3 March 2006

SR 520 Bridge Replacement and HOV Project Draft EIS

6-Lane Alternative Options

Addendum to Environmental Justice Analysis

Washington State Department of Transportation

SoundTransit

U.S. Department of Transportation
Federal Highway Administration

SR 520 Bridge Replacement and HOV Project Draft EIS

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Prepared for

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Federal Highway Administration
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March 3, 2006

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List of Exhibits

Acronyms and Abbreviations

BMP	best management practice
EIS	Environmental Impact Statement
HOV	high-occupancy vehicle
LOS	level of service
MOHAI	Museum of History and Industry
NOAA	National Oceanic and Atmospheric Administration Northwest Fisheries Science Center
NRHP	National Register of Historic Places
PGIS	pollutant-generating impervious surface
SHPO	State Historic Preservation Office
TCP	traditional cultural property
TESC	temporary erosion and sediment control
WSDOT	Washington State Department of Transportation

Introduction

This addendum to the *Environmental Justice Analysis* (Parametrix and CH2M HILL 2006; Appendix G to the *SR 520 Bridge Replacement and HOV Project Draft Environmental Impact Statement* [EIS]) describes the affected environment and environmental consequences of three options to the original 6-Lane Alternative. Two of these options are in Seattle and one is on the Eastside.

Consistent with Federal Highway Administration guidance (as set forth in the *Environmental Justice Analysis*), this addendum considers effects on all elements of the environment and how they would affect environmental justice populations in the area.

What are the key points of this analysis?

The *Environmental Justice Analysis* for the original 4-Lane and 6-Lane Alternatives found that with mitigation, the project would not have disproportionately high and adverse effects on low-income or minority populations. The options would not change this determination.

The key points of this analysis are:

- For most elements of the environment, the project with any of the options would not have highly adverse effects.
- Sound walls integrated into the design of the build alternatives would substantially reduce the number of locations affected by noise under all build alternatives and options. Under the No Build Alternative, 444 residences would be affected by noise; the original 6-Lane Alternative would have 129 residences affected by noise. The 6 Lanes with Pacific Street Interchange option would have 123 residences affected by noise, the Second Montlake Bridge option would have 132 residences, and the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have 129 residences.
- The decrease in transit travel time on SR 520 would be a key benefit for all the traveling public, but particularly for low-income people who ride buses proportionally more than people with higher incomes. The 6 Lanes with Pacific Street Interchange and Second

Montlake Bridge options would achieve the transit and other benefits associated with the original 6-Lane Alternative. Additional transit travel time savings would be achieved with the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option (a 16-minute improvement over the original 6-Lane Alternative and 28-minute improvement over the No Build Alternative).

- The adverse effect of the Evergreen Point Bridge toll on low-income people would be more severe and greater in magnitude than the adverse effect of the toll on non-low-income people. However, there would be choices for avoiding the toll, including riding in a bus or a carpool with three or more people, changing the destination to avoid crossing Lake Washington, or taking an alternate route across or around Lake Washington, even though these alternate routes may be less direct and may take more travel time. If the recommended mitigation measures are implemented, and the options available to avoid the tolls (such as transit, carpooling, and alternate travel routes) and project benefits (such as improvements in transit travel times and bicycle and pedestrian access) are considered, the environmental justice discipline team concludes that tolling the new Evergreen Point Bridge would not have disproportionately high and adverse effects on low-income populations. The options do not change the conclusion about tolls. However, the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have additional travel time savings that would further increase the transit travel time benefit.

What options are being considered in this addendum?

6 Lanes with Pacific Street Interchange Option

This option would remove the Montlake interchange along SR 520 and would construct a new interchange at Pacific Street, just east of the Montlake interchange. Exhibit 1 shows the proposed lane configuration for this option.

The new interchange would be primarily located over the Washington State Department of Transportation (WSDOT)-owned peninsula near the Washington Park Arboretum. A new on- and off-ramp to and from the north would extend to Pacific Street at the University of

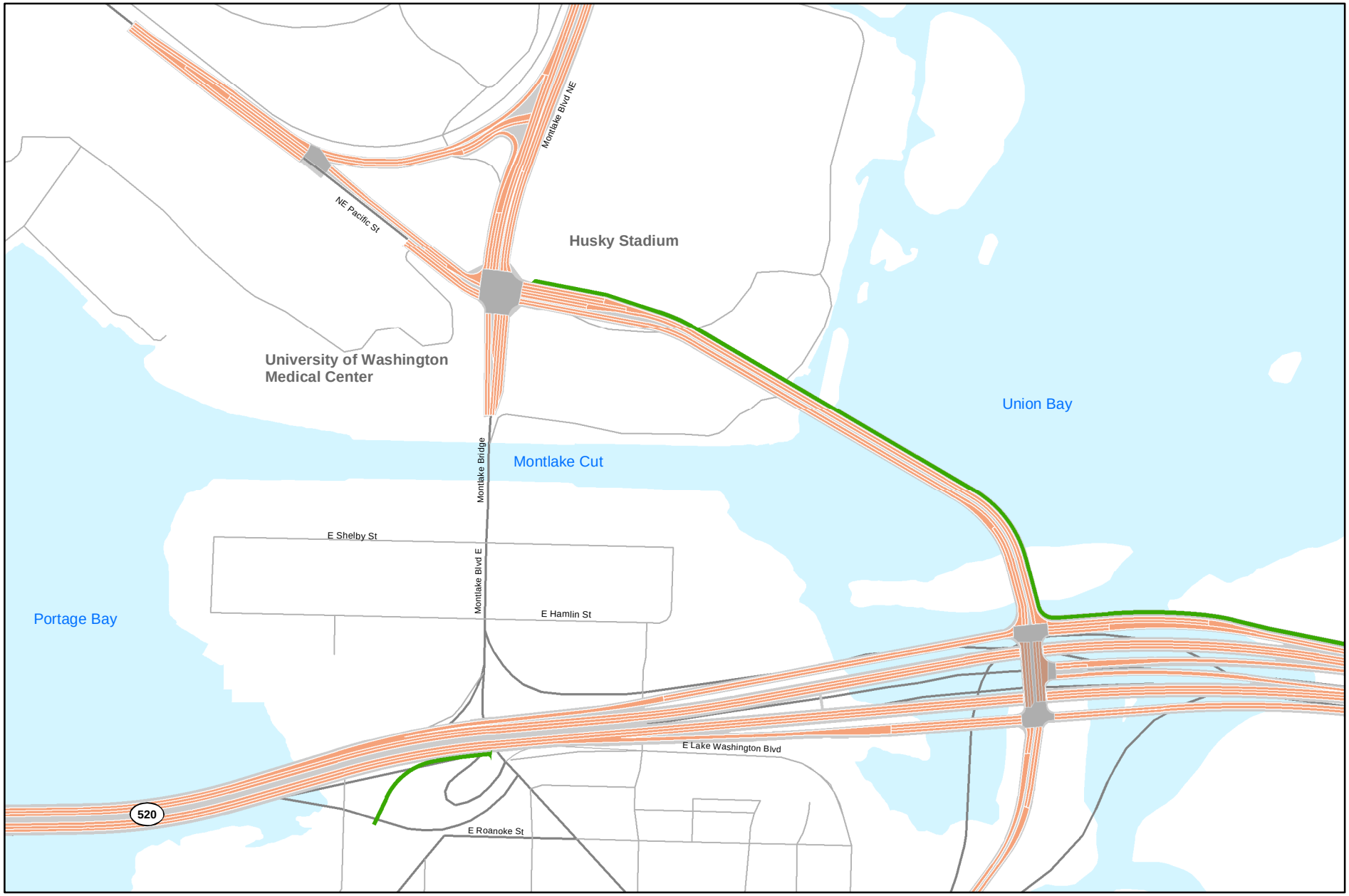

Exhibit 1. **Lane Configuration of the 6 Lanes with Pacific Street Interchange Option**
SR 520 Bridge Replacement and HOV Project

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Washington. A column-supported ramp of four general-purpose lanes (two lanes in each direction) extending over Union Bay (referred to as the Union Bay Bridge in this addendum) from the new interchange would touch down at the University of Washington Husky Stadium parking lot before joining the intersection of Pacific Street and Montlake Boulevard. At that intersection, the roadway would be lowered 8 to 10 feet from the existing elevation to provide vehicle-only access. The intersection would be covered to allow pedestrian access above and away from vehicular traffic.

