Multnomah County NPDES MS4 Phase I Permit
Stormwater Management Program

Annual Report 2023
Permit year 27

Submit to:
Oregon Department of Environmental Quality
November 2023

Submitted in Accordance with the Requirements
of the National Pollutant Discharge Elimination System
(NPDES) Permit Number 103004, File Number 120542

Submitted by:
Water Quality Program
Department of Community Services Transportation Division
Multnomah County

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1. Introduction

Multnomah County implements a comprehensive stormwater management program with the goal of reducing pollutants into the municipal stormwater system to the maximum extent practicable. This program is maintained and prioritized in response to the federal Clean Water Act and the County's responsibility to protect the health and welfare of its community members and natural environment. The Stormwater Management Plan is the main component of the stormwater management program. This plan is submitted to and approved by the Oregon Department of Environmental Quality (DEQ) under the National Pollutant Discharge and Elimination System Municipal Separate Storm Sewer Phase I (NPDES MS4 Phase I) permit. The County's roles and responsibilities for complying with the permit term falls under seven categories of Best Management Practices (BMPs) with a focus on operating and maintaining the County bridges and roads.

This Annual Report summarizes the implementation activities of Multnomah County's Stormwater Management Plan in the County's permit area for the Permit Year 26 (Fiscal year 2021: July 1, 2022 – June 30, 2023).

2. Program Overview

History

From 1995 to 2010, the Oregon Department of Environmental Quality (DEQ) regulated stormwater from Multnomah County through two separate NPDES MS4 Phase I Discharge permits: Permit #101314 for the areas within the City of Portland permit boundary and Permit #108013 for the areas within the Gresham permit boundary. Multnomah County was a co-permittee on both Portland and Gresham's MS4 Permit.

The County had a limited amount of regulatory area under each permit under the two separate MS4 permits. To reduce the administrative burdens for program management and reporting, Multnomah County requested to DEQ that the permit areas be combined under a single individual permit for the 2010 permit renewal. DEQ granted this request and issued the new individual Phase I permit on December 30, 2010 (Permit #103004).

Permit area description

Multnomah County is a unique jurisdiction with NPDES permit areas composed of several discrete urban pockets, and approximately twenty-eight miles of road and bridge right-of-ways. The terms "Portland Area" and "Gresham Area" are used in this report to provide clarity in the area descriptions, and to provide continuity from the previous reporting areas.

Within the Portland Area, Multnomah County is responsible for five Willamette River bridges (see Figure 2-1). A few small unincorporated pocket areas within the Portland Urban Services boundary are under Portland's stormwater management through an Intergovernmental Agreement with the City of Portland. These areas are also under the City of Portland's land use authority.

Within the Gresham Area, Multnomah County is responsible for approximately twenty-eight miles of arterial roadways in the Cities of Fairview, Troutdale, and Wood Village, and the unincorporated residential area known as "Interlachen" that is located between Fairview Lake and Blue Lake (see Figure 2-2). In 2007, Troutdale and Wood Village came under NPDES Phase II coverage, and the County roads in those communities also came into permit coverage. Some road segments shown in the following maps are served by Underground Injection Controls or lack curb/gutter systems and do not discharge to surface waters. In 2021, unincorporated areas adjacent to the City of Gresham were in added to the County's NPDES permit area.

More specific details regarding the County's jurisdiction are provided in the 2021 Stormwater Management Plan (See below Figure 1, Table 1).

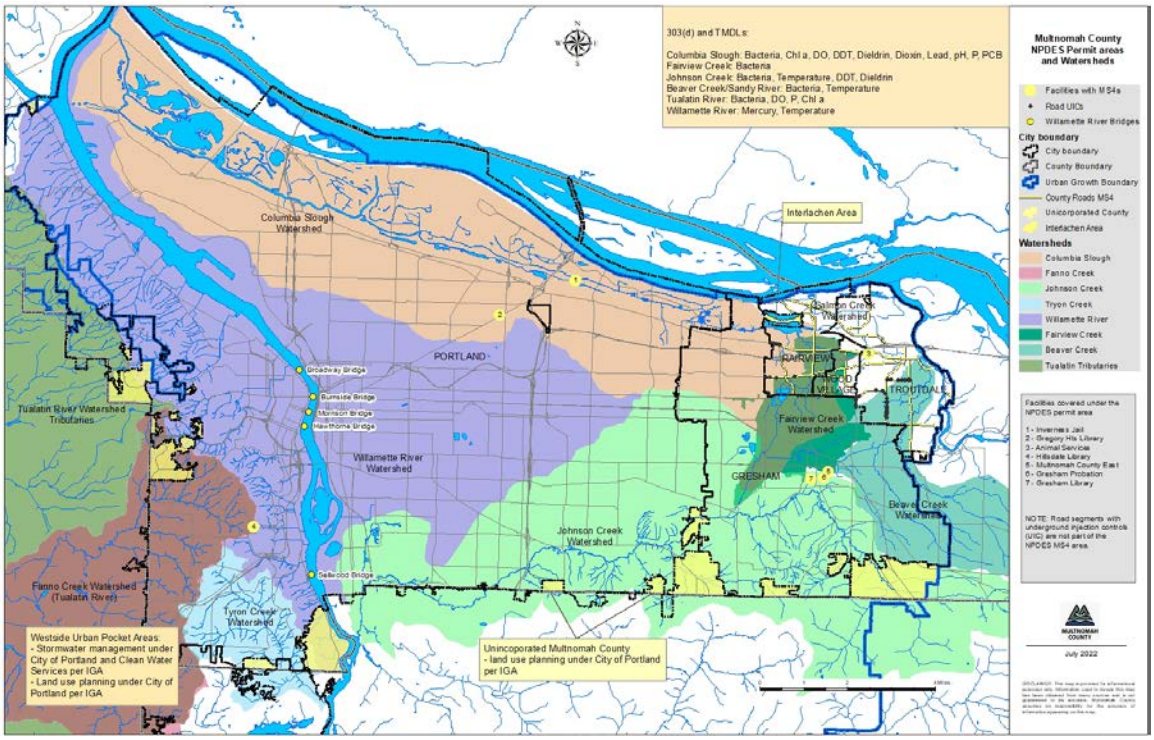


Figure 1. Map of County NPDES Municipal Separate Stormwater System permit areas.

Table 2-1. Summary of the areas of NPDES permit coverage in County jurisdiction.

Area name	*Description*
Unincorporated areas adjacent to Portland in the Tualatin Basin.	1.6 sq miles of urban and rural residential unincorporated County which drains to the Tualatin River.
Unincorporated areas adjacent to Portland in the Willamette Basin (UAP)	1.2 sq miles of urbanized unincorporated County drains to Tryon Creek and the Willamette River. 0.75 sq miles drains to Johnson Creek.
Unincorporated areas adjacent to Gresham (UAG)	0.71 sq miles of rural residential and agricultural unincorporated County drains to Johnson Creek.
Unincorporated area adjacent to Fairview (IL)	Unincorporated County area on a narrow strip of land between Fairview Lake and Blue Lake surrounded by the City of Fairview, consisting of 167 taxlots of lakefront residential development along Interlachen Rd.
County roadways within Troutdale, Wood Village, and Fairview (CR)	Twenty-eight miles of urban roadways, with sixteen miles draining to surface water. Land use authority remains with the municipal jurisdictions; however, the County maintains authority to regulate connections to the right-of-way, and ownership of the roadway assets.
Willamette River bridges (WRB)	Five County-owned and maintained moveable bridges spanning the Willamette River (and approach ramps) in downtown Portland: Hawthorne Bridge, Morrison Bridge, Burnside Bridge, Sellwood Bridge, and Broadway Bridge.
County facilities within Portland, Gresham, and Troutdale (FAC)	The Department of County Assets manages eight county facilities with stormwater discharge to surface waters. • Inverness Detention Center • Gregory Heights Library • Animal Services • Hillsdale Library • Multnomah County East community center • Gresham Probation Office • Gresham Library

Reporting requirements

The following table summarizes the requirements for the annual report as described in Schedule B.2 and B.3 of the 2021 permit:

Permit reporting requirement	*Annual report section*
B.2. – self-evaluation, including assessment of progress toward implementing the stormwater management program…and action to comply with additional requirements in…Schedule B and D.	Section 3. BMP summary
B.3.a. – status of implementing stormwater management program and each control measure in Schedule A.3, including meeting measurable goals and program tracking and assessment metrics.	Section 3. BMP summary
B.3.b. – summary of adaptive management implementation and any changes or updates to programs made during the reporting year, including rationales for any proposed changes to the stormwater management program.	Section 2. Program Overview – Adaptive management process; Section 3. BMP summary
B.3.c. – any proposed changes to the SWMP program elements that are designed to reduce TMDL pollutants.	Refer to the 2022 Multnomah County Stormwater Management Plan
B.3.d – summary of education & outreach and public involvement activities	Section 3. BMP summary; Appendix A; Appendix B
B.3.e. – summary describing the number and nature of enforcement actions, inspections and public education programs	Section 3. BMP summary
B.3.f. – list of entities referred to DEQ for possible 1200Z NPDES general permit coverage	No entities are within the County permit area
B.3.g. – summary of total stormwater program expenditures and funding sources	Section 4. Stormwater Management Program Budget
B.3.h. – summary of monitoring program results, including monitoring data	Section 5. Monitoring Summary
B.3.i. – any proposed modification to the monitoring plan	Section 5. Monitoring Summary
B.3.j. – an overview, as related to MS4 discharges, of concept planning, land use changes and new development activities occurred within the Urban Growth Boundary expansion areas	Section 2. Permit area description
B.3.k – details of all corrective actions associated with Schedule A.1.b.iii (exceedance of water quality standard)	No corrective actions identified during permit year
B.3.l. – Additional annual report requirements	Appendix Hydromodification Assessment and Stormwater Retrofit Strategy Update Report

Adaptive management process

While preparing this MS4 annual report, the County collected data and feedback from staff responsible for implementing/reporting on each BMP to facilitate the BMP assessment process. Key factors considered in the annual evaluation include but are not limited to:

- *Was the BMP measurable goal attained? If not, describe circumstances why, and how progress will be made toward future attainment.*
- *For multi-year BMPs, were milestones or timelines met?*
- *Can we feasibly refine or improve the BMP to gain efficiency or effectiveness in removing stormwater pollutants?*
- *Are staffing/financial resources available to support such a BMP improvement or refinement?*

Adaptive management notes are recorded in the BMP report table in section 3.

3. BMP Summary

The Multnomah County Stormwater Management Plan is a set of Best Management Practices (BMPs) designed to reduce stormwater pollutants to the maximum extent practicable. The County's stormwater management plan is made up of twenty-eight BMPs grouped into seven categories as shown below. The following table summarizes the task, measurable goals, status, and changes for each BMP.

PI	Public Involvement and Education
ILL	Illicit Discharges Control
CR	Construction Site Runoff for New Development and Redevelopment
PCR	Post Construction Site Runoff for New Development and Redevelopment
PP	Pollution Prevention and Good Housekeeping
IC	Industrial and Commercial Facility Inspection
PM	Program Management

Managers and staff in several Multnomah County workgroups implement the Stormwater Management Program

Communications	Public Affairs Office
Transportation Engineering	Department of Community Services
Transportation Maintenance	Department of Community Services
Land Use Planning	Department of Community Services
Transportation Planning and Development	Department of Community Services
Code Compliance	Department of Community Services
Facilities	Department of County Assets
Nuisance Code	Health Department, Community Health Services
Water Quality Program	Department of Community Services

PI – Public Involvement and Education

Overall goal: *To inform and educate the public about the causes of stormwater pollution, the effects on local streams and rivers, and the need for stormwater management, and to encourage active participation in pollution reduction efforts.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PI-1 Participate in Regional Public Education Efforts	Provide County representative to attend the *Regional Coalition for Clean Rivers and Streams* (RCCRS) meetings. Plan and Implement public education campaign promoting behaviors that improve water quality.	Help develop and implement RCCRS "River Starts Here" and CRC "Follow the Water"	The River Starts Here and Follow the Water public outreach campaigns have increased engagement during the past permit year. Refer to Appendix A and B for annual reports from these two campaigns.	No change
PI-2 Participate in Public Meetings	Attend public meetings related to water quality.	Participate in ten watershed council and as hoc committee meetings annually.	Water Quality (WQ) staff serves on the board of the Johnson Creek Watershed Council, and participated in their public board meetings every other month (6 times in permit term). Staff also participates in the County Office of Sustainability's Advisory Committee for Sustainability and Innovation, where water quality and fish habitat were discussed with the community members on the committee (5 meetings during permit term)	No change
PI-3 Conduct Training and Education for County Personnel	IDDE knowledge for WQ staff (annual). Erosion Control training for Engineering and Land Use staff (every 3 years). Pollution Prevention training for Maintenance staff (annual).	Ensure that all trainings are complete	IDDE program was updated by Water Quality staff occurred during stormwater management plan update (11/2022). Erosion control training resources were reviewed during stormwater management plan update (11/2022). A complete update of the Road Maintenance and Operations Manual included a thorough review of pollution prevention BMPs for supervisors, which was our Pollution prevention training for the permit year.	No change
PI-4 Implement the Adopt-a-Road Program	Promote the Adopt-a-road program on county website Provide program support for the program.	Ensure timely response to volunteer requests for event support.	The Adopt a Road program hosted 15 groups in the urban area. Maintenance staff provide safety equipment and trash bags, and coordinate trash pick up for all events.	The Adopt a Road webpage is in review to be updated to better

				serve new groups.
PI-5 Maintain Signage to Protect Water Quality	Inspect storm drain markers and replace missing markers. Maintain signs in the right-of-way promoting watershed awareness as requested by watershed councils.	Inspect drain markers and signage once per permit term at all catch basins and stream crossings in the permit area.	Since FY21, all drain markers are inspected at time of catch basin cleaning. No markers were missing during permit year.	No change
PI-6 Provide Opportunities for Public Involvement During the CIP Process	Post draft Stormwater Management Plan on County website. Maintain County Water Quality website. Involve public in CIP plan update (every two years).	Ensure public participation in CIP update process and provide opportunities for public comment. Review Water Quality website annually.	The 5 year capital improvement program is adopted every year as part of the budget process. The public is involved through the County Budget Advisory Committee and the County public process. Water Quality website was updated 12/2022 with current Stormwater Management Plan.	The Capital Improvement Plan is being moved to a 10 year update schedule duo to lack of staffing for more frequent updates. The CIP update projects generally includes a more robust public engagement process.
PI-7 Facilitate Public Reporting of Illicit Discharges	Respond to public complaints through Nuisance Code program or Transportation Maintenance. Determine if “no dumping” signs need to be posted based on public requests.	Maintain publicly accessible means to report illegal spills/dumping. Review all illegal dumping/spill complaints. Review all “no dumping sign requests”.	The County maintains a web page with a telephone number to report illegal dumping in the County right of way, as well as See Click Fix application. There were no “No Dumping” sign requests during the permit term.	

