

NAVIGATIONAL AND ENVIRONMENTAL EVALUATIONS

SUBJ: PROPOSED REPLACEMENT OF STATE ROUTE 520 (GOVERNOR A.D. ROSELLINI) BRIDGE ACROSS LAKE WASHINGTON, BETWEEN SEATTLE AND MEDINA, KING COUNTY, WASHINGTON

I. PROPOSED PROJECT

- A. Final Agency Action: District Headquarters
- B. Applicant and date of application: The Washington Department of Transportation (WSDOT) submitted an application dated 14 December 2011, see **enclosure 2**.
- C. Type of Bridge: Combination fixed and floating (pontoon) highway bridge.
- D. Purpose: The applicant proposes to replace the existing structurally deficient, functionally obsolete, structure with a new bridge across Lake Washington. The existing bridge consists of fixed span approaches, including fixed navigation spans near the shore on both sides of the bridge, and a long section of floating spans across the center of the lake. The existing floating section includes a moveable span. The proposed replacement bridge would have a similar configuration; however, the new floating section would not include a moveable span. To compensate, the fixed span clearances would be greater (particularly at the eastern approach) to accommodate larger vessels. This is the longest floating bridge in the world. As with the existing bridge, the proposed replacement floating section would be anchored to the lake bottom to hold the bridge in place.

The proposed bridge would span Lake Washington, come to grade at Foster Island, span an unnamed embayment of Union Bay, and continue to the west at Montlake, WA (Seattle). The unnamed waterway has been categorized as Advance Approval by the USCG. It is also within a federal park area (Washington Park and University of Washington Arboretum) and motorized vessels are prohibited.

This is a design-build project. The proposed bridge would be constructed in stages to ensure traffic is maintained throughout. The application describes an interim connection bridge. The connection bridge would be constructed across the unnamed waterway and would remain a permanent portion of the new bridge. It is considered an interim bridge because it would be constructed prior to the completion of the highway interchange to the west. Temporary work platforms would be utilized throughout the construction process; however, the freedom of navigation would be maintained throughout. The navigational spans at the eastern and western approaches would be blocked at times; however, the existing moveable span would be maintained while the eastern approach spans are closed to navigation.

- E. Extent of USCG responsibility: Bridge and approaches.
- F. Other Federal Actions: None.
- G. CG-5512 Comment: The estimated cost for the entire project is \$1.5B.

II. NAVIGATIONAL EVALUATION

A. PROPOSED BRIDGE:

1. Date of Plans: Sheets 1 through 10 (of 10) dated February 2012.
2. Type: Combination fixed and floating (pontoon) highway bridge.
3. Length: 14,736.52 feet from abutment to abutment.
Length of floating section: 7,640 feet.
4. Width: From 116 feet to 252 feet out-to-out depending on the section of bridge.
5. Vertical Clearance:
East approach: 70.0 feet above Normal High Water, NAVD88.

West Approach: East Navigational Span: 44.27 feet; West Navigational Span: 47.52 feet above Normal High Water, NAVD88.

6. Horizontal Clearance:
East Approach: 226.5 feet within the navigational envelope of 70-foot vertical clearance and 254.0 feet between fenders.
West Approach: East and West Navigational Spans: 142.0 feet each, between fenders.

NOTE: The applicant proposes to have periodic temporary closures of both the east and west approach navigational spans, but not both at the same time. There will be lesser clearances during some of those times. Those clearances would be:

East Approach (temporary clearance): 57.0 feet vertical; 188.0 feet horizontal between piers.

West Approach (temporary clearance for one channel): 43.0 feet vertical; 85 feet horizontal between piers.

7. Significant effect on flood heights and associated drift: None.

B. EXISTING BRIDGE STRUCTURE:

1. Type: Combination fixed and floating (pontoon) highway bridge.
2. Date of Permit: The USACE approved the existing structure by a permit dated 28 April 1955. The USACE approved revised plans by a permit amendment dated 27 March 1961. The USCG approved modification to the bridge by amendment dated 21 September 1971.
3. Drawbridge Operational Schedule
() Change (x) Revoke () No change () None
4. Vertical clearance:
East Approach: 57.0 feet above Normal High Water

West Approach: 44.0 feet above Normal High Water (two navigational channels)

Moveable Span: Unlimited in the open position (0.0 feet in the closed).

5. Horizontal clearance:

East Approach: 207.0 feet between fenders

West Approach: 206.0 feet between fenders (two navigational channels)

Moveable Span: 200.0 feet between fenders.

6. Extent of removal for the existing bridge: All parts not utilized in the new structure shall be removed down to or below the natural bottom of the waterway or groundline.

C. CLEARANCES:

1. Established Guide Clearances: None.

2. Governing Structure:

- a. Horizontal: The I-90 Bridge (approximately 5 miles south of the existing bridge) has a horizontal clearance of 200 feet on the east side of Mercer Island.
- b. Vertical: The I-90 Bridge has a vertical clearance of 71 feet. The proposed replacement bridge would have a vertical clearance of 70 feet minimum and would become the new governing structure for vertical clearances on the waterway.

3. Protests against existing bridge across the waterway: None known.

D. WATERWAY:

1. Physical Characteristics at bridge site:

- a. Width: Approximately 1.8 miles bank to bank.
- b. Depth: The depth varies from 20 feet near shore to up to 200 feet. The minimum depth at the proposed navigational spans is approximately 20 feet.
- c. Other Limiting Factors: The waterway and bridge is subject to high winds. The plan sheets show Normal High and Normal Low Water levels; however, the waterway is not tidal. Depths are influenced by heavy rains, high winds, and the amount of water entering through the lock to Puget Sound.

2. Public Notice: The Coast Guard issued Public Notice No. 01-12 for the proposed bridge project.

- a. Date(s) issued: 9 January 2012.
- b. Circulation: (x) known navigational interests (x) adjacent property owners

3. Substantive navigational comments:

- a. No substantive responses were received in regards to navigation.
4. CG-5512 Comment: Local Notice to Mariners No. 02/12 was issued on 10 January 2012.
5. Federal Project: No.
 - a. Status of Project: N/A.
 - b. Location: N/A
 - c. Other Limiting Factors: None.
6. Navigation on Waterway:
 - a. Commercial navigation: Marine contractors, passenger and excursion vessels, and occasional tug/barges transit the waterway at the bridge site. The proposed bridge would meet the reasonable needs of all present and prospective commercial navigation on the waterway.
 - b. Recreational navigation: Recreational vessels of various type and size utilize the waterway. The proposed bridge would meet the reasonable needs of all present and prospective recreational navigation on the waterway.
- E. District's Recommendation: The district recommends Headquarters issue Permit (1-12-13) and approve the aforementioned plan sheets. The minimum navigation clearances on the waterway have been maintained, and the proposed project was presented to various local stakeholders with no negative complaints. The applicant requested five years to commence and 15 years to complete construction; however, that request included two separate bridge permit actions. Therefore, the applicant agreed to five years to commence and nine years to complete construction for this proposed project.
- F. CG-5512 navigational evaluation: The case record reflects that the bridge replacement as proposed would provide for the reasonable needs of the present and prospective navigation on the waterway. Agency procedures have been complied with for this permit action.

Review completed on: 8 March 2012 by Matthew S. Robertson

Signed: _____

Bridge Management Specialist

III ENVIRONMENTAL EVALUATION

A. NEPA (P. L. 91-190, as amended)

1. Lead Agencies: Federal Highway (FHWA), **Executive Summary, Page 5.**
 - a. Cooperating Agency: U.S. Coast Guard (USCG) is one of the cooperating agencies. The project has twenty cooperating agencies involving affected jurisdictions, representatives of state and federal natural resource agencies, and tribes, **Executive Summary, Page 6.**
 - b. Numerous consultants and subconsultants were used to complete the reports and studies for this project, including Parametrix Inc., HDR Inc., PB Consultants etc. The WSDOT submitted the permit application directly to USCG instead of using a consultant, **FOF.**

2. Documentation: (X) EIS () EA/FONSI () Categorical Exclusion

Prepared by: The FHWA approved the Final Environmental Impact Statement (FEIS) (FHWA-WA-EIS-06-02-F) on 26 May 2011. The Notice of Availability (NOA) for the FEIS was published in the *Federal Register* on 17 June 2011, **ROD.** FHWA signed a Record of Decision (ROD) on 4 August 2011. A Draft Supplemental EIS was issued on 22 January 2010. The NOA for the Draft Supplemental EIS was published in the *Federal Register* on 22 January 2010.

The FHWA approved the Draft EIS (FHWA-WA-EIS-05-02-D) in August 2006. The NOA for the DEIS was published in the *Federal Register* on 18 August 2006.

The Supplemental Draft EIS evaluated the effects of No Build Alternative and three design options for the 6-lane alternative for the SR-520, I-5 to Medina Project. Based on the findings of the SDEIS and comments submitted, a Preferred Alternative was identified in the FEIS, **Executive Summary.**

A Reevaluation was issued on 25 January 2012 which analyzed proposed changes to the design of the floating bridge and landings, and modifications to the construction techniques. The USCG adopted the bridge-related portions of the EIS on 27 February 2012.

3. Public Meetings: WSDOT held five community drop-in information sessions on the FEIS between 23 May and 9 June 2011, at locations in Montlake, Roanoke Park, Madison Park, Laurelhurst, and Ravenna.

CG-5512 Comment: The WSDOT has submitted an application for the bridge permit dated 14 December 2011 proposing the replacement of Governor Albert D. Rosellini Bridge or the Evergreen Point Bridge. Construction of the Evergreen Point Bridge has been divided into three parts, the floating bridge, the west approach bridge and the east transition area.

Floating Bridge: A new floating span would be located approximately 190 feet north of the existing bridge at the west end and 160 feet north of the existing bridge at the east end. The proposed floating bridge will be wider and longer than the existing bridge. The Reevaluation issued on 25 January 2012 for the Floating Bridge proposed design changes modifications to the structure along the low rise portion of

the floating bridge and fewer drilled shafts to support pier 36. Changes in construction techniques were also proposed like reducing false work and work bridges and revised assembly of the floating bridge, **Reevaluation**. The existing draw-span is anticipated to remain operational until the final mid-span pontoons are installed in 2013-2014.

West Approach Bridge: The west approach will begin in Montlake and span an unnamed embayment of Union Bay, across Foster Island, and out into Lake Washington, terminating at the west transition span and the beginning of the floating bridge. The west approach bridge would be replaced with wider and higher structures. Substructure elements will include drilled shafts and concrete support columns, **FEIS**. Pier 36, which marks the beginning of the west approach structure, was originally designed with a foundation consisting of five drilled shafts in the **FEIS**. The **Reevaluation** issued on 25 January 2012, proposed the reduced number of drilled shafts from five to four, **Reevaluation**.

Eastside Transition Area: A new east approach to the floating bridge, and a new SR 520 roadway would be constructed between the floating bridge and Evergreen Point Road. New bridge maintenance facilities, including an approximately 12,000 ft² building, dock (with approximately five in-water concrete columns), and two-boat moorage, constructed below and adjacent to the east approach. The **Reevaluation** dated 25 January 2012 proposed fewer columns to support east support structure and modifications to the bridge maintenance facility. The maintenance facility would be larger, increasing in size from a two-story to a three-story structure, but would remain an upland facility. The proposed maintenance dock would be supported by ten 2-foot-diameter piles, nine of which would be in water, instead of the four larger columns as discussed in the **FEIS**. Additionally, due to the revised maintenance facility layout, the maintenance dock would be located slightly north of its position in the **FEIS**. A temporary eastside over-water staging area will be used for pontoon assembly, **Reevaluation**.

