ATTACHMENT C

Summary of Required Mitigation Measures

Record of Decision

ATTACHMENT C

Summary of Required Mitigation Measures

For the East Link Light Rail Transit Project

INTRODUCTION

This attachment summarizes the mitigation commitments made by the Federal Transit Administration (FTA) and Sound Transit for the East Link Light Rail Project. These measures are more fully described in Chapters 3 and 4 of the Final EIS and in other supporting documents including the Biological Assessment, the Final 4(f) Evaluation, and the Memorandum of Agreement regarding Historic, Cultural, and Archaeological Resources, and those more detailed descriptions remain in effect.

The Record of Decision (ROD) incorporates these mitigation measures into the definition of the project, and Sound Transit shall implement them, provide funding for their implementation, or ensure that other agencies fund and implement them (although this does not alleviate Sound Transit's overall responsibility for implementation). Sound Transit is prohibited from withdrawing or substantially changing any of the mitigation commitments identified in the ROD for the Project without FTA's written approval. In addition, FTA must review and approve any change to the Project that may involve new or changed environmental or community impacts not yet considered in the existing environmental record, in accordance with 23 CFR Part 771.

In addition to outlining the specific mitigation measures required under this ROD, this list is provided here to facilitate the monitoring of the implementation and effectiveness of the mitigation measures and to give a sense of the nature of the mitigation actions and associated impacts. If mitigation measures identified in the Final EIS and the other supporting documents identified above are not included in this summary, those mitigation measures are incorporated and included herein.

Mitigation is listed in two categories: long-term, those associated with Project operation, and short-term, those associated with Project construction. Wherever it is feasible and appropriate, mitigation measures that consist of construction methods or practices or involve constructed elements of Project facilities or improvements shall be incorporated in the Project design and specification documents and included as contractual obligations within construction contracts. Where the mitigation measure is to be implemented "where deemed necessary and effective", Sound Transit will consult with FTA for that determination unless otherwise noted herein.

Sound Transit will establish and conduct a mitigation monitoring program during final design, construction, and start-up with the goals of 1) helping Sound Transit fulfill the commitments set forth in the environmental documents, and 2) giving FTA a means of overseeing the effectiveness of and compliance with its mitigation requirements. The monitoring program will consist of four activities:

- Maintaining a current list or database of mitigation commitments by Sound Transit.
- Tracking the status of implementation of the mitigation measures by Sound Transit.
- Reporting on the effectiveness of the mitigation measures implemented.
- Preparing quarterly reports for submittal to FTA.

The Federal Transit Administration finds that with the accomplishment of these mitigation commitments, Sound Transit will have taken all reasonable, prudent and feasible means to avoid or minimize impacts from the preferred alternative.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
1	Transportation	Regional Travel	Long & Short Term	No mitigation is proposed for regional travel.
2	Transportation	Transit	Long-term	Sound Transit and King County Metro will work together to determine the appropriate mitigation for bus service that currently uses the D2 roadway. No other adverse transit impacts have been identified during East Link operations and no other mitigation is proposed.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
3	Transportation	Transit	Short-term	During construction, existing park-and-ride lots (South Bellevue Park-and-Ride and Overlake Transit Center) will either be partially or fully closed. Measures to mitigate the loss of parking at these locations will, where deemed needed and effective to address adverse impacts, include the following: • Route transit riders that use these locations to available spaces at nearby park-and-ride lots, such as the Eastgate or Overlake Village Park-and-Ride Lots. • Lease parking lots and/or new parking areas within the vicinity of the closed park-and-ride lot. The South Bellevue Park-and-Ride Lot, Bellevue Transit Center, and Overlake Transit Center are predicted to be either partially closed or fully closed during construction. For these and other transit centers impacted during construction, Sound Transit will work with King County Metro and private transit service providers to revise transit service and minimize disruptions to bus facilities and service. Measures to minimize impacts to transit service will, where deemed needed and effective to address adverse impacts, include the following: • Relocate transit stops to adjacent streets. • Provide a temporary transit center at a nearby off-street location. • Revise transit services by rerouting buses where appropriate. • Post informative signage before construction at existing transit stops that will be affected by construction activities.
4	Transportation	Highway Operations and Safety	Long-term	Sound Transit will perform any measures that may be identified by the Federal Highway Administration's Interchange Justification Report and environmental Record of Decision.
5	Transportation	Highway Operations and Safety	Short-term	During East Link construction, Sound Transit will coordinate with the Washington State Department of Transportation (WSDOT) on incident management, construction staging, and traffic control where the light rail construction might affect freeway traffic. Sound Transit will also coordinate with WSDOT to disseminate construction closure information to the public as needed.
6	Transportation	Arterials and Local Streets	Long-term	Arterial and local street mitigation will be implemented where deemed effective to address adverse impacts at intersections where the intersection LOS with the East Link Project is predicted to degrade to levels that do not meet the LOS standards of the jurisdiction and are predicted to operate worse than the No Build Alternative. Final mitigation will be coordinated with each affected jurisdiction through subsequent phases of this project.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
7	Transportation	Intersection Level of Service	Long-term	**Segment A**: Five intersections on Mercer Island will receive mitigation, where deemed necessary and effective to address adverse impacts, in the form of turn pockets or traffic signal improvements to adjust for the change in travel patterns to and from the island. Improvements at intersections within the City of Mercer Island's jurisdiction include: • West Mercer Way and 24th Avenue SE: Provide southbound left-turn pocket. • 80th Avenue SE and SE 27th Street: Install a traffic signal. • 77th Avenue SE and North Mercer Way: Install a traffic signal. Improvements at intersections within WSDOT's jurisdiction include: • 77th Avenue SE and I-90 eastbound off-ramp: Install a traffic signal. • 76th Avenue SE/North Mercer Way and I-90 Westbound on-ramp: Modify the westbound channelization to provide left-turn pocket and through/right shared lane. All of these improvements would improve the AM and PM peak hour intersection LOS to the same or better than no-build conditions. Sound Transit will be responsible for implementing improvements at the two intersections within WSDOT's jurisdiction prior to East Link opening service. Sound Transit will contribute its proportionate share of costs to improve intersections within the City of Mercer Island's jurisdiction. Sound Transit's contribution will be determined by the project's ratio of trips at the intersection or another equitable method. Through this contribution, the City of Mercer Island might determine other improvements than the intersection modifications listed that are more compatible with downtown Mercer Island. This mitigation will be coordinated with the City of Mercer Island.
