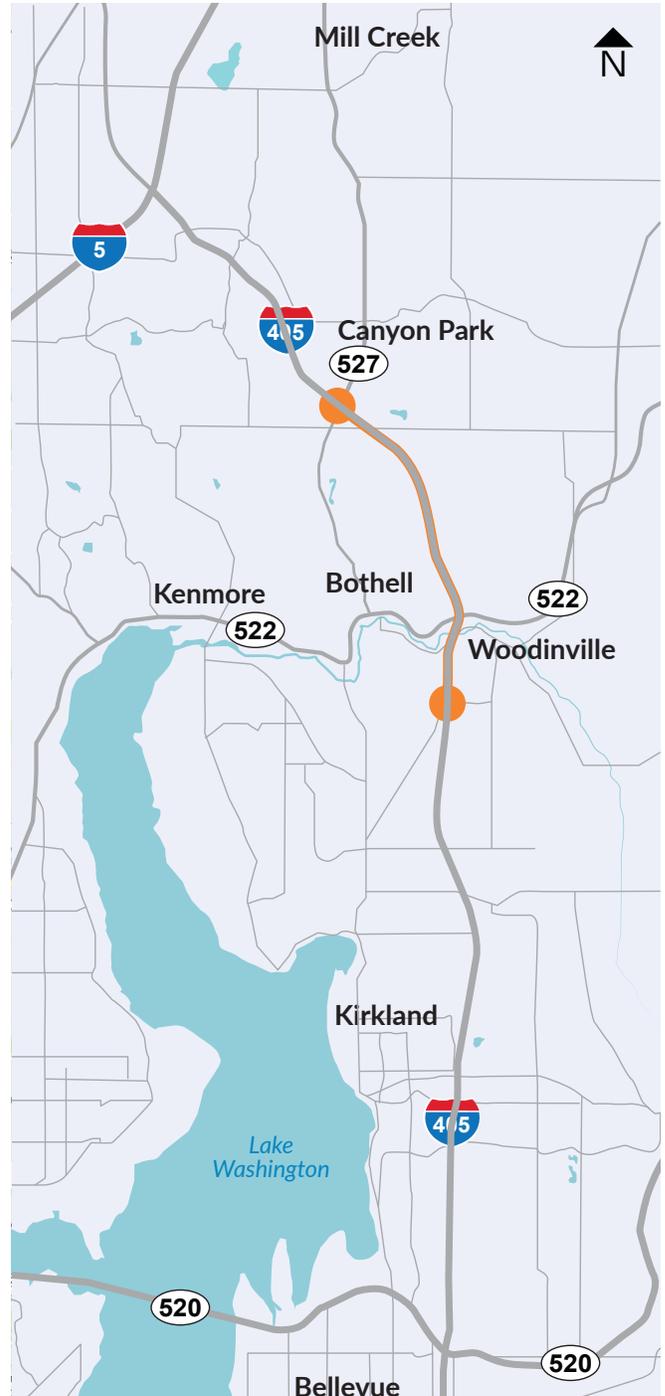


# ENVIRONMENTAL ASSESSMENT

## Appendix N1: Biological Assessment Update

### I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (MP 21.79 to 27.06)





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DATE: March 10, 2020

TO: Michael MacDonald, NOAA Liaison, WSDOT  
Sharon Rainsberry, USFWS Liaison, WSDOT

FROM: Maki Dalzell, Senior Scientist, I-405/SR 167 Megaprogram  
Emily Geralds, Natural Resource Lead, I-405/SR 167 Megaprogram

SUBJECT: ESA Project Update – Fish Passage  
I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project  
NMFS Tracking Number: WCRO-2019-02613  
USFWS Tracking Number: 01EWF00-2019-1-1608

## Introduction and Background

Consistent with the long-term Interstate 405 (I-405) Master Plan (WSDOT 2002), the Washington State Department of Transportation (WSDOT) proposes to construct roadway improvements along I-405 between the State Route (SR) 522 vicinity and the I-405/SR 527 interchange to address increasing traffic congestion and improve transit reliability on I-405 in the cities of Kirkland and Bothell. In November 2019, WSDOT submitted a biological assessment (BA) to the National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS) for the I-405, SR 522 Vicinity to SR 527 Express Toll Lanes Improvement Project (Project). That BA (hereinafter referred to as the “Project BA”) evaluated potential effects on terrestrial and aquatic species listed under the Endangered Species Act (ESA) within the Project action area.

