

1.1 INTRODUCTION

Project discipline leads reviewed existing natural environment data for surface water; wetlands; and fish, wildlife, and vegetation within a larger area geographic area as shown on Figure X and within 500 feet of the existing trestle (the “study area”). Field studies were not conducted on behalf of this analysis and most of the information reviewed was specifically provided by WSDOT. Although not covering the entire extent of the trestle, the Draft 2017 Environmental Considerations Report (Appendix J of the US 2/SR 204 Interchange Justification Report) was an important resource for understanding conditions within the 500-foot buffer of the trestle. The following section provides a summary of the natural environment data reviewed, an overall characterization of existing conditions, and emphasizes issues that could influence the design or constructability of a project alternative; for both the broader area (Figure X) and within 500-feet of the existing trestle.

SURFACE WATER

Discussions in this section identify potential issues related to surface water, emphasizing issues that could influence the design or constructability of a project alternative. The following subsections address these issues at the broad (study area) scale and within the project area (i.e., within 500 feet of the existing US 2 trestle).

Broader Geographic Area

Data reviewed

The following data sources were reviewed to support discussions in this section:

- USGS Hydrologic Unit Code (HUC) 4th-level (river basin) boundaries
- Ecology Water Resource Inventory Area (WRIA) information
- Ecology 303(d) list of impaired water bodies
- Snohomish County water resource data
- Snohomish County zoning map
- Snohomish County Smith Island website

Summary of Findings

The majority of study area is located in Snohomish River Watershed, which receives drainage from the Snoqualmie and Skykomish Rivers. The western extent of the study area is located in the Puget Sound Watershed and drains directly to Possession Sound. A small portion of the study area to the northeast is in the Stillaguamish Watershed. Throughout the study area, there are networks of dozens of tributary streams that convey runoff to the larger watercourses in each watershed.

One of the most unique water resources in the study area is the Snohomish River Estuary. In this area, which is approximately 20 square miles in size, the fresh water of the Snohomish River mixes with the saltwater of Possession Sound. The estuary creates nutrient-rich habitat for plants and animals, stores tidal flows and flood waters, and acts as a natural water quality filter for Possession Sound. As of August

2018, approximately 1,200 acres of Snohomish River tidal marsh estuary have been restored by the Tulalip Tribes, City of Everett, Snohomish County, and Washington Department of Fish and Wildlife in support of salmon recovery benchmarks identified in the Puget Sound Salmon Recovery Plan, the Puget Sound Partnership Action Agenda, and the Snohomish River Basin Salmon Conservation Plan. Restoration of another 420 acres of historic estuary is anticipated in 2019, with completion of Snohomish County's Mid-Spencer Island Restoration project and the Port of Everett's Blue Heron Slough project. (Snohomish County, 2019).

In the study area and throughout all watersheds, land use characteristics affect the quality of streams and other water resources. Land development and other changes from the historical vegetation can cause changes in runoff frequency, intensity, pollutant content, and vegetation cover that can result in bank scour, water quality degradation, and harmful temperature increases. Approximately 70 percent of the study area is zoned as agricultural and rural, mostly inland in the eastern foothills. The remaining 30 percent of the study area on the west side is a mix of light residential development, with more urbanized areas around Everett and Marysville. The development within these zoned areas has likely had historical impact on the stream channels and water quality in the study area. Multiple water bodies in the study area have been identified on the Ecology 303(d) list for water quality impairment. Identified parameters and pollutants of concern include pH, temperature, dissolved oxygen, bacteria, ammonia, phosphorus, mercury, copper, and zinc.

Synthesis

Issues related to stormwater management are likely to shape the design of an alternative. Within the project area, roadway improvements would be required to meet – at a minimum – the WSDOT NPDES Municipal Stormwater Permit requirements for operation and construction. Alternatives that remove existing vegetation and/or add impervious surfaces may result in impacts to water resources as discussed above. In many areas, the existing transportation infrastructure system does not include any stormwater management facilities or has facilities that do not meet current detention and water quality treatment standards. Replacement and expansion of impervious surfaces in these areas would require all runoff to be treated based on current standards. Also, depending on the sensitivity of the water resources that would receive runoff from the alternative, minimization of adverse effects could require stormwater facilities that exceed the requirements specified in the Highway Runoff Manual (e.g.; stormwater treatment measures imposed through ESA Section 7 consultation).

