











Clean Water Services

November 2026

Stormwater Annual Report

Submitted to

Oregon Department of Environmental Quality

STORMWATER ANNUAL REPORT

Submitted to:

Oregon Department of Environmental Quality

Submitted by:

Clean Water Services

Co-implementers:

Washington County, and the cities of Banks, Beaverton, Cornelius, Durham, Forest Grove, Hillsboro, King City, North Plains, Sherwood, Tigard, and Tualatin

Submitted in accordance with the requirements of National Pollutant Discharge Elimination System (NPDES) Watershed-Based Waste Discharge Permit Numbers 101141, 101142, 101143, 101144, 101309, and MS4 File Number 108014 issued on December 8, 2022, and effective January 1, 2023.

November 1, 2026

Permit Holder Information

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Clean Water Services

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL SEPARATE STORM SEWER SYSTEM ANNUAL REPORT

November 2026

Clean Water Services hereby submits this NPDES Municipal Separate Storm Sewer System Annual Report in accordance with NPDES Permit Numbers 101141, 101142, 101143, 101144, 101309 and MS4 File Number 108014. 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 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 submitted 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 knowing violations.



Rahim Harji
General Manager

Executive Summary

This stormwater annual report includes a summary of the activities and accomplishments performed under the Clean Water Services (CWS) Stormwater Management Plan (SWMP). The current SWMP was submitted to DEQ in 2020 and incorporated into CWS' watershed-based National Pollutant Discharge Elimination System (NPDES) permit (Permit) issued December 8, 2022, and effective January 1, 2023 (the 2023 Permit). Implementation of the SWMP and the 2023 Permit constitute the Maximum Extent Practicable (MEP) requirement that CWS must meet in reducing the discharge of pollutants from the municipal separate storm sewer system (MS4). This report covers July 1, 2025, to June 30, 2026, and meets the reporting requirements of the 2023 Permit relating to CWS' MS4. Tracking measures from the 2022-2023 reporting year include six months outside the current permit term and reflect the SWMP that took effect in 2016. Those instances are noted in the report.

CWS and its 12 co-implementers are committed to continuing the efforts and programs that are in place to ensure compliance with the requirements of the SWMP and the Permit. Each Best Management Practice (BMP) fact sheet in this annual report includes the program elements, goals, and tracking measures contained in the SWMP.

A FEW HIGHLIGHTS OF THIS YEAR'S ACTIVITIES AND ACCOMPLISHMENTS

- Performed 20,694 erosion control inspections.
- Swept 33,329 miles of streets, removing more than 7,689 cubic yards of material.
- Inspected and maintained 2,358 public vegetated stormwater treatment facilities.
- Conducted 1,451 inspections of private structural water quality facilities.
- Responded to 58 reported illicit discharges.
- Performed compliance inspections at 16 of 69 industrial stormwater 1200-Z permit facilities, conducted 26 site verifications at facilities with No Exposure Certifications (NECs), and identified 39 sites to be evaluated for an NEC.
- Presented the Tualatin River Rangers program to 1,832 elementary school students at 26 schools. Provided virtual program materials that were developed during distance learning to more than 30 teachers.
- Marked 41 storm drains with "Dump No Waste, Drains to Stream." City of Hillsboro staff installed an additional 2,468 storm drain markers.
- Managed the planning, design, or construction for three water quality facility retrofits in Hillsboro and Sherwood.
- Completed retrofitting 73 catch basins with water quality sumps to improve water quality.
- Completed annual dry weather inspection of 55 priority outfalls for illicit discharges.

Annual Report

INTRODUCTION

In February 2004, DEQ issued CWS a watershed-based NPDES permit, which was reissued as modified on July 27, 2005. The Permit integrated and consolidated the MS4 requirements with the four CWS municipal wastewater treatment NPDES discharge permits in the watershed. The Permit was renewed on December 8, 2022, and took effect on January 1, 2023 (the "2023 Permit"). CWS submitted an updated SWMP to DEQ on April 1, 2024, to reflect new requirements in the 2023 Permit; DEQ has not yet approved the 2024 version of the SWMP. CWS will continue to operate under the 2020 SWMP that was approved by DEQ with the 2023 Permit until the 2024 SWMP is approved.

Each BMP fact sheet includes the program elements, goals, and tracking measures from the 2020 SWMP. In addition to CWS, the co-implementers of the SWMP are Washington County and the cities of Banks, Beaverton, Cornelius, Durham, Forest Grove, Hillsboro, King City, North Plains, Sherwood, Tigard, and Tualatin. Together, these parties implement the applicable provisions of the SWMP. Figure 1 shows the CWS MS4 boundary.

ANNUAL REPORT REQUIREMENTS

As required by Schedule B, condition 16, of the 2023 Permit, CWS must submit an annual report of its MS4 activities for the period July 1 through June 30 to DEQ by November 1 of each year. This annual report documents the CWS and co-implementers' stormwater management activities from July 1, 2025, to June 30, 2026. The Permit specifies the information that the annual report must contain. The required elements and the activities that were conducted to satisfy each element are described below. In addition, the Total Maximum Daily Load (TMDL) Annual Report, which contains information on water quality conditions relative to the Tualatin Basin TMDLs, is included as Appendix D.

1. The status of implementing the stormwater management program and each SWMP program element, 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 Stormwater Management Plan(s).

The approved SWMP contains eight categories of BMPs that CWS and co-implementers employ to implement the MS4 program. A summary of each BMP category is listed below. Complete descriptions, including goals and tracking measures that document the status of implementation, are included in the BMP fact sheets in Appendix A.

a. Illicit Discharge Detection and Elimination. CWS and co-implementers implement an Illicit Discharge Detection and Elimination (IDDE) program to prevent, detect, and eliminate illicit discharges to the MS4. The IDDE program includes an ordinance prohibiting illicit discharges, a written enforcement response plan, a dry-weather field screening program, an information tracking system, and spill prevention and response actions. The IDDE program covers community complaints, accidental and intentional discharges of wastes to the MS4, sanitary-to-storm cross connections, and unauthorized discharges from industrial facilities.

b. Industrial and Commercial Facilities. CWS administers the industrial stormwater program (1200-Z NPDES general permit) under a Memorandum of Agreement with DEQ for the entire MS4 service area. In implementing this BMP category, CWS identifies facilities that require an industrial stormwater permit, reviews permit application materials such as a stormwater pollution control plan, conducts inspections, reviews discharge monitoring reports, solicits voluntary compliance from permittees on low-risk issues, and escalates enforcement to DEQ for compliance cases that require assessment of whether formal enforcement is appropriate. CWS also inspects and tracks facilities that apply for a No Exposure Certification and responds to site-specific information that may indicate that an industrial or commercial facility may have the potential to contribute a significant pollutant load to the MS4.

c. Construction Site Runoff Control. CWS and co-implementers carry out a construction site stormwater program that includes permitting, education, outreach, inspection, and enforcement. CWS or city staff review erosion prevention and sediment control plans to ensure that appropriate BMPs are included and perform regular site inspections to confirm that the BMPs and other measures are being implemented. Inspectors follow an escalating enforcement response procedure to bring sites into compliance. CWS provides annual training to inspectors.

d. Education and Outreach. CWS and co-implementers employ a public education and outreach program that informs and educates the public, business and industry representatives, and government staff about the causes of stormwater pollution, the effects on local streams and rivers, and the need for stormwater management. These BMP elements encourage the protection of water quality, reduce discharges of pollutants from the MS4, and promote the health of the Tualatin River watershed. CWS and co-implementers train employees involved in MS4-related activities such as illicit discharge response, construction site inspection, and water quality facility design.

e. Public Involvement and Participation. CWS provides opportunities for the public to effectively participate in the development, implementation, and modification of CWS' stormwater management program. The Clean Water Services Advisory Commission meets regularly to provide input from stakeholders on CWS policies and programs. CWS and co-implementers provide many options for public engagement, such as web-based portals, social media, public hearings, board meetings, work sessions, and public comment periods to contact staff regarding complaints or to learn more about stormwater programs.

f. Post-Construction Site Runoff and Retrofit Programs. CWS and co-implementers carry out a program to control the quality and quantity of stormwater runoff from developed sites. Through its *Design and Construction Standards*, CWS imposes requirements on development projects to treat stormwater runoff and control flow. CWS' retrofit program addresses stormwater runoff from previously developed sites.

g. Pollution Prevention for Municipal Operations. CWS and co-implementers reduce the discharge of pollutants to the MS4 from municipal operations by sweeping urban streets, implementing an integrated pest management program, managing their municipal yards,

limiting infiltration from the sanitary sewers, controlling releases from firefighting training activities, and retrofitting outfalls and catch basins to remove pollutants.

h. Stormwater Management Facilities Operations and Maintenance Activities. CWS and co-implementers coordinate a comprehensive operation and maintenance program that includes catch basin and water quality manhole cleaning, vegetated and proprietary water quality facility inspection and maintenance. In addition, a private water quality facility inspection program is also implemented, which includes inventory, mapping, and inspection of existing and new private structural water quality facilities.

2. A summary of the adaptive management process implementation and any changes or updates to programs made during the reporting year, including any proposed changes to the stormwater management program (e.g., new BMPs) identified through implementation of the adaptive management process, and review 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 tracking measures, measurable goals, and/or any monitoring related to the change.

In Fiscal Year 2025-2026, CWS staff met to review the 2024-2025 Stormwater Annual Report. Staff identified the following issues and proposed changes:

- During the 2024-2025 reporting period, the City of Forest Grove fell shy of meeting the maintenance frequency of having its streets swept 12 times during the year. The City of Forest Grove's street sweeper broke down during the last quarter of the 2024-2025 reporting year. The City's sweeper has been repaired, and the sweeping frequency was met during the 2025-2026 reporting year.
- CWS met an annual maintenance frequency of 91% for catch basins in the 2024-25 reporting period, short of the 95% metric, because many catch basins were not accessible and there was significant fleet vehicle downtime for repairs or maintenance. CWS staff visited each catch basin at least once for inspection, documented any catch basins that were not accessible, and attempted follow up cleanings for any catch basin not accessible during initial inspection. CWS also approved the purchase of a new vactor truck, which was delivered at the beginning of FY 2026-27. In the meantime, CWS will continue to maximize the use of approved budget and existing staff and equipment to meet performance standards.
- CWS discussed trends in zinc, copper, and *E. coli* in stormwater. Any trends need to be understood as part of an adaptive management approach, which may require changes to sampling. The Permit requires documentation of follow-up strategies for investigating elevated levels of parameters in stormwater that show the potential to cause or contribute to an exceedance of water quality standards. CWS discussed its strategic approach to respond to stormwater values that appear relatively elevated in the absence of concurrent ambient monitoring, including short-term IDDE or water quality investigations, or long-term programmatic changes. CWS' Environmental Services staff perform source control investigations, and Communications & Community Engagement staff conduct targeted outreach in sub-watersheds noted as having elevated contaminant levels. CWS staff have conducted local source identification inspections and are continuing the inspections when monitoring results

indicate elevated contaminant levels. Documentation of CWS' follow-up strategies for parameters with elevated concentrations are included in Appendix B.

The issues identified above were addressed within the scope of existing BMPs and therefore did not require revising the BMPs in the SWMP.

CWS will continue to implement the 2020 SWMP that was approved when the 2023 Permit was issued. CWS will be collaborating with co-implementers on a comprehensive review and update of the SWMP to incorporate adaptive management elements and adjust metrics and tracking measures to better reflect the scope and scale of the stormwater program.

3. Any proposed changes to SWMP program elements that are designed to reduce TMDL pollutants to the MEP.

CWS submitted an updated SWMP to DEQ on April 1, 2024, as required by the 2023 Permit. The updated SWMP incorporated minor updates to ensure metrics met the 2023 Permit requirements; there are no proposed changes to the SWMP program elements that are designed to reduce the discharge of TMDL pollutants. CWS will be working with the co-implementers to evaluate the goals and tracking measures during an adaptive management update of the SWMP over the next several years.

4. A summary of total stormwater program expenditures and funding sources over the reporting fiscal year, and those anticipated in the next fiscal year.

For FY 2025-26 (July 1, 2025 – June 30, 2026), CWS and the co-implementers have estimated total expenditures of $90.1 million for stormwater and related watershed operations and capital project investments. CWS and the co-implementers have estimated total stormwater funding sources of $212.9 million for this period, including beginning balance, operating reserves, and capital reserves. Available funding exceeds expenditures in part to maintain operating reserves. The expenditures and funding amounts are based on budget estimates and preliminary data because final auditable actuals were not available by the due date for this report. Final actuals can be made available on request.

For FY 2026-27 (July 1, 2026 – June 30, 2027), it is estimated that CWS and the co-implementers will have expenditures of $118.1 million for stormwater and related watershed operations and capital project investments. It is estimated that CWS and the co-implementers will have stormwater funding sources of $203.5 million for this period, including beginning balance, operating reserves, and capital reserves.

5. A summary of monitoring program results relative to the Tualatin River and Watershed Monitoring requirements in Table B24, as well as the MS4 requirements in Table B26, 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 permittee or an authorized third party. Duplicate data submission is not needed for requirements of Table B24,

but a summary of findings and how they inform MS4 program management is required.

CWS conducted stormwater and ambient monitoring and data analysis as described below.

Stormwater Monitoring

The Permit requires land-use-based stormwater monitoring at five locations at least three times per year. CWS sampled five land-use-based monitoring sites during multiple storm events between July 1, 2025 – June 30, 2026. The following parameters were analyzed per the requirements of Table B26 in the 2023 Permit.

- Temperature
- Specific conductance
- Turbidity
- *E. coli*
- Hardness
- Total organic carbon
- Total suspended solids
- Total phosphorus as P
- Ortho-phosphorus as P
- Ammonia (as N)
- Nitrite + nitrate as N
- Copper
- Lead
- Zinc
- Mercury

Pesticide monitoring was conducted during Fiscal Year 2023-24 and was included in the 2023 Stormwater Annual Report.

The metals were analyzed as total recoverable and dissolved. The sample dates, data, and other relevant information on stormwater monitoring are presented in Appendix B.

Ambient Monitoring

CWS conducted ambient monitoring in the Tualatin Basin at the minimum 15 sites on the Tualatin River and tributaries, as required by Table B24 in the 2023 Permit. Due to ongoing safety improvements, CWS used alternative sites when needed while still maintaining the minimum number of monitoring sites required by the Permit. Sampling at the Scoggins Creek tributary was stopped in 2025 due to issues with access availability. CWS replaced this site with a new monitoring location, Scoggins Creek at New Highway 47, which is located less than 4 miles downstream from the former monitoring location.

The Tualatin River was sampled at the following sites, at the given river mile (RM):

- Boones Ferry Road (RM 8.7)
- Jurgens Park (RM 10.6)
- Rood Bridge Road (RM 39.1)
- Golf Course Road (RM 52.8)
- Hwy 210 Bridge (Scholls) (RM 27.1)
- Hwy 219 Bridge (RM 45.0)
- Fernhill Road (RM 56.9)

The following tributaries were sampled:

- Scoggins Creek
- Gales Creek
- Dairy Creek
- Gaston Creek
- McKay Creek
- Rock Creek (two sites)
- Dawson Creek
- Chicken Creek
- Beaverton Creek
- Fanno Creek

Samples from the sites were analyzed for the following parameters to meet the requirements of Table B24 in the 2023 Permit:

Dissolved oxygen	Phosphorus as P	pH
Orthophosphorus as P	Temperature	Ammonia as N
Specific conductance	Nitrite + Nitrate as N	Turbidity
Copper	*E. coli*	Lead
Hardness	Zinc	Total organic carbon
Mercury	Total suspended solids	

The metals were analyzed as total recoverable and dissolved. Each site was monitored for non-metal parameters between six and 26 times between July 2025 and June 2026; copper, lead, and zinc were monitored at least quarterly, and mercury was monitored twice yearly. All sites were monitored three or more times each in the wet and dry seasons.

A description of the ambient monitoring activities and statistical summaries of the data are in Appendices B and C. Ambient monitoring data conform to DEQ's Electronic Data Delivery format and will be submitted in DEQ's Your DEQ Online reporting system as an attachment to this annual report.

TMDL Assessment

Appendix D presents information about the pollutants regulated under a Tualatin subbasin TMDL — phosphorus, chlorophyll a, dissolved oxygen, temperature, bacteria, and mercury. Appendix D also provides general information on Tualatin River mainstem and tributary conditions during 2025.

6. Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments (Also listed in the Permit as requirement #9).

CWS is not proposing any modifications to the Stormwater Monitoring Plan.

7. A summary describing the number and nature of enforcement actions, inspections, and public education programs, including, but not limited to, the results of ongoing field screening and follow-up activities related to illicit discharges.

In implementing the MS4 program, CWS and co-implementers undertake a range of enforcement actions, conduct numerous inspections, and provide a variety of public education programs. These actions are part of programs for construction site stormwater, industrial stormwater, and public education.

Construction Site Stormwater

To ensure compliance with erosion control permits and rules, CWS and co-implementers issued 306 Deficiency Notices and 72 Stop Work Orders to operators of site developments, single lot developments, and unpermitted sites during the 2025-2026 reporting year. For each Deficiency Notice and Stop Work Order issued, inspection staff followed the Construction Site Runoff Inspection Guidance and implemented the escalating enforcement protocol to bring sites back into compliance. No civil citations

were issued. In addition, 1,527 initial inspections, 17,333 regular inspections, and 1,834 final inspections of construction sites were completed and 1,051 wet-weather notices were sent to developers, contractors, engineers, and owners before the wet-weather period in fall 2025. Details on these actions are included in the BMP Fact Sheet: Construction Site Runoff Control, in Appendix A.

Industrial Stormwater

CWS uses technical assistance to achieve voluntary compliance. When compliance cannot be resolved through voluntary means, CWS refers violations of the 1200-Z and unpermitted sites to DEQ for evaluation of whether formal enforcement action is appropriate. CWS follows DEQ's *Enforcement Guidance for Field Staff* to evaluate compliance issues and select appropriate responses. During the 2025-2026 reporting year, CWS continued implementing an accepted change to the approved SWMP that allows prioritizing annual compliance inspections. Public education elements are incorporated into the Industrial Stormwater program by providing technical assistance to permittees as needed.

CWS inspected 16 of the 69 facilities permitted under the 1200-Z industrial stormwater general permit over the 2025-2026 reporting year, consistent with the 20% permitted facility inspection metric, and referred three cases to DEQ for evaluation of whether formal enforcement action is appropriate.

Private Water Quality Facilities Management Program

CWS and co-implementers carry out the Private Water Quality Facilities Management program under the approved CWS SWMP. The program includes inspecting all facilities maintained by private property owners, including residential, commercial, industrial, and industrial sites with either a No Exposure Certification or 1200-Z industrial stormwater permit.

CWS and co-implementer inspectors rate private water quality facilities on a scale of 1 (excellent) through 5 (very poor). Facilities rated 1 through 3 are considered to require continued routine maintenance; facilities rated 4 and 5 require increased maintenance or work beyond routine maintenance. When the inspection is complete, the inspector provides the owner with the results of the inspection, including a description of suggested improvements for facilities rated 1 through 3, and required maintenance for facilities rated 4 and 5. CWS or a co-implementer will work with the owners of facilities rated 4 and 5 until the facility condition rating is 3 or better. The goal is to ensure that the facilities are maintained and operated appropriately. CWS and co-implementers have a performance standard to inspect 25% of the private water quality facilities within their respective areas of responsibility each year. During the 2025-2026 reporting year, CWS and co-implementers exceeded the performance standard, inspecting 1,451 of 4,026 private water quality facilities, or 36%. Details on the program are included in BMP Fact Sheet: Stormwater Management Facilities Operations and Maintenance Activities in Appendix A.

Public Education

CWS and co-implementers provided public education programs and materials to foster water quality protection, including the *Gardening with Native Plants* poster and the

Tualatin River Rangers program. CWS' programs and materials teach proper disposal of hazardous wastes, water-friendly and chemical-free gardening and car washing, pet waste cleanup, and riparian protection. In addition, CWS provided storm drain markers to volunteers to deter illicit discharges and published information about littering, illegal dumping, and water quality on its website, the *Clean Water Connection* electronic newsletter, and city newsletters. Additional information regarding CWS' public education activities is included in the BMP Fact Sheet: Education and Outreach in Appendix A.

CWS continued to promote a slow-release fertilizer, Clean Water Grow®, for retail purchase as a stream-friendly alternative to fast-release fertilizers. The fertilizer contains phosphorus recovered at CWS' water resource recovery facilities.

Ongoing Field Screening of Illicit Discharges

CWS follows the protocol outlined in the *Illicit Discharge Detection and Elimination Program Description* in inspecting stormwater outfalls for illicit discharges during dry weather. All inspections are performed by CWS Field Operations, generally in July, August, and September when groundwater levels are lowest. Inspectors make visual observations, noting flow, turbidity, oil sheen, trash, and other indicators of nonstormwater discharges. If observations suggest the presence of an illicit discharge and the source is unknown, staff from CWS Environmental Services investigate further. This year, Field Operations inspected 55 stormwater outfalls and found no suspected illicit discharges. Of the 55 outfalls, 25 were dry. There were no physical indicators at the 30 that had base groundwater flow, so they were not deemed to be illicit discharges.

8. A list of entities referred to DEQ for possible 1200-Z NPDES general permit coverage based on permittee screening activities, a list of categories of facilities inspected, and an overview of the results of inspections of commercial and industrial facilities.