ILL – Illicit Discharge

Overall goal: *To prevent, identify, investigate, and if appropriate, control/eliminate any non-stormwater discharges into the municipal separate storm sewer system.*

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
ILL-1 Implement the Spill Response Program	Review, update, and implement Spill Response Plan. Track and record spills. Maintain agreements with contractors for spill response. Participate in regional spill committee.	Conduct spill response procedures when spill are reported. Maintain current spill response plan with up to date contacts and procedures.	High pH discharge from weep holes in the new Cochran Rd bridge was detected. Investigations found that the cause to be deterioration of the lightweight concrete fill used in the bridge approaches, which released concrete salts from the structure. Stormwater drainage connected to the new stormwater facilities on the bridge structure were removed. The County is working with DEQ to monitor and treat the discharge, while Engineering team is developing a new design to replace the deteriorating lightweight concrete fill. The bridge replacement is planned for 2024. No other significant spills occurred on permit area roadways, and no pollutants were discharged into the catch basins or the stormwater drainage system during the permit term. No regional spill committee has reformed since the City of Portland ended their program.	The County is discussing forming a new regional spill committee with the City of Gresham to coordinate action in East Multnomah County where several municipal stormwater systems intersect.
ILL-2 Investigate Illegal Dumping	Continue to implement Nuisance Code program, and follow up identification of illegal dumping activity. Annually review field logs of incidents.	Clean up discharge or debris dumped in right of way. Document all complaints.	No incidents of illegal dumping were reported by County Nuisance Code in the permit area during the permit term along county roadways.	No change

ILL-3 Detect and Eliminate Illicit Discharges to the Storm Sewer	Continue to inspect bridge restroom facility holding tanks (quarterly) Update and implement IDDE program by November 1, 2023.	Bridge restroom facility maintenance. Annual dry weather flow inspection at priority outfalls.	Bridge restroom facilities were maintained with no issues. Priority outfall inspections were conducted and no suspicious discharge was observed through visual inspection (8/2022). The updated IDDE program plan is included as an appendix of this NDPES permit annual report.	No change
ILL-4 Inventory and Map the County Storm Sewer System	Continue to update the County GIS storm sewer system map. Transfer stormwater system catchment area delineations by outfall to online map	Maintain a current map of the stormwater system online. Transfer stormwater system catchment area delineations to online map by November 1, 2023	The County's online urban stormwater drainage map contains delineations of taxlots that drain to significant outfalls.	Further coordination with municipalities in East County is needed to develop a comprehensive "pipeshed" map.

CR – Construction Runoff from New Development and Redevelopment

BMP Description	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
CR-1 Require Erosion and Pollution Controls for Private Construction Projects	Review Erosion and Sediment Control permits (ESCP). Perform ESC inspections, except for small low risk projects in permit area. Conduct enforcement procedures as necessary. Evaluate ESCP and inspection program and align resources by November 1, 2024.	Ensure that permitted projects resulted in no visible erosion or sediment leaving site. Track number of ESC permits, sites inspected, and enforcement actions.	One project was permitted in the Interlachen area with the Erosion and Sediment Control permit. The project passed inspection as there were no sediment discharges.	No change
CR-2 Require Erosion and Pollution Controls for Public Projects	Execute formal contracting practices for all construction phases. Review corrective actions and violations at project sites. Include pollution control for additional non-sediment related discharges in permits. Conduct inspections.	Inspect 100% of County capital project sites during and after construction and report response to complaints	No significant capital projects were constructed in the permit area during the permit term.	No change

PCR – Post Construction Runoff from New Development and Redevelopment

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PCR-1 Regulate Stormwater Discharge from Private Development Areas under City Land Use Jurisdiction	Continue the review the new ROW permit applications Inspect existing and proposed stormwater facilities in the ROW during and after construction. Update the County Design and Construction Manual by November 1, 2024.	Conduct plan reviews and inspections for all ROW permit applications in UAP and CR areas. Update the Design and Construction Manual by November 1, 2024.	No permit violations during the permit year based on ROW development inspections. The County Design and Construction Manual update is in process October 2023.	No change
PCR-2 Regulate Stormwater Discharges from Private Development within areas of County Land Use Jurisdiction	Evaluate the flow standard against the MS4 permit stormwater retention requirements by November 1, 2023. Review evaluation of flow standards and align ordinances as needed by November 1, 2024.	Ensure water quality is protected with current standards by prioritizing infiltration.	The County references the City of Portland's Stormwater Manual for stormwater treatment standards in the County Land Use code and Design and Construction Manual. The Portland manual's stormwater treatment standard is aligned with the County's flow standard (10-yr, 24-hr stormwater retention standard, and thus meets the NPDES MS4 stormwater retention standard.	No change
PCR-3 Address Water Quality with New Capital of Roadway Improvement Projects	Incorporate stormwater treatment into public projects resulting in more than 1,000 ft2 or more of impervious surface. Conduct plan checks of stormwater treatment facilities in capital improvement plan projects (CIP). Provide as-built drawings of new stormwater facilities to Asset Management for inclusion into the County MS4 maps.	CIP projects with 1,000 ft2 or more of impervious surfaces will be constructed with appropriate stormwater controls, including guidance from the Portland Stormwater Manual or new technologies.	No capital projects on roadway occurred in the permit area that required stormwater treatment.	No change
PCR-4 Retrofit Existing Facilities for Water Quality Benefit	Develop a Stormwater Master Plan to include consideration of stormwater treatment in capital projects.	Reassess the 2014 hydromodification and retrofit strategies by November 1, 2023, for inclusion in the	The Hydromodification Assessment and Stormwater Retrofit Strategy Update report is included as an Appendix to this NPDES permit annual report.	The Stormwater Master Plan will bring all this information together in a comprehensive manner.

	Revisit the 2014 retrofit and hydromodification strategies and assess progress and need for new goals.	Stormwater Master Plan by September 30, 2026.	Funding to draft the Stormwater Master Plan is planned to be included the Transportation Division budget for FY2025-26.	

PP – Pollution Prevention and Good Housekeeping

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PP-1 Update the Road Maintenance and Operations Manual	Review the Road Maintenance Operations Manual once during the permit term. When RMOM revisions are made, conduct refresher staff trainings per PI-3	Review the RMOM to ensure current practices are incorporated with respect to water quality	The Water Quality Program and Transportation Maintenances teams reviewed and updated the RMOM in 2023. The updated RMOM is available online at https://www.multco.us/water-quality-program/reports-and-plans	No change
PP-2 Inspect and Maintain the Storm Drainage System	Implement catch basin cleaning schedule per plan. Update catch basin cleaning frequency work orders every two years. Inspect catch basins at County facility parking lots once every five years.	Clean catch basins in the ROW (with sump depth greater than 12"_ at a frequency such that no more than 10% exceed 60% full Complete County facility parking lot catch basin cleaning once every five years.	Catch basin cleaning along County roadways was done per our work order system in Cartegraph. The analysis of effectiveness will occur next year, per our 2-year cleaning cycle. Catch basin cleaning in facility parking lots were done once during the permit term.	No change
PP-3 Conduct Street Sweeping	Follow RMOM procedures Track street sweeping efforts to record sweeping frequency	Sweeping will occur a minimum of 20 times per year on county roads within Troutdale, Fairview and Wood Village	Sweeping occurred on schedule per our Cartegraph work order system.	No change
PP-4 Properly Dispose of Road Waste Material	Include road waste disposal handling in the RMOM by November 1, 2023. Conduct sampling of road wastes and provide reports to the landfill as required by the facility.	Update the RMOM to include road waste handling	The RMOM was updated in 2023. The RMOM is available online at: https://www.multco.us/water-quality-program/reports-and-plans	No change
PP-5 Winter Maintenance Strategy	Continue to follow the County RMOM procedures for the application, collection, and washing of sanding materials applied to roadways. Continue to research alternative anti-icing methods.	Conduct street sweeping to recover sanding materials within two weeks after the Road Maintenance Manager determines that the roads are free from the threat of an ice or snow event.	County Maintenance staff applied 6310 gallons of MgCl anti-icing solution county-wide during three winter events, though these applications were largely outside the NPDES permit area. Deicer was used on SE 238th Ave, Marine Dr, SE 257th Ave and Buxton Ave, within the permit area. Sanding materials are used along these same roadways, and swept after the storm event.	No change

PP-6 Maintenance of County owned stormwater facilities	Conduct annual inspections	Conduct annual inspection and performance maintenance based on inspection results	The stormwater filters on the Willamette River bridges were inspected in 2022. These will be replaced in FY 2023. The two stormwater filter cartridge vaults on east County roads (Halsey St vault and SE 223rd Ave vaults) were inspected during the fiscal year. Vegetated stormwater facilities received minimal vegetation trimming during the permit term. The two Vortex units managed by Facilities were cleaned during the permit term.	The County's Vegetation Program lead retired during the Covid pandemic and discussions about whether to contract vegetation work or refill the position led to a final decision to fill the position.
PP-7 Reduce pesticide use in the ROW	Review the Integrated Vegetation Management Plan Review and update guidance for county facilities landscaping	Ensure that that IVM is update by November 1, 2023	The IVM has been updated and is available online at https://www.multco.us/water-quality-program/reports-and-plans	No change

IC – Inspect Industrial and Commercial Sites

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
IC-1 Inspect Industrial and Commercial sites	Develop industrial/commercial facility inspection strategy Conduct inspections by qualified inspectors	Annual facility screening and inspection prioritization Update strategy for inspections by November 1, 2023 Inspect sites according to frequency defined in strategy	The County will contract the City of Gresham for commercial facility inspection three potential commercial facilities within the County's NPDES area, following the City of Gresham inspection protocol (see City of Gresham Stormwater Management Plan Appendix A	No change.

PM – Program Management

BMP	*Tasks*	*Measurable Goal*	*Status*	*Adaptive Management*
PM-1 Stormwater Program Management	Continue to participate in the NPDES MS4 coordination meetings and any DEQ meetings. Continue to work with other NPDES MS4 permittees and DEQ to implement the stormwater management program. Review each BMP file annually. Prepare an annual report to demonstrate the County's compliance with requirements. Submit to DEQ.	Annually review BMP implementation data and submit annual report by November 1 each year.	This annual report has been submitted to DEQ.	No change
PM-2 Assess and Evaluate the Stormwater BMP Program	Evaluate progress of BMPs for annual report using adaptive management approach.	Continually improve the program through an adaptive management approach	Staff recruitment during the pandemic has been a challenge for the department human resources team. Several Maintenance positions are currently vacant. New prioritization for continued work on Stormwater Plan work is ongoing to fill program needs, including strategies to rely more on contract work, especially for vegetation work.	Recruitments for maintenance positions are an on-going challenge since Covid. There are currently still 4 open positions.
PM-3 Maintain Record of NPDES Activities	Maintain operations and maintenance data in asset management work order system. Update work orders for new stormwater assets. Maintain email records from respective workgroups.	Ensure tasks are completed annually	Work orders for Operations and Maintenance are captured in Cartegraph operations management system.	No change

4. Stormwater Management Program Budget

Program activity within the County's NPDES permit area is divided between areas that were previously managed under the Portland area and Gresham area NDPES permits. The Water Quality program, consisting of one staff manages the County stormwater program, and portions of two Asset Management staff provide mapping and database services across the entire permit area. Services specific to the two areas are described below.