Within 500 Feet of the Eastbound and Westbound US 2 Trestle (including interchanges)

Data reviewed

The following data sources were reviewed to support discussions in this section:

- USGS Hydrologic Unit Code (HUC) 4th-level (river basin) boundaries
- Ecology Water Resource Inventory Area (WRIA) information
- Ecology 303(d) list of impaired water bodies
- Snohomish County water resource data
- Snohomish County zoning map
- Snohomish County Smith Island website
- Ebey Island Habitat Restoration Feasibility Study (AMEC 2011)

Summary of Findings

Most of the project area is located on Ebey Island, and crosses the Snohomish River, Deadwater Slough, and Ebey Slough, just upstream of the Snohomish River Estuary. The ground surface of Ebey Island is below the average water surface elevation of the surrounding channels; and the island is drained by a system of drainage channels, one-way tide gates, and a pump system. The soils on the island are highly supportive of agricultural activities when drained; however, very little high-intensity agriculture has been recently practiced on the island and the diking district has chosen to limit the use of the pump system for now. Almost the entire project area is zoned for agricultural use, except for urban/residential uses on the west end in Everett the east end in Lake Stevens. Just downstream of the project area, the Snohomish River Estuary has an approved Multiparameter Total Maximum Daily Load (TMDL) for ammonia, carbonaceous oxygen demand (CBOD), and dissolved oxygen.

Synthesis

Issues related to stormwater management are likely to shape the design of an alternative. Within the project area, the design will be required to meet – at a minimum – the WSDOT NPDES Municipal Stormwater Permit requirements for operation and construction. As previously discussed, if the existing transportation infrastructure system in the project areas does not include any stormwater management facilities or has facilities that do not meet current detention and water quality treatment standards, replacement and expansion of impervious surfaces would likely require all runoff treatment to be upgraded to current standards. Also, because of the high groundwater conditions and frequent flooding on Ebey Island and challenges with constructing stormwater facilities on elevated structures and trestles, traditional stormwater facility design may not be suitable for the project. Furthermore, due to the potential sensitivity of the water resources that would receive runoff from the alternative, minimization of adverse effects could require stormwater facilities that exceed the performance requirements specified in the Highway Runoff Manual (e.g.; stormwater treatment measures imposed through ESA Section 7 consultation).

WETLANDS

Discussions in this section identify potential issues related to wetlands, emphasizing issues that could influence the design or constructability of a project alternative. The following subsections address these issues at the broad (study area) scale and within the project area (i.e., within 500 feet of the existing US 2 trestle).

Broader Geographic Area

Data reviewed

The following data sources were reviewed to support discussions in this section:

- U.S. Fish and Wildlife Service National Wetlands Inventory data
- Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species location data
- Washington Department of Natural Resources (WDNR) Natural Heritage Program rare plant distribution data

- The Washington State Department of Ecology’s Modeled Wetlands Inventory (developed in partnership with the National Oceanic and Atmospheric Administration’s Coast Change Analysis Program)
- Wetland mapping data from the Snohomish County Department of Planning and Development Services
- Natural Resources Conservation Service soils data
- Locations of wetland mitigation sites delineated by WSDOT

Summary of Findings

Wetlands and hydric soils are present throughout the study area, particularly in association with stream networks. Wetlands—large wetland complexes, in particular—and hydric soils are densely distributed in the Snohomish River valley bottom for miles upstream and downstream of the existing trestle. Wetlands are less common and smaller in the hill and ridges that surround the Snohomish River valley.

Information about the locations of wetland mitigation sites in the study area is limited. The only sites for which location information was available for this analysis are in the immediate vicinity of the US 2 trestle (see Project Area discussion, below).

Synthesis

Issues related to wetlands are unlikely to substantially differentiate between project alternatives, given the widespread distribution of wetlands in the study area. Actions that may adversely affect wetlands are not strictly prohibited; rather, if an alternative is likely to result in unavoidable adverse effects on wetlands or their regulatory buffers, requirements to mitigate for those effects would be triggered.