The roadway on Montlake Boulevard north of Pacific Street would be widened to the east until just south of Northeast 45th Street. The navigational channel crossed by the new Union Bay Bridge would be the same width as the existing Union Bay reach (175 feet), with a vertical clearance of either 70 or 110 feet.[1] Columns would be placed just outside the width of the ship canal to not block boat traffic.

Ramps to and from Lake Washington Boulevard would still be included in this option; however, their footprint would be slightly different from the original 6-Lane Alternative. The ramp connections to and from Lake Washington Boulevard and to and from the Union Bay Bridge would construct a full diamond interchange, as opposed to a partial diamond interchange under the original 6-Lane Alternative. This full diamond interchange would provide more access to and from Lake Washington Boulevard. No access to or from SR 520 would be provided at Montlake Boulevard.

From Montlake Boulevard to I-5, SR 520 would be six lanes wide (three in either direction). The profile of the Portage Bay Bridge would not differ under this option from the original 6-Lane Alternative. Buses would access SR 520 via the Union Bay Bridge through the University area, providing for a more direct connection between buses and the proposed Sound Transit North Link Station at Husky Stadium. Instead of connecting to the Montlake interchange as in the original 6-Lane Alternative, the bicycle/pedestrian path would follow the Union Bay Bridge from SR 520 and would end at the Pacific Street interchange, close to the Burke-Gilman Trail.

[1] The establishment of a new governing clearance would prevent any vessel with a higher clearance requirement from traveling east from the Montlake Cut to Lake Washington north of the Evergreen Point Bridge. Before establishing a new governing clearance, the Coast Guard will consider whether vessels requiring a higher clearance have an essential use in north Lake Washington. Two vessels with a vertical

Second Montlake Bridge Option

The intent of the Second Montlake Bridge option is to narrow the SR 520 footprint through the Montlake neighborhood, while providing for transit (bus) access from SR 520 to the University of Washington. Exhibit 2 shows the proposed lane configuration for this option, which would be the same as the No Montlake Freeway Transit Stop option, except that it would also include a second Montlake bridge across the Montlake Cut. This bridge would be a parallel bascule (draw) bridge located just east of the existing Montlake Bridge. One bridge would carry northbound traffic, and one would carry southbound traffic.

South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The intent of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option is to improve access for buses to the South Kirkland Park-and-Ride from eastbound SR 520 and from the South Kirkland Park-and-Ride to westbound SR 520. This option, which is shown in Exhibit 3, would add a new transit/high-occupancy vehicle (HOV)-only westbound on-ramp from 108th Avenue Northeast and a new transit/HOV-only eastbound off-ramp to 108th Avenue Northeast.

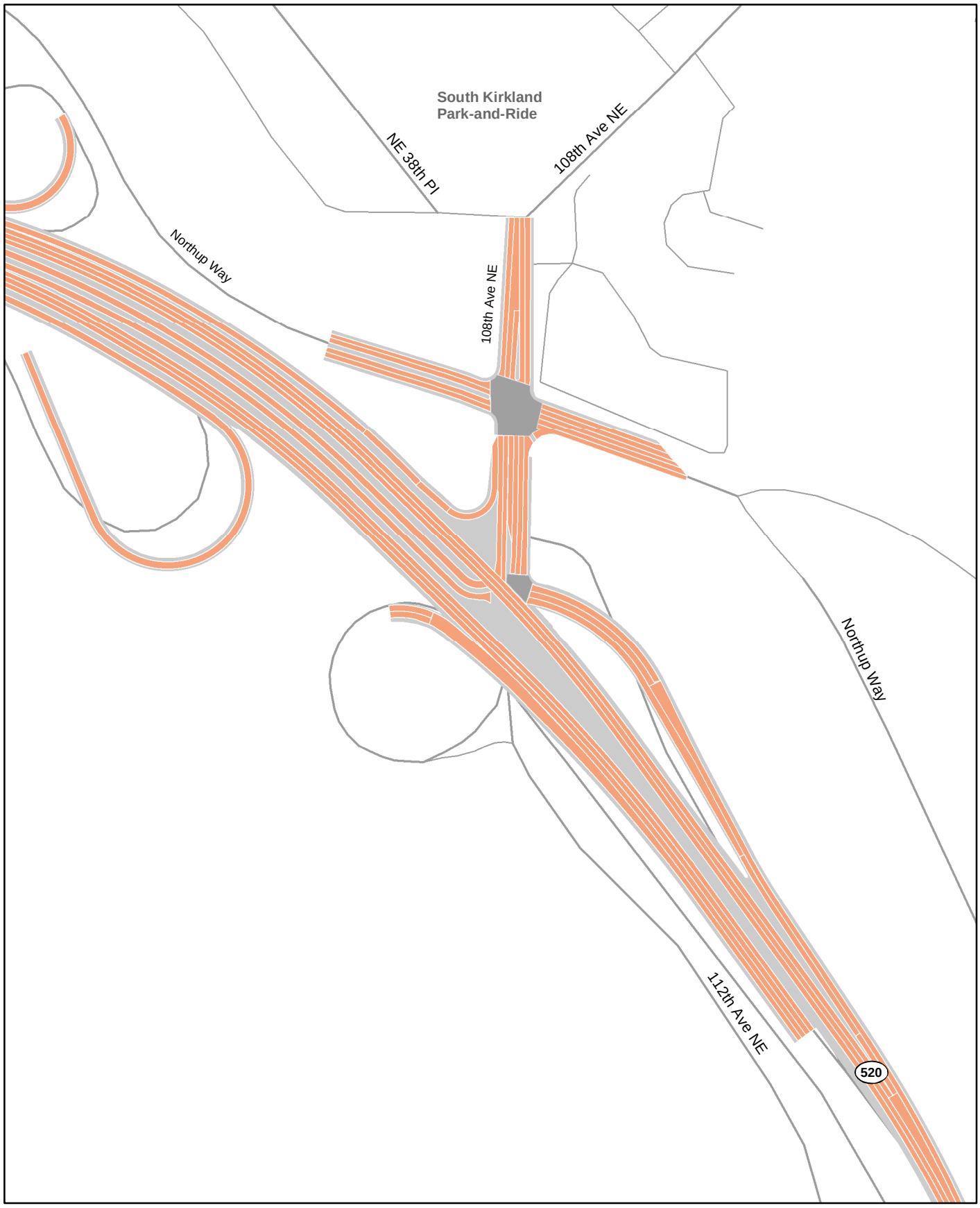
The footprint of SR 520 east of Bellevue Way would be widened slightly to accommodate the new ramps. Both 108th Avenue Northeast and Northup Way would be widened and improved under this option. One lane would be added to 108th Avenue Northeast between the eastbound on-ramp and 38th Place Northeast. Along with the additional through lane on 108th Avenue Northeast, the northbound leg of the 108th Avenue Northeast/Northup Way intersection would be channelized to include two exclusive left-turn lanes, a through lane, and a shared through/right-turn lane.

There is also a possibility for adding a westbound second left-turn lane at the 108th Avenue Northeast/Northup Way intersection to facilitate clearing the left-turn queue and serving a higher number of westbound left-turn and through trips.

clearance higher than 70 feet are known to travel this part of the lake. No vessels with a vertical clearance higher than 110 feet travel this part of the lake.

Exhibit 2. **Lane Configuration of the Second Montlake Bridge Option**

SR 520 Bridge Replacement and HOV Project



Option Lane Configuration
Shoulders and Barriers
Intersections

N

0 125 250 500 Feet

Exhibit 3. **Lane Configuration for the South Kirkland Park-and-Ride Transit Access - 108th Avenue Northeast Option**
SR 520 Bridge Replacement and HOV Project

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What additional information was collected for this analysis?

The project study area did not change from the one used for the *Environmental Justice Analysis* (Parametrix and CH2M HILL 2006); therefore, no additional information was needed about the affected environment. The study area encompasses areas that could be potentially affected by the options. It was defined as the area within 1 mile of SR 520 from the I-5 interchange in Seattle to the 124th Avenue Northeast interchange in Bellevue and within 1 mile of I-5 from the SR 520 interchange to the Boylston Avenue East on-ramp. Information on potential environmental effects of the options was gathered from the addenda to the other environmental disciplines.