This memorandum, coordinated with the Federal Highway Administration (FHWA), supplements the Project BA with updates on proposed activities at two existing fish barriers. Only listed fish have the potential to be exposed to consequences related to these changes, so the analysis is focused on aquatic species.

Proposed changes and updates include:

- **Fish Barrier Corrections:** The barrier at Stream 66 will not be corrected. Instead, the barrier at Stream 25.0L will be corrected, and Stream 25.0L will be re-routed and connected to North Creek via Wetland 25.03R. A pedestrian bridge will be constructed over the rerouted Stream 25.0L just upstream of where it connects to the wetland.
- **Action Area:** The action area has been updated to reflect changes to Stream 25.0L.

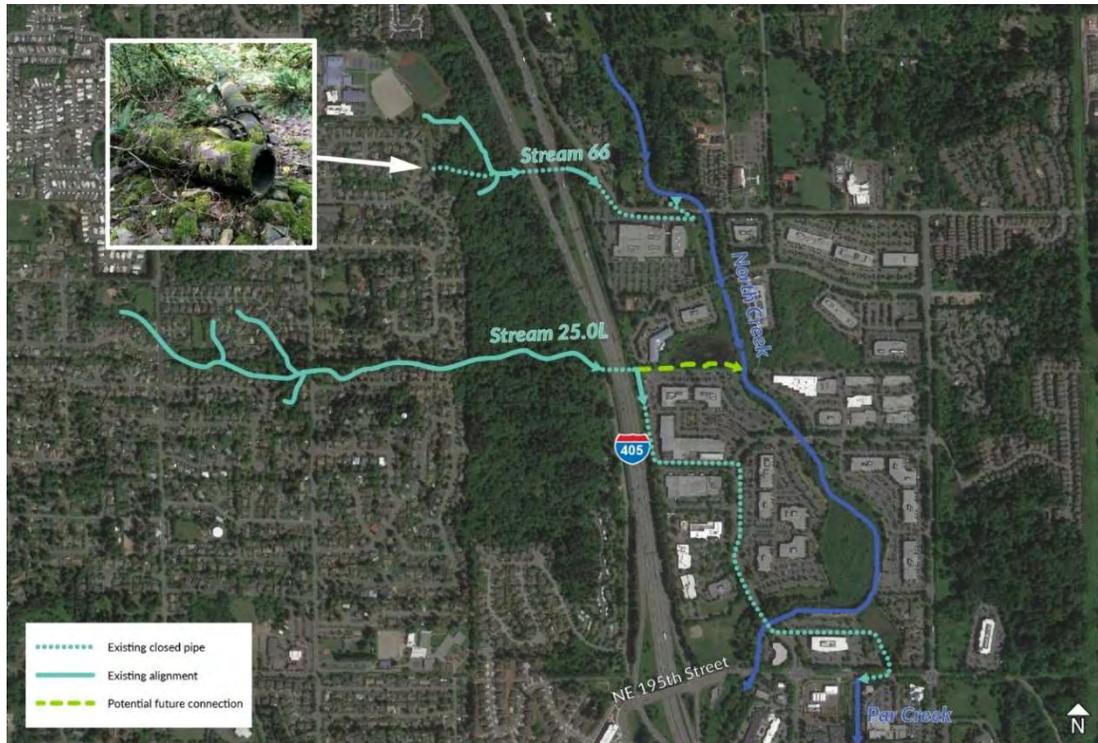
- **Environmental Baseline:** The environmental baseline has been updated based on Project changes.

WSDOT concludes that these changes do not result in effects that were not previously considered in the Project BA. Also, the effect determinations in the Project BA remain valid and species presence remains unchanged.

