



**CITY OF MILWAUKIE**

**National Pollutant Discharge Elimination  
System (NPDES) Municipal Separate  
Storm Sewer System (MS4)  
Discharge Permit No. 101348**

**2022-2023 Annual Report**

*Prepared for the*

**Oregon Department of Environmental Quality**

**November 22, 2023**

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# CITY OF MILWAUKIE

## **NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) ANNUAL REPORT**

**JULY 1, 2022 – JUNE 30, 2023**

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Annual Report in accordance with NPDES Permit Number 101348. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

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Name: Peter Passarelli  
Title: Public Works Director  
City of Milwaukie

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# **1.0 Introduction**

## **1.1 MS4 NPDES Permit Background**

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of Milwaukie through the Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit No. 101348, issued to Clackamas County and its co-permittees. Clackamas County co-permittees include the City of Milwaukie along with the cities of Lake Oswego, Gladstone, West Linn, Oregon City, Wilsonville, Happy Valley, Johnson City, Rivergrove, the Oak Lodge Water Services District, Water Environment Services, and Clackamas County. Each co-permittee is a relatively small community, most having populations between 15,000 and 25,000 with some (Johnson City and Rivergrove) having populations significantly smaller.

After a multi-year negotiation process with DEQ, the City's MS4 NPDES permit was reissued September 15, 2021, with an effective date of October 1, 2021. The new permit required submittal of an updated 2022 Stormwater Management Program (SWMP) Document (previously referred to as the Stormwater Management Plan), which was submitted to DEQ on December 1, 2022. The City's 2012 SWMP remained in effect until the new 2022 SWMP Document was approved by DEQ in April 2023. As this annual report documents stormwater management activities from July 1, 2022 through June 30, 2023, and the city received approval for the best management practices (BMPs) in the proposed 2022 SWMP in April 2023, the city confirmed with DEQ that the city could report in a format that aligns with the City's 2012 SWMP BMPs, highlighting additional requirements from the 2021 NPDES MS4 Permit annual reporting as outlined in Schedule B.3.

## **1.2 Document Organization**

The following table (Table 1) outlines the organization of this annual report document, with respect to the annual reporting requirements per Schedule B(3) of the city's MS4 NPDES permit.

**Table 1: Summary of the MS4 NPDES Annual Report Requirements**

Table 1 – 2022/2023 NPDES MS4 Annual Reporting Requirements	
Annual Reporting Requirements from Schedule B.3.a. - I.	Location in document
a. The status of implementing the Stormwater Management Program (SWMP) and each control measure program element in Schedule A.3, including progress in meeting the measurable goals and program tracking and assessment metrics identified in the SWMP Document as well as additional annual reporting requirements identified in each section, or, prior to SWMP Document approval by DEQ, measurable goals and tracking metrics approved under the previous permit's approved SWMP.	Appendix A
b. A summary of the adaptive management implementation and any changes or updates to programs made during the reporting year, including rationales for any proposed changes to the SWMP (e.g., new BMPs), and review of related new and historical monitoring data. This summary should also include discussion of the implications of or any findings related to recent years' adaptive management and/or changes made to the SWMP Document, based on data from tracking measures, measurable goals, and/or any monitoring related to the change.	Section 2.0
c. Any proposed changes to SWMP program elements that are designed to reduce Total Maximum Daily Loads (TMDL) pollutants.	Section 2.0
d. A summary of education & outreach and public involvement activities, progress toward or achievement of measurable goals, and any relevant assessment of those activities. This should include planned adaptive management or other program enhancements to occur in the following years.	Appendix A/C
e. A summary describing the number and nature of enforcement actions, inspections, and public education programs, including results of ongoing field screening and follow-up activities related to illicit discharges.	Section 6.0
f. A list of entities referred to DEQ for possible 1200-Z NPDES general permit coverage based on co-permittee screening activities, a list of categories of facilities inspected, and an overview of the results of inspections of commercial and industrial facilities.	Appendix A
g. A summary of total stormwater program expenditures and funding sources over the reporting fiscal year, and those anticipated in the next fiscal year.	Section 3.0
h. A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year submitted in the DEQ-approved Data Submission Template, and any assessments or evaluations of that data completed by the co-permittees or an authorized third party.	Section 4.0 and Appendix B
i. Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	Section 4.0
j. An overview, as related to MS4 discharges, of concept planning, land use changes and new development activities (including the number of new post-construction permits issued) that occurred within the Urban Growth Boundary (UGB) expansion areas during the reporting year, and those forecast for the following year, where such data is available.	Section 5.0 and Appendix A
k. The details of all corrective actions implemented associated with Schedule A.1.b.iii during the reporting year.	Section 6.0
l. Additional Annual Report requirements for 2023: <ul style="list-style-type: none"> <li>• Schedule A.3.c.vii – IDDE</li> <li>• Schedule A.3.d.vii – Construction</li> <li>• Schedule A.3.e – Post-Construction Site Runoff Program</li> <li>• Schedule A.3.f.v.c – Winter Maintenance</li> <li>• Schedule A.3.h.i – Hydromodification Assessment and Stormwater Retrofit Strategy Updates</li> <li>• Schedule D.3.b – Mercury Minimization Assessment</li> </ul>	Section 6.0 and Appendix A-H

<sup>a</sup> Enforcement actions, inspections, and public education programs are included in the city's SWMP as BMPs, and are reported along with the status of implementing all components of the SWMP in Appendix A.

Each section of this report corresponds to the specific permit requirements in Schedule B(3). This report emphasizes efforts and activities associated with individual Best Management Practices (BMPs) from the city's 2012 and 2022 SWMP, as summarized in Appendix A, along with specific 2021 MS4 requirements.

## **2.0 Adaptive Management Process Implementation**

### **2.1 Adaptive Management Program**

In accordance with the issuance of the city's renewed MS4 NPDES permit (in 2012), the city was required to document their adaptive management approach to assess annually and modify, as necessary, existing, and new SWMP components.

Historically, the city has implemented adaptive management principles to annually refine implementation methods and data collection activities in conjunction with their effective SWMP and BMPs. More significant modifications to SWMP activities occur every five years, in conjunction with their permit renewal application and updated permit requirements.

The city's adaptive management approach in the 2012 and the 2022 SWMP maintains consistency with the city's historical approach for implementing adaptive management principles.

Annually, as the city completes their NPDES MS4 annual report, the city reviews SWMP implementation through BMP-specific measurable goals and tracking measures. The city collects data and feedback from staff responsible for implementing and reporting on each BMP to determine whether implementation was deemed to be effective or whether there are suggested improvements to be made. Suggested adjustments to BMP implementation will include consideration of resource availability, budget/funding, and overall need.

Every five years, during the permit renewal process and SWMP update effort, additional factors are considered as part of the city's overall adaptive management process. These factors include more detailed information related to BMP implementation, such as:

1. Whether technology or information is available that would help improve or refine BMPs,
2. How representative are the measurable goals and tracking measures to the BMP objective, and
3. Are resources available to make changes to the measurable goals and BMP objectives?

Additionally, at the end of the permit term, technical investigations and studies are required in conjunction with compliance dates outlined in the permit. Such studies include (but are not limited to) a water quality trends analysis, pollutant load reduction evaluation, hydromodification assessment, and a retrofit assessment. All studies will help target and identify specific issues that need to be addressed to maintain waterbody health and help formulate BMP activities (measurable goals and tracking measures) that can be used to support improvements.



The City conducted a significant update to their SWMP for submittal to DEQ on December 1, 2022, as required by the permit. The SWMP review and update process was similar to a five-year review as summarized above, and also included any updates necessary to meet any new permit requirements. DEQ approved the 2022 SWMP in April 2023, so most BMPs performed in this reporting year are consistent with the 2012 SWMP as the city was awaiting DEQ approval of the 2022 SWMP.

### 3.0 Summary of Program Expenditures

Stormwater program expenditures are funded from stormwater utility fees collected. The stormwater utility fee for single family and duplex residential customers is \$29.47 monthly, which was established in July 1 2023. Low-income customers pay 50% of the utility fee (\$14.37). The commercial properties are charged based on the total amount of measured impervious surface divided by one equivalent stormwater unit (ESU) (2,706 sq. ft.).

Forecasted (non-audited) expenditures for 2021–2022 and 2022–2023 are listed below.

Table 2: Forecasted (Non-Audited) Expenditures for fiscal years 2022-2023 and 2023-2024

FY 2022-2023		FY 2023-2024	
Personnel Services /8.0 FTEs	829,000	Personnel Services / 8.0 FTEs	874,000
Materials and Services	790,000	Materials and Services	783,000
Capital Outlay	4,028,000	Capital Outlay	5,953,000
Transfers	1,405,000	Transfers	1,405,000
<b>Total</b>	<b>\$7,052,000</b>	<b>Total</b>	<b>\$9,015,000</b>

### 4.0 Monitoring Data

#### 4.1 Summary of the Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP)

Per the 2021 MS4 NPDES permit requirements (Schedule B), the City of Milwaukie, Clackamas County and other co-permittees, were required to develop and implement a stormwater monitoring program. Given the effort associated with implementing an effective environmental monitoring program that adequately met all permit requirements and objectives, Clackamas County (i.e., CCSD#1 and SWMACC) and six other co-permittees including the City of Milwaukie agreed to consolidate efforts and prepare one comprehensive stormwater monitoring plan called the Coordinated Clackamas County Stormwater Monitoring Plan (CCCSMP).

As described in the CCCSMP, the MS4 NPDES stormwater monitoring program requires two components. The first component is program monitoring, which involves the tracking and assessment of programmatic activities, as described in the individual permittees SWMP, through

the use of performance indicators or metrics. Results of the program monitoring are reported in Appendix A as the annual tracking measures. The second component is environmental monitoring, which includes visual monitoring and the actual collection and analysis of samples. Visual monitoring efforts include dry weather field screening as described in the city's SWMP under the following BMP: "Implement the Illicit Discharge Elimination Program". Results of the visual monitoring efforts are reported in Appendix A under the applicable BMPs. Environmental monitoring also consists of instream sample collection and outfall sample collection, and the City's sampling efforts are outlined in more detail in Section 4.2 and 4.3 and in the CCCSMP. Results of the instream and outfall sample collection efforts are provided in Appendix B and were submitted to DEQ.

Required Mercury monitoring for the 2021 MS4 Permit is being performed by Water Environment Services and the first full year of sampling results will be submitted with the 2023-2024 Annual Report. Due to communication errors between staff and the contracted laboratory for sampling analytics, some biochemical oxygen demand (BOD) samples are missing from the reports. The city has addressed this error with the lab and will ensure BOD is collected on future samples.

#### **4.2 CCCSMP Updates and Modifications for the 2022-2023 Reporting Year**

The city monitors using the approved monitoring plan for that year's annual report. The city followed the approved 2017 CCCSMP to meet NPDES permit requirements for the 2022-2023 reporting year.