Affected Environment

Minority and low-income populations reside in the project study area. The demographic characteristics of the study area are the same as those discussed in the *Environmental Justice Analysis*.

Potential Effects

This section discusses the factors that would have both beneficial and negative effects for each element of the environment. These effects include long-term operational and short-term construction changes to air quality, visual quality and aesthetics, geology and soils, wetlands, wildlife, fish, navigable waterways, noise, hazardous materials, cultural resources, land use, economics, relocations, energy, social resources, public services, utilities, recreation, Section 4(f)/6(f) resources, and transportation. The same methodology used to determine the effects of the original 6-Lane Alternative was used to determine the effects of the options.

Air Quality

Effects of Original Alternatives

Construction of both of the build alternatives would lower carbon monoxide emissions compared to existing conditions and would improve air quality. The original 6-Lane Alternative would construct lids that limit the dispersion of particulate matter in the area around the lids. Under the Continued Operation Scenario of the No Build Alternative, there would be higher emissions from vehicle exhaust than either of the build alternatives; however, air quality would improve compared to existing conditions. The Catastrophic Failure Scenario was not modeled but it is expected that air quality would degrade as traffic uses alternative routes. No mitigation is proposed for air quality. Anticipated project effects related to air quality are positive, and therefore are not further examined in this addendum.

Options

The effects of the options on regional and local air quality would not change from the original 6-Lane Alternative. Air quality effects were not further examined for this addendum.

Visual Quality and Aesthetics

Effects of the Original Alternatives

Near the Montlake neighborhood, the build alternatives would construct sound walls that would block views of the highway from the first row of residences south of the existing highway. On the Eastside near Hunts Point, views from residences on the north side of the existing highway would change from landscaped shrubs to sound walls. The build alternatives would remove unused ramps and would increase column spacing compared with the existing structures, producing a positive effect on visual quality. The original 6-Lane Alternative would construct landscaped lids that would have a positive effect on visual quality with the addition of open space and vegetation. The build alternatives, particularly the original 6-Lane Alternative, would be wider and in some locations higher than the existing structures. This may be perceived as a negative visual effect. Under the No Build Alternative, the Continued Operation Scenario would not affect visual quality. The Catastrophic Failure Scenario could have

either a positive or negative effect on visual quality, depending on what happened with the existing structure. These effects would be reduced in the final design by WSDOT following the guidelines in the WSDOT (1996) Roadside Classification Plan.

Mitigation cannot be fully developed until more detailed project design information is known. Conceptually, mitigation would take the form of:

- Establishing design guidelines that include visual standards for the corridor
- Revegetating cleared areas and including landscaping compatible with existing vegetation character
- Following the guidelines in WSDOT's Roadside Classification Plan
- Providing visual screening consistent with applicable guidelines, particularly in residential areas

Anticipated project effects related to visual quality and aesthetics are a mix of positive and negative. The negative visual quality effects resulting from this project would be minor. These effects would be further reduced in the final design by WSDOT following the guidelines in the WSDOT (1996) Roadside Classification Plan. Adverse visual effects would not occur in predominantly minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would cause more visual changes than the original 6-Lane Alternative. This option would affect the visual character and quality of south Union Bay and its shorelines, Marsh Island and the Arboretum, and the southeast corner of the University of Washington campus. This option would also result in highly visible changes to the visual character of Montlake Boulevard and the Pacific Street/Montlake Boulevard intersection. The National Oceanic and Atmospheric Administration Northwest Fisheries Science Center (NOAA) facilities would lose less land and fewer structures compared to the original 6-Lane Alternative. The Museum of History and Industry (MOHAI) building would be removed. As with the original 6-Lane Alternative, sound walls would also block any panoramic views from the Union Bay Bridge that would be available to motorists.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse visual effects associated with this option would not occur in predominantly minority or low-income residential areas.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would have a greater visual effect than the original 6-Lane Alternative because the addition of a new bridge alongside the existing Montlake Bridge would change the context of the older bridge and change views in the immediate vicinity.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse visual effects associated with this option would not occur in predominantly minority or low-income residential areas.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would permanently remove stands of tall street trees of various ages and shrubs on the WSDOT property (maintenance yard) and at the Yarrowood Condominiums complex. Widening 108th Avenue Northeast, Northup Way, and the westbound off-ramp would augment the existing transportation-oriented character of the intersection. The sidewalk and landscaping along the front of the daycare center at the southwest corner of 108th Avenue Northeast and Northup Way could be narrowed, bringing the roadway closer to the outside play area adjacent to Northup Way. The identified visual effects would not occur to visual resources that are particularly important to minority or low-income populations or in areas made of up of predominantly minority or low-income residents.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse visual effects associated with this option would not occur in predominantly minority or low-income residential areas.

Geology and Soils

Effects of the Original Alternatives

Both of the build alternatives would have minor effects on geology and soils, including changes to topography and increased potential for a loss of topsoil. The build alternatives would have the potential to stabilize slopes and liquefaction areas. Under the build alternatives, recycling of existing materials would make the project a net exporter of granular embankment materials. Under the No Build Alternative, the Continued Operation Scenario would leave the existing structure susceptible to damage from earthquakes and windstorms.

Best management practices (BMPs) would be implemented to reduce erosion, sedimentation, and dust. Anticipated project effects related to geology and soils are a mix of positive and minor negative. Adverse geological and soil effects would not occur in predominantly minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

Changes in effects due to construction of the Pacific Street Interchange option would be greater, but are not easily quantifiable because of the limited definition of subsurface conditions and very conceptual nature of the design at this stage. For the Pacific Street Interchange option, all of the potential effects on geology and soils (with the exception of potential liquefaction beneath the northbound lanes of Montlake Boulevard north of Husky Stadium and sports-related structures) could be mitigated but would add cost and complexity to the proposed project.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse geological and soil effects associated with this option would not occur in predominantly minority or low-income residential areas.

Effects of the Second Montlake Bridge Option

The changes in effects from the Second Montlake Bridge option would be so minor as to be unquantifiable. The geological and soil effects for this option are not further examined in this addendum.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The changes in effects from the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would be so minor as to be unquantifiable. The geological and soil effects for this option are not further examined in this addendum.

Ecosystems – Wetlands

Effects of the Original Alternatives

The build alternatives would fill and shade wetlands and wetland buffers. The 4-Lane Alternative would fill 3.4 acres of wetland and 7.5 acres of wetland buffer, and would shade 4.5 acres of wetland and 2.5 acres of wetland buffer. The original 6-Lane Alternative would fill 6.6 acres of wetland and 13.8 acres of wetland buffer, and would shade 6.7 acres of wetland and 3.8 acres of wetland buffer. The build alternatives would reduce the number of bridge columns compared with the existing structure, creating more open water area. The project design incorporates features such as retaining walls to reduce side slopes, and stormwater treatment facilities that would improve water quality in the wetlands. Under the No Build Alternative, the Continued Operation Scenario would not affect existing wetlands, but roadway runoff would remain untreated. Under the Catastrophic Failure Scenario, portions of the existing structure could collapse into existing wetlands.

BMPs would be implemented to reduce erosion and sedimentation. Wetlands lost would be replaced through creation, restoration, and/or enhancement, as appropriate. The 4-Lane Alternative would require 22 to 35 acres and the original 6-Lane Alternative would require 35 to 55 acres of compensatory wetlands. Anticipated project effects related to wetlands are a mix of positive and minor negative. Adverse effects to wetlands would not occur in predominantly minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would result in approximately the same of amount of permanent fill (about 0.2 acre) in the Seattle area wetlands as described for the original 6-Lane

Alternative. All permanent effects to wetlands would be mitigated according to the regulations in effect at the time of project permitting. The 6 Lanes with Pacific Street Interchange option would have slightly greater overall direct shading effects than the original 6-Lane Alternative.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse wetlands effects associated with this option would not occur in predominantly minority or low-income residential areas.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would have the same effect on wetlands as the original 6-Lane Alternative. It would result in approximately the same of amount of permanent fill (about 0.2 acre) in the Seattle area wetlands as described for the original 6-Lane Alternative.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse wetlands effects associated with this option would not occur in predominantly minority or low-income residential areas.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have a larger effect on wetlands compared to the original 6-Lane Alternative; approximately 7.8 acres would be filled.