### **Fish Barrier Correction Updates**

The Project BA described barrier corrections at Stream 25.0L and Stream 66 to meet the requirements of the federal injunction issued in the *United States et al. vs. Washington et al. No. C70-9213 Subproceeding No. 01-1* dated March 29, 2013 (Injunction). Although it is feasible to design and construct fish barrier corrections for both Stream 25.0L and Stream 66, the barrier replacement at Stream 66 would not provide meaningful benefits for listed fish because of limited potential upstream habitat and the presence of downstream barriers that are privately owned.

In collaboration with the Muckleshoot Indian Tribe Fisheries Division and the Washington Department of Fish and Wildlife (WDFW) habitat biologists, WSDOT determined that it would be more beneficial for fish to not only correct the Stream 25.0L barrier under I-405, but also to go beyond the minimum requirements of the Injunction and develop the stream connection between Stream 25.0L and nearby North Creek. As a result, WSDOT is proposing alternative approaches for Stream 25.0L and Stream 66 that would provide notably better fish passage and fisheries habitat benefits, as described in more detail in the following sections. Figure 1 illustrates the locations of the existing streams, closed conveyance pipes located downstream of the I-405 crossings, and the potential future connection between Stream 25.0L and North Creek.



*Note: This map is intended to show an approximation of stream/pipe locations and is not to scale.*

**Figure 1. Stream 25.0L and Stream 66 Vicinity Map**

WSDOT will replace an existing fish barrier with a restored stream connection at Stream 25.0L. Typical work for restoring stream connection includes excavation, dewatering, removal of the existing fish barrier, installation of the fish barrier replacement, and backfilling. As part of the restoration of stream connection work proposed for Stream 25.0L, WSDOT proposes to relocate a portion of Stream 25.0L to discharge into Wetland 25.03R, a depressional wetland that is directly connected to North Creek. The proposed channel relocation is intended to improve rearing habitat for coho and other non-ESA listed salmonids.

The relocated channel of Stream 25.0L will be approximately 10 feet wide and will run approximately 300 feet south from the existing channel alignment along I-405 southbound before it crosses under I-405. The proposed culvert will be approximately 19 feet wide and 244 feet long. Downstream of the I-405 crossing, the relocated channel will flow approximately 330 feet east between the two business complexes and will discharge into Wetland 25.03R. The new channel portion constructed to connect Stream 25.0L to the wetland will be dug from uplands and will be isolated from the flows of the existing Stream 25.0L during construction at both the upstream and downstream ends of the proposed channel. A strip of existing upland will likely be retained between the bank of the existing channel and the excavation of the new channel during construction. After the new channel geometry has been constructed in upland areas and

cofferdams are in place, the work area will be dewatered during the approved in-water work window to construct the channel connection. During dewatering, WSDOT biologists will implement WSDOT's Fish Exclusion Protocols and Standards (WSDOT 2016) for safe capture and removal of fish from the isolated work area if necessary.

Currently, an unofficial pedestrian access exists between the existing parking lots, west of Wetland 25.03R, where the relocated channel is proposed. To maintain the pedestrian access after construction, WSDOT proposes to build a new pedestrian crossing over the new channel. The pedestrian crossing will be approximately 8 feet wide and 30 feet long and will be located at a minimum of 5 feet above the proposed ordinary high water mark (OHWM) of Stream 25.0L.

The Project will temporarily disturb approximately 0.26 acre of existing riparian vegetation along Stream 25.0L during construction. However, vegetation temporarily removed during construction will be replanted with native species appropriate to the area, in accordance with the WSDOT *Roadside Policy Manual* (WSDOT 2015). WSDOT will also plant native woody species in and along Wetland 25.03R to ensure that the ponded portion of the wetland provides shade, supporting cooler water temperatures during the summer. No fill and/or dredging activities are required for the proposed planting work.

The Project will utilize the existing staging area to the extent possible. For material and equipment staging, the contractor may choose to use a portion of the parking lots in the business complex. Final construction means and methods will be determined by the design-build contractor. No clearing and grubbing of woody vegetation are expected in staging areas. If the contractor needs additional staging areas, the contractor will be responsible for assessing additional impacts and obtaining necessary permits.