Gresham area stormwater related services:

- Road Maintenance expenditures and anticipated budget allocations within the Fairview and Interlachen incorporate items including drainage maintenance, right-of-way, surface management, vegetation management, general administration, emergency road hazard response and training.

- Road Engineering expenditures and anticipated budget allocations within Fairview and Interlachen incorporate drainage studies and reviews, environmental compliance review, as-built plan drafting and inventory, GIS database entry, and training.

- Land Use and Transportation Planning expenditures and anticipated budget for design review of capital improvements and right-of-way impacts to the County roads in Fairview, Troutdale, and Wood Village, and for design review and permits for development within the Interlachen Area.

Portland area stormwater related services:

- Bridge Maintenance expenditures and anticipated budget allocations within the Portland Permit area incorporate items including, drainage maintenance, right-of-way, surface management, vegetation management, general administration, emergency road hazard response and training.

- Bridge Engineering expenditures and anticipated budget allocations within the Portland Permit area incorporate drainage studies and reviews, environmental compliance review, as-built plan drafting and inventory, GIS database entry, and training.

- Multnomah County Road Maintenance, contracts the City of Portland and Clean Water Services to maintain and operate County owned roads to their respective standards in the urban unincorporated pocket areas through Intergovernmental Agreements.

- Road Engineering continues to retain authority to review access and impacts to the right-of-way including stormwater discharge when such discharges cannot be retained on site.

- Transportation Planning within the Portland Permit area includes development review in the unincorporated pockets where such development has the potential to access or impact the county right-of-way.

Funding for stormwater program expenditures are derived from two sources. The Land Use Planning receives funding from County's General Fund. The Transportation Division (Road and Bridge Services and Transportation Planning) receive funding from the State Highway Trust Fund, which includes the State gasoline tax, weight/mile tax on trucks, and vehicle registration fees. Highway Trust Funds are constitutionally dedicated to road related issues. The County has no revenue from dedicated stormwater fees. This is a result of the County roads and unincorporated pockets being nested within other city jurisdiction's service areas.

The table below outlines program expenditures for Fiscal Year 2022 and provides the anticipated budget for Fiscal Year 2023.

Program Area	*FY 2022 actual*	*FY 2023 budget*
Water Quality Program[1]	$305,982	$322,506
Asset Management[2]	$8,960	$8,960
Gresham area		
• Road Maintenance[3]	$291,903	$175,000
• Road Engineering[3]	$21,001	$3,500
Portland Area		
• Bridge Maintenance/Operations	$16,125	$24,050
• Bridge Engineering[4]	$17,628,586	$17,307,120
• Road Maintenance IGA	$15,000[5]	$100,000
• Road Engineering[6]	$22,886	$22,886

[1]*Figure includes entire Water Quality program includes one staff, monitoring budget for UIC, TMDL and NPDES programs, and additional program costs.*
[2]*Estimate is based on a portion of time from two Asset Management staff.*
[3]*Budget estimate is based on actual spending from the previous year for time spent on water quality work plus a budget for training.*
[4] *The amount shown represents the entire Bridge Engineering program. The entire program is included because Bridge Services do not budget or collect charges for water quality tasks. Water quality best practices are integral in all aspects of design and construction and hence we are not able to be segregated from the other work. Increase in budget reflects Sellwood Bridge funding.*
[5]*Portland Road Maintenance IGA funds used for non-water quality related maintenance are not reported here.*
[6]*Estimate of the amount of time spent on water quality issues in Portland area right-of-way.*

5. Monitoring Summary

Environmental monitoring for the NPDES MS4 Phase I permit includes instream monitoring, macroinvertebrate monitoring, stormwater sampling for mercury, and pesticide monitoring. This summary describes the instream and macroinvertebrate monitoring. In previous permit terms, the mercury monitoring was completed. Pesticide monitoring is slated to be done in conjunction with the County's underground injection control (UIC) Water Pollution Control Facility (WPCF) permit requirements.

Instream Data

Instream monitoring is required at two sites in the permit area for a range of pollutant parameters shown in the table below. Monitoring is coordinated with the City of Gresham; the County maintains an intergovernmental agreement with Gresham to contract monitoring services, including monitoring scope, and sampling methods.

Monitoring location	*Sampling frequency*	*Parameters*
Lower Beaver Creek (BCI1) Upper Beaver Creek (BCI2)	4 events/year	Biological Oxygen Demand (BOD5) Total suspended sediment (TSS) Hardness Temperature Dissolved Oxygen (DO) Conductivity pH Nitrate (NO3) Ammonia nitrogen (NH3-N) Total phosphorus (TP) Ortho-phosphorus (O-PO4) Copper, total and dissolved Lead, total and dissolved Zinc, total and dissolved E.coli bacteria
Lower Beaver Creek (BCI1) Upper Beaver Creek (BCI2)	1 event/year	Macroinvertebrate

Monitoring results discussion:

The following discussion an Annual Report monitoring summary. Monitoring data was submitted to the DEQ AWQMS database, and is not shared in this report per DEQ direction.

Instream mointoring

The raw data collected in Permit Year 27 are summarized below and have been submitted through the AWQMS database. The instream data have been

compared to the relevant DEQ water quality criteria, and values that do not meet the water quality standards are discussed below. Instream monitoring results were generally within expected ranges. There were some exceedances of water quality standards for temperature, total Hg, and E. coli. The greatest number of exceedances were for total Hg and stream temperature.

The City of Gresham collected continuous instream temperature data at several sites within the city and collaborated with other jurisdictions to collect data at several sites upstream and downstream of the city. The data range is somewhat different for this parameter than for others because loggers are placed in the field in spring and removed in the fall for processing. Therefore, the time-period reported here is from May – October 2021.

Watershed	***Creek***	***Location***	***Max 7DADM temp (*C)***	***Exceedances (# of days)***
Beaver	*Beaver*	*Division St.*	*22.7*	*74*
Beaver	*Beaver*	*Glenn Otto Park*	*24.5*	*88*

Macroinvertebrates were monitored at two sites by the City of Gresham. The City has submitted raw macroinvertebrate data for Permit Year 27 through the AWQMS database. The new format does not allow an immediate calculation of an index for discussion or direct comparison with previous data. However, the City is working with Shannon Hubler at DEQ to assess the macroinvertebrate data from the database in a way that allows these comparisons. It is anticipated that a more thorough assessment will be provided in a future Annual Report.

APPENDIX A. Regional Coalition for Clean Rivers and Streams Annual Report 2023

Regional Coalition for Clean Rivers and Streams

Fiscal Year 2022-2023 Annual Report

August 14, 2023

Prepared by:

FY 2022-23 Overview

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work – initiated in the late 1990s – of providing coordinated messaging about area water health and residential behaviors linked to stormwater pollution from across the Portland metropolitan region in Washington, Multnomah, and Clackamas counties.

Population statistics for the tri-county Metro area are as follows: Washington County 596,969, Multnomah County 810,011, and Clackamas County 418,577[1]. The Coalition continues its brand recognition efforts by consistently using the previously developed The River Starts Here creative concept in its various materials. Other Coalition activities in the 2022-23 Fiscal Year (FY) included sponsoring and promoting the Coalition and its messages at community events.

Coalition participants include:

- Clackamas River Water Providers
- Clean Water Services
- City of Gresham
- City of Milwaukie
- City of Portland
- City of West Linn
- Multnomah County
- Clackamas Water Environment Services
- City of Gladstone
- City of Lake Oswego
- City of Oregon City
- City of Troutdale
- City of Wilsonville
- Oak Lodge Water Services

This report includes activities between July 1, 2022 - June 30, 2023.

Background

The Coalition continues its mission of collaborating across the Portland metropolitan region to improve watershed health by changing household behaviors, reducing polluted runoff, and connecting people with their local waterways. Coalition members leverage their collective resources to conduct outreach to communities across the region with common stormwater information and messages. Coalition activities complement individual agency efforts to raise awareness of stormwater runoff and affect behavior change to prevent pollution and protect regional surface water quality. Coalition activities support commitments relative to state permits under the federal Clean Water Act (administered by the Oregon Department of Environmental Quality), including Total Maximum Daily Load and National Pollution Discharge Elimination System Municipal Separate Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition represent agencies that serve diverse population sizes from very small (Troutdale) to very large (Clean Water Services). As such the ability to run programs specific to their

[1] 2021 American Community Survey 5-Year Estimates, Table B01003

community is limited by funding and staffing. The Coalition represents an efficient, effective method to combine stormwater outreach funds. Coalition members continue to provide funding for the collaborative work each fiscal year based on the size of the respective community. The group shares funds with Multnomah County acting as the fiscal agent to purchase associated consulting services, advertising, materials, and event sponsorships. By sharing resources, the group reaches many thousands of people in the region compared to what entities can typically achieve on their own.

The Coalition focuses on promoting information and events that may result in changing behaviors to reduce residential sources linked to stormwater pollution prevention. Information and messages used by the Coalition are intended to reach those making purchasing and management decisions about yard care, pet waste management, and auto maintenance activities – some of the most likely sources of stormwater pollution from residents. Coalition activities address a range of surface water contaminants, including nutrients and toxics from synthetic quick release fertilizers and pesticides applied to yards and lawns, pollutant loads from car washing soaps, metals, and other toxics from vehicle maintenance, keeping tires inflated to reduce wear and the release of 6-PPD-Q, *E. coli* from pet waste, turbidity from eroded soils and other contaminants from illicit discharges, such as dumping into drains, as well as reminders about proper disposal tips and locations/events for disposal or recycling.

Key Messages

The Coalition's key messages focus on raising awareness about pollution from stormwater runoff and motivating actions to protect surface water quality through action at the household level. The key messages are:

- Stormwater runoff goes directly to our local waterways without treatment. When it rains, pollutants from your home, car, and garden wash into our rivers and streams. Never dump anything into storm drains.
- Bacteria from uncollected dog waste washes into our rivers and streams. You can protect our water by picking up after your pets.
- Yard and garden products wash into our rivers and streams. You can protect our water by eliminating these products or using compost and slow-release fertilizer, aerating and overseeding to create a dense healthy lawn that outcompetes weeds and eliminates the need for products like weed and feed.
- Motor oil, solvents, and soaps wash into our rivers and streams. You can protect our water by keeping car-care chemicals out of storm drains, diverting wash water onto your landscaping, and going to a car wash.

FY 2022-23 ACTIVITIES AND RESULTS

Strategic Plan Implementation

The Coalition acted on strategic plan goals as summarized below:

Goal 1: Maintain a functioning Coalition

Each year, Coalition members prepare an updated cost-sharing approach and budget that supports digital advertising, social media management and other consulting services, as needed. Members of the Coalition also share their knowledge with the broader regulated communities in Oregon via the Association of Clean Water Agencies (ACWA).

Goal 2: Develop and adapt creative products to fulfill the Coalition's mission

The Coalition continued to use collateral materials developed with *The River Starts Here* creative concept through social media outreach and digital advertising. Partners continued to message on their respective social media channels as well as the Regional Coalition for Clean Rivers and Streams channels.

Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for a future collaboration among agencies. Total member representation in the Coalition has increased in the past few years, bringing in more regional partners. During the 2022-2023 FY, the Coalition continued its digital social media organic and paid outreach. Post Covid-19, the respective partners were able to increase their in-person activities.

Screenshot from Twitter post promoting the PDX People of Color Outdoors' monthly outdoor events.

During 2020, the Coalition began examining the importance of acknowledging the intersectionality of the environmental and social justice movements and the disproportionate impacts to underserved communities.

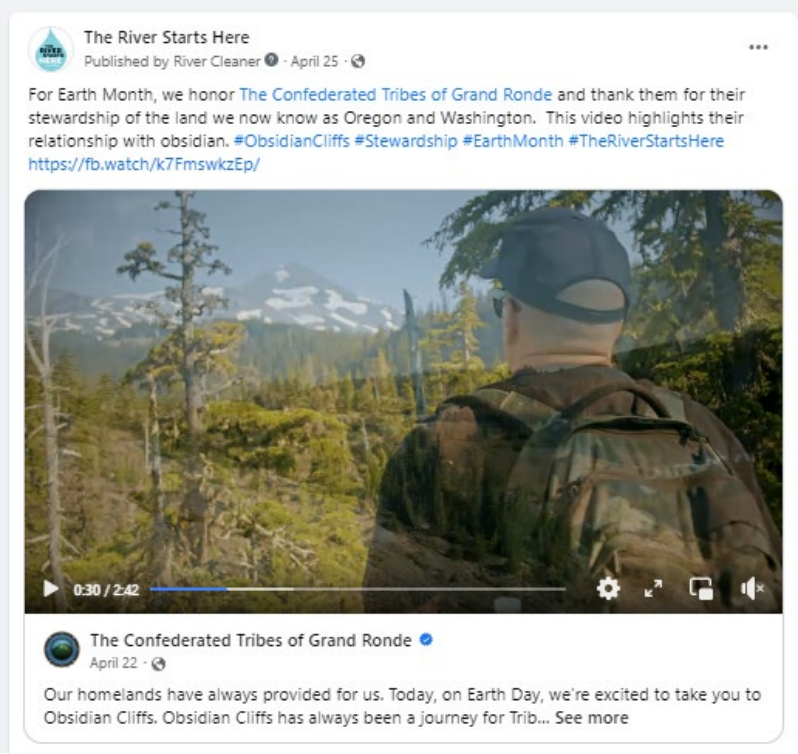
Independently, many partner agencies were in various stages of educating staff and adopting outward facing commitments to serving their respective communities on the topics of diversity, equity, and inclusion (DEI). Partners committed together to think about practices that could be implemented that would result in more inclusivity for historically marginalized and underserved populations. This included opportunities to collaborate with community-based organizations and discussions about ways the Coalition can strengthen relationships with community partners.

