

Lorenzan Creek Feasibility Study

FAQs

February 7, 2022

General Questions:

What is the overarching objective of this project?

- This project seeks to address problems associated with the existing culvert in the project site that could be exacerbating flooding upstream and blocking fish passage. The goal is to address both fish passage and stormwater concerns.

Has WSDOT work been included in the flood analysis of the project site and what were the effects?

- The project team reviewed the analysis for the WSDOT culvert replacement on Lorenzan Creek under State Route 20 and the effects of the replacement were taken into consideration during the hydrologic and hydraulic analyses for this project. The culvert replacement significantly increased the culvert capacity under SR 20, so it is assumed that all incoming flow from the upstream basin will pass through SR 20 and reach the upstream end of the project area. The project team is estimating higher flows than the WSDOT analysis and is using a modeling approach that evaluates floodplain storage and culvert capacity within the project area.

What are the next steps for the project team?

- The project team is working to refine the design alternatives based on input from the workshop on January 26. Following this refinement, the team will conduct hydraulic modeling and apply evaluation criteria to determine a preferred alternative.

Questions related to Alternative 1: Maintain site use; focus on water quality improvements with long culvert and treatment.

What is the general slope of the proposed culvert?

- A straight line based on existing conditions and 0.5% depending on different configurations. This may vary slightly. The team may be able to increase that some, but it will be a fairly low profile/slope.

What is the size of the culvert and what are the implications of the size on the culvert span?

- The Alternative 1 culvert is considered a long culvert according to WDFW guidelines. If it was not this long, the culvert span would need to be in the 15-to-16-foot range. However, the span is generally increased between 25-30% for long culverts, meaning the span for Alternative 1 would likely need to be closer to 20 feet. Other features, such as meander bars, are also required to improve habitat and fish passage in long culverts.

What is the motivation for the size of the culvert?

- The team has learned from previous projects that bigger generally seems to be better when it comes to culvert size. Members of the team have been involved with intermediate upsizing of culverts in the past and later found that they were still insufficient. Additionally, there are requirements for culvert sizing for fish passage and flooding that are based on how much

velocity small fish can handle. In the past, culverts were sized only to handle runoff, geomorphology, and sediment transport. Fish passage requirements were not considered, and these have a big impact on the culvert geometry. Currently, there is sediment built up in the various structures. All these factors need to be considered in the recommended culvert geometry.

Questions related to Alternative 2: Maintain site use; focus on fish passage by rerouting creek out of culvert and putting back into open stream; some water quality improvements.

If you were to move the creek south of the shop parcel, would you need to make agreements with adjacent property owners?

- That area is currently public right-of-way, under county jurisdiction. The team spoke to environmental planners at the County to ensure that while the project will create new stream and wetland habitat, the critical area buffers of these newly created habitats will not encumber adjacent developed properties.

How much area would be needed for the berm in this alternative and what is the expected slope of the berm on the channel side?

- The target channel width 10 to 15 feet, which would take up half of the right-of-way. The project team will run the models first without the berm to determine the flood extents and elevations before adding the berm and developing the berm geometry. It will likely be an iterative approach to see how the channel and berm design should be adjusted to avoid offsite flooding.

Questions related to Alternative 3: Abandon site use; remove existing infrastructure and impervious surface and maximize the habitat and water quality improvements of the site.

Due to the fuel tank at the project site, is an Environmental Site Assessment (ESA) needed and have any remediation costs been considered?

- The existing fuel tank at the project site has been emptied and no contamination was found. For the purposes of this project, the assumption is that the tank will be removed and that there is no contamination.

What flood and other effects will this alternative have on the property to the west?

- The parcel to the west is higher in elevation so the project team does not anticipate impacts. This will be documented in next steps. By making it a fish passable structure, the capacity of the culvert will be increased, and it will therefore have greater ability to convey floodwater downstream. When the downstream analysis is completed, the team will look at any potential for flood increases to ensure there will be no impacts.

Will this alternative increase the number of mosquitoes or other bugs?

- The team does not think there is a risk of increased mosquitoes as there will be no increase in the amount of standing water because the stream will be flowing during the wet months. The stream currently goes dry during the summer months and this project will have no impact on that.

Design Alternative Graphics:

