Executive Summary

In January of 2019, Clackamas Water Environment Services (WES) completed the Sanitary Sewer Master Plan Project. The master plan project developed a dynamic model to evaluate the current and future capacity needs for the collection system operated by WES. This model utilized information from the condition assessment work to account for increases in collection system inflow and infiltration as the system ages, as well as zoning maps and population growth projections for future buildout conditions. The model developed to support the master planning effort identified a need to increase the wet weather outfall capacity at the Tri-City Water Resource Recovery Facility (WRRF) from 75 million-gallons per day (MGD) to 180 MGD in 2080.

In May of 2019, WES hired Jacobs Engineering to complete a routing alternatives analysis for a new outfall pipeline to meet the future wet weather capacity for the Tri-City WRRF. To perform the alternatives analysis, the alignment was broken into three distinct segments, each evaluated separately: two land pipeline segments and a diffuser segment in the Willamette River. These segment limits were established to ensure that the alternatives analysis for each segment would account for adjacent project impacts and schedule constraints that could affect the selected outfall route.

For each pipeline segment, as many as four alignments were developed and evaluated. The factors considered during this evaluation included:

- schedule
- constructability
- construction cost
- permitting requirements including environmental and historical
- impacts to the public.

The Diffuser Sitting Study reviewed physical site conditions and physical forces in the Willamette River at potential diffuser sites. Diffuser site locations were evaluated with hydrogeologic models using existing and historical riverbed data to identify the most stable areas in the river so the diffuser does not get buried with sediments over time.

Factors for a quality diffuser location requires a stable riverbed and an area in the river channel wide and deep enough to install a multi-port diffuser stretching across the river to enhance mixing. These elements will allow WES to continue meeting water quality standards set forth by permitting agencies, especially when the river flows are low. After evaluating a section of the Willamette River between the I-205 Abernethy Bridge and the Confluence with the Clackamas River, three potential diffuser locations were evaluated. The proposed location is adjacent to the dock located at Jon Storm Park.

The following technical memoranda document the results of the Tri-City outfall routing alternatives evaluated for this project are attached:

1. Diffuser Siting (appendix A)
2. Segment 1 Tri-City WRRF to Main Street Round-a-bout (Appendix B)
3. Segment 2 Main Street Round-a-bout to Willamette River (Appendix C)