8	Transportation	Intersection Level of Service	Long-term	**Segment B:** No mitigation is proposed.
9	Transportation	Intersection Level of Service	Long-term	**Segment C:** At the NE 4th Street and 108th Avenue NE intersection, mitigation to better use the roadway capacity would be implemented when deemed needed and effective to address adverse impacts, such as providing active traffic management strategies. For example, active signing could be installed to more effectively route vehicles to less congested streets; turn movements could be restricted during congested periods; or adaptive signal controllers could be installed to better respond to changing traffic conditions. Mitigation will be coordinated with the City of Bellevue.
10	Transportation	Intersection Level of Service	Long-term	**Segment D:** Under Segment D, a southbound right-turn pocket at the intersection of 152nd Avenue NE and NE 24th Street is predicted to mitigate impacts. This improvement or a similar intersection improvement will be coordinated with the City of Redmond.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
11	Transportation	Intersection Level of Service	Long-term	**Segment E:** The following intersections are predicted to require mitigation as described below: • NE 76th Street and 170th Avenue NE: Install a traffic signal. • SR 202 and NE 70th Street: Provide a southbound right-turn pocket. • SR 202 and East Lake Sammamish Parkway: Rechannelize to provide an additional southbound through lane. • NE 70th and 176th Avenue NE: Install a traffic signal. These improvements or similar intersection improvements will be coordinated with the City of Redmond.
12	Transportation	Parking	Long-term	**Hide-and-Ride:** Mitigation for potential hide-and-ride activities near stations and the best ways to mitigate such activities are specific to each area surrounding a station. The station most likely to generate hide-and-ride impacts is the Rainier Station. At the Mercer Island and South Bellevue Stations the parking analysis determined a low potential for hide–and-ride impacts. However, given the locations of these stations, Sound Transit will evaluate hide-and-ride impacts within one year of East Link commencing operations. If impacts are determined, Sound Transit will implement appropriate mitigation measures as discussed in this section. Prior to implementing any parking mitigation measures, Sound Transit will inventory existing on-street parking around the Rainier and Mercer Island stations up to one year prior to the start of light rail revenue service. For the South Bellevue station, inventory of existing on-street parking will be conducted prior to closure to the South Bellevue park-and-ride lot. These inventories will document the current on-street parking supply within a one-quarter-mile radius of the stations. Based on the inventory results, Sound Transit and the local jurisdiction will work with the affected stakeholders to identify and implement appropriate mitigation measures, if necessary. Parking control measures would, when deemed needed and effective to address adverse impacts, consist of parking meters, restricted parking signage, passenger and truck load zones, and residential parking zone (RPZ) signage. Other parking mitigation strategies could include promotion of alternative transportation services (e.g., encourage the use of bus transit, vanpool or carpool services, walking, or bicycle riding). For parking controls agreed to with the local jurisdiction and community, Sound Transit will be responsible for the cost of installing the signage or other parking controls and any expansion of the parking controls for one year after opening the light rail system. The local jurisdictions will be responsible for monitoring the parking controls and providing all enforcement and maintenance of the parking controls. The local residents will be responsible for any RPZ-related costs imposed by the local jurisdiction.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
13	Transportation	Traffic	Short-term	**Traffic Control:** All mitigation measures associated with the construction of the East Link Project will comply with local regulations governing construction traffic control and construction truck routing. Sound Transit will finalize detailed construction mitigation plans in coordination with local jurisdictions and WSDOT during the final design and permitting phase of the project. Options for mitigation measures are listed below and will be implemented, as necessary, to mitigate traffic impacts due to light rail construction: • Follow standard construction safety measures, such as installing advance warning signs, installing highly visible construction barriers, and using flaggers. • Use lighted or reflective signage to direct drivers to truck haul routes and enhance visibility during nighttime work hours. • Use temporary reflective truck prohibition signs on streets with a high likelihood of cut-through truck traffic. • In areas with high levels of traffic congestion, schedule traffic lane closures and high volumes of construction traffic during off-peak hours to minimize delays where practical. • Provide public information through tools such as print, radio, posted signs, websites, and e-mail to provide information regarding street closures, hours of construction, business access, and parking impacts. • Access closures will be coordinated in person with affected businesses and residents. If access closures are required, property access to residences and businesses will be maintained to the extent possible. If access to the property was not able to be maintained, the specific construction activity will be reviewed to determine if it could occur during non-business hours, or if the parking and users of this access (for example deliveries) would, when deemed needed and effective to address adverse impacts, be provided at an alternative location. • Where necessary, the contractor would, when deemed needed and effective to address adverse impacts, be responsible for providing parking areas for construction workers and at locations that would not contribute to the construction traffic impacts.
14	Transportation	Nonmotorized Facilities	Long-term	No mitigation is proposed.
15	Transportation	Nonmotorized Facilities	Long-term	Sound Transit will provide non-motorized improvements at East Link stations, as shown in the conceptual engineering drawings in East Link Final EIS Appendix G1. Sound Transit will work with the local agencies regarding alternatives and stations that are located within the median of roadways so that the most appropriate treatments are provided for safe and effective pedestrian crossings and access. These treatments could include painted crosswalks or signals, street lighting, warning lights, or signage.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
16	Transportation	Nonmotorized Facilities	Short-term	During construction, Sound Transit will minimize potential impacts on pedestrian and bicycle facilities by providing detours or clearly delineated facilities within construction areas such as protected walkways and notify the public as determined appropriate by the project. Multiuse trails affected by construction will generally be kept open for use, but detours will be provided when trails are closed, unless they are closed for short durations or in areas where a detour option is not feasible. Public notification efforts will be conducted for temporary trail closures during construction.