The partners agreed to broaden the content of their messages to include environmentally related social justice information and use their platform to amplify the voices of the Black, Indigenous, and People of Color (BIPOC) communities. During the 2022-2023 FY, the Coalition continued their effort to center antiracism in their work by updating the group's internal and external values statements and utilizing those values as part of their ongoing outreach to the Coalition members' respective communities.

External DEI Statement

The River Starts Here campaign is led by regional community water protection partners who have responsibilities to build community resilience around our rivers and streams. We acknowledge the disproportionate impacts of water pollution on Black, Indigenous and People of Color (BIPOC) communities, as well as the impacts from historic and systemic racism that still exist today. We also acknowledge the intersectionality of impacts with other underserved communities such as people with disabilities, LGTBQIA+, women, and the economically disadvantaged, among others. We continuously learn from our diverse partners in the community, and work to ensure our outreach messages and the events we help sponsor are accessible to the broader community.

We are committed to antiracist work in our campaign. Antiracist goals include amplifying the voices that represent diverse communities and cultures, as well as addressing past and current inequities. We use our outreach campaign to promote safe and welcoming nature related events outdoors with diverse community organizations. Additionally, our campaign promotes diverse programming that serves the historically excluded or marginalized community members to achieve inclusive and equitable access to the outdoors and our waterways.



Screenshot from Facebook post featuring a video from the Confederated Tribes of Grand Ronde to share their culture and their relationship with the land.

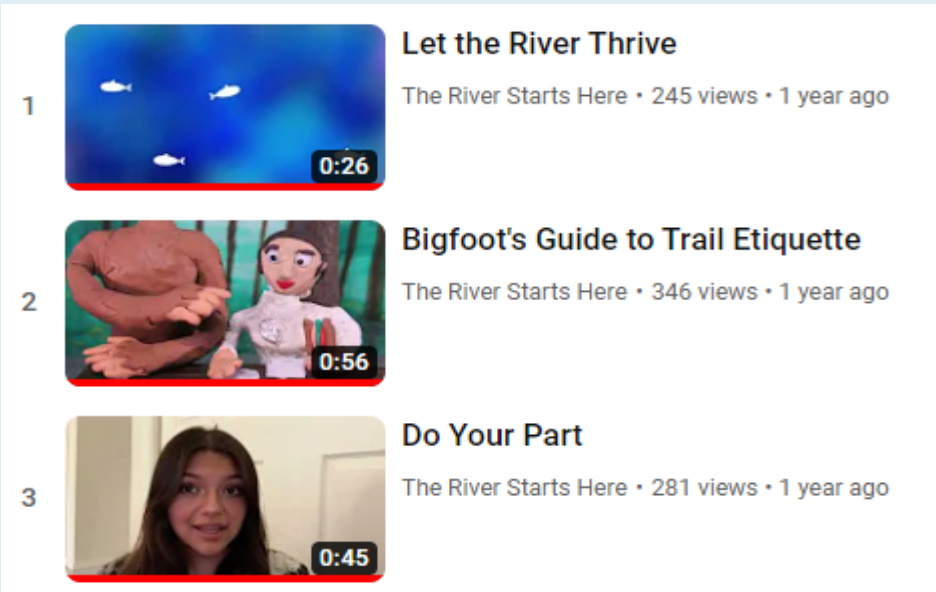
THE RIVER STARTS HERE OUTREACH: STUDENT VIDEO CONTEST

In July 2022, the group promoted the winners of the student video contest, which included youth in Clean Water Services, Portland, and Oak Lodge Water Services districts. Youth were given local recognition, as well as $500 for their achievement category. Their videos were viewed almost 900 times on the YouTube Channel.

The winning videos were placed in the January 14, 2023 Hollywood Theatre Ecofilm festival to honor the youth. The youth and their families were given complimentary tickets. The audience of almost 200 people were told about The River Starts Here social media channels and the Hollywood Theatre promoted the channels on its social media and in its newsletter which is seen by thousands of patrons.

PORTLAND ECOFILM FESTIVAL

Movie Theatre Screen Sponsor Graphic (Right)



2022 Student Video Contest Winners

1. **"Let the River Thrive" by Finnian Morgan Brewer-Best short format category.**
2. **"Bigfoot's Guide to Trail Etiquette" by Nathan Monroe-Ramberg-Best Long format video and People's Choice category**
3. **"Do Your Part" by Natalia Gates-Honoring Diverse Voices category**

Implementing the Student Video Contest is a fairly large workload lift which was supported by in-kind City of Gresham staff contributions and use of its electronic newsletter subscription to reach Metro area schools. Despite continuous promotion of the contest in each successive year the total number of student entries dropped precipitously. Therefore, the Coalition decided not to relaunch the student video contest in fall of 2023.

New Youth Project Partnership

Sierra Daves, Grade 2

Clearing Magazine – Honoring Our Rivers Youth Art and Poetry Program

In winter of 22-23, the Coalition began a partnership with Clearing Magazine—the PNW Environmental Education Journal for K-12 Educators. Their vision is a community of educators and students in the PNW dedicated to the common purpose of creating a healthy and sustainable future.

Clearing Magazine was planning to re-launch the Honoring Our Rivers Student Anthology of Art and Creative Writing program. It is a 20-year-old former project of Willamette Partnership. Clearing Magazine expanded the project to include the entire state of Oregon and SW Washington.

The Coalition provided in-kind support by promoting the contest via direct calls to schools in the Metro region phone and a newsletter email to all public and private schools in Multnomah, Clackamas, and Clark County. The City of Gresham staff also acted as strategic advisors related to the digital application process, FAQs, website content and other promotion opportunities.

Social Media Promotion of the Honoring Our Rivers call for entries

SOCIAL MEDIA EVENT PROMOTION

In comparison to previous years, which were more heavily impacted by the COVID-19 pandemic, the Coalition was able to promote more in-person events held by members and community partners throughout the year. Events promoted included river cleanups, restorations, educational workshops, and outdoor celebrations. In total, about 30 local events were promoted on the River Starts Here social media channels during FY 2022-2023 (see partial list below). The Coalition also helped draw public interest to the Coalition's social media pages using global events as well as sharing key messages around pollution from stormwater runoff.

- Clackamas Water Environment Services partnered with SOLVE for the Summer Waterways Cleanup Series, which occurred from May-September 2022. In all, 1,481 volunteers participated in nearly 70 cleanup projects to collect and dispose of 11,373 pounds of trash and pollutants from waterways and natural areas. Litter cleanup projects occurred along the Clackamas, Sandy,

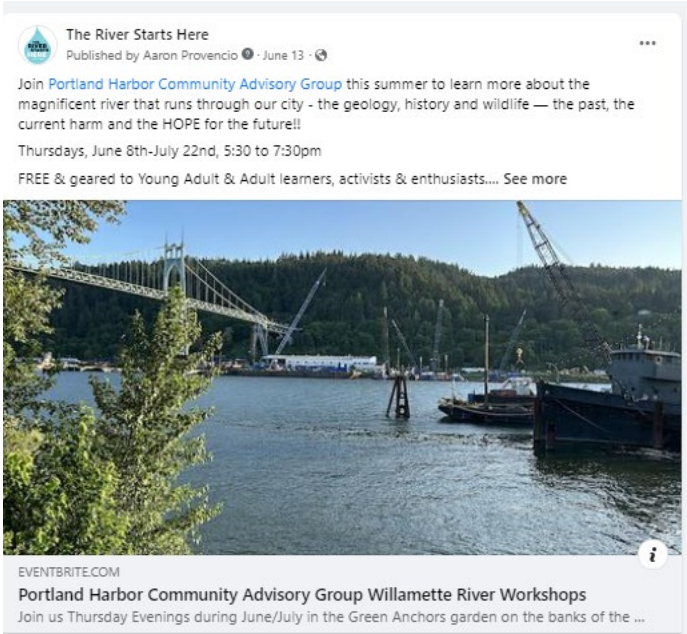
and Willamette rivers. Mentionable cleanup projects also took place at Camp, Johnson, Oswego, Mt. Dean, and Willow creeks.

Volunteers cleaning up a natural area in Clackamas County

Trash and pollutants collected during one of the Summer Waterways Cleanup efforts by Clackamas Environment Services

- July 2022, Promoted the Big Float and conducted outreach in the Watershed Village with Mult Co & Gresham staff and watershed partners.
- SOLVE hosted the Annual Beach and River Cleanup along the Vera Katz Eastbank Esplanade in partnership with the Willamette Riverkeepers and Central Eastside Industrial Council on September 24, 2022.
- The Willamette Riverkeeper hosted the 14th Annual Great Willamette Cleanup throughout October 2022, which consisted of 21 events that were supported by 375 volunteers and led to the removal of 16.7 tons of trash, 122 needles, and invasive English Ivy from near the waterways.
- On November 12, 2022, the City of Gladstone partnered with the Tigard Water District and the Clackamas River Basin Council to host a community work party to clean up Cross Park in Gladstone with the help of volunteers.
- On November 19, 2022 Clackamas County partnered with Friends of Trees to plant trees and shrubs in the Rock Creek watershed in Damascus.
- The North Clackamas Watershed Council held a tree planting event in Southern Lites Park in Happy Valley on January 21, 2023.
- The Greater Oregon City Watershed Council partnered with Oregon City Parks and Recreation to host four volunteer opportunities to help plant new native plantings along the shores of Singer Creek. The volunteer dates included February 4, 11 and 18 as well as March 4 in 2023.
- The City of Gresham supported a restoration event, hosted by the Johnson Creek Watershed Council, which included weeding, mulching, and planting with volunteers. The event occurred on March 4, 2023.
- On April 15, 2023 Multnomah County held a fishing tournament along the Vera Katz Eastbank Esplanade in Portland that also served as an educational opportunity for participants to learn about fishing and which fish are okay or not okay to eat from the river.

- On May 6, 2023, Friends of Tryon Creek State Park hosted the 5th Annual Indigenous Culture Day and Salmon Bake at Tryon Creek State Park, which provided attendees an opportunity to learn from Indigenous educators.
- Coalition members Clackamas Water Environment Services, Oak Lodge Water Services, Clackamas River Providers, and the City of Oregon City hosted an in-person *How to Build a Rain Garden* workshop on May 13, 2023.
- Clackamas Water Environment Services partnered with local organizations, including the Wetlands Conservancy, to hold a local wetland tour in Milwaukie on May 13, 2023.
- SOLVE hosted a cleanup of Meldrum Bar Park in Gladstone as part of their Waterway Cleanup Series on May 18, 2023.
- Clackamas Water Environment Services and the City of Portland Environmental Services, along with other local agencies, sponsored the Johnson Creek Watershed Council's Annual Celebration, which occurred on May 25, 2023.
- On June 17, 2023, the City of Gresham held a Repair Café and Swap to promote repairing and trading of products instead of buying new to promote waste reduction and water and air pollution reduction.
- On June 24, 2023, Oak Lodge Water Services partnered with Clackamas County, the City of Milwaukie, and other community partners to hold a Pollination Celebration in Stringfield Family Park in Milwaukie.
- Promotion of the Portland Harbor Community Advisory Group June 8 to July 22, 2023.



Website: TheRiverStartsHere.org

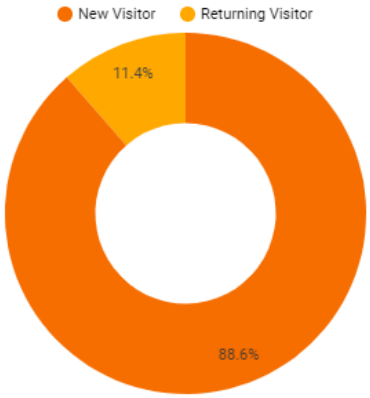
TheRiverStartsHere.org launched in June 2015 featuring *The River Starts Here* creative assets. It features an image slider highlighting Coalition messages and includes links to member websites and additional web resources. Summary website analytics for the 2022-2023 FY are shown below.

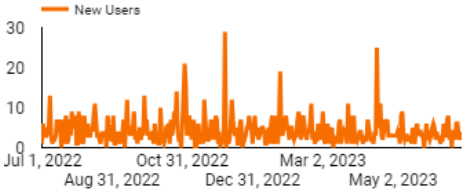
Statistics in parentheses show the difference between last year and this year's data. Increases are shown in **green,** and decreases are shown in **red**. New data points are presented in black.