Industrial Stormwater

CWS acts as an Agent for DEQ for the 1200-Z permit. Industries that have a Standard Industrial Classification (SIC) code identified in the 1200-Z permit requiring industrial stormwater permit coverage but have no outdoor exposure may apply for a No Exposure Certification (NEC). NECs are inspected every 5 years to ensure compliance with the no exposure designation. After observing exposure to stormwater during routine inspections, the following four industries were referred to DEQ for 1200-Z permitting: Inserta Fittings, Reser's Fine Foods – Century Blvd, Rinchem - Cornelius, and Treske Precision Machining. A comprehensive review of industries located in CWS' electronic industrial database has identified multiple industries that did not have stormwater permitting coverage but possess a SIC code included in the 1200-Z permit. Staff prioritized the industries for inspection based on exposure observed through aerial imagery. During the permit year, nine industries were inspected to determine necessary stormwater coverage, two were directed to apply for a 1200-Z permit, two qualified for an NEC, and five re-evaluated their SIC code and no longer require industrial stormwater permit coverage. CWS did perform a screening exercise with our co-implementors this permit year which identified additional industries to be inspected for stormwater permit coverage. Those

industries have been prioritized for inspection by reviewing applicable SIC codes, size of the site, and age of site development.

Commercial Stormwater

EcoBiz Program

CWS' support of the EcoBiz program is being replaced with a robust internal commercial stormwater program. CWS is supporting businesses in Washington County that request EcoBiz recertification, but is not actively involved in engaging new certifications. This fiscal year, CWS recertified one landscaping business.

CWS Commercial Stormwater Program

CWS is conducting a full-scale, data-driven investigation into emerging contaminants within its jurisdiction. To understand potential sources of PFAS from commercial entities into CWS' stormwater conveyance system, CWS is routinely sampling commercial sectors with high PFAS discharge potential, as identified in a literature review documented in Appendix A of CWS' Industrial and Commercial Facilities Stormwater Strategy. Priority sectors for stormwater sampling include the automotive, autobody, landscaping, carpet cleaning, and aviation sectors. Sampling of these sectors was conducted in FY25 and FY26.

To mitigate the sources of PFAS entering CWS' stormwater conveyance system, CWS is developing outreach materials for distribution to commercial and industrial businesses. The first phase of outreach materials was drafted in June 2025. These outreach materials provide businesses with a high-level introduction to PFAS, including where PFAS can be found, the importance of mitigation, and opportunities for mitigation. The next phase for outreach is underway and includes sampling commercial sanitary and stormwater, identifying high-priority sectors based on CWS' sampling results, and developing technical assistance checklists for high-priority sectors. Once these actions are complete, CWS plans to visit sites in the high-priority sectors to distribute outreach materials and technical assistance documents.

9. Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.

See Requirement #6.

10. An overview, as related to MS4 discharges, of concept planning, land use changes and new development activities (including the number of post-construction permits issued) that occurred within the Urban Growth Boundary (UGB) expansion areas during the reporting year, and those forecasted for the following year, where such data is available.

During this reporting period there was no expansion of the UGB within the MS4 area. During the 2026-2027 reporting year, the City of Sherwood will continue several years of more detailed planning for an expansion area approved by Metro in reporting year 2024-2025, including, among other things, utility needs and locations, stormwater management, and land-use planning. The current UGB is included in Figure 1 of the Executive Summary and Figure E-2, Clean Water Services MS4 Boundary with Urban Reserves and UGB Expansion, in Appendix E.

Four annexations, totaling just over 14 acres, were made to CWS' service area during the reporting period. There were no de-annexations. These are detailed in Appendix E, Table E-2, Details of Clean Water Services Annexations, and shown in Figure E-3, Clean Water Services FY 2025-26 Annexations, in Appendix E. These annexations allowed properties to be served by urban sanitary sewer and stormwater drainage systems.

During the 2025-2026 reporting year, several cities continued their local planning efforts. The City of Tigard continued comprehensive planning for the River Terrace South and West areas and is expected to complete the planning by the end of calendar year 2026. King City continues to permit development activities in Kingston Terrace, and CWS is working internally and with partners to begin additional planning and implementation of the regional stormwater concept plan for Kingston Terrace. The City of Sherwood paused further planning for Sherwood West due to pending litigation, however, toward the end of the 2025-2026 reporting year, Sherwood engaged CWS and other partners with their intent to begin planning the following reporting year. These planning efforts will likely extend over the next 2-3 years.

Details of planning activities related to expansion activities are included in Table E-1, Co-Implementer Long-Range Planning Activities for Expansion Areas, and Figure E-2, Clean Water Services MS4 Boundary with Urban Reserves and UGB Expansion, in Appendix E.

11. A summary of the new development/redevelopment projects and related stormwater management activities that occurred within the MS4 jurisdictional area during the reporting year. The number of new post-construction permits issued and an estimate of the total new and replaced impervious surface area related to development projects that commenced during the reporting year must also be included.

Development and redevelopment projects in CWS' jurisdiction are subject to CWS' Design and Construction Standards, which impose requirements for permitting, stormwater conveyance system design and construction, erosion prevention, sediment control and pollutant discharge during construction, and post-construction stormwater runoff treatment and flow control. During the 2025-2026 reporting year, CWS initiated a project to revise the post-construction stormwater runoff control requirements in the Design and Construction Standards to comply with 2023 Permit. The revisions focus on updating sections of Chapter 4 (Runoff and Treatment Control) to prioritize onsite or local/regional stormwater retention and pollutant removal, including developing a new water quality design storm to maximize onsite retention, and prioritizing green stormwater infrastructure over hardscape structural controls. The project includes a robust stakeholder engagement process that involves the co-implementers, environmental, developer, and business interests, and community members. The revisions were adopted by the CWS Board of Directors in October 2026, meeting the 2023 Permit deadline of November 1, 2026.

Development continued throughout CWS' service area, with several large residential subdivisions and other major construction projects underway. Stormwater management activities related to development and redevelopment projects included review and approval of development plans (including erosion control and post-construction),

inspection during construction of stormwater treatment and flow management facilities and conveyance systems, and inspection of runoff control during construction. Details on these activities can be found in the BMP fact sheets on Construction Site Runoff Control and Post-Construction Site Runoff and Retrofit Programs in Appendix A. Table AR-1 provides the number of construction permits issued during the 2025-2026 reporting year that included requirements for post-construction stormwater management approaches and an estimate of the impervious area that was permitted for addition or replacement.

Table AR-1: Post-construction Permits and Impervious Area Added and Replaced

Jurisdiction	*New Post-Construction Permits Issued*	*New Impervious Area, Acres*	*Replaced Impervious Area, Acres*
Clean Water Services	78	12.63	6.83
Beaverton	18	11.45	16.24
Cornelius	4	5.21	0.00
Forest Grove	8	20.90	0.89
Hillsboro	17	76.60	4.54
Sherwood	1	0.78	0.00
Tigard	22	12.70	1.90
Tualatin	6	4.00	5.20
TOTAL	**154**	**144.27**	**35.60**

12. Status or results, or both, of any public education program effectiveness evaluation conducted during the reporting year and summary of how the results were or will be used for adaptive management.

CWS generally conducts a residential Customer Awareness and Satisfaction survey every other year to track service-area customer expectations, values, and CWS performance against those values. The last survey was conducted in 2025, and CWS is analyzing the results. Relevant results and potential adaptive management will be reported in BMP Fact Sheet: Education and Outreach in Appendix A once analysis is complete.

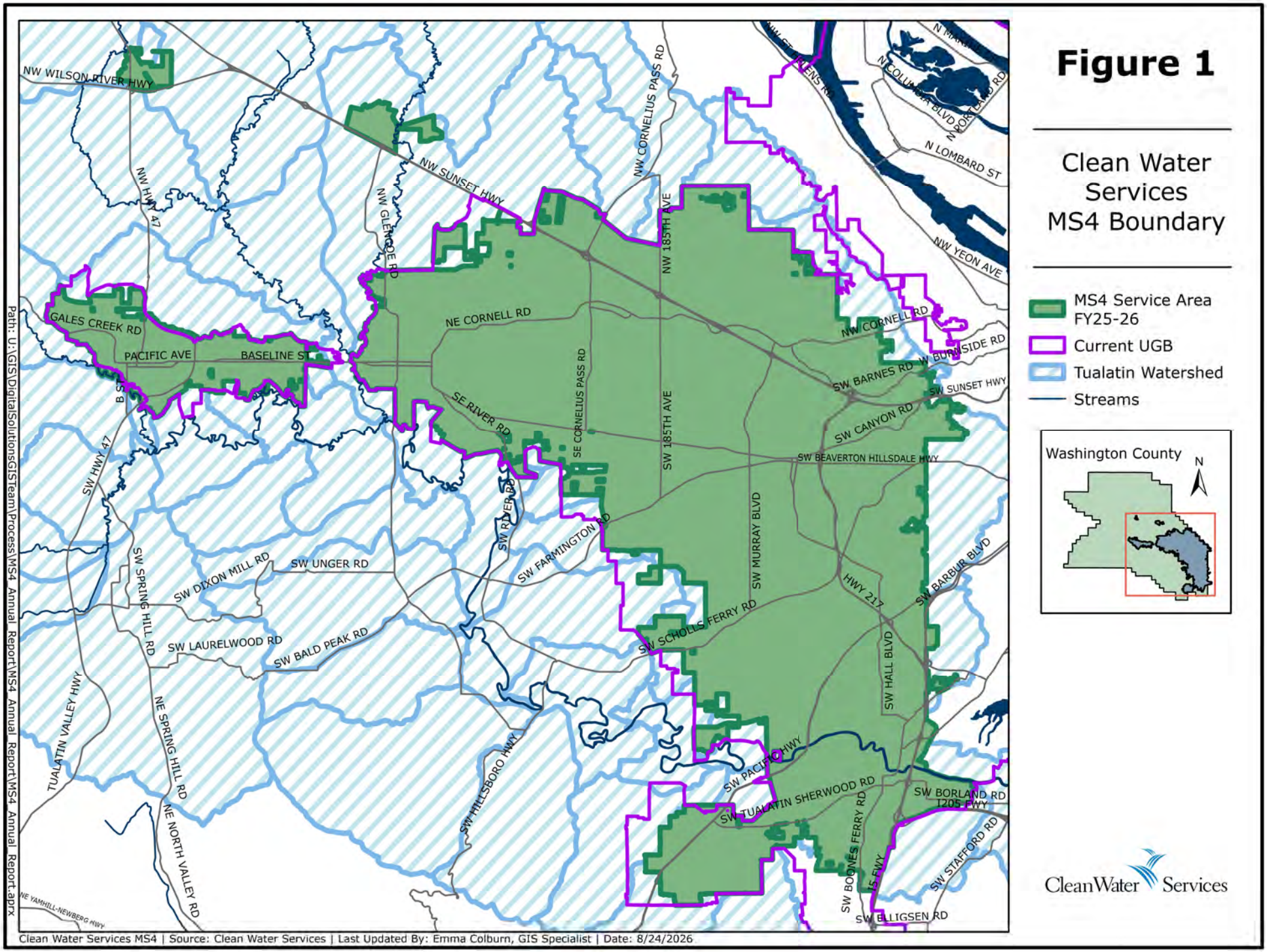
CWS applied the Logic Model to the Tualatin River Rangers program this year. In-person River Ranger presentations continued for the 2025-26 school year, and CWS continued to provide virtual resources produced during distance learning. Detailed results of the Logic Model application and the potential for using those results in adaptive management are included in the BMP Fact Sheet: Education and Outreach in Appendix A.

13. The details of all corrective actions implemented associated with Schedule A.14.a.ii during the reporting year.

A description of the actions taken by CWS during the 2025-2026 reporting year are described in Appendix B.

ADDITIONAL REPORTING REQUIREMENT

The approved SWMP includes language requiring CWS to include a summary report of the status of the retrofit program in each annual report. On April 22, 2019, CWS submitted its Stormwater Retrofit Program Plan. As required by the 2023 Permit, CWS submitted an update of the Stormwater Retrofit Program Plan to DEQ as part of the Stormwater Annual Report submitted by November 1, 2025. CWS continues to implement the retrofit program, following identified priorities to guide project selection. As described in the BMP Fact Sheet: Pollution Prevention for Municipal Operations, in Appendix A, two outfall retrofit projects were completed by City of Hillsboro and the City of Sherwood. The City of Hillsboro has one retrofit project in the design phase. To date, seven outfall retrofits have been completed during the 2023 Permit term (January 1, 2023, through November 30, 2027). In addition, CWS and co-implementers retrofitted or reconstructed 73 catch basins for water quality in Fiscal Year 2025-2026. To date, 379 catch basins have been retrofitted during the 2023 Permit term.


Figure 1
Clean Water Services MS4 Boundary
MS4 Service Area FY25-26
Current UGB
Tualatin Watershed
Streams
Washington County
N
NW WILSON RIVER HWY
NW SUNSET HWY
NW HWY 47
NW GLENCOE RD
NW CORNELIUS PASS RD
NW 185TH AVE
NW LOMBARD ST
NW YEON AVE
GALES CREEK RD
PACIFIC AVE
BASELINE ST
B ST
NE CORNELL RD
NW CORNELL RD
W BURNSIDE RD
SW BARNES RD
SW SUNSET HWY
SE RIVER RD
SE CORNELIUS PASS RD
SW 185TH AVE
SW CANYON RD
SW BEAVERTON HILLSDALE HWY
SW HWY 47
SW RIVER RD
SW FARMINGTON RD
SW MURRAY BLVD
SW BARBUR BLVD
HWY 217
SW DIXON MILL RD
SW UNGER RD
SW SPRING HILL RD
SW SCHOLLS FERRY RD
SW HALL BLVD
SW LAUREL WOOD RD
SW BALD PEAK RD
TUALATIN VALLEY HWY
NE SPRING HILL RD
NE NORTH VALLEY RD
SW HILLSBORO HWY
SW PACIFIC HWY
SW TUALATIN SHERWOOD RD
SW BORLAND RD
I205 FWY
SW BOONES FERRY RD
I5 FWY
SW STAFFORD RD
SW ELLIGSEN RD
NE YAMHILL-NEWBERG HWY
Clean Water Services
Path: U:\GIS\DigitalSolutionsGISTeam\Process\MS4 Annual Report\MS4 Annual Report\MS4 Annual Report.aprx
Clean Water Services MS4 | Source: Clean Water Services | Last Updated By: Emma Colburn, GIS Specialist | Date: 8/24/2026

Appendix A: BMP Fact Sheets

Illicit Discharge Detection and Elimination A-1

Industrial and Commercial Facilities A-6

Construction Site Runoff Control A-9

Education and Outreach A-14

Public Involvement and Participation A-21

Post-Construction Site Runoff and Retrofit Programs A-23

Pollution Prevention for Municipal Operations A-28

Stormwater Management Facilities Operation
and Maintenance Activities A-38

BMP Fact Sheet: Illicit Discharge Detection and Elimination

INTRODUCTION

The CWS Illicit Discharge Detection and Elimination (IDDE) program includes activities to prevent, detect, characterize, trace, and eliminate unpermitted discharges of pollutants to the MS4. These activities include inspecting permitted industrial facilities and construction sites, making observations during routine maintenance of MS4 facilities, annually inspecting dry weather outfalls, facilitating public reporting of spills and illicit discharges, and taking action to eliminate reported illicit discharges.

MEASURABLE GOALS AND TRACKING MEASURES

1. Illicit Discharges, Including Sanitary Cross Connections and Accidental Spills

a. Goal: Respond to reports of illicit discharges. Abate identified illicit discharges.

- Tracking measure: Annual number of illicit discharges reported to CWS/co-implementers by the public and illicit discharges identified through routine MS4 work.
- Tracking measure: Annual number of CWS/co-implementer field investigations and other follow-up actions in response to reports.
- Tracking measure: Number of ongoing illicit discharges identified and number abated by the CWS/co-implementers.
- Tracking measure: Number of cross connections identified and number abated.

These tracking measures are reported in Table IDDE-1a(1) and Table IDDE-1a(2). Data from the two sanitary-to-storm cross connections are included in both tables. Most of the illicit discharges were one-time events, including accidental spills and illegal disposal, rather than continuous or recurring discharges. In addition to the discharges reported in the tables, CWS and co-implementers had 20 sanitary sewer overflows (SSOs) during the reporting year; four reached the MS4. Response to these SSOs was consistent with CWS' *Sanitary Sewer Overflow Response Plan* and the Permit requirements for telephone and written reporting to DEQ. The discharges reported in Table IDDE-1a(1) do not include those at construction sites.

Table IDDE-1a(1): Illicit Discharge (ID) Reports and Response					
Jurisdiction	*IDs Reported by the Public*	*IDs Identified During Routine MS4 Work or Referred by Other Agencies*	*Field Investigation or Other Response Actions*	*Recurring or Continuous IDs Found*	*Recurring or Continuous IDs Abated*
CWS	13	14	21	8	8
Beaverton	0	0	1	0	0
Cornelius	1	0	1	0	0
Forest Grove	1	1	1	0	0
Hillsboro	3	8	8	2	2
Sherwood	0	0	0	0	0
Tigard	6	4	6	3	3
Tualatin	2	2	3	0	0
Total	**26**	**29**	**41**	**13**	**13**

Table IDDE-1a(2): Cross Connections Found and Abated		
Jurisdiction	*Cross Connections Found*	*Cross Connections Abated*
CWS	2	2
Beaverton	0	0
Cornelius	0	0
Forest Grove	0	0
Hillsboro	0	0
Sherwood	0	0
Tigard	0	0
Tualatin	0	0
Total	**2**	**2**

b. **Goal:** Respond to illicit discharges according to the CWS IDDE program guidance.

- Tracking measure: Number and type of enforcement responses taken to abate illicit discharges.

Table IDDE-1b: Illicit Discharge Actions	
Type of Action	*Number*
Education (includes informal direction to cease a discharge)	29
Warning letter	4
Abatement order	1
Referral to code enforcement	9
Referral to DEQ	1
Referral to county health department	2
Referral to CWS (by a city or DEQ)	7

In cases where the responsible party is not clearly identified (such as unobserved disposal to a catch basin), educational materials on proper waste discharge are distributed in the area. No enforcement action is taken in cases of accidental spills that are not due to negligence. Some incidents required multiple types of enforcement responses.

2. Dry Weather Field Screening

a. **Goal:** Conduct annual dry weather illicit discharge inspections at 55 identified priority locations.

- Tracking measure: Number of priority locations inspected annually.

b. **Goal:** Conduct investigations of suspected illicit discharges. Abate illicit discharges identified through dry weather screening.

- Tracking measure: Number of suspected illicit discharges identified through dry weather screening and follow-up investigations conducted.
- Tracking measure: Number of illicit discharges confirmed and abated through dry weather screening.

Table IDDE-2: Dry Weather Field Screening	
Action	*Number*
Priority locations inspected	55
Suspected illicit discharges identified	0
Follow-up investigations	0
Illicit discharges confirmed	0
Illicit discharges abated	0

c. **Goal:** Annually review and maintain a map of priority locations for dry weather field screening.

- Tracking measure: Changes, and rationale for changes, to priority locations.

CWS continues to inspect priority outfall locations at least once per five-year permit cycle. In 2024, CWS revised the criteria applied to determine priority locations for dry weather outfall inspections in accordance with the 2022 Permit. Previously, the focus had been on significant outfalls. As of 2024, the criteria were updated to focus on multiple priorities. First were areas where less than 50 percent of the catchment area receives treatment from water quality manholes or water quality facilities. Generally, areas that do not include stormwater treatment are areas containing older infrastructure. The land use type and drainage area size associated with the stormwater discharged from the outfall were additional factors included in the selection process for the priority outfalls. Industrial and commercial land uses are of the greatest concern for the discharge of industrial contamination into the MS4. Priority is given to outfalls serving an industrial or commercial drainage area equal to or greater than three acres. Land-use areas zoned as residential and mixed-use areas that are equal to or greater than 10 acres will also be prioritized for inspection. This prioritization process generated 275 outfall locations to be inspected once every five-year permit cycle; a list is maintained in the CWS GIS database. During the summer of 2025, CWS continued to work through the list of priority outfalls. More information regarding the dry weather outfall inspection prioritization can be found in CWS' *IDDE Program Description* document.

3. Annual Training

a. **Goal:** Provide annual training for all co-implementer staff who clean and inspect MS4 components where signs of illicit discharges and connections could be observed. The training will cover identification of illicit discharges and connections and proper responses for reporting and responding to them.

- Tracking measure: Number of co-implementer staff attending annual training.

CWS provided training in illicit discharge recognition, response, and reporting as part of the annual wet weather training for CWS and co-implementer staff members involved in various aspects of stormwater management. The recorded training was offered on demand online during the 2025-2026 reporting year.

RELATIONSHIP TO TMDLs

Bacteria: This BMP will reduce the human-related sources of bacteria by identifying and removing any cross-connections or other illicit discharges of bacteria-contaminated water into the MS4.

Phosphorus: This BMP will reduce the discharge of organic matter into the MS4, which will result in the reduction of phosphorus.

Settleable Volatile Solids: This BMP will reduce the discharge of organic matter into the MS4 and into the streams directly, which will result in the reduction of sediment oxygen demand.

Mercury: This BMP will reduce the number of illicit discharges that may contain sources of mercury contamination from the MS4 system. This BMP includes accidental and intentional discharges of waste to the MS4, sanitary-to-storm cross connections, and discharges from industrial facilities and construction sites.