17	Transportation	Freight Mobility and Access	Long-term	No mitigation is proposed.
18	Transportation	Freight Mobility and Access	Short-term	During East Link construction, adverse truck impacts would likely be associated with business deliveries on arterials and local streets near surface or tunnel construction activities. To minimize these impacts, Sound Transit will work specifically with affected businesses throughout construction to maintain access as much as practical to each business and coordinate with businesses during times of limited access. During construction associated with I-90, SR 520, or I-405, Sound Transit will coordinate with freight stakeholder groups by providing construction information to WSDOT for use in the state's freight notification system. Sound Transit will provide information in a format required by WSDOT and compensate WSDOT for any direct costs associated with use of the freight notification system for East Link construction.
19	Transportation	Navigable Waterways	Long-term	No mitigation is proposed.
20	Transportation	Navigable Waterways	Short-term	During construction of Segment E, Sound Transit will minimize any impacts on the navigability of the Sammamish River waterway crossing. A Tribal fishery event on Lake Washington occurs in July. If any barging of construction equipment or materials is required, then Sound Transit will consult with the Muckleshoot Tribe to avoid conflict with the tribal fishing event.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
21	Acquisitions, Displacements, and Relocations	Acquisitions, Displacements, and Relocations	Long-Term	No mitigation is proposed. As part of the project, Sound Transit will compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines. (Resolution #R98-20-1) Sound Transit will comply with provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Code of Federal Regulations [CFR] Title 49, Part 24), as amended, and the State of Washington's relocation and property acquisition regulations (WAC 468-100 and RCW 8.26). Benefits would vary depending on the level of impact, available relocation options, and other factors.
22	Land Use	Land Use	Long & Short Term	No mitigation is proposed.
23	Economic	Economic	Long-term	No mitigation is proposed.
24	Economic	Economic	Short-term	To minimize or limit impacts on businesses during construction, Sound Transit will dedicate staff to work specifically with affected businesses. Construction mitigation plans will be developed to address the needs of businesses during construction and could include, but are not limited to, the following elements: • Provide a 24-hour construction telephone hotline. • 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 and construction updates, alerts, and schedules. • Promotion and marketing measures to help affected business districts maintain their customer base to the extent possible during construction. • Maintain access as much as practical to each business and coordinate with businesses during times of limited access. • Provide a community ombudsman as a contact person for citizens to present unresolved complaints about construction impacts to agency leadership.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
25	Social Impacts, Community Facilities, and Neighborhoods	Social Impacts, Community Facilities, and Neighborhoods	Long & Short Term	No mitigation is proposed.
26	Visual and Aesthetic Resources	Visual and Aesthetic Resources	Long-term	No mitigation is proposed.
27	Visual and Aesthetic Resources	Visual and Aesthetic Resources	Short-term	During construction, Sound Transit will provide visual screening along the south side of the tunnel portal construction area along Main Street for Segment C. Nighttime construction lighting would be shielded and directed downward to avoid light spillover onto adjacent sensitive uses.
28	Air Quality and Greenhouse Gases	Air Quality and Greenhouse Gases	Long-term	No mitigation is proposed.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
29	Air Quality and Greenhouse Gases	Air Quality and Greenhouse Gases	Short-term	For construction activities, Puget Sound Clean Air Agency (PSCAA) regulates particulate emissions (in the form of fugitive dust). To comply with the PSCAA policy of preventing air quality degradation, mitigation options are listed below and will be implemented as necessary and in accordance with standard practice to control particulate matter 10 microns or 2.5 microns or less in size (PM10 and PM2.5, respectively) and emissions of carbon monoxide (CO) and oxides of nitrogen (NOx) during construction of the project. Several of these measures would also reduce GHG emissions. • Spray exposed soil with dust control agent as necessary to reduce emissions of PM10 and deposition of particulate matter. • Cover all transported loads of soils and wet materials before transport, or provide adequate freeboard (i.e., space from the top of the material to the top of the truck) to reduce PM10 and deposition of particulate during transportation. • Provide wheel washes to reduce dust and mud that would be carried off site by vehicles and to decrease particulate matter on area roadways. • Remove the dust and mud that are deposited on paved, public roads to decrease particulate matter. • Route and schedule high volumes of construction traffic to reduce congestion during peak travel periods and reduce emissions of CO, NOx, and carbon dioxide equivalent (CO2e) where practical. • Require appropriate emission-control devices on all construction equipment powered by gasoline or diesel fuel to reduce CO and NOX emissions in vehicular exhaust. • Use well-maintained heavy equipment to reduce CO and NOX emissions, which may also reduce GHG emissions. • Cover, install mulch, or plant vegetation as soon as practical after grading to reduce windblown particulate in the area. The following other readily available mitigation measures could potentially be used: • Encourage contractors to employ emissions reduction technologies and practices for both on-road and off-road equipment/vehicles (e.g., retrofit equipment with diesel control technology and/or use of ultra-low sulfur diesel). • Implement construction truck-idling restriction (e.g., no longer than 5 minutes). • Locate construction equipment and truck staging zones away from sensitive receptors as practical and in consideration of other factors such as noise.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