Clackamas co-permittees including Milwaukie participate in the Clackamas County Coordinated Stormwater Monitoring Program (CCCSMP). The CCCSMP Plan was updated and resubmitted to DEQ on May 30, 2023, following the completion and outcome of the Clackamas NPDES MS4 Permit Modification (initiated in January 2023). The CCCSMP reflects updated pesticide monitoring frequencies and was approved by DEQ on June 7, 2023, for implementation beginning in July 2023.

As mentioned above, the required Mercury monitoring requirements for the Clackamas MS4 Permit is being performed by Water Environment Services and the first full year of sampling results will be submitted with the 2023-2024 Annual Report.

#### **4.3 Summary of Monitoring Data**

In accordance with the 2017 CCCSMP, Milwaukie conducted instream and outfall monitoring. Continuous instream monitoring of Johnson Creek was also performed by USGS. The city conducted instream monitoring at one location (Minthorn Springs Creek at Harmony Road), a tributary to Kellogg Creek. Following permit requirements, two storm-season monitoring events

were conducted in the 2022/2023 reporting year. In addition, the city was to perform two additional dry weather monitoring events to make up for missed sampling events the prior reporting year (due to unexpected staff vacancies). Milwaukie experienced a similar position vacancy in the 2022/2023 reporting year, so the city was only able to complete three out of the four dry weather monitoring events. The position was filled in September 2023 but not until after the 2022/2023 reporting window and dry weather window. Staff notified DEQ of the missed event and confirmed that one additional dry season monitoring sampling events could be included in the next year's annual report (totaling three dry weather monitoring events in the 2023/2024 reporting year). Outfall monitoring was conducted at one stormwater outfall location during three storm events (Roswell Street prior to discharge in Johnson Creek).

Time composite grab samples are required at the instream monitoring location twice during the reporting year (during storm events over the wet weather season). Single grab samples are also required during two additional monitoring events (during the dry weather season) at the instream monitoring location. Time composite grab samples are required at the outfall monitoring location three times during the monitoring year.

Complete sampling results are summarized and included in Appendix B and were submitted to DEQ online. The sampling results presented have been formatted to simplify the data review process.

The City of Milwaukie is coordinating with Clackamas Water Environmental Services on mercury sampling as required by the 2021 NPDES Permit. Mercury sampling results will be included on the 2023-2024 Annual Report.

## **5.0 Overview of Planning and Land Use Changes, Urban Growth Boundary (UGB) Expansions and New Development Activities**

### **5.1 Stormwater Planning, Land Use Changes, and UGB Expansions**

The City of Milwaukie updated their Citywide Stormwater Master Plan during the 2012-2013 reporting year. The updated Master Plan includes an evaluation of flooding and capacity deficiencies and capital improvement project development and prioritization for water quality and water quantity control. As part of the master plan, an evaluation of UIC's requiring retrofit or decommissioning was also conducted. The updated Master Plan addresses requirements of the city's water quality retrofit assessment, due July 1, 2015. The Master Plan was approved by City Council in August 2013 and adopted January 2014.

The city has started the process of updating the plan, now called the 'Stormwater System Plan'. The city held a competitive procurement process for contracted consulting services for the plan

update in spring 2023, and awarded the Stormwater System Plan Update contract to Water Systems Consultant, Inc. (WSC Inc.), in June 2023. The city and WSC Inc. have started work on the Stormwater System Plan update with a goal of completion by Spring 2025.

Milwaukie has recently consolidated residential zoning for planning and administrative purposes. On December 20, 2022, the new High Density Residential (R-HD) zone took effect, which consolidated the R1, R1B, R2, R2.5 and R3 zones. More information about this process is available online at: <https://www.milwaukieoregon.gov/planning/za-2022-002>

The City of Milwaukie is located entirely within the UGB. City expansion is planned for certain unincorporated areas of the city located within the UGB. Recent annexation efforts have focused on properties that lie within or near the Johnson Creek floodplain, especially those properties that have on-site sewage disposal systems. The city code requires hookup to public sewer upon annexation. The city annexed a total of two properties within the fiscal year 2022-2023.

## **5.2 Summary of Development Activities within the UGB**

Current development activities mainly involve in-fill and redevelopment of existing properties ranging from single-family homes to larger commercial developments. The City of Milwaukie requires stormwater management for new and redevelopment activities exceeding 500 square feet of impervious surface in accordance with the City of Portland's Stormwater Management Manual. Stormwater management is considered early in the development process. Recent water quality facilities installed in the city include bioswales, rain gardens, and green street planter strips.

During the fiscal year 2022-2023, 95 private redevelopment projects submitted development applications. All permit review processes included review for requirements for stormwater treatment on site.

The private developments that triggered water quality requirements created 39,000 square feet of treatment area for commercial facilities and 71,000 square feet of treatment area for residential.

The following Capital Improvement Projects (CIP) were completed during the FY 2022-2023:

- 42<sup>nd</sup>/43<sup>rd</sup> Ave.- Installation of 220 tons of porous asphalt for a multi-use path on 43<sup>rd</sup> Avenue, 1,420 linear feet new storm pipe added, 2 storm manholes, 21 new inlets, and 1,420 square feet of vegetated stormwater facilities.
- Home/Wood – 250 linear feet of new storm pipe, , 13 new inlets, and 4,316 square feet of vegetated stormwater planters.

## 6.0 Additional Activities

The following stormwater-related activities occurred within the city and are referenced in Appendix A. Also highlighted below are updates on deliverables or requirements due in the 2022/2023 Annual Report. A description of activities is also provided by applicable BMP.

### Conduct Annual Dry Weather Field Screening

Dry weather field screening for the 2022-23 reporting period occurred from August 1<sup>st</sup> to August 30<sup>th</sup>, 2022. 72 hours of no recorded rainfall had passed prior to the earliest inspection. No rain fell during the outfall inspection period.

All twenty-five priority stormwater outfalls were inspected during August 2022. The locations with water present were sampled on-site and did not test above Action Levels, thus required no further laboratory analysis. Below is a summary of the screenings in which water was found and the steps taken for visible flows.

**Outfall #25273 8/29/2022** - Trace of flow present. No sample was collected for laboratory analysis as none exceeded Action Levels. Previous inspections have determined flow is piped under Oregon Liquor and Cannabis Commission warehouse, presumed to be groundwater. Video pipe inspection revealed a 12 o'clock tap at 197.6' with no signs of discharge. Wet deposits were observed at several joints in pipe. At 358.5' a buried manhole was discovered, ending video pipe inspection.

**Outfall #65003 8/30/2022** - Outfall fully submerged- upgradient manhole is backwatered by wetland. Did not measure stagnant water. Upstream investigation and all basins within Marketplace showed no signs of illicit discharges.

**Outfall #65031 8/30/2022** - Small amount of flow from pipe; water appears clear. Video pipe inspection revealed no illegal taps to storm line. Conductivity has historically been measured high at this outfall with sample results being inconclusive as to the source of the high conductivity. The previous dye test at 12400 SE Freeman resulted in dye present in sanitary sewer, but no dye evident in the storm system. Further details will be included in next report following further exploration and analysis.

### Implement the Illicit Discharge and Spill Response Programs

A total of nine spills/discharge events were reported and responded to by the Milwaukie Public Works (PW) Department during the 2022-2023 reporting year for remediation and/or enforcement. PW staff investigated all complaints within the jurisdiction and notified responsible jurisdictions if discharge events occurred outside of city limits. Staff followed enforcement

procedures following municipal code MMC 13.12.105 Stormwater Management - Discharge Regulations and took actions to resolve the discharges. Records for discharge events and response are available upon request.

8/2/2022 - Contractor for Rice Thai Cookery on SE Main St. took grease traps/hood vents out to street and power washed screens down storm drain adjacent to business. City staff notified the business of the violation and educated owner on correct procedure for Fats, Oils, and Greases, city code and violations, and city resources for grease trap cleaning and stormwater discharges. The impacted storm drain showed no evidence of grease at time of inspection.

8/22/2022 – Sediment was tracked onto SE Guido Bocci Dr around 8:15am. City contractor for the Home/Wood CIP project reportedly washed sediment into storm catch basins in order to clean road surfaces. Complaint was called in by PW staff. PW staff responded and required remediation of impacted storm drains.

8/23/2022 – Diesel leaked from a delivery truck around 1:00 AM at Alpine Foods Distribution on SE Mailwell Dr. About 5 gallons were spilled and made their way to the nearest catch basin. Staff notified responsible parties, and the catch basin contents were cleaned out by US Ecology before reaching overflow pipes that carry out towards Johnson Creek. City staff inspected the site after remediation and noted everything was cleaned up properly.

8/30/2022 – Public Works staff noticed contractor pumping sewage into storm line manhole (#41011) on Lake Rd at approximately 1:15 PM. Contractor claimed he was pumping for 10 to 20 minutes. The Environment Services Coordinator notified the contractor that they were illegally dumping into the public storm system and contacted the field manager about the incident, who then called River City Environmental for cleanup on 8/31/22. Total volume of sewage removed is estimated between 30 and 140 gallons. Records show no report of sewage reaching Kellogg Creek.

10/4/2022 – City staff noticed a large amount of muddy water flowing down SE Stanley and SE Logus Aves around 2:30 PM. Clackamas River Water was performing water infrastructure work in the ROW when a water line was hit. The water traveled north towards the nearest catch basin on the east side of Stanley, where numerous vehicles tracked the sediment-laden water outside the initial area of impact. City staff responded to the event and put woodchip bags down at the catch basin to reduce the amount of muddy water entering the storm system (infiltration/ground injection system, no conveyance to waterways). By 3:10, CRW had stopped the water leak. CRW was informed that the street would need to be swept and the catch basin emptied of all sediment.

11/2/2022 – Contractor hired to pour concrete around new fuel tank at Milwaukie Public Works campus at 6101 SE Johnson Creek Blvd was witnessed washing off the truck of concrete and sediment directly onto the pavement instead of the in-place concrete washout around 1:00 PM. Staff advised contractor to utilize the washout and informed the contractor of remediation requirements after sediment and an oily sheen in the water was visible in the nearest storm catch basin. City equipment and staff were used to clean up the illicit discharge by 1:40 PM.

11/16/2022 – Car crash at SE 40<sup>th</sup> Ave and Harrison S resulted in less than 1 gallon total of oil and antifreeze entering a nearby catch basin. City police and tow truck responded to the situation and issued no citations nor identified responsible parties. Absorbent materials were used to cleanup discharged fluids on the site.

12/20/2022 - Incident was reported by city staff of landscape workers at 4002 SE Angela Way washing off equipment covered in mud onto the street and down into stormwater catch basin. The City's Environmental Services Coordinator responded to the incident and informed the business to vacuum and sweep all sediment that was discharged onto the street and into the stormwater catch basin. River City Environmental cleaned the street and catch the following day. The city's environmental services coordinator inspected and confirmed that the street/catch basin was cleaned properly.