The proposed revised approach at Stream 25.0L would create a greater length of open channel and access to an existing adjacent wetland. The connection to Wetland 25.03R would be located approximately 300 feet east of the current Stream 25.0L alignment and would result in connection to North Creek, thus providing key side channel habitat needed for coho rearing. As described in the *Species Occurrence* section of this memorandum, Puget Sound Chinook and steelhead have been documented in North Creek.

Stream 25.0L crosses I-405 near MP 25.00 and almost immediately enters about 3,400 feet of publicly and privately-owned pipes that bypass North Creek and discharge into a detention pond, which then feeds into Par Creek in the Sammamish River basin. WDFW determined that the upstream portion of Stream 25.0L only provides potential habitat for resident trout due to steep gradient (WDFW 2019b). Therefore, restoring the stream connection only at the Stream 25.0L crossing would unlikely provide habitat for anadromous species, including listed salmonids. However, completing the connection between Stream 25.0L and North Creek would likely result in salmon presence after Project completion.

WSDOT proposes to meet the Stream 66 Injunction obligation by addressing the downstream portion of Stream 25.0L, which is outside of state-owned property and thus not required to be corrected under the Injunction.

### **Minimization Measures**

All proposed minimization measures included in the Project BA will be implemented for the proposed stream realignment and connection work for Stream 25.0L. No construction equipment will enter North Creek for the proposed work, and excavation activities required for the channel alignment and connection to Wetland 25.03R will be minimized to the extent possible.

### **Schedule**

Construction for the Stream 25.0L realignment and connection is anticipated to begin in 2021 and last for 3 to 4 years. In-water construction is expected to occur throughout the entire in-water work window during a one-year construction period.

### **Action Area**

The action area is the geographic area potentially affected by the Project. It is defined as all areas directly or indirectly affected by the proposed action. This memorandum only addresses updates to the aquatic portion of the action area because the terrestrial portion of the action area is unchanged by the Project updates addressed in this supplement to the Project BA.

WSDOT evaluated potential effects of the proposed stream realignment work against the aquatic action area extent identified in the Project BA, including turbidity or water quality degradation during construction and potential upstream habitat by correcting the existing fish barrier. Washington Administrative Code 173-201A-200 allows for a mixing zone not to exceed a specified distance downstream of a project footprint. WSDOT proposes to realign Stream 25.0L into Wetland 25.03R, which is approximately 300 feet east of the current Stream 25.0L alignment and connects with North Creek. During construction, the extent of potential effects of sedimentation and associated turbidity in the Wetland 25.03R is estimated to be 150 feet from the Project activities occurring in Wetland 25.03R. Project-related sedimentation and turbidity is not expected to reach North Creek.

The area of linear habitat gain for Stream 25.0L is approximately 272 meters (892 feet) west of I-405. Based on this analysis, the aquatic portion of the action area was updated to include the portion of Wetland 25.03R within 150 feet of the location where the stream will discharge to the wetland (Figure 2). The new area of the aquatic portion of the action area includes approximately 0.5 acre of wetland. This area also accounts for any turbidity effects from the new channel until the channel is stabilized. Because the proposed new

Michael MacDonald and Sharon Rainsberry  
March 10, 2020  
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stream channel would be excavated in existing uplands, the updated portion of the aquatic action area does not include any new stream component.