30	Noise and Vibration	Transit Noise	Long-term	Noise mitigation measures would be provided that are consistent with Sound Transit's Light Rail Noise Mitigation Policy (Motion No. M2004-08). The FTA manual also defines when mitigation is needed and bases this on the impact's severity, with severe impacts requiring the most consideration. During final design, all predicted impacts and mitigation measures will be reviewed for verification. During final design, if it is discovered that equivalent mitigation can be achieved by a less costly means or if the detailed analysis show no impact, then the mitigation measure may be eliminated or modified. Prior FTA approval is required for any elimination or substantial modification to mitigation measures. The potential mitigation options available for noise from transit operations on the East Link Project are primarily sound walls, special trackwork, lubricated curves, and residential building sound insulation. Sound walls are proposed where feasible and reasonable, as determined by Sound Transit (and the Federal Transit Administration, at its discretion) based on specific site conditions. Sound walls would be located on the ground for at-grade profiles and on the guideway structure for elevated profiles. Sound walls are preferred because they are effective at reducing noise. For locations where there is a potential for traffic noise to be reflected off the sound walls, Sound Transit will include where feasible the use absorptive treatments to remedy this issue. A crossover track uses a frog (a rail-crossing structure) to allow the train to either cross over to another track or continue moving on the same track. A gap is provided on top of the frog so that vehicle wheels can pass regardless of which track is in use. With typical frogs, noise and vibration are generated when the wheels pass over the gap. Special trackwork, such as movable point or spring rail frogs, eliminates the gap between tracks at crossovers that causes noise and vibration at these locations and will be used where feasible. Sound Transit is currently investigating the use of non-audible warnings for gated and ungated at-grade crossings. If non-audible warning devices are found to be viable, this option could be used to reduce or eliminate bell noise at specific crossings. Where practical, grade separation of at-grade light rail crossings would also be considered to eliminate the need for bells or other audible warning devices. If bells are used at gated crossings, the bells would be set at the minimum noise level that maintains a safe crossing. Finally, the use of acoustic bell shrouds would be examined during final design; the shrouds would direct the bell noise at gated crossings to the intersection. When source mitigation measures or sound walls are infeasible or not entirely effective at reducing noise levels below the FTA impact criteria, then residential sound insulation would be evaluated and implemented at impacted properties where the existing building does not already achieve a sufficient exterior-to-interior reduction of noise levels. Many newer buildings, particularly in Downtown Bellevue, have good interior noise reduction and additional sound insulation may not be necessary. While the mitigation provided herein is based on predicted impacts, noise mitigation shall be provided if, after operations commence, noise impacts occur for which mitigation is deemed necessary and appropriate under FTA noise standards.
31	Noise and Vibration	Traffic Noise	Long-term	Traffic noise impacts will be mitigated by sound walls, where determined to be reasonable and feasible. For locations with residual traffic noise impacts caused by the project, residential sound insulation might also be considered by Sound Transit.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
32	Noise and Vibration	Transit Noise	Long-term	**Segment A:** The only potential noise impact resulting for Segment A would be near the transition from the Mount Baker Tunnel to the floating bridge structures. A light rail expansion joint would be required to allow for bridge movement; as a result, increased noise related to this joint could occur. If, after testing of the expansion joint prototype, the expansion joint near the Mount Baker Tunnel were determined to cause a noise impact, then mitigation is likely to be a short, absorbent sound wall along the structure's side or absorbent material applied to the existing traffic safety barriers. (See Exhibits A-1-Na and A-1-Nb in East Link Final EIS Appendix H2)
33	Noise and Vibration	Traffic Noise	Long-term	**Segment A:**To reduce traffic noise levels on the Rainier Station and Mercer Island Station platforms, Sound Transit will incorporate design measures to reduce freeway noise for patrons waiting at station platforms. (See Exhibits A-1-Na and A-1-Nb in East Link Final EIS Appendix H2)
34	Noise and Vibration	Transit Noise	Long-term	**Segment B:** Based on noise predictions, noise mitigation will include a sound wall running continuously from the elevated section on I-90 to the retained cut section south of the Winters House along Bellevue Way SE. A second wall will be installed just north of the 112th Avenue SE intersection, on the west side of the guideway. Openings would be required for pedestrian and vehicle access at SE 15th Street and SE 8th Street. Special trackwork will also be used for the crossovers. Approximately ten residences along 112th Avenue SE may also be provided with sound insulation if the sound walls are not effective at mitigating all impacts. (See Exhibits A-2-Na, A-2-Nb, A-3-Na, and A-3-Nb in East Link Final EIS Appendix H2) Sound walls and/or, if determined that they are not feasible, other reasonable and feasible noise mitigation measures will be employed at those areas where noise impacts have not been anticipated but are shown evident after operations commence.
35	Noise and Vibration	Transit Noise	Long-term	**Segment C:** Based on noise predictions, noise mitigation will include a sound wall along the west side of the alignment beginning near SE 6th Street continuing past the East Main Station to the tunnel transition. The wall may be located on a retaining wall to the west of the tracks, with final placement determined during final design. This sound wall, along with special trackwork at the crossover along 112th Avenue SE, is predicted to mitigate all impacts along this section of the corridor. Sound walls and special trackwork at the crossover will be used to mitigate impacts on the Coast Bellevue Hotel and Lake Bellevue Village Condominiums. Impacts located on SE 4th Street will be mitigated with a sound wall if possible; otherwise sound insulation will be employed for mitigation. Single- and multi-family units located on Main Street and NE 6th Street will be mitigated with sound insulation where necessary. (See Exhibits A-10-Na, A-10-Nb, A-12-Na, and A-12-Nb in East Link Final EIS Appendix H2) Sound walls and/or, if determined that they are not feasible, other reasonable and feasible noise mitigation measures will be employed at those areas where noise impacts have not been anticipated but are shown evident after operations commence.
36	Noise and Vibration	Transit Noise	Long-term	**Segment D:** No noise mitigation is proposed.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
37	Noise and Vibration	Transit Noise	Long-term	**Segment E:** Based on noise predictions, noise mitigation for Segment E will include sound walls along the elevated structures from SR 520, near NE 67th Place, to the at-grade transition by Marymoor Park. All remaining noise impacts will occur at highrise apartments on Cleveland Street and a hotel on NE 76th Street. If necessary, sound insulation along with special trackwork for the crossover will be used to mitigate these impacts. (See Exhibits A-34-Na and A-34-Nb in East Link Final EIS Appendix H2)) Sound walls and/or, if determined that they are not feasible, other reasonable and feasible noise mitigation measures will be employed at those areas where noise impacts have not been anticipated but are shown evident after operations commence.
