

SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation: West Approach Bridge South and Montlake Lid Design Refinements

23 CFR §771.129

Washington State Department of Transportation/Federal Highway Administration

REGION/MODE	SR	PROJECT PROGRAM#	FEDERAL AID #	PROJECT#
ESO Mega Projects	520	852004B		U52004B

PROJECT TITLE, ENVIRONMENTAL DOCUMENT TYPE & DATE APPROVED:

- 1) SR 520, I-5 to Medina: Bridge Replacement and HOV Project Final Environmental Impact Statement (EIS), approved by FHWA and WSDOT on May 26, 2011.
- 2) SR 520, I-5 to Medina: Bridge Replacement and HOV Project Record of Decision (ROD), approved by FHWA and WSDOT on August 4, 2011.
- 3) SR 520, I-5 to Medina: Bridge Replacement and HOV Project SEPA Addendum (Public Place Designation), approved by WSDOT on October 3, 2011.
- 4) SR 520, I-5 to Medina: Bridge Replacement and HOV Project SEPA Addendum (Floating Bridge and Landings), approved by WSDOT on November 18, 2011.
- 5) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (Kenmore Yard), approved by FHWA and WSDOT on December 8, 2011.
- 6) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA Environmental Reevaluation (Floating Bridge and Landings), approved by FHWA and WSDOT on January 25, 2012.
- 7) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (Kenmore Yard Update), approved by FHWA and WSDOT on July 16, 2012.
- 8) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (Floating Bridge and Landings Proposed Final Design Features), approved by FHWA and WSDOT on October 22, 2012.
- 9) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (Temporary Westside Over-water Staging Area), approved by FHWA and WSDOT on February 1, 2013.
- 10) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (West Connection Bridge), approved by FHWA and WSDOT on February 1, 2013.
- 11) SR 520, I-5 to Medina: Bridge Replacement and HOV Project NEPA/SEPA Environmental Reevaluation (Floating Bridge Demolition), approved by FHWA and WSDOT on April 20, 2016.

REASON FOR CONSULTATION:

In this reevaluation, FHWA and WSDOT are evaluating how new information, and proposed refinements to the design of West Approach Bridge South (WABS), the Montlake Lid, stormwater facilities, and other associated project components would affect the natural and built environment and whether those effects differ from the effects described in the Final EIS, Record of Decision (ROD), and subsequent environmental reevaluations.

DESCRIPTION OF CHANGED CONDITIONS: (See Attachment 1 for more detailed description).

WSDOT has refined the design of the following project features:

- West Approach Bridge South
- Montlake Lid
- Other project elements in the Montlake Interchange Area, including changes to the path connections, changes to stormwater facilities, and changes to the design of the intersection at 24th Avenue East and East Lake Washington Boulevard.

In addition, the overall construction schedule for the above elements is now anticipated to occur between 2018 and 2022.

HAVE ANY NEW OR REVISED LAWS OR REGULATIONS BEEN ISSUED SINCE APPROVAL OF THE LAST ENVIRONMENTAL DOCUMENT THAT AFFECT THIS PROJECT? YES () NO (x) (If yes explain, use additional sheets if necessary)

WILL THE CHANGED CONDITIONS AFFECT THE FOLLOWING DIFFERENTLY THAN DESCRIBED IN THE ORIGINAL ENVIRONMENTAL DOCUMENT? (If yes, attach a detailed summary addressing the impacts and mitigation)

	YES	NO		YES	NO
1) THREATENED or ENDANGERED SPECIES	(x)	()	5) HAZARDOUS WASTE SITES	(x)	()
2) PRIME and UNIQUE FARMLAND	()	(x)	6) HISTORIC or ARCHAEOLOGICAL SITES	()	(x)
3) WETLANDS	(x)	()	7) 4 (f) LANDS	()	(x)
4) FLOODPLAINS	()	(x)	8) 6 (f) LANDS	()	(x)

Threatened and Endangered Species: WSDOT reinitiated Endangered Species Act consultation with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) regarding the proposed design refinements to the West Approach Bridge South (WABS). The proposed changes were documented under formal reinitiation submitted to NMFS and USFWS in May 2016 and approved by USFWS on September 9, 2016 and by NMFS on August 25, 2016.

Wetlands: The design and alignment revisions to WABS have resulted in a shift in the relative amount of aquatic versus wetland impacts. Permanent wetland impacts have decreased by 1.89 acres and permanent aquatic impacts have decreased by 0.01 acre. Temporary wetland impacts have decreased by 1.30 acres and temporary aquatic impacts have increased by 2.47 acre-years. The proposed changes will be documented in pending permit modification applications by updating the compensatory mitigation plans with the City of Seattle, Washington Department of Fish and Wildlife (WDFW), Washington Department of Ecology (Ecology) and the Army Corps of Engineers (Corps). These updates will be approved prior to the release of the request for proposal (RFP) for the construction of WABS.

Hazardous Waste Sites: There is the potential that the property where the Montlake Boulevard Market and Montlake 76 Service Station are located could contain groundwater or soil contamination caused by its long use as a fueling site. No known contamination has been reported on the property. Prior to construction, the site would be surveyed for contamination and any contaminated materials would be removed or treated in accordance with all applicable local, state, or Federal regulations. Motor-fuel contaminated soil is a well-understood and commonly treated issue.

WILL THESE CHANGES RESULT IN ANY CONTROVERSY? YES (x) NO () (If yes explain)

FHWA and WSDOT are aware of issues from interested parties regarding the shortened Montlake Lid and the acquisition of the property where the Montlake 76 Service Station and Montlake Boulevard Market are located to the west of 22nd Avenue. As described further in Attachment 1, the shortened Montlake Lid resulted from an extensive public input process with the plurality of participants in agreement that the shortened lid provided community benefits relative to the Final EIS design. In addition, FHWA and WSDOT have been conducting public outreach regarding the next phase of SR 520 construction, which includes the property acquisition. WSDOT hosted a public open house on June 28, 2016, accepted public comments from June 22 to July, 2016, and prepared responses to frequently asked questions during this outreach effort. WSDOT will continue public participation related to the property acquisition.

WILL THESE CHANGES CAUSE ADVERSE IMPACTS IN THE FOLLOWING AREAS: (If yes, address comments below.)

	YES	NO		YES	NO
1) AIR QUALITY	()	(x)	7) WATER QUALITY	()	(x)
2) NOISE	()	(x)	8) VISUAL QUALITY	()	(x)
3) LAND USE	()	(x)	9) NATURAL RESOURCES and ENERGY	()	(x)
4) TRAFFIC or TRANSPORTATION	()	(x)	10) PUBLIC SERVICES and UTILITIES	()	(x)
5) DISPLACEMENT (business or residence)	()	(x)	11) VEGETATION and WILDLIFE	()	(x)
6) ECONOMIC GROWTH and DEVELOPMENT	()	(x)	12) RECREATION	()	(x)
			13) SOCIAL IMPACTS	()	(x)

COMMENTS:

The refinements and updates addressed by this reevaluation do not substantially change the overall impacts that were discussed in the previously prepared project documents listed at the top of this form. None of the previously identified environmental commitments would change as a result of the design refinements identified.

CONCLUSIONS and/ or RECOMMENDATIONS:

Changes as noted above would not result in new significant adverse effects. The SR 520, I-5 to Medina: Bridge Replacement and HOV Project remains compliant with current federal, state, local, and departmental regulations and directives with regard to National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) processes. This reevaluation document, along with supporting information, demonstrates that there would be no new significant adverse effects resulting from these changes since the Final EIS was approved in May 2011 and the ROD was approved in August 2011.

I concur with the conclusions and recommendations above

Region / Mode Official

FHWA Official

Date

Date

this page is intentionally blank

Attachment 1

Description of Changed Conditions and Effects

Environmental Reevaluation/Consultation Form for
SR 520, I-5 to Medina: Bridge Replacement and HOV Project
Final Environmental Impact Statement, approved May 26, 2011;
Record of Decision, approved August 4, 2011;
SEPA Addendum: Public Place Designation, approved October 3, 2011;
SEPA Addendum: Floating Bridge and Landings, approved November 18, 2011;
NEPA/SEPA Environmental Reevaluation: Kenmore Yard, approved December 8, 2011;
NEPA Environmental Reevaluation: Floating Bridge and Landings, approved January 25, 2012;
NEPA/SEPA Environmental Reevaluation: Temporary Westside Over-water Staging Area,
approved February 1, 2013,
NEPA/SEPA Environmental Reevaluation: West Connection Bridge, approved February 1,
2013; and,
NEPA/SEPA Environmental Reevaluation: Floating Bridge Demolition, approved April 20, 2016.

The purpose of this reevaluation is to document National Environmental Policy Act (NEPA), State Environmental Policy Act (SEPA), Endangered Species Act (ESA), and Section 106 and 4(f) compliance for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project (project) associated with design changes to the West Approach Bridge South (WABS), Montlake Lid, and other design changes in the Montlake Interchange Area of the project and to evaluate if any changed conditions would cause environmental impacts that are significant and not evaluated in the Final EIS (23 CFR 771.129; 23 CFR §771.130(b)(1)).

The SR 520, I-5 to Medina: Bridge Replacement and HOV Project Final Environmental Impact Statement (Final EIS) described the West Approach Area, Montlake Lid, and other activities in the Montlake Interchange Area as project components that would be built between 2013 and 2017. The final EIS stated that project components would be built in stages if full funding was not available by 2012. As a result of funding appropriations made by the 2015 legislature, WSDOT intends to move forward with construction of the WABS, Montlake Lid, and other activities in the Montlake Interchange Area. In preparation for construction of these components, WSDOT has refined the design of the project features. This reevaluation describes how the proposed refinements would affect the natural and built environment and whether those effects differ from the effects described in the Final EIS, ROD, and subsequent environmental reevaluations.

Description of Changed Conditions

Since issuance of the Final EIS, the design of the WABS, Montlake Lid, and other components in the Montlake Interchange Area have been refined to include the following work elements. Exhibit 1 highlights the primary refinements.

West Approach Bridge South (WABS)

The Final EIS described the West Approach Area as one structural element including two bridge structures: one bridge to the north that would carry westbound traffic and one bridge to the south that would carry eastbound traffic. The Final EIS stated that the preferred alternative

would include replacement of the existing West Approach Bridge with wider and higher structures, maintaining a constant profile rising from the shoreline at Montlake out to the west transition span. The northern bridge, known as the West Approach Bridge North (WABN), is currently under construction. The southern bridge, known as WABS, will be constructed south of the WABN, between the existing bridge abutment at Montlake Boulevard and the west transition span. The following changes to the design of WABS are considered in this reevaluation:

- The alignment of WABS has been shifted approximately 50 feet to the north and the bridge abutment has been shifted approximately 50 feet to the west to be consistent with the location of WABN. The profile, height, and lane configuration of WABS remain unchanged from those described in the Final EIS.
- The number of columns needed to support WABS has been optimized for a total reduction in columns from the 111 analyzed in the Final EIS to 87. Of that total, the number of in-water columns has been reduced from 98 to 78. Each column would occupy an area of up to 113 square feet, for a total occupied area of approximately 9,852 square feet. The Final EIS assumed that each column would require up to 79 square feet, for a total occupied area of approximately 8,718 square feet.
- The estimated number of piles to be driven during construction of the temporary work bridge for WABS has been reduced from 1,100 to 1,021.
- The total estimated area occupied by the WABS temporary work bridge has increased from 7.2 to 7.3 acres.
- The High Occupancy Vehicle (HOV) access ramps originally analyzed in the Final EIS have been shortened and integrated into the design of WABN and WABS due to changes in the length of the Montlake lid. The total over water coverage area of the WABS bridge deck has been reduced from 7.8 to 7.0 acres.
- Approximately 0.72 acres of the shoreline in front of the west abutment will be re-graded to an elevation below normal high maximum lake level to discourage unauthorized uses. Pedestrian access will be provided over SR 520 as part of the land bridge to be constructed as part of the Montlake Lid.

Montlake Lid

During the preparation of the Final EIS, the design of the Montlake Lid evolved through the Engrossed Substitute Senate Bill (ESSB) 6392 (2011) workgroup process and through coordination with the City of Seattle and surrounding neighborhoods. In the Final EIS, the Montlake Lid was described as extending 1,400 feet from west of Montlake Boulevard to east of 24th Avenue East. The Final EIS stated that WSDOT and FHWA would continue coordination with the City of Seattle and other stakeholders as design of the project progressed.

As described further below, following publication of the Final EIS, WSDOT hosted a Seattle Community Design Process (SCDP) to refine unfunded design elements between I-5 and the West Approach Bridge. From August 2011 to December 2012, WSDOT worked with the City of Seattle, other partner agencies, design professionals (including the Seattle Design Commission), and the public to adopt a refined vision for the Montlake Lid and other design

elements. The process included seven public workshops and generated thousands of public comments that were considered in the development of the concept design as documented in the *SR 520 West Side Final Concept Design Report Chapter 7 Public Comment Summary* (<http://www.wsdot.wa.gov/Projects/SR520Bridge/Library/Seattleprocess.htm>). This process resulted in Resolution 31427 from the Seattle City Council to reexamine and consider a wider range of elements for the Montlake Lid. Using this direction in combination with feedback received from community stakeholders during the SCDP, the design team established a set of goals focused on the guiding principles of sustainability, utility, and expression.

In 2014, WSDOT was directed by the legislature (ESSB 6001 [2014]) to continue to work with the City of Seattle and the public to refine and build on the results of the SCDP. To this end, WSDOT partnered with the Seattle Design Commission on the planning and design of project elements that were identified in Seattle City Council Resolution 31427. One of the areas of focus was creating a “smarter” Montlake Lid (e.g., more cost-effective, better use of open space and a better user experience). The Final Concept Design that resulted from this process shortened the lid from approximately 1,400 feet to 800 feet by removing areas of the lid that would have had poor public access and would not have met the project goals of providing safe public space. In addition, some of the space on the 1,400 foot lid would have been required for the ventilation system. A 70-foot-wide land bridge to serve as a local connector to the regional shared use path (RSUP) was added. The design for the shorter lid allowed the elevation to be lowered, providing a smoother transition into adjacent neighborhoods, and resulted in the elimination of the need for an operation and maintenance facility and ventilation stacks on the lid. The design of the lid also better meets the Section 106 commitment of implementing “context sensitive solutions” which includes plantings, urban design, and potential interpretive signage that are compatible with the historic character of the Montlake Historic District.

The following changes to the design of the Montlake Lid are considered in this reevaluation:

- Based on stakeholder and public input received during the design process, the total length of the Montlake Lid has been shortened from approximately 1,400 to 800 feet.
- An approximately 70-foot-wide land bridge connecting to the RSUP has been added east of the lid near the west approach bridge abutments to provide bicycle and pedestrian connections across SR 520.
- Removal of operation and maintenance facility and vent structures that are not required for the shortened lid.
- Expansion of stormwater treatment facilities due to an increase in exposed roadway surface area under the shortened lid. This 3.1 acres of exposed roadway is classified as a pollution generating impervious surface (PGIS), which requires stormwater treatment.

