



Oregon

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DATE: August 8, 2025

TO: Wesley Thomas, PE
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FROM: Jonathan Horowitz, PE
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RE: **TECHNICAL MEMORANDUM – PROPOSED MODIFICATION OF
APPROVED SOURCE CONTROL MEASURES
ODOT FACILITY IN PORTLAND HARBOR PROJECT AREA**

PURPOSE

The purpose of this technical memorandum is to inform the Oregon Department of Environmental Quality (DEQ) of a final proposed modification to the previously approved Source Control Measures (SCMs) included in the Oregon Department of Transportation's (ODOT's) Final Portland Harbor Source Control Feasibility Study (Final FS) and Portland Harbor Source Control Supplemental US30 Feasibility Study (Supplemental FS). As the design work on the project advances, previously unknown/undiscovered site conditions and constraints have been discovered which would alter balancing factor analysis completed.

INTRODUCTION

ODOT conducted a feasibility study to evaluate a range of potential structural source control measures for controlling highway stormwater discharging to Portland Harbor. DEQ approved recommended SCMs for four drainage areas that drain segments of I-5, I-405, the Fremont Bridge (WR-306, WR-307, FB-W, FB-E), and the two drainage areas that drain the St. Johns Bridge (WR-510 and OF-52) based on information presented in the Final FS. However, additional evaluation was needed to develop more tenable solutions for the remaining drainage areas along US30.

To select the remaining SCMs along US30, ODOT came to a mutual agreement with DEQ to undertake a Supplemental FS in order to ensure that all potential SCMs for US30 had been thoroughly considered and evaluated, and to recommend any additional SCMs that were determined to be feasible. Based on the conclusions of the ODOT Supplemental FS Team, and the application of these conclusions to the balancing factor evaluations, ODOT identified alternative recommended structural remedies for twelve of the 21 drainage areas evaluated in the Supplemental FS. These recommendations include the construction of four Modified

Ditches, five Rain Gardens, two Filter Vaults, seven PHS units, and three Biofiltration Swales. In total, these recommended SCMs are estimated to treat 27.5 additional acres of ODOT impervious roadway within the Portland Harbor Investigation Area.

The following table 4.1 summarizes selected SCMs from the Final FS as well as recommended SCMs for the Supplemental FS.

Table 4.1. Summary of Selected and Recommended Structural SCMs ⁴⁴						
	ODOT Facility Element	Outfall I.D.	Total ODOT Drainage Area (acres)	Selected/Recommended Structural SCM(s)	Est. Drainage Area Treated (acres)	Est. % Drainage Area Treated
Final FS Selections	I-5/Fremont Bridge E	WR-306	34.1	Biofiltration Swale and Modular Wetland ⁴⁵	26.6	78%
	I-405/Fremont Bridge W	WR-307	40.6	Tank Media Filter (or Cartridge Filter Vault)	36.5	90%
	Fremont Br. Ctr Span (E)	(FB-E)	1.1	Cartridge Filter Vault (or Tank Media Filter)	1.1	100%
	Fremont Br. Ctr Span (W)	(FB-W)	1.1	Cartridge Filter Vault (or Tank Media Filter)	1.1	100%
	St Johns Bridge W	WR-510	1.4	Cartridge Filter Vault (or Tank Media Filter) ⁴⁶	1.4	100%
	St Johns Bridge E	OF-52	1.9	Cartridge Filter Vault (or Tank Media Filter)	1.9	100%
Supplemental FS Recommendations	US30 South	OF-16	3.9	Recommendation: Rain Gardens (x3) and PHS	3.9	100%
		OF-17	4.5	Recommendation: PHS	2.4	53%
		OF-18	5.7	Recommendation: Rain Gardens (x2), and PHS	5.6	98%
		OF-19	10.0	Recommendation: Modified Ditch and PHS	4.0	40%
		OF-22	0.4	Recommend additional effectiveness monitoring	0.0	0%
		WR-584	0.4	Recommend additional effectiveness monitoring	0.0	0%
		OF-22C	12.1	Recommendation: Modified Ditches (x3) and PHS retrofit	2.6	21%
		WR-206	1.4	Recommendation: Filter Vault ⁴⁷	0.5	36%
		WR-205	2.6	Recommend additional investigation of alternative PHS locations	To be determined	To be determined
		WR-207	1.1	Recommend additional effectiveness monitoring	0.0	0%
	US30 North	WR-208	1.1	Recommendation: Biofiltration Swale	0.7	64%
		WR-211	2.3	Recommendation: Biofiltration Swale (combined with WR-208)	1.3	57%
		OF-22D	3.4	Recommendation: Filter Vault ⁴⁸	1.7	50%
		WR-209	1.8	Recommend additional effectiveness monitoring	0.0	0%
		WR-202	2.0	Recommend additional effectiveness monitoring	0.0	0%
		WR-203	0.9	Recommend additional effectiveness monitoring	0.0	0%
		WR-102	1.7	Recommend additional effectiveness monitoring	0.0	0%
		WR-126	1.4	Recommendation: Biofiltration Swale and PHS	1.4	100%
		WR-204	2.3	Recommendation: Biofiltration Swale	2.0	87%
		WR-79	3.7	Recommendation: PHS	1.4	38%
		WR-153	0.8	Recommend drainage connection investigation; monitoring	0.0	0%
Structural SCM selected in Final FS				Final FS Total:	68.6	86%
Structural SCM recommended in Supplemental FS				Supplemental FS Total:	27.5	43%
No Structural SCM recommended				Total area treated:	96.1	67%