38	Noise and Vibration	Wheel Squeal	Long-term	**Wheel Squeal:** For curves of 600-foot radius or less, a trackside or vehicle-mounted lubrication system will be used to mitigate wheel squeal noise. For curves of 600- to 1,000-foot radius, the project will be designed to accommodate a lubrication system if wheel squeal occurs during operations.
39	Noise and Vibration	Construction Noise	Short-term	Several different jurisdictions are responsible for the regulation of construction noise. Most daytime construction activities will be exempt from the noise control ordinances. When required, Sound Transit or its contractor will seek the appropriate noise variance from the local jurisdiction. Sound Transit will control nighttime construction noise levels by applying noise level limits, established through the variance process, and use noise control measures where necessary. The contractor will have the flexibility of either prohibiting certain noise-generating activities during nighttime hours or providing additional noise control measures to meet these noise limits.
40	Noise and Vibration	Construction Noise	Short-term	Noise control mitigation for nighttime or daytime work will include the following measures, as necessary, to meet required noise limits: • Install construction site noise barrier wall by noise-sensitive receivers. • During nighttime work, use smart back-up alarms that automatically adjusts or lowers the alarm level or tone based on the background noise level, or switch off back-up alarms and replace with spotters. • Use low-noise emission equipment. • Implement noise-deadening measures for truck loading and operations. • Conduct monitoring and maintenance of equipment to meet noise limits. • Use lined or covered storage bins, conveyors, and chutes with sound-deadening material. • Use acoustic enclosures, shields, or shrouds for equipment and facilities. • Install high-grade engine exhaust silencers and engine-casing sound insulation. • Prohibit aboveground jack-hammering and impact pile driving during nighttime hours. • Minimize the use of generators or use whisper quiet generators to power equipment. • Limit use of public address systems. • Use movable noise barriers at the source of the construction activity. • Limit or avoid certain noisy activities during nighttime hours. While the mitigation provided herein is based on predicted impacts, noise mitigation shall be provided if, during construction, noise impacts occur for which mitigation is deemed necessary and appropriate under FTA noise standards.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
41	Noise and Vibration	Construction Noise	Short-term	Pile driving might be required in Segments A, B, C, D, and E for construction of elevated profiles and bridges, and might also occur in areas of retained cuts in Segments B, C and D. To mitigate noise related to pile driving, the use of an augur to install the piles instead of a pile driver will reduce the noise levels. If pile driving is necessary, the only mitigation will be to limit the time of day the activity can occur. Pile driving is not expected at most construction locations.
42	Noise and Vibration	Construction Noise	Short-term	Other than as provided herein, no additional segment-specific construction mitigation is predicted to be necessary for Segments A, B, or D during allowable daytime construction hours. Construction in Segment E along SR 520 near NE 51st Street could require moving existing sound walls and, if practical, these will be replaced early in project construction.
43	Noise and Vibration	Vibration	Long-term	Vibration and groundborne noise impacts that exceed FTA criteria warrant and will receive from Sound Transit effective mitigation measures, as described below, when determined to be reasonable and feasible. The locations requiring mitigation will be refined during final design and will be included, where needed, in the project's final design specifications. At some locations, however, light rail trackways or guideways could be within 20 feet of buildings and vibration mitigation may not be effective at reducing the vibration level to below the FTA criteria. At these locations, project design modification and additional information on affected buildings could eliminate these impacts. For instance, the type of building foundation might reduce vibration impacts and therefore, these residual impacts might be eliminated. In addition, each building will need to be examined in detail to determine where the vibration-sensitive uses are located. For example, the side of a building nearest the proposed alternative might be a vibration-sensitive use. Buildings that are mixed use might not have sensitive uses on lower floors where impacts are predicted to occur, and the vibration is not predicted to be noticeable by the time it reached higher floors with sensitive uses, such as sleeping quarters. Outdoor-to-indoor vibration testing, which tests how the vibration changes from the soil outside to a sensitive space inside a building, would also help to refine the vibration projections at these locations. Vibration mitigation measures, will be employed at those areas where vibration impacts have not been anticipated but are shown evident after operations commence. Options for mitigating vibration impacts include the following: • Ballast mats, which consist of a pad made of rubber or rubberlike material placed on an asphalt or concrete base with the normal ballast, ties, and rail on top. The reduction in groundborne vibration provided by a ballast mat is strongly dependent on the vibration frequency content and the design and support of the mat. • Resilient fasteners to provide vibration isolation between rails and concrete slabs for direct fixation track, typically on elevated structures or in tunnels. These fasteners include a soft, resilient element between the rail and concrete to provide greater vibration isolation than standard rail fasteners. • Tire-derived aggregate (TDA), which consists of shredded tires wrapped with filter fabric that is added to the base below the track ties. • Special trackwork, such as movable point or spring rail frogs, to eliminate the gap between tracks at crossovers that causes noise and vibration at these locations. • Floating slabs, which consist of thick concrete slabs supported by resilient pads on a concrete foundation; the tracks are mounted on top of the floating slab. Although floating slabs are designed to reduce vibration at lower frequencies than ballast mats, they are extremely expensive and are rarely used, except in the most extreme situations. Most successful floating slab installations are in subways, and their use for at-grade track is less common and often not reasonable.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
44	Noise and Vibration	Vibration	Long-term	**Segment A:** Vibration mitigation is predicted to be required along the Mount Baker Tunnel area to mitigate groundborne vibration impacts at single-family homes along the top of the hillside. No other vibration impacts were identified in Segment A. (See Exhibits A-1-Va and A-1-Vb in East Link Final EIS Appendix H2.)