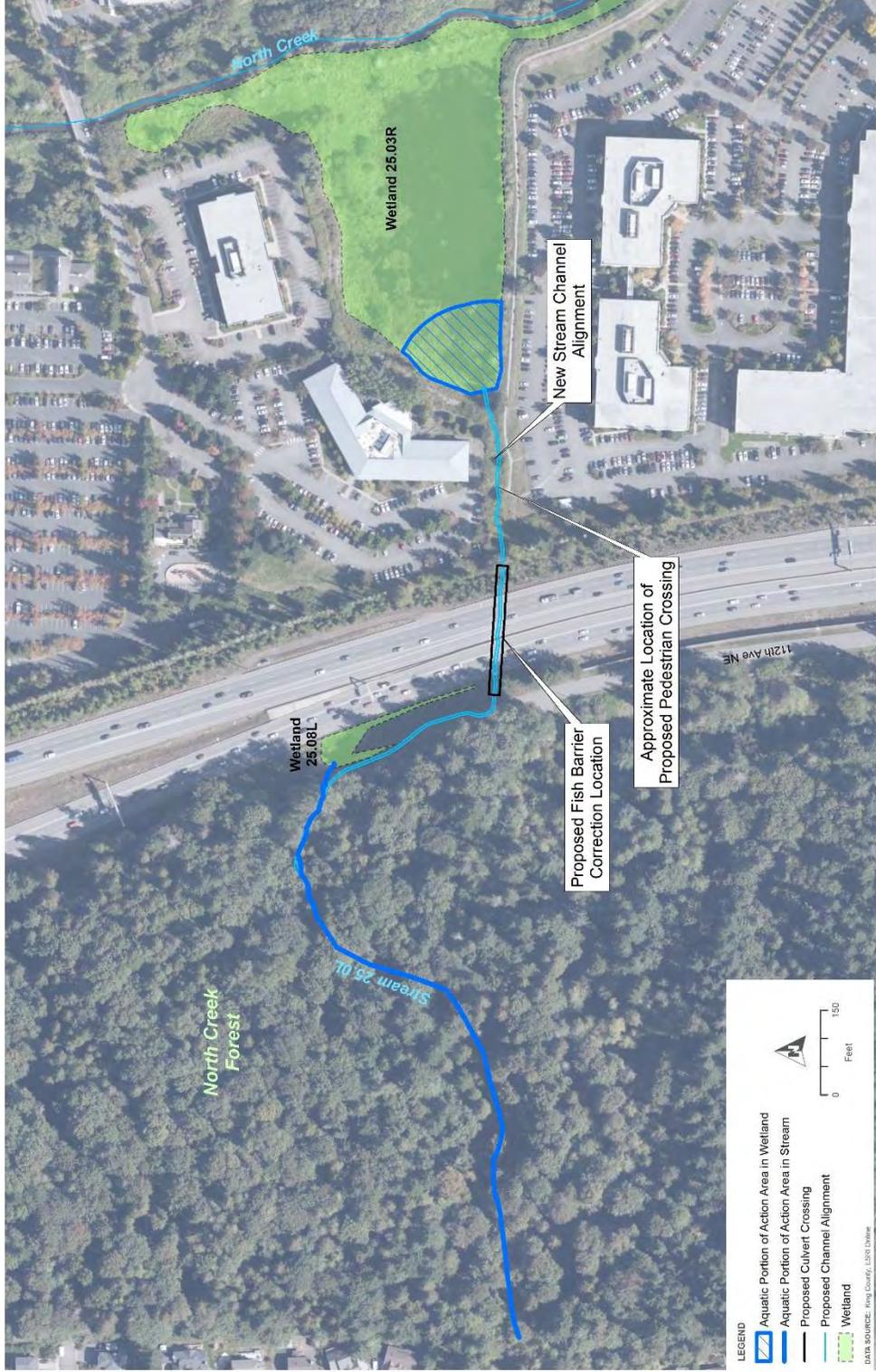


Figure 2. Action Area Map

## **Environmental Baseline**

The Project BA included baseline information regarding existing vegetation, wetlands, and streams within the action area. Stream 25.0L is described in Section 6.2.2.5 and North Creek is described in Section 6.2.3.1 of the Project BA. As stated in the previous section, the updated aquatic portion of the action area includes only a portion of Wetland 25.03R. Existing habitat conditions within that portion of Wetland 25.03R are described below.

Wetland 25.03R is a depressional wetland located along the right bank of North Creek (Figure 2). It is a Category II wetland and is approximately 5.28 acres in size. Wetland 25.03R consists of palustrine aquatic, emergent, and scrub-shrub wetland vegetation communities. Within the action area, dominant vegetation consists of lady's thumb (*Persicaria maculosa*) in the ponding area and Scouler's willows (*Salix scouleriana*) growing along the wetland edge.

Outside of the action area, there are two existing drainage channels that connect the wetland to North Creek (Figure 3). The northern drainage channel is approximately 3 feet wide and 3 feet deep, and the southern drainage channel is approximately 3 to 6 feet wide and approximately 2 to 4 feet deep. WSDOT conducted multiple field visits in September through November 2019 and observed bidirectional flow conditions between Wetland 25.03R and North Creek. On September 10 and October 22, 2019, surface water inflow and outflow connections in the drainage channels were observed, indicating that the wetland and North Creek are hydraulically connected.