RELATED DOCUMENTS

- IDDE Program Description (2024)
- CWS Sanitary Sewer Overflow Response Plan (2010)

BMP Fact Sheet: Industrial and Commercial Facilities

INTRODUCTION

The purpose of this BMP category is to reduce the discharge of pollutants from the MS4 by regulating select industrial and commercial facilities that discharge to the MS4. CWS' industrial stormwater program operates under a Memorandum of Agreement with DEQ to regulate facilities requiring the NPDES 1200-Z stormwater general permit. This BMP is accomplished by identifying facilities subject to industrial permitting requirements, reviewing permit applications and No Exposure Certifications and stormwater pollution control plans, conducting inspections, reviewing discharge monitoring data, providing technical assistance, and coordinating with DEQ on enforcement matters. In addition, CWS responds to site-specific information on commercial and industrial facilities that may discharge a significant pollutant load to the MS4.

MEASURABLE GOALS AND TRACKING MEASURES

1.a. **Goal:** Identify industrial facilities that need a 1200-Z stormwater general permit.

- Tracking measure: Number of newly permitted 1200-Z facilities in the service area.

  CWS is phasing out the Sewer Use Information Card system to survey its service area for new 1200-Z facilities and is now primarily using a New Industrial Users Questionnaire form on CWS' public website. There were 69 1200-Z permitted facilities at the end of the reporting year. Two new facilities obtained a 1200-Z permit, and two facilities submitted a Notice of Termination to terminate their permit during the reporting year.

b.(1) **Goal:** Conduct all of the 1200-Z facility inspections scheduled for the reporting year in the service area.

- Tracking measure: Number of 1200-Z permitted facility inspections scheduled for the reporting year; number of scheduled 1200-Z facility inspections conducted during the reporting year.

  CWS inspected 16 of 69 unique facilities this year, or 23%, exceeding the target of inspecting 20 percent of permitted facilities each year, regardless of risk or priority. This total included two facilities identified through a prioritization matrix as having a relatively higher risk of discharges of pollutants or compliance issues. Three of the facilities had received 1200-Z permit coverage within the previous 18 months.

b.(2) **Goal:** Inspect 20 percent of 1200-Z permitted facilities annually during permit administrative extension.

- Tracking measure: Total number of 1200-Z permitted facilities; number inspected.

  The 1200-Z permit effective July 1, 2021, expired June 30, 2026. Throughout the five years of the 2021 permit term, CWS inspected 100 percent of the 1200-Z permitted facilities. CWS inspected 16 of 69 1200-Z permitted facilities this reporting year, exceeding the target of inspecting 20 percent. DEQ renewed the 1200-Z permit effective July 1, 2026.

c. **Goal:** Provide technical assistance if requested by owner/operator of a facility.

- Tracking measure: Number of technical assistance inspections performed in response to owner/operator requests.

  CWS performed six technical assistance inspections at 1200-Z permitted sites this reporting year.

d. **Goal:** Issue "No Exposure" certifications to facilities that are determined to meet DEQ qualifying criteria.

- Tracking measure: Number of "No Exposure" certifications issued.

  No Exposure Certifications (NECs) are issued to facilities that would otherwise require a 1200-Z permit but are requesting conditional exclusion by demonstrating that stormwater is not exposed to pollutants from industrial processes at the facility.

  - Total NECs in service area 171
  - NECs reissued (five-year issuance period) 26
  - NEC reissuance denied 4
  - Newly issued NECs 2
  - Identified sites to be evaluated for a NEC 39
  - Former 1200-Z facilities that converted to NEC 2

e. **Goal:** Review monitoring reports from all 1200-Z facilities.

- Tracking measure: Number of monitoring reports submitted and number reviewed.

  The 1200-Z permit that DEQ reissued July 1, 2021, requires quarterly monitoring reporting. CWS received and reviewed 286 quarterly Discharge Monitoring Reports for the 2025-26 reporting year. CWS reviewed all reports submitted by permittees. Eight permittees failed to submit reports on time and received warning letters for the late reports.

f. **Goal:** Identify facilities subject to section 313 of SARA Title III and not already covered by 1200-Z or other stormwater discharge permit and determine their potential to contribute a substantial pollutant loading to the MS4.

- Tracking measure: Number of unpermitted facilities identified through the annual review of the toxic release inventory (TRI).
- Tracking measure: Number of unpermitted facilities identified through the TRI review that were inspected, number determined to have potential to discharge a substantial pollutant loading, action taken.

  The most recent TRI data available are from the 2024 reporting year (released November 2025). CWS reviewed the TRI on August 17, 2026. Of the facilities listed in Washington County, 36 industries are located within the CWS MS4 service area. One site on the list was identified as needing to be evaluated for potential stormwater discharges. Of the remaining 35 industries, 13 have 1200-Z permits, two have 1200-A permits, 16 have No Exposure Certifications, one is a state Superfund site under DEQ oversight, one is being managed as part of the commercial stormwater program, and two have been referred to DEQ for permitting non-compliance.

g. **Goal:** Reduce pollutants in stormwater discharges from facilities other than those with SIC codes requiring 1200-Z general permit coverage.

- Tracking measure: Number of facilities (other than those with 1200-Z-qualifying SIC codes) in our MS4 service area where site-specific information leads to a facility inspection, number of facilities determined to be contributing a significant pollutant load to the MS4, action taken.

  CWS forwarded a facility to DEQ to determine applicability of permitting it under the 1200-Z permit in April 2026. The industry does not have a primary SIC code included for coverage in the 1200-Z permit, however, the site is discharging stormwater from a lined pond into a wetland complex. The site constructed a new building in 2025-26 and continued to expand its industrial practices and footprint.

  CWS inspected one facility in June 2026, after reviewing its industrial survey response, that does not have a qualifying SIC code for a 1200-Z permit. The facility conducts hydroexcavation and deposits the collected soil and water from this activity onto a paved, sloped, uncovered concrete pad on its site. The soil and water then comingle with stormwater. Therefore, the industrial wastewater and stormwater are comingling upon discharge to the stormwater system. CWS referred the industry to DEQ in August 2026 for permitting non-compliance.

RELATIONSHIP TO TMDLs

Implementing this BMP and the 1200-Z permitting program reduces the potential discharge of all the TMDL parameters.

RELATED DOCUMENTS

- Memorandum of Agreement with DEQ to implement the 1200-Z program (2009)

BMP Fact Sheet: Construction Site Runoff Control

INTRODUCTION

This BMP category requires the use of erosion prevention and sediment control BMPs and the prevention or control of the discharge of construction-related waste to reduce the discharge of pollutants to the MS4 from construction activities. CWS acts as DEQ's agent for the administration of the 1200-CN and 1200-C general permits and implements its own local program.

MEASURABLE GOALS AND TRACKING MEASURES

1. Erosion Prevention and Sediment Control (EPSC) Inspection and Enforcement

a. Goal: Conduct initial, regular, and final inspections for all active site development projects.

- Tracking measure: Annual number of site development inspections – initial, regular, and final.

Table CSRC-1a: Annual Number of Site Development Inspections

Jurisdiction	*Initial Inspections*	*Regular Inspections*	*Final Inspections*	***Total Inspections***
Clean Water Services	57	2,434	38	**2,529**
Beaverton	16	1,378	16	**1,410**
Cornelius	6	264	3	**273**
Forest Grove	18	1,052	15	**1,085**
Hillsboro	40	2,909	35	**2,984**
Sherwood	3	857	6	**866**
Tigard	16	494	14	**524**
Tualatin	11	310	12	**333**
Total	**167**	**9,698**	**139**	**10,004**

b. **Goal:** Conduct initial, regular, and final inspections for all active single lot construction sites.

- Tracking measure: Annual number of single lot construction inspections – initial, regular, and final.

Table CSRC-1b: Annual Number of Single Lot Construction Inspections

Jurisdiction	*Initial Inspections*	*Regular Inspections*	*Final Inspections*	***Total Inspections***
Clean Water Services	383	2,968	448	**3,799**
Beaverton	248	742	307	**1,297**
Cornelius	65	323	70	**458**
Forest Grove	101	363	120	**584**
Hillsboro	254	1660	395	**2,309**
Sherwood	0	141	29	**170**
Tigard	185	946	174	**1,305**
Tualatin	124	492	152	**768**
Total	**1,360**	**7,635**	**1,695**	**10,690**

c. **Goal:** Implement an escalating enforcement system, which may include written warnings (e.g., Deficiency Notices or similar action), Stop Work Orders, and Civil Citations.

- Tracking measure: Annual number of enforcement actions – written warnings (e.g., Deficiency Notices or similar action), Stop Work Orders, and Civil Citations.

Table CSRC-1c: Annual Number of Enforcement Actions

Jurisdiction	*Deficiency Notices*	*Stop Work Orders*	*Civil Citations*
Site Development			
Clean Water Services	46	9	0
Beaverton	4	6	0
Cornelius	0	0	0
Forest Grove	13	1	0
Hillsboro	13	2	0
Sherwood	23	5	0
Tigard	10	3	0
Tualatin	1	0	0
Subtotal Site Development	**110**	**26**	**0**
Single Lot			
Clean Water Services	43	14	0
Beaverton	11	5	0
Cornelius	0	0	0
Forest Grove	0	0	0
Hillsboro	0	0	0
Sherwood	0	0	0
Tigard	32	1	0
Tualatin	0	0	0
Subtotal Single Lot	**86**	**20**	**0**
Total Enforcement Actions	**196**	**46**	**0**

2. Training and Outreach

a. **Goal:** Provide annual inspector training on erosion control techniques and enforcement measures for continuing education. Except for inspectors who have active EPSC certification that includes a continuing education requirement, require all erosion control inspectors to attend annual training on erosion control techniques.

- Tracking measure: Number of noncertified inspectors and number attending annual EPSC training.
- Tracking measure: Number of inspectors with active EPSC certification.

Table CSRC-2a: EPSC Training for Inspectors

Jurisdiction	*Noncertified Inspectors*	*Noncertified Inspectors Attending EPSC Training*	*Certified Inspectors*[1]
Clean Water Services	0	4	15
Beaverton	3	3	2
Cornelius	0	0	1
Forest Grove	4	4	3
Hillsboro	2	2	4
Sherwood	1	1	2
Tigard2	0	0	0
Tualatin2	0	0	1
Total	**10**	**14**	**28**

Note: Certified inspectors have professional training requirements and do not require annual EPSC training.

[1] The number of inspectors in this column is the number at the beginning of the reporting year.

[2] Clean Water Services performs erosion control inspections in Tigard and Tualatin; therefore, those cities' inspectors are not required to attend training.

- Tracking measure: List of annual training sessions conducted and participating agencies.

  Annual erosion control training was held June 3, 2026; 45 people from CWS and co-implementers attended. Some inspectors attended who were interested in a refresher class on the CWS local erosion control regulation; others were required to attend because they didn't have a certification.

b. **Goal:** Provide annual notification of wet-weather requirements to active site development (i.e., not single family home construction) permit holders.

- Tracking measure: Number of site development permits active at the time when wet-weather notices are issued; annual number of wet-weather notices issued.

As shown in Table CSRC-2b, CWS and co-implementers notify multiple parties associated with each active site development permit (owner, developer, engineer, contractors). Each co-implementer determines which parties to notify, resulting in different numbers of notices being sent per site.

Table CSRC-2b: Annual Number of Wet-Weather Notices Issued

Jurisdiction	*Active Site Development Permits*	*Wet-Weather Notices Issued*
Clean Water Services / Washington County	77	154
Beaverton	30	60
Cornelius	5	10
Forest Grove	21	70
Hillsboro	69	483
Sherwood	24	162
Tigard	20	40
Tualatin	43	92
Total	**289**	**1,071**

RELATIONSHIP TO TMDLs

Phosphorus: CWS' Construction Site Runoff Control program was established under the Tualatin Basin Rule (OAR 340-041-0345(4)) to meet the phosphorus allocations in the 1988 Tualatin TMDL.

Settleable Volatile Solids: Erosion prevention and sediment control BMPs significantly reduce the discharge of organic matter associated with soil erosion. Organic matter can result in increased sediment oxygen demand in the receiving waters.

Mercury: Erosion prevention and sediment control BMPs can significantly reduce the discharge of sediments or spills that could transport sources of mercury contamination into receiving waters.

RELATED DOCUMENTS

- Design and Construction Standards for Sanitary Sewer and Surface Water Management, Chapter 6 (2019)
- Erosion Prevention and Sediment Control Planning and Design Manual (2020)
- Construction Site Runoff Inspection Guidance (2023)

BMP Fact Sheet: Education and Outreach

INTRODUCTION

The purpose of the Education and Outreach BMP category is to inform and educate the public, businesses, industries, and government about the causes of stormwater pollution, the effects on local streams and rivers, and to promote stewardship of water resources. These BMPs encourage behavior change and participation that will reduce the discharge of pollutants from the MS4. CWS updated its *Strategic Communications Plan*, now known as the *Strategic Communications Guide*, in 2026.

MEASURABLE GOALS AND TRACKING MEASURES

1. Education and Outreach Strategy

a. **Goal:** Following the CWS *Strategic Communications Plan*, educate the public on stormwater quality issues including the impacts of stormwater discharges and the actions the public can take to reduce pollutants in stormwater, the proper use and disposal of pesticides, and information for reporting illicit discharges. CWS will publish 12 monthly electronic newsletters per year and place inserts in customer bills five times per year covering one or more of these topics.

- Tracking measure: Summarize activities and participation on an annual basis, including the number of electronic newsletters published and billing inserts mailed during the year.

  CWS emailed and mailed six messages to 67,430 customers with their customer bill during the reporting year. These messages focused on watershed protection and enhancement, proper disposal practices, and reporting information for illicit discharges and water quality impacts. CWS sent 12 monthly *Clean Water Connection* e-newsletters to 4,012 subscribers. The e-newsletters contained articles on watershed protection and enhancement, proper disposal practices, and reporting information for illicit discharges and water quality impacts.

b. **Goal:** Following the CWS *Strategic Communications Plan*, carry out campaigns designed to change the behavior of the intended audience relevant to reducing stormwater pollution.

- Tracking measure: Annually track outreach campaigns being conducted and the intended audiences and behaviors targeted through those campaigns.

  CWS posted stormwater pollution prevention messages on various social media platforms. Posts included messages about fireworks disposal, picking up pet waste, clearing leaves from storm drains, proper pool water discharge, eco-friendly de-icing solutions, using native plants and more. One post celebrating a newly installed storm drain mural, in partnership with the Tualatin RiverKeepers, paired with messaging about what should and should not go down storm drains had particularly high engagement.

  The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work – initiated in the late 1990s – providing coordinated messaging about water health and

residential behaviors linked to stormwater pollution from across the Portland metropolitan region in Washington, Multnomah, and Clackamas counties.

The Coalition focuses its efforts to improve watershed health by changing household behaviors to reduce polluted runoff and connecting people with their local waterways. The Coalition focuses on changing behaviors from 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, pets, 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 fast-releasing synthetic fertilizers and pesticides applied to yards and lawns, pollutant loads from car washing soaps, metals, and other toxics from vehicles, E. coli from pet waste, turbidity from eroded soils, and other contaminants from illicit discharges.

The Coalition implemented a social media content strategy to boost awareness and increase followers that included seasonal content mixes, shared events, original social media posts incorporating key messages, and encouraging partners to share posts. The Coalition shared 99 posts on Facebook and 80 posts on Instagram during the reporting year. Total followers increased on both platforms; Facebook rose from 3,036 to 3,073 while Instagram rose from 1,178 to 1,217.

The Coalition encouraged youth in the tri-county area to participate in the Honoring Our Rivers Student Anthology hosted by Clearing Magazine. The Honoring Our Rivers Student Anthology of Art and Creative Writing program is an annual student art and poetry program that celebrates Pacific Northwest rivers and watersheds. The Coalition has been promoting the students' work since the 2022-2023 Fiscal Year and continues to conduct in-kind social media outreach, as well as paid ads, about the program to catalyze participation.

2. Pesticides/Herbicides/Fertilizers

a. **Goal:** Educate the public on the use of alternatives to pesticides, herbicides, and fertilizers through the annual public awareness campaign.

- Tracking measure: Summarize awareness campaign activities and participation regarding the use of alternatives to pesticides, herbicides, and fertilizers on an annual basis.

  CWS' outreach campaign included the following elements:

  - The cleanwatergrow.com website, promoting the use of Clean Water Grow®, a stream-friendly slow-release fertilizer.
  - Donations to local fundraisers and gardening clubs.
  - Web and social media sharing GROW photos, gardening tips, and information on its positive environmental impact.
  - Retailer support including product displays, social media marketing, and the sale of products at four regional retail locations.
  - Environmental industry and civic promotion through customer billing inserts and newsletters.

b. **Goal:** Educate the public on the use of native plants by distributing 500 copies of the *Gardening with Native Plants* brochure.

- Tracking measure: Summarize outreach efforts and participation regarding the use of native plants on an annual basis, including the number of *Gardening with Native Plants* brochures distributed.

  CWS mailed 30 copies of the *Gardening with Native Plants* brochure to new customers and in response to email and phone requests. CWS provided 120 brochures to community groups and partners for distribution at events and workshops. CWS also distributed 200 brochures at in-person community events and at the Fernhill Visitor Station. The brochure is also available as a download from the CWS website.

  CWS distributed messages to 67,430 customers with their customer bills and *Clean Water Connection* e-newsletters to 4,012 subscribers throughout the reporting year and conducted public education programs including the Tualatin River Rangers program. These programs and materials teach watershed protection and enhancement, proper disposal practices, and reporting information for illicit discharges and water quality impacts, including the use of native plants.

3. Effectiveness Evaluation and Adaptive Management

a. **Goal:** Assess and improve the effectiveness of CWS' *Strategic Communications Plan* by collecting data on program effectiveness, analyzing the data to determine the effectiveness of CWS' educational and behavioral change efforts, identifying programmatic changes to improve outcomes, and implementing those improvements. Conduct a customer survey every two years. Annually use the Logic Model (or other appropriate process) to evaluate the effectiveness of at least one program in CWS' *Strategic Communications Plan.* Identify and implement needed revisions.

- Tracking measure: Report on status of biennial customer survey and the application of the Logic Model.
- Tracking measure: Track changes made to the public education program as a result of customer surveys and the Logic Model.

  Customer Awareness and Satisfaction Survey: Note that there is a typo in this tracking measure in the 2020 SWMP; the word "biannual" should be "biennial," every two years. The biennial survey examines the demographics of the service district; customer expectations, needs, and values; and how CWS performs against those values to help CWS understand its community and create more effective and inclusive messaging, education, and outreach strategies. The survey was last conducted in the fall of 2025. In preparation, CWS conducted three focus groups with 25 participants from around the service district to update customer values, which are used as a benchmark in each survey.

Application of the Logic Model: This year, CWS applied the Logic Model to its River Rangers program. CWS delivered in-person River Ranger presentations during the 2025-26 school year and continued to provide virtual resources produced during distance learning. CWS continued to collect pre- and post-instruction student evaluations for the River Rangers program to better understand whether students learn new information from the presentation and are inspired to make changes to support a healthy watershed. A summary of the process, results, and steps for adaptive management is below.

River Rangers, Classroom Program	
Evaluation	• Pre-instruction evaluation • Post-instruction evaluation
Notes	In-person River Ranger presentations continued in the 2025-26 school year. Virtual River Ranger program materials developed during distance learning (lesson plan, video presentations, and extension lessons) were shared with 30+ teachers via the virtual Children's Clean Water Festival website and email outreach.
Results	1,832 students from 26 schools participated in in-person River Ranger classroom presentations. 937 students took the pre-assessment before the presentation, while 500 students took the post-assessment after the presentation. Awareness of the Tualatin River and storm drains flowing to the river improved by 56% and 39%, respectively, after presentations. Knowledge before presentations was relatively low, and repetition of key concepts remains important to long-term understanding.
Recommendations for adaptive management	• Continue to utilize digital content developed during distance learning as pre/post-lesson extension. • Continue to email teachers the day before presentations and the day of the presentation to remind them of pre- and post-assessment. • Continue to focus content on the Tualatin River and the fact that storm drains lead to the Tualatin River. • Seek additional opportunities to engage students who have participated in River Rangers in other field and classroom programs to reinforce key concepts. • Seek additional opportunities to extend messages and concepts through student participation in partner-delivered education programming.

Adaptive Management Plan			
Step	*Description*	*Capacity Needed*	*Time Frame*
1	Review River Ranger assessment results to meet learning goals	Staff – 1 hour	Summer 2026
2	Adapt River Ranger program content as necessary	Staff – 3 hours	Summer/Fall 2026
3	Refine teacher communication	Staff – 1 hour	Fall 2026
4	Collect student assessment and teacher program evaluation	Staff – 10 hours	2025-26 school year
5	Review results, adapt program	Staff – 4 hours	Annually

Sponsorships: CWS provided sponsorships for organizations and events working to protect watershed health and water quality in the Tualatin River watershed. Sponsorship funding supported a variety of watershed stewardship and education

efforts, including river and stream cleanups by SOLVE; storm drain mural installations and paddling events by Tualatin Riverkeepers; redesign and printing of the *50 Ways to Love Your River* handbook by Oregon Environmental Council; student education through the Children's Clean Water Festival; Living Streams storytelling programs by Will Hornyak; and habitat enhancement activities by Cascade Education Corps.

4. Employee Training

a. **Goal:** Conduct training for CWS and co-implementer employees associated with stormwater management.

b. **Goal:** Include training in recognition and reporting of illicit discharges.

c. **Goal:** Conduct annual training session for CWS and co-implementer personnel on water quality facility design.

- Tracking measure: List of annual training sessions on stormwater management, recognizing and reporting illicit discharges, and design of water quality facilities, participating agencies, and number of staff attending training sessions.