Compliance with federal, state, and local statutes and regulations could shape the design of an alternative. Applicants with development proposals that may adversely affect wetlands must apply mitigation sequencing before permitting agencies will consider options for compensatory mitigation. Permitting agencies require applicants to demonstrate that they have avoided or minimized impacts to wetlands wherever practicable. Compliance with these mitigation sequencing requirements may necessitate adjustments to an alternative alignment (to avoid or minimize impacts to wetlands or wetland buffers), unless it can be demonstrated that such adjustments would be impracticable.

Statutes and regulations for the protection of wetlands are found at the federal, state, and local levels. Mitigation options include on-site and in-kind mitigation, participation in a local in-lieu fee program (if one exists), and/or mitigation banking. In general, mitigation requirements reflect the area and quality of the affected wetlands: impacts to greater areas of wetlands, and/or to higher-quality wetlands, necessitate greater amounts of mitigation area or credit. Broadly, wetland mitigation must be consistent with the statewide goal of achieving no overall net loss in acreage and function of Washington’s remaining wetlands, as well as furthering the long-term goal of increasing the quantity and quality of Washington’s wetlands resource base.

Within 500 Feet of the Eastbound and Westbound US 2 Trestle (including interchanges)

Data reviewed

In addition to the data sources that were reviewed for the broader study area, several previously completed assessments of environmental conditions helped inform the characterization of existing conditions of wetlands in the project area. The following documents were reviewed:

- Environmental Considerations Report: US 2/ SR 204 & 20th St SE Interchange Justification Report (WSDOT 2017)
- US 2: Everett Port/Naval Station to SR 9 Corridor Planning Study (WSDOT 2016)
- Ebey Island Habitat Restoration Feasibility Study (AMEC 2011)

Summary of Findings

As noted above, the distribution of wetlands is especially dense in the Snohomish River valley bottom, where the US 2 trestle is. Mapped or modeled wetlands cover almost the entire area within 500 feet of the existing trestle. Several wetland types, including freshwater emergent, riverine, and freshwater forested/shrub wetlands, are present. Many of the wetlands in the project area are likely to be rated as Category 1 or 2 (i.e., high-quality) (WSDOT 2017). The WDNR Natural Heritage Program has not identified any high-quality wetland ecosystems in the project area.

The most common soils in the project area are Mukilteo muck, Puget silty clay loam, and Snohomish silt loam, all of which are classified as hydric. Non-hydric soils are present at the western and eastern ends of the trestle, on the valley walls.

An approximately 1.5-acre wetland mitigation site (for the Everett Bridges project) is present near western end of the existing trestle, east of the Snohomish River. The mitigation site lies primarily along the eastbound trestle, but some portions extend under the westbound trestle as well. Another wetland mitigation site, approximately 14 acres in size, is present along 51st Avenue SE immediately south of the project area.

Synthesis

As in the broader study area, issues related to wetlands are unlikely to substantially differentiate between a design alternative in the project area. As discussed above, impacts to wetlands and wetland buffers would need to be mitigated in accordance with federal, state, and local regulations. Compliance with mitigation sequencing requirements could influence the design or alignment of an alternative.

Impacts to established wetland mitigation sites can complicate the permitting process. If an alternative is likely to adversely affect the Everett Bridges mitigation site, advance mitigation—i.e., establishing a new mitigation site or securing credit in an in-lieu fee program or mitigation bank before project construction begins—will likely be necessary.

FISH, WILDLIFE, AND VEGETATION

Discussions in this section identify potential issues related to fish, wildlife, and vegetation, emphasizing issues that could influence the design or constructability of a project alternative. The issue most likely to rise to this level would be associated with adverse effects on species listed under the Endangered Species Act (ESA) or designated critical habitat for such species. Discussions in this section also address issues relating to (1) adverse effects on species and habitats that are protected under local critical areas ordinances, and (2) project work on state-owned culverts that have been identified as fish passage barriers. The following subsections address these issues at the broad (study area) scale and within the project area (i.e., within 500 feet of the existing US 2 trestle).