Total sessions: 1,742 (▼3,826)

- **Users:** 1,552 (▼2,981)

    - **New users: 1,543**
- **Traffic type**
    - Direct: 723 (▼1,470)
    - Social: 113 (▼755)
    - Organic (search engine): 849 (▲294)
    - Referral: 57 (▼382)





The past three years, visits to the website were primarily driven by the advertising of the Student Video Contest. During this fiscal year, the Coalition did not initiate a contest and there for website visits declined. Furthermore, most of the community event and other posts lead to the websites of our community partners for specific information. The most visited website pages were How to Remove Roof Moss the Eco-Friendly Way and the Student Video Contest.

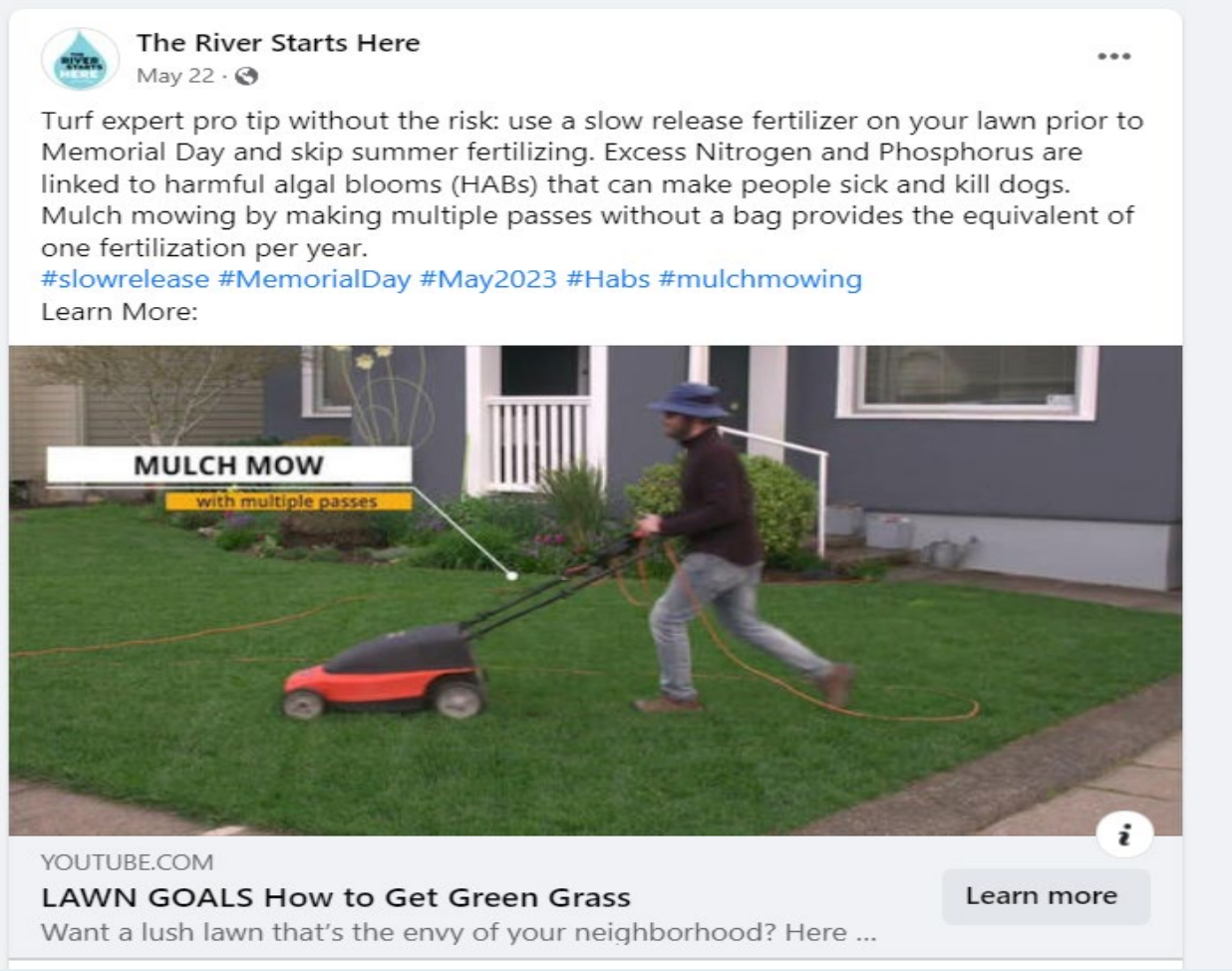
As depicted in Figure 5, three spikes of website engagement were detected in October 2022, December 2022, and May 2023. In October 2022, higher engagement is attributable to social media promotion of #fatbearweek. In December 2022, an increase of engagement on the website is likely due to a successful ad campaign for the YouTube video, *Something Fishy*. In May 2023, an increase in web traffic may be tied to a higher number of partner events like planting workshops and river cleanups, a higher number of posts on social media in general, as well as a boosted post encouraging the audience to visit the website which received a higher-than-average amount of likes at 65 likes.

The River Starts Here Blog

In past years, the Coalition blog was used as a resource for students participating in the video contest. During FY 2022-2023, the blog feature was not utilized.

SOCIAL MEDIA CHANNELS

The Coalition continued posting to its social media channels with an increase in frequency compared to previous years. As in past years, the Coalition concentrated social media activity in spring and summer when residents have an increased interest in yard and garden activities relevant to surface water quality. During FY 2022-2023, the Coalition broadened its reach by promoting global events, such as World Fish Migration Day and National Day of Racial Healing, to bring year-round social media activity to its pages. The most liked post on Instagram was the promotion of Fat Bear Week, which received 8,225 likes.



Lawn Care Promotion using EPA funded videos created by the statewide Clean Rivers Coalition group of water stakeholders

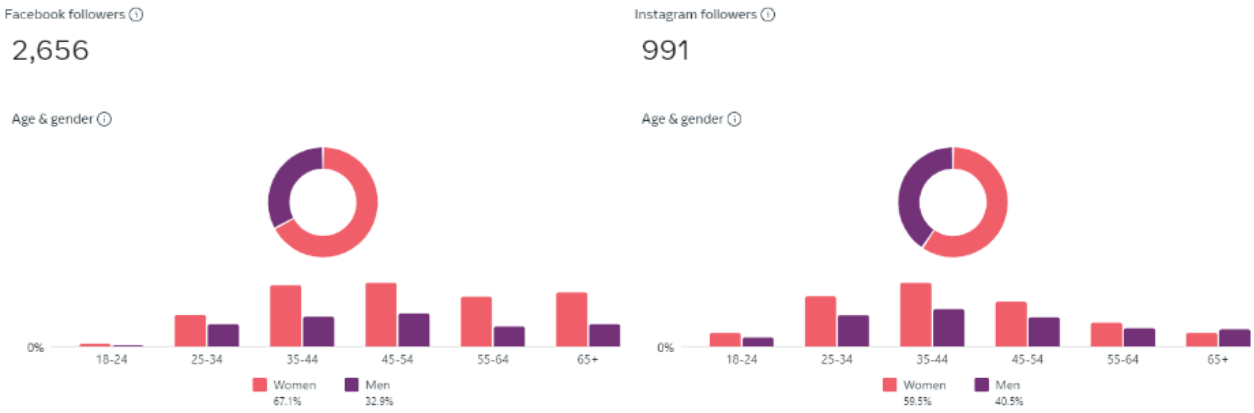
Table 1. Summary of Social Media Channel Reach

In the following sections, statistics in parenthesis are the difference between last years and this year's data. Positive changes are shown in green, declines are shown in red.

Channel	Total Reach	Likes/Views/Followers
Facebook & Instagram Paid Ads	350,056	727 Page likes (▲ 681%) IG followers added: ▲ 406
Facebook Annual (includes organic posts)	469,064 (▲ 170%) Total posts: 245 (▲ 132)	Total followers: 2,524 (▲ 727)
Instagram Annual Reach (includes organic posts)	104,511	
YouTube	11,243 Impressions*	932 Video Views (Student Videos)
All Channels Total Reach	**~ 924,000**	

Table 1: *Reach is unique accounts and is more accurate. Impressions include multiple ads shown to the same person.

The increases in visits to the profile page and page likes over last year on Facebook signifies that the ads are reaching audiences that are connecting with the Coalition's information and events.



Facebook and Instagram followers by age range and gender. Women are the majority of followers on both channels and while Instagram skews slightly younger than Facebook, the majority of followers are between 25 and 54.

The Coalition focused on building a youth following by promoting Instagram content while reaching older people through Facebook. The Instagram audience continues to be dominated by people ages 35-44.

Facebook ads, The River Starts Here

The Coalition continued to use low-cost social media advertising as part of its campaign in FY 2022-23. Continuing to focus on defined target audiences for messages (male v. female, age level for behavior, etc.) as well as targeting by ZIP code is a primary strategy. Advertising was on Meta, most commonly shown on Facebook, but also appeared on Instagram.

Table 2. A summary of Facebook student video ad engagement managed by EnviroIssues:

- **Top advertisements and boosted student posts Reach:** (8 videos)

Topic	Plays	Reach	Page Likes	Cost Per Page Like
Something Fishy	46,341	45,192	N/A	N/A
It Starts With You	12,428	5,480	213	$0.68
Mindful Maintenance	1,684	3,143	40	$3.37
Don't Be a Chump, Don't Dump	1,732	2,277	53	$2.64
Getting Creative Getting Around	1,467	2,439	42	$3.34
Do Your Part	3,178	6,934	67	$2.09
Do Your Part	2,405	3,471	7	$2.09
Big Foot's Guide to Outdoor Etiquette	5,458	21,733	NA	$0.03
Don't Litter, Be Better	3,650	4,438	104	$1.25

Table 2: Plays is the number of times a video was started to play. Reach is the number of individuals who saw or interacted with the post. Some ads also ran on Instagram.

Twitter, @riverstartshere

A summary of use during the fiscal year is as follows:

- **Followers:** 1,628 (▲187)
- **Tweets:** 178 (▲117) (reach statistics are not available)

Instagram, @theriverstartshere

Table 3: A summary of Coalition Instagram account use during the fiscal year is as follows:

- **Followers:** 983(▲406)
- **Posts:** 99(▲68)

YouTube, The River Starts Here @theriverstartshere

A summary of the Coalition YouTube account during the fiscal year is as follows:

Subscribers: 170 (932 total video views)

- **Videos added:** 15 (student video psas)
- **Watch time (hours):** 8.1
- **Student video entries viewed almost 900 times**
- **Most popular video -Don't Litter, Be Better**

During 22-23, the Coalition added the 15 best student videos from three successive years of contests. These videos were edited by Outside the Frame (OTF), a Portland based non-profit that teaches homeless and marginalized youth how to make and edit films. The Coalition leveraged its dollars by paying OTF to conduct a workshop to teach students how to edit videos to add branding and add closed captioning in other languages. (Spanish and Russian). These videos are short public service announcements focused on providing the public with a variety of water protection actions.

Table 4: A summary of Facebook ads and boosted posts managed by the Coalition:

Total number of ads and boosted post reach: 350,056 (not all are shown here)

AD or Boosted Post Topic (37 total)	Clicks	Reach	Cost Per Click
Fall Lawn Care	667	61,600	$0.75
Metro-Proper Hazardous Waste Disposal	995	27,431	$0.94
Lawn Care Tips without the Risk	148	18,880	$1.35
August Events on Tualatin	943	32,921	$0.21
Get a Great Looking Lawn	126	20,480	$1.59
Reseed Your Lawn	70	13,456	$2.86
August Paddle Events Columbia Slough	689	27,748	$0.26
Promo of Backyard Habitat Program	815	11,936	$0.04
Mowing Less Helps Pollinators	848	11,940	$0.12
Promotion of Big Float Event	284	18,824	
Promotion of WhatsYourLawnStyle.org	448	8646	$0.32
Pride Month: Highlight of Wild Diversity	204	4,311	$0.49
Intro to Birding with Latino PDX Outdoors	104	6,810	$0.47
Willamette Riverkeeper/Solve Cleanup	39	530	1.03
Black History Month: Estella Ehelebe	1,167	4,761	$0.03
Black History Month: Bio of York the Explorer with Lewis and Clark	1,458	9438	$0.04

Organization Highlight: Latino Outdoors PDX for Latine/Hispanic Heritage Month	220	10,517	$0.75
High End Lawn Without Chemicals	128	12,748	$1.17
Metro Paint Recycling—Free Giveaway	25	870	
Swim Guide Promotion	550	21,996	$1.59

TABLE 5: FY 2022-23 EXPENDITURES

Category	Services	Investment
Paid Advertising and Graphics		
Meta	Digital advertisements (EnviroIssues)	$349
Facebook	Digital post boosting and community event ads	$3,738
Outside the Frame	Student Video branding and closed captioning (15 videos)	$3,900
Hollywood Theater	EcoFilm event sponsorship (2nd year)	$750
Coordination support		
EnviroIssues	Meeting support and member coordination, website maintenance, social media authoring	$23,569
	TOTAL	**$32,306**

OBSERVATIONS

The following observations are based on the results of FY 2022-23 activities and suggest future direction the Coalition may take in its mission of educating the public about the impact of stormwater runoff pollution on the health of our rivers and streams. The FY 2022-23 efforts consisted of the Coalition continuing to use digital advertising, contracting with EnviroIssues to assist with continued social media posts, meeting coordination and data analytics, and maintaining a YouTube page.