  CWS provided training in illicit discharge recognition, response, and reporting as part of the annual wet weather training for CWS and co-implementer staff members involved in various aspects of stormwater management. Online training was offered on demand during the 2025-2026 reporting year. On June 25, 2026, 25 CWS and co-implementer staff members participated in a training on the design of stormwater management facilities.

5. Education Regarding Illicit Discharges

a. **Goal:** Ensure that CWS and co-implementer websites facilitate public reporting of illicit discharges and water quality problems.

- Tracking measure: Summarize annual progress on developing user-friendly web-based methods for facilitating public reporting of illicit discharges and water quality problems.

  The "Report a Problem" page on the CWS website had 1,290 unique views. CWS and other co-implementers' websites facilitate public reporting of illicit discharges by providing telephone numbers and email addresses for the public to use to report illicit discharges. Below is a list of reporting mechanisms on each co-implementer city's website.

  Beaverton

  - Report a Problem (on homepage as major link under "How Do I…" menu header)
  - Several questions on their FAQs point to the number to call

  Hillsboro

  - Contact Us – Sewer and Streets (link within Public Works section)
  - "How Do I…" link on all pages can be used
  - "Report a Stormwater System concern" link on storm sewer page

Tigard

- Public Works Service Request (link on Public Works page)

Tualatin

- Contact information on bottom of Public Works and Contact Us pages
- Contact information on "Sanitary Sewer & Stormwater" page

Cornelius

- Public Works page provides contact number – "Report a Problem" button links back to same page.
- Email form for reporting concerns

Forest Grove

- Report a Concern page
- Public Works contact information

Banks

- Contact Us/Report a Complaint form
- Public Works emergency contact on sidebar

Durham

- Contact information link on homepage

Sherwood

- Public Works contact info on Public Works page
- Submit a concern under "Online Services"

North Plains

- Report a Problem linked on Public Works page and Streets and Drainage page
- Contact info on Public Works page

King City

- Citizen Problem Reporter
- Contact info on Public Works page

b. **Goal:** Use a variety of outreach tools (i.e., print, electronic, and other media) to promote proper disposal of oil, household hazardous waste, litter, and yard debris in billing inserts, print and electronic newsletters, and websites.

- Tracking measure: Summarize outreach related to disposal activities on an annual basis.

  CWS sent billing inserts to 67,430 customers every other month. Messages included tips on proper disposal of oil, household hazardous waste, litter, and yard debris.

  CWS sent *Clean Water Connection* e-newsletters to 4,012 subscribers each month. Each issue contained articles on proper disposal of oil, household hazardous waste, litter, and yard debris.

  CWS' website gets an average of 25,000 views from approximately 8,500 unique visitors per month and contains information on proper disposal of oil, household hazardous waste, litter, and yard debris.

c. **Goal:** Conduct the storm drain marking program and distribute educational door hangers regarding the proper disposal of yard debris and toxic materials.

- Tracking measure: Number of drains marked and door hangers distributed.

  Five volunteers worked with CWS staff to place 41 storm drain markers and 100 door hangers in Beaverton and Tigard. CWS staff will focus future outreach on schools and community groups where there are relationships to increase participation. City of Hillsboro staff installed an additional 2,468 storm drain markers.

RELATIONSHIP TO TMDLS

Phosphorus: Public education regarding how to use products containing phosphorus is critical to the overall reduction in phosphorus in the watershed.

Bacteria: Public education about pet waste management and feeding waterfowl, such as ducks and geese, and other wildlife is important to reducing the concentration of bacteria in stormwater discharges. CWS' strategy to reduce bacteria is greatly dependent on this BMP.

Settleable Volatile Solids: Public education and awareness activities are very important to reducing the loading of settleable volatile solids from the MS4. These include education about the proper use of landscaping materials, leaf disposal, etc.

Mercury: This BMP is used to inform and educate the public, business, and industry representatives, and government staff about the proper use, control, disposal, and impacts of mercury use to limit discharges to the MS4 system.

RELATED DOCUMENTS

- Strategic Communications Plan (Clean Water Services, 2026)

BMP Fact Sheet: Public Involvement and Participation

INTRODUCTION

The purpose of this BMP category is to provide the public the opportunity to participate in the development, implementation, and modification of the MS4 program. In place of measurable goals and tracking measures for this BMP, the annual report describes CWS' public involvement activities during the reporting year.

CWS uses a documented stakeholder engagement process, detailed in the Community Engagement Guide (CE Guide), formerly STEP, to ensure that CWS project and policy decisions are made with appropriate input from stakeholders. Using the CE Guide is required for complex or controversial projects and policy decisions. Including stakeholders throughout the decision-making process builds credibility and saves CWS resources. Supervisors are responsible for ensuring appropriate staff members are trained to use the CE Guide and that it is used as required.

PUBLIC INVOLVEMENT DURING THE REPORTING YEAR

CWS posted its 2025 Stormwater Annual Report to the stormwater webpage on its public website, which also includes descriptions of CWS' stormwater programs and links to important stormwater program documents.

CWS receives input and guidance on its policies and programs from the Washington County Board of Commissioners, serving as the CWS Board of Directors (Board). Staff members also provide in-depth updates and education to the Board in periodic work sessions. In FY 2025-26, staff presented information about the regulatory compliance strategy and updates to the operating intergovernmental agreements (IGAs) with Washington County and the partner cities in the CWS service area.

In 2021, CWS began discussions with the co-implementers to update the IGAs to better reflect CWS and the co-implementers' roles and responsibilities in operating and maintaining the public sanitary sewer and stormwater system. The IGAs describe new relationships between CWS and the co-implementers, with certain co-implementers taking on more responsibility for implementing some programs, and CWS providing oversight and technical assistance as needed and ensuring permit compliance. In FY 2025-26, CWS completed updates to the IGAs with Washington County and the cities of Beaverton and Cornelius. The remaining IGAs will be completed by November 1, 2026. CWS updated its IGA with Hillsboro in FY 2023-24.

CWS presented information on September 11 and 18, 2025 about its stormwater program at two CWS Essentials events — educational events for newly elected and experienced leaders from any of the 12 co-implementer cities, Washington County, and special districts within the CWS service district, as well as city managers, senior staff, and staff members from partner organizations. CWS discussed the stormwater program in the context of how CWS addresses contaminants with the Tualatin Riverkeepers, an important Tualatin River Watershed advocacy group, during an annual meeting.

On December 2, 2025, the Board authorized CWS to revise the Design and Construction Standards to maintain compliance with the 2023 Permit. Outreach related to the Design and Construction Standards stormwater revision included a project webpage; project announcement and draft releases to nearly 1,000 contacts; presentations to the Board, CWS employees, the Clean Water Services Advisory Commission (CWAC), the co-implementers group (representatives from the 12 jurisdictions in the CWS service district), environmental advocates, builder/developer community; and a public forum. Further details on the Design and Construction Standards stormwater revision can be found in the A.6 Post-Construction Site Runoff and Retrofit Programs BMP fact sheet.

CWS receives public input on its policies and programs from the CWAC, which holds monthly meetings that are open to the public. The Board appoints the 15 members of the commission to represent neighborhood, business, development, environmental, and agricultural interests.

In FY 2025-26, staff shared information with CWAC about a compost pilot program that uses material collected from permit-compliance activities like street sweepings, leaf disposal, and water quality facility maintenance, and repurposes it to create valuable resources that support local communities and ecosystems. Staff updated the Board and CWAC on the permit renewal, long-term regulatory compliance strategy roadmap, and the climate action strategic roadmap. CWS government affairs staff briefed CWAC, after Board review and approval, that they asked legislators to support policies and investments to promote resource recovery, including nutrient recovery and water resources, and advocated to ensure that policies and regulations related to emerging contaminants are protective of the environment and public health, informed by sound data and science.

BMP Fact Sheet: Post-Construction Site Runoff and Retrofit Programs

INTRODUCTION

The purpose of this BMP category is to reduce the discharge of pollutants from the MS4 by developing and applying appropriate design and construction standards for development and by constructing capital improvements in previously developed areas.

DESIGN AND CONSTRUCTION STANDARDS STORMWATER REVISIONS

On December 2, 2025, the Board authorized CWS to revise the Design and Construction Standards to maintain compliance with the 2023 Permit. The 2023 Permit includes several requirements related to the MS4 that necessitate revising the Design and Construction Standards by November 1, 2026. The project focuses on updating sections of Chapter 4 (Runoff and Treatment Control) to prioritize onsite or local/regional stormwater retention and pollutant removal, including developing a new water quality design storm to maximize onsite retention, and prioritizing green stormwater infrastructure over hardscape structural controls. The project includes a robust stakeholder engagement process that involves the co-implementers, environmental, developer, business interests, and community members. The revisions were adopted by the CWS Board in October 2026, meeting the 2023 Permit deadline of November 1, 2026.

MEASURABLE GOALS AND TRACKING MEASURES

1. Development Services

a. **Goal:** Implement Design and Construction Standards that require water quality facilities to be built as part of new development and redevelopment with a goal to provide treatment for 100 percent of impervious areas from new and redevelopment areas (that meet impervious area thresholds) with the exception of the fee-in-lieu projects.

- Tracking measure: New development area (in acres) added annually within the service area.
- Tracking measure: New redevelopment area (in acres) added annually within the service area.
- Tracking measure: New development area (in acres) added annually with structural controls within the service area.
- Tracking measure: New redevelopment area (in acres) added annually with structural controls within the service area.

Table PCSRR-1a(1): Developed and Redeveloped[1] Area Added with Structural Controls		
Jurisdiction	*Developed and Redeveloped Area Added (acres)*	*Developed and Redeveloped Area Added with Structural Controls (acres)*
Clean Water Services	107.8	99.8[2]
Beaverton	44.1	25.4[2]
Cornelius	18.4	18.0
Forest Grove	6.4	5.4[2]
Hillsboro	313.8	313.7[2]
Sherwood	46.4	46.4[2]
Tigard	21.8	21.8
Tualatin	37.6	37.6
TOTAL	**596.6**	**568.1[2]**

[1] CWS' Design and Construction Standards do not distinguish between development and redevelopment projects, so they are not tracked separately.

[2] The difference between area added and area with structural controls represents fee-in-lieu.

- Tracking measure: Percentage of the service area served by structural controls.
- Tracking measure: Percentage of all areas developed or redeveloped annually that is served by structural controls.

Table PCSRR-1a(2): Structural Controls	
Service area[1]	80,716 acres
Total area served by structural controls, in acres	30,300 acres
Percentage of service area[1] served by structural controls	37.50%
Developed and redeveloped area added annually, in acres	596 acres
Percentage of developed and redeveloped areas added annually served by structural controls	95.27%[2]

[1] The total MS4 area, which includes undeveloped areas.

[2] Areas added that were not served by structural controls met treatment requirements through payment of a fee-in-lieu.

The "Total Area Served by Structural Controls" above represents the acreage served by public and private structural controls (i.e., water quality facilities). There are over 6,300 public and private water quality facilities in the CWS service area. To conduct the Waste Load Allocation Attainment Assessment and TMDL Pollutant Load Reduction Evaluation, it was necessary to have data regarding the attributes of the water quality facilities (location, type, and acreage served). These data were available for many water quality facilities and were used in conducting the waste load allocation attainment assessment. However, because of the age of the CWS structural control program, which began in 1991 and predates the MS4 program, and the number of jurisdictions that administer it, comprehensive data regarding water quality facilities in the service area is limited.

CWS continues to work with the co-implementers to update and improve the quality of data associated with water quality facilities. Additionally, CWS implements a program to inspect private water quality facilities to ensure they are operated and maintained properly. As part of this program, CWS gathers data including location, type, and acreage served by the private water quality facility. CWS anticipates that the future waste load allocation attainment assessments will include improved water quality facilities data and will provide a better assessment of the scope of structural controls implemented in the service area and their effectiveness.

- Tracking measure: Track all structural controls implemented annually by location, type, and drainage area served.

  The co-implementers track structural controls that are implemented through development, redevelopment, and retrofits using GIS or other mapping systems that record the location, type, and area treated by structural controls.

2. Low Impact Development Approaches (LIDA)

a. **Goal:** Prioritize the use of LIDA through implementation of D&C Standards.

- Tracking measure: Annual number of LIDA facilities implemented and the type of facility.

Table PCSRR-2a(1): LIDA Sites		
Jurisdiction	*Type of Controls*	*Number of LIDA Sites*
Clean Water Services	Extended dry basin, vegetated swale, LIDA swale, rain garden, flow-through planter	10
Beaverton	Extended dry basin, infiltration planter, flow-through planter, LIDA swales	12[1]
Cornelius	Extended dry basins	2
Forest Grove	Extended dry basin, vegetated swale, flow-through planter, filter strip, rain garden	6
Hillsboro	Extended dry basin, vegetated swale, LIDA swale, infiltration planter, flow-through planter	14[1]
Sherwood	Extended dry basin, vegetated swale	7[1]
Tigard	Extended dry basin, rain garden	2
Tualatin	Extended dry basin, vegetated swale, flow-through planter, infiltration planter, street-side planter, filter strip	7[1]
Total LIDA Sites Added		**60**
[1] LIDA implemented by Washington County shown within city jurisdiction		

b. **Goal:** Provide technical assistance through the LIDA Guidance Manual.

- Tracking measure: Provide the LIDA Guidance Manual on the CWS public website.

  The LIDA Guidance Manual, known as the 2021 Low Impact Development Approaches Handbook, is available on the CWS public website.

RELATIONSHIP TO TMDLs

Phosphorus: The CWS Design and Construction Standards for water quality facilities are designed for phosphorus removal from 100 percent of the impervious area from newly constructed impervious surfaces that meet the thresholds for requiring treatment.

Settleable Volatile Solids: Structural controls can reduce the discharge of settleable volatile solids through various detention and retention processes.

Mercury: The CWS Design and Construction Standards designed for phosphorus calculations depend on TSS removal, which will influence the transport and removal of mercury.

RELATED DOCUMENTS

- Design and Construction Standards for Sanitary Sewer and Surface Water Management (2026)
- Low Impact Development Approaches Handbook (2021)

BMP Fact Sheet: Pollution Prevention for Municipal Operations

INTRODUCTION

The purpose of this BMP category is to reduce the discharge of pollutants to the MS4 from a variety of municipal operations, including, but not limited to, parks and open spaces, fleet and building maintenance facilities, transportation systems, and firefighting training facilities.

MEASURABLE GOALS AND TRACKING MEASURES

1. Street Sweeping

a. Goal: Sweep public curbed streets 12 times per year.

- Tracking measure: Curbed street miles swept and total number of curbed street miles; and amount of material collected.

Table PPMO-1: Street Sweeping

Jurisdiction	*Curbed Street Miles*	*Curbed Street Miles Swept*	*Amount of Material Collected, Cubic Yards*
Clean Water Services	959	11,508	2,537
Beaverton	459	5,508	277
Cornelius	85	1,023	184
Forest Grove	142	1,704	829
Hillsboro	532	6,382	452
Sherwood	120	1,486	230
Tigard	313	3,726	1,673
Tualatin	166	1,992	1,507
Total	**2,776**	**33,329**	**7,689**

CWS and the co-implementers swept a total of 33,329 curbed street miles, which meets the goal of sweeping the 2,776 miles of public curbed streets 12 times per year.

2. Integrated Pest Management (IPM)

a. **Goal:** Conduct one annual training session related to the CWS Integrated Pest Management program.

- Tracking measure: Report date of IPM training

  CWS provided in-person training on the CWS Integrated Pest Management program as outlined in Table PPMO-2a.

Table PPMO-2a: IPM Training

Date	*Location*	*Attendees*	*Audience*	*Type*
6/16/2026	CWS Field Operations	28	CWS staff	Early Detection and Rapid Response/Pesticide Training
Total		**28**		

The Tualatin Soil and Water Conservation District, in partnership with CWS, provided partner or public workshops and trainings for Fiscal Year 2025-26 related to CWS' IPM program to 174 attendees.

Table PPMO-2b: IPM Training

Date	*Attendees*	*Audience*	*Type*
7/24/2025	13	Tualatin Riverkeepers; public	Aquatic Weed Watcher training
7/26/2025	18	Tualatin Riverkeepers; public	Aquatic Weed Watcher training
9/18/2025	24	Kinton Garage CPO	Weed Watcher Workshop
10/7/2025	6	Cascade Education Corps	Weed Watcher Workshop
10/16/2025	18	Oregon Dept of Forestry	Invasive Plants Lecture
3/18/2026	13	Public	Weed Wrangling Workshop
3/30/2026	32	St. Francis School	Invasive Species Presentation
4/10/2026	14	Stimson Lumber	Weed Watcher Workshop
5/4/2026	10	Portland Community College	Weed Watcher Workshop
5/13/2026	12	Portland Community College	Weed Watcher Workshop
5/14/2026	14	Oregon Dept of Forestry	Weed Watcher Workshop

b. **Goal:** All pesticide applicators employed by co-implementers in positions potentially impacting the MS4 will be licensed as required.

- Tracking measure: Report number of state-licensed applicators employed by each co-implementer. See Table PPMO-2b.

Table PPMO-2c: Licensed Pesticide Applicators

Jurisdiction	*Number of State-Licensed Applicators Employed*
Clean Water Services [1]	8
Beaverton	12
Cornelius	3
Forest Grove	9
Hillsboro	27
Sherwood	7
Tigard	10
Tualatin	10
Washington County	3
Total	**89**

[1]Clean Water Services also uses contractors for pesticide application

c. **Goal:** Keep the CWS IPM program current by annually evaluating pesticides and surfactants for efficacy and potential ecological effects and evaluating pests and pest control measures.

- Tracking measure: Documentation of annual evaluation.

  In Fiscal Year 2025-26, CWS reviewed new herbicides, surfactants, and other adjuvants in use by CWS or CWS contractors and made the following changes to the Integrated Pest Management Plan:

  Changes to Vertebrate Pest Management section:

  - Mole and Rodent Management: Updated to improve clarity on license requirements for managing rodents and moles.
  - Beaver Management: Updated to include a recommendation to use pond leveling devices to manage conflicts and included online resources available from the Tualatin River Watershed Council Watershed Navigator Program.

  Changes to Emerald Ash Borer Management section:

  - Content updated to reflect confirmed infestation in Washington County and best practices published by Oregon Department of Agriculture (ODA),

Oregon Invasive Species Council, Oregon Department of Forestry, and Oregon State University.

Changes to Site-Specific Pesticide Use section:

- Updated Streamside Recreational Areas section to resolve confusing language about establishing and managing a buffer.

Changes to Appendix A: Invasive Species:

- Table 1: Invasive Plant Species: Updated table to list plant species alphabetically by common names.
- Table 2: Treatment Options for Common Invasive Plants: Updated recommended treatments and special considerations for these plants as noted:
    - Armenian blackberries, Rubus armenicus: Treat with herbicide in winter months to avoid damage to desirable deciduous vegetation that is mixed with blackberries.
    - English ivy, Hedera helix: Removed recommendation to string trim.
    - Garlic mustard, Alliaria petiolata: Added recommendation to treat in spring and also in fall.
    - Meadow foxtail, Alopecurus pratensis: Removed imapzpyr as chemical treatment.
    - Nightshade, Solanum dulcamara: Removed imapzpyr as chemical treatment.
    - Reed canary grass, Phalaris arundinacea: Removed Sethoxydim and add Clethodim as chemical treatment.
    - Velvet grass, Holcus lanatus: Remove Rodeo, imazapyr, and Sethoxydim as chemical treatments.
    - Yellow flag iris, Iris pseudacorus: Update mechanical treatment to recommend to only dig roots and rhizomes, only if small patches.
- Invasive Vertebrate Species section:
    - Updated listing to order alphabetically by common names and updated recommendation to report all exotic species to the Oregon Invasives Species Hotline instead of ODFW or ODA.
- Aquatic Invasive Invertebrates section:
    - Updated listing for Red swamp crayfish (Procambarus clarkii) to indicate it is common and not considered an Early Detection Rapid Response (EDRR) species.
    - Updated listing for Zebra and quagga mussels (Dreissena polymorpha, D. rostriformis bugensis) to reflect that they have been found in Oregon.

- Insects section:
    - Updated listing for Gypsy moth (Lymantria dispar, L. mathura, L. monarcha), which is now called Spongy moth.
    - Added new invasive species: Japanese Cedar Longhorn Beetle (Callidiellum rufipenne), an EDRR insect detected in Portland in 2023. Its host species are Arborvitae, juniper, Leyland cypress, Japanese cedar, and western and eastern redcedar. Mostly attacks stressed or dying trees, though sometimes infests healthy nursery stock.

Changes to Appendix B: Early Detection and Rapid Response (EDRR):

- Changes to Reporting an Invasive Species Within CWS Boundaries section to include links to Oregon Invasive Species Council, iNaturalists, CWMA, and Conservation Districts.
- Changes to Table 4: Priority EDRR Plants for the Tualatin Basin and Clean Water Services:
    - Updated listings to be ordered alphabetically by common name.
    - Updated listing for Parrot feather Myriophyllum aquaticum to reflect there are now known infestations of this species in Washington County in the Tualatin Watershed.

Changes to Appendix C: Weed Management Calendar:

- Removed Chemical Option 2 for treating Blackberry

Changes to Appendix D: Approved Products List

Product Type	*Active ingredient(s)*	*Example Product Names*	*Approved Use*
Previously reported as a non-selective Herbicide	*Metam-sodium*	*Vapo-Rooter*	*Root killer for use in sanitary lines only*

Changes to Appendix E: IPM Guide for Common Weeds:

- Updated Weed Treatment Impacts to Wildlife section to include two new resources for information about migratory birds and for turtle habitat.
- Updated Guide to Specific Plant Species section as noted:
    - Updated listing for Armenian or Himalayan Blackberry (Rubus armeniacus) to reflect new guidance for chemical treatment.
    - Updated listing for Scotch Broom (Cytisus scoparius) to remove note that biocontrols are readily available and widespread.