- B. Public Notice: The Coast Guard issued Availability of Public Notice and Public Notice (01-12)
1. Date(s) issued: 9 January 2012
 2. Circulation to appropriate federal, state, local agencies as well as interested parties and environmental groups: Yes
 3. Substantive environmental responses: Yes
 - a. The Muckleshoot Indian Tribe responded by the letter dated 11 January 2012 stating that they have no objection towards the issuance of Coast Guard Bridge Permit for the SR 520 replacement project, **enclosure 8**.
 - b. In an email dated 12 January 2012, Isabel Tinoco, Fisheries Director for the Muckleshoot Indian Tribe confirmed that a Memorandum of Agreement (MOA) has been signed which outlines WSDOTs commitment to a set of specific measures to offset treaty fishing impacts, **enclosure 8a**.
 - c. Letter from WSDOT dated 26 January 2012 which summarizes the MOA between WSDOT and the Muckleshoot Indian Tribe. WSDOT and the

Muckleshoot Indian Tribe have requested that the actual MOA not be made part of the public record, as an enclosure to this Finding of Fact, because there are sensitive financial details contained within, **enclosure 8b**.

d. Letter from Jorgen Bader, dated 5 February 2012, requesting the Coast Guard incorporate into our Record of Decision (ROD) a letter from the Washington Department of Transportation dated 19 July 2011, to the Seattle Department of Parks and Recreation concerning 4(f) property impacts. Mr. Bader's letter also requests the Coast Guard seek a letter from WSDOT offering property known as the Frolund Site as mitigation for section 4(f) impacts, **enclosure 9**.

e. Letter from Ravenna-Bryant Community, dated 7 February 2012, requesting the Coast Guard incorporate into our Record of Decision (ROD) a letter from the Washington Department of Transportation dated 19 July 2011, to the Seattle Department of Parks and Recreation concerning 4(f) property impacts, **enclosure 10**.

f. Letter from University Community Council, dated 8 February 2012, requesting the Coast Guard incorporate into our Record of Decision (ROD) a letter from the Washington Department of Transportation dated July 19, 2011, to the Seattle Department of Parks and Recreation concerning 4(f) property impacts, **enclosure 11**. It has been further

4. CG-5512 Comment: As requested in the enclosures 9, 10 and 11, the Coast Guard will defer to FHWA's decision regarding the restoration of the triangular area lying south of the SR 520 Bridge. The FHWA as stated in their ROD, has conveyed this WSDOT peninsula property to the Seattle Department of Parks and Recreation, subject to determination that the value of the land provided as mitigation is reasonably equivalent to the value of the Section 4(f) lands acquired for the project, **Page 84, ROD**. The Coast Guard will not consider the Section 4(f) impacts on the Frolund Site mentioned in the Jorgen Bader letter dated 5 February 2012. Those impacts will be considered during the permitting process of the Portage Bay Bridge, **enclosure 9**.

C. Water Quality Certificate (P. L. 92-500, as amended)

1. (x) Issued () Waived () Denied () Not Required
2. Certifying agency and date: The Washington Department of Ecology (WDOE) has issued Water Quality Certification (Order # 9011) pursuant to Section 401 under the Clean Water Act for the complete SR 520 project on 15 February 2012, **enclosure 15**.
3. Means of USEPA notification and date: Ms. Krista Rave Perkins of USEPA Region 10 was notified on 27 February 2012 by Mr. Randall Overton of CG District 13 via telephone, about the issuance of WQC for the SR 520 bridge replacement project across Lake Washington at Seattle. Ms. Rave Perkins had no objection to the issuance of the WQC for this project, **enclosure 16**.

CG-5512 Comment: The WQC includes several general conditions and information about wetland impacts and fill material, **enclosure 15**. The Reevaluation for Floating Bridge and Landings issued on 25 January 2012

proposed adjusting the location of storm water catch basins from the bridge deck to the pontoon deck, and design modifications to include a subsurface groundwater collection and infiltration system around and under the maintenance facility. Both changes were determined to not result in a significant adverse impact on water quality. The proposed design change of spread footings will reduce the size of the cofferdam that would be installed during the construction of the floating bridge. Additionally, Pier 2 will be moved entirely upland and Pier 1 will still be in water but would be moved, situating it about 300 feet off shore. These design changes would reduce substrate disturbance by 2,700 square feet compared to the FEIS design, **Reevaluation**. The cast-in-place segmental method is proposed in the Reevaluation which will reduce the size of the work bridge. Instead of 165 piles, this construction method would only require up to 40 piles, which would be used to support a smaller work bridge. This method would reduce the number of piles required to construct the east approach, thereby also reducing impacts on the lake bed, **Reevaluation**.

D. Section 106 (P. L. 89-665, as amended)

1. NRHP checked by: District Headquarters
2. SHPO consulted via: Public Notice Other
3. Section 106 properties involved:

Evergreen Point Bridge: The Preferred Alternative would demolish the existing NRHP listed Evergreen Point Bridge and construct a new Evergreen Point Bridge. No other historic properties in the Lake Washington study area would be affected by the project. According to Section 106 Programmatic Agreement, WSDOT will prepare Level II Historic American Engineering Record (HAER) documentation of the Evergreen Point Bridge.

