



MEMORANDUM

TO: City of Wilsonville
BY: Keisuke Harry, P.E.
REVIEWED BY: Nick Robertson, P.E., S.E.
DATE: February 2021
SUBJECT: December 2019 Boeckman Dip Bridge Alternative Analysis Memorandum – Addendum #1

This addendum supplements the 2019 Alternatives Analysis Memorandum (2019 Memo) completed by DOWL, which evaluated several bridge and traffic staging alternatives for this location. Since completion of the 2019 Memo, DOWL has further investigated channel restoration and fish passage requirements at this crossing. The findings of this investigation substantively affect the results of the 2019 Memo. Most notably:

- Any of the bridge alternatives will need to meet fish passage requirements, resulting in the removal of the existing culvert as part of the project scope.
- The active channel width (ACW) is approximately 12 feet and could be restored by removing the existing culvert and excavating at a 2:1 slope to intersect the existing embankment.
- Construction impacts within the regulated work area may qualify for permitting exemptions from the Oregon Department of State Lands (DSL) and the U.S. Army Corps of Engineers (USACE).
- The existing flow control structure manages hundreds of acres of out-of-basin runoff to limit downstream flows. Culvert and flow control structure removal will change downstream flow rates. A detailed hydraulic analysis should be completed to evaluate potential increased flooding risk to downstream areas as well as determine the potential for detrimental impacts to Boeckman Creek.

Refer to the “Permitting Update” section below and the November 2020 Boeckman Dip Alternative Analysis Memorandum – Embankment (2020 Memo) for details on this investigation and our findings.

During preparation of the 2020 Memo, DOWL added two inches of asphalt concrete pavement (ACP) to the pavement section and updated other unit costs and bid items as appropriate. The additional cost to remove the existing culvert and restore the channel to its natural condition are also included with each alternative in Table 1 since it has been determined the project must comply with fish passage requirements. In order to better match the methodology introduced in the 2020 Memo, additional changes were made to the cost estimates, including: using a consistent contingency percentage of 40%, adding a 2% allowance for aesthetics, and updating the unit costs to reflect 2021 construction dollars.

Table 1 – Updated Cost Comparison of Bridge Alternatives (Updated from 2019 Memo)

	Alternative 1 – North On-site Detour	Alternative 2 – South On-site Detour	Alternative 3 – Staged Construction Detour	Bridge Construction - Full Road Closure
Detour/Temp Signal	\$900,000	N/A	\$1,000,000	\$200,000
Traffic Control	\$350,000	N/A	\$600,000	\$50,000
Right-of-Way	\$600,000	N/A	\$500,000	\$450,000
Total Cost (2021)	\$21,700,000	N/A	\$23,200,000	\$19,700,000

Permitting Update

Since the 2019 study, DOWL completed initial coordination with the Oregon Department of Fish and Wildlife (ODFW). Based on a review of Oregon Fish Passage Law and the coordination with ODFW to date, it is apparent fish passage will be triggered for the bridge alternative. ODFW's 2008 Clarification of Fish Passage Triggers and Guidelines for Bridges states that bridges must address fish passage when: native migratory fish are present, a replacement bridge will be constructed at a location where there is an existing crossing, and where any element of an existing crossing being replaced by a bridge is within or below the channel.

Since the existing Boeckman Road crossing includes a culvert within or below the channel, the proposed bridge replacement alternative will trigger ODFW fish passage review and will likely require removal of the existing culvert. ODFW has confirmed that a new bridge in this location will trigger a review, and they are very supportive of a bridge project that would restore an open channel below Boeckman Road. A fish friendly replacement culvert could also be considered as a permissible alternative to an open channel, but would likely be more expensive for the bridge alternative.

Impacts to jurisdictional waters that extend beyond the existing culvert would be anticipated to tie the new stream channel into Boeckman Creek upstream and downstream. For the purposes of the DSL permitting, the additional impacts should not be considered significant and should be exempt from DSL regulation. The actions should also be exempt from USACE regulation under Section 404(f) due to the excavation-only nature of the activity. Both exemptions should be confirmed with the regulatory agencies during final design.