- Updated listing for English Ivy chemical treatment to change recommendation from use 25% glyphosate or triclopyr to corrected us of 50% Vastlan for cut stump.
- Updated listing for Parking lot weeds (puncture vine, prostrate knotweed, and others) to include Triclopyr as a recommended chemical treatment.
- Updated listing for Garlic Mustard to include in Tips that it is best to hand pull especially when the plants have siliques.
- Updated listing for Yellow Flag Iris to correct chemical treatment to use aquatic approved imazapyr (i.e., Ecomazapyr 2SL) or glyphosate (i.e., Aqua Neat) products at the following ratio: Ecomazapyr at 1.5% or Aqua Neat at 5%, with addition of organosilicone or other aquatic approved surfactant. Added to Tips that herbicide applications in or near water may require a licensed applicator with an aquatic endorsement.
- Updated listing for Shining Geranium, Herb Robert to note that no chemical treatments are recommended.
- Updated listing for Knotweeds to remove recommendation for digging. Also corrected chemical treatment to note1% Imazapyr with either 1% Competitor or 2.5% Class Act works the best and glyphosate concentrate is the only herbicide allowed for stem injection.
- Updated listing for Meadow Knapweed chemical treatment to use either 0.25% Milestone or 0.25% Transline with 1% Competitor. You can also use 2% Garlon 3A or 1.5% Vastlan + 1% Competitor.
- Updated listing for English Hawthorn chemical treatment to cut stump treatment using 50% safest aquatic approved triclopyr formulation available mixed with water carrier and removed recommendation to use basal bark treatment.

The Integrated Pest Management Plan is located on the CWS public website at cleanwaterservices.org/documents/.

Annual Pest Review: CWS reviews its pest lists annually to identify new noxious weeds, insect pests, or other organisms that pose a threat to the watershed's health. In 2025, one plant pest was added to the CWS Invasive Insects section (Japanese Cedar Longhorn Beetle) in the Integrated Pest Management Plan as noted above.

Annual Pesticide Review: As part of the annual review, CWS updates new pesticides using information supplied by CWS staff, the co-implementers, other partner organizations engaged in similar activities, and contracted professional applicators. As mentioned above, CWS updated its Integrated Pest Management Plan in 2026.

3. Stormwater Management at Municipal Facilities

a. **Goal:** Inspect municipal facilities that store wastes as required in their Stormwater Pollution Control Plans.

- Tracking measure: Number of facility inspections performed.

  There are no municipal facilities in the CWS service area dedicated to the treatment, storage, or transport of municipal wastes; the treatment, storage, and transport of municipal waste from residential, commercial, and industrial sources is handled by private contractors. Solid wastes generated during the maintenance of public facilities such as parks and open spaces may be temporarily stored at municipal yards managed by co-implementers. These yards have Stormwater Pollution Control Plans that include BMPs to reduce the discharge of pollutants in stormwater.

4. Outfall Retrofits

a. **Goal:** Continue to implement CWS' Retrofit Plan.

- Tracking measure: Identify the number of outfall retrofit projects in planning, design, construction, or completed; the phase of each project during the year; and the treatment BMP used, including locations and area treated by the retrofit.

Table PPMO-5a(1): Outfall Retrofit Projects, Details [1]

Project Name	*Treatment BMP Used*	*Project Stage*	*Area Treated With Retrofit, Acre [2,3]*
Hillsboro: 2 Outfall Retrofit Projects			
Shute Road Multiuse Trail	Swale	Complete	15.6
Minter Bridge Storm Sewer Regional Water Quality Facility and Outfall	Extended dry pond	Design	0
Sherwood: 1 Outfall Retrofit Project			
Gleneagle Stormwater Treatment Facility	Vegetated swale	Complete	14
Total area treated by retrofits in 2025-26, acres: 29.6			

[1] Clean Water Services, Beaverton, Forest Grove, Tigard, Cornelius, and Tualatin did not work on any outfall retrofit projects this year.

[2] "Area treated" represents the area treated after the retrofit, including the area previously treated and new.

[3] A "0" in this column indicates projects in planning, design, or construction phases and not complete at the end of the reporting year. Area treated will be added in future reports when the project is complete.

Table PPMO-5a(2): Outfall Retrofit Projects, Summary	
Total area treated with retrofits in 2025-2026, acres	29.6 acres
Total retrofit projects in process in 2025-2026	1
Total retrofit projects completed in 2025-2026	2
Total retrofit projects completed in 2022-2023	1
Total retrofit projects completed in 2023-2024	4
Total retrofit projects completed in 2024-2025	0
Total cumulative retrofit projects completed during permit term [1]	7

[1] The current permit term is Jan. 1, 2023, through Nov. 30, 2027. Totals for 2022-23 cover the stormwater year July 1, 2022, through June 30, 2023, which includes six months outside the permit term.

5. Catch Basin Retrofits

a. **Goal:** Retrofit or reconstruct 75 existing catch basins annually between May 31, 2021, and the issuance of the new permit to include improvements for water quality.

- Tracking measure: Number of existing catch basins that were retrofitted or reconstructed to include improvements for water quality during the year and cumulatively during the permit term.

Table PPMO-6a(1): Catch Basins Retrofitted or Reconstructed for Water Quality	
Jurisdiction	*Catch Basins Retrofitted*
Clean Water Services	26
Beaverton	25
Cornelius	3
Forest Grove	0
Hillsboro	5
Sherwood	6
Tigard	2
Tualatin	6
Total 2025-2026	73
Total 2026-2027	-
Total 2022-2023	110
Total 2023-2024	114
Total 2024-2025	82
Total cumulative retrofitted catch basins during permit term[1]	**379**
[1]The current permit term is Jan. 1, 2023, through Nov. 30, 2027. Totals for 2022-23 cover the stormwater year July 1, 2022, through June 30, 2023, which includes six months outside the permit term.	

In addition to the outfall and catch basin retrofits listed above, several water quality manholes were also retrofitted this year, as shown in Table PPMO-6a(2).

Table PPMO-6a(2): Water Quality Manholes Retrofitted or Reconstructed for Water Quality		
Jurisdiction	*Manholes Retrofitted*	Area Treated With Retrofit, Acres
Clean Water Services	0	0
Beaverton	0	0
Cornelius	0	0
Forest Grove	0	0
Hillsboro	0	0
Sherwood	2	4.8
Tigard	2	1.2
Tualatin	0	0
Total 2025-2026	**4**	**6.0**

6. Winter Operations and Maintenance Program

a. Goal: Limit impacts to water quality to the degree practicable from winter operations and maintenance activities of public roadways.

- Tracking measure: Materials used, number of winter weather events where winter maintenance materials are used, quantities, and general location of each material used in relation to distance (e.g., pounds per mile), and any other actions taken to protect waters of the state for areas where that data is available or becomes available during the permit term.

Table PPMO-7: Winter Operations and Maintenance				
Jurisdiction	*Winter Weather Events* [1]	*Sand (Tons)*	*Magnesium Chloride (Gallons)*	*Salt (Pounds)*
Clean Water Services [2]	N/A	N/A	N/A	N/A
Beaverton	1	0	200	0
Cornelius	0	0	0	0
Forest Grove	0	0	0	0
Hillsboro	0	0	0	0
Sherwood	1	0	125	0
Tigard	0	0	0	0
Tualatin	1	0	350	0
Washington County	5	101	4,808	0
Total	**8**	**101**	**5,483**	**0**

[1] Number of winter storms where co-implementers chose to apply winter weather maintenance materials to public roadways.

[2] CWS is not responsible for maintaining public roadways. No tracking measures to report.

Co-implementers take additional precautions to protect waters of the state by applying best management practices for routine road maintenance, sweeping before winter storms, sweeping soon after winter storms where sand is applied, and not applying magnesium chloride to wet roads or when rain is forecasted. Quantity of winter maintenance material used was tracked this reporting year without a relation to distance as distance data was not available.

RELATIONSHIP TO TMDLS

Phosphorus: Street sweeping, outfall retrofits, and catch basin retrofits remove phosphorus-bearing sediments.

Bacteria: Addressing discharges from municipal yards through Stormwater Pollution Control Plans reduces the discharge of bacteria from these sites.

Settleable Volatile Solids: Street sweeping, outfall retrofit, and catch basin retrofits will reduce the discharge of settleable volatile solids.

Mercury: The CWS Design and Construction Standards designed for phosphorus calculations depend on TSS removal, which will influence the transport and removal of mercury.

RELATED DOCUMENTS

- Sanitary Sewer and Surface Water Management Work Programs, Performance Standards, Priorities, and Policies (Resolution and Order 07-46 and as amended by RO 08-21, RO 09-21, RO 10-13, RO 11-7, RO 17-6, and RO 18-11) (2018)
- Integrated Pest Management Plan (2026)

BMP Fact Sheet: Stormwater Management Facilities Operations and Maintenance Activities

INTRODUCTION

The purpose of this BMP category is to reduce the discharge of pollutants from the MS4 by implementing appropriate operations and maintenance practices for both public and private stormwater management facilities.

MEASURABLE GOALS AND TRACKING MEASURES

1. Public Water Quality Facility Inspections and Maintenance

a. **Goal:** Inspect, assess, and document the condition of all vegetated water quality facilities to identify necessary maintenance activities at least twice per year, once during the winter and once during the growing season. Assess whether the vegetated facility requires routine or non-routine maintenance. If non-routine maintenance is required, describe the maintenance activities necessary to address conditions/issues. For any vegetated facility with non-routine maintenance activities identified, develop a plan and schedule to perform those activities.

- Tracking measure: Number of public water quality facilities; number of public water quality facilities assessed for maintenance needs; number found to need non-routine maintenance.

  CWS and co-implementers assessed their public vegetated water quality facilities for maintenance needs during the reporting year, as documented in Table O&M-1b.

Table O&M-1b: Assessment of Public Vegetated Water Quality Facilities

Jurisdiction	*Public Water Quality Facilities*	*Public Water Quality Facility Assessments*[1]	*Public Water Quality Facilities Needing Non-routine Maintenance*
Clean Water Services	1,160	1,132	16
Beaverton	230	230	4
Cornelius	33	33	1
Forest Grove	59	59	7
Hillsboro	394	1,265	57
Sherwood	133	129	22
Tigard	243	312	4
Tualatin	105	105	3
Washington County	1	1	0
Total	**2,358**	**3,266**	**114**

[1] Assessments above the number of facilities indicate multiple visits to the same facility.

b. **Goal:** Inspect annually and maintain all public proprietary water quality facilities per manufacturer's specifications to ensure functionality.

- Tracking measure: Total number of public proprietary water quality facility maintenance visits and the total number of public proprietary water quality facilities within the service area.

  Data on the tracking measure for Goal 1.b are in Table O&M-1.

Goal: Replace filters in public proprietary filter treatment systems as needed.

- Tracking measure: Number of systems renewed.

  Data on the tracking measure for the Goal 1.b are in Table O&M-1.

c. **Goal:** Clean all public water quality manholes twice per year.

- Tracking measure: Number of public water quality manholes cleaned; and total number of public water quality manholes within the service area.

  Data on the tracking measure for Goal 1.c are in Table O&M-1. All co-implementers except CWS and the City of Tualatin met or exceeded the annual cleaning target of twice per year.

  The City of Tualatin cleaned its water quality manholes at a rate of 1.9 per year due to inventory issues. CWS cleaned its water quality manholes at a rate of 1.8 per year. Each manhole was visited at least twice during the year, but cleaning was not always possible due to accessibility issues. The City of Tualatin and CWS will ensure all water quality manholes are scheduled and tracked for maintenance next year.

d. **Goal:** Clean 95 percent of public sumped catch basins per year.

- Tracking measure: Number of sumped catch basins cleaned; and total number of sumped catch basins within the service area.

  Data on the tracking measure for Goal 1.d are in Table O&M-1; some of the totals reflect multiple visits to the same facility. All co-implementers except CWS and the City of Cornelius met the annual cleaning target.

  The City of Cornelius cleaned 85 percent of the sumped catch basins this year due to inventory issues. The City of Cornelius is transitioning to a GIS-based tracking system that should improve catch basin tracking.

  CWS cleaned 91 percent of the sumped catch basins this year. CWS' cleaning frequency was significantly improved compared to the previous reporting year as a result of a new staffing plan to manage staff shortages and fleet vehicle downtime. CWS also purchased a new vactor truck at the end of Fiscal Year 2025-26, but the new truck was not ready for use until FY 2026-27. The new vactor truck should help ensure the sumped catch basin cleaning goal is met in the future.

2. Private Structural Water Quality Facility Maintenance

a. **Goal:** Annually inspect 25 percent of privately maintained structural water quality facilities to ensure system functionality.

- Tracking measure: Total number of facilities and number of facilities inspected.

Table O&M-2a: Inspection of Private Water Quality Facilities (PWQFs)

Jurisdiction	*Number of PWQFs in Service Area*[1]	*Number of PWQF Inspections*	*Percent of PWQFs Inspected*
CWS Service Delivery Planning	1,179	315	26%
CWS Environmental Services	63	23	33%
Beaverton	683	259	38%
Cornelius	85	28	33%
Forest Grove	117	36	31%
Hillsboro	909	415	46%
Sherwood	137	127	93%
Tigard	345	94	27%
Tualatin	508	154	30%
Total	**4,026**	**1,451**	**36%**

[1] Number is the inventory at the beginning of the reporting year, July 1, 2025.

b. **Goal:** Conduct annual training for CWS and co-implementer inspection staff on proper water quality facility maintenance:

- Tracking measure: Training sessions conducted and staff/co-implementer attendance.

  On June 2, 2026, CWS held a training on inspection, assessment, and proper maintenance of water quality facilities; 40 CWS and co-implementer staff members attended.

RELATIONSHIP TO TMDLs

Phosphorus: The CWS Design and Construction Standards are developed to remove phosphorus. Efficiency is contingent on maintaining the constructed systems to operate as designed.

Bacteria: Through appropriate maintenance and inspection of the sanitary and storm sewer systems, cross connections, and other illicit sources of bacterial contamination will be identified and corrected. This will result in lower bacteria concentrations in stormwater.

Settleable Volatile Solids: Adequate maintenance of the stormwater system will reduce the discharge of settleable volatile solids that accumulate in the system.

Mercury: The Willamette Basin mercury TMDL determined that air deposition (wet and dry) was a predominant source of mercury in the basin and that mercury is likely transported with suspended solids. These BMPs are designed to capture and retain suspended solids and will therefore act to limit mercury transport.

RELATED DOCUMENTS

- Private Water Quality Facilities Management Program (referenced in CWS' 2020 Stormwater Management Plan)
- Performance Standards (2018)

Table O&M-1
Public Water Quality Facility Inspections and Maintenance Tracking Measures - FY 2025-2026

Activity	Units	Frequency Standard	CWS		Beaverton		Cornelius		Forest Grove		Hillsboro		Sherwood		Tigard		Tualatin		Washington County		Total	
			Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production	Inventory	Production
1. Public Proprietary Water Quality Facility Maintenance																						
A. Proprietary facility maintenance visits	Visits	1x per year	6	6	139	139	0	0	18	18	49	49	7	7	77	77	11	13	8	8	315	317
B. Filter cartridge replacement	Cartridges replaced	As needed		6		246		0		4		19		19		48		16		0		358
2. Public Water Quality Manhole Cleaning																						
A. Manholes cleaned	Each	2x Per Year	1,029	1,873	426	867	36	72	86	176	319	637	110	220	130	321	107	195	0	0	2,243	4,361
3. Sumped Catch Basin Cleaning																						
A. Sumped catch basins cleaned	Each	95% Per Year	10,927	9,972	3,934	3,957	1,147	970	1,652	1,644	7,915	7,947	2,003	2,023	3,265	3,208	1,471	1,471	0	0	32,314	31,192

Appendix B: Stormwater Monitoring Data

This appendix describes the activities and results of the Clean Water Services (CWS) stormwater monitoring program. The CWS watershed-based NPDES permit requires land-use-based stormwater monitoring at five locations at least three times per year during characteristic storm events. CWS reviews stormwater data within one month of the data becoming available in CWS' data repository. Since January 1, 2023, when the permit became effective, CWS also reviews the stormwater monitoring data for the potential to cause or contribute to a water quality exceedance in the receiving water body within five days of becoming aware of the data. The stormwater monitoring period coincides with the MS4 reporting year: July 1 to June 30.

Stormwater Sampling Requirements

CWS' five stormwater sampling sites are presented in Table B-1 and in Figure B-1. The sampling procedures are consistent with CWS' Stormwater Monitoring Plan which was updated in May 2023 to include new elements from the 2023 Permit. One goal of the Stormwater Monitoring Plan is to obtain complete sample sets with results from all analytes at all five sites for each storm event. If the storm event results were incomplete, CWS took additional samples from individual sites or subsets of analytes from all five sites. In addition, data from monitoring at MS4 sites as part of special projects that met reporting criteria are included here. CWS' Water Quality Laboratory and Environmental Services staff obtained and analyzed at least three samples from each sampling location listed in Table B-1.

Table B-1: NPDES Stormwater Sampling Sites

Station Name	*Station ID*	*Catchment Area (Acres)*	*Subbasin*	*Major Land Use*
MS4 at 209th	7301001	37	Cross Creek	High density
MS4 at Paddington	7301004	22	Bronson Creek	Post-1990 residential
MS4 at 39th Loop	7301005	15	Rock Creek	Industrial
MS4 at Amberglen	7301006	198	Rock Creek	Residential/commercial
MS4 at Maple	7301007	70	Jackson Bottom	Pre-1990 residential

Figure B-1: Map of Five Stormwater Sampling Sites

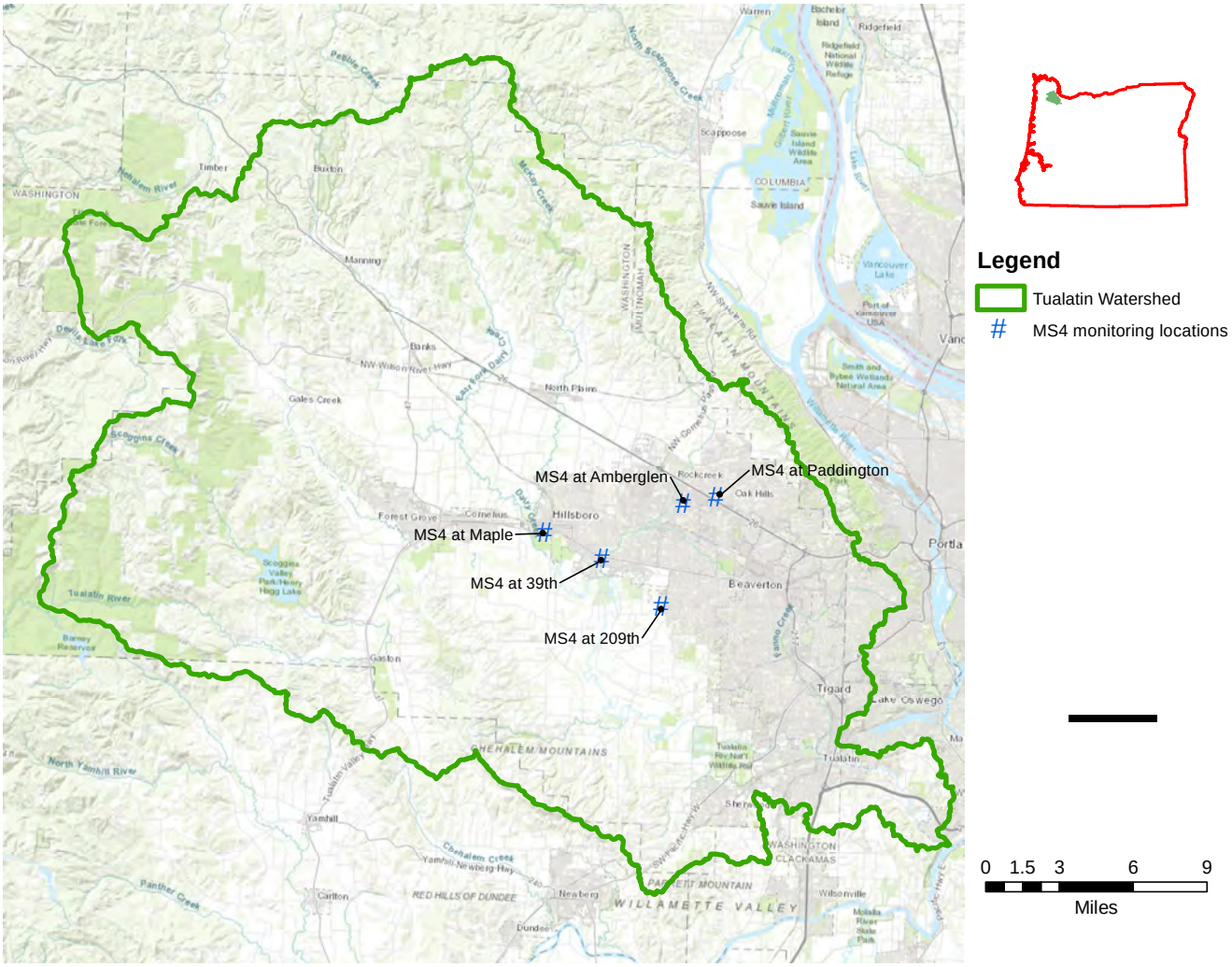


Table B-2 displays the analysis name, sample type, unit, Method Reporting Limit (MRL), and analytical method reference for samples collected and analyzed under the stormwater monitoring program.