West Approach Bridge: Washington Park Arboretum, Foster Island Traditional Cultural Property (TCP), and Edgewater Condominiums will be adversely affected by the construction of the west approach bridge. The Foster Island TCP is culturally significant to Native American tribes of the area, as well as being a part of the NRHP-eligible Arboretum. In accordance with 36 CFR 800.6, Resolution of Adverse Effects, WSDOT, FHWA, Department of Archaeology and Historic Preservation (DAHP), and the tribes have developed a Foster Island Treatment Plan that stipulates the measures to be taken to mitigate the adverse effect on the Foster Island TCP, **FEIS, Attachment 9**.

Eastside Transition Area: The NRHP-eligible James Arntson House and the WHR-eligible Helen Pierce House could experience moderately increased noise levels, fugitive dust, and possible vibration associated with demolition of the east approach of the Evergreen Point Bridge and pile-driving for construction of the new approach structure. However, most of these effects would occur intermittently, and none would be permanent and significant.

The ROD concludes that the Selected Alternative would have the fewest overall impacts on cultural resources and the least amount of relative net harm. No NRHP-eligible archaeological sites have been identified within the APE. To date,

WSDOT has conducted archaeological investigations of the areas planned for ground-disturbing activities in high-probability areas.

Tribal Consultation: The WSDOT consulted with the Muckleshoot Indian Tribe, the Snoqualmie Indian Tribe, the Suquamish Tribe, and the Tulalip Tribes (the affected tribes), federally recognized tribes that attach religious and cultural significance to historic properties that will be affected by the Project, and they were invited to concur with the Section 106 Programmatic Agreement. In accordance with Section 106 of the National Historic Preservation Act, the 1989 Centennial Accord between the Federally Recognized Tribes in Washington State and the State of Washington, the New Millennium Agreement, the WSDOT Secretary's Executive Order on Tribal Consultation E 1025.01, and the WSDOT Centennial Accord Plan, a Programmatic Agreement (PA) was signed among WSDOT, FHWA, ACHP, SHPO, USACE, NOAA, affected tribes, and other consulting parties dated June 2011, **Attachment 1, ROD**.

Measures to be taken to mitigate the adverse effects of the SR 520, I-5 to Medina project on the historic and culturally important sites were developed through consultation among these participants and are detailed in this PA, **FEIS, Attachment 9**. The design modifications and changes to construction techniques proposed in the Reevaluation dated 25 January 2012 would not result in any previously unidentified adverse construction and operational effects on historic properties. All activities and structures would continue to be located within the limits of construction identified in the FEIS, **Reevaluation**.

E. Flood plain:

1. Encroachment Significant encroachment Not applicable

CG-54112 Comment: Lake Washington does not have a floodway or floodplain. Construction of the Lake Washington Ship Canal and Hiram Chittenden locks and subsequent water level regulation in Lake Washington by the USACE eliminated the annual flood-driven seasonal inundation of the shoreline.

F. Section 307 (P. L. 92-583):

1. Federally approved CZM program: Washington has a federally approved coastal zone management program. The WDOE, Shorelands and Environmental Assistance Program is responsible for implementing Washington's CZM Program. The project is located within King County, which is within Washington State's coastal zone; therefore, the project is subject to the CZMA.
2. Consistency Certification: WSDOT applied for a CZMA Consistency Determination by submitting a federal consistency document package to WDOE consisting of a JARPA form on 10 August 2011, **enclosure 17**.
3. Concurrence by State: By the letter dated 21 February 2012, the WDOE determined that the proposed work is consistent with the Washington's CZM Program, **enclosure 17**.
4. CG-5512 Comment: The Coast Guard concurs with and adopts the applicant's CZM consistency certification.

G. Other appropriate environmental control laws/orders.

Wetlands:

The floating bridge and east approach would not affect any wetlands. In the west approach area, the project will permanently fill approximately 0.29 acre of Category I, II, III, and IV wetlands. Shading from the project will result in 4.87 acres of permanent impacts to Category I, II, III, and IV wetlands. Temporary wetland impacts include 0.2 acres of temporary fill, 2.82 acres of temporary clearing, and 5.25 acres of temporary shading to Category I, II, III, and IV wetlands, **enclosure 15**.

FHWA and WSDOT have completed the Conceptual Wetland Mitigation Plan and Conceptual Aquatic Mitigation Plan, **Attachment 9, FEIS**. Permanent wetland fill, permanent wetland shading, temporary wetland fill, temporary clearing, and temporary shading will be mitigated at four locations, **enclosure 15**. The four sites are as follows:

- WSDOT Peninsula - This site consists of a large, WSDOT-owned peninsula extending northward from the Arboretum area into Union Bay. The area currently contains the Lake Washington Boulevard and R.H. Thomson Expressway ramps.
- Union Bay Natural Area - The Union Bay Natural Area is owned and managed by the University of Washington. It is directly north across Union Bay from the SR 520, I-5 to Medina project.
- Magnuson Park – Magnuson Park is owned by the City of Seattle and managed by the Seattle Parks and Recreation. The site is approximately 2.5 miles north of SR 520 near the Lake Washington shoreline.
- Cedar River Elliott Bridge Reach (offsite) - WSDOT would develop a floodplain restoration site along the Cedar River on land owned by King County, **Conceptual Wetland Mitigation Plan, Attachment 9, FEIS**.

The Reevaluation for Floating Bridge and Landings issued on 25 January 2012 determined that the construction and operation impact on wetlands would be similar to those described in the FEIS and ROD, **Reevaluation**.