45	Noise and Vibration	Vibration	Long-term	**Segment B**: Vibration mitigation will be required to mitigate groundborne vibration impacts at the Winters House. Standard vibration mitigation methods, such as resilient fasteners or ballast mats, will reduce the groundborne vibration level at the Winters House, but might not eliminate the impact and will be determined in final design. Final design will establish the need for a floating slab or other effective methods to eliminate or minimize the groundborne vibration impacts and will incorporate such mitigation methods. (See Exhibits A-2-Va and A-2-Vb in East Link Final EIS Appendix H2.)
46	Noise and Vibration	Vibration	Long-term	**Segment C:** Vibration mitigation is predicted to be required at two single-family residences south of Main Street and the Coast Bellevue Hotel, along with five single-family residences near the crossover on 112th Avenue SE. These five single-family residential impacts could be eliminated by the relocation of the crossover or the use of special trackwork to eliminate the gap. Identified groundborne vibration impacts at the Meydenbauer Center, a highly sensitive location, will be mitigated using ballast mats or resilient rail fasteners. (See Exhibits A-4-Va, A-4-Vb, A-5-Va, and A-5-Vb in East Link Final EIS Appendix H2.)
47	Noise and Vibration	Vibration	Long-term	**Segment D:** No mitigation is proposed.
48	Noise and Vibration	Vibration	Long-term	**Segment E:** Vibration mitigation is predicted to be required along SR 520 to mitigate vibration impacts on three single-family residences. (See Exhibits A-13-Va and A-13-Vb in East Link Final EIS Appendix H2.)
49	Noise and Vibration	Construction Vibration	Short-term	In general, building damage from construction vibration would only be anticipated from impact pile driving close to buildings. If piling is more than 25 feet from buildings, or if alternative methods, such as auger cast piling or drilled shafts are used, then damage from construction would not be anticipated. Other sources of construction vibration, including potential ground improvement activities such as construction of subsurface stone columns, could generate high enough vibration levels for localized damage to occur, depending on the soil type and distance between the source of vibration and the nearest building. In any locations of concern, preconstruction surveys will be conducted to document the existing condition of buildings, in case there was an issue during or after construction, and vibration monitoring will be implemented during construction to establish levels of vibration. Where levels of vibration exceed preset limits for damage, the contractor will be required to stop work and switch to alternate construction methods.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
50	Noise and Vibration	Construction Vibration	Short-term	Measures to minimize short-term annoyance from groundborne vibration and groundborne noise from construction activities such as pile installation or compaction of earth fills include use of alternate methods that result in less vibration or noise, such as auger cast piles or drilled shafts in place of driven piles, or use of static roller compactors rather than vibratory compactors. The hours and duration of these types of activities can also be restricted to hours when vibrations and noise are less noticeable. Vibration monitoring would be considered for pile driving, tunnel construction, vibratory sheet installation, and other construction activities that have the potential to cause high levels of vibration.
51	Noise and Vibration	Construction Vibration	Short-term	Minimize vibration at the Winters House during construction and prevent damage or limit to minor cosmetic damage by using the following methods: • Install monitoring equipment and monitor vibration during construction. • In final design, establish effective and place contractually enforceable limits on the construction vibration levels for the contractor, with the contractor, with concurrence of Sound Transit, selecting one or more of the following measures or other measures of equivalent effectiveness to limit construction: – Using auger-drilling methods – Using low vibration or nonimpact methods of installing steel casing required to support construction of drilled shaft or secant pile foundations – Using slurry confinement (i.e., temporarily filling the cavity with slurry material to replace the removed soil) – Underpinning foundation and employing structural support or soil stabilization if needed – Adjusting excavation methods based on monitoring results – Installing a shallow temporary supporting wall – Monitoring vibration levels associated with equipment to be used for the East Link Project at other construction sites with similar soils before project construction to determine which vibration-minimization method would be necessary – Beginning vibration-inducing construction at the site at points, established in final design, more distant from the Winters House to enable the contractor to determine which vibration-minimization method would be necessary • Photograph and inventory the building to establish existing conditions to determine if any damage is caused by construction, and repair the building in a manner consistent with the U.S. Department of the Interior Secretary's standards for treating historic properties.
52	Ecosystem Resources	High Value Habitat	Long-term	Project impacts on high-value wildlife habitats regulated by local agencies will be mitigated with habitat replacement or enhancement. The type of habitat to be established will depend on the affected species. The type of habitat to be replaced and mitigation ratios will be determined through discussions with federal, state, and local permitting agencies during final design and project permitting. Sound Transit will adhere to local ordinances regarding tree replacement ratios.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
53	Ecosystem Resources	Wetlands and Wetland Buffers	Long-term	Sound Transit has committed to achieving no net loss of wetland function and area on a project-wide basis. Sound Transit will apply the interagency wetland mitigation guidance prepared by Ecology, United States Army Corps of Engineers (USACE), and United States Environmental Protection Agency (EPA) (2006).Compensatory mitigation sites will be identified within the same drainage basin and compensate for lost functions in-kind. The specific compensatory mitigation sites for unavoidable impacts on wetlands will be determined during final design and project permitting. Compensatory mitigation-to-impact ratios for replacement of wetlands will comply with the requirements of the local critical area ordinances (CAOs) and the interagency wetland mitigation guidance (Ecology et al., 2006). During field work, Sound Transit determined there are several opportunities for wetland mitigation within the study area close to potentially impacted areas that are expected to meet required mitigation ratios. Additional compensatory mitigation may be required for impacts on existing wetland mitigation sites and will be determined during final design and project permitting. There are no existing approved mitigation banks in the Kelsey Creek subbasin. However, it is possible that a bank could become certified in the project study area in the future and could be used to mitigate project impacts.