Broader Geographic Area

Data reviewed

The following data sources were reviewed to support discussions in this section:

- Lists of ESA-listed species under the jurisdiction of USFWS and NMFS
- Mapped extents of critical habitat designated for ESA-listed species
- WDFW Priority Habitats and Species location data
- WDNR Natural Heritage Program rare plant distribution data
- WDFW SalmonScape database
- WSDOT Fish Passage Inventory

Summary of Findings

ESA-Listed Species and Critical Habitat

Species listed or proposed for listing under the ESA may use habitats in the study area. Some of these species fall under the jurisdiction of USFWS, while others (primarily those that use marine habitats for a substantial portion of their life histories) are under the jurisdiction of NMFS.

The USFWS Information for Planning and Consultation (IPaC) system was queried for ESA-listed species that may be found in the study area. That query generated the following list:

- Gray Wolf (*Canis lupus*) – Endangered
- North American Wolverine (*Gulo gulo luscus*) – Proposed Threatened
- Marbled Murrelet (*Brachyramphus marmoratus*) – Threatened
- Streaked Horned Lark (*Eremophila alpestris strigata*) – Threatened
- Yellow-billed Cuckoo (*Coccyzus americanus*) – Threatened
- Oregon Spotted Frog (*Rana pretiosa*) – Threatened
- Bull Trout (*Salvelinus confluentus*) – Threatened
- Golden Paintbrush (*Castilleja levisecta*) – Threatened

With the exception of bull trout, it is unlikely that any of those species use habitats in the study area. Data from the WDFW Priority Habitats and Species Program and the WDNR Natural Heritage Program indicate

that the only species that has been documented in the study area is bull trout, which may use freshwater or nearshore habitats. The other species are associated with habitats (e.g., old-growth forest, native prairie, remote areas) that are not found in the study area (although field reviews of wetlands in some parts of the study area may need to be conducted, to evaluate the capacity of those wetlands to support Oregon spotted frogs).

In addition to bull trout, two ESA-listed fish species under the jurisdiction of NMFS use freshwater habitats in the study area:

- Chinook salmon (*Oncorhynchus tshawytscha*), Puget Sound evolutionarily significant unit (ESU) – Threatened
- Steelhead (*O. mykiss*), Puget Sound distinct population segment (DPS) – Threatened

The study area also includes marine habitats that support ESA-listed species. Although it is unlikely that any corridor improvement alternatives would directly affect any such habitats, indirect effects may need to be taken into consideration. For example, if a proposed action is found to have a significant risk of adverse impacts on populations of Chinook salmon in freshwater habitats, these may translate into a potential adverse impact on southern resident killer whales, which prey primarily on Chinook salmon in marine habitats. In addition to Chinook salmon and steelhead, the following ESA-listed species may use marine habitats in the study area:

- Killer Whale (*Orcinus orca*), southern resident DPS – Endangered
- Humpback Whale (*Megaptera novaeangliae*), Mexico DPS (Threatened) or Central America DPS (Endangered)
- Bocaccio Rockfish (*Sebastes paucispinis*), Puget Sound/Georgia Basin DPS – Endangered
- Yelloweye Rockfish (*S. ruberrimus*), Puget Sound/Georgia Basin DPS – Threatened
- North American Green Sturgeon (*Acipenser medirostris*), southern DPS – Threatened
- Pacific Eulachon (*Thaleichthys pacificus*), southern DPS – Threatened
- Leatherback Sea Turtle (*Dermochelys coriacea*) – Endangered

Critical habitat for the three ESA-listed salmonid species identified above (bull trout, Puget Sound Chinook salmon, and Puget Sound steelhead) has been designed in freshwater habitats in the study area. Some marine areas in the study area have also been designated as critical habitat for bull trout and Puget Sound Chinook salmon; critical habitat for bocaccio rockfish, yelloweye rockfish, and southern resident killer whales has also been designed in marine portions of the study area.