Endangered Species Act and Magnuson-Stevens Fisheries Conservation and Management Act:

FISH POPULATION:

Because the area of in-water impact is small, and the shading would generally be less intense (in the west approach area) or in deep-water areas not used extensively by fish (in the floating bridge area), these impacts are not expected to have a significant effect on fish use or populations in the lake. For the east transition area, the Reevaluation dated 25 January 2012 proposed using the segmental construction method which would reduce the number of piles required to construct the east approach, thereby also reducing impacts on the lake bed and aquatic habitat. The 40 piles required by the proposed segmental method would only displace 300 square feet. The amount of temporary over-water shading would be reduced as a result of the smaller work bridge, from 0.4 acre to 0.2 acre, **Reevaluation**. Construction of the maintenance facility at the east approach may increase groundwater drawdown, which may reduce upwelling in

the sockeye spawning habitat area. Effects on upwelling pressure may affect sockeye spawning habitat.

A Biological Assessment for the project was submitted to USFWS and NOAA Fisheries on 23 November 2010 analyzing the potential project effects on listed species and designated critical habitat. The WSDOT determined that the project is likely to adversely affect three threatened species including: Bull trout (*Salvelinus confluentus*), Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) and Puget Sound Steelhead (*Oncorhynchus mykiss*). The project is not likely to adversely affect Boccaccio (*Sebastes paucispinis*), Canary rockfish (*Sebastes pinniger*), Yelloweye rockfish (*Sebastes ruberrimus*), and Killer whale (*Orcinus orca*). The project site provides critical habitat for bull trout, Chinook salmon and killer whale, **Attachment 18, FEIS**.

The USFWS issued a Biological Opinion on 15 April 2011 and NOAA Fisheries issued a Biological Opinion on 20 May 2011. Both Biological Opinions include incidental take statements, work windows for the various phases of bridge construction, reasonable and prudent measures, terms and conditions, and conservation recommendations to avoid and minimize effects on listed species and designated critical habitat. The USFWS approved the incidental take of bull trout, and NOAA approved the incidental take of Chinook salmon and Steelhead, **Attachment 18, FEIS**.

The USFWS Biological Opinion dated 15 April 2011 concluded that the action, as proposed, is not likely to jeopardize the continued existence of the bull trout in its coterminous range. NOAA Biological Opinion dated 20 May 2011 concluded that the proposed action is not likely to jeopardize the continued existence of Chinook salmon or steelhead or destroy or adversely modify Chinook salmon designated critical habitat, **Attachment 18, FEIS**.

Essential Fish Habitat (EFH): The WSDOT prepared Biological Assessment determined that the EFH for Pacific salmon, groundfish, and coastal pelagic species is present in or adjacent to the action area. The project may result in effects on EFH, however, the project will not adversely affect EFH for groundfish or coastal pelagic species, **Attachment 18, FEIS**. NOAA Biological Opinion dated 20 May 2011 concluded that the proposed action and action area for this consultation includes areas designated as EFH for various life-history stages of Chinook salmon and coho salmon (*O. kisutch*), but does not occur within a Habitat Area of Particular Concern. It was determined that the proposed action will have adverse effects on approximately 395 acres of designated EFH for Chinook salmon and coho salmon. EFH conservation recommendations have been provided in this Biological Opinion, **Attachment 18, FEIS**.

Impacts Due to Design Changes: Reevaluation for Floating Bridge and Landings issued on 25 January 2012 proposed design changes and modifications to the construction technique. The changes and their impacts are discussed below:

Use of four columns to support the east approach structure: This change would result in a reduction of operation and construction effects on ecosystems, compared to the effects identified in the FEIS. This change would result in the use of smaller cofferdams to construct the bridge piers.

Modifications to the bridge maintenance facility: Same as above.

Use of four drilled shafts to support pier 36: The revised design would affect 52 additional square feet of benthic substrate compared to the FEIS design, increasing the total impact in the west approach area from 12,800 square feet to 12,852 square feet. While the additional fill would be located in a primary migration route for juvenile salmonids, the increased fill area is very small relative to the overall migration area in Lake Washington as to be considered a negligible effect on fish resources.

Use of segmental bridge construction techniques and revised floating bridge assembly: No additional impact. With the proposed design changes, the amount of disturbance to the aquatic substrate during construction would be reduced. Over-water shading of the shoreline areas would decrease, and pile-driving and associated noise effects would also be reduced compared to the evaluated in the FEIS and ROD.

Use of a temporary eastside over-water staging area to outfit pontoons and assemble bridge elements: No additional impact. Since the staging area is 450 feet offshore and in water 40 feet and deeper, migrating juvenile salmonids and spawning sockeye salmon would continue to use the shallower shoreline areas and avoid the staging area during construction. The staging area would not result in new significant effects on fish resources and habitat.

USFWS concurred in their letter dated 10 January 2012 that the proposed design and construction changes will not result in any impacts additional to what have been already identified in the original BO. The original BO, Incidental Take Statement, and mitigation conditions remain unchanged, **enclosure 22**.

The NMFS concluded in their letter dated 11 January 2012 that while the changes to the proposed design cause changes in the amount and extent of take, they do not change NMFS' opinion that the proposed action is not likely to jeopardize the continued existence of Chinook salmon or steelhead or destroy or adversely modify Chinook salmon designated critical habitat. Minor administrative corrections to the Incidental Take Statement and conditions are specified in the letter, **enclosure 23**.

Mitigation: The WSDOT has prepared Conceptual Aquatic Mitigation Plan, **Attachment 9, FEIS**. Because of the different types of potential project effects on fish and aquatic resources, and because these potential effects would occur in several distinct habitat types (for example, open water and shoreline), WSDOT will conduct specific mitigation activities at more than one location within the Water Resource Inventory Area 8 watershed, in which the project is located. Several mitigation projects will be developed, including habitat restoration projects in Lake Washington, the Cedar River, and Bear Creek. Mitigation for permanent impacts to aquatic habitat associated with the Floating Bridge will take place at sites outside of the City of Seattle and will be permitted separately in those jurisdictions, **Attachment 9, FEIS**.