Mitigation measures for this option would be the same as listed under the original alternatives. The adverse wetlands effects associated with this option would not occur in predominantly minority or low-income residential areas.

Ecosystems – Wildlife

Effects of the Original Alternatives

The build alternatives would have little effect on wildlife. Some wildlife habitat would be affected by removing and shading vegetation. The 4-Lane Alternative would remove 35.36 acres of vegetation and shade 8.34 acres. The original 6-Lane Alternative would remove 52.84 acres of

vegetation and shade 11.48 acres. The build alternatives would generally improve water quality and reduce noise levels, thereby producing a beneficial effect on wildlife. Both of the build alternatives would have minimal effects on federally and state-listed species. Both scenarios of the No Build Alternative would have minimal effects on wildlife.

- Mitigation for wildlife would include:
- Limiting the clearing of construction areas
- Implementing BMPs to reduce erosion and sedimentation
- Revegetating cleared areas as soon as practicable after construction
- Minimizing pile driving during bald eagle nesting season

Anticipated project effects related to wildlife resources are a mix of positive and minor negative. In parts of the U.S. some populations depend on subsistence use of wildlife resources. However, the project site is not located in an area where subsistence harvesting of wildlife resources occurs.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would remove less vegetation than the original 6-Lane Alternative, but would result in more shading of vegetation. It would also result in essentially the same noise levels near the roadway from highway operation, and consequent disturbance to wildlife, as the original 6-Lane Alternative. Highway operation effects on federally and state-listed species occurring in the project area would be similar. The stormwater treatment and detention for the 6 Lanes with Pacific Street Interchange option would minimize effects on wildlife. The 6-Lanes with Pacific Street Interchange option would shade an additional 2.1 acres of wetlands compared to the original 6-Lane Alternative. This could reduce habitat quality for great blue herons, hooded mergansers, and wood ducks, state priority species that may use these shaded areas. The Pacific Street Interchange option would construct the Union Bay Bridge, which could adversely affect bird and wildlife behavior in the vicinity of Marsh Island. Flying bald eagles, peregrine falcons, and other state-listed and state-priority bird species could be affected.

Mitigation measures for this option would be the same as listed under the original alternatives. This option is not located in an area where subsistence harvesting of wildlife resources occurs.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would remove less vegetation than the original 6-Lane Alternative, but would result in more shading of vegetation. It would result in essentially the same noise levels near the roadway from highway operation, and consequent disturbance to wildlife, as the original 6-Lane Alternative. Highway operation effects on federally and state-listed species occurring in the project area would be similar. Stormwater treatment and detention for the Second Montlake Bridge option would minimize effects on wildlife in both Seattle and on the Eastside. The Second Montlake Bridge option would construct a second bridge over the Montlake Cut, which could cause some additional disturbance to birds in the area. Flying bald eagles, peregrine falcons, and other state-listed and state-priority bird species could be affected.

Mitigation measures for this option would be the same as listed under the original alternatives. This option is not located in an area where subsistence harvesting of wildlife resources occurs.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

Similar to the original 6-Lane Alternative, stormwater treatment and detention for the South Kirkland Park-and- Ride Transit Access – 108th Avenue Northeast option would minimize effects on wildlife in both Seattle and on the Eastside. The South Kirkland Park-and- Ride Transit Access – 108th Avenue Northeast option would remove more vegetation (an additional 2.3 acres) than the original 6-Lane Alternative. Neither the original 6-Lane Alternative nor the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would result in shading effects on vegetation in the Eastside project area.

Mitigation measures for this option would be the same as listed under the original alternatives. This option is not located in an area where subsistence harvesting of wildlife resources occurs.

Ecosystems – Fish

Effects of the Original Alternatives

The build alternatives would have the following beneficial effects on fish:

- Increased light penetration over open water would improve fish habitat.
- Stormwater treatment facilities would improve water quality.
- Existing culverts that block fish passage would be replaced with fish-passable culverts.

The build alternatives would remove vegetation from the riparian buffer. The 4-Lane Alternative would remove 0.17 acre and the original 6-Lane Alternative would remove 0.75 acre, which may have a negative effect on fish. The project is in the "Usual and Accustomed" fishing area of the federally recognized Muckleshoot Tribe. The build alternatives are not expected to have an effect on tribal use of the fish resource. See the Indian Fishing Rights section in the *Cultural Resources Discipline Report* (Appendix D of the Draft EIS) for more information on tribal fishing. Under the No Build Alternative, the Continued Operation Scenario would cause no further changes to fish and fish habitat. Improvements to fish habitat included in the build alternatives would not be done. The Catastrophic Failure Scenario could improve fish habitat by removing vehicles from the corridor and thereby decreasing pollutant levels.

BMPs would be implemented to reduce erosion and sedimentation. Vegetation removed from riparian buffers during construction would be replaced with native riparian vegetation as soon as practicable after construction. Anticipated project effects related to fish resources are primarily positive and therefore are not further examined in this addendum.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would place a new bridge across the migratory path of anadromous salmonids produced in Lake Washington. The Union Bay Bridge, at the eastern mouth of the Montlake Cut, would include additional support columns on either side of the navigation channel, and would cast a diffuse shadow over the migratory route of Chinook salmon and other anadromous salmonids.

The 6 Lanes with Pacific Street Interchange option would increase the overall net impervious surface in the Union Bay area and relocate the stormwater treatment and discharged sites. Elimination of the Montlake Interchange on-ramps and off-ramps would reduce the amount of

stormwater discharged to the eastern part of the Portage Bay Basin and to the western portion of the Union Bay Basin.

Stormwater falling on the new Union Bay Bridge would be collected and treated as part of the stormwater system for this portion of the project. No changes in water quality that could affect fish are anticipated. Stormwater generated by impervious surface areas in Portage Bay and Union Bay (Arboretum) would be collected and treated prior to discharge for the 6 Lanes with Pacific Street Interchange option. This option would also collect and treat stormwater generated along the widened Montlake Boulevard (25th Avenue Northeast) north of Northeast Pacific Street. No treatment of stormwater currently occurs in the area.

Mitigation measures for this option would be the same as listed under the original alternatives. Anticipated project effects related to fish resources are primarily positive and therefore are not further examined in this addendum.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would place a new 58-foot-wide, low-level (32 to 48 feet above water) bridge with a solid deck over the Montlake Cut. This bridge would cast a darker shadow than the existing Montlake Bridge and much darker shadow than the Union Bay Bridge because of its relatively low level and its location over the narrowest portion of the Cut where there are steep shoreline slopes. All migrating fish reaching the location of the new bridge would have previously passed under numerous bridges, many casting darker shadows. Therefore, the Second Montlake Bridge would probably not have a detectable effect on fish.

Stormwater falling on the Second Montlake Bridge would be collected and treated as part of the stormwater system for this portion of the project. No changes in water quality that could affect fish are anticipated.

Mitigation measures for this option would be the same as listed under the original alternatives. Anticipated project effects related to fish resources are primarily positive and therefore are not further examined in this addendum.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would add approximately 3.2 acres of additional impervious surface to Eastside stream sub-basins, as compared to the original 6-Lane Alternative. However, there would be no substantial negative effects on fish from water quality and quantity because stormwater would be treated and detained before discharge to Eastside project area streams, as described in the Water Resources Technical Memorandum. The original 6-Lane Alternative would result in a net loss of approximately 220 linear feet of open channel habitat, as the result of six required culvert extensions. In comparison, the South Kirkland Park-and-Ride Transit Access –108th Avenue Northeast option would result in a net loss of 50 feet of open channel habitat because the removal of several existing culverts would offset new culvert extensions. Three culverts (112, 101, and 75 feet long) would be completely removed as part of the South Kirkland Park-and-Ride Transit Access –108th Avenue Northeast option. As with the original 6-Lane Alternative, all WSDOT fish barrier culverts within the project area would be replaced or upgraded to be fully passable by fish, leading to a substantial improvement in fish passage within several project area streams. The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would permanently remove 21,706 square feet of riparian vegetation (due to placement of fill) at seven Eastside streams. Overall, there would be approximately 20 percent more riparian buffer loss than under the original 6-Lane Alternative.

Mitigation measures for this option would be the same as listed under the original alternatives. Anticipated project effects related to fish resources are primarily positive and therefore are not further examined in this addendum.