54	Ecosystem Resources	Aquatic Habitat	Long-term	Realignment of the Sturtevant Creek channel at the Hospital Station will be required. Sound Transit will reconstruct the new channel with natural stream habitat features. Riparian habitat functions are expected to improve with native riparian plantings. This reach is currently lacking shade. The newly shaded reach is expected to help lower stream temperatures in the downstream reaches that support salmonids. Specific requirements and details of these measures will be established during final design and project permitting. For mitigation for the increased culvert length on the Unnamed Tributary to Kelsey Creek, Sound Transit proposes to coordinate with the City of Bellevue to find and develop in-stream habitat improvements on the downstream reaches of Goff Creek in coordination with the City of Bellevue's larger plans to restore and daylight the creek.
55	Ecosystem Resources	High Value Habitat	Short-term	High value habitat areas disturbed in the construction staging areas will be revegetated with native vegetation as soon as possible following construction. Sound Transit will update its survey of bird nests during final design. If a bald eagle nest is found within one-half mile of the proposed construction limits, a bald eagle management plan will be prepared. Under the Migratory Bird Treaty Act (MBTA), nesting migratory bird nests cannot be destroyed during the breeding season. Sound Transit will consult with the U.S. Fish and Wildlife Service on methods to implement during construction to avoid impacts on migratory birds consistent with the MBTA and the Bald and Golden Eagle Protection Act, such as limiting clearing activities in the Mercer Slough buffer outside the nesting season for migratory birds.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
56	Ecosystem Resources	Wetlands and Wetland Buffers	Short-term	Wetlands and wetland/stream buffer areas disturbed by construction will be protected by best management practices (BMPs) and revegetated as soon as possible after construction. BMPs will be implemented to avoid construction impacts on wetlands and wetland buffers.For wetlands to be restored after construction, Sound Transit will conduct detailed site surveys to establish existing topography and conduct hydrologic monitoring to restore topography. Restoration would include soil amendment and vegetation replacement.
57	Ecosystem Resources	Aquatic Habitat	Short-term	BMPs will be implemented to avoid construction impacts on aquatic resources. Except for the in-water construction in Lake Washington, any in-water work will be isolated from adjacent waters using a coffer dam or other suitable technique. Such isolation is not necessary in Lake Washington due to the type of work done there (welding or bolting metal jackets together). In-water work will be conducted during approved in-water construction windows. Where ESA-listed species might be present, stream crossings will not require in-water work and the project will not install infrastructure below the ordinary high water mark (OHWM). Disturbed or temporarily cleared riparian vegetation will be replanted with suitable native species. The proposed channel relocation of Sturtevant Creek adjacent to the Hospital Station will follow guidelines found in the Integrated Streambank Protection Guidelines manual (WDFW et al. , 2002) and other current stream design documents. If over-water construction is conducted over the Sammamish River during the migratory period of Endangered Species Act (ESA)-protected species, nighttime lighting will be shielded from the waters below.
58	Ecosystem Resources	Aquatic Habitat	Short-term	Sound Transit will consult with the Tribes to avoid impacting Tribal fisheries from construction work in Lake Washington, barge/boat transit through the Lake Washington ship canal, or through approaches to the Ballard Locks.
59	Water Resources	Water Resources	Long-term	During final design, opportunities for regional management of project stormwater and on-site control of stormwater runoff will be explored. The project design team will work with local jurisdictions to identify opportunities to incorporate low-impact development features into the project. Stormwater management and treatment principles of Low-Impact Development (LID) will be favored over "traditional" stormwater treatment where practical. For Segment B, the retained cut constructed near Mercer Slough will be sealed to prevent groundwater from entering the retained cut but would allow groundwater to flow downgradient beneath the cut. This would maintain the existing groundwater flow toward the Slough and sustain downgradient wetlands and other surface water features. For Segment D, the Unnamed Tributary to Kelsey Creek will be relocated into a new 24-inch-wide storm drain. The stream will remain in the existing storm drain until a new storm drain is constructed. Rerouting the tributary will occur during the summer when flows in the stream do not typically exist or are extremely low.
60	Energy	Energy	Long-term	No mitigation is proposed.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
61	Geology and Soils	Geology and Soils	Long-term	No mitigation is proposed.
62	Geology and Soils	Geology and Soils	Short-term	Engineering design standards and BMPs will be used to avoid and minimize potential construction impacts. Based on the review of potential impacts, the design and construction process will address seismic hazards, soft soils, settlement, steep-slope hazards, landslide hazards, erosion and sediment control, vibrations, and groundwater.
63	Hazardous Materials	Hazardous Materials	Short-term	In order to mitigate potential impacts from all potential sites, including railroad corridor and crossings, Sound Transit will perform a level of environmental due diligence appropriate to the size and presumed past use of the property at all properties along the corridor before they are acquired. Phase 2 Environmental Site Assessments would be conducted where appropriate. Where responsible, Sound Transit will remediate contaminated soil and groundwater, including those previously unknown and found during construction. To the extent practical, Sound Transit will limit construction activities that might encounter contaminated groundwater or contaminated soils.
64	Electromagnetic Fields	Electromagnetic Fields	Long-term	Standard design measures are necessary to protect underground utilities against stray currents. These measures will be developed and implemented in consultation with utility owners during final design. The I-90 section of the project will incorporate measures to prevent stray electrical current from corroding the steel components of the I-90 bridge, as agreed to with WSDOT.
65	Public Services	Public Services	Long-term	No mitigation is proposed.
66	Public Services	Public Services	Short-term	Sound Transit will 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. Sound Transit will also coordinate with solid waste and recycling companies and schools if any rerouting of collection or bus routes will need to occur. Postal collection and delivery and solid waste and recycling collection will be maintained at all addresses.
67	Utilities	Utilities	Long-term	No mitigation is proposed.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
68	Utilities	Utilities	Short-term	The project includes design measures and coordination with utility providers and the public to minimize impacts on utilities during light rail construction. These measures include potholing and preconstruction surveys to identify utility locations. Sound Transit will continue to work with utility providers to minimize service interruptions and perform outreach to notify the community in advance of potential service interruptions.
69	Historic and Archaeological Resources	Historic and Archaeological Resources	Long & Short Term	Execute requirements documented in the Memorandum of Agreement, Attachment E to this Record of Decision.