WILDLIFE: Some birds, such as Canada geese and cliff swallows, have been known to build nests on the existing Evergreen Bridge. Construction of a new bridge and removal of existing structures could disrupt active nests of these species, which are protected under the Migratory Bird Treaty Act. To protect nesting birds from harm, WSDOT may position exclusion devices and remove nest material before the beginning

of the nesting season to prevent swallows or geese from nesting on the bridge during construction. Vegetation clearing for construction work bridges would involve removing several large trees near the Arboretum, some of which may be suitable for bald eagle nesting. Additionally, project construction would require the removal of the two sculptures on either side of the existing Evergreen Point Bridge that bald eagles often use for perching. However, most suitable bald eagle nesting and perching trees within the project vicinity would not be affected by project construction. Construction noise and pile-driving may affect foraging peregrine falcons at Portage and Union bays. The birds would likely avoid portions of the bays near construction and pile-driving activities. However, other foraging habitat that the birds are known to use would remain, but overall effects on the birds are expected to be negligible. No state-listed and priority species will be significantly affected by the proposed project, **Ecosystems Discipline Report Addendum and Errata, FEIS**. No separate correspondence has been made with USFWS for the potential impact on the migratory birds due to the project. However, USFWS was the cooperating agencies during the preparation of the EIS and was regularly apprised of project status, Chapter 1, FEIS. Therefore, the Coast Guard concludes that no additional correspondence is required.

The Reevaluation for Floating Bridge and Landings dated 25 January 2012 determined that the proposed changes in design and construction technique, will result in no substantial increase in impacts on wildlife and habitat, and federally and state-listed wildlife species, **Reevaluation**.

Noise

Replacement of Evergreen Point Bridge will have noise impacts on the Medina residents north and south of SR 520 who would experience noise effects from pile-driving. Pile-driving activities would occur over approximately 3 months during the first year of construction and 4 months during the second year of construction of the East Approach structures. Noise effects would be very loud (up to 105 dBA) during pile-driving activities. Construction of the new west approach is expected to last up to 57 months, pile-driving activities would occur for only a small portion of that time, affecting Madison Park and Laurelhurst communities. Underwater noise levels could result in behavioral impact on juvenile and subadult salmonids in the vicinity of the pile installation.

The Reevaluation issued on 25 January 2012 determines that six mooring dolphins would be installed to anchor the eastside staging area near the floating bridge. This will reduce the total number of temporary piles in the east approach area during project construction compared to that identified in the FEIS. Therefore, nearby land uses would experience less overall noise associated with pile driving. The overall construction activity on Lake Washington would not be substantially greater than the levels identified in the FEIS. With the development and implementation of a community construction management plan, as described in the ROD, and implementation of best management practices at the eastside staging area, new noise effects are not expected to be significant, **Reevaluation**.

A Noise Discipline Report Addendum was prepared by the WSDOT as a part of the FEIS. For the noise impacts during the construction phase, the project will meet the

requirements of the City of Medina and City of Seattle noise ordinances, or the conditions of any variance that may be obtained. The Community Construction Management Plan addresses potential vibration effects during construction with input from affected communities. Noise walls are recommended only on both sides of SR 520 from east of the floating span to Evergreen Point Road. WSDOT will consult with eligible property owners to determine whether the recommended noise walls will be implemented. Quieter concrete pavement will also be used, **ROD**.

Air

Air quality in the project area is regulated by the USEPA, WDOE, and Puget Sound Clean Air Agency (PSCAA). The Puget Sound area does not meet the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO). Although ambient concentrations have been below the NAAQS for many years, the area is still designated by USEPA as a CO maintenance area. Because the project was determined not creating any new violations, nor increase the frequency of an existing violation of the CO standard, it conforms with the purpose of the current State Implementation Plan (SIP) and the requirements of the federal Clean Air Act and the Washington Clean Air Act. The proposed project is included in the regional transportation plan (RTP), Transportation 2040 and in the 2010-2013 Transportation Improvements Program, also known as the Transportation Improvement Program (TIP). The RTP and the TIP meet the conformity requirements identified by federal and state regulations for CO, **Chapter 5, FEIS**.

For effects during construction, state law requires construction site owners and/or operators to take reasonable precautions to prevent fugitive dust from becoming airborne. WSDOT will comply with the procedures outlined in the Memorandum of Agreement between WSDOT and the PSCAA for controlling fugitive dust, **ROD**.

Other

Navigation Impacts: The new floating span will not provide a navigation opening such as the draw-span on the existing Evergreen Point Bridge. Vessels will be limited to the navigation clearances associated with the new east and west approach navigation openings. Vessels passing under the new west approach will be able to use two navigation channels at the eastern end of the structure, **FEIS**. The Reevaluation issued on 25 January 2012 determined that as a result of the modified foundation and the adjusted locations, the east navigation channel would provide more navigation clearance compared to presented in the FEIS and ROD, **Reevaluation**. No significant adverse navigation impacts are anticipated due to the proposed project.

Traffic Impacts: During construction, traffic conditions on the freeways would remain similar to existing conditions during the most congested times of the day. Intermittent delays could be expected due to isolated construction events, but activities that close lanes on the highway would not be allowed during the daytime. In addition temporary bridges will be used during construction which will help in relieving traffic congestion during the construction. Permanent traffic impacts will include change in the travel patterns on local streets in the area due to the direct-access HOV ramp from SR 520, and the removal of the Lake Washington Boulevard ramps.