Water Resources

Effects of the Original Alternatives

Both of the build alternatives would increase the amount of impervious surface compared to the existing facility. However, the design would include treatment facilities to detain and treat stormwater and would meet water quality standards. Under the No Build Alternative, the Continued Operation Scenario would continue to discharge untreated

stormwater into surface waterbodies. The Catastrophic Failure Scenario may decrease the level of pollutants in surface waterbodies because of decreased vehicular traffic in the corridor.

Anticipated project effects related to water resources are generally positive and therefore are not further examined in this addendum.

Effects of the Options

The 6-Lane Alternative options could affect the same surface water resources identified in the Water Resources Discipline Report as well as the Combined Sewer and University Slough Basins north of the Montlake Cut, both of which discharge to receiving environments described in the Water Resources Discipline Report. All three options would increase the area of pollutant-generating impervious surface (PGIS) in the surface water basins surrounding the project area. All three options would maintain or generally reduce existing pollutant loading levels in project area surface waterbodies because stormwater would be treated and flows controlled before they are discharged. All three options would meet state and federal water quality regulations.

The three options would not result in any changes to groundwater that were not originally described in the Water Resource Discipline Report for the original 6-Lane Alternative. The water resources discipline team did not change their conclusions about compensation needs between the original 6-Lane Alternative and the three options.

Any potential effects from constructing a second Montlake Bridge or the Union Bay Bridge (from spills of hazardous material or changing the pH of water from concrete work) would be mitigated through implementation of spill prevention control and countermeasure and temporary erosion and sediment control (TESC) plans. Any resuspension of sediments from the installation and removal of cofferdams would be mitigated through implementing the TESC plan. The effects of the three 6-Lane Alternative options would be essentially the same as the original 6-Lane Alternative, even for the two options that would add more PGIS, because:

- Water quality treatment facilities would be increased to accommodate and treat additional stormwater generated.
- All options would meet state and federal water quality regulations.

- The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not involve any new bridge construction or create any new temporary construction effects.

Anticipated project effects with all of the options related to water resources are generally positive. These effects are not further examined in this addendum.

Navigable Waterways

Effects of the Original Alternatives

The build alternatives would not allow passage of vessels with masts taller then 70 feet. This permanent height restriction would have a minimal effect because it is the same height restriction as the I-90 East Channel Bridge. Under the No Build Alternative, the Continued Operation Scenario would not change existing navigation channels. The Catastrophic Failure Scenario could open a large gap in the Evergreen Point Bridge, making passage easier.

No mitigation for effects on navigable waterways is proposed. Anticipated project effects related to navigable waterways are minor. This is not a resource that has been identified as particularly important to minority or low-income populations.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option differs from the original 6-Lane Alternative because it would require the construction and operation of a new bridge (Union Bay Bridge) crossing the Union Bay Reach portion of the designated navigational channel (ship canal). The navigational channel spanned by this bridge would be the same width as the existing Union Bay Reach (175 feet), with a vertical clearance of either 70 or 110 feet. Under the 6 Lanes with Pacific Street Interchange option, the establishment of a new governing clearance of 70 feet for vessels traveling to Lake Washington north of the Evergreen Point Bridge would prevent any vessel with a higher clearance requirement from traveling to this part of the lake. Currently, we have not identified any vessels with a vertical clearance greater than 110 feet.

No mitigation for this option is proposed, and anticipated project effects related to navigable waterways are minor. This is not a resource

that has been identified as particularly important to minority or low-income populations.

Effects of the Second Montlake Bridge Option

The operational effects of the Second Montlake Bridge would essentially be the same as that of the existing Montlake Bridge. No mitigation for this option is proposed, and anticipated project effects related to navigable waterways are minor. This is not a resource that has been identified as particularly important to minority or low-income populations.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

Effects on navigable waterways from the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not differ from the original 6-Lane Alternative. These effects were not further examined for this addendum.

Noise

Effects of the Original Alternatives

Currently 410 residences in the project area are affected by noise. Under the No Build Alternative, this number would increase to 444 residences. Sound walls integrated into the design of the build alternatives would reduce the number of locations affected by noise, so that, in general, the project area would be quieter than it is today. The number of residences experiencing noise effects would decrease to 153 residences under the 4-Lane Alternative, and 129 residences under the original 6-Lane Alternative. Many of these noise effects would be due to noise from roads other than SR 520. The Catastrophic Failure Scenario would result in large decreases in noise in the corridor due to the removal of vehicular traffic.

Since sound walls are integrated into project design, no additional mitigation is proposed. While some areas would be affected by noise, many of these noise effects would not be due to the project. There are no reasonable or feasible methods for reducing noise in these areas.

Anticipated project effects related to noise are a mix of positive and negative. Although the project area would be generally quieter than it is

today, a few areas would be affected by noise, even with the integrated sound walls. Under the 4-Lane Alternative, the block groups that would be affected by noise have 13 percent minority and 3 percent low-income populations. Under the original 6-Lane Alternative, the block groups that would be affected by noise have 15 percent minority and 5 percent low-income populations. The block groups that would not be affected by noise have 19 percent minority and 9 percent low-income populations. Since the project affects areas with lower percentages of minority and low-income populations, it is assumed that neither alternative would have disproportionate effects on minority and low-income populations. The number of minority and low-income populations in Seattle has increased since the Census was conducted in 2000. It is likely that there are more minority and low-income populations in the study area and affected block groups. However, this is not likely to change the conclusion of no disproportionate effects.

Effects of the 6 Lanes with Pacific Street Interchange Option

Like the original alternatives, the 6 Lanes with Pacific Street Interchange option would substantially improve noise conditions over the No Build Alternative and existing conditions. The 6 Lanes with Pacific Street Interchange option would have noise effects on 123 residences, slightly fewer affected residences (6 fewer) than the original 6-Lane Alternative. These noise effects would occur in 2 census block groups. The percentage of minority and low-income populations in the affected block groups are 13 percent and 4 percent, respectively. The percentage of minority and low-income populations in the block groups that are not affected by noise after mitigation are 18 percent and 9 percent, respectively. Since the project affects areas with lower percentages of minority and low-income populations, it is assumed that neither alternative would have disproportionate effects on minority and low-income populations.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would also substantially improve noise conditions over the No Build Alternative and existing conditions. The Second Montlake Bridge option would have noise effects on 132 residences, slightly more affected residences (3 more) than the original 6-Lane Alternative. These noise effects would occur in 2 census block groups. The percentage of minority and low-income populations in the

affected block groups are 13 percent and 4 percent, respectively. The percentage of minority and low-income populations in the block groups that are not affected by noise under this option after mitigation are 18 percent and 9 percent, respectively. Since the project affects areas with lower percentages of minority and low-income populations, it is assumed that neither alternative would have disproportionate effects on minority and low-income populations.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would also substantially improve noise conditions over the No Build Alternative and existing conditions. The option would have noise effects on 129 residences, the same number of effects as the original 6-Lane Alternative. These noise effects would occur in one census block group. The percentage of minority and low-income populations in the affected block group are 18 percent and 1 percent, respectively. The percentage of minority and low-income populations in the block groups that are not affected by noise under this option after mitigation are 18 percent and 9 percent, respectively. Since the project affects areas with the same or lower percentages of minority and low-income populations, it is assumed that neither alternative would have disproportionate effects on minority and low-income populations.

Hazardous Materials

Effects of the Original Alternatives

The build alternatives could disturb existing hazardous materials sites. The 4-Lane Alternative would affect 9 sites and the original 6-Lane Alternative would affect 12 sites. Under the No Build Alternative, the Continued Operation Scenario would not disturb any existing hazardous materials. The Catastrophic Failure Scenario would affect the transport of hazardous materials by rerouting traffic.

Initial site assessments for acquired sites or sites located adjacent to the project right-of-way would be conducted. The location of underground storage tanks would be verified prior to construction. The presence or absence of polychlorinated biphenyls in transformers to be removed during relocation of electrical utilities would be confirmed.

Anticipated project effects related to hazardous materials are negative but minor. WSDOT would further reduce these effects by conducting initial site assessments and other preconstruction due-diligence measures. Adverse hazardous materials effects would not occur in predominantly minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would have additional long-term effects on hazardous material sites due to its proximity to the Montlake Landfill site. Special measures would be necessary to avoid environmental contamination.