5/25/2023 - At approximately 1:35 PM a stolen vehicle traveling south on SE Main Street near the intersection of SE 21st Ave crashed into a tree, light pole, and vegetated water quality facility. The suspect fled on foot north on Main Street. The vehicle caught fire and was extinguished relatively quickly by Clackamas Fire. The city's Environmental Services Coordinator was notified of the incident at 2:13pm and arrived on site by 2:45 with the city on-call employee and another utility technician. The vehicle fire was already extinguished by the time city employees arrived on site but the road remained closed. There was evidence of pollutants entering the storm catch basin (42431) under the bridge. Several gallons of gasoline, motor oil, and other fluids were visibly leaking from the vehicle into the vegetated water quality facility. City staff used absorbent pads and materials to clean up the spill, as well as clean up debris created from the crash. City staff returned with a Vactor truck to clean out the catch basins that were affected. There was no evidence of pollutants reaching Kellogg Lake at outfall (45017). City staff returned on 5/26 with street sweeper to remove any remaining pollutants from the roadway as well as contaminated soil from vegetated water quality facility.

### **High Priority Industrial Facility Stormwater Inspections SOP Update**

To meet the 20221 MS4 Permit Industrial and Commercial Facilities requirement outlined in Schedule A.3.g.ii, Milwaukie included the following measurable goal in the approved 2022 SWMP: *“By 12/1/23, update the High Priority Industrial Facility Inspection SOP to refine criteria related to the definition of a high priority facility as well as inspection and tracking procedures. Post on the City’s website for 30 days and consider public comments prior to submission to DEQ.”*

Milwaukie updated the High Priority Industrial Facility Inspection SOP with the above requirements and made the document publicly available for review for 30 days. No comments were received, and the High Priority Industrial Facility Inspection SOP was finalized (Appendix C).

### **Construction Site Runoff Control BMP – Escalating Enforcement Update**

The Stormwater Management Control Measures for Construction Site Runoff Control in the 2021 MS4 permit requires that *“The co-permittees must continue to implement and maintain a written escalating enforcement and response procedure for all qualifying construction sites and summarize or reference in the SWMP Document... If the escalating enforcement procedure already in place does not meet these requirements, a revision or update may be submitted with the Annual Report due December 1, 2023, and, if necessary as specified under Schedule A.2.f, added to the SWMP Document at that time.”*

The 2022 Milwaukie SWMP includes the below measurable goals for Category D. Construction Site Runoff Control BMPs - EC-3: Conduct Erosion Control Inspections and Enforcement:

- By 12/1/23, update the MILMC Section 16.28 and Construction Site Inspection SOP to ensure escalating enforcement provisions and timelines as outlined in the City’s technical guidance are reflected.
- By 12/1/24, update the MILMC 16.28 to directly reflect escalating enforcement provisions as outlined in the Construction Site Inspection SOP.

Milwaukie has updated the city’s construction site erosion control standard operating procedure (SOP) to clarify escalating enforcement protocol to meet the MS4 requirements (Appendix D). The City will make amendments to the local erosion and sediment control code (MMC 16.28) to reflect the escalating enforcement procedure outlined in the SOP by December 1, 2024.

### **Winter Maintenance Activities**

The City of Milwaukie conducts minimal deicing activities. In the event of icy conditions, fine gravel, salt, and/or liquid deicer may be applied to public roadways and public walkways near public buildings. Following the icy weather conditions, roads are promptly swept to remove the residual fine gravel. To meet the requirements of the 2021 MS4 permit, the city included the following measurable goal in the 2022 SWMP Category F. Pollution Prevention for Municipal Operations and Stormwater Management Facilities Operation and Maintenance BMPs – OM-9: Winter Road Maintenance actions: *“By December 2023 , develop a standalone Winter Road Maintenance SOP with current storage practices and winter management materials”*. Milwaukie has met the above requirement and goal by developing a specific Winter Road Maintenance SOP (Appendix E).



The city conducts annual inspections and training to ensure proper operation of the deicing chemical storage facility. During the 2022-2023 reporting year, there were a total of three deicing events in the city.

**12/05/2022** - A total of 50 gallons of 30% magnesium chloride solution was applied to 16,832 linear feet of roads throughout the Ardenwald, Historic Milwaukie, and Island Station neighborhoods.

**01/11/2023** - A total of 175 gallons of 30% magnesium chloride solution was applied to 20,493 linear feet of roads throughout the Ardenwald, Historic Milwaukie, Lake Road, and Island Station neighborhoods.

**2/13/2023** - A total of 200 gallons of 30% magnesium chloride solution was applied to 20,493 linear feet of roads throughout the Ardenwald, Historic Milwaukie, Lake Road, and Island Station neighborhoods.

### **Hydromodification Assessment and Stormwater Retrofit Strategy Update**

A condition of the 2021 MS4 permit is the completion of a hydromodification assessment and stormwater retrofit strategy update report. Milwaukie has completed a report (Appendix F), available online at: [milwaukieoregon.gov/publicworks/ms4-program-reference-library](http://milwaukieoregon.gov/publicworks/ms4-program-reference-library)

### **Mercury Minimization Assessment**

The city's Mercury Minimization Assessment can be found in Appendix G. Effective sediment and mercury reducing BMP's are fully incorporated into the City's approved 2022 SWMP Document.

### **Low Impact Development and Green Infrastructure Strategy Report**

Milwaukie has completed a Low Impact Development and Green Infrastructure Strategy report which shows the policy, code, and development standard support for prioritization of green infrastructure in the city (Appendix H).

# Appendix A

## Milwaukie 2022-2023 MS4 BMP Table

### **Important Note: Utilization of the 2012 SWMP**

As Milwaukie's 2022 SWMP received DEQ approval on April 7, 2023, Milwaukie continued to utilize the 2012 SWMP for stormwater management implementation guidelines. At a recent American Clean Water Association meeting, DEQ staff gave verbal approval for communities to use the previous SWMP for annual reporting metrics. Moving forward, Milwaukie will use the 2022 SWMP BMPs for annual reporting.

Reporting on additional metrics and implementation requirements not captured in the below 2012 SWMP BMP table are included in section 6.0 Additional Activities in the annual report.

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**Appendix A. Status of Implementing Components of Milwaukie's SWMP for FY 2022-2023**

Key to Pollutant Symbols

A full circle (■) indicates the BMP is expected to address the parameter.

An empty circle (○) indicates the BMP may be expected to address the parameter.

A blank cell indicates that the effect of the BMP is unknown currently.

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
<b>Element #1</b>								
<b>Illicit Discharge Detection and Elimination</b>								
<b>Implement the Illicit Discharge Elimination Program</b>	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Document and implement the details of the city's IDDE program in a Standard Operating Procedures manual</li> <li>For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the city's MS4 NPDES Permit and procedures documented in the city's IDDE SOP.</li> <li>Track and record all identified illicit discharges and how such discharges were removed.</li> </ul>	<p>(1) Track the status of completing the IDDE SOP manual.</p> <p>(2) Track the number, location, resolution and enforcement activities related to any identified illicit discharge.</p>	<p>(1) The City of Milwaukie developed an IDDE SOP including guidelines for identification and enforcement of illicit discharges and pollutant parameter action levels and guidelines for tracking activities and follow-up procedures. This SOP was revised and updated on July 17, 2013, in preparation of an anticipated EPA audit.</p> <p>(2) Staff updated the IDDE and priority outfall location SOP in September 2022 to meet the 2021 NPDES MS4 phase 1 permit deadline. The city made no changes to the list of priority outfall locations. The updated document can be found on the city's MS4 reference library: <a href="https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library">https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library</a></p> <p>(2) Nine illicit discharges were reported or responded to by Milwaukie Public Works staff during the reporting year. A description of the illicit connections and enforcement resolutions is described in Section 6.0</p>	See Section 6.0 for additional detail.
<b>Conduct Annual Dry Weather Field Screening</b>	○	○	○	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Conduct annual dry-weather illicit discharge inspections for all priority outfalls.</li> <li>Conduct investigations on all suspected non-permissible discharges.</li> <li>Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012.</li> <li>Annually maintain a map of dry weather screening priority locations (i.e., priority outfalls).</li> </ul>	<p>(1) Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities.</p> <p>(2) Summarize inspection results and indicate outfalls requiring sampling and/or investigations.</p> <p>(3) Indicate the outcome and resolution of any investigation activities conducted.</p>	<p>(1) 25 outfalls were inspected as part of the annual dry weather field screening activities (conducted August 1- August 30, 2022).</p> <p>(2) and (3) Outfalls with water present during screening were sampled on-site where possible, and all were determined to fall safely below Action Levels. The city continues considering all options to locate sources, including inspections with TV camera equipment, upstream catch basins, potential cross-connections, and combining data from previous screenings. Multiple camera inspections and crew members have been dedicated to determine flow sources. 16 outfalls had flows, ranging from trace amounts to steady flows or ponded, of unknown origin and were investigated. Results of dry weather field screens with unknown flows are documented in Section 6.0. All sources at this point appear to be groundwater derived.</p>	See Section 6.0 for additional detail. An additional dry weather screening event will be performed in the 2023-2024 reporting year to make up for a missed event in the 2022-2023 reporting year (see section 4.3).

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Implement the Spill Response Program	○	○	○	Clackamas Fire District #1 (Hazardous Materials Team) and Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Respond to all reported non-hazardous material spills.</li> <li>Equip all Public Works vehicles with spill response equipment, the Spill and Illicit Discharge Investigation Form, and spill response procedures continuously during the permit term.</li> </ul>	<p>(1) Indicate the number of spills reported to the Public Works Department.</p> <p>(2) Indicate the number of spills responded to by the Public Works Department.</p> <p>(3) Indicate sources, causes, and resulting types of discharges resulting from spill activities.</p>	<p>(1) and (2) There were nine spills reported to and responded to by Public Works for the 2022-2023 reporting year.</p> <p>(3) Various sources were implicated, including restaurants, leaking motor vehicles and water main breaks. The cause of these varies from accidents, lack of education about the importance of well-functioning storm systems, and negligence. These spills resulted in discharges include sediment-laden water, motor vehicle fluids, and grease. All events were promptly acted upon to minimize impacts. Spill and discharge reports available upon request.</p>	See Section 6.0 for additional detail.
Minimize Water Quality Impacts Related to Water Line Flushing				City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>When chlorinated water is discharged to the city's stormwater distribution system, the city tests the chlorine residual at all entry points to the storm sewer for a maximum allowable concentration of 0.10 PPM.</li> <li>Requirements for chlorination/DE chlorination are discussed at all pre-construction meetings and requirements are referenced in applicable contract documents.</li> </ul>	(1) Chlorine test data is tracked in monitoring sampling logs and daily logs and data is kept on file at city.	(1) City of Milwaukie performed limited flushing in this period. Chlorinated water discharges by other water jurisdictions in Milwaukie were monitored and compliance confirmed by City staff.	Chlorine test data and supporting documents are kept on file at the City of Milwaukie Public Works Johnson Creek facility and treatment plants. City of Milwaukie performed limited flushing in this period. Milwaukie utilizes no more chlorine treatment than is required by OHA for disinfection and system residual.
<b>Element #2 Industrial and Commercial Facilities</b>								
Screen Existing and New Industrial Facilities	○	○	○	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Review the business license inventory and new industrial development applications once during the permit term to identify additional facilities needing to obtain 1200-Z permits. If facilities are identified, DEQ and the facility will be notified within 30 days.</li> </ul>	(1) Track the number of existing or new facilities subject to a stormwater industrial NPDES permit once during the permit term.	<p>Milwaukie currently has five (5) 1200 Z permit holders within its boundaries. No new industrial accounts opened in 2022-2023 reporting year.</p> <p>Milwaukie will conduct an audit of current business registrations once over the permit term to determine whether any existing or new facilities would be subject to an industrial stormwater NPDES permit.</p>	The City of Milwaukie expects to update its business registration process to ask 1200 Z specific qualifying questions on the registration forms for better identification, reporting, and inspection scheduling.