Montlake Interchange Area

The following additional effects and changes to the design of other project elements in the Montlake Interchange Area are considered in this reevaluation:

- The RSUP has been widened from 14 feet to 19.5 feet and includes a 5.5-foot-wide sidewalk and 14 foot wide bicycle path to reduce user conflicts.
- In the Final EIS and Record of Decision (ROD), one difference between the Preferred Alternative and Option A was the effects on the Montlake 76 Service Station and the Montlake Boulevard Market (previously known as the Hop-in Market) to the west of 22nd Avenue NE and Montlake Boulevard. Under Option A, the Service Station was identified for acquisition and demolition to allow for improvements to the existing Montlake interchange. Option A would have acquired 19 parking spaces from the Montlake Boulevard Market. At the time of the Final EIS and ROD, access impacts were identified to the service station and the market properties under the Preferred Alternative. The May 2011 *Land Use, Economics, and Relocations Discipline Report Addendum and Errata* identified that the “existing unconsolidated access into the Hop-In-Market from the eastbound off-ramp and from Montlake Boulevard would be consolidated into one access point off East Roanoke Street”.

As design of the project has evolved, additional effects from the Preferred Alternative were identified. A 42” diameter gravity combined sewer main and parallel 108” diameter sewer siphon is located under SR 520 west of Montlake Boulevard and connects with additional sewer lines to the south and west in the SR 520 interchange area, as well as to the north of SR 520. This sewer system creates a utility conflict with the Preferred Alternative. WSDOT has developed several options to address the sewer system, all of which would affect the service station. Options to relocate the combined sewer system would either require acquisition of the service station to construct the replacement facility or the closure of 22nd Avenue East and Roanoke Street during construction, which would result in significant impacts to access for the market and neighboring residences. Preservation of the existing sewer system, which is the preferred approach, requires raising the reconstructed Montlake Boulevard and ramps between Montlake Boulevard and SR 520 eastbound. The SR 520 off-ramp would be approximately 3 to 5 feet higher than the existing ground elevation at the right of way line with the service station. Because this is a design-build contract, the final design could change somewhat, but would be within the range of impacts associated with the evaluated options.

The property would be used to build some of the project’s planned improvements, such as retaining walls and fill, sidewalks, connections to shared-use trails, and utility relocations and modifications. The property may also be used for construction staging, traffic shifts, and transit access during construction. The Montlake 76 Service Station would be decommissioned and demolished as part of construction activities.

Analysis of property records indicate that the Montlake 76 Service Station, located on one of three tax parcels in the subject area, is part of a larger parcel, as determined under Washington State appraisal theory, standards, and law. The larger parcel also includes the Montlake Boulevard Market and a third smaller vacant parcel. Access changes identified in the Final EIS and ROD would impact the larger parcel such that the gas station would no longer be able to operate. Further, operations of the Montlake Boulevard Market would also be impacted as all businesses located on the property have joint use of the accesses. In addition, a substantial portion of the parcel is required for and to construct project improvements. Any remaining property and business

operations would be damaged such that damages would be greater than the value to purchase the entire parcel; therefore, the entire larger parcel will be acquired.

At the end of April 2016, WSDOT confirmed it would be necessary to acquire the parcel. By early June 2016, WSDOT had contacted the property owners and met with their representatives on June 16, 2016, explaining the State's intent to acquire the property. On June 27, 2016 notifications were sent to all property owners affected by the limited access process in the Seattle portion of the SR 520 corridor. On June 28, 2016, WSDOT hosted a public open house where they shared information about and answered questions from the public about the State's intent to acquire the property. WSDOT held a limited access hearing on July 19, 2016 to collect testimony from property owners whose access could be affected by the Project. Subsequently, WSDOT has published and updated an online question and answer document with the latest information about the acquisition, responded to public email inquiries about the acquisition, met with both owner and tenant representatives, and continued to meet with local residents with questions or concerns about the acquisition. WSDOT will continue to respond to email questions, update the project web page and question and answer documents with the latest information, and provide ongoing opportunities for community meetings to address the public's questions prior and during the Montlake Phase of construction.

- The signalized intersection at 24th Avenue East and East Lake Washington Boulevard would include a “table top” raised intersection as a traffic calming measure. A table-top raised intersection is one where the pavement of the intersection is flush with the sidewalk to slow drivers as they move through the intersection.
- Stormwater treatment Facility M has been expanded to accommodate the additional stormwater runoff from an increase in exposed roadway surfaces resulting from the shorter lid length. Facility M would include stormwater treatment facilities north and south of SR 520. The State-operated Facility M would continue to provide enhanced stormwater treatment, as prioritized in the Final EIS.
 - The current design for Facility M-North includes a pre-settling vault and a constructed wetland treatment cell. The vault is necessary to integrate the land bridge into the park setting without creating significant vertical walls in the area and increasing right-of-way requirements into Section 4(f)/6(f) property. This change also increases the area available for other landscape elements and better integrates the facility into the landscape. The outfall to be constructed during the WABN project would be used for Facility M-North.
 - Facility M-South includes an open pre-settling cell and a constructed wetland treatment cell. Facility M-South would include a pathway for maintenance access to both WSDOT's facility and the City's outfall.
- New City of Seattle stormwater facilities would be used for treatment of runoff from East Lake Washington Boulevard and Montlake Boulevard and the direct access ramp west of 24th Avenue East located on the Montlake lid. Treatment would likely use media cartridge systems installed in maintenance holes or vaults. Seattle Facility S5-North will have an outfall adjacent to Facility M-South outfall, and Seattle Facility S5-

South will discharge to the City's existing storm drain system which has its own outfall. Seattle Facility S6 will use the outfall for Facility M-North.

- Facility M-North would include a planted and hardscaped overlook at the vault and will be further integrated into the park-like setting of the surroundings.
- To provide the required treatment volume, Facility M-South will encroach into adjacent wetlands and adjacent wetland buffers.

Construction Schedule

As stated above and in the Final EIS, construction in the Montlake Interchange Area was described as occurring between 2013 and 2018 if project funding was made available by 2012. The final EIS stated that project components would be built in stages if full funding were not available by 2012. Construction of WABS and the Montlake Lid is now scheduled to occur over a five year period beginning in 2018 and concluding in 2022. The implications of construction occurring later are discussed below in the context of each specific design refinement, as appropriate.

Summary of the Seattle Community Design Process

Following Federal approval of the Final EIS Preferred Alternative in 2011, WSDOT launched the SCDP, a robust and collaborative effort with the city of Seattle, design professionals, and the broader public to refine the corridor vision and conceptual design for the unfunded portions of the SR 520 project in Seattle. WSDOT convened the SCDP in 2011 to meet its commitment to work collaboratively with the city of Seattle and Seattle neighborhood stakeholders to refine the SR 520 corridor between I-5 and the West Approach Bridge. This commitment emerged from the 2010 multi-agency workgroup process (ESSB 6392) and the 2011 Seattle/SR 520 project Memorandum of Understanding.

The SCDP was an iterative process that:

- Informed the public about the SR 520 corridor in Seattle.
- Listened to community and stakeholder feedback regarding the project design.
- Explored design refinements and collected additional public feedback.
- Integrated best practices for urban and sustainable design into the project based on feedback received.
- Continued to collect input from agency partners and community stakeholders as the process moved forward.

The SCDP included seven public workshops, 25 community organization and stakeholder briefings, and generated thousands of public comments. In addition, approximately 350 people attended a September open house where more than 150 individual written comment cards were received. Through this effort, WSDOT and the city of Seattle:

- Identified many well-supported design preferences that were endorsed by Seattle City Council.
- Identified areas requiring further design work before a Final Concept Design could be confirmed. The city of Seattle formalized their guidance in Resolution 31427 in 2013,

and WSDOT incorporated endorsed design elements in the SR 520 Preliminary Concept Design. Areas requiring further design exploration to reach a recommendation – the Portage Bay Bridge, the Montlake lid area, and non-motorized connectivity – were the focus of additional design work described in this report.

WSDOT heard several key themes from the public during the SCDP, which served as a foundation for additional design work in 2014. The design team began their work by reviewing the SCDP “Public Comment Summary” to ensure that recommendations reflected community preferences heard to date.

While the SCDP was an iterative public process, the 2014 design work was focused on decision-making related to remaining conceptual design issues. Therefore, public feedback was received primarily in existing forums at Seattle City Council and Seattle Design Commission briefings. WSDOT and the city of Seattle also briefed community organizations throughout the process and hosted an open house in the Montlake community to present the refined design concepts and hear public feedback.

Analysis of Changed Conditions and Effects

FHWA and WSDOT evaluated the proposed design refinements described above, changes to the affected environment, and potential changes to the environmental effects described in the Final EIS. FHWA and WSDOT concluded that no new significant adverse effects, beyond those described in the Final EIS and ROD, would result from the changed conditions. Additional changes pertaining to specific resources that had the potential to be affected by the design refinements are described below.

West Approach Bridge South (WABS)

The environmental impacts associated with the construction and operation of WABS were previously evaluated in the Final EIS. The proposed design refinements are not expected to result in new significant adverse environmental effects not previously described.

Water Resources

No additional impacts to water resources would occur from the proposed design refinements. The impacts described in the Final EIS would not change.

Ecosystems

WSDOT analyzed the potential effects of the proposed design refinements on fish and aquatic habitat, including potential changes in turbidity and underwater construction noise generation. In addition, the analysis considered the potential effects on habitat from changes in the amount of over-water cover and the number of in-water structures. Overall, the analysis demonstrates that the proposed design refinements reduce the total amount and extent of take from the completed project for Puget Sound Chinook, Puget Sound steelhead, and Coastal-Puget Sound bull trout. However, due to the later construction period, the timing and duration of the authorized take associated with construction activities over the course of WABS construction has changed and effects would occur in later years than originally identified in the Final EIS. In addition, the longer duration of the impacts would increase the amount of temporary aquatic

impacts. However, collectively, the proposed design refinements do not represent new mechanisms of effect not previously considered during ESA consultation.

In-water work activities would result in the generation of turbidity, which may result in exposure of listed salmonids to turbid water. Because the construction period for WABS is later than identified in the Final EIS, the generation of turbidity would be shifted in time, but would be similar spatially to what was considered in the initial Biological Assessment. The generation of underwater noise during the driving of piles would be slightly reduced by the overall reduction of the number of piles required. This would reduce the amount of noise that listed salmonids and other fish species could be exposed to. No additional changes to underwater noise effects are anticipated.

The design refinements associated with WABS, would reduce the amount of over-water cover by a total of 0.8 acres. The number of in-water columns associated with WABS has been reduced by 20 columns. Although the number of individual columns on WABS is decreasing, the overall area associated with the in-water columns would increase from 7,742 square feet to 8,814 square feet. As addressed in the ESA reinitiation process, the potential effects of habitat alteration from over-water cover and in-water structures would not change the conclusions regarding threatened and endangered species from the previous ESA consultations.

The design and alignment revisions have resulted in a shift in the relative amount of aquatic versus wetland impacts. Permanent wetland impacts have decreased by 1.89 acres and permanent aquatic impacts have decreased by 0.01 acre. Temporary wetland impacts have decreased by 1.30 acres and temporary aquatic impacts have increased by 2.47 acre-years. The decrease in impacts is generally due to the shift of the alignment away from wetlands located on the shoreline. The increase in temporary aquatic impacts is due to the longer construction schedule. The proposed changes will be documented in pending permit modification applications by updating the compensatory mitigation plans with the City of Seattle, Washington Department of Fish and Wildlife (WDFW), Washington Department of Ecology (Ecology) and the Army Corps of Engineers (Corps).

A WSDOT biologist has reviewed and concurred with this analysis.

Transportation

The shortening and integration of the HOV access ramps into the design of WABS and WABN would not change the transportation impacts described in the Final EIS. The functionality provided by the HOV access ramps would remain unchanged. The remaining design refinements associated with WABS would not result in any changes to the impacts to transportation resources described in the Final EIS.

Land Use

Land use would not be impacted by the proposed design refinements. The impacts described in the Final EIS would not change.

Section 4(f) Resources

No new Section 4(f) Resources would be affected by the proposed design refinements. The design refinements are not anticipated to trigger revisions to the 2011 Section 4(f) evaluation. A temporary revocable use permit to allow construction access to complete trail connections on Foster Island would not constitute a Section 4(f) use because it is a mitigation activity solely

for the enhancement of recreational access to Foster Island. The impacts described in the Final EIS would not change.

Section 6(f) Resources

No Section 6(f) Resources would be converted by the proposed design refinements. The WABS project includes trail improvement within the Arboretum, which is part of the Arboretum Mitigation Agreement to enhance the resource and minimize net harm. Trail improvements include a trail connection on Foster Island that would be completed under a temporary revocable use permit. This enhancement activity does not constitute a conversion of Section 6(f) property. The impacts to Section 6(f) Resources described in the Final EIS would not change.

Recreation

Recreational resources would not be affected by the proposed design refinements. The impacts described in the Final EIS would not change.

Visual Resources

The number of columns required to support WABS has decreased from 111 to 87. This reduction would slightly change the appearance of the bridge; however, the height and profile of the bridge would remain unchanged. The overall appearance of the bridge in the existing environment would shift 50 feet to the north, but would not result in new adverse visual effects. The shift north would bring the bridge into alignment with WABN for a more consistent appearance. Therefore, no additional adverse impacts on visual resources are anticipated beyond those described in the Final EIS.

Cultural Resources

The proposed design refinements associated with WABS required consultation on the limits of construction changes with the WA Department of Archaeology and Historic Preservation (DAHP) under the Programmatic Agreement for the project implementing Section 106 of the National Historic Preservation Act (NHPA). An area of about 0.15 acre on Foster Island to the south of WABS was added to the limits of construction. This area was required to implement landscaping mitigation as described in the Foster Island Treatment Plan. Changes to the limits of construction would not change the project's Area of Potential Effects, and the changes to ground disturbing areas are within the tolerance of areas surveyed for archaeological resources. No additional adverse effects are anticipated, and no amendments to the Programmatic Agreement are anticipated. WSDOT, on behalf of FHWA, notified the State Historic Preservation Office (SHPO) of the changes and determined that the proposed changes would not result in additional adverse effects to historic properties. Concurrence was received from the Washington SHPO on August 31, 2016 (Exhibit 3). A WSDOT cultural resources specialist has reviewed and concurred with this analysis.

Noise and Vibration

The reduction in the number of piles required for construction of WABS from 1,100 to 1,021 would slightly reduce the overall noise and vibration impacts described in the Final EIS. No changes in operational noise are anticipated from the proposed changes.

Air Quality

Air Quality would not be affected by the proposed design refinements. The impacts described in the Final EIS would not change.

Environmental Justice

All of Lake Washington is included in the Muckleshoot Indian Tribe's (MIT) usual and accustomed fishing areas. In-water work associated with construction of WABS could interfere with tribal fishing activities by temporarily interrupting access and vessels for MIT fishers. Pursuant to the Memorandum of Agreement signed by the MIT, FHWA, and WSDOT, FHWA and WSDOT will continue to coordinate with the MIT regarding in-water work. FHWA and WSDOT will provide the MIT with a general schedule and plan prior to the start of construction and provide notification of any barge movements outside of the limits of construction. This coordination will allow tribal concerns to be properly considered and addressed. This commitment regarding continued coordination is documented in the Final EIS and has been maintained throughout the consultation process. FHWA and WSDOT do not expect any additional impacts on tribal fishing to result from the proposed changes. There are no other changes that would disproportionately affect low-income, minority, or limited-English proficient populations. The environmental justice determination as described in the Final EIS would not change.