Anticipated effects with this option related to hazardous materials are negative and higher than the original 6-Lane Alternative, but WSDOT plans to avoid adverse hazardous material effects by conducting initial site assessments and other preconstruction due-diligence measures. Disturbance of the Montlake Landfill site is not expected to affect nearby residences in Montlake or the University District.

Effects of the Second Montlake Bridge Option

No additional permanent effects beyond those identified with the original 6-Lane Alternative were identified for the Second Montlake Bridge Option. Hazardous material effects under this option were not further examined for this report.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have the same potential permanent effects as those described for the original 6-Lane Alternative. Hazardous material effects under this option were not further examined for this report.

Cultural Resources

Effects of the Original Alternatives

The build alternatives would have no permanent effects on any known archeological or ethnographic sites. Both build alternatives would decrease the landscaped buffer zone, demolish the MOHAI building, acquire some NOAA property, increase visual intrusion in Montlake

with new sound walls, remove the Evergreen Point Bridge (a National Register of Historic Places (NRHP)-eligible structure), and increase visual intrusion at 2891 Evergreen Point Road (an NRHP-eligible historic resource). The 4-Lane Alternative would also demolish an NRHP-eligible historic house in Medina.

Both build alternatives include project design features, such as installation of sound walls, removal of the R.H. Thompson Expressway ramps, and lowering of the roadway in Montlake, which would decrease noise and visual effects on adjacent historic sites. In addition, both build alternatives include a bicycle/pedestrian path that would reconnect the two sides of the NRHP-eligible Montlake Historic District and relocation of the Evergreen Point Bridge to the north, which would move the highway further away from the historic house at 2857 Evergreen Point Road. The landscaped lids of the original 6-Lane Alternative would be beneficial to adjacent historic districts in Seattle.

Work on identifying traditional cultural properties (TCPs) on Foster Island and elsewhere is ongoing. The Cultural Resources Discipline Report contains additional information on this work. Under the No Build Alternative, the Continued Operation Scenario would not affect cultural resources. The Catastrophic Failure Scenario would affect the Evergreen Point Bridge.

Anticipated project effects related to cultural resources are a mix of positive and negative. WSDOT plans to work closely with the State Historic Preservation Office (SHPO) to identify appropriate mitigation measures to address the identified negative project effects. These mitigation measures would be integrated into the final design of the project. The negative effects currently identified would not affect resources that are particularly important to minority or low-income populations. Existence of any TCPs as well as potential archaeological resources would be subject to further investigation and mitigation, as appropriate.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would have generally lesser noise effects on historic resources than the original 6-Lane Alternative, but much greater visual intrusion on the Montlake Historic District and the NRHP-listed Montlake Cut, Montlake Bridge, and Canoe House. This option is expected to have an adverse effect on

the setting of the Canoe House. This option would also directly affect the NOAA property and demolish the MOHAI building, although it would take less NOAA property than the original 6-Lane Alternative.

Anticipated project effects related to cultural resources under this option are a mix of positive and negative. WSDOT plans to work closely with the SHPO to identify appropriate mitigation measures to address the identified negative project effects. These mitigation measures would be integrated into the final design of the project. The negative effects currently identified would not affect resources that are particularly important to minority or low-income populations. Existence of any TCPs as well as potential archaeological resources would be subject to further investigation and mitigation, as appropriate.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would have a greater visual and audible effect on the Montlake Historic District, Montlake Bridge, Montlake Cut, and Canoe House than the original 6-Lane Alternative. This option would also involve the removal of two more historic properties than the original 6-Lane Alternative. This option also has the potential to negatively affect the setting and feeling of the historic Montlake Bridge if the new bridge is not designed and constructed to be compatible with the historic bridge.

Anticipated project effects related to cultural resources under this option are a mix of positive and negative. WSDOT plans to work closely with the SHPO to identify appropriate mitigation measures to address the identified negative project effects. These mitigation measures would be integrated into the final design of the project. The negative effects currently identified would not affect resources that are particularly important to minority or low-income populations. Existence of any TCPs as well as potential archaeological resources would be subject to further investigation and mitigation, as appropriate.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not affect any known historic resources in the study area beyond those discussed under the original 6-Lane

Alternative. Cultural resources effects under this option were not further examined for this report.

Land Use, Economics, and Relocations

Effects of the Original Alternatives

The build alternatives would displace residences, businesses, and civic and quasi-public properties, but would not change any existing land use patterns. The 4-Lane Alternative would displace two residences, a 76 service station, the southernmost dock of Queen City Yacht Club, eight structures at the NOAA facilities, MOHAI, Randi's Food Services, and an espresso stand. The original 6-Lane Alternative would have the same displacement effects as the 4-Lane Alternative with one exception: it would displace one other residence and would avoid displacing one residence displaced by the 4 Lane Alternative. The build alternatives would have a positive effect on economic activity due to increased mobility.

Under the No Build Alternative, the Continued Operation Scenario would have little effect on land use, economics and relocations. The Catastrophic Failure Scenario would have little effect on land use and relocations, but the loss of the Portage Bay Bridge and/or Evergreen Point Bridge could result in a substantial adverse effect on economic activity in the region.

The project has been designed to remain within existing WSDOT right-of-way as much as practicable. Relocations and acquisitions would be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended. WSDOT would purchase affected properties in a manner that ensures fair and equitable treatment of all property owners. WSDOT would ensure that owners are paid just compensation for their property and the property rights sold to the state. In addition, WSDOT would pay all closing costs and associated transaction fees. WSDOT would also assist residents and businesses displaced by the project with relocation to suitable new locations. These property owners would be eligible for relocation benefits to help them get established at their new locations.

Anticipated project effects related to land use, economics, and relocations are a mix of positive and negative. The identified residential

displacements would not occur in predominantly minority or low-income residential areas, and the non-residential displacements would not affect facilities that are particularly important to minority or low-income populations. In addition, as described in the mitigation discussion, WSDOT would mitigate these land acquisition and relocation effects.

Effects of the 6 Lanes with Pacific Street Interchange Option

The amount of land required for construction of the 6 Lanes with Pacific Street Interchange option is approximately 27 acres. Like the original 6-Lane Alternative, most of the property acquisition would occur in Seattle and would primarily affect parks, as well as the Queen City Yacht Club and the NOAA facilities. In addition to these effects, the 6 Lanes with Pacific Street Interchange option would affect the southeast portion of the University of Washington's campus. These effects would account for nearly half of the total land affected by this option. In the Seattle project area, the acquisition of right-of-way under the 6 Lanes with Pacific Street Interchange option would displace the same structures as the original 6-Lane Alternative except for the business at the Montlake interchange. The 6 Lanes with Pacific Street Interchange option would have greater relative economic effects than the other alternatives because of how it modifies access and mobility, affects parking at the University of Washington, and relieves congestion in the Montlake neighborhood. The addition of a new interchange at Pacific Street/Montlake Boulevard would have the greatest effect on the movement of people, goods, and services to and from the area.

Anticipated project effects related to land use, economics, and relocations under this option are a mix of positive and negative. The identified residential displacements would not occur in predominantly minority or low-income residential areas, and the non-residential displacements would not affect facilities that are particularly important to minority or low-income populations. In addition, as described in the mitigation discussion under the original alternatives, WSDOT would mitigate these land acquisition and relocation effects.

Effects of the Second Montlake Bridge Option

The amount of land required for construction of the Second Montlake Bridge option is approximately 13.5 acres. Like the original 6-Lane Alternative, most of the property acquisition would occur in Seattle and

would primarily affect parks, as well as the Queen City Yacht Club and the NOAA Northwest Fisheries Science Center. The acquisition of right-of-way under the Second Montlake Bridge option would displace the same structures as the original 6-Lane Alternative plus two residential structures.

Anticipated project effects related to land use, economics, and relocations under this option are a mix of positive and negative. The identified residential displacements would not occur in predominantly minority or low-income residential areas, and the non-residential displacements would not affect facilities that are particularly important to minority or low-income populations. In addition, as described in the mitigation discussion under the original alternatives, WSDOT would mitigate these land acquisition and relocation effects.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would affect 4.8 acres. Most of the property that WSDOT would need to acquire is currently occupied by single-family residences. The proposed project would not encourage a change in the types of land uses in the project area. The existing land uses are well established and consistent with existing zoning and comprehensive plan land use designations and policies.