Figure 3. Wetland 25.03R and Drainage Channels

## **Species Occurrence**

The Project BA included an analysis on the following ESA-listed aquatic species:

- Puget Sound Chinook salmon
- Puget Sound Chinook salmon critical habitat
- Puget Sound steelhead
- Coastal/Puget Sound bull trout
- Coastal/Puget Sound bull trout critical habitat

Information regarding Chinook salmon, steelhead, and bull trout populations provided in the Project BA has not changed. Specific information regarding species use of the updated aquatic portion action area evaluated in this memorandum is provided below for each species. However, no additional evaluation of critical habitat was performed due to lack of designated critical habitat within the action area.

### **Puget Sound Chinook**

Chinook salmon are known to occur in North Creek (WDFW 2019a, 2019b; King County 2016; Kerwin 2001; Steward and Associates 2004); however, adult Chinook salmon are not likely to be present in the action area due to lack of access. Two small drainage channels connecting Wetland 25.03R and North Creek do not provide adult access to the action area from North Creek due to their small size and shallowness of the wetland. Juvenile Chinook salmon are known to utilize off-channel habitat for rearing, but their presence during the approved in-water work windows is unlikely because juvenile Chinook typically leave the North Creek system by June. The action area does not provide suitable spawning habitat for Chinook salmon.

### **Puget Sound Steelhead**

Puget Sound steelhead are documented to be present in North Creek (WDFW 2019a; Kerwin 2001; Steward and Associates 2004); however adult steelhead are not likely to be present in the action area due to lack of access. Two small drainage channels connecting Wetland 25.03R and North Creek do not provide adult access to the action area from North Creek due to their small size and shallowness of the wetland. Juvenile steelhead rear in North Creek and off-channel habitat area throughout the year, but their presence during the approved in-water work windows is unlikely given the low steelhead counts at the Chittenden Locks and in the Lake Washington system. The action area does not provide suitable spawning habitat for steelhead.

### **Coast/Puget Sound Bull Trout**

Bull trout are documented in the Sammamish River but not in any of the tributaries. Suitable spawning and rearing habitat are not present in the action area or in any of the

nearby water bodies due to their degraded water quality and elevated water temperature conditions.

## **Effect Analysis**

### **Exposure to Construction-Related Sediment and Turbidity**

Construction of the proposed stream channel could temporarily introduce fine sediment and turbidity into Wetland 25.03R during in-water work activities and until the new channel segment fully stabilizes. Increases in turbidity and sediment are expected to occur within the mixing zone; however, no ESA-listed fish are expected to be present in the mixing zone during the in-water work window and during the summer months. These effects will be short-term and localized in nature, and turbidity levels are not expected to exceed levels associated with effects on ESA-listed species outside of the mixing zones. As a result, temporary increases in sediment and turbidity levels are not expected to cause in any long-term effects on ESA-listed fish or their forage species. If listed fish are present within the mixing zone during in-water work activities and until the new channel segment stabilizes, exposure to increased turbidity could be sublethal to them. However, because Chinook salmon, steelhead, and bull trout are unlikely to be present in the action area, turbidity impacts on these species would be insignificant.

### **Dewatering and Fish Salvage**

The in-water work area for relocation of Stream 25.0L is relatively small because the existing channel is narrow. In addition, most of the work will occur outside of the existing channel. Approximately 0.05 acre of the work area will occur within the existing stream channel, upstream of the I-405 crossing. There is no existing channel downstream of the I-405 crossing; however, a small work area will occur within Wetland 25.03R during the in-water work window to connect the new channel with Wetland 25.03R. The work area will be isolated with inflatable or sand bags, and a temporary stream bypass may be installed upstream of the I-405 crossing, if necessary. Temporary stream diversion or dewatering will occur during the driest time of the year when fish are least likely to be present and will be performed in compliance with applicable permit conditions and WSDOT standard specifications.