The Coalition's online audience and its engagement increased on the Coalition's Instagram and Twitter accounts yet decreased substantially in terms of overall viewership of videos on the Coalition's YouTube channel and visitation to the Coalition's website. Because the Student Video Contest had a "People's Choice" voting category based upon YouTube engagement and the instructions for entry were on the website, overall visits were down this past year without the contest. The contest was designed, in part, to increase engagement and followership. However, the number of staff hours to support the contest were disproportionate to the returns related to engagement and content consumption. For example, other videos on the YouTube channel were not watched, only those up for voting. And other areas of the website aside from contest application, were not visited, nor did followership increase.

Looking ahead

The Coalition will continue to promote events that connect people to the outdoors, rivers, and streams, and enhance their understanding of water protection actions they can take

As the 2023-24 school year begins, the Coalition will continue supporting Clearing Magazine's Honoring Our Rivers student art and poetry program in lieu of reinstating the Coalition's Student Video Contest. This includes Coalition partners continuing to provide guidance on outreach methods and program implementation as well as spreading awareness of the program to schools in the Portland-Vancouver Metro area.

The Coalition will continue its focused digital ad campaign to drive people to its website and other social media channels. The group will discuss how to drive more people to its YouTube video content and continue working with its partners' social media expert staff on recommendations. It will continue to coordinate and compliment the work of the statewide campaign "Follow the Water." It will continue to examine ways to support a variety of community-based nonprofits that serve historically marginalized and underserved populations with its outreach channels to the public.

APPENDIX B. Clean Rivers Coalition Annual Report 2023

APPENDIX C. Hydromodification Assessment and Stormwater Retrofit Strategy Update Report

Infrastructure Retrofit and Hydromodification Assessment

Update Report 2023

Multnomah County National Pollutant Discharge Elimination System

Municipal Separate Storm Sewer System - Phase I Permit

Submitted to Oregon Department of Environmental Quality
November 1, 2023
Transportation Division – Water Quality Program
Department of Community Services
Multnomah County

1. INTRODUCTION

Multnomah County manages stormwater runoff under a National Pollutant Discharge Elimination System Municipal Separate Stormwater System Phase I Permit (NPDES MS4 Phase I)[1]. The 2021 NPDES permit requires the County to update the Infrastructure Retrofit and Hydromodification Assessment, with an assessment of any outcomes of related to these reports (2021 NPDES permit, Section A.3.h). The County's 2014 Stormwater Retrofit Strategy[2] describes alternatives and costs to provide stormwater treatment on existing roadways within the County's NPDES jurisdiction. The 2014 Hydromodification Assessment Report[3] identifies priorities for management and information gaps in understanding stream channel changes do to excessive stormwater runoff. Both reports and the current NPDES permit can be found on online at: https://www.multco.us/water-quality-program/reports-and-plans.

Multnomah County is a unique jurisdiction with NPDES permit areas composed of several discrete urban pockets and road rights-of-way (Table 1). The County's urban footprint is small in comparison to other cities in the respective urban watersheds, and compared to agriculture, forestry and other land uses within the area. The County's NPDES permit area contains diverse topographic features, stormwater drainage systems, and roadway infrastructure that require consideration of impacts at a "watershed scale". This involves coordination between state agencies, local governments, and watershed non-profit organizations to fill information gaps, and to fulfill strategies that minimize effects on stream health. However, efforts to provide stormwater treatment are important to reduce impacts, especially on water quality.

Table 1. Multnomah County watersheds and the associated County NDPES permit area.[3]

Watershed/Stream	*County NPDES Jurisdiction within Watershed*
Lower Willamette River • Johnson Creek (54 mi^2) • Fairview Lake (Columbia Slough) o Fairview Creek (11 mi^2) • Tryon Creek (6.5 mi^2)	• 473 acres (0.74 mi^2); 3 Facilities • 49 ac (0.08 mi^2) of residential area • 109 ac (0.17 mi^2) of urban road right of way • 105 ac (0.17 mi^2) of residential area
Columbia River • Salmon Creek (Arata Creek) (3.9 mi^2)	• 125 ac (0.19 mi^2) of road right of way; 1 facility
Sandy River • Beaver Creek (13.5 mi^2) • Sweetbriar Creek	• 35 ac (0.05 mi^2) of urban road right of way • 6 ac (0.01 mi^2) of rural road right of way
Tualatin River • Fanno Creek (32 mi^2) • Cedar Mill Creek (Rock Creek)	• 410 ac (0.64 mi^2) of residential area • 362 acres (0.57 mi^2)

Hydromodification impacts from roadway infrastructure stormwater is most apparent on smaller fish-bearing streams where the amount of stormwater volume and timing of discharge is high relative to the typical winter baseflow. However, many urban streams in Multnomah County have been channelized and modified to the extent that natural hydro-morphological processes are absent or limited. The urban road network has numerous culverts that are undersized, which cause backwatering during storm events, create fish barriers, and may also restrict lateral movement and downcutting of the stream channel. Some roadways in the County NPDES permit area discharge to directly to large waterbodies, such as the Sandy River, Willamette River or to flow-controlled drainages such as Fairview Lake and Salmon Creek. These waterbodies are less impacted by hydromodification from stormwater discharge.

This report summarizes the management approach to address knowledge gaps and funding limitations, and describes areas where stormwater retrofits are a priority based on hydromodification potential.

2. MANAGEMENT APPROACH

Multnomah County's management approach to stormwater retrofit is based on prioritizing County roadway segments where hydromodification impacts may have or occurred, or where there is a high potential to cause hydromodification impacts from urban land uses. Because the County's permit areas are not contiguous, and because there are significant stormwater inputs from the city jurisdictions and agriculture in the watersheds upstream of where the County has NPDES permit jurisdiction, the County's ability to reduce hydromodification is greatly limited.

Stormwater master planning in coordination with the adjacent city jurisdictions to understand the extent and potential hydromodification impacts will help address priorities for stormwater treatment retrofit and funding alternatives.

<u>Stormwater master planning and hydromodification knowledge gaps</u>

The County will develop a stormwater master plan by September 2026 to update the stormwater retrofit strategy, and make considerations of the upstream stormwater inputs from adjacent city stormwater contributions, as well as from agricultural runoff. The stormwater master plan will consider stormwater pipe sizing, culvert pipe sizing, and stormwater treatment facilities to prepare for future development and climate change impacts.

The County will lean heavily on the hydromodification analysis of the adjacent cities to address knowledge gaps of stream channel impairment. The stormwater master plan will be developed in coordination with the Cities of Troutdale, Fairview, Wood Village, Portland and Gresham. Reduced stormwater inputs from the adjacent cities into the County's stormwater system through stormwater infiltration and retention is the most significant benefit to water quality and hydromodification, as the contributing water area from the adjacent cities dwarf that of

the County in nearly all parts of the stormwater system. Focus on fish-bearing streams with federally listed salmonids is of key importance in determining the level of coordination and prioritization in affected watersheds where the County has stormwater outfalls.

Capital improvement plan and funding

The County's stormwater master plan will be an essential tool to update the Capital Improvement Plan (CIP)[4]. The CIP incorporates several scored criteria for project selection and timing, including safety, equity, asset management, mobility, emergency management, and sustainability. Stormwater pollution and stormwater volume are not explicitly incorporated in the current CIP. However, in future CIP development stormwater may be considered in the "environmental toxins" sub-topic in the "equity" criteria, which is a top tier criterion. Stormwater volume may also be considered in the "floodplain" sub-topic of the "resiliency" criteria, and stormwater infrastructure size and condition may be considered in the "asset management" criteria.

The County CIP is developed in coordination with a number of Transportation System Plans from the adjacent cities including the Cities of Gresham, Fairview, Troutdale, and Wood Village, as well as the Regional Transportation Plan. The County participates in the East Multnomah County Transportation Committee (EMCTC), the transportation coordinating committee for the eastern portion of Multnomah County. EMCTC is made up of elected officials from Fairview, Gresham, Troutdale, Wood Village, Multnomah County and the Port of Portland. The Committee helps to set transportation policy direction and funding priorities for East Multnomah County. At least one member of EMCTC also represents East Multnomah County on the regional Joint Policy Advisory Committee on Transportation (JPACT), which makes recommendations to the Metro Council on transportation needs in the region. These regional committees determine the funding opportunities for CIP projects in County NPDES permit areas.

Multnomah County does not have a dedicated stormwater utility or a base of funding for stormwater treatment retrofit facilities, and as a result cannot fund stormwater treatment retrofits independent of projects in the CIP. Funding for stormwater retrofit are directly related to capital projects for existing roadway improvements to accommodate multi-modal transportation and increase roadway safety. A significant portion of the County's transportation needs are based on the Road Fund, which is based on new vehicle registration and gasoline tax. Other funding influences include jurisdictional cost-sharing and grant availability.

3. PRIORITY AREAS FOR STORMWATER RETROFIT

The assignment of priority areas in the County's NPDES permit area are the result of the Hydromodification Assessment and Stormwater Retrofit Strategy reports, as well as the needs of regional transportation system. Beyond the priority level, projects identified in the CIP are

priority projects. As the 2014 Stormwater Retrofit Strategy was a guide to the potential techniques for stormwater treatment that could be employed on a road segment, most projects rely on site scale design that have limiting factors and opportunities that were not identified at the planning level.

Watersheds of priority for stormwater treatment retrofit

Urban watersheds with significant commercial development are priority areas for stormwater retrofit. Arterial and collector roads have high traffic volumes, which can generate stormwater pollutants, including heavy metals, polycyclic aromatic hydrocarbons, and tire chemicals. As there are considerable amount of impervious area from the municipal jurisdictions in urban jurisdictions that are outside of the County NPDES area, the impact of the County's impervious area is meaningful. Priority areas for stormwater treatment retrofit with hydromodification include:

- Beaver Creek – Sandy River Basin
- Salmon Creek (Arata Creek) – Columbia River Basin
- Fanno Creek – Tualatin River Basin
- Fairview Creek (Columbia Slough) - Lower Willamette Basin

Non-Priority Permit areas for stormwater retrofit

The County NPDES permit areas contain several roadways in unincorporated areas that do not have curb and gutters, or no direct stormwater drainage to surface waters. These roadways were built with rural standards, where stormwater runoff sheet flows from the pavement onto adjacent shoulder, or into a roadside vegetated ditch. There are limited opportunities and needs for stormwater retrofits and roadway improvement in these areas, and thus limited funding. The following County NPDES permit areas discussed in the Hydromodification Assessment and the Stormwater Retrofit Strategy are considered areas of non-priority for stormwater treatment retrofit:

- Rock Creek/Cedar Mill Tributary (Tualatin River) unincorporated rural pockets
- Tryon Creek unincorporated rural pocket
- Johnson Creek unincorporated rural pockets
- NW and SW Portland unincorporated rural pockets
- Interlachen area (Fairview Lake)

4. FEATURED RETROFIT PROJECTS

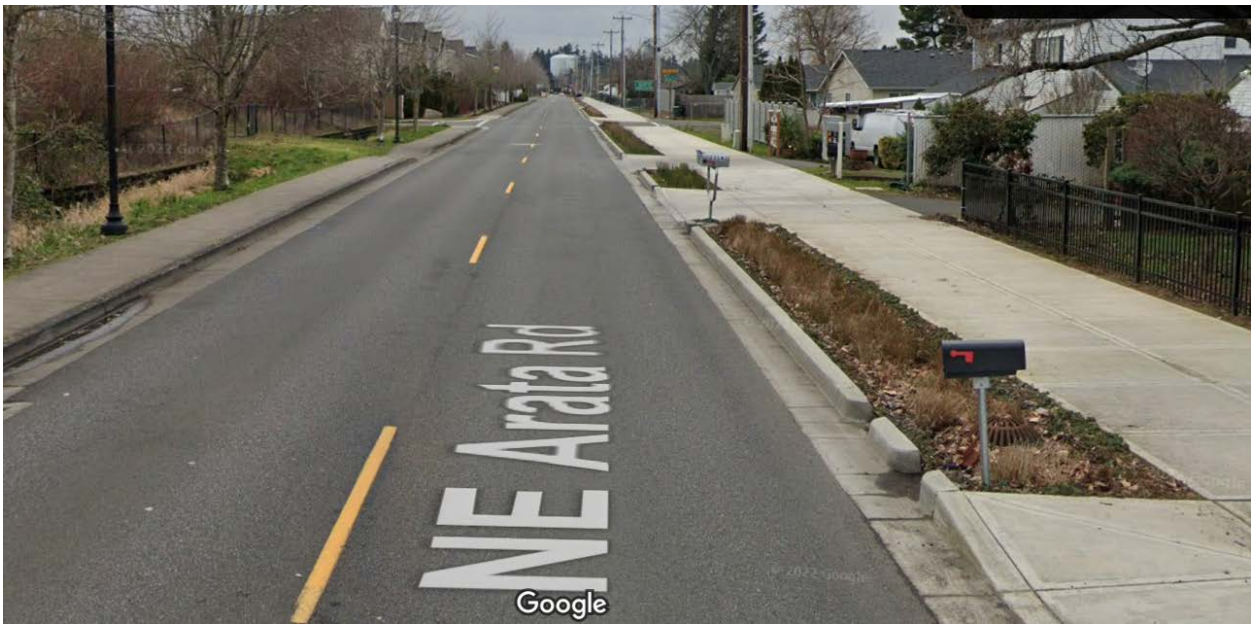
Since the publication of the 2014 Hydromodification Assessment and 2014 Stormwater Retrofit Strategy, several roadway improvement projects have been completed with stormwater treatment facilities in the County NPDES permit area. Transportation projects with stormwater treatment facilities are described briefly below.