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Conduct Industrial and Commercial Inspections	○	○	○	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Inspect all facilities with 1200-Z permits two times per permit term. Inspect all commercial and industrial food service facilities required to install grease traps or grease interceptors in accordance with the city's FOG program at a minimum of semi-annually during the permit term.</li> <li>Inspect any other high priority facilities if identified as potentially contributing a significant pollutant load.</li> <li>Keep an inventory of all 1200-Z permitted industrial facilities within permit area and update it annually.</li> <li>Require abatement measures for any industry found to be inappropriately discharging to the municipal stormwater system.</li> <li>Strategy to Reduce Pollutants from Industrial and Commercial Facilities: The co-permittees must by December 1, 2023, at minimum, review and update as appropriate the Industrial/Commercial Facilities Strategy developed under the previous permit term and include it in the SWMP Document directly or by reference. The Strategy must be posted on the co-permittees' websites for public comment for a minimum of 30 days prior to submission to DEQ for approval and incorporation into the SWMP Document.</li> </ul>	<p>(1) Track the number of permitted (1200-Z) industrial facilities within the city.</p> <p>(2) Track the number of industrial and FOG inspections conducted.</p> <p>(3) Note any water quality concerns identified during inspections.</p> <p>(4) Report status and abatement measures required for any industry or food service facility found to be inappropriately discharging to the municipal stormwater system.</p>	<p>(1) The City of Milwaukie queried the active 1200-Z permits from DEQ in November 2023. There are currently five active 1200-Z permit holders within the city's boundaries discharging to the City's MS4.</p> <p>(2) No 1200Z site inspections were conducted in the 2022-2023 reporting year. The city will complete the 1200Z inspections as required within the permit term. The city completed 51 Fats, Oils and Grease (FOG) work orders in 2022-2023 for grease trap or interceptor inspections for restaurants located in the city.</p> <p>(3)(4) No additional abatement measures required during this reporting year. Staff perform community education to businesses on stormwater BMPs and potential mitigative strategies to reduce pollutant load.</p> <p>The city updated the Industrial and Commercial Facility Inspection SOP to reflect 2021 NPDES MS4 Permit requirements outlined in Schedule A.3.g.ii. and made it available for public comment for 30 days. See Section 6. Additional Activities for more information.</p>	<p>(1) There are currently five active 1200-Z permit holders within the city's boundaries discharging to the city's MS4. :</p> <ul style="list-style-type: none"> <li>PCC Structurals, Inc. (three locations) <ul style="list-style-type: none"> <li>6667 Johnson Creek Blvd</li> <li>9800 SE McBrod Ave</li> <li>2770 SE Mailwell Dr</li> </ul> </li> <li>Harder Mechanical Contractors Inc <ul style="list-style-type: none"> <li>2323 SE Harvester Dr</li> </ul> </li> <li>Blount Inc (Oregon Tool) <ul style="list-style-type: none"> <li>4909 SE International Way</li> </ul> </li> </ul> <p>No enforcement actions or IDDE reports were made related to these properties. Monitoring did not reflect excessive levels of pollutants with potential cause related to these facilities.</p> <p>Updated Industrial and Commercial Facility Inspection SOP (Appendix C) available online at: <a href="https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library">https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library</a></p>
<b>Element #3 Construction Site Runoff Control</b>								
Implement Erosion Control for New and Redevelopment	■	■	■	City of Milwaukie Public Works and Engineering Departments	<ul style="list-style-type: none"> <li>Require structural and non-structural erosion and sediment control BMPs for all construction sites disturbing an area greater than 500 ft2.</li> <li>Require sites disturbing over 500 ft2 to acquire an erosion control permit prior to issuing them a plumbing and electrical permit.</li> <li>Conduct site plan reviews for applicable new and re-development to ensure compliance with the City's erosion control standards.</li> </ul>	<p>(1) Report any updates or modifications to the "Erosion Prevention and Sediment Control Planning and Design Manual (2008)".</p> <p>(2) Record the number of erosion control plan reviews completed and approved.</p>	<p>(1) The Erosion Prevention and Sediment Control Planning and Design Manual was updated in the 2021-2022 reporting year. No Further changes to the Manual was made in the 2022-2023 reporting year.</p> <p>(2) During the 2022-2023 reporting year, there were 46 erosion control plan reviews completed and approved, including residential and commercial development.</p>	

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Provide Educational Information to Construction Site Operators	○	○	○	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Coordinate with other jurisdictions to provide Erosion Control Certification programs at the Clackamas Community College.</li> <li>Give discounts on erosion control permit fees to contractors participating in the Erosion Control Certification Program.</li> </ul>	<p>(1) Track the number of contractors receiving a discount on erosion control permit fees.</p> <p>(2) Track number of program sessions and refresher courses offered each year.</p>	<p>(1) During the 2022-2023 reporting year, no contractors applied for this discount.</p> <p>(2) Due to the lack of participation in the program, regional partners decided to not schedule program sessions and refresher courses.</p>	
Conduct Erosion Control Inspections	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Inspect all sites disturbing over 500 sq. ft at least twice during construction activities.</li> <li>Issue erosion control violations when ineffective erosion control is observed.</li> <li>Issue stop work orders or fines if erosion control violations are not resolved. Timelines for corrections at construction sites are indicated on the inspection report given to the permit holder. Depending on the infraction, the timeline for correction could be 24, 48, 72 hrs. or other.</li> <li>Per Schedule A.3.d.v. requirements, update Construction Site Runoff Control SOP to reflect escalating enforcement considering factors in response procedures and penalties by December 1, 2023.</li> </ul>	<p>(1) Record the number of erosion control inspections conducted annually.</p> <p>(2) Report the number of written notices of non-compliance issued during inspections and the number of stop work orders issued annually.</p>	<p>(1) Milwaukie performs initial, final and routine inspections for erosion control permits. The city maintains inspection logs in the Oregon e-permitting system and can be made available upon request.</p> <p>(2) There were four non-compliance notices issued and no stop work orders during the 2022-2023 reporting year.</p> <p>The city updated the Construction Site Runoff Control SOP to increase clarity of escalating enforcement to meet Schedule A.3.d.v. requirements. See section 6. Additional Activities for more information and Appendix D for the SOP. SOP available online at <a href="http://milwaukieoregon.gov/publicworks/ms4-program-reference-library">milwaukieoregon.gov/publicworks/ms4-program-reference-library</a></p>	

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<b>Element #4 Education and Outreach</b>								
<b>Provide Public Education and Outreach Materials Regarding Stormwater Management</b>	○	○	○	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>• Promote public awareness of water quality issues through newsletters, brochures, and/or bill inserts. A minimum of one distribution of educational materials will be conducted annually.</li> <li>• Send an annual stormwater brochure to city residents.</li> <li>• Conduct annual catch basin stenciling.</li> </ul>	<p>(1) Track the number, types, and topics of public educational materials dispersed to the public annually.</p> <p>(2) Indicate any large-scale public educational campaigns initiated during a given year.</p> <p>(3) Track coordinated public outreach activities with local co-permittees.</p> <p>(4) Record the number of catch basins stenciled in a given year.</p> <p>(5) Record the number of storm manhole lids that have been retrofitted annually.</p>	<p>(1) Public awareness events and volunteer programs that are currently in place are: “Leaf Drop Program” where residents can drop off leaves at city facilities for composting (4 events per reporting year), Milwaukie Earth Day, a volunteer restoration event in April, and Arbor Day, an educational tabling and volunteer planting event in partnership with Friends of Trees.</p> <p>(1) Significant work to improve the City’s website to better inform citizens of beneficial water quality practices is ongoing.</p> <p>(1) The city has been performing numerous education and outreach efforts related to green infrastructure and tree preservation and benefits, including postcards, presentations and informational webpages. The city performs event tabling events for trees and urban forest management. The city has distributed 3 community newsletter articles related to restoration and watershed health and 6 social media posts within the last reporting year. City staff are planning to meet with the city’s communication team to explore increasing stormwater education materials distributed to community members.</p> <p>(2) and (3) The City of Milwaukie is actively partnered with several other jurisdictions in the Regional Coalition for Clean Rivers and Streams. The Coalition has teamed with local news agency KPTV/FOX News for commercial spots educating the public on various topics related to stormwater health and how the public can help. KGW news interviewed the City’s Urban Forester on its Urban Forest and Climate Action Goal. The city made a short video highlighting its Urban Forest and Natural Resources Departments and Climate Action goals. See Appendix I for a report on the work performed by the Regional Coalition for Clean Rivers and Streams.</p> <p>The City of Milwaukie conducted its 19th annual “Leaf Drop Program.” The Leaf Drop program allows residents to dispose of their leaves five Saturdays each year, in the months of November and December, during heavy leaf season, at no charge to the residents.</p> <p>(3 and 4) No catch basins were stenciled in 2022-2023 reporting year, and no manhole lids were retrofitted in 2022-2023.</p>	<p>The City of Milwaukie’s public awareness programs are promoted on the city website and in the “Pilot” which is mailed to all city customers and residents. Programs promote healthy streams by keeping leaves out of the drains, and garbage from being dumped illegally. Pilot articles aim to educate on the topics of stream temperature, pesticide use, proper pool draining methods, and bacteria issues caused by animal feces.</p> <p>The City of Milwaukie adopted its Urban Forest Management Plan in March 2019. Within the plan, is information on how both public and private properties can utilize trees for stormwater benefits. The city maintains a canopy analytics tool called ‘branch out milwaukie’ which shows canopy benefits for community and canopy coverage estimates.</p> <p>The city maintains an ArcGIS storymap for stormwater utility education, available online to the public.</p> <p>The city held an Earth Day restoration event on April 22, 2023 at the Pennywood Stormwater Detention Pond, where dozens of community volunteers removed over 2500lb of ivy from the natural area, opening space for native plantings.</p> <p>The city adopted a Climate Action Plan in October 2018 and began implementation of the actions within the plan in 2019. The Climate Action Plan contains many natural resource and land use actions and suggestions associated with additional stormwater benefits, including canopy expansion, inclusion of green infrastructure in development, reduction of paved and built surfaces, floodplain recovery, and more. City staff educate residents and businesses on the stormwater co-benefits on climate actions in public engagement opportunities.</p> <p>The city partners with the Backyard Habitat Certification Program (BHCP) to support urban gardeners in their efforts to create natural backyard habitats. This includes working with homeowners to find stormwater solutions in their yards to mimic nature by allowing runoff to soak into the ground, helping to filter out pollutants and decrease or eliminate runoff on their property. In 2022-23, BHCP visited 25 properties in the city and certified 4 properties. In total, Milwaukie has had 183 site visits from BYHP and 25 certifications. Staff from BYHP have attended numerous community education and tabling events around the county, and have held workshops for residents to participate.</p> <p>Through collaboration with JCWC, 350 trees and 3900 shrubs in total were planted in the City of Milwaukie. Four private Creekside landowners, one multi-family property, and five industrial properties have begun improvements including weed treatments and infill planting as part of a larger Reforestation Strategy.</p> <p>The city also coordinates with North Clackamas Watershed Council on habitat, stormwater, and watershed health education through educational materials, events, and the Streamside Stewards restoration program, which works to enhance and maintain habitat through partnerships with owners along Milwaukie streams. Along with annual maintenance, the SSP moved the outreach and education aspects of the program online due to COVID-19. Recent educational events include coordination on the Kellogg Dam removal and beneficial impacts to surface water.</p>



Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Conduct Annual Staff Training	○	○	○	City of Milwaukie Public Works and Engineering Departments	<ul style="list-style-type: none"> <li>• Provide city storm crews with approximately 40 hours of stormwater related training per year.</li> <li>• Continue to train all public works operations and maintenance staff involved with stormwater activities.</li> <li>• Conduct regular stormwater staff meetings one to four times per year.</li> </ul>	<p>(1) Track the hours of stormwater related training provided to city Stormwater crews each year.</p> <p>(2) Track number and responsibilities of staff participating in training each year.</p> <p>(3) Track regular stormwater staff meetings.</p>	<p>(1) During reporting year 2022-2023, two members of the public works department attended an online erosion control CESCL certification for approximately 24 hours each. 27 members of Public Works viewed the online city spill response training at .75 hours each for a total of 20.25 hours. Total training hours are approximately 68.25 hours.</p> <p>(2) The Stormwater department employs a total of 8.00 FTE. One half Stormwater Supervisor, one half Environmental Services Coordinator, one Lead Utility Technician, three Utility Technicians, one full-time sweeper operator, one Urban forester and one Natural Resources Technician 1. The duties include infrastructure maintenance, inspections, spill response, street sweeping, responding to flooding/citizen complaints, vehicle maintenance, training and education, administration and record keeping, assistance to the Engineering department, leaf pick up, rain garden and street tree maintenance, and erosion control plan review and inspections.</p> <p>(2) The Storm Department has paid for the training and materials for Tree Risk Assessment Qualification that the Urban Forester is required to have. The Stormwater Department paid for continuing education courses for the Natural Resource Technician and Urban Forester to maintain pesticide licenses. The Urban Forester earned 29 hours of CEUs for International Society of Arboriculture, and 4 CEU hours for pesticide application.</p> <p>(2) The Stormwater department paid for training and materials for the Urban Forester to maintain certification as an arborist by the International Society of Arboriculture. The Urban Forester provides assessment of large trees damaged by storms or age, with the interest of keeping our large, beneficial trees for their stormwater benefits, and appropriate species and location for replacements if removal is warranted.</p> <p>(3) The Stormwater crew meets each morning for a minimum of 15 minutes to discuss stormwater issues, local projects and related issues and equipment needs for the day. They also discuss stormwater issues with the public.</p>	
<b>Element #5 Public Involvement and Participation</b>								
Provide for Public Participation with Submittals				City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>• Provide a minimum 30-day public comment period for the updated SWMP elements and pollutant load reduction benchmarks prior to the permit renewal application deadline.</li> <li>• Provide a public comment period for the updated monitoring plan and annual reports prior to submittal to DEQ.</li> </ul>	N/A	The City of Milwaukie will post the 2022-2023 annual report on the city website for public comment. The city has posted draft SOPs, public outreach strategies, and other documents for public review on the city website for public comment and noted the resource review opportunity in community newsletters. These documents can be reviewed in the city's MS4 reference library online at: <a href="https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library">https://www.milwaukieoregon.gov/publicworks/ms4-program-reference-library</a>	

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Participate in Intergovernmental Coordination Efforts	○	○	○	City of Milwaukie Public Works and Engineering Department	<ul style="list-style-type: none"> <li>• Annually coordinate with other Clackamas County co-permittees regarding regional water quality efforts.</li> <li>• Annually participate with local agencies involved in water quality issues.</li> </ul>	(1) Indicate groups, committees, and organizations with which the city is currently participating.	<p>The City of Milwaukie is currently involved with the following groups and organizations:</p> <ul style="list-style-type: none"> <li>• Clackamas County NPDES MS4 Co-permittees.</li> <li>• Johnson Creek Watershed Council.</li> <li>• Oregon Association of Clean Water Agencies.</li> <li>• American Public Works Association.</li> <li>• Water Environment Federation.</li> <li>• ACWA Water Pollution Control Facility Permit Committee</li> <li>• Clean River Coalition</li> <li>• Friends of Trees</li> <li>• North Clackamas Watershed Council</li> <li>• Backyard Habitat Certification Program</li> <li>• Clackamas County Climate Utility Resiliency Group</li> <li>• Regional Habitat Connectivity Workgroup (Intertwine Alliance)</li> <li>• Connecting Canopies Workgroup</li> <li>• CreekCare Streamside Restoration Program</li> </ul>	<p>The City of Milwaukie has signed multiyear contracts with Backyard Habitat Certification Program, Johnson Creek Watershed Council, and North Clackamas Watershed Council for work related to plantings, including along stream banks.</p> <p>The Backyard Habitat Certification Program worked on 25 sites with a total of 260,164 sq. ft./5.97 acres. 183 sites are in progress to becoming certified as a Backyard Habitat, with 25 sites achieving that already (14% of all sites).</p> <p>Johnson Creek Watershed Council worked on 7 tax lots with plant establishment, weed control and infill planting. They are also working with ODOT on an ODOT property within the City of Milwaukie along Johnson Creek. In total, 350 trees and 3,900 shrubs were planted in the City of Milwaukie during fiscal year (FY) 22-23.</p> <p>North Clackamas Watershed Council performed riparian maintenance on private property through their streamside stewards program, held a Christmas tree in-stream woody debris event in winter 2022, and performed community outreach and education related to riverfront restoration, Kellogg Dam removal, and watershed health in the community.</p>

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<b>Element #6</b>								
<b>Post-Construction Site Runoff</b>								
<b>Implement Municipal Development Codes</b>	■	■	■	City of Milwaukie Engineering Department	<ul style="list-style-type: none"> <li>Until completion of the city's review and possible update of their applicable code and development standards to meet provisions of the city's NPDES permit, continue to review all new and re-development plans for conformance with the city's Development Standards including design standards for water quality facilities.</li> <li>By November 1, 2014, review and revise if necessary, the city's design storm and inspection and enforcement response procedures to be in accordance with permit requirements.</li> </ul>	<p>(1) Track the number of development applications reviewed and approved for compliance with the stormwater regulations.</p> <p>(2) Track status of the design storm reviews.</p> <p>Note: The number and type of water quality facilities constructed/implemented to address these requirements will be tracked and mapped under Element 8: BMP Private Water Quality Facility Maintenance Program.</p>	<p>(1) Development applications including drainage reports are routinely reviewed for proper compliance with stormwater regulations. The following applications were reviewed and approved during the 2022-2023 reporting year:</p> <ul style="list-style-type: none"> <li>Commercial (New) = 1</li> <li>Commercial (Additions) = 7</li> <li>Residential (New) = 18</li> <li>Residential (Additions) = 15</li> </ul> <ul style="list-style-type: none"> <li>Right of Way (New) = 1</li> <li>Right of Way (Additions) = 0</li> </ul>	City of Milwaukie currently follows the Portland 2016 Stormwater Design Requirements. Residential improvements disturbing more than 500 square feet of soil automatically trigger a private Water Quality Facility Agreement. All residential improvements will follow the stormwater design manual adopted by the city. Commercial additions do require a Water Quality Facility Agreement if the addition increases any value or changes more than 500 square feet of impervious surface connected to the city storm system.
<b>Element #7</b>								
<b>Pollution Prevention for Municipal Operations</b>								
<b>Conduct Street Sweeping and Roadway Repair Activities</b>	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Sweep curbed streets once per month.</li> <li>Sweep roads promptly after icy conditions recede to remove fine gravel used for de-icing.</li> <li>Schedule and conduct routine road repair and maintenance as needed, during the dry-weather conditions if possible.</li> </ul>	<p>(1) Track the number of miles swept per year.</p> <p>(2) Track the volume of debris removed during sweeping activities.</p>	<p>(1) and (2) During fiscal year 2022-2023 the department swept 1,087 miles of curbed streets and removed 1,264 cubic yards of debris.</p>	
<b>Minimize Water Quality Impacts Associated with Landscape Management Practices</b>	○	○	○	City of Milwaukie Public Works Department and Clackamas County Parks Department	<ul style="list-style-type: none"> <li>Require all chemical applicators (both city employees and city contractors) to be licensed and certified.</li> <li>Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within public rights-of-way, and around water quality facilities.</li> </ul>	<p>(1) Track any policy and/or procedural changes associated with pest management activities within the City.</p> <p>(2) Track current number of staff licensed and certified for chemical application.</p>	<p>(1) During the reporting year 2015-2016, the Stormwater Department changed its practice to only allow contractors and qualified staff to apply pesticides to undesired and invasive vegetation.</p> <p>(2) For the 2022-2023 reporting year, the City of Milwaukie employed two staff persons licensed as Public Pesticide Applicators for invasive species management, tree care, and crack sealing. If the need arises, city staff can also hire a licensed and certified contractor.</p>	For many years the Stormwater staff has conducted manual removal of vegetation at all detention ponds and rain gardens and will continue to do so. Chemical application is a last resort only if the potential of the chemical entering the stormwater system is removed. No herbicide or fungicide was applied during the 2022-2023 period.