Bicycle and Pedestrian Travel Impacts: During construction of the west approach bridge, the portion of the Arboretum Waterfront Trail that currently travels under the existing SR 520 main line would be closed while structures over the trail are rebuilt. On the east approach, Points Loop Trail will be impacted during construction. Bicyclists and pedestrians would be exposed to more traffic throughout the corridor until the construction is complete.

Energy and Greenhouse Gases: The project would reduce annual energy consumption between 4 and 10 percent on SR-520 between Seattle and Medina. The project would reduce greenhouse gas emissions by approximately 10 percent in the project area, **Chapter 5, FEIS.**

Geology: WSDOT has included a number of features to reduce potential geologic hazards. Areas would be stabilized where soils are liquefiable and/or prone to settlement or landslide, including the Evergreen Point Bridge west approach structure. Due to the sensitive nature of Foster Island, ground disturbance and excavation in this area would be limited as much as possible and other measures would be used to address soil stabilization.

Construction of the bridge maintenance facility at the east approach of Evergreen Point Bridge would cut through landslide-prone soils, into an existing slope. Groundwater sampling and testing in the maintenance building/east highrise area has detected some metals levels in three wells. The bridge maintenance facility building could result in localized water table lowering, or drawdown. The Reevaluation for the Floating Bridge and the Landings dated 25 January 2011 proposed design modifications to bridge maintenance facility that included a subsurface groundwater collection and infiltration system around the perimeter of and under the maintenance facility. The underground collection system would be installed between the east approach abutment and the maintenance facility and would consist of drain rock and perforated pipe. The Reevaluation does not mention any adverse impact on the geology of the area due to proposed changes, **Reevaluation.** These design revisions might increase the floor elevation and reduce the drawdown. However, unless the bridge maintenance facility is located above the water table, there will be some, though relatively minor unavoidable effects on the groundwater flow. Other negative effects on geology and soils will be avoided or minimized through the measures identified in the FEIS, **Geology and Soils Discipline Report Addendum.**

Hazardous Materials: Pursuant to *Resource Conservation and Recovery Act (RCRA)* and *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, two sites have the potential to be impacted by the bridge construction: Miller Street Landfill and sediments of Lake Washington. The risk is low that hazardous materials would be encountered during construction within the former Miller Street Landfill because the site was used for domestic rather than industrial waste disposal. Regarding the contaminated sediments of Lake Washington, sediment removal would be required during excavation for bridge column footings. Because the existing sediment quality data are limited and the samples were not collected from areas that would be directly affected by construction, the risk of encountering contaminated sediments during replacement of the Evergreen Point bridges is unknown to date, **Hazardous Materials Discipline Report Addendum and Errata.**

Property Acquisitions and Relocations: According to the application submitted on 15 December 2011, two residential structures and associated docks will be removed or relocated during the construction of the east approach of the floating bridge. The Reevaluation dated 25 January 2012 proposes the use of segmental bridge construction technique. The revised work bridge would require the removal and replacement of one additional private dock. Property acquisition and relocations will be completed in accordance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Environmental Justice: Tolling for the project would adversely affect low-income populations; in addition, construction of the new Evergreen Point and west approach bridges would have adverse effects on tribal treaty fishing and on the Foster Island traditional cultural property. Environmental justice effects were addressed through a variety of measures including:

- Outreach to low-income and minority populations regarding tolling on SR 520, along with increases in transit service that will provide benefit to low-income users of SR 520.
- Consultation with the Muckleshoot Indian Tribe, Suquamish Tribe, Snoqualmie Tribe, and Tulalip Tribes to mitigate for effects on the Foster Island traditional cultural property through a Foster Island Treatment Plan. Government-to-government consultation between FHWA, the Muckleshoot Indian Tribe, and WSDOT which resulted in signing of a Memorandum of Agreement on December 2011 that describes commitments made to address the project's effects on treaty fishing and natural resources, **enclosure 8b**.

The Reevaluation for Floating Bridge and Landings issued on 25 January 2012 determined use of four columns to support the east approach structure, use of segmental bridge construction techniques and revised floating bridge assembly, and use of a temporary Eastside over-water staging area to outfit pontoons and assemble bridge elements would not result in new significant impacts on tribal fishing and low-income, minority, or limited-English-proficient populations, **Reevaluation**.

Tribal Fishing: Project effects on tribal fishing are of serious concern to the Muckleshoot Indian Tribe, which has treaty fishing rights in all of Lake Washington, and some of the other areas where pontoons may be outfitted and transported.

Construction impacts will prevent or limit access to usual and accustomed tribal fishing areas because of the following: Existing areas used by the Muckleshoot Indian Tribe for fishing would be partially obstructed. Navigation channels would close during construction of the bridge's new spans and demolition of the existing bridge spans over the navigation channels. Construction-related vessel and barge movement in Lake Washington could interfere with tribal fishing. Pontoon storage and staging areas could limit access to tribal fishing areas. The Muckleshoot Indian Tribe would lose access to fishing areas for several years while in-water work is taking place.

Construction activities might also adversely affect treaty fisheries resources by limiting the availability of fish for subsistence, ceremonial, and commercial purposes, **Chapter 6, FEIS**.

Permanent impacts are as follows:

- The project's footprint would be significantly larger than that of the existing bridge, resulting in a permanent loss of fishing area to the Muckleshoot Indian Tribe.
- The project would include a bridge maintenance facility on the east end of the Evergreen Point Bridge in an area that may be used for sockeye spawning. This facility could have adverse effects on the sockeye spawning grounds and would result in permanent loss of this specific location for tribal fishing.
- The proposed lighting on the west approach, and floating spans and lighting on the east approach span and maintenance facility have the potential to affect listed salmonids.
- The west approach bridge would reduce fish habitat functions, primarily because of increased shading by the larger over-water structures.