Specific methods for temporary stream diversion will be determined by the contractor; however, selected methods will comply with WSDOT specification requirements for temporary diversions. The contractor will also be required to follow Section 401 Water Quality Certification conditions.

WSDOT biologists will follow the WSDOT Fish Exclusion Protocols and Standards (WSDOT 2016) for safe capture and removal of fish from the isolated work area, if necessary. However, Chinook salmon, steelhead, and bull trout are extremely unlikely to be present within the action area because no suitable habitat is present. As a result, it is

unlikely that ESA-listed fish may need to be excluded or handled during Project activities in Stream 25.0L.

### **Stormwater Input from Fish Barrier Correction**

The proposed relocation of Stream 25.0L will not change the proposed stormwater input and output. As a result, there are no changes to the HI-RUN analysis conducted for the Project, which is included in the Project BA. No new outfalls will be constructed at Stream 25.0L or North Creek.

### **Habitat Alteration**

Upstream of the I-405 crossing, approximately 0.05 acre of the existing channel of Stream 25.0L will be temporarily affected due to temporary dewatering activities. Dewatering activities could result in an immediate and direct loss of benthic productivity from the dewatered construction zone. However, substrates in Stream 25.0L within the in-water work area are primarily fine sediments with some gravels. As a result, benthic habitat within the in-water work areas is likely limited. Additionally, potential effects would be temporary in nature, and conditions are expected to recover relatively quickly by recolonization and recruitment from nearby undisturbed areas; therefore, displacement of benthic habitat from dewatering is expected to be limited in severity, extent, and duration.

Additionally, the Project will have approximately 0.76 acre of indirect impacts to Wetland 25.03R as a result of the relocation of Stream 25.0L. Wetland 25.03R currently remains inundated with up to 3 feet of surface water for significant portions of the year. The wetland also fills up with overbank flow from North Creek during high flows and only draws down during late spring through the summer. Once the stream is relocated, Stream 25.0L will consistently discharge approximately 3 to 5 cubic feet per second of surface flow into the wetland throughout the year. The increased inflow will raise the elevation of the ponded portion of the wetland, extend the period of inundation, and potentially convert the emergent/scrub-shrub community along the margin of the wetland to an emergent/aquatic bed community. It is expected that the emergent/scrub-shrub community will re-establish along the new margin of the wetland over time.

The proposed relocation of Stream 25.0L will result in temporary removal of approximately 0.26 acre of riparian habitat for construction access. However, vegetation temporarily removed for construction will be replanted with native species appropriate to the area, in accordance with the *WSDOT Roadside Policy Manual* (WSDOT 2015).

### **Shading**

As described previously, the pedestrian crossing will be approximately 8 feet wide and 30 feet long and will be located at a minimum of 5 feet above the proposed OHWM of Stream 25.0L. No portion of the new pedestrian crossing will be constructed below the

OHW. Shading by overwater structures can deter or delay juvenile salmonid movement; however, the shading effects from the placement of the pedestrian crossing is likely to have minimal effect on juvenile salmon due to the size of the crossing.

### **Beneficial Effects from Fish Barrier Corrections**

The proposed enhanced stream connection is expected to provide potential upstream habitat gain of approximately 272 meters (892 linear feet) for fish. Although the proposed fish barrier correction is not expected to result in additional access for ESA-listed fish species, it will benefit prey species, including coho salmon and other resident fish, of the ESA-listed fish species. As a result, the proposed fish barrier correction and enhanced stream connection are expected to improve habitat conditions in support of natural predator/prey relationships.

### **Conclusions and Effect Determinations**

The supplemental information provided in this memorandum does not change the determinations assessed in the Project BA for ESA-listed species. Those determinations remain as follows:

- Puget Sound Chinook – **may affect, likely to adversely affect;**
- Puget Sound steelhead – **may affect, likely to adversely affect;** and
- Coastal/Puget Sound bull trout – **may affect, likely to adversely affect.**

Since the Project BA was submitted to the Services in November 2019, WSDOT has received notification that USFWS issued a determination of **may affect, not likely to adversely affect** Coastal/Puget Sound bull trout within the action area. The proposed changes discussed in this memorandum does not change this effect determination on Coastal/Puget Sound bull trout issued by USFWS.

## References

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