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	○	○	○	City of Milwaukie Public Works and Engineering Department	<ul style="list-style-type: none"> <li>Develop procedures for storage and disposal of street wastes in conjunction with operation of the covered, on-site Decant Facility. Such procedures shall be finalized by the beginning of the Decant Facility operation and implemented within 6 months thereafter.</li> </ul>	N/A	The Decant Facility for Public Works is fully operational with staff well-trained in its use. Routine inspections on the Facility's efficacy are part of normal operations. Catch basins utilized by the various departments are regularly emptied of their contents to ensure operability of the Public Works storm system.	Public Works crews thoroughly understand the procedure for dumping and storing the sweeper and combo-machine materials. All material dumped in the facility is recorded daily. Electronic copies of the records are on file in the City of Milwaukie Public Works office.
Control Infiltration and Cross Connections to the Stormwater Conveyance System	■			City of Milwaukie Public Works and Engineering Department	<ul style="list-style-type: none"> <li>Investigate sanitary lines for damage every five to six years.</li> <li>Inspect for cross-connections during annual dry weather outfall inspections and remove any discovered cross connections.</li> <li>Review all new and re-development plans associated with new building permits for possible cross-connections; eliminate them upon discovery.</li> </ul>	(1) Indicate whether any cross-connections were discovered during illicit discharge investigations and describe follow-up activities.	(1) Per results of the illicit discharge and dry weather outfall inspections, no cross connections were observed.	
Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvement	■	■	■	City of Milwaukie Public Works and Engineering Department	<ul style="list-style-type: none"> <li>Annually contribute to the reserve fund for future CIP design and construction.</li> <li>Review the CIP list and update as necessary each year.</li> </ul>	<p>(1) Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each project.</p> <p>(2) Map the location and drainage area of CIPs.</p> <p>(3) Track the amount contributed to the CIP reserve fund each year.</p> <p>(4) Track changes to the CIP list.</p>	<p>(1) The city implemented two CIP projects (42<sup>nd</sup>/ 43<sup>rd</sup> Ave and Home/ Wood Ave) during FY 2021-2022, all of which included stormwater quality improvements. These CIP projects included installation of:</p> <p>Wastewater System Improvements: sewer mainlines on 3 city streets have been replaced, totaling 1,400 linear feet of new pipe. This will decrease potential leaks due to aging infrastructure and increase capacity. Two mainlines totaling 1,160 linear feet have been lined for better portability of wastewater.</p> <p>42<sup>nd</sup>/43<sup>rd</sup> - 220 tons of porous asphalt for a multi-use path on 43<sup>rd</sup> Avenue, 1,420 linear feet new storm pipe added, 2 storm manholes, 21 new inlets, and 1420 square feet of vegetated stormwater facility</p> <p>Home/Wood – 250 linear feet of new storm pipe, 1 drywell, 13 new inlets, and 4,316 square feet of vegetated stormwater planter</p> <p>(2) As CIPs are constructed, the city's Asset Manager Technician incorporates as-builts into the CityWorks system and city's GIS database for future mapping needs. Data is available upon request.</p> <p>(3) The amount contributed from the Stormwater Fund for Capital Outlay projects (CIPs) was \$165,000.</p> <p>(4) The city completed their Stormwater Master Plan in August 2013, which included an updated CIP list. The city has enlisted the assistance of outside firms to develop a new Stormwater System Plan, expected to be completed Spring 2025, which will inform future CIPs.</p>	See Section 3.0 and 5.0

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
<b>Element #8 Stormwater Management Facilities Operation and Maintenance</b>								
<b>Conduct Stormwater Conveyance System Cleaning and Maintenance</b>	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Inspect stormwater conveyance system components (i.e., manholes, culverts and ditches) every two years and perform maintenance based on inspection results.</li> <li>Perform ditch maintenance activities through an IGA between Clackamas County and the city based on inspection results.</li> </ul>	<p>(1) Track percent of conveyance system inspected each year.</p> <p>(2) Estimate the volume of debris removed during conveyance system cleaning activities.</p> <p>(3) Track the conveyance system repair efforts conducted.</p>	<p>(1) The city Stormwater Division video inspected 309 storm mains and/or laterals for a total of 21,491 linear feet. 36% of the catch basins and 23% of the sedimentation manholes were cleaned and inspected during FY 2022-2023</p> <p>(2) The following volumes of debris were removed during conveyance cleaning activities:</p> <ul style="list-style-type: none"> <li>7,788 linear feet of lines cleaned.</li> <li>A total of 215 sediment manholes were inspected and then cleaned if needed for a total debris amount of 0.6 cubic yards of debris removed.</li> </ul> <p>(3) The following maintenance/ repairs were conducted during reporting year 2021-2022:</p> <ul style="list-style-type: none"> <li>101 new catch basins were installed.</li> <li>6,038 sq. ft. of new rain gardens</li> <li>0 Storm main fixed.</li> <li>2 UIC raised.</li> </ul>	
<b>Conduct Catch Basin Cleaning and Maintenance</b>	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Clean 50% of public catch basins each year.</li> <li>Schedule repair or replacement of catch basins based on inspection results.</li> </ul>	<p>(1) Track the percent of total public catch basins cleaned per year.</p> <p>(2) Track the volume of debris removed during cleaning activities.</p>	<p>(1) During the 2022-2023 reporting year 746 catch basins were cleaned which translates to 36% of the total public catch basins.</p> <p>(2) The following volume of debris was removed during catch basin cleaning activities:</p> <ul style="list-style-type: none"> <li>Catch basins = 70 cubic yards.</li> </ul>	
<b>Private Water Quality Facility Maintenance Program</b>	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Develop procedures to guide the private facility maintenance program by July 1, 2013.</li> </ul>	<p>(1) Track the number of onsite private stormwater quality facility inspections conducted annually.</p>	<p>(1) The city did not conduct any private stormwater facility inspections for FY 22-23 due to staffing limitations and process limitations. The city will be working to improve this process in the coming year.</p> <p>The city updated its private stormwater facility maintenance brochure for vegetated facilities, available online and distributed to developers:  <a href="https://www.milwaukieoregon.gov/publicworks/private-water-quality-facility-maintenance-program">https://www.milwaukieoregon.gov/publicworks/private-water-quality-facility-maintenance-program</a></p>	<p>The city participates in and promotes the regional Storm Drain Cleaning Assistance Program, (SCAP) incentivizing maintenance of storm drains on private property. During the 2022-2023 reporting year, 12 clients signed up for the program and 48 private storm drains were cleaned.</p> <p>The city will be evaluating the Private operations and maintenance program for private stormwater facility maintenance in the coming year and making improvements to data tracking and reporting processes in development review. This will aid staff in scheduling annual inspections of private facilities.</p>

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Addresses DDT/Dieldrin? (via sediment management) (addressed Note #2)	Responsible Department	Measurable Goals	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2022-2023	Additional Detail Related to Activities Conducted
Public Structural Control Facility Cleaning and Maintenance	■	■	■	City of Milwaukie Public Works Department	<ul style="list-style-type: none"> <li>Inspect and maintain public water quality facilities annually.</li> </ul>	<p>(1) Track the percent of total structural facilities inspected and maintained each year.</p> <p>(2) Track the volume of debris removed during cleaning activities.</p>	<p>(1) and (2) During the 2022-2023 reporting year, all public water quality facilities were inspected and/or maintained.</p> <p>During the fiscal year 2022-2023, the Stormwater Division's Landscape Maintenance workers have maintained 115 rain gardens on 357 occasions and 6 detention ponds.</p> <ul style="list-style-type: none"> <li>298 hours of rain garden and 17 hours of detention pond maintenance were completed. 174 trees were watered over 154 hours, using 9,525 gallons of water. 120 street trees were pruned in 66 hours for street sweeper access. Activities included weeding, debris removal, watering, pruning, tilling, and planting/transplanting. 58.6 cubic yards of debris were removed during maintenance.</li> </ul>	

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# **Appendix B**

## **Milwaukie Monitoring Data**



## Instream and Outfall Monitoring

Milwaukie collected three stormwater samples from one outfall during the wet season sampling period. Two in-stream samples were collected during wet weather conditions. The city is required to collect two dry season samples along with two additional dry season samples due to missed sampling in the 2021-2022 reporting year (caused by staff vacancies). The city experienced similar staff vacancies in the 2022-2023 reporting year and missed one of the two additional sampling events, collecting three dry season samples in total before the reporting period closed. After discussing with DEQ, the city received approval to collect an additional dry season sample in the 2023-2024 reporting year to make up for the missed collection.

The City of Milwaukie will be working with Clackamas WES for mercury sampling. This data will be included in the 2023-2024 annual report. Due to communication errors with the contracted laboratory, Biochemical Oxygen Demand analyte samples are missing from some of the reported sampling events. The city has addressed this issue with the lab and will ensure BOD analyte samples are collected moving forward.

The Minthorn Springs Creek in-stream monitoring site is located at the box culvert at SE Harmony Road. The Roswell site is monitored at a point prior to flows being introduced to the Roswell Detention Pond & Wetland facility which offers further water quality treatment before discharging to Johnson Creek. Results are listed in Tables B-1 and B-2 below.

<b>Table B-1 Environmental Monitoring Results – In-Stream Minthorn Springs Creek at Harmony Road</b>								
Sample Date	Dry 8/22/2022*	Dry 9/16/2022*	Storm 2/7/2023	Storm 3/13/2023	Dry 5/3/2023	Dry 6/7/2023	2021/22 Mean*	2022/23 Mean
Colilert (MPN/100ml)	ND	10	117	365	93	1.0	N/A	117.2
Hardness (mg/L)	102.0	103.0	84.0	24.0	96.0	128.0	N/A	87
Nitrate-Nitrite (mg/L)	1.09	1.05	0.50	0.16	0.24	0.775	N/A	0.545
Orthophosphate (mg/L)	0.060	0.063	ND	ND	ND	ND	N/A	0.0126
Total Phosphate (mg/L)	0.053	0.055	0.08	0.24	0.24	ND	N/A	0.123
Copper (µg/L)	0.329	0.338	3.6	9.9	2.9	ND	N/A	3.3476
Dissolved Copper (µg/L)	0.353	0.308	2.3	ND	ND	ND	N/A	0.5216
Lead (µg/L)	ND	ND	0.6	4.1	1.1	ND	N/A	1.16
Dissolved Lead (µg/L)	ND	ND	ND	ND	ND	ND	N/A	0
Zinc (µg/L)	2.70	2.95	32.7	74.9	28.9	9.7	N/A	29.83
Dissolved Zinc (µg/L)	2.30	2.81	21.4	13.2	12.8	5.7	N/A	11.182
TSS (mg/L)	ND	ND	10	105	20	2	N/A	27.4
Ammonia (mg/L)	0.025	ND	ND	ND	ND	ND	N/A	0
<b>Field Test</b>								
Temperature (C)	18.4	18.4	10.0	8.9	17.0	19.6	N/A	14.78
pH	8.79	8.74	7.51	7.42	7.8	8.6	N/A	8.014
DO (mg/l)	+	+	10	9.5	8.0	8.2	N/A	8.925
Conductivity (uS)	305	277.8	237.87	141	287.9	371	N/A	263.114
Rainfall (in.)	0.00	0.00	0.16	1.52	0.00	0.00	N/A	0.336

Table B-2 Environmental Monitoring Results—Stormwater Outfall Roswell Outfall to Johnson Creek					
Sample Date	02/07/2023	03/13/2023	2021/22 Mean	2022/23 Mean	Trend from previous year
Colilert (MPN/100ml)	308	261	1516.5	284.5	↓
Hardness (mg/L)	44.0	16.0	25	30	↑
Nitrate-Nitrite (mg/L)	0.78	ND	0.3705	0.78	↑
Orthophosphate (mg/L)	ND	ND	0.273	0	↓
Total Phosphate (mg/L)	0.21	0.21	0.375	0.21	↓
Copper (µg/L)	7.10	6.48	5.6595	6.79	↑
Dissolved Copper (µg/L)	3.85	ND	3.5085	3.85	↓
Lead (µg/L)	2.31	4.48	0.675	3.395	↑
Dissolved Lead (µg/L)	ND	ND	0.042	0	↓
Zinc (µg/L)	57.6	48.5	329.024	53.05	↓
Dissolved Zinc (µg/L)	22.7	9.77	273.51	16.235	↓
TSS (mg/L)	31	64	17.5	47.5	↑
Ammonia (mg/L)	ND	ND	0.1465	0	↓
<b>Field Test</b>					
Temperature (C)	9.2	9.2	14.05	9.2	↓
pH	7.52	7.52	7.06	7.52	↑
DO (mg/l)	11.0	10	8.8	10.5	↑
Conductivity (uS)	104.0	253.7	75.3	178.85	↑
Rainfall (in.)	0.16	1.52	0.27	0.84	↑