Other Species and Habitats of Concern

The following WDFW priority habitats and sites associated with priority species have been documented in the study area:

- Bald eagle nests and communal roost
- Peregrine falcon nests
- Merlin nest
- Great blue heron nesting colonies
- Purple martin nesting colonies

- Arctic tern nesting colonies
- Harlequin duck breeding area
- Trumpeter swan night roost
- Wood duck and hooded merganser nesting areas
- Waterfowl concentration areas
- Little brown bat maternity colony
- Biodiversity areas and corridors
- Harbor seal haulout (marine areas only)
- Shorebird concentration areas (marine areas only)
- Coastal cliffs and bluffs (marine areas only)
- Eelgrass meadows (marine areas only)
- Estuarine habitat (marine areas only)
- Wetlands (see discussion of wetlands, above)

In addition, streams throughout the study area support a wide variety of fish and other aquatic fauna. Marine, estuarine, and intertidal habitats in the western portion of the study area also support numerous species and habitats that receive regulatory protection, such as under local critical areas ordinances.

Fish Passage Barriers

WSDOT Fish Passage Inventory data show that state-owned culverts impede fish passage at more than 40 locations in the study area. Roadways with fish passage barriers include Interstate 5, US 2 (southeast of the project area), and State Routes 9, 92, 96, 99, 204, 525, 526, and 528.

Synthesis

As with wetlands, issues related to fish, wildlife, or vegetation are unlikely to substantially differentiate between of a project alternatives. Actions that may adversely affect these resources are not strictly prohibited; rather, if an alternative is likely to result in unavoidable adverse effects on a sensitive species or habitat area, requirements to mitigate for those effects would be triggered.

Compliance with local critical areas ordinances could shape the design of an alternative, although the requirements are likely to depend on the jurisdiction. In unincorporated Snohomish County, for example, project proponents are required to make “all reasonable efforts to avoid and minimize impacts to wetlands, fish and wildlife habitat conservation areas, and buffers” (Snohomish County Code 30.62A.310(3)). Compliance with such mitigation sequencing requirements may necessitate adjustments to an alternative alignment (to avoid or minimize impacts to streams, stream buffers, or other fish and wildlife habitat conservation areas), unless it can be demonstrated that such adjustments would not be reasonable.

To expedite consultation with USFWS and NMFS under Section 7 of the ESA, it would be advisable to avoid a design that would require construction work or the placement of structures (e.g., roadway support columns, pilings for temporary work trestles) directly in waters that support ESA-listed fish species. Adverse effects resulting from in-water work may be avoided or minimized by (1) performing work during periods when ESA-listed species are unlikely to be present and (2) implementing impact reduction measures, such as bubble curtains to reduce the underwater sound pressure levels of in-water

pile driving. Construction activities that entail in-water pile driving and/or fish removal are likely to trigger formal consultation under ESA Section 7—a process that can last several months and result in the imposition of conservation measures that are more restrictive than those specified in other permitting documents such as the Hydraulic Project Approval issued by WDFW and the Clean Water Act Section 404 permit issued by the Army Corps of Engineers.

The potential impacts of stormwater runoff can be a major issue. Alternatives that remove existing vegetation and/or add impervious surfaces may result in increased peak flows, as well as delivering contaminants to waterbodies that support ESA-listed fish and other sensitive species. In many areas, the existing transportation infrastructure system does not include adequate facilities for the detention and/or treatment of stormwater runoff. If an alternative would add impervious surfaces in the study area, additional analysis would be necessary, to ensure the protection of hydrologic conditions and water quality that support sensitive aquatic species. The design of any such alternatives would need to include facilities that detain and/or treat stormwater runoff. Depending on the sensitivity of the affected resources, minimization of adverse effects on natural resources could lead to stormwater facilities that exceed the requirements specified in the Highway Runoff Manual.

If any alternatives entail work at locations of culverts that are identified as fish passage barriers, those culverts would need to be replaced with structures that are not barriers.

Within 500 Feet of the Eastbound and Westbound US 2 Trestle (including interchanges)

Data reviewed

In addition to the data sources that were reviewed for the broader study area, several previously completed assessments of environmental conditions in the project corridor helped inform the characterization of existing conditions of fish, wildlife, and vegetation in the project area. The following documents were reviewed:

- Environmental Considerations Report: US 2/ SR 204 & 20th St SE Interchange Justification Report (WSDOT 2017)
- US 2: Everett Port/Naval Station to SR 9 Corridor Planning Study (WSDOT 2016)
- Ebey Island Habitat Restoration Feasibility Study (AMEC 2011)

Summary of Findings

ESA-Listed Species and Critical Habitat

ESA-listed Puget Sound Chinook salmon and Puget Sound steelhead have been documented in the segments of the Snohomish River and Ebey Slough in the project area. Bull trout use the Snohomish River in the project area as rearing habitat, and they are presumed to be present in Ebey Slough. The Ebey Island floodplain includes a network of ditches that are accessible to fish. All three of these species are presumed to be present in those ditches.