Hazardous Materials

No impacts associated with hazardous materials are anticipated due to the proposed design refinements. The impacts described in the Final EIS would not change.

Navigation

The proposed design refinements would not impact navigation. The impacts described in the Final EIS would not change.

Montlake Lid

The environmental impacts associated with the construction and operation of the Montlake Lid were previously evaluated in the Final EIS. The proposed design refinements are not expected to result in new significant adverse environmental effects not previously described.

Water Resources

No impacts to water resources would occur from the proposed design refinements. The impacts described in the Final EIS would not change. The effect of the proposed changes to the stormwater treatment system that result from the shortened lid are discussed below under Montlake Interchange Area.

Ecosystems

The proposed design will not result in impacts to ecosystems not previously consulted on. The impacts described in the Final EIS would not change. A WSDOT biologist has reviewed and concurred with this analysis.

Transportation

No impacts to transportation would occur from the proposed design refinements. The impacts described in the Final EIS would not change. General purpose traffic on the westbound off-ramp from SR 520 to Montlake Boulevard would travel under and no longer have to stop at the

intersection of 24th Avenue East and the HOV ramps, reducing the traffic volume through that intersection. Otherwise, the locations, channelization, and operations of ramp intersections would be the same as evaluated in the Final EIS.

Land Use

Land use would not be affected by the proposed design refinements. The impacts described in the Final EIS would not change.

Section 4(f) Resources

No new Section 4(f) Resources would be affected by the proposed design refinements. The design refinements are not anticipated to trigger revisions to the 2011 Section 4(f) evaluation. The impacts described in the Final EIS would not change.

Section 6(f) Resources

No Section 6(f) Resources would be affected by the proposed design refinements. The impacts described in the Final EIS would not change.

Recreation

Recreational resources would not be adversely affected by the proposed design refinements. The modifications to the lid design would provide beneficial impacts from better trail connections and improved recreational opportunities on the lid through the removal of areas that would have had poor public access and would not have met the project goals of providing safe public space. The reduced lid size would not result in a reduction of safe and easily accessible open space. The creation of open space on the lid was not intended to mitigate for the loss of park land from the overall construction of the SR520 project; therefore, no mitigation commitments from the ROD relating to impacts to parks would change due to the refinements to lid design. The adverse impacts described in the Final EIS would not change.

Visual Resources

The analysis of the 1,400 foot Montlake Lid in the Final EIS noted that the lid would fully cover SR 520 and provide visual and spatial connectivity between north and south Montlake. The analysis further noted that the lid would dramatically change the character and quality of views near the lid. The shortened lid length, removal of the 20-foot tall ventilation stacks from the top of the lid, and the provision of additional visual buffers would enhance the views described in the Final EIS. The adverse impacts described in the Final EIS would be lessened by the proposed changes.

A shortened lid would not provide continuous visual and spatial connectivity between north and south Montlake. For some residents, the continuous lid would have hidden the freeway from view and with a shortened lid, this beneficial effect would no longer occur. Toward its eastern end, the 800 foot lid would have been elevated and supported on retaining walls, which would have blocked some views across SR 520. The impact of this change is not significant, because it does not represent a change from existing conditions and the lid would continue to be an improvement in visual and physical connections within the Montlake neighborhood.

The design refinements include incorporation of visual buffers on the west side of the lid and along the south side of the lid near East Lake Washington Boulevard. Through the use of retaining walls and landforms, these buffers would minimize views of SR 520 from nearby

neighborhoods. These visual buffers were included in the design for the shorter lid to provide visual screening similar to what was provided with the longer 1,400 foot lid originally considered. It would block near views of SR 520, but would have less effect on more distant views across SR 520. Finally, the removal of the 20-foot tall ventilation stacks would eliminate an adverse visual impact that the project would have added to the viewshed.

Cultural Resources

The proposed design refinements associated with the Montlake Lid have in part been arrived at through consultation regarding commitments contained in the Programmatic Agreement. The shortened lid is not anticipated to result in additional noise or other adverse impacts on the Montlake Historic District or other nearby historic properties. WSDOT will continue to implement design-related Section 106 commitments contained in the Programmatic Agreement. No additional adverse effects are anticipated as a result of the refinements. WSDOT has, and will continue to consult, as appropriate, with the Seattle Landmarks Board, King County Metro, DAHP, and concurring parties in addition to the Seattle Design Commission for the landscaping plan for the lid. A WSDOT cultural resources specialist has reviewed and concurred with this analysis.

Noise and Vibration

As outlined in Exhibit 4, WSDOT evaluated the potential noise levels that would be generated by traffic during operation of SR 520 with the revised Montlake Lid design. As part of the modelling effort, WSDOT revised the model to more accurately reflect the terrain and buildings found along East Lake Washington Boulevard.

North of SR 520, no new receptors would approach or exceed the Noise Abatement Criteria (NAC) relative to the Final EIS preferred alternative results, nor would any receptor experience a substantial noise increase impact of 10 dBA or higher. One receptor (MN-27), representing three residences, would approach or exceed the NAC for the Final EIS preferred alternative; but would have a one dBA decrease with the design refinements. This receptor would not experience noise levels that would approach or exceed the NAC with the design refinements. Noise levels would approach or exceed the NAC at:

- 37 residences under the Final EIS Current Conditions Scenario
- 42 residences under the Final EIS No Build Alternative
- 28 residences under the Final EIS Preferred Alternative
- 25 residences under the Design Refinements

South of SR 520, the results indicate that two receptors (MS-3 and MS-20), representing nine residences, would have a 2 dBA decrease compared to the Final EIS preferred alternative and, as a result would not experience noise levels that would approach or exceed the NAC. No new receptors would approach or exceed the NAC relative to the Final EIS preferred alternative results nor would any receptor experience a substantial noise increase impact of 10 dBA or higher. Noise levels would approach or exceed the NAC at:

- 44 residences under the Final EIS Current Conditions Scenario
- 48 residences under the Final EIS No Build Alternative
- 39 residences under the Final EIS Preferred Alternative
- 30 residences under the Design Refinements

Design changes to the Montlake Lid would result in a decrease in the number of residences that would approach or exceed the NAC compared to the Final EIS preferred alternative. No new receptors would approach or exceed the NAC relative to the Final EIS preferred alternative results. Modeled noise level increases at receptors MS-6, MS-14, and MS-32 result from correcting the modeled terrain lines, building rows and the elevation of East Lake Washington Boulevard and not from design refinements.

Air Quality

As outlined in Exhibit 2, WSDOT evaluated the potential air quality impacts associated with traffic during operations along SR 520 with the revised Montlake Lid design. For a constant volume and speed of traffic, the number of vehicles under the lid is proportional to the length of the lid. As the traffic volumes and percentage of diesel traffic would not change as a result of the design refinements, the shorter lid would not have as many cars under the lid at any one time and, therefore, would not generate as much pollution from traffic under the lid in comparison to the longer lid. As a result, total air pollutant emissions from under the Montlake lid and the concentration of pollutants under the lid would be less with the design refinements than the Final EIS Preferred Alternative.

Pollutant concentrations along SR 520 that would have been adjacent to the lid under the Final EIS preferred alternative would be similar to those experienced in the remainder of the corridor without a lid. Because the Final EIS found that the project would not result in exceedances of the National Ambient Air Quality Standards (NAAQS) for those areas, exceedances also would not occur in the area that would have been adjacent to the longer lid. Therefore, the finding in the Final EIS that the project would not result in exceedances of the NAAQS would still apply. The finding in the Final EIS that the project would not result in exceedances of the NAAQS would still apply and the project continues to be included in the current conforming plan; therefore, no new conformity determination is required.

Environmental Justice

None of the proposed design refinements would disproportionately affect low-income, minority, or limited-English proficient populations. The environmental justice determination as described in the Final EIS would not change.

Hazardous Materials

No impacts associated with hazardous materials are anticipated due to the proposed design refinements. The impacts described in the Final EIS would not change.

Navigation

The proposed design refinements would not impact navigation. The impacts described in the Final EIS would not change.

Montlake Interchange Area

Water Resources

The design refinements, including the shortened Montlake Lid, would result in an increase in 3.1 acres of exposed roadway beneath the shortened lid. This 3.1 acres of exposed roadway would be considered a PGIS, which would require stormwater treatment. The refinements to

the design of the stormwater treatment facilities would accommodate the runoff from this exposed area. Facility M-North and Facility M-South would treat 0.98 acres of this area and are both being designed as Enhanced treatment BMPs consistent with the Final EIS. The remaining PGIS (approximately 2.1 acres) would be treated by routing stormwater into the proposed Seattle S5-North basic treatment facility. Because the facilities have been designed to handle the additional treatment requirements, no impacts to water resources are anticipated. The other proposed design refinements would not contribute additional PGIS; therefore, no additional impacts on water resources are anticipated.

Ecosystems

Revised impacts from PGIS and an additional outfall were addressed in the current ESA reinitiation. The potential impacts would not change the conclusions regarding threatened and endangered species from the previous ESA consultations. The addition of stormwater Facility M South has resulted in a slight increase of direct wetland fill. However, overall wetland impacts, including temporary and permanent impacts, are less than those analyzed in the Final EIS. A WSDOT biologist has reviewed and concurred with this analysis.

Transportation

The installation of a “table top” raised intersection at 24th Avenue East and East Lake Washington Boulevard would improve pedestrian safety at the intersection. This improvement would not change the functionality of the intersection. General purpose traffic on the westbound off-ramp from SR 520 to Montlake Boulevard would travel under and no longer have to stop at the intersection of 24th Avenue East and the HOV ramps, reducing the traffic volume through that intersection.

The RSUP would be widened to 19.5 feet through major tunnels to reduce conflicts between pedestrians and cyclists. It would also improve safety by improving sightlines through the tunnels. The remaining design refinements would not result in any changes to the impacts to transportation resources described in the Final EIS.

Land Use

The property in which the Montlake 76 Service Station and Montlake Boulevard Market are located would need to be acquired for construction and project improvements. Following construction, any remaining unused property would go through the WSDOT Disposal of Surplus Property process and would be sold for fair market value. The zoning of the property would not change as a result of the project. The acquisition would not result in a significant change from the evaluation in the Final EIS of the number of properties acquired for the project.

Section 4(f) Resources

No Section 4(f) Resources would be impacted by the proposed design refinements. The Montlake Market and Montlake 76 Service Station are not NRHP-eligible or contributing properties to the Montlake Historic District. The design refinements would not trigger revisions to the 2011 Section 4(f) evaluation. The 2011 Section 4(f) evaluation included temporary work within East Montlake Park to construct Facility M North and associated access. That work will be completed, including contouring of land to match the facility into the surrounding parkland, as part of the WABS and Montlake Lid phase of work under a

temporary revocable use permit issued by the City of Seattle Parks Department. The impacts described in the Final EIS would not change.

Section 6(f) Resources

Construction of Facility M North would require a temporary access permit from the City of Seattle Parks Department to the north of the facility in East Montlake Park. This area was previously analyzed in the Final EIS for the purposes of a construction easement to construct access, vehicle turn around, and a hand-carry boat launch that are included in the WABN project, which will use portion of East Montlake Park was used for a period of 6 months or less to complete these features. The separate temporary revocable use permit will be required to transition and contour Facility M North into the surrounding parklands, as coordinated with the City of Seattle Parks Department. The permit would provide for access for a period of less than 6 months with the purpose of improving the interface at the edge of the park; therefore, no Section 6(f) property conversion would occur and the access would be consistent with the previously analyzed impacts. WSDOT will coordinate with the City of Seattle Parks Department to meet any requirements for notification of or coordination with the State of Washington Recreation and Conservation office or the National Park Service. Because the action would not be a property conversion, it would not alter the Section 6(f) determination included in the Record of Decision.

Recreation

Recreational resources would not be adversely affected by the proposed design refinements. The proposed design refinements would provide beneficial impacts from better trail connections and improved conditions of the RSUP. The adverse impacts described in the Final EIS would not change.

Visual Resources

The pre-settling cell in East Montlake Park included as part of Facility M-North would be placed in a vault, which would minimize the visual impact of the facility. No adverse impacts associated with visual resources are anticipated due to the proposed design refinements. The impacts described in the Final EIS would be reduced.

Cultural Resources

The proposed design refinements have in part been arrived at through consultation regarding commitments contained in the Programmatic Agreement. WSDOT identified the need to make minor adjustments to the limits of construction to facilitate construction. None of the proposed updates were located outside of the previously identified Area of Potential Effects. WSDOT, on behalf of FHWA, evaluated the proposed changes to the limits of construction and determined that they would not adversely affect historic properties. The changes to the limits of construction included:

- A minor expansion in the Shelby-Hamlin Area for utility work.
- Expansion for the acquisition of the property in which the Montlake Market and Montlake 76 Service Station is located.
- Expansions around the staging area at the WSDOT peninsula for utility connections to work trailers in the staging area.

The expansion of the limits of construction would not require additional archaeological evaluation, given nearby evaluation previously completed; however, review of project activities for archaeological monitoring would be in place in accordance with previous commitments for the corridor.

Facility M-South would result in shifting the curb line/planting strip on the south side of East Lake Washington Boulevard. This may affect this historic property; however, the impact is not anticipated to be adverse.

WSDOT, on behalf of FHWA, notified the State Historic Preservation Office (SHPO), consulting tribes, U.S. Army Corps of Engineers, and King County Historic Preservation of the changes and determined that the proposed changes would not result in additional adverse effects to historic properties. Concurrence was received from SHPO on August 31, 2016 (Exhibit 3).

Noise and Vibration

The proposed design refinements would not result in noise and vibration impacts. The impacts described in the Final EIS would not change.

Air Quality

Air Quality would not be impacted by the proposed design refinements. The impacts described in the Final EIS would not change.

Environmental Justice

None of the proposed design refinements would disproportionately affect low-income, minority, or limited-English proficient populations. The environmental justice determination as described in the Final EIS would not change.

Hazardous Materials

There is the potential that the Montlake Market and Montlake 76 Service Station property could overlie groundwater or soil contamination caused by its long use as a fueling site. As reported in the Final EIS, there are three operational underground storage tanks (USTs) and two USTs that have been decommissioned on the site. No known contamination has been reported on the property. Prior to construction, the site would be surveyed for contamination and any contaminated materials would be removed or treated in accordance with all applicable local, state, or Federal regulations. Motor-fuel contaminated soil is a well-understood and commonly treated issue.

Navigation

The proposed design refinements would not impact navigation. The impacts described in the Final EIS would not change.

Conclusion

The design refinements described above will not result in additional significant adverse effects beyond those described in the Final EIS, ROD, and subsequent Environmental Reevaluations. Changes to impacts to ESA listed species were documented under formal reinitiation submitted to NMFS and USFWS in May 2016 and approved by USFWS on September 9, 2016 and by NMFS on August 25, 2016. WSDOT, on behalf of FHWA, notified the State Historic

Preservation Office (SHPO) and determined that the proposed changes would not result in additional adverse effects to historic properties. Concurrence was received from the Washington SHPO on August 31, 2016. Therefore, the project remains compliant with current federal, state, local, and departmental regulations and directives with regard to NEPA/SEPA processes, Section 106 and 4(f), and ESA. In accordance with 23 CFR §771.130(b)(1), the changes would not necessitate a supplemental EIS.