SUMMARY OF CURRENT DESIGN CHALLENGE

ODOT is delivering the design of the project with the engineering services of WSP, Inc. In January 2025, WSP sent out Utility Notification Letters to all the utility companies with service in the project area. In July 2025, a utility company notified ODOT that a vault in conflict with the project in the OF-17 drainage area cannot be moved due to the level of service the vault provides. ODOT has had numerous conversations with the Utility to attempt to find a way to design around the existing vault and/or provide additional time for the Utility to relocate the vault. This improvement location also includes a Right-of-Way (ROW) acquisition.

Outfall OF-17 is located along Highway 30 near NW 29th Avenue. The outfall drains a basin that encompasses approximately 1,486 acres, predominately from Forest Park, including 4.5 acres of ODOT facility. A proprietary hydrodynamic separator (PHS) was selected for this

outfall (as shown on Table 4.1 above) and was anticipated to treat approximately 2.4 acres of ODOT and 19.6 acres of non-ODOT runoff. The overall project is proposed to treat approximately 265 total acres of which 102 acres are ODOT facilities. As a result, the PHS in OF-17 represents approximately 2.4% of the proposed ODOT treatment area.

In the Supplemental FS, the installation of the PHS unit was rated as Medium/High implementability. This rating corresponded to an anticipated limited ROW acquisition and utility configuration. Based on the detailed information that has become apparent through the design process, this facility would now be rated as Low because implementation requires significant ROW acquisition and significant utility reconfiguration, including both underground and aerial utilities. Implementation Risk would also now be rated as Low (rather than the initial rating of High) because of significant risks to construction/ODOT maintenance via roadway safety/traffic exposure.

Issues related to the identified conflict are significant and include:

- The improvements proposed for this project are retrofitting existing equipment which requires connections existing infrastructure. At OF-17, the existing pipe network is approximately 25-ft below ground surface (bgs); however the conflict vault is much shallower, approximately 12-15-ft bgs. Should the vault remain in place, this depth difference would require an expensive and challenging-to-install micro-pile foundation and shoring system be installed under and around the utility vault. To complete the design, a Cost Recovery Agreement would need to be executed with the Utility, and a contract amendment with the consultant would be needed to cover the additional design effort. The timeline for this effort would delay the project moving into construction.
- Moving the PHS creates alternate design issues, including:
 - Existing stormwater piping are oriented at relatively tight angles, requiring a large manhole be installed to provide sufficient clearance.
 - Adjacent facilities, including a City pump station and associated force-main piping, limit the viable alternate locations.
 - Moving the PHS would require it be placed further into the travel lane (near an intersection), requiring potentially dangerous -in-traffic maintenance of the unit.
 - An alternate ROW file would be needed to facilitate construction of the unit should it be relocated. The ROW acquisition process typically takes a year, which would delay the start of construction.
 - There are significant overhead utilities in this area. Moving the PHS may generate additional utility conflicts.

PROPOSED MODIFICATIONS TO APPROVED SOURCE CONTROL MEASURES

Based on the suite of design challenges, the Utility's inability to realistically relocate the vault in a timely manner (or their willingness to abandon the vault), the fact that the outfall is dominated by runoff from Forest Park, and the limited impact the PHS in OF-17 will have on

the overall treatment area, ODOT is requesting that the installation of a PHS in OF-17 be eliminated from the project without effecting ODOT's ability to receive a Source Control Determination.

CONCLUSIONS AND DESIGN PROGRESS UPDATE

The project's design is expected to be concluded by November 2025 and move into construction in summer 2026.