Arata Road Safety Improvement and Connectivity Project (2020)[5]

The project within the City of Wood Village included a complete streetscape between NE 223rd Ave and NE 238th Drive including a 6-foot sidewalk on the south side and a 10-foot wide concrete shared-use path for pedestrians and bicyclists on the north side. The project also enhanced the existing asphalt paved path connecting the intersection of Arata Road and Wood Village Blvd. to Halsey Street by widening and adding lighting. The project also included a 5-foot planter to treat storm water runoff along the length of the project site.

The water quality and stormwater quantity benefit to Salmon Creek and Arata Creek tributary are minor. The contributing area of Arata Rd to the Salmon Creek watershed is minor relative to the commercial, industrial and residential land uses in Wood Village and Troutdale. Salmon Creek and its tributaries are among the most modified streams in Multnomah County. The majority of the streams in this watershed have been channelized, and the outlet to the Columbia River is controlled by a pump station at the Columbia River Levee. Numerous fish barrier culverts exist throughout the headwaters of Arata Creek.

The contributing area of Arata Rd to Fairview Creek and the No Name Creek tributary is minor relative to the surrounding commercial and residential areas of Wood Village. No Name Creek is among the most channelized streams in Multnomah County.



238th Ave Transportation Connections Project (2021)[6]

This project made it easier for trucks to navigate the curve on this section of 238th. It also improved access for other modes of transportation, including pedestrians and bicyclists.

The improved road includes:

- A 14-foot southbound (uphill) lane with a 12-foot passing lane
- A 15-foot northbound lane
- 10-foot shared paths for walking and biking on both sides
- Improved drainage and vegetated stormwater features

The project was a top priority in the East Metro Connections Plan, which was adopted by the four city councils, the Metro Council, and the Multnomah County Board.

The road had no bike lanes and just a narrow sidewalk on one side. The improvements created an opportunity to improve all modes of transportation and improve access to adjacent businesses. The project also provided stormwater treatment with a series of bioretention cells and a stormwater retention pond.

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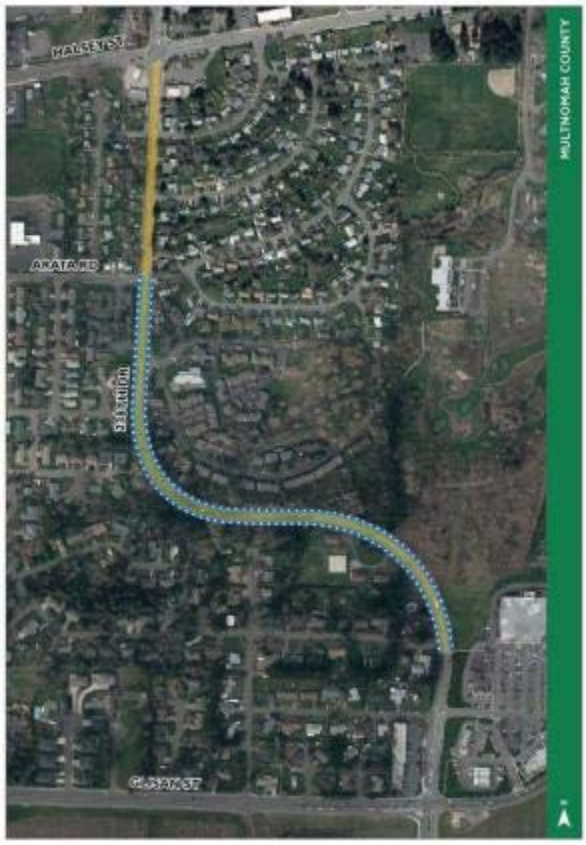
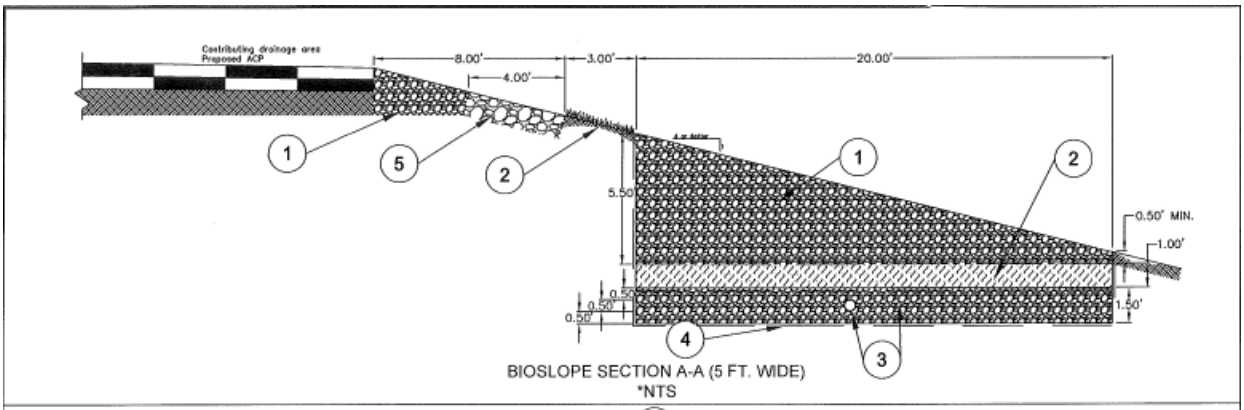


Stark St Culvert Replacement Project (2017)[7]

This project replaced an undersized culvert and fish ladder on the north side at the SE Stark Street crossing of Beaver Creek. It was replaced with a channel-spanning open bottom culvert that restored the natural streambed and allows for fish passage. The new structure removes the flow constraint of an undersized box culvert, and allows the stream channel to meander and form a new natural floodplain.

The new culvert is a 40-ft diameter – 150-foot long metal culvert, designed for a future project that will widen SE Stark Street to four lanes, with sidewalks, bike lanes and stormwater treatment (pending funding). A stormwater bioslope was installed to capture stormwater from the segment of pavement over the culvert.

The area of stormwater treatment is minor relative to the length of Stark St and the surrounding agricultural, commercial, and residential land uses which drain to Beaver Creek at Stark St. Stormwater treatment is captured only for the area above the culvert replacement project.



BIOSLOPE SECTION A-A (5 FT. WIDE)
*NTS

NOTES:

1. Aggregate shoulder
2. Vegetated filter strip - Ecology Mix
3. 6 in. dia. perforated drain pipe with granular drain backfill material
4. Drainage geotextile, Type 1
5. Riprap Class 50 Flow Spreader to be paid as Loose Riprap, Class 50
6. High flows bypass to downstream conveyance or water quality (low control) facility where applicable
7. Riprap backing
8. Do not excavate non-erodible rock in order to place riprap
9. Embankment protection
10. Culvert inlet, pad thickness shall be full thickness under culvert invert
11. 8" ductile iron pipe

Cochran Rd Culvert Replacement Project (2019)[8]

This project replaced the culvert that carried Beaver Creek under SE Cochran Road with a 60-foot long bridge. The old culvert prevented the upstream migration of salmon and other fishes as a result of its design.

The new bridge has a widened cross-section, providing more space for all modes of transportation. There are two 12-foot traffic lanes with two 11-foot shoulders. The shoulders allow space for 6-foot bike lanes and 5-foot sidewalks in the future.

Stormwater treatment facilities for the bridge span and approaches were built into the structure, bound by retaining walls. The water quality and stormwater quantity benefit is minor relative to the agricultural, commercial and residential land uses upstream of the project site.

Glisan St Stormwater Improvement Project (scheduled for 2024)[9]

This project will improve stormwater treatment along part of NE Glisan St in Wood Village. We will replace the existing stormwater system with seven Underground Injection Control systems (UIC). A UIC collects stormwater and allows it to discharge into the ground while filtering out sediment.

In the summer of 2018, we built improvements to NE Sandy Boulevard[10]. During this project, we learned we would not be able to make required water quality treatments. As a result, we must make equivalent improvements to another road in the area. This section of Glisan is comparable to the section of Sandy we improved.

The water quality and stormwater quantity improvement in Fairview Creek and the No Name Creek tributary is minor. No Name Creek is among the most channelized streams in Multnomah County.

5. CONCLUSION

Hydromodification impacts resulting from historical urban development and agriculture on watersheds in Multnomah County are difficult to assess. Stream channelization, culverts, and other modifications such as agricultural drain tiles are extensive in the watersheds where the County has NPDES permit responsibilities. Stormwater discharge from adjacent city jurisdictions into the County stormwater system also limits the ability to assess the impacts from County owned infrastructure and impervious area on local streams.

Priorities for stormwater retrofit in the municipal jurisdictions represented in watersheds where the County has NPDES permit area vary depending on development and transportation goals. However, the urbans areas where stormwater pollutant loads are presumably the greatest, and where these road segments align with the County's Capital Improvement Plan, are considered the highest priority.

By 2026, the County will complete the County Stormwater Master Plan, which will further develop the understanding of stormwater treatment needs and costs in coordination with the regional and local government entities in the county. The County will aligng this plan with the Regional Transportation Plan and the adjacent cities' transportation system and stormwater plans.

6. Reference Links

1. Oregon Department of Environmental Quality, NPDES MS4 Permit – Multnomah County. September 2021.
2. Multnomah County Stormwater Retrofit Strategy. Submitted to DEQ, 2014.
3. Multnomah County Hydromodification Assessment. Submitted to DEQ, 2014.
4. Multnomah County Transportation Capital Improvement Plan and Program, 2020-2024.
5. Arata Road Safety Improvement and Connectivity Project (2020)
6. 238th Ave Transportation Connections Project (2021)
7. Stark St Culvert Replacement Project (2017)
8. Cochran Rd Culvert Replacement Project (2019)
9. Glisan St Stormwater Improvement Project
10. Sandy Blvd Improvements (2018)

APPENDIX E. Illicit Discharge Detection and Elimination Plan 2023

Illicit Discharge Detection and Elimination Program

September 2023

Multnomah County
Transportation Divison – Water Quality Program
Department of Community Services

A. INTRODUCTION

Illicit discharge is a non-stormwater discharge into the municipal separate storm sewer system (MS4) that is not exempted by the NPDES MS4 Phase I stormwater permit (Schedule A.1.d), and therefore is illegal. Typically, these illicit discharges pose a risk to stream health because they are contaminated by liquid wastes from industry, sewage, or wash water.

Illicit discharges may be continuous, periodic, seasonal, or incidental depending on the type and source of the discharge. Illicit discharge detection can involve complex detective work where frequently there is no single approach to take but rather a variety of information leading to the source. From visual screening to field monitoring, dye testing, and in-pipe camera work, a combination of techniques are used to successfully detect and ultimately eliminate illicit discharges.

The goal of the County Illicit Discharge Detection and Elimination Program is to detect and eliminate illicit discharges in an effective and efficient manner such that impacts to surface water are avoided or minimized. The program includes stormwater infrastructure mapping, field screening, lab analysis, and documentation for dry weather inspection. The program focuses on investigation of the underground infrastructure where special methods and documentation are needed. This program is based on the Illicit Discharge Detection and Elimination requirements in the NDPES permit (Schedule A.3.c) and the Stormwater Management Plan Best Management Practice - ILL-3: *Detect and Eliminate Illicit Discharges to the Storm Sewer*.

Illicit discharge detection involves other field activities including regular catch basin inspections that are conducted by the Road Maintenance program as part of the routine catch basin cleaning activity. The County responds to illegal dumping incidents, maintains a program to report illegal dumping and a plan to contain emergency spills. These program elements are described in the Stormwater Management Plan, Road Maintenance and Operations Plan, and the Emergency Response Plan.

Governing Laws and Regulations

Multnomah County maintains stormwater discharge permit coverage under the NPDES MS4 Phase I permit (#103004) renewed in October 2021. This permit contains specific requirements for an Illicit Discharge Detection and Elimination program in Schedule A.3.c.

Provisions of the Clean Water Act (1987) require National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges. Section 402(p)(3)(B)(ii) requires that permits for municipal separate storm sewers shall include a requirement to effectively prohibit problematic non-stormwater discharges into storm sewers. Emphasis is placed on the elimination of inappropriate connections to urban storm infrastructure and requires local jurisdictions to identify, locate, and remove non-stormwater discharges into the municipal storm sewer system.