\* makeup samples for missed samples MY 2021-2022

+ not analyzed due to miscommunication with lab

## Continuous Monitoring

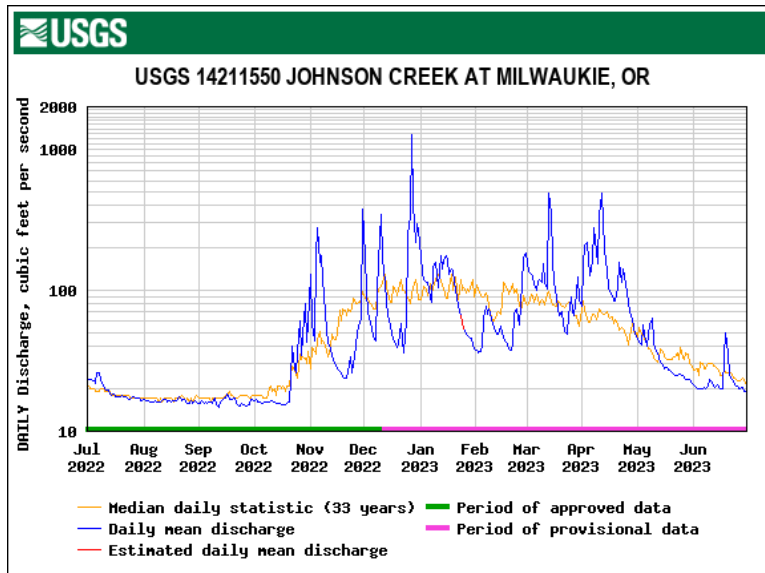
The City of Milwaukie continues to contract with the USGS for continuous hydrological monitoring of the Johnson Creek Basin at a cost of \$12,200 per the 2022/2023 reporting year and the Joint Funding Agreement was renewed on 10/1/2022. Milwaukie is joined in this effort with the Cities of Gresham, and Portland, Multnomah and Clackamas Counties, and East Multnomah Soil and Water Conservation District. Continuous water quantity parameters- stream flow, gage height, and stream temperature are measured and recorded, with turbidity and suspended sediment monitoring occurring during USGS staff visits. Turbidity can be used as a surrogate for suspended sediment in the water which can be related to certain pesticides in the stream. Differences in turbidity between the upper basin (in Gresham) and this lower station may be related to land use. Further details for the data collected at this site can be found at:

[https://waterdata.usgs.gov/nwis/dv?cb\\_00010=on&cb\\_00060=on&format=gif\\_stats&site\\_no=14211550&referred\\_module=sw&period=&begin\\_date=2020-07-28&end\\_date=2021-07-28](https://waterdata.usgs.gov/nwis/dv?cb_00010=on&cb_00060=on&format=gif_stats&site_no=14211550&referred_module=sw&period=&begin_date=2020-07-28&end_date=2021-07-28)

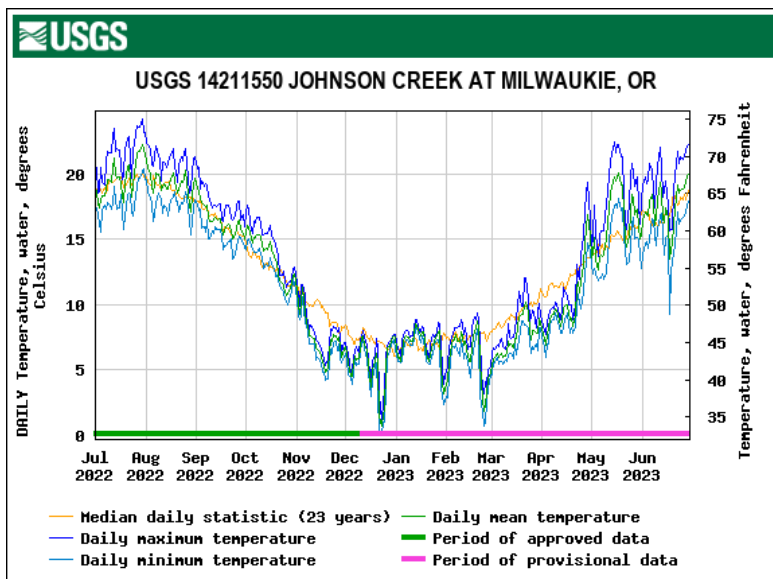
Continuous Monitoring Location information is as follows:

- USGS 14211550 Johnson Creek at Milwaukie, Oregon
- Location: Lat 45 degrees 27'11", Long 122 Degrees 38' 31", in NE ¼ SE ¼ SEC. 26, T. 1 S., R 1 E.
- Clackamas County, Hydrologic Unit 17090012, on the right bank upstream side of the Milport Rd. Bridge, in the city limits of Milwaukie, at mile 0.7.

Continuous flow monitoring data at USGS site #14211550 located on Johnson Creek at SE Milport Road in Milwaukie, Oregon.



Continuous temperature and discharge rate monitoring data at USGS site #14211550 located on Johnson Creek at SE Milport Road in Milwaukie, Oregon.





**Appendix C**  
**High Priority Industrial Facility**  
**Stormwater Inspection SOP**



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**Appendix D**  
**Construction Site Runoff Control SOP**  
**2023**



**Appendix E**  
**Winter Road Maintenance SOP 2023**

**Appendix F**  
**Hydromodification Assessment Update**  
**2023**

**Appendix G**  
**Mercury Minimization Assessment 2022**

## Mercury Minimization Assessment for the City of Milwaukie

A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet applicable water quality standards. TMDLs assign wasteload allocations (WLAs) to point sources of pollutants, and load allocations (LAs) to nonpoint sources of pollutants. The Oregon Department of Environmental Quality (DEQ) has the regulatory authority to implement TMDL programs in Oregon with responsibility for: 1) requiring and reviewing TMDL Implementation Plans for nonpoint sources; and, 2) incorporating TMDL related requirements for point sources in NPDES permits. Therefore, with respect to municipal stormwater discharges regulated under an NPDES MS4 permit, DEQ includes TMDL requirements directly within those permits.

As stated in DEQ's Permit Evaluation Report (PER) for the 2021 Clackamas Group NPDES MS4 Permit,

*"DEQ has determined that implementation of the permit conditions, BMPs identified in the SWMP Document, and the adaptive management process will meet TMDL WLAs for municipal stormwater (PER, pp 36)."*

The City of Milwaukie's NPDES MS4 permit identifies applicable TMDLs and associated WLAs. Schedule D, *Special Conditions* of the permit lists specific conditions for addressing those TMDLs. These permit conditions include requirements to conduct a TMDL pollutant load reduction evaluation in comparison to assigned WLAs for stormwater, and to develop pollutant load reduction benchmarks targeting achievement of WLAs for specified TMDL pollutants over time. DEQ included TMDL requirements in the 2005, 2012, and the recently issued 2021 NPDES MS4 permits for Phase I permittees.

The City has complied with permit requirements to conduct pollutant load reduction evaluations and establish TMDL pollutant load reduction benchmarks. However, WLAs were not established for mercury until 2021 and, therefore, mercury was neither required nor included in the City's prior TMDL analyses.<sup>1</sup> The 2021 mercury TMDL includes a water quality management plan (WQMP) developed by DEQ, that outlines management strategies for both point and nonpoint sources of mercury. Specific management strategies for Phase I NPDES MS4 permittees are outlined in Section 13.3.2.2 of the revised TMDL (Appendix A) and were subsequently included in Schedule D.3.b of the Clackamas County Group NPDES MS4 permit. Per Schedule D.3.b, requirements specific for mercury are detailed below:

- i. Develop and submit a mercury minimization assessment with the annual report due December 1, 2022, that documents the current actions, such as BMPs implemented, that reduce the amount of solids discharged into and from the permitted MS4 system (similar to the actions currently required in Schedule A). If the assessment indicates that mercury and sediment reducing BMPs*

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<sup>1</sup> Mercury was originally included in the 2006 Willamette River TMDL, but establishment of WLAs was deferred due to lack of data. On November 22, 2019, DEQ issued a revised Willamette River TMDL for mercury. The United States Environmental Protection Agency (EPA) disapproved DEQ's TMDL on December 30<sup>th</sup>, 2019 and the final TMDL was issued on February 4, 2021.

*are fully incorporated into the SWMP Document, a report documenting the results as such is sufficient.*

- ii. Continued implementation of the BMPs and other actions described in the mercury minimization assessment that are effective for mercury reduction, along with documentation of implementation in each subsequent annual report.*
- iii. An analysis of the effectiveness of the best management practices and any other actions taken and qualitative pollutant load reductions achieved in the MS4 Permit Renewal Application Package. Due to data limitations, mercury benchmarks are not applicable in the first permit cycle after the TMDL is finalized.*
- iv. Collection of paired total mercury and total suspended solids samples, as described in Schedule B.*
- v. Submittal of paired mercury and total suspended solids monitoring data in the appropriate DEQ data submission template. Given the lack of sufficient mercury data, pollutant load reduction evaluations, benchmarks, and waste load allocation attainment analyses for mercury will not be required in this permit cycle.*

The purpose of this Mercury Minimization Assessment, included with the City's 2022 MS4 Annual Compliance Report is to address the requirement outlined in bullet *i.* above.

Chapter 4 of EPA's 2021 *TMDL for Mercury in the Willamette Basin* includes summary information regarding mercury sources. Atmospheric deposition of mercury from global sources is presented as the dominant source of mercury in the Willamette River Basin. Additional sources identified include: nonpoint sources such as runoff from forestry and agricultural land management practices that can transport sediment and mercury to streams; background/anthropogenic sources that include mercury in groundwater due to local geology, and naturally occurring sediment-bound mercury that is eroded and transported to streams; and point sources such as municipal waste discharges, industrial discharges, suction dredge mining and stormwater. Mercury loads in urban stormwater are believed to be predominantly associated with atmospheric deposition and active erosion or transport of sediment that is carried in runoff to downstream water bodies. As a result, stormwater best management practices (BMPs) implemented by NPDES MS4 permittees are focused on reducing the discharge of sediment as the primary method to reduce discharges of mercury.

The prevention and reduction of sediment in runoff has been a focus of the City's stormwater management program since the first MS4 permit-required Stormwater Management Plan (SWMP) was developed in the early 1990's. The City uses an adaptive management approach to continually improve upon existing stormwater BMPs over time as new knowledge is gained regarding the effectiveness and efficiency of these practices. The City has submitted the results

of its adaptive management process as applicable in annual reports since the original SWMP became effective. The City has also conducted detailed quantitative and qualitative adaptive management analyses as part of each NPDES MS4 permit renewal. The City's 2022 MS4 Annual Compliance Report, due to DEQ on December 1, 2022, provides the latest summary of BMP implementation according to the pre-existing 2012 SWMP. A new SWMP that meets the conditions of the recently issued 2021 NPDES MS4 permit is also being submitted to DEQ for approval on December 1, 2022.