70	Parkland and Open Space	Parkland and Open Space	Long-term	Benvenuto Viewpoint: • Design station entrance to be compatible with the City's park design.
71	Parkland and Open Space	Parkland and Open Space	Short-term	Benvenuto Viewpoint: • Restore temporarily disturbed area to existing conditions.
72	Parkland and Open Space	Parkland and Open Space	Long-term	Park on the Lid: • Design station entrance to be compatible with the surrounding the park.
73	Parkland and Open Space	Parkland and Open Space	Short-term	Park on the Lid: • Restore temporarily disturbed areas to existing conditions.
74	Parkland and Open Space	Parkland and Open Space	Long-term	Mercer Slough Nature Park: • Acquire replacement land pursuant to Washington State Recreation and Conservation Office (RCO) and Section 6(f) requirements (including, but not limited to, size, quality and value) and consistent with the natural character of the park. • Preserve a left-hand turn from Bellevue Way to Sweylocken boat launch. • Relocate vehicle and pedestrian access point for blueberry farm. • Provide context-sensitive modifications to the project within the park between South Bellevue Park and Ride and Winters House, as agreed to with the City.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
75	Parkland and Open Space	Parkland and Open Space	Short-term	Mercer Slough Nature Park: • Provide financial compensation for temporary use of land as agreed to with the City. • Restore temporarily disturbed areas to existing conditions. • Provide temporary parking for users off Bellevue Way and south of the South Bellevue Park-and-Ride or as agreed to with the City. • Relocate blueberry farm retail use during construction. • Maintain blueberry farm operations and relocate Eastside Heritage Center during construction. • Maintain access or provide detours for trails, and maintain access to Sweylocken boat ramp. • Provide long-term mitigation, as required by Section 6(f), for land deemed to be permanently converted from Section 6(f) use.
76	Parkland and Open Space	Parkland and Open Space	Long-term	Surrey Downs Park: • Provide compensation and/or replacement land to replace impacted acreage within the park as agreed with the City. Replacement land would consist of acquired properties north of the park along 112th Avenue SE. • Design treatments of the retaining wall and fence along realigned SE 4th Street in consultation with the City. • Coordinate with the City of Bellevue and community to revise the Surrey Downs Master Plan to address the impacted areas.
77	Parkland and Open Space	Parkland and Open Space	Short-term	Surrey Downs Park: • Provide financial compensation for the temporary use of land as agreed with the City. • Restore the temporarily disturbed area with landscaping in accordance with the Surrey Downs Master Park Plan. • Maintain overall access to the park by providing trail and sidewalk connectivity through detours in coordination with the City. • Maintain public parking and access for scheduled baseball/soccer fields (spring, late summer, and fall). Provide a barrier or fence adjacent to the main construction area. • Improve south driveway to increase traffic flow prior to closure of the north driveway.
78	Parkland and Open Space	Parkland and Open Space	Long-term	NE 2nd Pocket Parks: One, or a combination of the following, as agreed to with the City: • Provide financial compensation as agreed to with the City. • Provide replacement land with an equivalent portion of the project's staging area located on the northeast quadrant of the park. • Enhance entire northwest quadrant of the park as a public plaza in conjunction with the station entrance.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
79	Parkland and Open Space	Parkland and Open Space	Short-term	NE 2nd Pocket Parks: • Provide financial compensation for the temporary use of land as agreed to with the City. • Restore temporarily disturbed park area to existing conditions. • Preserve pedestrian access to southern park quadrants.
80	Parkland and Open Space	Parkland and Open Space	Long-term	Marymoor Park: • Acquire replacement recreation land equal in value and function to offset the light rail use within the park property. • Evaluate noise impacts on park uses in place when Segment E is funded, consistent with Federal Transit Administration noise analysis methods and criteria when design is advanced
81	Parkland and Open Space	Parkland and Open Space	Short-term	Marymoor Park: • Mitigate temporarily disturbed park lands pursuant to RCO regulations. • Provide financial compensation for temporary use of land outside the light rail right-of-way for construction; restore parkland following construction.
82	Parkland and Open Space	Parkland and Open Space	Long-term	Bear Creek Trail: • Reroute trail during construction, restore disturbed trail area after construction, replace trees
83	Parkland and Open Space	Parkland and Open Space	Short-term	Bear Creek Trail: • Provide financial compensation for the temporary use of land during construction, as agreed with the City. • Maintain access or provide detours for trail during construction. • Restore temporarily disturbed area to existing conditions.
84	Parkland and Open Space	Parkland and Open Space	Long-term	Redmond Central Connector Trail and Park Corridor: • Possible permanent reroute of trail, and replace affected park amenities and associated vegetation as agreed to with the City.
85	Parkland and Open Space	Parkland and Open Space	Short-term	Redmond Central Connector Trail and Park Corridor: • Provide financial compensation for the temporary use of land during construction as agreed to with the City. • Maintain access or provide detours for trail during construction. • Restore temporarily disturbed area to existing conditions.

#	Resource	Impact Topic	Long/ Short Term	Mitigation Description
86	Parkland and Open Space	Parkland and Open Space	Long-term	Sammamish River Trail: • Acquire replacement recreation land equal in value to offset the light rail within the trail right of way per RCO requirements. • Locate guideway columns outside trail clear zone as practical.
87	Parkland and Open Space	Parkland and Open Space	Short-term	Sammamish River Trail: • Provide financial compensation for temporary use of land outside of the light rail right-of-way for construction. § Reroute and restore trail to King County standards and specifications during and after construction.
88	Parkland and Open Space	Parkland and Open Space	Long-term	East Lake Sammamish Trail: • Provide financial compensation for the light rail use of the trail right-of-way.
89	Parkland and Open Space	Parkland and Open Space	Short-term	East Lake Sammamish Trail: • Provide financial compensation for temporary use of land outside of the light rail right-of-way during construction. • Reroute and restore trail to King County standards and specifications during and after construction.