The segments of the Snohomish River and Ebey Slough crossed by the US 2 trestle have been designated as critical habitat for bull trout, Puget Sound Chinook salmon, and Puget Sound steelhead. In addition, Deadwater Slough, which is crossed by the trestle approximately 0.5 mile east of the Snohomish River

bridge, has been designated as critical habitat for Puget Sound Chinook salmon and Puget Sound steelhead.

Other Species and Habitats of Concern

Of the WDFW priority species and habitats listed above, only peregrine falcon, waterfowl concentration areas, and wetlands have been documented in the project area.

Many fish species reside in or migrate through the lower Snohomish River and Ebey Slough in the project area, including eight salmonid species (Chinook, coho, chum, pink, and sockeye salmon, and cutthroat, steelhead, and bull trout). Outside of those major watercourses, AMEC (2011) reported that drainage ditches, canals, and a remnant reach of Deadwater Slough are the only areas that might contain enough water to support fish during certain times of the year, but fish access to these areas is prevented by a pump station and water quality is very poor. WSDOT (2017) noted that additional, unmapped ditches are present under the trestle. WSDOT (2016) found that the Snohomish River, Ebey Slough, other tributary crossings, and nearby wetlands will complicate transportation system improvements in the corridor.

In 2010 and 2011, WDFW conducted a study to investigate the technical and social feasibility of restoring estuarine functions on state-owned lands immediately south of the US 2 trestle, to support Chinook salmon recovery in the Snohomish River estuary. The study found that restoration is technically feasible but that the practical feasibility of restoring Chinook salmon habitat on WDFW holdings on Ebey Island is low (AMEC 2011). Reasons for the finding of low practical feasibility included high costs and limited support from local land owners and interest groups. If these practical considerations change in the next few years and a habitat restoration project becomes viable, the design and implementation of the trestle widening project will need to be compatible with the goals and objectives of the restoration project.

Fish Passage Barriers

The WSDOT Fish Passage Inventory identifies no state-owned culverts that impede fish passage along US 2 in the project area.

Synthesis

As in the broader study area, issues related to fish, wildlife, or vegetation are unlikely to substantially differentiate between a design alternative in the project area. Compliance with mitigation sequencing requirements of local critical areas ordinances could influence the design or alignment of an alternative. As discussed above, designs that would require construction work or the placement of structures (e.g., roadway support columns, pilings for temporary work trestles) directly in waters that support ESA-listed fish species should be avoided. Similarly, detention and treatment of stormwater runoff will likely need to be addressed during the project design phase.

Based on the lack of state-owned fish passage barriers in the project area, culvert replacements are not expected to be a major consideration in the design of any alternatives.

The US 2: Everett Port/Naval Station to SR 9 Corridor Planning Study found that the presence of areas that provide habitat for ESA-listed species will necessitate additional consideration during the processes of project design and environmental review. The goal of these efforts will be to ensure that appropriate

measures are implemented to avoid or minimize adverse effects on these species and, if necessary, to mitigate unavoidable impacts.

WSDOT (2017) also noted the presence of a bald eagle nest approximately 0.5 mile from the project area. If project construction entails any activities that generate extremely loud noises (e.g., impact pile driving) within 0.5 mile of an active bald eagle nest, it may be necessary to obtain an incidental take permit from USFWS, to ensure compliance with the Bald and Golden Eagle Management Act. Additional restrictions and permitting requirements apply to general construction activities within 660 feet of active bald eagle nests. A field review of the area within 0.5 mile of the project alignment should be conducted before construction begins, to establish the location and status of any bald eagle nests.

Some species of birds (e.g., peregrine falcon, cliff swallow, barn swallow) may build nests on structures such as the US 2 trestle. A field review should be conducted before construction begins, and any nests should be removed during the non-breeding season, to avoid violation of the take prohibitions in the Migratory Bird Treaty Act.