area would be replanted with low-growing vegetation when construction is completed, but large trees would not be allowed near the guideway.</p> <p>For trees permanently removed in the West Duwamish Greenbelt and elsewhere along the project, Sound Transit will replace them or provide payment in-lieu fees in compliance with governing City regulations, Seattle Department of Constructions & Inspection Director’s Rules, and Executive Orders, or agreed upon in the West Seattle Link Extension Tree and Vegetation Management Plan. ^b</p> <p>Sound Transit will provide a detour of the Delridge Connector Trail to the West Seattle Bridge Trail and associated improvements for the detour as depicted in Figure 1 (see Section 4(f) Concurrence Request dated April 15, 2024 and concurrence from City of Seattle dated April 25, 2024 in Attachment H.2 of Appendix H). This detour route and associated improvements were developed jointly by the City of Seattle and Sound Transit. As noted on Figure 1, there are several areas where the City and Sound Transit will continue to refine the detour as appropriate and as agreed to by both parties.</p> <p>Based on mutual agreement by the City and Sound Transit, Sound Transit will provide a detour for the 22nd Avenue connection to the Delridge Connector Trail and associated improvements for the detour as depicted on Figure 1. ^b</p> |

^a The property replacement must comply with City Ordinance 118477, with such modifications as approved by Seattle City Council. The City may require more acres of replacement land than is converted to comply with City Ordinance 118477. The City of Seattle reserves the right to determine whether the replacement property and exchange fulfills the City’s legal responsibilities and commitments to city stakeholders. The City of Seattle has the right to accept or reject property offered by Sound Transit in exchange. The City has final approval authority over any transaction that includes the loss of Seattle Parks and Recreation’s land at Pigeon Point and the acceptance of new park land from Sound Transit. Sound Transit understands that the City expects Sound Transit to assume responsibility for all costs associated with the property transfer (including environmental and title due diligence, tenant relocation and building/structure demolition, remediation to Washington’s Model Toxics Control Act-Method A standards prior to transfer of ownership to the City, and completion of the Washington State Recreation and Conservation Office and/or other acquisition grant-related processes). The City of Seattle’s Section 4(f) concurrence does not alter Sound Transit’s need to acquire necessary local, state, and federal permits or licenses and comply with all necessary local codes and rules. The City of Seattle’s Section 4(f) concurrence does not limit the conditions and mitigation requirements that Seattle Parks and Recreation and other City Departments may require during permitting and approval processes.

^b These measures to minimize harm are mitigation for other project impacts not directly related to the activities, attributes, or features.

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