Table B-2: Method Reporting Limits and Laboratory Methods for Stormwater Samples

Analysis Name	*Sample Type*	*Unit*	*MRL Range*	*Method Reference*[1]
Ammonia-N, Dissolved	Composite	mg/L	0.010	SM 4500-NH3 G
Conductivity, Field	Field	µS/cm	1	SM 2510 B
Copper, Dissolved	Composite	µg/L	0.400	EPA 200.8
Copper, Total Recoverable	Composite	µg/L	0.400 - 2.00	EPA 200.8
E. coli, Most Probable Number	Grab	MPN/100 mL	1	SM 9223 B
Hardness, Total	Composite	mg/L	0.5	EPA 200.8
Lead, Dissolved	Composite	µg/L	0.100	EPA 200.8
Lead, Total Recoverable	Composite	µg/L	0.100	EPA 200.8
Mercury by Purge & Trap, Dissolved	Grab	ng/L	0.200	EPA 1631E
Mercury by Purge & Trap, Total	Grab	ng/L	0.200	EPA 1631E
Nitrate/Nitrite-N, Dissolved	Composite	mg/L	0.01	EPA 300.0
Organic Carbon, Total Non-purgeable	Composite	mg/L	0.5	SM 5310 B
Ortho-Phosphate-P, Dissolved	Composite	mg/L	0.005	SM 4500-P F
Temperature	Field	°C	0.1	SM 2550 B
Total Phosphorus-P	Composite	mg/L	0.025	EPA 365.1
Total Suspended Solids	Grab	mg/L	0.5	SM 2540 D
Total Suspended Solids	Composite	mg/L	0.5	SM 2540 D
Turbidity, Field	Field	FNU	0.1	SM 2130 B
Zinc, Dissolved	Composite	µg/L	2.50 – 5.00	EPA 200.8
Zinc, Total Recoverable	Composite	µg/L	2.50 – 5.00	EPA 200.8

[1]SM = Standard Methods

Note: Reporting limits are presented as a range where applicable, reflecting changes in laboratory analytical methods during the monitoring year.

The stormwater monitoring period begins July 1 and ends June 30 of the following year. Rainfall data was collected and used to determine the 24-hour storm magnitude and rainfall in the antecedent period of 12 hours. When the permit was renewed in December 2022, the antecedent dry period requirement changed from 24 hours to 12 hours, when possible. An antecedent dry period has less than 0.1 inches of precipitation. CWS uses a flow-weighted composite method for stormwater event sampling. The TSS samples were taken as composite samples in the previous permit. The permit requires TSS samples to be taken concurrently with mercury samples, as grab samples; therefore, CWS now takes composite and grab TSS samples.

Stormwater Monitoring Results

For the current reporting period, July 1, 2025, through June 30, 2026, eight storm events were monitored at CWS' MS4 monitoring sites for the pollutants listed in Table B-2. Table B-3 displays a summary of rainfall data collected at two regional rain gauges, which corresponds to the sampling events at the MS4 monitoring sites.

Table B-3: Rainfall Data Summary

Sample Date(s)	*Rainfall Preceding 12 Hours (Inches)*	*Storm Magnitude (Inches in 24 hours)*	*Rain Gauge*
9/14/2025	0.0	0.33	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
9/30/2025	0.0	0.70	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
10/18/2025 – 10/19/2025	0.0	0.69	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
11/25/2025 – 11/26/2025	0.0	0.47	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
12/2/2025	0.0	0.46	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
1/1/2026 – 1/2/2026	0.0	0.22	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
3/4/2036	0.0	0.18	Bureau of Reclamation, AgriMet FOGO (Forest Grove)
3/24/2026	0.0	0.10	Bureau of Reclamation, AgriMet FOGO (Forest Grove)

Table B-4 explains the qualifier codes used to describe the stormwater monitoring data.

Table B-4: Qualifier Codes and Description

Qualifier/Flag	*Description*
<	Less than the specified value (generally the Method Reporting Limit)
>	Greater than the specified value (generally the Method Reporting Limit)
E	Qualitatively estimated value due to *minor* suspected sampling or analytical anomalies
Q	Questionable value due to suspected significant sampling or analytical anomalies
J	Estimated value that is above the Method Detection Limit but below the Method Reporting Limit

Stormwater monitoring data for this reporting period are presented in Tables B-5 through B-9. The samples from the locations listed in Table B-1 were analyzed for the water quality parameters listed in Table B-2.

Table B-5: Stormwater Monitoring Data: MS4 at 209th (7301001)

Analyte	*Unit*	*Sample Date*			
		9/14/25	*9/30/25*	*10/18/25 – 10/19/25*	*11/25/25*
Ammonia-N, Dissolved	mg/L	N/A	0.048	0.145	0.022
Conductivity, Field	µS/cm	56.2	68	83.1	29.5
Copper, Dissolved	µg/L	15.9	23.2	23.1	5.27
Copper, Total Recoverable	µg/L	19.8	32	34.5	7.53
E. coli, Most Probable Number	MPN/100 mL	2430	132	199	4040
Hardness, Total	mg/L	26.7	17.3	16.5	12.7
Lead, Dissolved	µg/L	<0.05075	0.0629	<0.05075	<0.05075
Lead, Total Recoverable	µg/L	0.325	0.463	0.494	0.138
Mercury by Purge & Trap, Dissolved	ng/L	4.25	6.37	5.96	3.68
Mercury by Purge & Trap, Total	ng/L	4.94	5.51	5.12	3
Nitrate/Nitrite-N, Dissolved	mg/L	0.395	0.129	0.206	0.052
Organic Carbon, Total Non-purgeable	mg/L	17	11.9	9.53	4.84
Orthophosphate-P, Dissolved	mg/L	N/A	0.024	0.039	0.03
Temperature	°C	18.085	16.891	16.2	9.81
Total Phosphorus-P	mg/L	0.158	0.126	0.112	0.066
Total Suspended Solids[1]	mg/L	10.4	17.2	15.2	5.2
Total Suspended Solids[2]	mg/L	7.6	9.2	1.2	8.40
Turbidity, Field	FNU	4.89	7.92	1.33	5.3
Zinc, Dissolved	µg/L	606	409	131	104
Zinc, Total Recoverable	µg/L	663	469	189	122

[1]Total Suspended Solids are collected via a 24-hour flow-weighted composite sampler.
[2]Total Suspended Solids are collected via grab sampling paired with the mercury grab samples.

Table B-6: Stormwater Monitoring Data: MS4 at Paddington (7301004)

Analyte	*Unit*	*Sample Date*			
		9/14/25	*9/30/25*	*10/18/25 -10/19/25*	*11/25/25*
Ammonia-N, Dissolved	mg/L	N/A	0.03	0.239	0.011
Conductivity, Field	µS/cm	20.8	24.1	79.8	28.2
Copper, Dissolved	µg/L	31.2	23.6	14.7	6.97
Copper, Total Recoverable	µg/L	48.9	29.2	19.9	9.9
E. coli, Most Probable Number	MPN/100 mL	2420	1890	2430	866
Hardness, Total	mg/L	12.4	18.1	18.5	41.8
Lead, Dissolved	µg/L	<0.05075	<0.05075	<0.05075	<0.5075
Lead, Total Recoverable	µg/L	0.745	0.247	0.261	0.151
Mercury by Purge & Trap, Dissolved	ng/L	1.64	4.7	4.8	4.26
Mercury by Purge & Trap, Total	ng/L	2.61	3.52	3.65	2.6
Nitrate/Nitrite-N, Dissolved	mg/L	0.193	0.311	0.403	0.864
Organic Carbon, Total Non-purgeable	mg/L	10.4	6.95	6.02	3.44
Orthophosphate-P, Dissolved	mg/L	N/A	0.051	0.062	0.058
Temperature	°C	17.809	16.222	15.025	9.392
Total Phosphorus-P	mg/L	0.177	0.108	0.125	0.093
Total Suspended Solids[1]	mg/L	37.2	12.0	12.00	4.15
Total Suspended Solids[2]	mg/L	7.6	21.60	21.60	25.20
Turbidity, Field	FNU	4.66	8.86	1.61	8.43
Zinc, Dissolved	µg/L	60.9	62.7	58.2	116
Zinc, Total Recoverable	µg/L	110	76	76.6	128

[1]Total Suspended Solids are collected via a 24-hour flow-weighted composite sampler.
[2]Total Suspended Solids are collected via grab sampling paired with the mercury grab samples.

Table B-7: Stormwater Monitoring Data: MS4 at 39th Loop (7301005)

Analyte	*Unit*	*Sample Date*					
		9/14/25	*9/30/25*	*10/18/25 – 10/19/25*	*11/25/25*	*12/4/25*	*1/1/26*
Ammonia-N, Dissolved	mg/L	N/A	0.163	0.136	N/A	0.062	0.165
Conductivity, Field	µS/cm	14.2	8.2	31	5.8	7.9	7.8
Copper, Dissolved	µg/L	21.1	8.5	4.38	N/A	3.27	1.05
Copper, Total Recoverable	µg/L	22.7	12.4	7.14	N/A	6.15	1.69
E. coli, Most Probable Number	MPN/100 mL	4	27	19	7	N/A	5
Hardness, Total	mg/L	4.22	3.6	4.08	N/A	1.26	1.21
Lead, Dissolved	µg/L	0.0759	0.0924	0.231	N/A	0.145	<0.05075
Lead, Total Recoverable	µg/L	0.364	1.04	0.756	N/A	1.04	0.125
Mercury by Purge & Trap, Dissolved	ng/L	1.96	3.06	3.72	3.05	6.06	3.48
Mercury by Purge & Trap, Total	ng/L	2.39	2.11	2.91	4.24	7.1	2.75
Nitrate/Nitrite-N, Dissolved	mg/L	0.128	0.121	0.079	N/A	0.058	0.117
Organic Carbon, Total Non-purgeable	mg/L	7.48	3.98	1.92	N/A	1.36	1.52
Orthophosphate-P, Dissolved	mg/L	N/A	0.027	0.012	N/A	<0.005	0.01
Temperature	°C	18.18	15.56	12.951	8.273	9.686	7.038
Total Phosphorus-P	mg/L	0.083	0.077	0.045	N/A	0.026	0.022
Total Suspended Solids[1]	mg/L	2.6	8.8	4.4	N/A	2.00	2.6
Total Suspended Solids[2]	mg/L	24.4	17.0	1.6	2.2	N/A	2.4
Turbidity, Field	FNU	4.02	12.54	1.46	5.54	6.38	4.14
Zinc, Dissolved	µg/L	105	148	200	N/A	43.8	145
Zinc, Total Recoverable	µg/L	110	164	220	N/A	52.3	160

[1]Total Suspended Solids are collected via a 24-hour flow-weighted composite sampler.
[2]Total Suspended Solids are collected via grab sampling paired with the mercury grab samples.

Table B-8: Stormwater Monitoring Data: MS4 at Maple (7301007)

Analyte	*Unit*	*Sample Date*			
		9/14/25	*9/30/25*	*10/18/25 – 10/19/25*	*11/25/25*
Ammonia-N, Dissolved	mg/L	N/A	0.061	3.01	0.306
Conductivity, Field	µS/cm	30.9	103.4	71.4	47.6
Copper, Dissolved	µg/L	10.8	7.67	6.85	3.27
Copper, Total Recoverable	µg/L	37.7	21.7	17.6	10.8
E. coli, Most Probable Number	MPN/100 mL	2430	72700	2430	7490
Hardness, Total	mg/L	38.7	22.5	14.9	10.5
Lead, Dissolved	µg/L	0.316	0.157	0.121	0.0842
Lead, Total Recoverable	µg/L	7.54	3.67	2.52	2.47
Mercury by Purge & Trap, Dissolved	ng/L	1.33	3.72	5.32	5.36
Mercury by Purge & Trap, Total	ng/L	2.6	2.44	4.52	2.32
Nitrate/Nitrite-N, Dissolved	mg/L	1.42	0.21	0.326	0.108
Organic Carbon, Total Non-purgeable	mg/L	14.6	10.6	8.06	5.22
Orthophosphate-P, Dissolved	mg/L	N/A	0.081	0.102	0.052
Temperature	°C	17.908	18.334	15.096	11.572
Total Phosphorus-P	mg/L	0.856	0.707	0.252	0.199
Total Suspended Solids[1]	mg/L	87.6	57.0	42.0	40.0
Total Suspended Solids[2]	mg/L	49.0	89.2	3.20	61.00
Turbidity, Field	FNU	20.64	28.94	7.21	52.57
Zinc, Dissolved	µg/L	268	158	101	103
Zinc, Total Recoverable	µg/L	668	407	224	188

[1]Total Suspended Solids are collected via a 24-hour flow-weighted composite sampler.
[2]Total Suspended Solids are collected via grab sampling paired with the mercury grab samples.

Table B-9: Stormwater Monitoring Data: MS4 at Amberglen (7301006)

Analyte	*Unit*	*Sample Date*					
		9/14/25	*9/30/35*	*10/18/25 - 10/19/25*	*11/25/25*	*3/4/26*	*3/24/26*
Ammonia-N, Dissolved	mg/L	0.418	0.124	0.152	0.019	N/A	N/A
Conductivity, Field	µS/cm	25.1	34.3	97.5	28.5	N/A	N/A
Copper, Dissolved	µg/L	18.3	5.12	5.02	2.65	N/A	N/A
Copper, Total Recoverable	µg/L	56.7	21.9	10.5	21.3	N/A	N/A
E. coli, Most Probable Number	MPN/100 mL	2430	2260	2430	2430	461	10
Hardness, Total	mg/L	73.7	24.6	46.9	76.7	N/A	N/A
Lead, Dissolved	µg/L	0.346	0.0985	0.088	<0.05075	N/A	N/A
Lead, Total Recoverable	µg/L	7.32	4.72	1.37	3.74	N/A	N/A
Mercury by Purge & Trap, Dissolved	ng/L	5.25	4.2	3.22	4.88	N/A	N/A
Mercury by Purge & Trap, Total	ng/L	2.09	2.52	2.9	2.06	N/A	N/A
Nitrate/Nitrite-N, Dissolved	mg/L	0.475	0.166	0.426	0.233	N/A	N/A
Organic Carbon, Total Non-purgeable	mg/L	17.5	6.84	7.15	5	N/A	N/A
Orthophosphate-P, Dissolved	mg/L	0.088	0.049	0.068	0.06	N/A	N/A
Temperature	°C	18.083	16.843	14.821	9.123	N/A	N/A
Total Phosphorus-P	mg/L	0.779	0.343	0.177	0.342	N/A	N/A
Total Suspended Solids[1]	mg/L	100	119	24.4	113	N/A	N/A
Total Suspended Solids[2]	mg/L	94.0	39.6	2.4	87.0	N/A	N/A
Turbidity, Field	FNU	30.92	18.77	7.22	267.58	N/A	N/A
Zinc, Dissolved	µg/L	196	66.8	73.5	197	N/A	N/A
Zinc, Total Recoverable	µg/L	691	243	143	613	N/A	N/A

[1]Total Suspended Solids are collected via a 24-hour flow-weighted composite sampler.
[2]Total Suspended Solids are collected via grab sampling paired with the mercury grab samples.

Discussion of Stormwater Monitoring Results

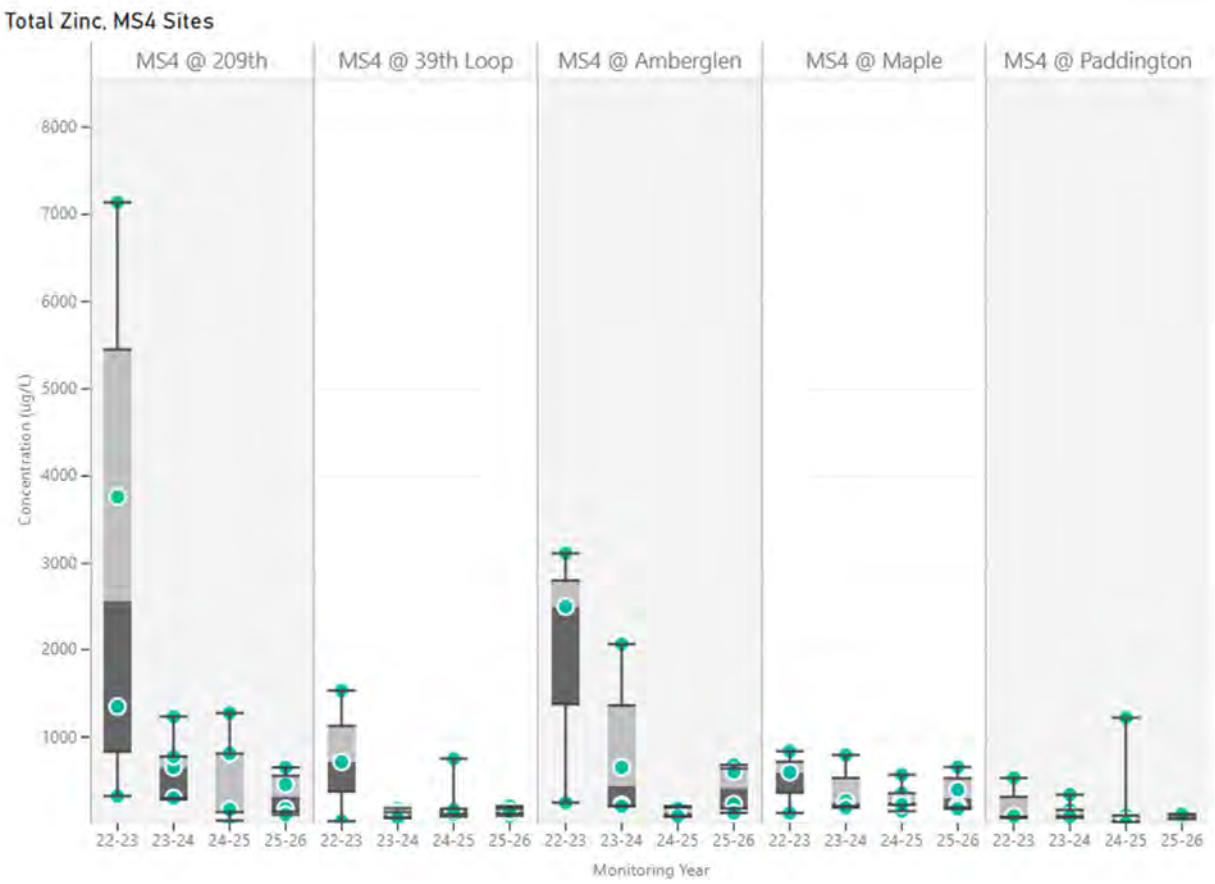
CWS staff followed internal assessment protocols to promptly review the MS4 data. There were no MS4 samples that showed reasonable potential to cause or contribute to a water quality standard exceedance.

Zinc and Sulfate Results

During the 2025-2026 monitoring period, zinc concentrations during stormwater sampling events generally decreased from previous years. The maximum total zinc concentration in 2022-2023 was 7,143 ug/L; in 2023-2024 the maximum total zinc concentration was 2,068 ug/L. In 2024-2025, the maximum total zinc concentration outliers were 34,620 ug/L and 25,900 ug/L, but the next highest total zinc concentration was 1,279 ug/L. In this most recent monitoring year, the highest total zinc concentration was substantially lower at 691 ug/L. After removing the outliers in monitoring year 2024-2025, the rest of the results are discussed in this section.

Figure B-2 shows the reduction of zinc across MS4 sampling locations during the 2022-2023, 2023-2024, 2024-2025, and 2025-2026 monitoring periods.

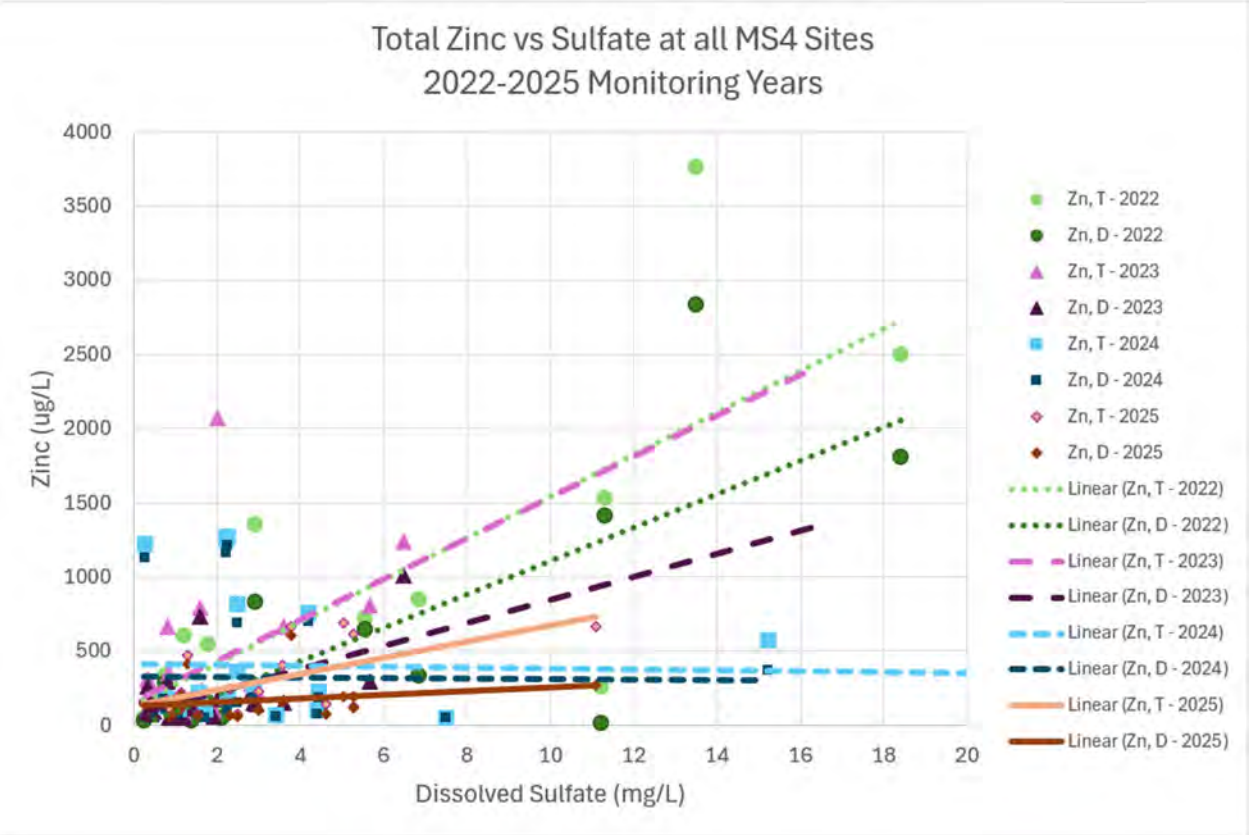
Figure B-2: Total Zinc at MS4 Sampling Locations



Following the elevated zinc results identified during the 2024–2025 monitoring year, CWS Environmental Services staff investigated the Amberglen subwatershed and performed public outreach in the 209th subwatershed.