B. STORMWATER SYSTEM MAP

The County maintains an online map of the stormwater system owned and managed by the County, including stormwater infrastructure owned and managed by adjacent cities that connect to the County stormwater system. The map contains all known County pipes, manholes, stormwater facilites, catch basins, ditches, and outfalls. The map also shows watersheds for the Sandy River, Beaver Creek, Johnson Creek, Salmon Creek, and Fairview Creek (Columbia Slough) watersheds. The online map can be found in this hyperlink: Urban Drainage System Map of Multnomah County.[1]

C. DRY WEATHER FIELD SCREENING AND MONITORING

Dry weather field screening is the process of selecting target outfalls, inspecting outfalls for non-stormwater discharges, and confirming illicit discharges through general observation or monitoring results. Sources of illicit discharge are investigated with a variety of field methods including visual screening and lab analysis.

The County's infrastructure is physically connected to the stormwater systems of the surrounding urban jurisdictions (Portland, Fairview, Wood Village, Gresham, and Troutdale) where stormwater originating from pipes under County-owned roadways is discharged through other jurisdictions' outfalls; and conversely, stormwater from other jurisdictions enters the County system. Coordination between other municipal jurisdictions will occur according to the requirements of the NPDES permit, referenced below in response procedures.

Dry weather field screening occurs at County-owned outfalls to area streams. Field screening activities occurs annually, typically during the summer months when groundwater tables are low and interception/infiltration into the pipe infrastructure is reduced. A 72-hour antecedent dry period is required for field screening.

Priority Outfall Sites

NDPES permit requires that priority outfall selection must be based on an equitable consideration of hydrologic conditions, total drainage area of the location, population density of the location, traffic density, age of structures or buildings in the area, history of area, land use types, personnel safety, accessibility, historical complaints, or other appropriate factors. Outfall delineations are found online on the Multnomah County Urban Drainage Map.

Characteristics of the four priority outfalls are described below:

Outfall	*Size/Material*	*Existing Non-stormwater Flow*
Halsey St @ Fairview Creek	42" concrete	Spring discharege from Glisan St area
Wood Village Blvd @ No Name Creek	42" concrete	Headwaters of No Name Creek
Stark St @ Beaver Creek (West)	27" concrete	Groundwater discharge from Mt Hood Community Collage parking lot
Stark St @ Beaver Creek (East)	42" concrete	none

[1] https://multco.maps.arcgis.com/apps/webappviewer/index.html?id=01bc029bd294402eab98fffd89568133

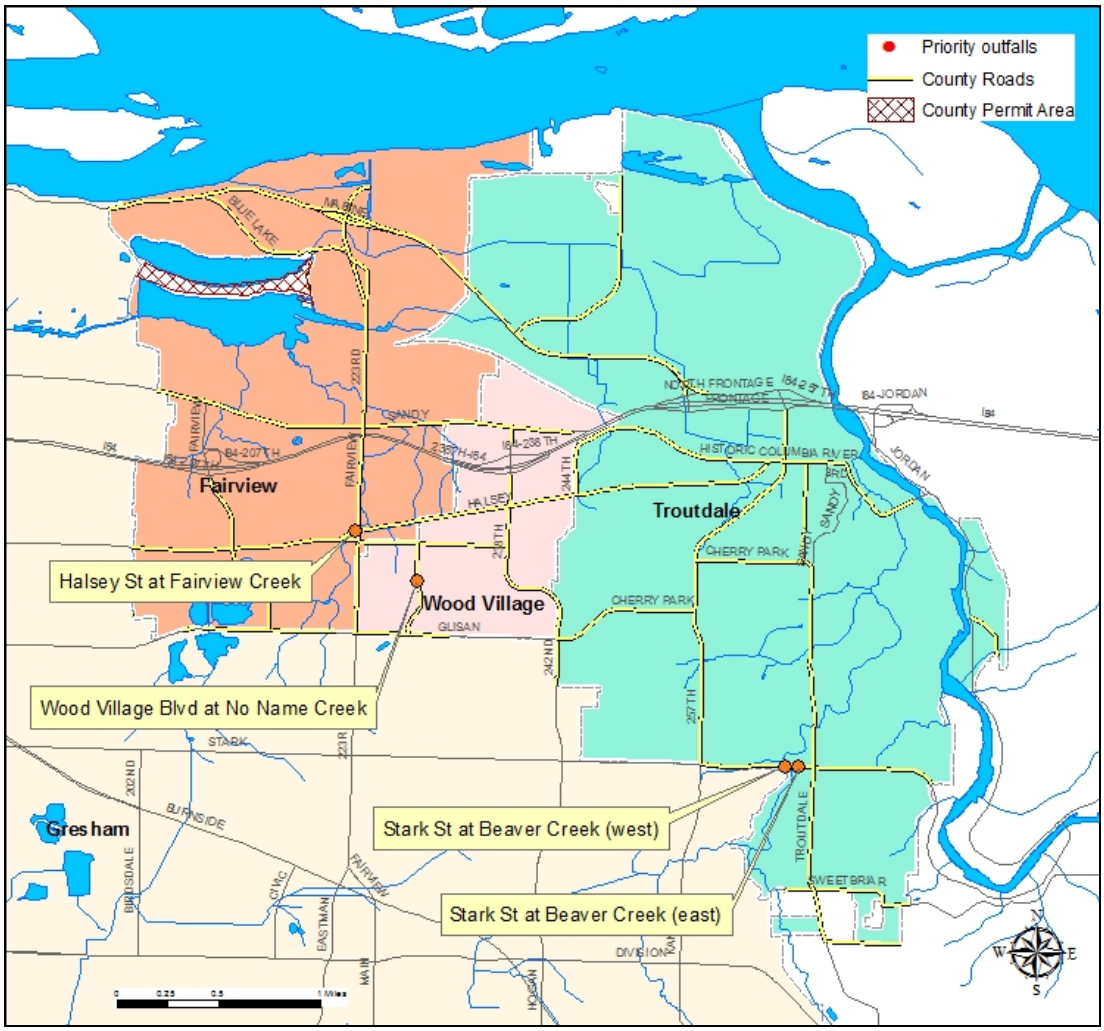


Figure 1. The County priority stormwater outfalls for field screening.

Field Screening

Visual presence of flow, turbidity, algae, oil sheen, trash, foam/scum, color/stains, and any other relevant observations related to the potential presence of non-stormwater or illicit discharge, such as odor or temperature, are important clues to determine whether dry weather flow is an illicit discharge. Visual indicators and odors typically provide an indication of the type of illicit discharge and often can be quite obvious (e.g., toilet paper or sewer odor). Other times, dry weather flow may be clear without obvious odors. Flow volume or timing (e.g., pulses) may also indicate the sources of discharge. General observations will be documented during the annual outfall visits and during any other visit if suspicious flow is reported.

Sample Collection and Analysis

Sampling the dry weather flow is a useful way to identify pollutants and locate the source of an illicit discharge as a follow up on visual clues, odors, or other obvious clues. Sample analysis using simple field kits may distinguish between intercepted groundwater, potable water, wash water or industrial water, and sewage should be done with follow up investigation of the physical source of the discharge. A sample will be collected and screened for indicators of illicit discharges when appropriate using field

testing kits and equipment. Table 2 below lists the pollutant and pollutant parameter action level, and follow up action.

Table 2. Screening analytes with action levels and follow up actions

Parameter	*Action level*	*Suspected Source and Action*
Ammonia	> 0.5 mg/L	Natural groundwater and potable water have low ammonia concentrations. Presence of ammonia likely indicates sewage or industrial waste. Follow up investigation of pipe infrastructure for the source is needed for positive identification. Sewage odors may also be an indicator, as well as fecal bacteria.
Temperature	> 18°C	Groundwater and potable water are generally below 15°C. Elevated temperature may indicate industrial process water, wash water or wastewater.
Total chlorine	> 0.5 mg/L	Presence of chlorine indicates potable water. Follow up investigation of pipe infrastructure for the source is needed to positive identification. Car washing, building washing, pool discharge, irrigation or other potable water uses may be likely sources.
Turbidity	> 15 NTU	Turbidity may be used to distinguish between process water and clean potable water (i.e., irrigation).
Conductivity	> 100 µS/cm > 500 µS/cm	Conductivity of Portland potable water is very low, and thus may be used to distinguish between groundwater infiltration and potable sources. High conductivity may indicate waste water to distinguish it from groundwater. Follow up investigation of the pipe infrastructure for source is needed for positive identification.

Lab analysis

If field kits indicate a potential illicit discharge and the source cannot be identified through other investigative methods, a water quality sample may be sent to the City of Portland Water Pollution Control Laboratory for analysis. The types of pollutant parameters will be determined by the area businesses or land uses that may have potential sources of discharge.

Source Investigation

When a potential illicit discharge to the County stormwater system is found, the pipe system and area draining the source will be inspected to identify the source of the discharge. Follow up investigation to track the source will be coordinated with the adjacent city jurisdiction, and include one or more of the following:

- Inspection of manholes in the upstream direction of the storm pipe
- Inspection using remote closed circuit television cameras in the storm pipe
- Dye testing particular buildings in question

- Smoke testing stormwater system to trace discharge in an upstream direction

If the suspected illicit discharge originates on private property, the County will coordinate with the municipal jurisdiction to obtain permission for inspection. Review of construction permits with the municipal jurisdiction is also helpful to identify where construction may have impacted the system either by damaging the stormwater system or by accidental cross connection.

Documentation

Outfall screening information is stored in a spreadsheet format and GIS database. The County will retain records of monitoring information for a period of at least three years consistent with permit requirements.

D. RESPONSE PROCEDURES

The County responds to all spills and discharges that have the potential to impact receiving waters through the County's stormwater system.

Spill Response. The County provides first response providing defensive measures to control a spill, per OR-OSHA 1910.120, on County roadways in the permit area, following procedures in the Multnomah County Emergency Spill Response Plan. Spill containment with absorbent booms, pads, and granules is installed to prevent material or liquid from entering the stormwater system. Emergency response is coordinated with local cities, and conducted by local law enforcement, fire response, and a spill response contractor, as needed. Spills, which constitute a threat to human health, welfare, or the environment, or are greater than 40 gallons, are reported within 24 hours to the Oregon Emergency Response System and to DEQ.

Illicit Discharge Detection. Once the source of an illicit discharge is identified, an initial evaluation to eliminate the discharge will be completed in five (5) working days. If the elimination of the illicit discharge will take more than fifteen (15) working days due to technical, logistical, or other reasonable issues, an action plan will be created to eliminate the discharge in an expeditious manner. The action plan will be completed within twenty (20) working days of determining the source of the illicit discharge. The action plan will include a timeframe for elimination of the illicit discharge as soon as practicable.

If the illicit discharge is identified to be discharging from or to other jurisdiction, the affected jurisdictions will notified as soon as practicable, and within one (1) working day of becoming aware of the discharge.

If the elimination of illicit discharge involves the repair or replacement of the County stormwater system, or other capital improvements, the County will remove the source of illicit discharge within 3 years of the date of identification.

Enforcement response plan

1. *Notice of violation*. Upon determination by the County Engineer of the source an illicit discharge to the County stormwater system, the County Engineer shall issue a written notice of violation to the discharger within five (5) working days, which outlines the violation and the potential penalty. The notice shall be

personally delivered to the discharger's premises or be sent certified or registered mail, return receipt requested.

2. *Discharge elimination timeframe.* The notice shall further request correction of the illicit discharge within a specified time or require written confirmation of the correction or efforts being made to correct the violation by a specified date. If the elimination of discharge will take longer than 15 working days, the discharger must submit a plan with timeframes to eliminate the illicit discharge in an expeditious manner within 20 working days to the County Engineer. The discharger must elminate the illicit connection within six (6) months, unless otherwised approved by DEQ.

3. *Penalties.* A civil penalty may be assessed for each violation in the amount up to $500 per day. (Multnomah County Code, Subchapter 27.999)

4. *Coordination with municipal authorities.* Concurrent with the notice of violation to the discharger, the County Engineer will notify the appropriate land use authority and sewer utility of the illicit discharge, and make an initial evaluation of the feasibility to eliminate the discharge. The County will coordinate with the local jurisdictions on inspections and follow up actions.

5. *Reporting to DEQ.* The County will notify DEQ water quality program of potential impacts to water quality from the illicit discharge, including source and type of the discharge, watershed, outfall location, and timeframes for elimination.

E. SPILL PREVENTION AND MITIGATION

Stormwater education is the key to prevent spills, dumping, and other illicit discharges into the County stormwater system. Drain markers, web video, radio, and television ads are part of the larger stormwater program as described in the Stormwater Management Plan. The County relies on the coordinated work of the Regional Coalition of Clean Rivers and Streams, a consortium of NPDES permittees of which the County is a member. Further coordination from smaller municipal jurisdictions is expected to provide adequate business education in their respective jurisdictions to prevent spills and illicit discharges because the County does not have regulatory authority in those land uses adjacent to the right of way in Gresham, Fairview, Troutdale and Wood Village.