Anticipated project effects related to land use, economics, and relocations under this option are a mix of positive and negative. The identified residential displacements would not occur in predominantly minority or low-income residential areas, and the non-residential displacements would not affect facilities that are particularly important to minority or low-income populations. In addition, as described in the mitigation discussion under the original alternatives, WSDOT would mitigate these land acquisition and relocation effects.

Energy

Effects of the Original Alternatives

The build alternatives would consume less energy than the No Build Alternative because of improved mobility, assuming that tolls would be charged for the build alternatives. Tolls are expected to result in fewer vehicle trips on SR 520 compared to the No Build Alternative.

Anticipated project effects related to energy are positive and therefore are not further examined in this addendum.

Effects of the Options

Operation of the three options would consume less energy than the 2030 No Build Alternative. These positive effects related to energy are not further examined in this addendum.

Social

Effects of the Original Alternatives

The build alternatives would have positive effects on neighborhood conditions with the creation of continuous bike paths, improvements in air and water quality, and reduced noise levels. The original 6-Lane Alternative would reconnect neighborhoods with lids and improve transit mobility. The build alternatives would have a negative effect on a number of parks. See the *Recreation* section for more details on parks.

The tolls associated with the build alternatives would negatively affect low-income individuals. WSDOT has assumed $3.35 (current dollars) one-way during the peak period for evaluating the environmental effects of the proposed project. The method of electronic toll collection could reduce low-income individuals' access to the bridge.

Under the No Build Alternative, the Continued Operation Scenario would have little effect on the social element, with the exception that travel times would worsen and the lids and bicycle/pedestrian path would not be built. The Catastrophic Failure Scenario would sever links, decrease accessibility, require adjustment of travel patterns, and increase travel times.

Anticipated project effects related to the social elements are a mix of positive and negative. The effect of tolling, which was examined in detail in the *Environmental Justice Analysis* (Appendix G to the Draft EIS), found that the tolls associated with the build alternatives could negatively affect low-income individuals. While these tolls would have to be paid by all users of the new bridge (except for transit, emergency vehicles, and carpools with three or more people), they would represent a greater expense burden for low-income individuals than for higher-income individuals. Options to avoid the tolls include traveling by transit, carpooling, or taking an alternate route. Project benefits that

would accrue to low-income populations include improvements in transit travel times and bicycle and pedestrian access. Mitigation measures such as outreach, assistance, monitoring, and toll collection could reduce the adverse effects of the toll.

After considering these conditions, the environmental justice discipline team concludes that tolling the new Evergreen Point Bridge would not have disproportionately high and adverse effects on low-income populations.

Effects of the Options

The three options would have the same or similar effects on community cohesion; recreation; regional and community growth; services; and pedestrian, bicycle , and transit facilities as the original 6-Lane Alternative. The options would not displace affordable housing or community facilities, and would also not create physical impediments that would make it more difficult for people to reach community facilities or affordable housing. If MOHAI has not moved as planned by the time of SR 520 construction, then the building would be displaced.

In the Seattle project area, the 6 Lanes with Pacific Street Interchange option would displace one residence, and the Second Montlake Bridge option would displace three residences. In the Eastside project area, the same residence displaced by the original 6-Lane Alternative would be displaced by the South Kirkland Park-and Ride Transit Access – 108th Avenue Northeast option. In addition, the original 6-Lane Alternative and any of the options would not negatively affect the quality of life in the neighborhoods.

The original 6-Lane Alternative with any of the options would not change the delivery of services within the project area. The project would not displace any services nor create any impediments to reaching those services.

In the Seattle project area, similar to the original 6-Lane Alternative, the options would require the partial acquisition of several parks. The 6 Lanes with Pacific Street Interchange option would require the most permanent acquisition of parkland. In the Eastside project area, the option would affect parks the same as the original 6-Lane Alternative. The original 6-Lane Alternative and options would not make it more difficult to reach recreational facilities in the project area. Noise, air quality, and water quality would improve in the same manner described under the original 6-Lane Alternative at the Seattle and

Eastside project area parks. The visual experience at recreational facilities would improve and degrade in the same manner as described under the original 6-Lane Alternative.

The original 6-Lane Alternative with any of the options would improve capacity, circulation, and travel times for bicyclists and pedestrians. The original 6-Lane Alternative with any of the options would have continuous eastbound and westbound HOV lanes from I-5 to Bellevue Way. The original 6-Lane Alternative with any of the options would increase demand for transit. Additional transit travel time savings would be achieved with the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option (a 16-minute improvement over the original 6-Lane Alternative and 28-minute improvement over the No Build Alternative).

The mitigation measures for the options would be the same as those described for the original alternatives. Anticipated project effects related to social elements are a mix of positive and negative. The options would not change the conclusion about tolling, although the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would provide additional benefits through increased travel time savings.

Public Services and Utilities

Effects of the Original Alternatives

The build alternatives would improve mobility, reduce travel times, reduce response times of emergency vehicles, and decrease noise levels at the Montlake Community Center. The response times and mobility of public service vehicles would either remain at current levels or worsen under both scenarios of the No Build Alternative.

Anticipated project effects related to public services and utilities are positive, and therefore are not further examined in this addendum.

Effects of the Options

All three options would have similar, positive long-term effects on public services and utilities as the original 6-Lane Alternative and therefore are not further examined in this addendum.

Recreation

Effects of the Original Alternatives

The 4-Lane Alternative would affect 10 parks, and the original 6-Lane Alternative would affect 11 parks. The 4-Lane Alternative would cause the loss of 1.96 acres of parkland, and the 6-Lane Alternative would cause the loss of 3.67 acres of parkland. The build alternatives would decrease noise levels in some of the adjacent parklands due to the construction of sound walls. Under the No Build Alternative, the Continued Operation Scenario would not affect parklands. The Catastrophic Failure Scenario could affect adjacent parklands if portions of the structure collapsed into the parklands.

Anticipated project effects related to recreation resources are a mix of positive and negative. WSDOT plans to work closely with affected jurisdictions to identify appropriate mitigation measures, such as suitable replacement property, to address the identified negative project effects. These mitigation measures would be integrated into the final design of the project. The negative effects on recreational resources would not occur in predominately minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would have a greater net acquisition of parkland than the original 6-Lane Alternative. The option would acquire 8.25 acres of parkland and return 3.68 acres of parkland, for a net acquisition of 4.57 acres. Other effects on recreation would be similar to the original 6-Lane Alternative.

Anticipated effects of the Seattle options related to recreation resources are a mix of positive and negative. The Seattle options would have the same types of mitigation measures as listed under the original alternatives. The negative effects on recreational resources would not occur in predominately minority or low-income residential areas.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would have a smaller net acquisition of parkland than the original 6-Lane Alternative. The option would acquire 6.64 acres of parkland and return 3.9 acres of parkland,

for a net acquisition of 2.74 acres. Other effects on recreation would be similar to the original 6-Lane Alternative.

Anticipated effects of the Second Montlake Bridge option related to recreation resources are a mix of positive and negative. The option would have the same types of mitigation measures as listed under the original alternatives. The negative effects on recreational resources would not occur in predominately minority or low-income residential areas.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

On the Eastside, recreation effects would be the same as described for the original 6-Lane Alternative and therefore are not further examined in this addendum.

Section 4(f)/6(f)

Effects of the Original Alternatives

Both build alternatives would affect eight Section 4(f) properties (four recreation and four historic); they would also affect one Section 6(f) property. Under the No Build Alternative, the Continued Operation Scenario would not affect Section 4(f) or 6(f) properties. The Catastrophic Failure Scenario would include the loss of the Evergreen Point Bridge, an historic structure eligible for the NRHP and Washington State Historic Register. The collapsed structure could affect additional Section 4(f) and 6(f) properties.

Anticipated project effects related to Section 4(f)/6(f) resources are a mix of positive and negative. The design of the project would incorporate measures and features to minimize effects on Section 4(f) and 6(f) properties. WSDOT would work with each affected jurisdiction and the SHPO to identify appropriate mitigation measures. These mitigation measures would be integrated into the final design of the project. The negative effects on Section 4(f)/6(f) resources would not occur in predominantly minority or low-income residential areas.

Effects of the 6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would affect more acres of Section 4(f)/6(f) resources (representing six resources) than the original 6-Lane Alternative. The option would affect 6.82 acres of Section 4(f)/6(f) resources.