No zinc exceedances were identified during the 2025–2026 monitoring year, and Environmental Services did not conduct further investigation. CWS continued public outreach and education during this period; examples are provided at the end of this appendix. The laboratory also continued to collect sulfate samples to correlate with dissolved zinc results. Figure B-3 presents this correlation, which continues to show a weak relationship between dissolved sulfate and dissolved zinc.

Figure B-3: Correlation Between Dissolved Sulfate and Zinc



Figures B-4 through B-7 show the sulfate and zinc concentrations by land-use area for the 2022, 2023, 2024, and 2025 monitoring years.

Figure B-4: 2022 Sulfate and Zinc Concentrations by Land-Use Area

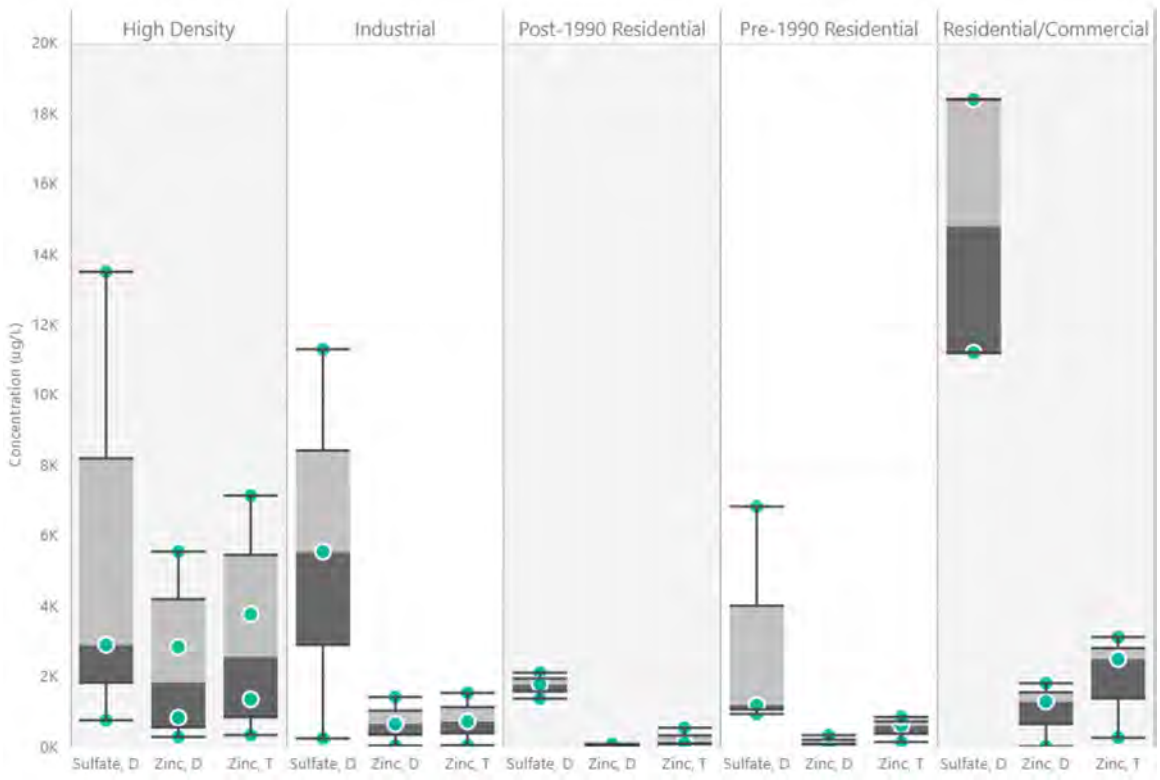


Figure B-5: 2023 Sulfate and Zinc Concentrations by Land-Use Area

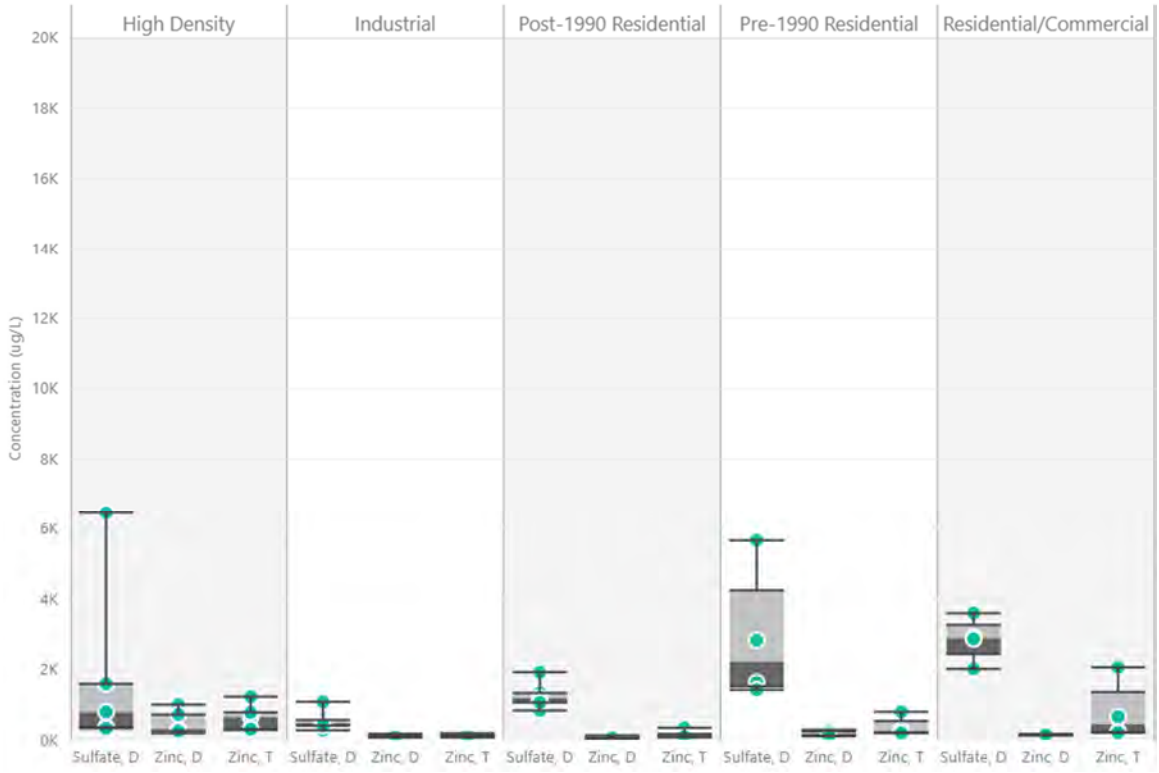


Figure B-6: 2024 Sulfate and Zinc Concentrations by Land-Use Area

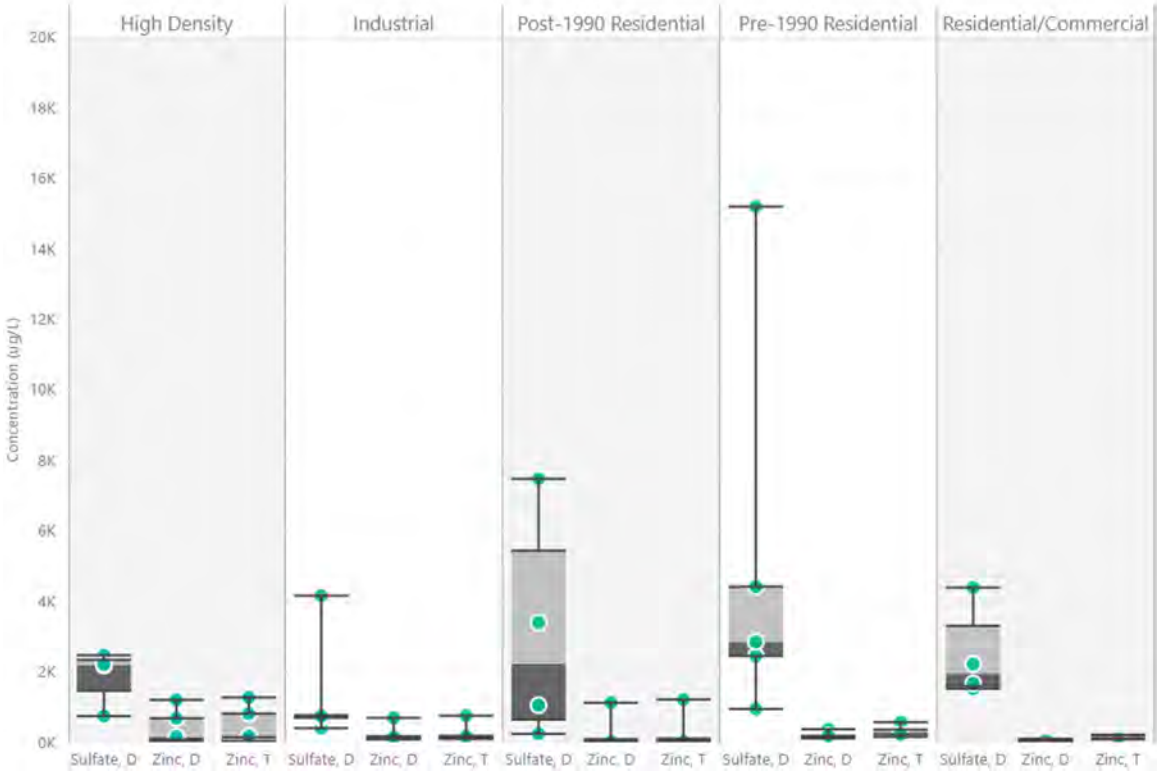
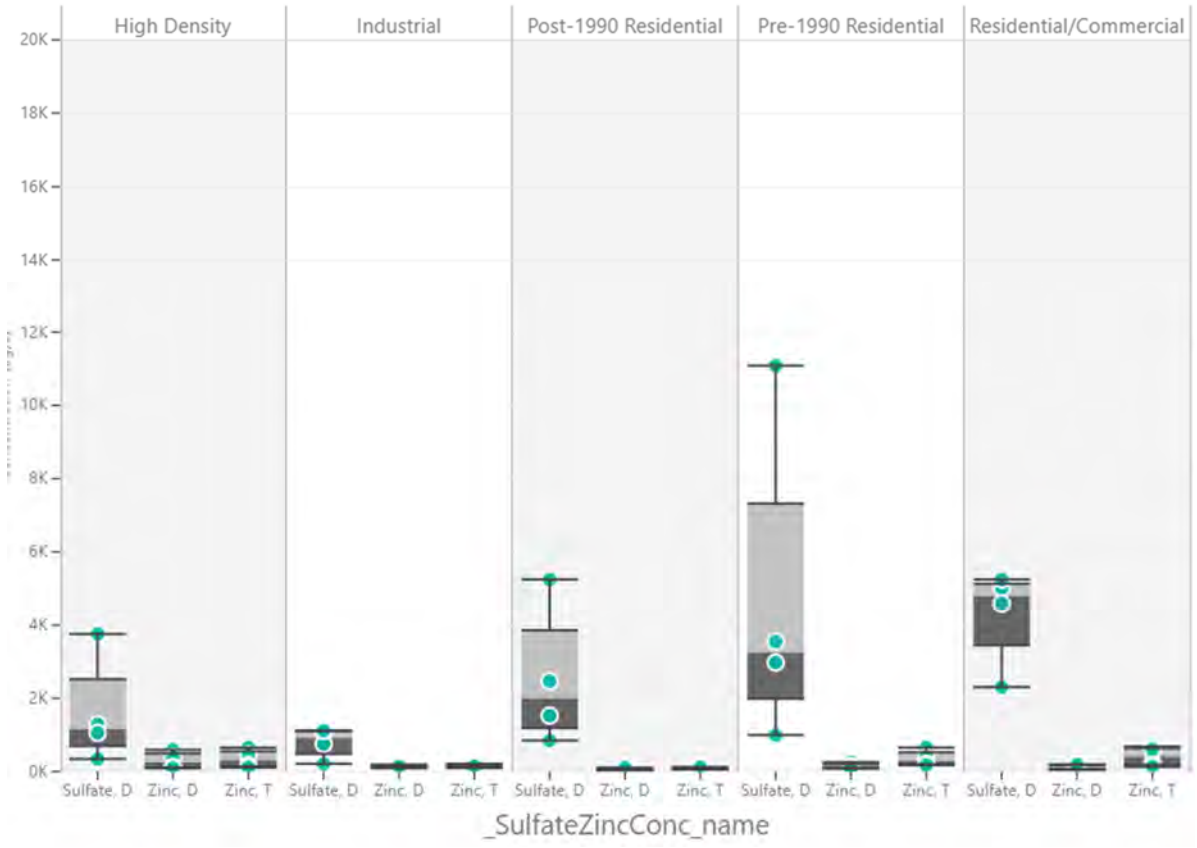


Figure B-7: 2025 Sulfate and Zinc Concentrations by Land-Use Area



E. coli Results

During the 2025-2026 monitoring year, CWS observed *E. coli* concentrations greater than the water quality standard of 406 MPN/100 mL (red line in Figure B-8) at four of the five MS4 monitoring sites. The 209th site had two of four results exceed the standard; the Amberglen, Maple, and Paddington sites each had four of four results exceed the standard. The 39th Loop site did not exceed the standard during this monitoring year. The highest result was 72,700 MPN/100 mL at the Maple location. All other results were below the 10,000 MPN/100 mL action level that triggers an investigation.

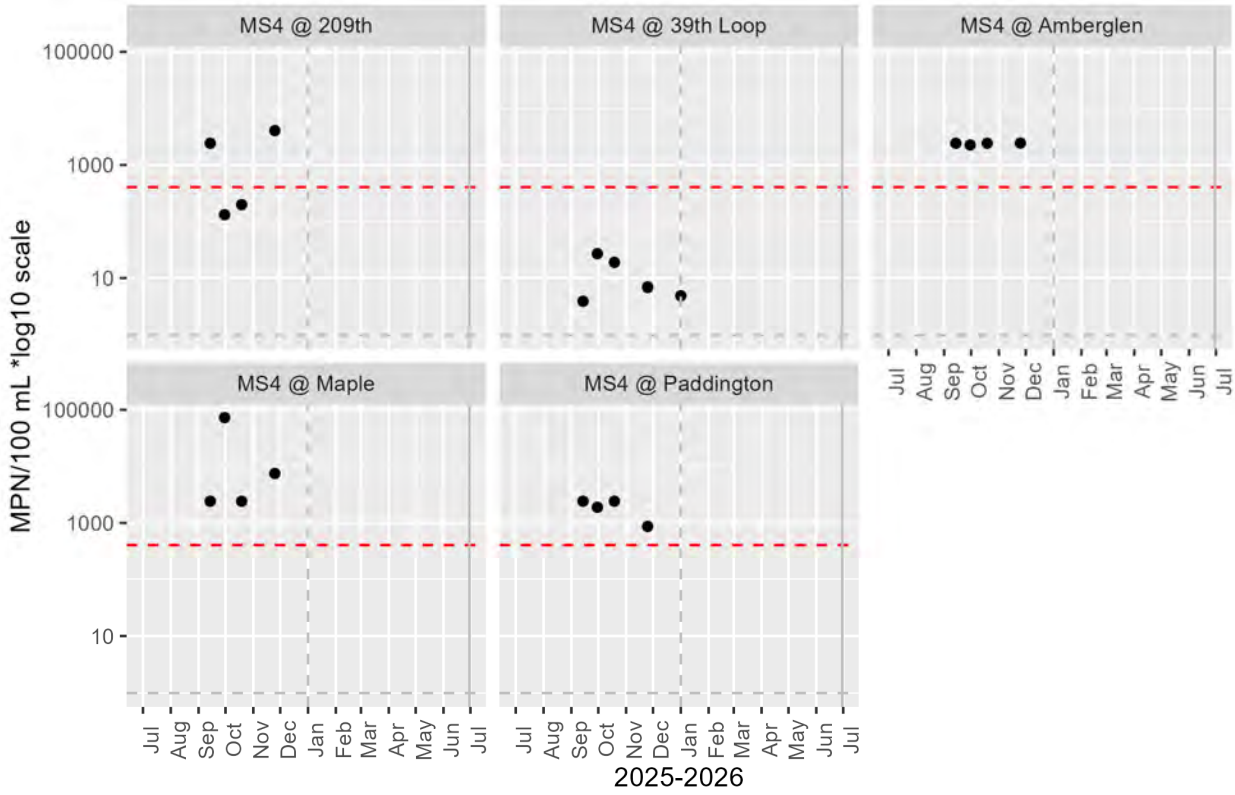
CWS' Environmental Services staff performed an investigation in the Maple sample site subwatershed due to an elevated sample result for *E. coli*. The sample was taken on September 20, 2025, and an investigation was performed on September 30, 2025. The investigation identified multiple vehicles parked on the street that are suspected of being used as living accommodations for houseless individuals. Additionally, a portable toilet associated with development activities was observed near the sample site. Finally, a pile of garbage bags and several large piles of dog feces were present adjacent to the sampling site. Those were potential sources of the elevated *E. coli*, but they were not proven sources.

CWS continued the Microbial Source Tracking (MST) study using the protocol outlined in The California Microbial Source Identification Manual: A Tiered Approach to Identifying Fecal Pollution Sources to Beaches (Griffith, et al. 2013). CWS will continue the MST study in the

2026-2027 stormwater year. In addition, CWS regularly does social media outreach to prevent elevated *E. coli* concentrations (see the Supporting Documents section at the end of this appendix).

In the previous monitoring year, 2024-2025, in addition to the MST study, CWS' Environmental Services staff performed an investigation for *E. coli* within the 39th loop sample site subwatershed due to an elevated sample result for *E. coli*, which is unusual for that sample site. The investigation revealed a new industry within the subwatershed that could contribute *E. coli* pollution to stormwater, but no conclusive proof of the origin of the elevated *E. coli* result was found. Staff inspected the new industry and instructed them to install BMPs. Subsequently, no elevated *E. coli* concentrations were observed at the 39th Loop site in the 2025-2026 monitoring year.

Figure B-8: E. coli at MS4 Sampling Locations

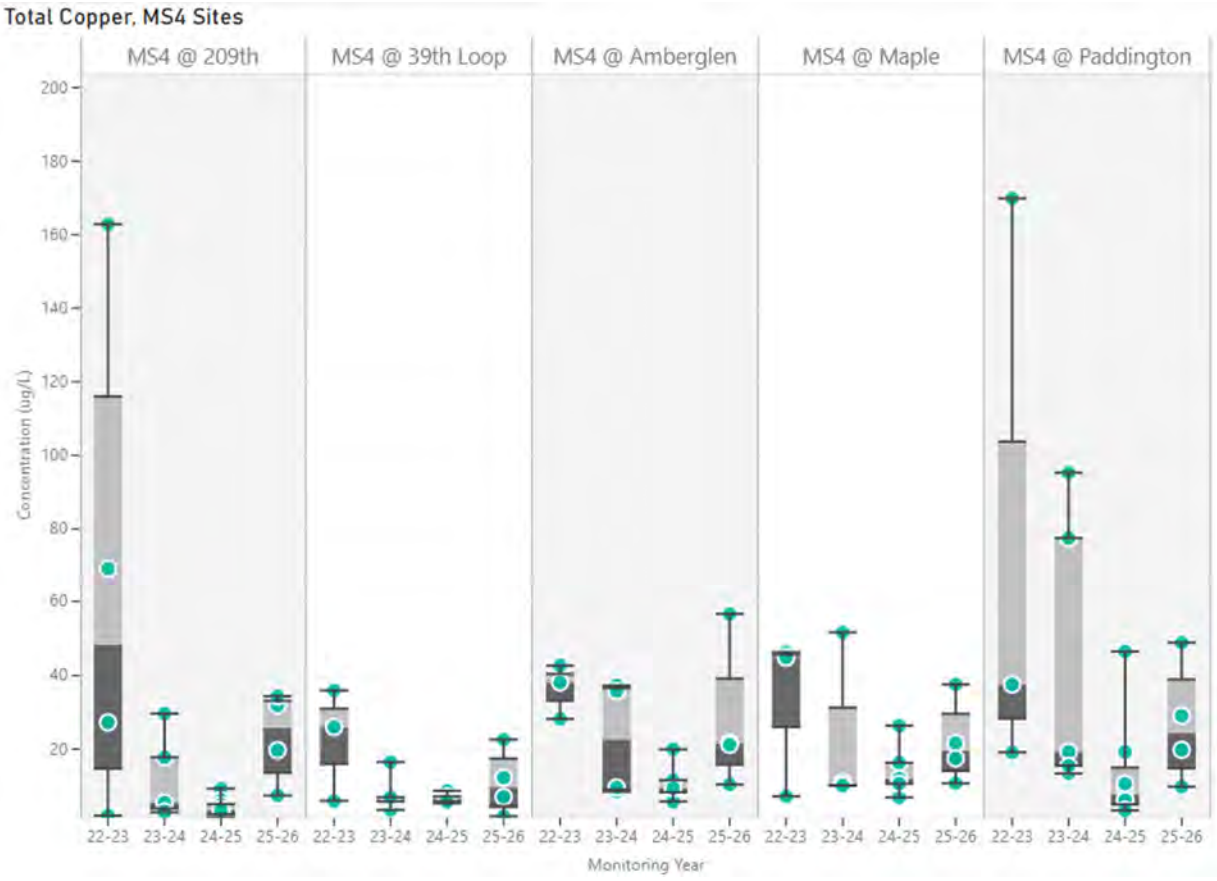


*additional coliform samples taken as part of Microbial Source Tracking study

Copper Results

The maximum total concentration of copper in 2022-2023 was 170 ug/L, the 2023-2024 maximum concentration was 95.4 ug/L, the 2024-2025 maximum concentration was 46.5 ug/L, and 2025-2026 maximum concentration was 56.7 ug/L, a moderate increase over 2024-2025, though still well below 2022-2023 levels. The box plots in Figure B-9 show the general reduction of copper across MS4 sampling locations from 2022 through 2024, though the Amberglen site showed an increase in 2025-2026, with the highest concentration among all sites that year.