Based on the City's long-term ongoing adaptive management process, a review of the current/approved 2012 SWMP, and a comprehensive MS4 program evaluation and update as per the 2021 permit, we have determined that **effective sediment and mercury reducing BMPs are fully incorporated into the City's new/proposed 2022 SWMP Document**. BMP tables in the proposed SWMP (Sections 2.1 through 2.7) provide a cross-reference for each BMP to potential TMDL pollutants addressed, including total mercury (i.e., by way of addressing sediments). To meet the NPDES MS4 permit standard, these BMPs have been developed as part of an overall program to reduce pollutants to the maximum extent practicable (MEP).

In summary, the City's BMPs, or Stormwater Program Management Control Measures as termed in the 2022 SWMP, include the following major categories of BMPs and activities that prevent sediment and mercury in stormwater discharges:

- Public Education & Outreach (Section 2.1)
- Public Involvement & Participation (Section 2.2)
- Illicit Discharge Detection & Elimination (Section 2.3)
- Construction Site Runoff Control (Section 2.4)
- Post-Construction Site Runoff for New Development and Redevelopment (Section 2.5)
- Pollution Prevention and Good Housekeeping for Municipal Operations (Section 2.6)
- Industrial & Commercial Facilities (Section 2.7)

The 2022 SWMP includes detailed descriptions of each major MS4 strategy and associated BMPs, including measurable goals and tracking measures. As noted in the BMP tables, every strategy and nearly all program activities support the prevention and reduction of mercury and sediment.

Further, the city submitted an updated TMDL Implementation Plan in September, 2022 that addresses requirements of the 2021 *TMDL for Mercury in the Willamette Basin* for nonpoint sources of mercury in Milwaukie.

As a result of this Mercury Minimization Assessment, the city finds that sediment and mercury reducing BMPs are fully incorporated into the SWMP Document.

**Appendix H**  
**Low Impact Development & Green**  
**Infrastructure Strategy Report 2023**

**Appendix I**  
**Regional Coalition of Clean Rivers and**  
**Streams 2022-2023 Annual Report**



**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<sup>2</sup>. 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

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<sup>2</sup> 2021 American Community Survey 5-Year Estimates, Table B01003

(Troutdale) to very large (Clean Water Services). As such the ability to run programs specific to their

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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.

During 2020, the Coalition began examining the importance of acknowledging the intersectionality of

post promoting the PDX the environmental and social justice movements and People of Color Outdoors' monthly outdoor events. 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.

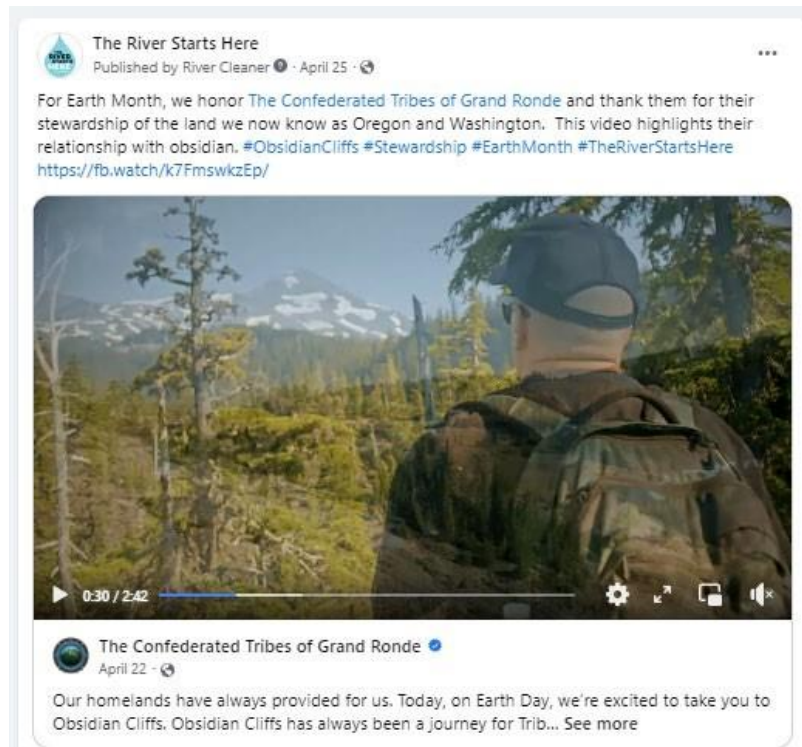
The partners agreed to broaden the content of their messages to include environmentally related social justice information and use their platform to amplify the voices of the Black, Indigenous, and People of Color (BIPOC) communities. During the 2022-2023 FY, the Coalition continued their effort to center 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, LGBTQIA+, 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.

Movie Theatre Screen Sponsor Graphic (Right)



1		<b>Let the River Thrive</b> The River Starts Here • 245 views • 1 year ago
2		<b>Bigfoot's Guide to Trail Etiquette</b> The River Starts Here • 346 views • 1 year ago
3		<b>Do Your Part</b> The River Starts Here • 281 views • 1 year ago

### 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*

## Honoring Our Rivers

A Student Anthology of Art and  
Creative Writing Celebrating  
Pacific Northwest Rivers and Watersheds

**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 relaunch 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.



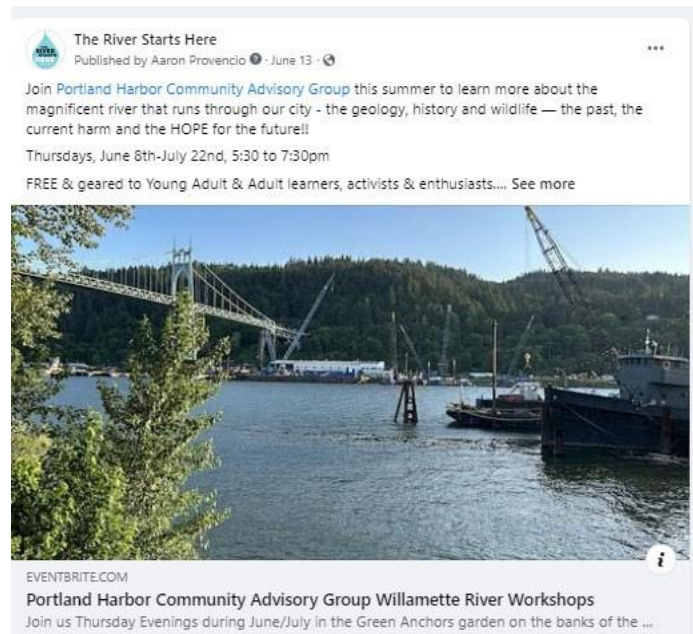
Volunteers cleaning up a natural area in Clackamas County



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](http://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.

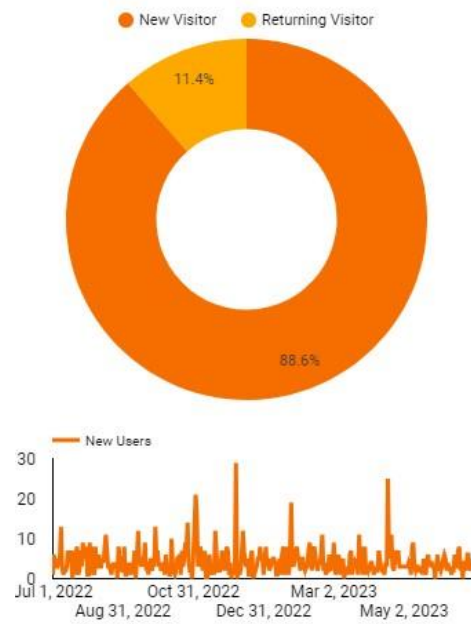
In October 2022, higher engagement is attributable to social media promotion of #fatbearweek. In December 2022, an increase of engagement on the website is likely due to a successful ad campaign for the YouTube video, *Something Fishy*. In May 2023, an increase in web traffic may be tied to a higher 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.



**The River Starts Here**  
May 22 · 🌐

Turf expert pro tip without the risk: use a slow release fertilizer on your lawn prior to Memorial Day and skip summer fertilizing. Excess Nitrogen and Phosphorus are linked to harmful algal blooms (HABs) that can make people sick and kill dogs. Mulch mowing by making multiple passes without a bag provides the equivalent of one fertilization per year.  
[#slowrelease](#) [#MemorialDay](#) [#May2023](#) [#Habs](#) [#mulchmowing](#)  
 Learn More:



YOUTUBE.COM  
**LAWN GOALS** How to Get Green Grass  
 Want a lush lawn that's the envy of your neighborhood? Here ... [Learn more](#)

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**

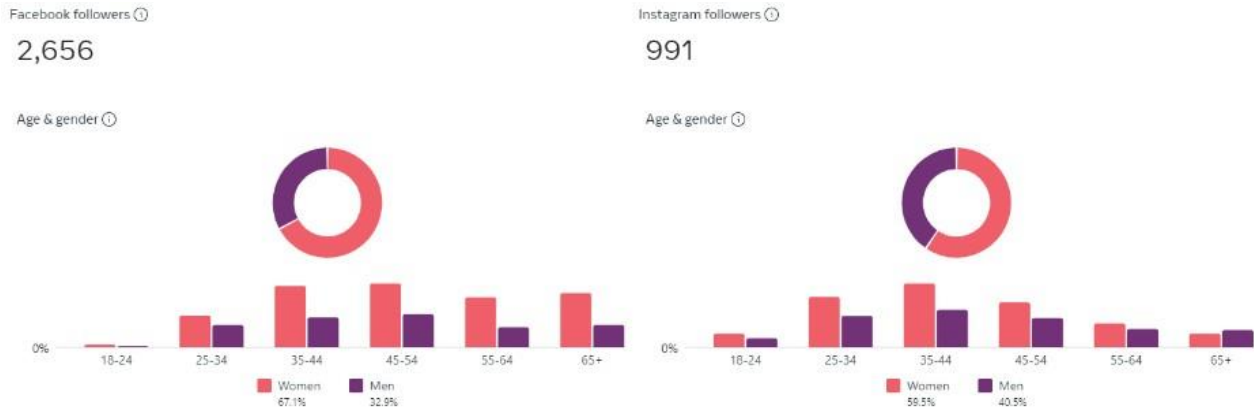
In the following sections, statistics in parenthesis are the difference between last years and this year's data. Positive changes are shown in green, declines are shown in red.

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
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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
<b>Paid Advertising and Graphics</b>			
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 (2 <sup>nd</sup> year)		\$750
<b>Coordination support</b>			
EnviroIssues	Meeting support and member coordination, website maintenance, social media authoring		\$23,569
	<b>TOTAL</b>		<b>\$32,306</b>

## 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

As the 2023-24 school year begins, the Coalition will **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** 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.