Anticipated effects of the options related to Section 4(f)/6(f) resources are a mix of positive and negative. The options would have the same types of mitigation measures as listed under the original alternatives. The negative effects on Section 4(f)/6(f) resources would not occur in predominately minority or low-income residential areas.

Effects of the Second Montlake Bridge Option

The Second Montlake Bridge option would have a smaller effect on Section 4(f)/6(f) resources than the original 6-Lane Alternative. The option would affect 2.04 acres of Section 4(f)/6(f) resources (representing four resources, including the East Campus Bicycle Route).

Anticipated effects of the options related to Section 4(f)/6(f) resources are a mix of positive and negative. The options would have the same types of mitigation measures as listed under the original alternatives. The negative effects on Section 4(f)/6(f) resources would not occur in predominately minority or low-income residential areas.

Effects of the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would not differ from the original 6-Lane Alternative in its effects on Eastside parks and recreational facilities, or on Eastside historic resources. The effects under this option are not further examined in this addendum.

Transportation

The build alternatives would increase mobility of the traveling public, improve travel times, benefit nonmotorized uses with the addition of the bicycle/pedestrian path, and improve transit operations. Improvements to transit are especially beneficial to minority and low-income populations, because they are more likely to use transit than other groups. Analysts of the National Household Travel Survey found

that minority and low-income households account for 63 percent of the nation's transit riders (Pucher and Renne 2003). Under the No Build Alternative, the Continued Operation Scenario would increase congestion on SR 520 and local streets. Under the Catastrophic Failure Scenario, transportation mobility would decrease.

Signal modifications are proposed at several interchanges to improve local circulation. Displaced parking would be replaced where needed. Anticipated project effects related to transportation are primarily positive and therefore are not further examined in this addendum.

6 Lanes with Pacific Street Interchange Option

The 6 Lanes with Pacific Street Interchange option would have similar transit benefits as the original 6-Lane Alternative. The 2-minute savings for HOV traffic under the Pacific Street Interchange option would be the result of fewer trips across the Portage Bay Bridge. Travel times would be similar for the original 6-Lane Alternative and the 6 Lanes with Pacific Street Interchange option.

With the 6 Lanes with Pacific Street Interchange option, a new road would be built between the new Pacific Street Interchange at SR 520 and the Northeast Pacific Street/Montlake Boulevard Northeast intersection. South of the Montlake Cut, there would be a substantial change in total traffic volumes and the local versus freeway trip ratio with the Pacific Street Interchange option. Traffic traveling to and from SR 520 would shift from Montlake Boulevard Northeast to the new Union Bay Bridge.

With the Pacific Street Interchange option, traffic demand would decrease on Montlake Boulevard Northeast between the Montlake Cut and SR 520 because access to the SR 520 ramps would be relocated.

Relative to the original 6-Lane Alternative, the Pacific Street Interchange options would increase year 2030 traffic volumes on the following streets during both the a.m. and p.m. peak hours:

- Northeast Pacific Street between Montlake Boulevard Northeast and west of 15th Avenue Northeast
- Montlake Boulevard Northeast north of Northeast Pacific Street
- 15th Avenue Northeast
- 24th Avenue Northeast

- Lake Washington Boulevard

With the changes in traffic patterns and traffic volumes, year 2030 intersection operations would also change. Level of service (LOS) would improve at the following three intersections:

- Northeast Pacific Place/Montlake Boulevard Northeast
- Northeast 45th Street/Montlake Boulevard Northeast
- Lake Washington Boulevard Northeast/Montlake Boulevard

All of the new intersections associated with the Pacific Street Interchange option would operate acceptably at LOS D or better in the year 2030. LOS would degrade at Northeast Pacific Street/15th Street Northeast.

Most transportation effects related to the 6 Lanes with Pacific Street Interchange option are positive; therefore, these are not further examined in this addendum.

Second Montlake Bridge Option

The Second Montlake Bridge option would have the same transit benefits as the original 6-Lane Alternative. Relative to the original 6-Lane Alternative, the Second Montlake Bridge option would increase traffic demand on Northeast Pacific Street between Montlake Boulevard Northeast and west of 15th Avenue Northeast, on Montlake Boulevard Northeast north of the Montlake Cut, and on 15th Avenue Northeast during both the a.m. and p.m. peak hours. Total traffic volumes would increase slightly with the Second Montlake Bridge option because of the increased capacity across the Montlake Cut. Travel times would be similar for the original 6-Lane Alternative and the Second Montlake Bridge option. With the Second Montlake Bridge option, general-purpose travel times would increase by 2 minutes because of an increase in traffic on the Portage Bay Bridge during the p.m. peak period.

Northeast Pacific Street/Montlake Boulevard Northeast operations would improve from LOS D with the original 6-Lane Alternative to LOS C with the Second Montlake Bridge option during the a.m. peak period because of the additional lanes across the Montlake Cut.

Most transportation effects related to the Second Montlake Bridge option are positive; therefore, these effects are not further examined in this addendum.

South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast Option

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have the same transit benefits as the original 6-Lane Alternative. It would additionally benefit transit users by reducing transit travel time for eastbound buses would improve by 28 minutes over the No Build Alternative and by 16 minutes over the original 6-Lane Alternative. Travel times would improve because the buses would be able to exit directly to 108th Avenue Northeast and bypass congestion on Bellevue and Northup Ways. None of the local intersections would be adversely affected by this option. Other transportation effects would be similar to the original 6-Lane Alternative. Most transportation effects related to the South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option are positive; therefore, these effects are not further examined in this addendum.

Construction

Effects of the Original Alternatives

The following temporary effects could occur during construction of the 4-Lane and 6-Lane Alternatives:

- Temporary increases in emissions and dust levels.
- Temporary visual effects through clearing, grubbing, grading, structure demolition, and the presence of construction equipment and signage.
- Temporary removal of vegetation and disturbance of soil and seed bank.
- Potential release of contaminants during excavation and demolition work. Hazardous materials and petroleum products used during construction would require proper storage, use, and disposal.
- Temporary increases in traffic congestion, delays for public service provider vehicles, and the elimination of on-street parking.
- Temporary increases in construction-related noise, especially from pile driving.

- Temporary construction noise and congestion, which could have negative economic effects such as loss of business, and possible temporary effects on residential property values.
- Temporary construction noise and activity, and temporary work bridges, may have a negative effect on wildlife and fish.
- Temporary increases in sedimentation, turbidity, and degradation of fish habitats.
- Relocation or protection of utilities within the project area that could require temporary service interruptions.
- Temporary restrictions on vessel passage due to short-term closure of the west and east highrises.
- Temporary restrictions on tribal fishing activities near the construction sites in Portage Bay, Union Bay, and Lake Washington.
- Possible user restrictions in parks and partial or total inaccessibility to other facilities during construction.

Options

For most elements of the environment, the types of construction effects of all three options would be similar to the types of construction effects identified for the original 6-Lane Alternative. An exception to this would be the construction effects related to hazardous materials. The 6 Lanes with Pacific Street Interchange option could have greater hazardous material effects during construction due to potential disturbance of the Montlake Landfill, former Fox Cleaners site, and Village Auto Care. Under the Second Montlake Bridge option, construction debris from the demolition of the two residential properties located just south of the Montlake Cut on the east side of Montlake Boulevard may include asbestos-containing material and lead-based paint, which would have to be handled appropriately. The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would have the same potential construction effects as those described for the original 6-Lane Alternative. Anticipated effects of the Seattle options related to hazardous materials are negative, but WSDOT would reduce these effects through the measures listed under the original alternatives, such as conducting initial site assessments and other preconstruction due-diligence measures.

The 6 Lanes with Pacific Street Interchange option would have construction effects in different areas than for the original 6-Lane Alternative, but like the original alternatives, the new area is not in a predominately minority or low-income residential area.

Mitigation

Measures have been included in the project to avoid or minimize negative effects; these are summarized in the *Environmental Justice Analysis*, presented in detail in the corresponding discipline reports, and described in this addendum, as appropriate.

Determination

The environmental justice analysis for the original 4-Lane and 6-Lane Alternatives found that. with the recommended mitigation measures, the project would not have disproportionately high and adverse effects on low-income or minority populations. The options would not change this determination.

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