Exhibits

1. Overview of Proposed Design Refinements
2. Air Quality Memorandum
3. Section 106 Correspondence
4. Noise Memorandum

Exhibit 1

Overview of Proposed Design Refinements



Exhibit 2

Air Quality Memorandum



MEMORANDUM

To: Anthony Sarhan, FHWA and
Todd Harrison, SR 520 Program

Contract & Task Order: Y-9761 JX

From: G. Lalonde

File Code:

Date: June 24, 2016

Copies To:

Subject: Update to Air Quality Analysis for the Montlake Lid

Introduction

Since publication of the *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final Environmental Impact Statement (EIS) Air Quality Discipline Report* (Washington State Department of Transportation (WSDOT), 2011), WSDOT has refined the design of State Route (SR) 520 in the area of the Montlake interchange. This memorandum considers the effects of the changes on air quality relative to the analysis included in the Final EIS for the refined design east of Montlake Boulevard; it does not include changes to the Portage Bay Bridge profile. For an explanation of terminology and approach, refer to the *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final EIS Air Quality Discipline Report* (WSDOT, 2011).

Final Concept Design Conditions

Operation of the Preferred Alternative in the Montlake interchange area was documented in the Final EIS. Since publication of the Final EIS, on-going coordination with the City of Seattle, transit agencies, and communities, as well as the advancement of the design have resulted in refinements of the Montlake lid configuration as described in the *SR 520 West Side Final Concept Design Report* (WSDOT, 2016). Changes included in this air quality evaluation from the updated Final Concept Design are as follows:

- New vertical and horizontal design of the SR 520 mainline and refinements to ramps (design files dated November 11, 2015, and profiles dated December 11, 2015)
- Changes to Montlake Boulevard
- Reconfigured and shortened Montlake lid design

Projections of future traffic volumes and percentage of diesel traffic have not changed; however, some changes in traffic operations would occur under the Final Concept Design as compared to

the Final EIS Preferred Alternative. Air quality for the Final Concept Design was qualitatively evaluated relative to the Final EIS Preferred Alternative.

Changes to Traffic Operations

In the Final EIS Preferred Alternative, the general purpose off-ramp from westbound SR 520 to Montlake Boulevard was at the same grade as the Montlake lid and operated adjacent to the HOV direct-access ramp lanes on the lid. Traffic exiting westbound SR 520 and destined south via 24th Avenue would cross the HOV direct-access ramp lanes. Traffic accessing the park to the north would cross both the HOV direct-access ramp traffic and the general purpose off-ramp traffic. The intersection of 24th Avenue and the SR 520 ramp lanes was planned to operate with a signal in the Final EIS to stop general purpose traffic, HOV direct-access traffic, and park access traffic.

A local carbon monoxide (CO) (hot spot) analysis was completed in the Final EIS since the project is located in a maintenance area for CO. The project-level analysis verified that no localized effects would cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS).

Through the design refinement process, the general purpose off-ramp from westbound SR 520 was separated from the HOV direct-access traffic and was grade separated beneath 24th Avenue thereby removing the majority of traffic from the intersection. Park access to the north was also eliminated off of 24th Avenue and will now be provided from Hamlin Avenue. This intersection leaves only the HOV direct-access traffic intersecting with 24th Avenue traffic. By reducing the number of traffic conflicts at the intersection of the HOV direct-access ramp lanes and 24th Avenue, the intersection can operate as an all-way stop.

By grade separating the general purpose off-ramp from westbound SR 520 to Montlake Boulevard, fewer vehicles would stop on the lid. In addition, by allowing the 24th Avenue intersection with the SR 520 HOV direct-access ramps to operate as an all-way stop control (versus a signal), the delay per vehicle would be reduced at that intersection. The 24th Avenue intersection with the SR 520 HOV direct-access ramps under the Final Concept Design would operate with a level-of-service of C or better in the 2030 design year.

Guidance from the U.S. Environmental Protection Agency (EPA) states that intersections operating at level-of-service A, B, or C do not require further analysis because the delay and congestion would not likely cause or contribute to a potential exceedance of the CO NAAQS (EPA, 1992). Under the Final Concept Design, the changes to the 24th Avenue intersection would reduce the traffic volume through that intersection and result in a level-of-service of C or better in the 2030 design year. There would be minimal change to traffic operations at the other intersections as compared to the Final EIS Preferred Alternative.

Because traffic operations under the Final Concept Design would be similar or better than the Final EIS Preferred Alternative and total traffic volumes would not change, the Final Concept Design is not expected to result in exceedances of the NAAQS, as was determined by the findings of the Final EIS Preferred Alternative.

Mobile Source Air Toxics

Total traffic volumes under the Final EIS Preferred Alternative are still applicable to the Final Concept Design as they are based on the Puget Sound Regional Council's forecast conditions and included planned and programmed projects. Neither the Final EIS Preferred Alternative nor the Final Concept Design meet the annual average daily traffic (AADT) volume that warrants a quantitative Mobile Source Air Toxics (MSAT) analysis. The AADT volume under the Preferred Alternative and the Final Concept Design (120,900) is below the Federal Highway Administration's (FHWA) threshold of 140,000 AADT for quantitative MSAT analysis (FHWA, 2012). However, based on comments received from the public and the EPA, this analysis was conducted for the Preferred Alternative.

As described in the Final EIS, MSAT emissions would be lower for the Preferred Alternative than emissions for the Final EIS No Build Alternative in 2030. This is due to the general increase in vehicle speed that would result from reduced congestion. The emissions in 2030 were calculated to be substantially lower than the emissions in 2008. This is consistent with FHWA projections and would result from vehicle and fuel technological advancements, as described in the Final EIS. The Final EIS concluded that the Preferred Alternative would not cause an adverse effect as a result of MSAT emissions. Because total traffic volumes would not change between the Final EIS Preferred Alternative and the Final Concept Design, and because the AADT is below FHWA's recommended threshold of 140,000 for quantitative MSAT analysis, the Final Concept Design would not cause an adverse effect related to MSAT emissions.

Montlake Lid

The Montlake lid was proposed to be approximately 1,400 feet long in the Final EIS Preferred Alternative and has been shortened to around 800 feet for the Final Concept Design. There is no requirement for analysis of air quality at tunnel vents or portals. However, based on public feedback, the Final EIS Preferred Alternative included a qualitative description of likely air quality effects of the proposed lid. The analysis compared the tunnel to other tunnels where a quantitative analysis had determined that there would not be an adverse effect to air quality.

For a constant volume and speed of traffic, the number of vehicles under the lid is proportional to the length of the lid. As the traffic volumes and percentage of diesel traffic would not change as a result of the design refinement, the shorter lid of the Final Concept Design would not have as many cars under the lid at any one time and, therefore, would not generate as much pollution from traffic under the lid in comparison to the longer lid of the Final EIS Preferred Alternative. As a result, total air pollutant emissions from under the Montlake lid and the concentration of pollutants under the lid would be less for the Final Concept Design compared to the Final EIS Preferred Alternative. Concentrations would be highest at locations near tunnel portals that would be accessible to the public.

Pollutant concentrations along SR 520 that would have been adjacent to the lid under the Final EIS Preferred Alternative would be similar to those experienced in the remainder of the corridor without a lid. Because the EIS found that the project would not result in exceedances of the NAAQS for those areas, exceedances also would not occur in the area that would have been

adjacent to the longer lid. Therefore, the finding in the Final EIS that the project would not result in exceedances of the NAAQS also would apply to the Final Concept Design.

References

Federal Highway Administration (FHWA), 2012. *Interim Guidance Update on Air Toxic Analysis in NEPA Documents*. December 2012. Access at: https://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmcm.cfm

U.S. Environmental Protection Agency (EPA), 1992. *Guideline for Modeling Carbon Monoxide from Roadway Intersections*. EPA-454/R-92-005. Research Triangle Park, N.C.

Washington State Department of Transportation (WSDOT), 2011. *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final Environmental Impact Statement (EIS) Air Quality Discipline Report*.

Washington State Department of Transportation (WSDOT), 2016. *SR 520 West Side Final Concept Design Report*. Accessed at: http://www.wsdot.wa.gov/NR/rdonlyres/FBE720D3-956A-4D59-AD1F-CCEDAB6A89B1/0/Chapter3_SR520_West_Side_Final_Concept_Design_v2.pdf

Exhibit 3

Section 106 Correspondence



August 10, 2016

LTR# 2717

Allyson Brooks, Ph.D.
State Historic Preservation Officer
Director, Department of Archaeology and Historic Preservation
1063 S. Capitol Way, Suite 106
Olympia, WA 98504-8343

RE: SR 520, I-5 to Medina Bridge Replacement Project and HOV Project: Updated Limits of Construction for West Approach Bridge South, Montlake Lid, and subsequent construction phases.

LOG #: 121602-08-FHWA

Dear Dr. Brooks

Pursuant to the *Programmatic Agreement Implementing Section 106 of the National Historic Preservation Act for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project (PA)*, the Washington State Department of Transportation (WSDOT), on behalf of the Federal Highway Administration (FHWA), is continuing consultation with your office.

The purpose of this letter is to inform you of some adjustments to the project Limits of Construction (LOC) associated with the upcoming construction phases of the above-referenced project. All of the changes are within the existing Area of Potential Effects (APE). WSDOT has determined, on behalf of FHWA, that the design refinements will not cause an additional adverse effect to historic properties. In general the changes are minor adjustments as shown on the attached graphics.

The majority of changes to the Montlake Lid area have been arrived at through a consultation process as specified in the PA, and through other legislatively-defined consultation processes with the City of Seattle and other key stakeholders. This design information reflects the current state of knowledge about the upcoming West Approach Bridge South/Montlake Lid contract, which will terminate slightly west of the Montlake interchange with SR 520. The limits of construction have also been updated to reflect current information regarding the future Portage Bay Bridge/I-5 Interchange phase resulting from the Seattle Community Design Process in 2012.

Although there are minor adjustments throughout the corridor, some areas with more notable changes are highlighted on the enclosed graphic.

#1 Limits of Construction lines are removed around the Washington State Patrol building to reflect a temporary construction easement in this area. No alterations will

be made to the building, which was determined not eligible for listing in the NRHP in 2011. To the south of SR 520, additional areas have been added for bicycle and pedestrian improvements expected in the later phases of the project.

#2 Utility work has been added in the Shelby-Hamlin Area. The utility work is underground, involving temporary construction impacts and will not result in any permanent visible changes. The area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#3 The property occupied by the existing Montlake 76 Service Station and Montlake Market to the west of 22nd Ave NE and Montlake Boulevard would be acquired. The Montlake 76 Service Station would be permanently demolished and decommissioned. WSDOT determined that it would need to acquire these properties to build some of the project's planned improvements, such as retaining walls and fill, sidewalks, connections to shared-use trails, and utility relocations and modifications. WSDOT may also use the property for construction staging, traffic shifts, and transit access during construction. These properties are not eligible for listing in the NRHP as determined in 2011, and were recently re-evaluated in the Montlake Historic District nomination as non-contributing to the district. This area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#4 Expansions around the identified staging area at the WSDOT peninsula have been added to reflect service connections and other activities associated with the staging area.

#5 A small area has been added on Foster Island, an NRHP-eligible traditional cultural property, to reflect construction required to implement landscaping mitigation as described in the Foster Island Treatment Plan committed to in the PA and agreed upon through consultation with the recognized affected tribes participating in consultation and DAHP.

All of the above-referenced LOC expansions are within areas surveyed for archaeological sensitivity as part of this project. All construction within the expanded limits of construction will be subject to the same archaeological monitoring plan which DAHP concurred with in a letter dated February 12, 2013.

The information in this letter is also being shared with federally recognized tribes consulting on the project, the U.S. Army Corps of Engineers, and King County's Historic Preservation program.

We respectfully request any comments you may have on the revised limits of construction and the above analysis and the determination that the changes result in no additional adverse effect to historic properties by no later than **September 10, 2016**.

Dr. Brooks
August 10, 2016
Page 3 of 3

If you have any questions or concerns, please contact me at (206) 805-2895, e-mail archers@wsdot.wa.gov, or Scott Williams, Cultural Resources Program Manager, e-mail willias@wsdot.wa.gov.

Sincerely,



Steve Archer
WSDOT Cultural Resources Specialist

Enclosures:

Final LOC Update Insert August 2016

Final LOC Update August 2016

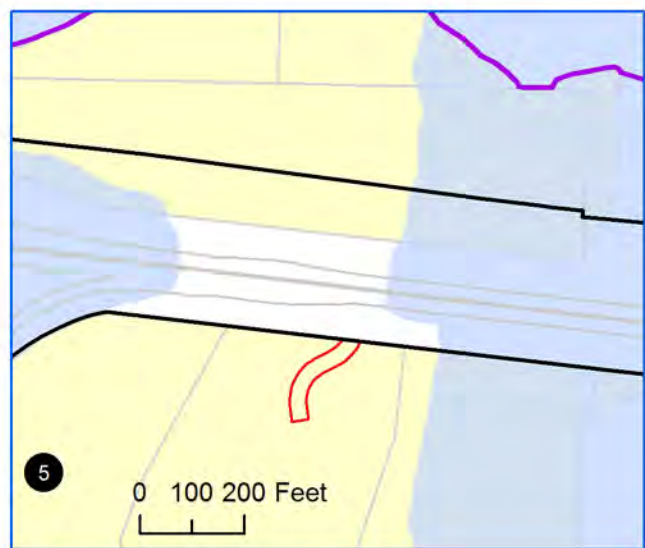
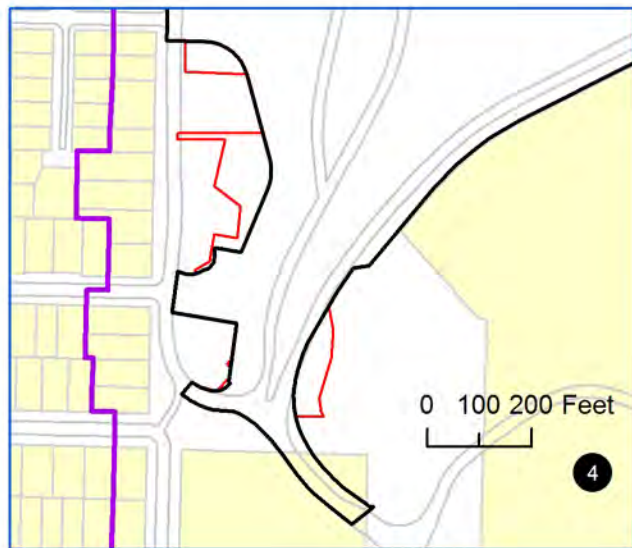
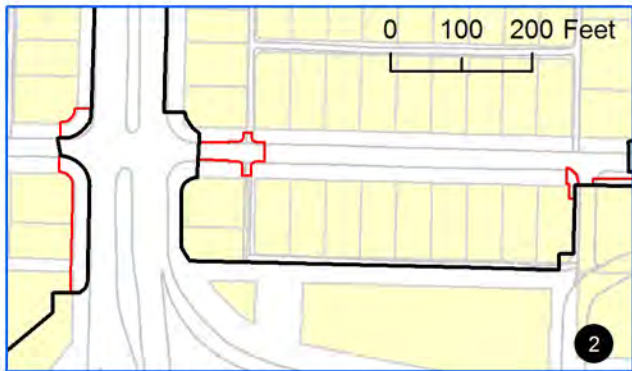
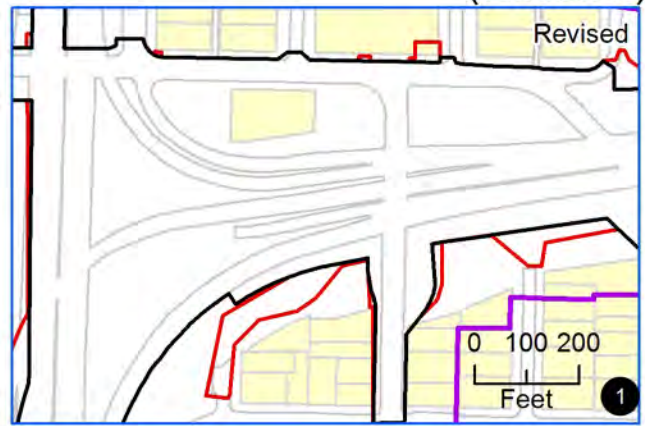
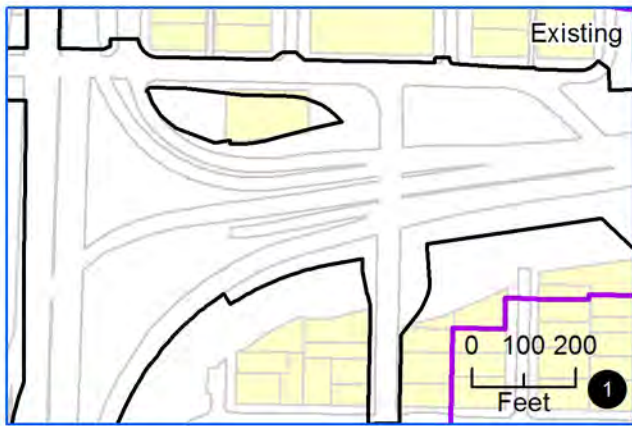
Cc:

Matthew Sterner, DAHP







Anthony Sarhan, FHWA

Scott Williams, WSDOT

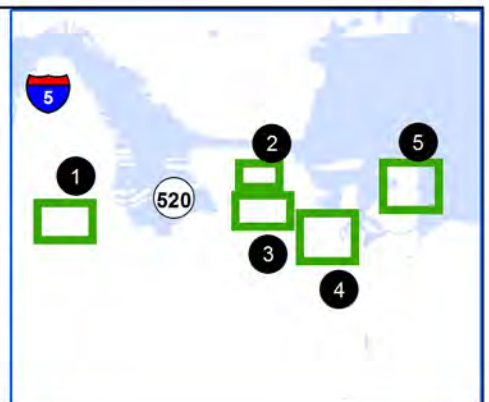
SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)



Legend

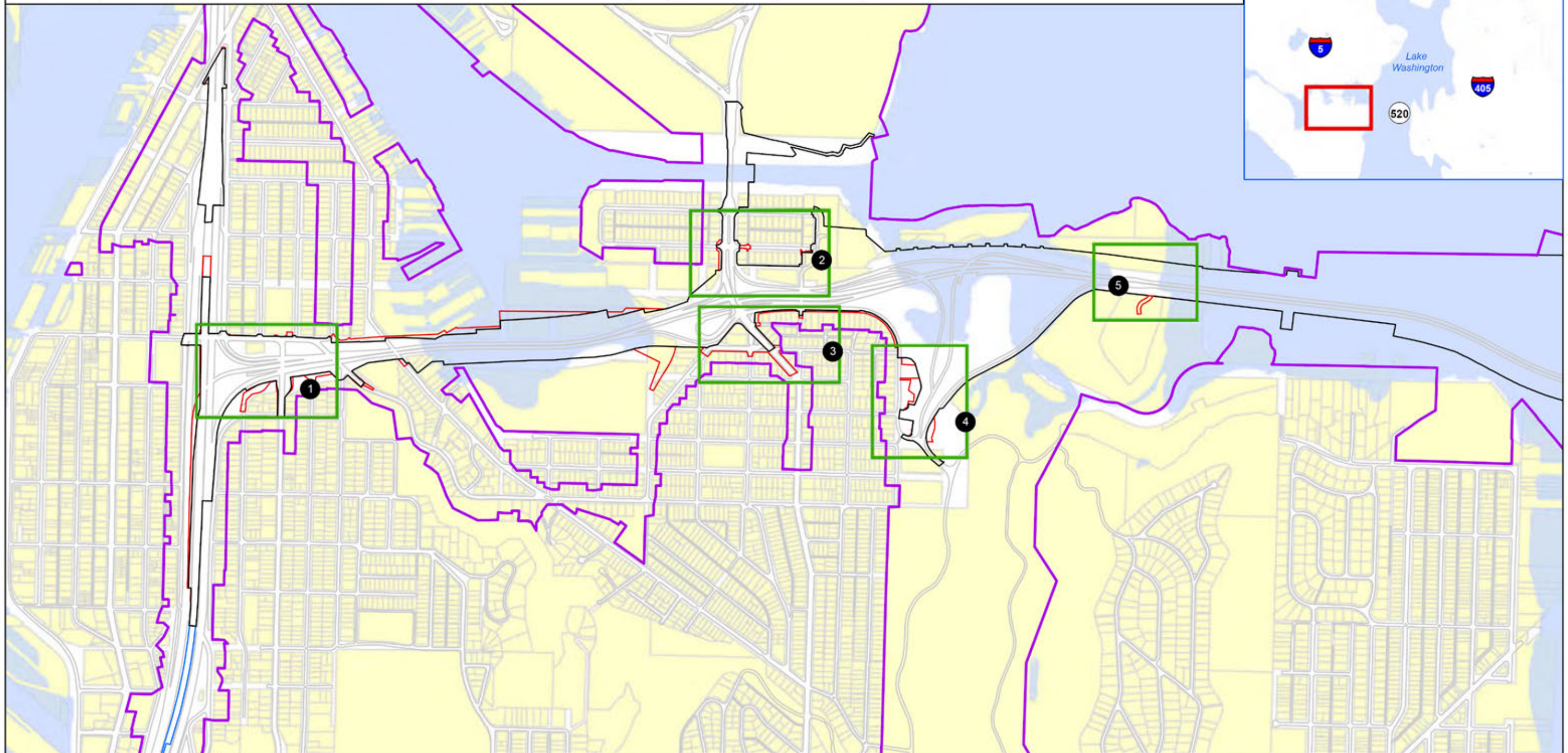
-  Area of Potential Effects
-  Limits of Construction
-  Additions to Limits of Construction
-  Edge of Existing Roadway
-  Water
-  Parcel

Sources: City of Seattle GIS Data (Roadway edges),
 King County GIS Data (Water Bodies, Parcels),
 WSDOT (APE, Limits of Construction)
 Horizontal datum: NAD 83 (WA Stateplane North)






SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)

Area of Detail

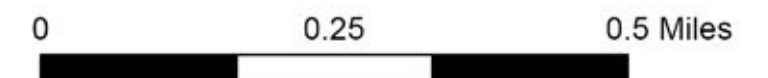


Legend

- | | |
|---|--|
|  Area of Potential Effects |  Edge of Existing Roadway |
|  Limits of Construction |  Water |
|  Additions to Limits of Construction |  Parcel |
|  Additions to Limits of Construction - Restripe Only | |



Sources: City of Seattle GIS Data (Roadway edges),
King County GIS Data (Water Bodies, Parcels),
WSDOT (APE, Limits of Construction)
Horizontal datum: NAD 83 (WA Stateplane North)





Allyson Brooks Ph.D., Director
State Historic Preservation Officer

August 31, 2016

Mr. Steve Archer
SR 520 Bridge Replacement Project
999 Third Ave., Suite 2424
Seattle, WA 98104

In future correspondence please refer to:
Project Tracking Code: 121602-08-FHWA
Property: SR 520 Corridor Trans-Lake Washington, Bridge Replacement and HOV
Re: Maintain ADVERSE Effect

Dear Mr. Archer:

Thank you for contacting the State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and informing us of the modifications to the limits of construction for the SR 520 Corridor Trans-Lake Washington, Bridge Replacement and HOV project. We have reviewed the materials you provided for this project. As a result of our review, we concur with your determination that the project as proposed will continue to have an adverse effect, but that no additional adverse effects will result from these changes.

As always, we appreciate receiving any correspondence or comments from concerned tribes or other parties that you receive as you consult under the requirements of 36 CFR 800.4(a)(4). These comments are based on the information available at the time of this review and on behalf of the State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations 36 CFR 800.

Thank you for the opportunity to review and comment. If you have any questions, please feel free to contact me.

Sincerely,

Matthew Sterner, M.A.
Transportation Archaeologist
(360) 586-3082
matthew.sterner@dahp.wa.gov





August 10, 2016

LTR# 2724

Chris Jenkins
Cultural Resource Program Manager
U.S. Army Corps of Engineers, Regulatory Branch, Seattle District
P.O. Box 3755
Seattle, WA 98124

RE: SR 520, I-5 to Medina Bridge Replacement Project and HOV Project: Updated Limits of Construction for West Approach Bridge South, Montlake Lid, and subsequent construction phases.

Dear Ms. Meisner,

Pursuant to the *Programmatic Agreement Implementing Section 106 of the National Historic Preservation Act for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project* (PA), the Washington State Department of Transportation (WSDOT), on behalf of the Federal Highway Administration (FHWA), is continuing consultation with your office.

The purpose of this letter is to inform you of some adjustments to the project Limits of Construction (LOC) associated with the upcoming construction phases of the above-referenced project. All of the changes are within the existing Area of Potential Effects (APE). WSDOT has determined, on behalf of FHWA, that the design refinements will not cause an additional adverse effect to historic properties. In general the changes are minor adjustments as shown on the attached graphics.

The majority of changes to the Montlake Lid area have been arrived at through a consultation process as specified in the PA, and through other legislatively-defined consultation processes with the City of Seattle and other key stakeholders. This design information reflects the current state of knowledge about the upcoming West Approach Bridge South/Montlake Lid contract, which will terminate slightly west of the Montlake interchange with SR 520. The limits of construction have also been updated to reflect current information regarding the future Portage Bay Bridge/I-5 Interchange phase resulting from the Seattle Community Design Process in 2012.

Although there are minor adjustments throughout the corridor, some areas with more notable changes are highlighted on the enclosed graphic.

#1 Limits of Construction lines are removed around the Washington State Patrol building to reflect a temporary construction easement in this area. No alterations will be made to the building, which was determined not eligible for listing in the NRHP in

2011. To the south of SR 520, additional areas have been added for bicycle and pedestrian improvements expected in the later phases of the project.

#2 Utility work has been added in the Shelby-Hamlin Area. The utility work is underground, involving temporary construction impacts and will not result in any permanent visible changes. The area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#3 The property occupied by the existing Montlake 76 Service Station and Montlake Market to the west of 22nd Ave NE and Montlake Boulevard would be acquired. The Montlake 76 Service Station would be permanently demolished and decommissioned. WSDOT determined that it would need to acquire these properties to build some of the project's planned improvements, such as retaining walls and fill, sidewalks, connections to shared-use trails, and utility relocations and modifications. WSDOT may also use the property for construction staging, traffic shifts, and transit access during construction. These properties are not eligible for listing in the NRHP as determined in 2011, and were recently re-evaluated in the Montlake Historic District nomination as non-contributing to the district. This area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#4 Expansions around the identified staging area at the WSDOT peninsula have been added to reflect service connections and other activities associated with the staging area.

#5 A small area has been added on Foster Island, an NRHP-eligible traditional cultural property, to reflect construction required to implement landscaping mitigation as described in the Foster Island Treatment Plan committed to in the PA and agreed upon through consultation with the recognized affected tribes participating in consultation and the Washington State Department of Archaeology and Historic Preservation (DAHP).

All of the above-referenced LOC expansions are within areas surveyed for archaeological sensitivity as part of this project. All construction within the expanded limits of construction will be subject to the same archaeological monitoring plan which DAHP concurred with in a letter dated February 12, 2013.

The information in this letter is also being shared with DAHP, federally recognized tribes consulting on the project, and other consulting agencies as specified in the PA. We respectfully request any comments you may have on the revised limits of construction by no later than **September 10, 2016**.

Mr. Jenkins
August 10, 2016
Page 3 of 3

If you have any questions or concerns, please contact me at (206) 805-2895, e-mail archers@wsdot.wa.gov, or Scott Williams, Cultural Resources Program Manager, e-mail willias@wsdot.wa.gov.

Sincerely,



Steve Archer
WSDOT Cultural Resources Specialist

Enclosures:

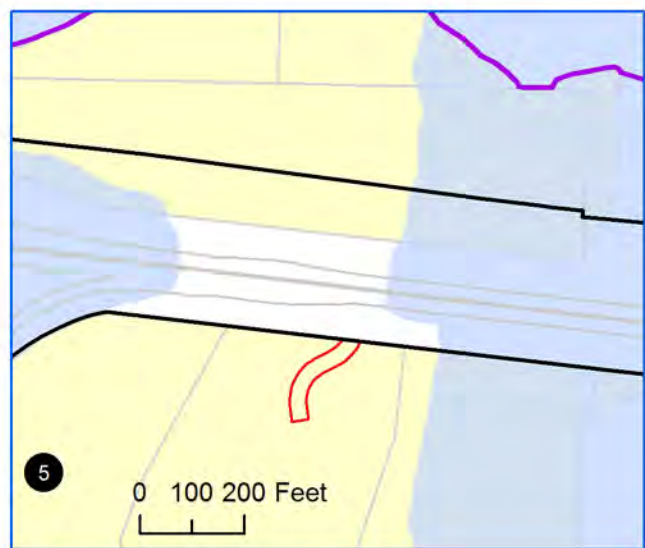
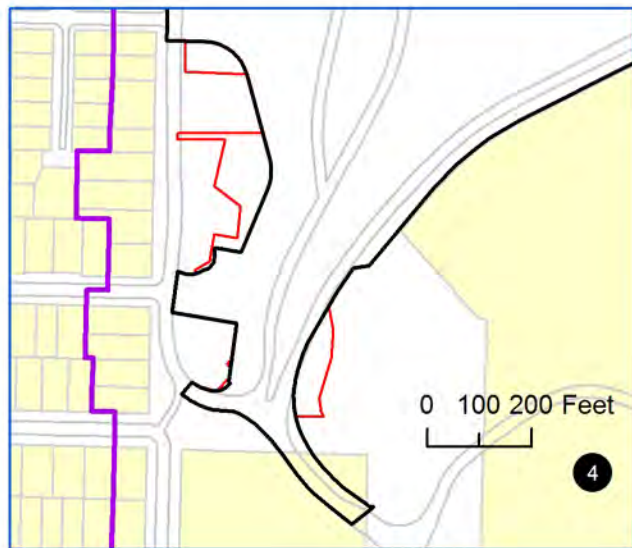
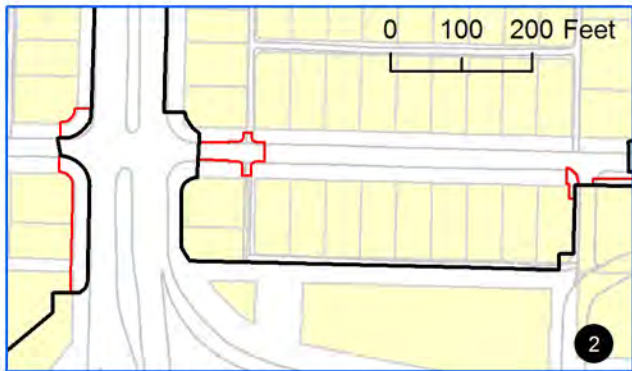
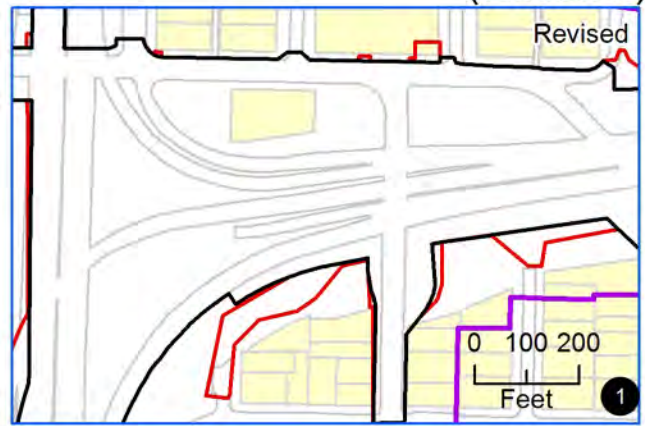
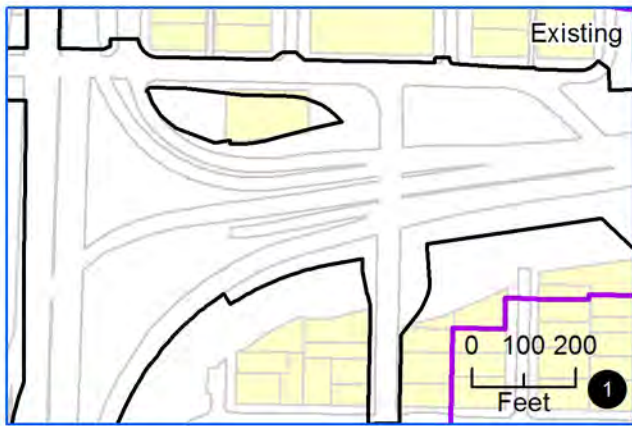
Final LOC Update Insert August 2016

Final LOC Update August 2016







Cc:

Anthony Sarhan, FHWA
Scott Williams, WSDOT

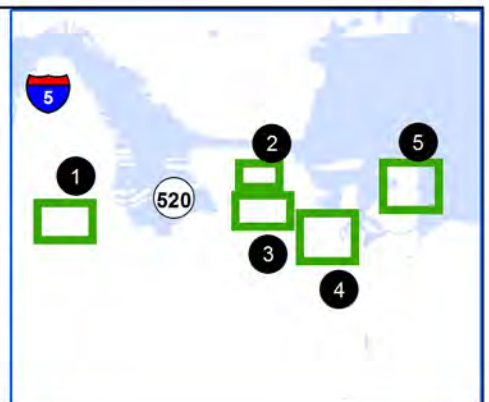
SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)



Legend

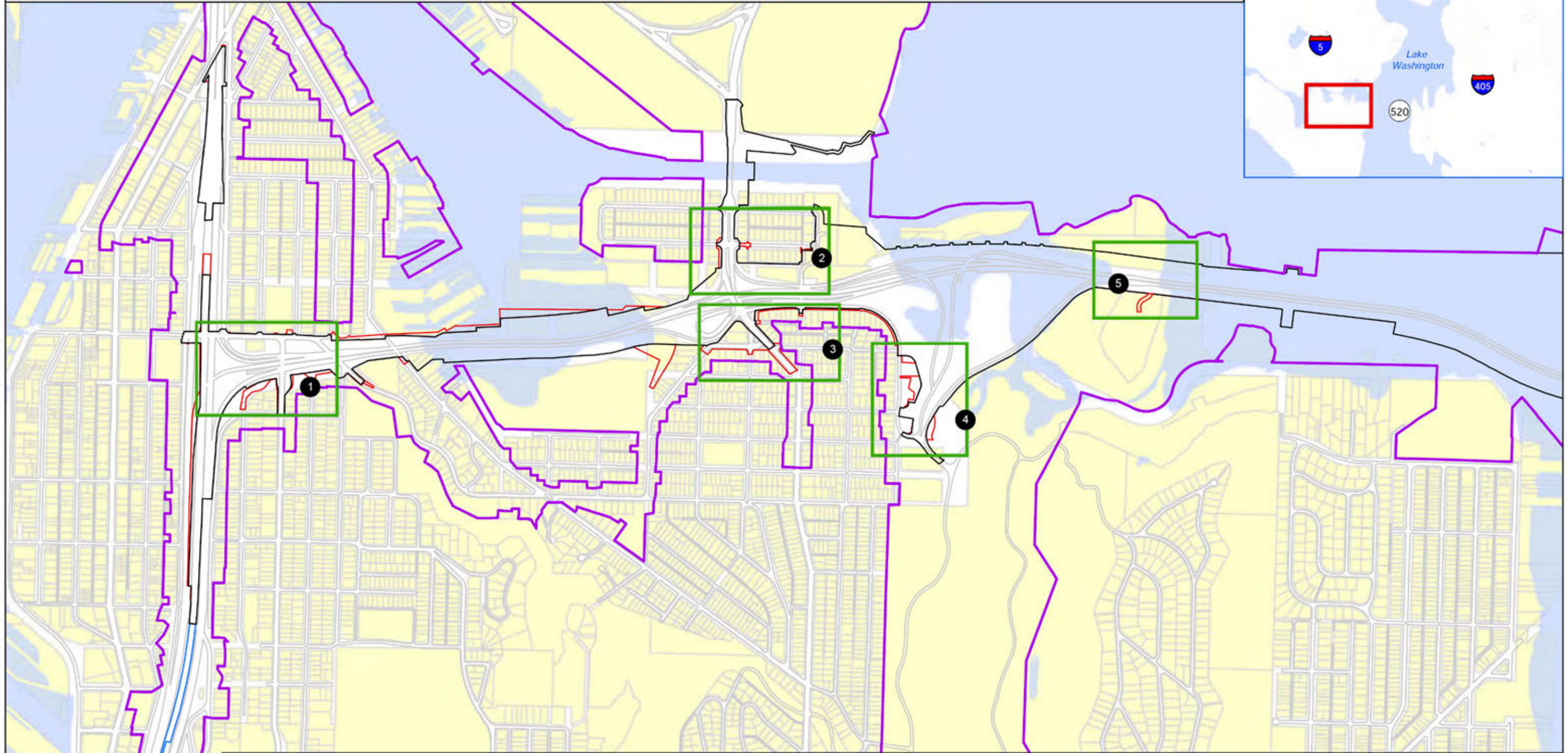
-  Area of Potential Effects
-  Limits of Construction
-  Additions to Limits of Construction
-  Edge of Existing Roadway
-  Water
-  Parcel

Sources: City of Seattle GIS Data (Roadway edges),
 King County GIS Data (Water Bodies, Parcels),
 WSDOT (APE, Limits of Construction)
 Horizontal datum: NAD 83 (WA Stateplane North)



SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)

Area of Detail

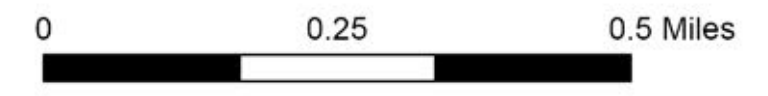


Legend

-  Area of Potential Effects
-  Limits of Construction
-  Additions to Limits of Construction
-  Additions to Limits of Construction - Restripe Only
-  Edge of Existing Roadway
-  Water
-  Parcel



Sources: City of Seattle GIS Data (Roadway edges),
King County GIS Data (Water Bodies, Parcels),
WSDOT (APE, Limits of Construction)
Horizontal datum: NAD 83 (WA Stateplane North)



August 10, 2016

LTR# 2718

Jennifer Meisner
Preservation Officer
King County Historic Preservation
201 S. Jackson Street, Ste 700
Seattle, WA 98104

RE: SR 520, I-5 to Medina Bridge Replacement Project and HOV Project: Updated Limits of Construction for West Approach Bridge South, Montlake Lid, and subsequent construction phases.

Dear Ms. Meisner,

Pursuant to the *Programmatic Agreement Implementing Section 106 of the National Historic Preservation Act for the SR 520, I-5 to Medina: Bridge Replacement and HOV Project* (PA), the Washington State Department of Transportation (WSDOT), on behalf of the Federal Highway Administration (FHWA), is continuing consultation with your office.

The purpose of this letter is to inform you of some adjustments to the project Limits of Construction (LOC) associated with the upcoming construction phases of the above-referenced project. All of the changes are within the existing Area of Potential Effects (APE). WSDOT has determined, on behalf of FHWA, that the design refinements will not cause an additional adverse effect to historic properties. In general the changes are minor adjustments as shown on the attached graphics.

The majority of changes to the Montlake Lid area have been arrived at through a consultation process as specified in the PA, and through other legislatively-defined consultation processes with the City of Seattle and other key stakeholders. This design information reflects the current state of knowledge about the upcoming West Approach Bridge South/Montlake Lid contract, which will terminate slightly west of the Montlake interchange with SR 520. The limits of construction have also been updated to reflect current information regarding the future Portage Bay Bridge/I-5 Interchange phase resulting from the Seattle Community Design Process in 2012.

Although there are minor adjustments throughout the corridor, some areas with more notable changes are highlighted on the enclosed graphic.

#1 Limits of Construction lines are removed around the Washington State Patrol building to reflect a temporary construction easement in this area. No alterations will be made to the building, which was determined not eligible for listing in the NRHP in

2011. To the south of SR 520, additional areas have been added for bicycle and pedestrian improvements expected in the later phases of the project.

#2 Utility work has been added in the Shelby-Hamlin Area. The utility work is underground, involving temporary construction impacts and will not result in any permanent visible changes. The area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#3 The property occupied by the existing Montlake 76 Service Station and Montlake Market to the west of 22nd Ave NE and Montlake Boulevard would be acquired. The Montlake 76 Service Station would be permanently demolished and decommissioned. WSDOT determined that it would need to acquire these properties to build some of the project's planned improvements, such as retaining walls and fill, sidewalks, connections to shared-use trails, and utility relocations and modifications. WSDOT may also use the property for construction staging, traffic shifts, and transit access during construction. These properties are not eligible for listing in the NRHP as determined in 2011, and were recently re-evaluated in the Montlake Historic District nomination as non-contributing to the district. This area is located within the National Register of Historic Places (NRHP)-eligible Montlake Historic District boundaries, but no aspect of integrity would be altered or diminished as a result of this change.

#4 Expansions around the identified staging area at the WSDOT peninsula have been added to reflect service connections and other activities associated with the staging area.

#5 A small area has been added on Foster Island, an NRHP-eligible traditional cultural property, to reflect construction required to implement landscaping mitigation as described in the Foster Island Treatment Plan committed to in the PA and agreed upon through consultation with the recognized affected tribes participating in consultation and the Washington State Department of Archaeology and Historic Preservation (DAHP).

All of the above-referenced LOC expansions are within areas surveyed for archaeological sensitivity as part of this project. All construction within the expanded limits of construction will be subject to the same archaeological monitoring plan which DAHP concurred with in a letter dated February 12, 2013.

The information in this letter is also being shared with DAHP, federally recognized tribes consulting on the project, and other consulting agencies as specified in the PA. We respectfully request any comments you may have on the revised limits of construction by no later than **September 10, 2016**.

Ms. Meisner
August 10, 2016
Page 3 of 3

If you have any questions or concerns, please contact me at (206) 805-2895, e-mail archers@wsdot.wa.gov, or Scott Williams, Cultural Resources Program Manager, e-mail willias@wsdot.wa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve Archer". The signature is fluid and cursive, with the first name "Steve" and last name "Archer" clearly distinguishable.

Steve Archer
WSDOT Cultural Resources Specialist

Enclosures:

Final LOC Update Insert August 2016

Final LOC Update August 2016

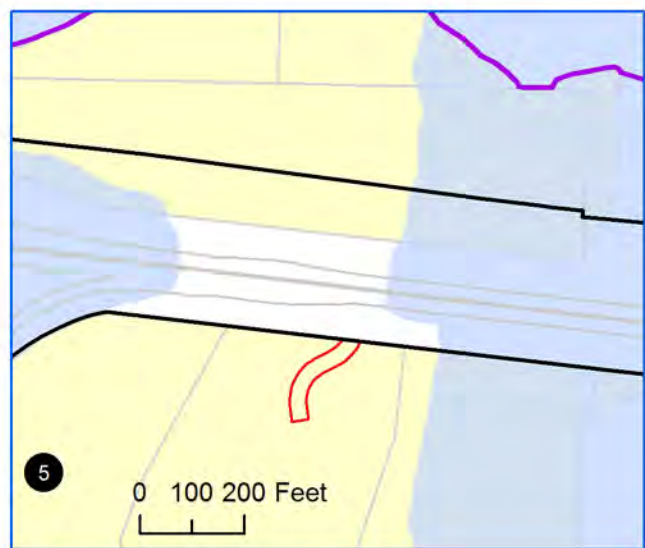
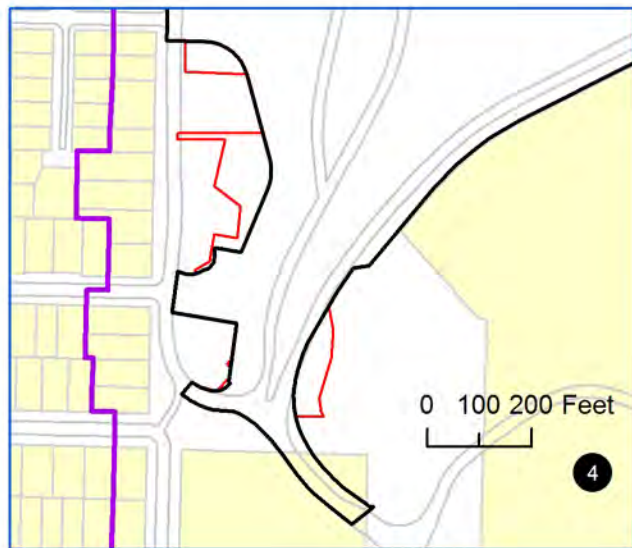
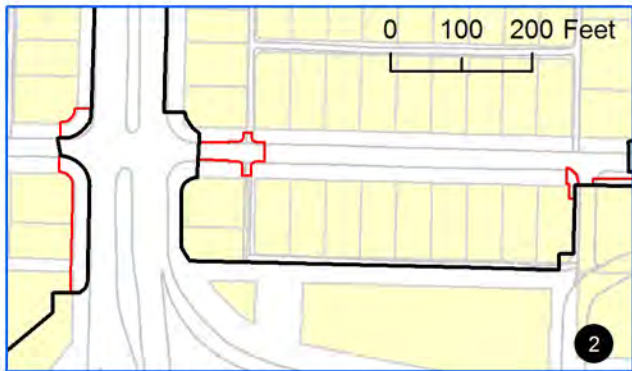
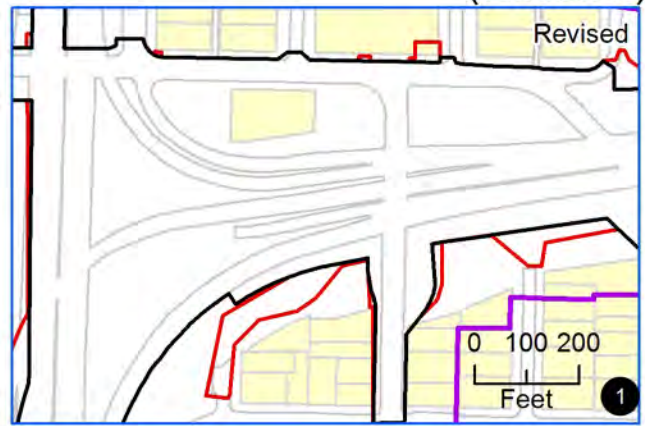
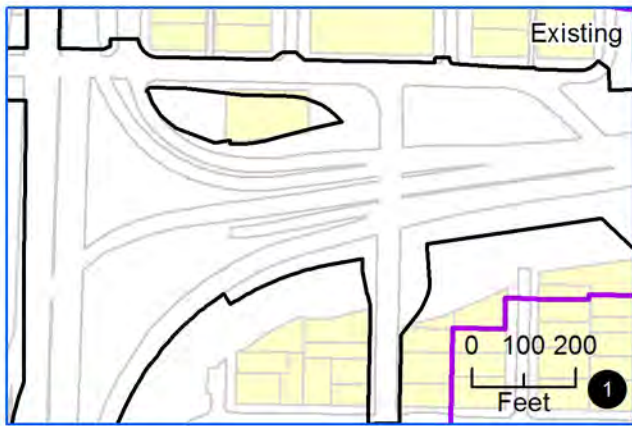
Cc:

Phil LeTourneau, Archaeologist, King County Historic Preservation







Anthony Sarhan, FHWA

Scott Williams, WSDOT

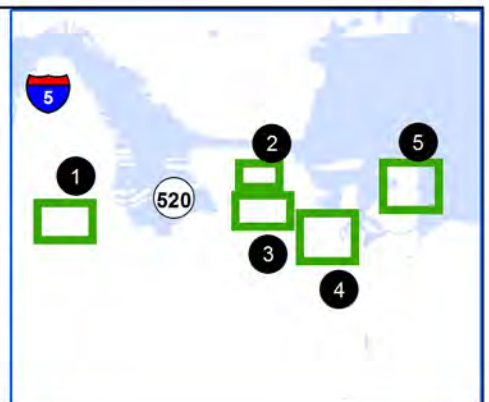
SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)



Legend

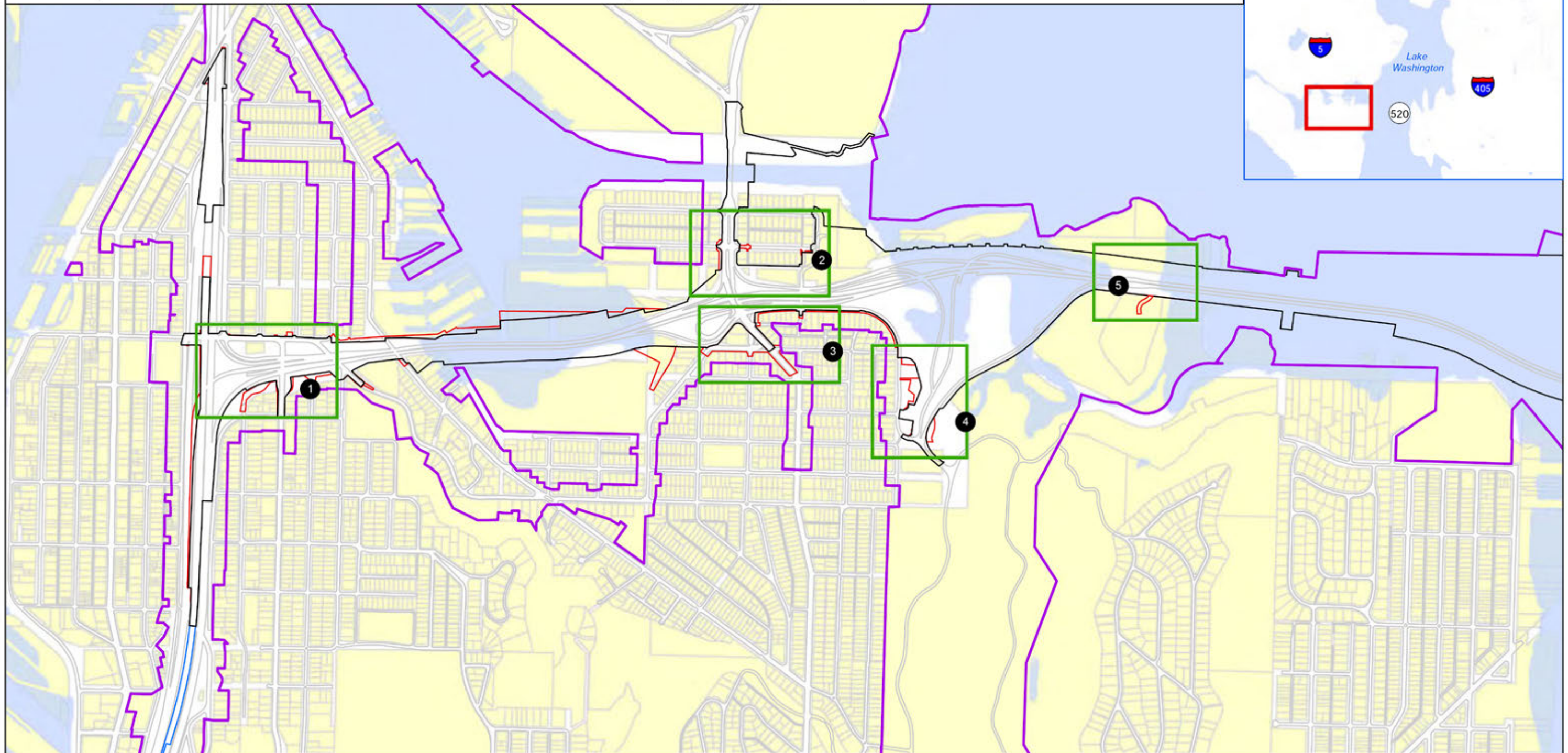
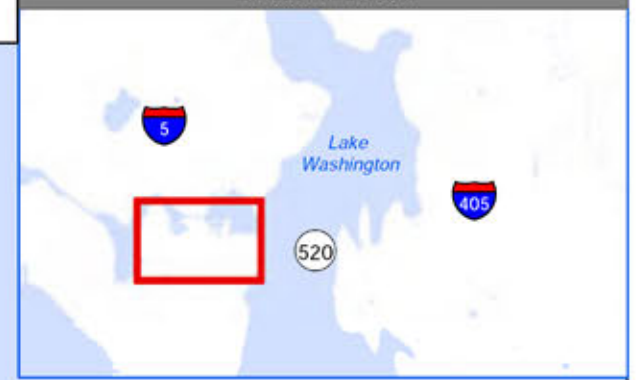
-  Area of Potential Effects
-  Limits of Construction
-  Additions to Limits of Construction
-  Edge of Existing Roadway
-  Water
-  Parcel

Sources: City of Seattle GIS Data (Roadway edges),
 King County GIS Data (Water Bodies, Parcels),
 WSDOT (APE, Limits of Construction)
 Horizontal datum: NAD 83 (WA Stateplane North)






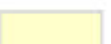



SR 520, I-5 to Medina Project: Revised Limits of Construction, August 2016 (Revised)

Area of Detail



Legend

- | | |
|---|--|
|  Area of Potential Effects |  Edge of Existing Roadway |
|  Limits of Construction |  Water |
|  Additions to Limits of Construction |  Parcel |
|  Additions to Limits of Construction - Restripe Only | |



Sources: City of Seattle GIS Data (Roadway edges),
King County GIS Data (Water Bodies, Parcels),
WSDOT (APE, Limits of Construction)
Horizontal datum: NAD 83 (WA Stateplane North)

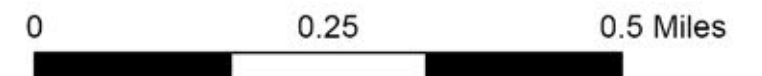


Exhibit 4

Noise Memorandum



MEMORANDUM

To: Anthony Sarhan, FHWA and
Kerry Pihlstrom, WSDOT

Contract & Task Order: Y-9761 JX

From: K. Keller and G. Lalonde

File Code:

Date: May 26, 2016

Copies To:

Subject: Update to TNM modeling for the Montlake lid

Introduction

Since the publication of the *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final Environmental Impact Statement (EIS) Noise Discipline Report* (WSDOT 2011) (Final EIS), WSDOT refined the design of State Route (SR) 520 in the area of the Montlake interchange. This memorandum provides updated noise modeling and analysis for the refined design east of Montlake Boulevard and does not include changes to the Portage Bay Bridge profile. For an explanation of terminology and approach, see the *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final EIS Noise Discipline Report* (May 2011).

Final Concept Design Conditions

Noise levels for the Final Concept Design for the Montlake Lid as described in the *SR 520 West Side Final Concept Design Report* (WSDOT 2016) were evaluated using the Traffic Noise Model (TNM) version 2.5. The TNM models developed for the Final EIS were used as the base for the new modeling detailed in this report. The design year 2030 traffic data and receptor locations used in the Final EIS Preferred Alternative were used in this analysis for the Final Concept Design. Changes included in this noise evaluation from the updated Final Concept Design include:

- New vertical and horizontal design of the SR 520 mainline and refinements to ramps modeled using the design files dated November 11, 2015, and profiles dated December 11, 2015
- Changes to the Montlake Boulevard profile and configuration
- Current shorter Montlake Lid design

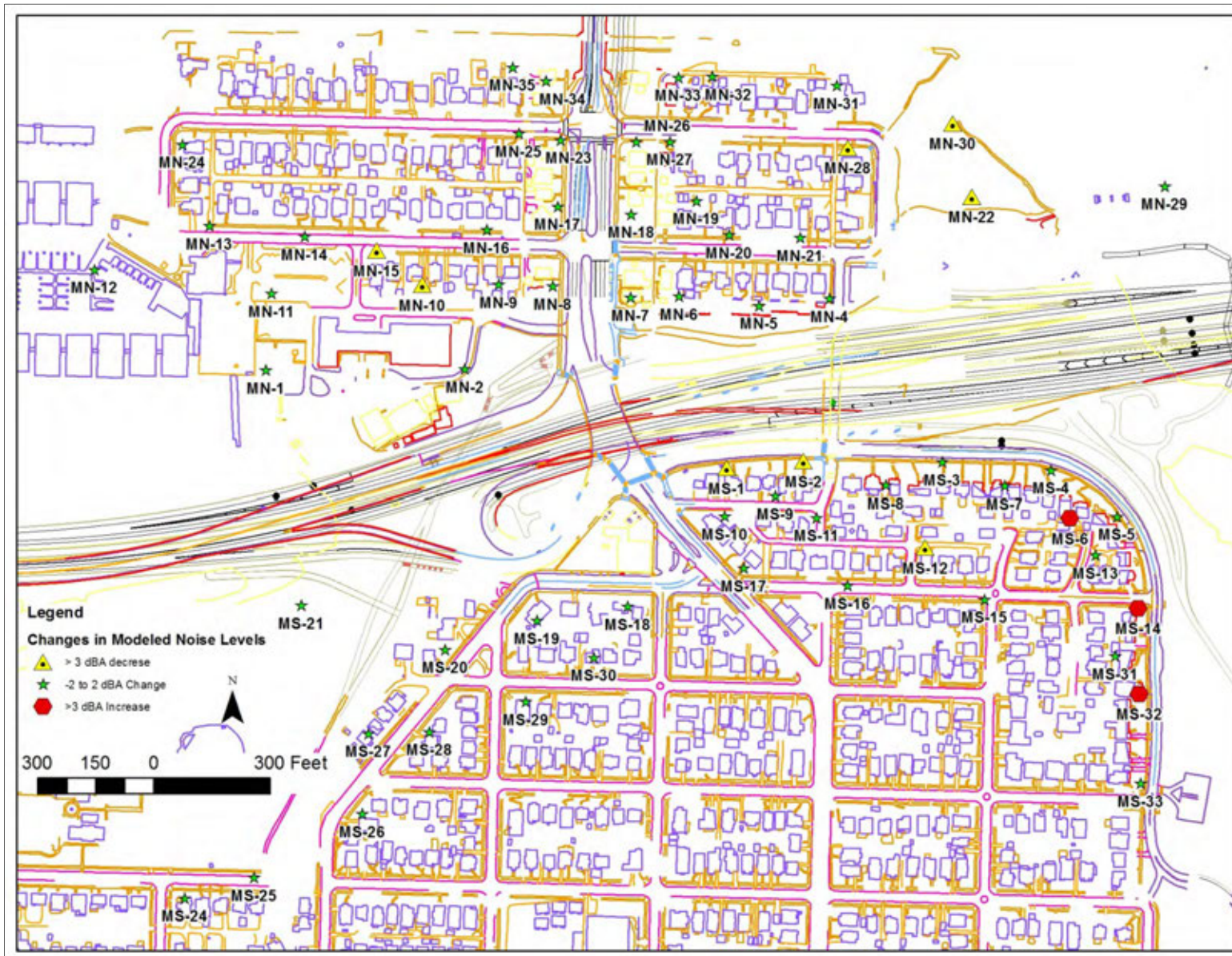
Terrain line and Lake Washington Boulevard East updates to the TNM model

Terrain lines and building rows were added to the TNM file to better reflect the noise environment in the area. Terrain lines were added near the edge of the lid or right-of-way as needed to match planned topography. Building rows were added to improve accuracy at greater distances from SR 520, in some cases allowing arterial traffic noise to dominate noise from SR 520. Elevations along Lake Washington Boulevard East between 24th Avenue East and East Miller Street were updated to correct a data error from prior modeling. In a few places in the base TNM model, the elevations of the roadways and the median barriers did not match, which caused the median barriers to be below the roadways; this was corrected in the new TNM modeling.

Modeling Results

Figure 1 shows the changes in the TNM results for the Final Concept Design relative to the Final EIS Preferred Alternative results in the Montlake area. Noise modeling results range between a 4-dBA decrease and a 6-dBA increase compared to the Final EIS Preferred Alternative results. No new receptors would approach or exceed the Noise Abatement Criteria (NAC) relative to the Final EIS Preferred Alternative results. The greatest increase in modeled levels is in the vicinity of Lake Washington Boulevard East, which is a result of correcting elevation data in the model and not due to the design changes included in the Final Concept Design. The results are detailed by area in the following sections.