The ROD concluded that the Selected Alternative would not disproportionately affect low-income or minority populations, including that it would not disproportionately affect the Muckleshoot Indian Tribe's treaty fishing rights, and that the Selected Alternative is consistent with Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Formal government-to-government consultation between FHWA, WSDOT, and the Muckleshoot Tribe has led to signing of a Memorandum of Agreement on December 2011 that documents FHWA's and WSDOT's commitment to a set of specific mitigation measures, **enclosure 8b**.

Section 6(f) of the Land and Water Conservation Fund Act: The proposed bridge will result in impacts on two Section 6 (f) properties including Washington Park Arboretum and Arboretum Waterfront Trail. The part of the Arboretum subject to Section 6(f) is in the northern portion of the park, and it consists of the landscape that surrounds and supports the Arboretum Waterfront Trail, including Foster and Marsh Islands. 0.1 acre conversion of Marsh Island will take place for a construction easement, but this would be available for recreational use after construction is complete. Approximately 3 acres of Section 6(f) property associated with the Washington Park Arboretum, and about 2.9 acres of Foster Island will be converted as a result of this project. A permanent conversion of 1.0 acre at the Foster Island location will become WSDOT ROW with the new wider SR 520, although the Arboretum Waterfront Trail would continue to travel through this area and underneath SR 520 Bridge after construction, as it does today. The 1.9 acre temporary conversion would be for a long term construction easement. This area would also be available once the construction is complete. Mitigation for park effects is required by Section 6(f) of the Land and Water Conservation Fund Act. WSDOT worked extensively with the City of Seattle, FHWA, the National Park Service, and the Washington State Recreation and Conservation Office to ensure that all regulatory requirements were met. Mitigation measures that WSDOT has committed to include: funding for projects at the Washington Park Arboretum as part of an Arboretum Mitigation Plan, and restoration of all park properties affected by construction.

The ROD concludes that the National Park Service (NPS) has agreed that there are no practical alternatives to the conversion of Section 6(f) property, **ROD**.

Recreation Impacts and Section 4(f): The new west approach bridge would cross Foster Island within the Washington Park Arboretum on a pier and span bridge. The canoe and kayak launch point near the north end of Foster Island would remain in use during construction, but paddling would be restricted in the areas where the work bridges are being constructed or while demolition of the existing bridge is occurring overhead. Connectivity between the ends of the Arboretum Waterfront Trail would be temporarily disrupted. In addition, small boat movements would be restricted beneath the SR 520 bridge and the work bridges in areas where the work bridges are being constructed or while demolition of the existing bridge is occurring overhead.

Construction of the east approach could impact Points Loop Trail and Fairweather Park, **FEIS**.

Three responses were received towards CG PN (01-12) dated 9 January 2012 which requested incorporation into Coast Guard ROD a letter from the Washington Department of Transportation dated 19 July 2011 to the Seattle Department of Parks and Recreation regarding restoration of the triangular area lying south of the SR 520 Bridge to the Washington Park Arboretum, **enclosures 9, 10, 11**. The Coast Guard will defer to FHWA's decision as a lead agency regarding their intent as stated in their ROD of conveying the WSDOT peninsula property to the City, subject to determination that the value of the land provided as mitigation is reasonably equivalent to the value of the Section 4(f) lands acquired for the project, **Page 84, ROD**.

Health Impacts: SR-520 Health Impact Assessment was prepared for the proposed project during September 2008. The report includes recommendations like reducing traffic related pollution, traffic management, and noise control during construction period, landscaped lids and green spaces, bicycling and walking facility, and other design features for the project for the healthy communities, **Attachment 14, FEIS**.

Visual Impacts: The project overall would result in few negative effects, in general, related to visual intactness, vividness, and unity, and could result in greater improvements to visual quality. The path beneath SR 520 on Foster Island would offer a more open and potentially pleasant experience.

Reevaluation for the Floating Bridge and Landings dated 25 January 2012 evaluated design and construction techniques changes for potential visual quality effects. No significant adverse impacts to the visual environment due to construction are anticipated. The new design modifications like regularly spaced concrete columns instead of truss substructures, use of fewer columns spaced farther apart at the east approach and addition of architectural elements were identified to be providing beneficial permanent effect on the visual quality, **Reevaluation**. Noise walls constructed as a part of this project can have a negative effect on visual quality and were perceived negatively by many nearby residents who commented on the SDEIS. WSDOT has reinitiated discussions with the Seattle Design Commission to develop urban design guidelines for the project in collaboration with community members, and will continue to update and expand these guidelines as design progresses, **Chapter 5, FEIS**.

Cumulative Impacts: The FEIS provides an extensive evaluation of cumulative impacts, **FEIS, Chapter 7**. The chapter describes past, present, and foreseeable future actions and future cumulative impacts by discipline. The USCG is aware of no actions that would alter the FEIS evaluation of cumulative impacts. The Reevaluation for Floating Bridge and Landings dated 25 January 2012 concluded that there will be no significant cumulative impacts due to revised project description, **Reevaluation**.

Disclaimer condition: No special conditions.

- H. CG-54112 environmental evaluation: The case record reflects that the USCG has met its responsibilities under the applicable environmental control laws/orders and agency procedures. The environmental documentation contained in the case record is acceptable for purposes of this permit action.

Review completed on: 8 March 2012 by Kirti Purohit

Signed: 
Bridge Management Specialist

IV. PROGRAM REVIEW DETERMINATION

Based upon a review of the foregoing environmental and navigational evaluations and the entire case record, I have determined that the above Headquarters' evaluations accurately describe the case record with regard to compliance with the various applicable laws and agency procedures.

Signed: 
Shelly H. Sugarman
Chief, Bridge Permits Division

Date: 9 March 2012