FIGURE 1. Changes in Noise Levels (Final Concept Design Compared to Final EIS Preferred Alternative)



North of SR 520

Table 1 shows the changes in the TNM results for the Final Concept Design relative to the Final EIS Preferred Alternative for the area north of SR 520 that is shown in Figure 1. Changes in noise levels would range from a 4-dBA decrease to a 2-dBA increase compared to the Final EIS Preferred Alternative results. These noise level changes result from changes to the roadway design that include the alignment for both west approach bridges shifting to the north; the elevation of the portals changing by 3 feet to 10 feet compared to the previous TNM modeling.

No new receptors would approach or exceed the NAC relative to the Final EIS Preferred Alternative results, nor would any receptor experience a substantial noise increase impact of 10 dBA or higher. One receptor (MN-27), representing three residences, would approach or exceed the NAC for the Final EIS Preferred Alternative; but would have a one dBA decrease under the Final Concept Design. This receptor would not experience noise levels that would approach or exceed the NAC under the Final Concept Design. Noise levels would approach or exceed the NAC at:

- 37 residences under the Final EIS Current Conditions Scenario
- 42 residences under the Final EIS No Build Alternative
- 28 residences under the Final EIS Preferred Alternative
- 25 residences under the Final Concept Design

South of SR 520

Table 2 shows the changes in the TNM results from the Final EIS results for the Final Concept Design relative to the Final EIS Preferred Alternative in the area south of SR 520 that is shown in Figure 1. Changes in noise levels would range from a 3-dBA decrease to a 6-dBA increase. The up to 3-dBA decreases are a result of changes to the roadway design that include the alignment for both west approach bridges shifting to the north; the elevation of the portals changing by 3 feet to 10 feet compared to the previous TNM modeling.

The increases of 3-dBA or more at receptors MS-6, MS-14 and MS-32 are the result of correcting the elevation of the Lake Washington Boulevard East in the base TNM model, which is discussed in detail in the next section of this memorandum.

With the Final Concept Design, two receptors (MS-3 and MS-20), representing nine residences, would have a 2 dBA decrease compared to the Final EIS Preferred Alternative and, as a result would not experience noise levels that would approach or exceed the NAC. No new receptors would approach or exceed the NAC relative to the Final EIS Preferred Alternative results nor would any receptor experience a substantial noise increase impact of 10 dBA or higher. Noise levels would approach or exceed the NAC at:

- 44 residences under the Final EIS Current Conditions Scenario
- 48 residences under the Final EIS No Build Alternative
- 39 residences under the Final EIS Preferred Alternative
- 30 residences under the Final Concept Design

TABLE 1. Noise Levels North of SR 520

Receptor Number	Residences or Residential Equivalents	Pre Toll Final EIS Current (Leq dBA)	Final EIS No Build Alternative (Leq dBA)	Final EIS Preferred Alternative (Leq dBA)	Final Concept Design (Leq dBA)	Change Final Concept Design relative to Final EIS Preferred (Leq dBA)
MN-1	3.3 ^a	69	67	62	63	1
MN-2	3.3 ^a	66	67	64	64	0
MN-3	0	75 ^b	— ^b	— ^b	— ^b	— ^b
MN-4	2	67	67	61	63	2
MN-5	3	67	67	62	64	2
MN-6	3	66	68	67	68	1
MN-7	2	69	74	73	73	0
MN-8	3	68	71	72	72	0
MN-9	3	64	66	65	65	0
MN-10	4	64	64	62	58	-4
MN-11	3.3 ^a	66	65	61	61	0
MN-12	3.3 ^a	65	64	60	61	1
MN-13	4	64	63	60	61	1
MN-14	3	64	63	61	60	-1
MN-15	4	64	63	62	59	-3
MN-16	4	63	64	64	62	-2
MN-17	4	68	70	73	73	0
MN-18	3	72	73	72	72	0
MN-19	5	62	65	64	63	-1
MN-20	3	60	64	62	61	-1
MN-21	3	61	63	61	60	-1
MN-22	3.3 ^a	63	63	60	57	-3
MN-23	4	68	70	72	72	0
MN-24	3	62	62	59	59	0
MN-25	2	63	66	65	64	-1
MN-26	2	72	68	71	70	-1
MN-27	3	65	65	66	65	-1
MN-28	6	60	61	62	59	-3
MN-29	3.3 ^a	65	64	62	61	-1
MN-30	3.3 ^a	60	60	60	57	-3
MN-31	4	59	60	61	59	-2
MN-32	2	62	64	65	64	-1
MN-33	1	64	66	67	67	0
MN-34	1	66	72	69	69	0
MN-35	2	63	68	67	67	0

^a Includes residential equivalents for outside activity areas in McCurdy Park and East Montlake Park, represented by this receptor. The residential equivalents calculation is displayed to the tenths of a decimal.

^b This receptor (MN-3) is near the existing SR 520 alignment and was used only to aid in model verification. Because it is not a location representing a noise-sensitive property, the NAC does not apply.

NOTE: A 3-dBA change would be barely audible.

TABLE 2. Noise Levels South of SR 520

Receptor Number	Residences or Residential Equivalents	Final EIS Existing Conditions (Leq dBA)	Final EIS No Build Alternative (Leq dBA)	Final EIS Preferred Alternative (Leq dBA)	Final Concept Design (Leq dBA)	Change Final Concept Design relative to Final EIS Preferred (Leq dBA)
MS-1	4	74	75	75	72	-3
MS-2	4	74	73	70	67	-3
MS-3	6	74	72	67	65	-2
MS-4	3	72	70	68	67	-1
MS-5	5	70	68	67	68	1
MS-6	4	59	58	59	62	3
MS-7	4	59	58	59	60	1
MS-8	3	61	61	62	62	0
MS-9	2	62	64	65	65	0
MS-10	4	67	70	70	69	-1
MS-11	2	60	62	62	62	0
MS-12	4	56	57	58	55	-3
MS-13	4	58	56	58	59	1
MS-14	4	60	59	59	65	6
MS-15	6	56	56	58	57	-1
MS-16	4	62	62	63	63	0
MS-17	2	73	72	72	72	0
MS-18	4	65	69	70	69	-1
MS-19	4	66	67	66	66	0
MS-20	3	66	66	66	64	-2
MS-21	9.2 ^a	70	69	62	61	-1
MS-24	2	63	63	58	57	-1
MS-25	2	63	63	58	58	0
MS-26	4	63	56	56	56	0
MS-27	3	65	65	62	62	0
MS-28	4	64	65	63	63	0
MS-29	4	63	63	63	62	-1
MS-30	4	64	65	65	65	0
MS-31	6	58	56	58	58	0
MS-32	4	61	59	60	65	5
MS-33	5	64	62	63	65	2

^a Includes residential equivalents for outside activity areas in Montlake Playfield represented by this receptor. The residential equivalents calculation is displayed to the tenths of a decimal.

NOTE: A 3-dBA change would be barely audible, while a 5-dBA change would be readily noticeable. Noise Level effect from terrain line and Lake Washington Boulevard East elevation change

Lake Washington Boulevard East elevation updates to the TNM model

To investigate if the noise level increase of 3 to 6 dBA near Lake Washington Boulevard East is caused by the corrections in elevation to the base TNM model, an Updated Final EIS Preferred Alternative TNM file was created. This diagnostic model updates the Final EIS Preferred Alternative design with the corrected terrain lines, building rows, and roadway elevations for Lake Washington Boulevard East. The changes in roadway elevations for Lake Washington Boulevard East are shown in Table 3 and Figure 2.

Table 4 shows the modeled noise levels of the Final EIS Preferred Alternative, the Updated Final EIS Preferred Alternative and the Final Concept Design. Comparing the results across Table 4 indicates that the increases in sound levels at Receptors MS-6, MS-14, and MS-32 are a result of correcting the terrain line, building rows and roadway elevations of Lake Washington Boulevard East and not a result of design refinement of the project between the Final EIS Preferred Alternative and the Final Concept Design. The final column in Table 4 shows that noise levels of the Final Concept Design would be within 1 dBA of results for the Updated Final EIS Preferred Alternative.

Conclusion

Design changes to the Montlake Lid and SR 520 design for the Final Concept Design would result in a decrease in the number of residences that would approach or exceed the NAC compared to the Final EIS Preferred Alternative. No new receptors would approach or exceed the NAC relative to the Final EIS Preferred Alternative results. Modeled noise levels increases at receptors MS-6, MS-14, and MS-32 result from correcting the modeled terrain lines, building rows and elevation of Lake Washington Boulevard East and not from design refinement.

TABLE 3. **Changes in TNM Elevation—Lake Washington Boulevard East**

TNM Roadway Point	Final EIS TNM Elevation (feet)	Updated TNM Elevation (feet)	Change in Elevation (feet) (Final EIS to Updated TNM)
1909	64	60	-4
1910	62	60	-2
1911	60	60	0
1912	58	50	-8
1913	56	45	-11
1914	55	40	-15
1915	55	38	-17
1916	55	37	-18
1917	55	36	-19
1918	55	35	-20
1919	55	34	-21
1920	55	34	-21
1921	55	33	-22
1922	55	33	-22
1923	48	34	-14
1924	41	36	-5
1925	35	41	-6
1926	32	45	-13
1927	29	47	-18

FIGURE 2. Lake Washington Boulevard East Roadway Points and Noise Level Changes Due to Elevation Changes

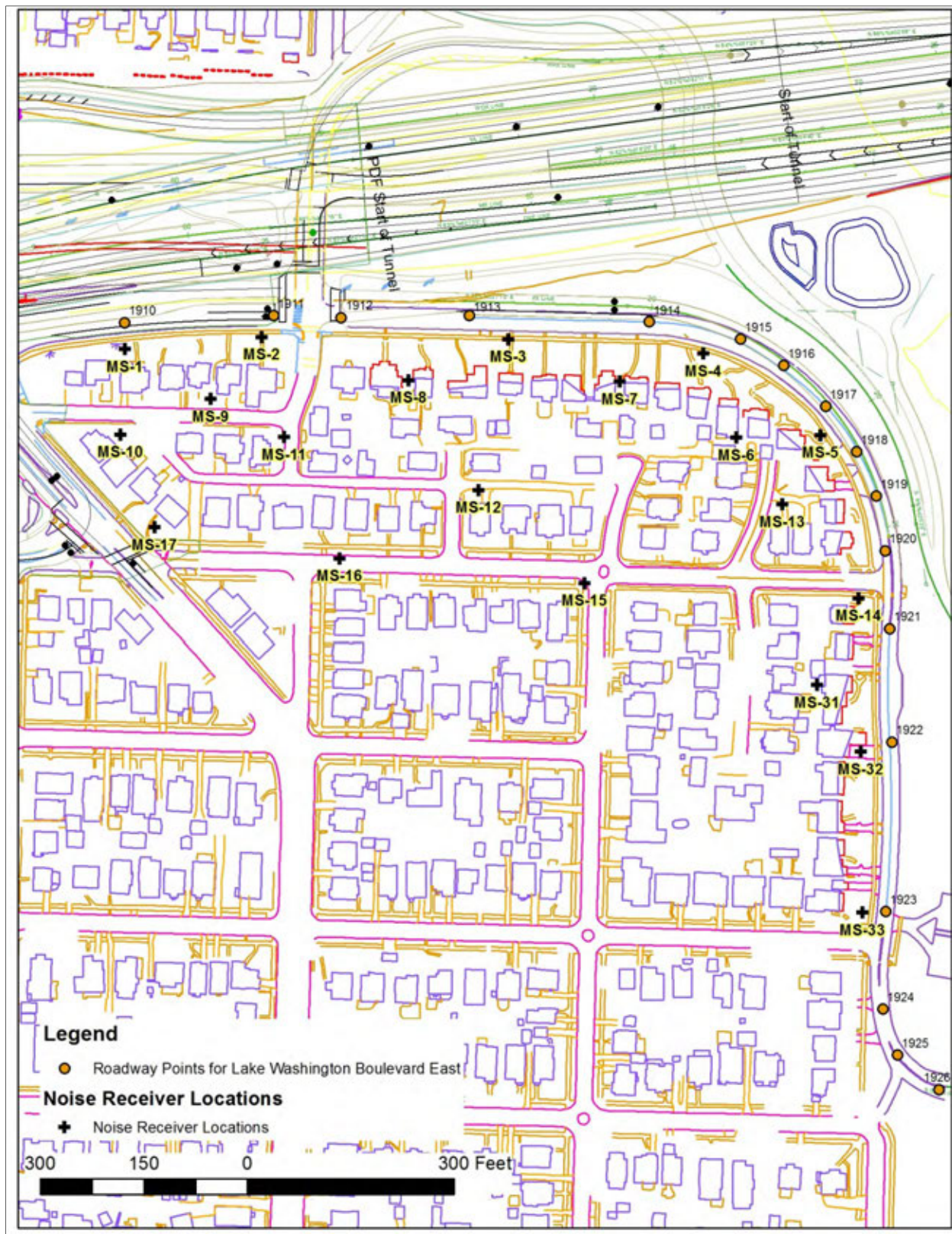


TABLE 4. Changes in Noise Levels along Lake Washington Boulevard East

Receptor	Final EIS Preferred Alternative (Leq dBA)	Updated Final EIS Preferred Alternative (with corrected terrain lines, building rows and Lake Washington Blvd elevations) (Leq dBA)	Change in Noise Levels for Final EIS Preferred Alternative compared to Updated Final EIS Preferred Alternative (Leq dBA)	Final Concept Design (Leq dBA)	Change in Noise level for the Final Concept Design Relative to Final EIS Preferred Alternative (Leq dBA)	Change in Noise Levels for Final Concept Design Compared to Updated Final EIS Preferred Alternative (Leq dBA)
MS-1	75	72	-3	72	-3	0
MS-2	70	67	-3	67	-3	0
MS-3	67	65	-2	65	-2	0
MS-4	68	67	-1	67	-1	0
MS-5	67	68	1	68	1	0
MS-6	59	63	4	62	3	-1
MS-7	59	60	1	60	1	0
MS-8	62	62	0	61	-1	-1
MS-9	65	65	0	64	-1	-1
MS-10	70	69	-1	69	-1	0
MS-11	62	62	0	62	0	0
MS-12	58	55	-3	55	-3	0
MS-13	58	60	2	59	1	-1
MS-14	59	65	6	65	6	0
MS-15	58	57	-1	57	-1	0
MS-16	63	63	0	63	0	0
MS-17	72	72	0	72	0	0
MS-31	58	58	0	58	0	0
MS-32	60	65	5	65	5	0
MS-33	63	65	2	65	2	0

NOTE: A 3-dBA change would be barely audible, while a 5-dBA change would be readily noticeable

Reference

WSDOT 2011. *SR 520, I-5 to Medina Bridge Replacement and HOV Program Final Environmental Impact Statement (EIS) Noise Discipline Report*. Washington State Department of Transportation.

WSDOT 2016. *SR 520 West Side Final Concept Design Report*. Washington State Department of Transportation. http://www.wsdot.wa.gov/NR/rdonlyres/FBE720D3-956A-4D59-AD1F-CCEDAB6A89B1/0/Chapter3_SR520_West_Side_Final_Concept_Design_v2.pdf