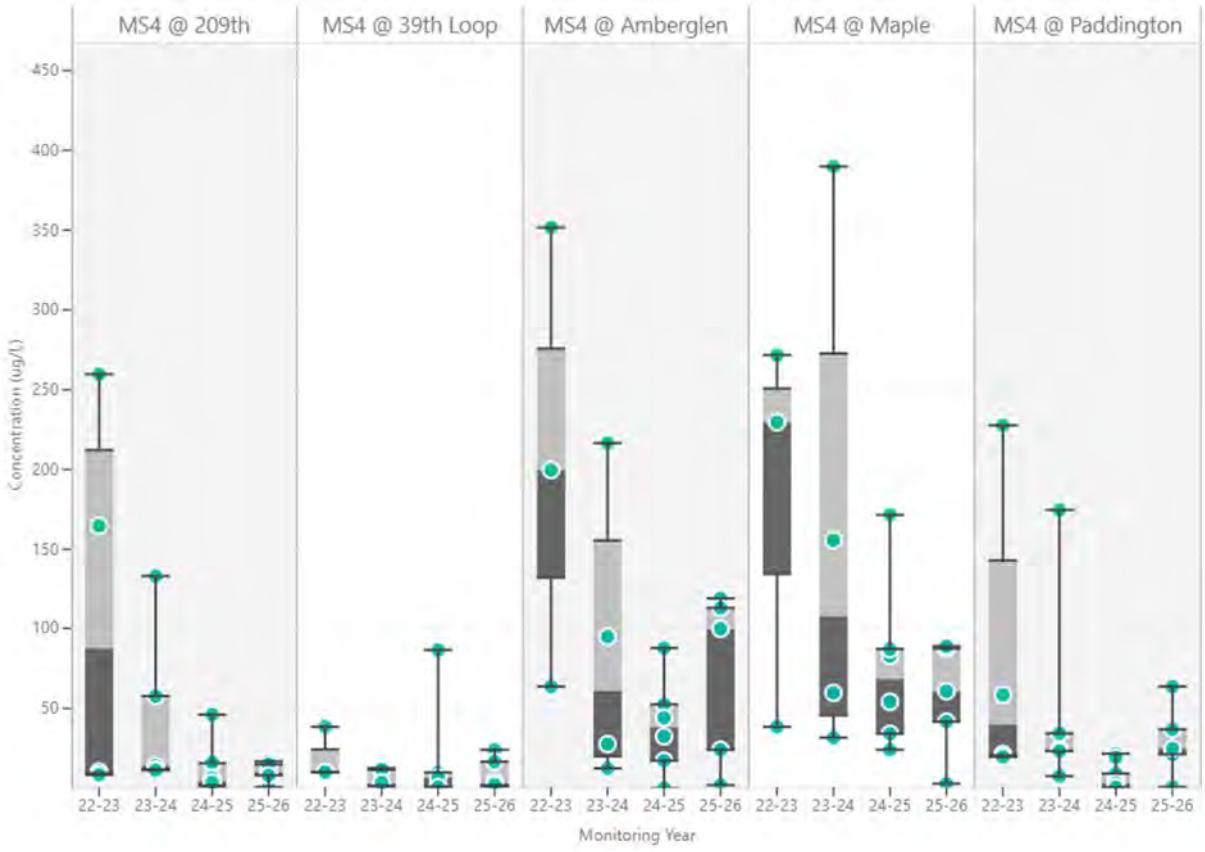
Figure B-9: Total Copper at MS4 Sampling Locations



TSS Results

During the 2025-2026 monitoring period, concentrations of TSS during stormwater sampling events generally decreased from 2022-2023 levels. The maximum total concentration of TSS in 2022-2023 was 352 mg/L, the 2023-2024 maximum concentration was 390 mg/L, the 2024-2025 maximum concentration was 172 mg/L, and in 2025-2026 the maximum concentration was 119 mg/L. The box plots in Figure B-10 show the reduction of TSS across MS4 sampling locations from 2022-2023 through 2025-2026 monitoring periods.

Figure B-10: TSS at MS4 Sampling Locations



Summary

The intermittent nature of stormwater discharges, the size of the drainage area, the land uses they encompass, the diffuse nature of potential sources, the voluntary outreach-based approach in dealing with unregulated residential and commercial sources, and resource limitations make it difficult to identify specific sources and management actions. Despite these challenges, CWS saw improvements in stormwater runoff water quality last year.

Supporting Documents

Figure B-11: Instagram Pick Up After Your Pets Public Outreach

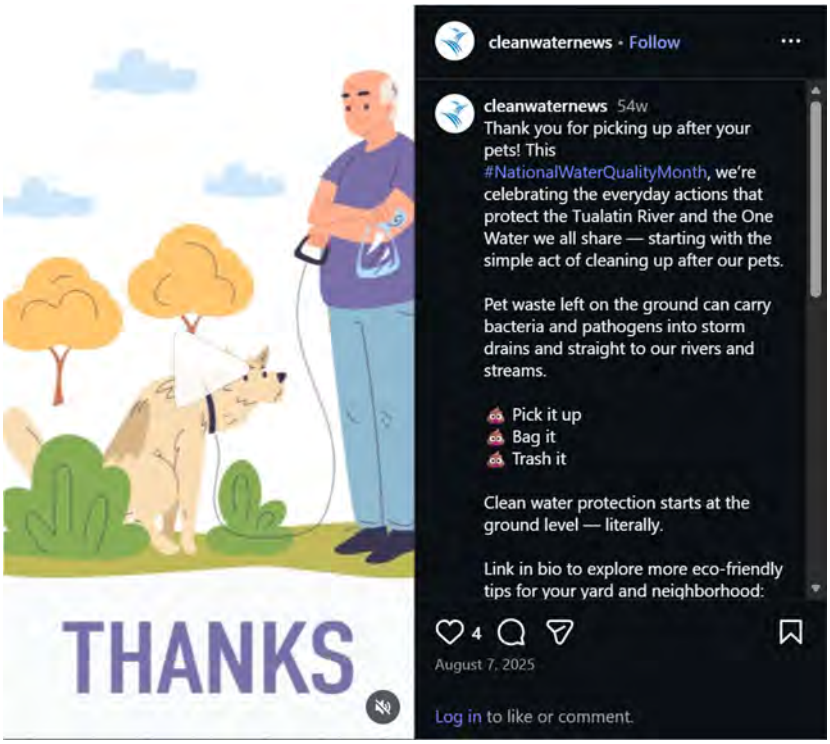
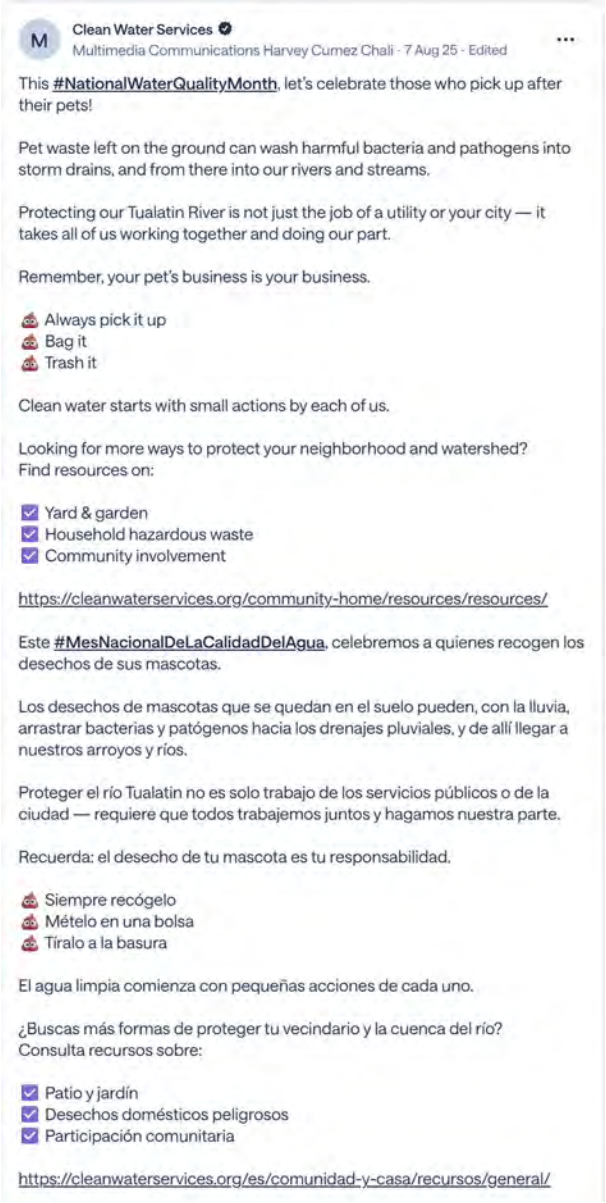


Figure B12: Next Door Pick Up After Your Pets Public Outreach



Clean Water Services
Multimedia Communications Harvey Cumez Chali · 7 Aug 25 · Edited

This #NationalWaterQualityMonth, let's celebrate those who pick up after their pets!

Pet waste left on the ground can wash harmful bacteria and pathogens into storm drains, and from there into our rivers and streams.

Protecting our Tualatin River is not just the job of a utility or your city — it takes all of us working together and doing our part.

Remember, your pet's business is your business.

- Always pick it up
- Bag it
- Trash it

Clean water starts with small actions by each of us.

Looking for more ways to protect your neighborhood and watershed? Find resources on:

- ☑ Yard & garden
- ☑ Household hazardous waste
- ☑ Community involvement

https://cleanwaterservices.org/community-home/resources/resources/

Este #MesNacionalDeLaCalidadDelAgua, celebremos a quienes recogen los desechos de sus mascotas.

Los desechos de mascotas que se quedan en el suelo pueden, con la lluvia, arrastrar bacterias y patógenos hacia los drenajes pluviales, y de allí llegar a nuestros arroyos y ríos.

Proteger el río Tualatin no es solo trabajo de los servicios públicos o de la ciudad — requiere que todos trabajemos juntos y hagamos nuestra parte.

Recuerda: el desecho de tu mascota es tu responsabilidad.

- Siempre recógelo
- Mételo en una bolsa
- Tíralo a la basura

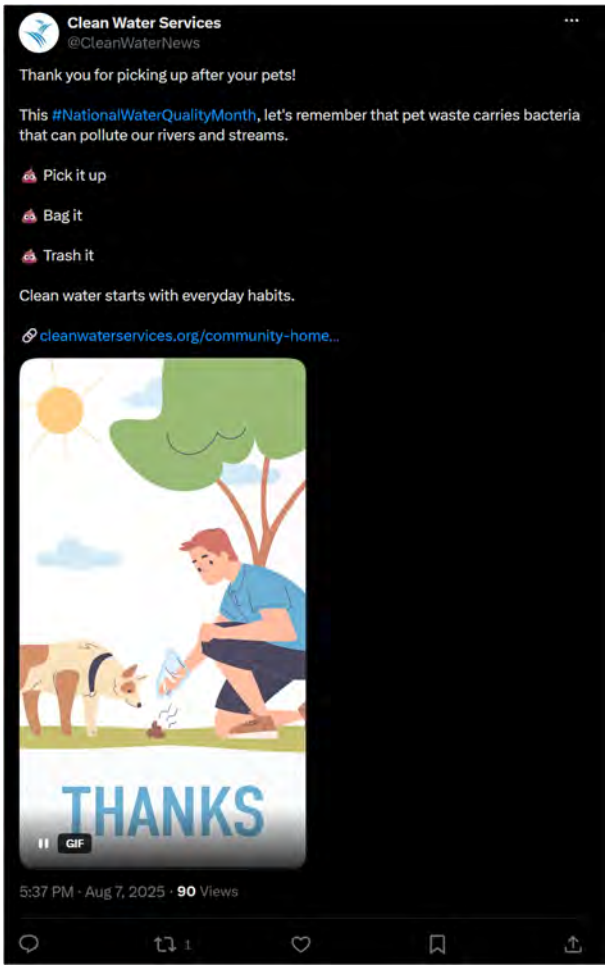
El agua limpia comienza con pequeñas acciones de cada uno.

¿Buscas más formas de proteger tu vecindario y la cuenca del río? Consulta recursos sobre:

- ☑ Patio y jardín
- ☑ Desechos domésticos peligrosos
- ☑ Participación comunitaria

https://cleanwaterservices.org/es/comunidad-y-casa/recursos/general/

Figure B13: X Pick Up After Your Pets Public Outreach



Appendix C: Ambient Monitoring Program

This appendix provides an overview of the ambient monitoring plan and the data specifically required by Table B-1 of the CWS watershed-based NPDES permit. Table B-1 of the Permit requires annual reporting on ambient monitoring that CWS conducts at 15 locations, including the upper and lower portions of the Tualatin River and its tributaries. CWS collects samples at 18 monitoring locations to ensure compliance with this requirement. The sites used during this period are summarized in Table C.1.

Discrete samples are collected and analyzed by the CWS Water Quality Laboratory. In addition, CWS funds the collection of continuous flow and temperature data for many of the ambient sites with continuous monitors. CWS also participates in a cooperative study with the United States Geological Survey (USGS). As part of the study, the USGS collects continuous water quality monitoring data at selected sites in the Tualatin River and its tributaries. Data from these monitoring programs are used to identify trends, calibrate and verify models, and assess the effectiveness of co-implementers' activities.

SAMPLING

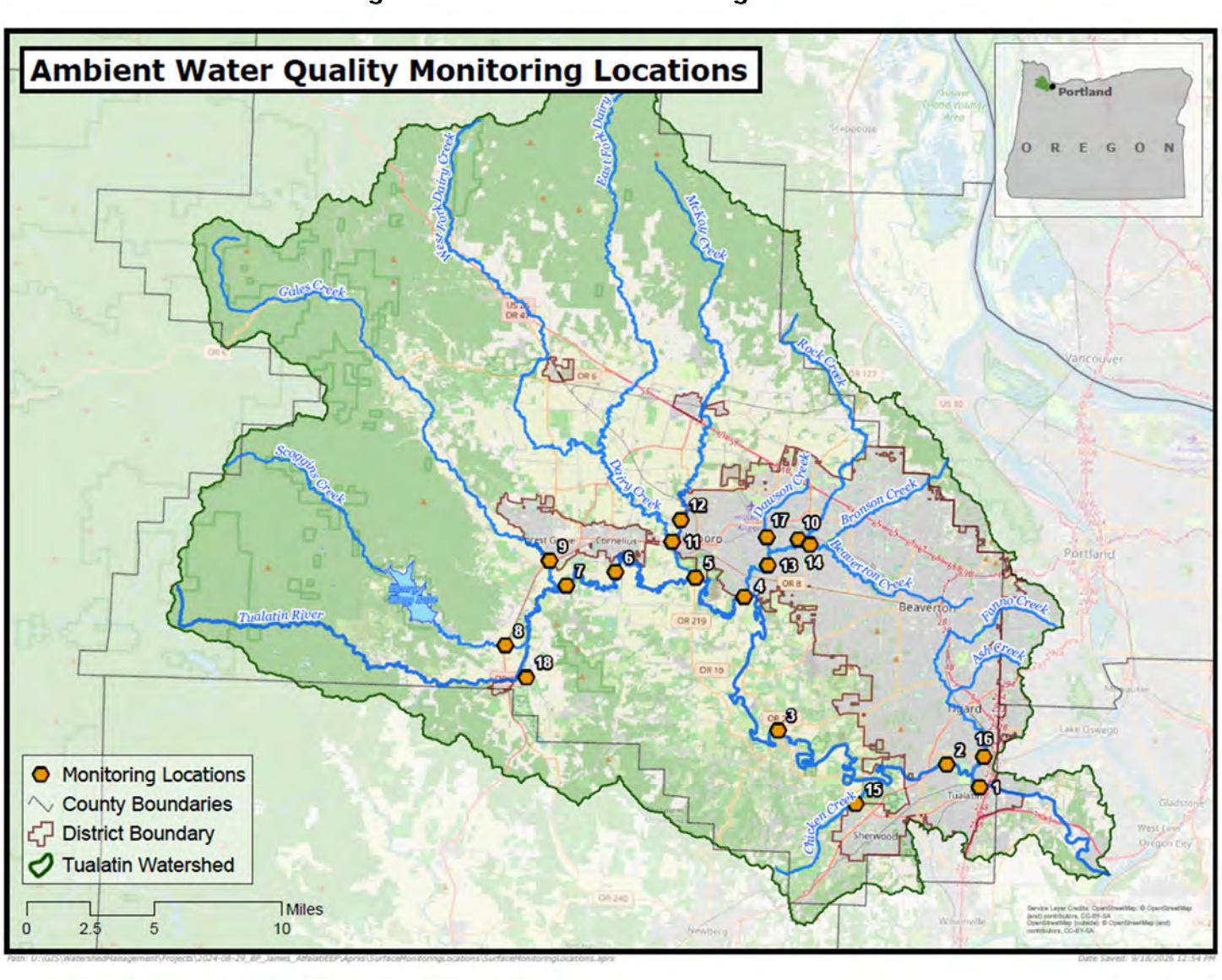
Monitoring and sample analysis are conducted in accordance with the CWS Stormwater Monitoring Plan and Quality Assurance/Quality Control Program Document. Table C-1 presents the monitoring locations that were sampled in accordance with Permit requirements. Monitoring categories reflect the type of tributary monitoring station. Figure C-1 is a map displaying the ambient water quality monitoring locations. This map indicates the monitoring sites with symbols and associated map identification numbers that are included in Table C-1 to allow the reader to associate the monitoring table station name and location code with locations on the map.

Table C-1: Monitoring Sites

Tualatin River Station Name	*Map ID*	*LOCCOD*	*Tributary Station Name*	*Map ID*	*LOCCOD*	*Category*
Boones Ferry Road	1	3701087	Scoggins Creek at New Hwy 47	8	3805011	Source Water
Jurgens Park	2	3701106	Gales Creek at New Hwy 47	9	3810015	Mouth
Hwy 210 Bridge (Scholls)	3	3701271	Rock Creek at Quatama	10	3820047	Mouth
Rood Bridge Road	4	3701391	Dairy Creek at Hwy 8	11	3815021	Mouth
Hwy 219 Bridge[1]	5	3701450	McKay Creek at Padgett	12	3816010	Boundary
Golf Course Road	6	3701528	Rock Creek at Brookwood	13	3820022	Mouth
Fern Hill Road[2]	7	3701569	Beaverton Creek near Orenco	14	3821012	Urban
			Chicken Creek at Scholls-Sherwood	15	3835020	Mouth
			Fanno Creek at Durham Road	16	3840012	Mouth
			Dawson Creek at Brookwood	17	3850006	Urban
			Wapato Creek at Gaston Rd	18	3848010	Mouth

[1]Field parameters are obtained from the USGS continuous gauge at the time and date most similar to the grab sample.
[2]Alternate site for this location is the Tualatin River at the Springhill Water Plant, at river mile 58.0.

Figure C-1: Ambient Monitoring Locations



PARAMETERS

Table C-2 displays a summary of the routine monitoring parameters. These are the parameters specified by Permit Table B-24.

Table C-2: Water Quality Parameters	
Field	*Method Reporting Limits*
Dissolved Oxygen	0.1 mg/L
pH	0.1 S.U.
Temperature	0.1 °C
Conductivity	1 µS/cm
Turbidity	0.1 FNU
Conventional/Nutrients	
E. coli	1 MPN/100 mL
Hardness	0.5 mg/L
Total Organic Carbon (NPOC)	0.5 mg/L
Total Suspended Solids	0.5 mg/L
Total Phosphorus	0.025 mg/L
Soluble Ortho-Phosphorus	0.005 mg/L
Ammonia-Nitrogen	0.01 mg/L
Nitrite + Nitrate Nitrogen	0.01 mg/L
Metals (Total and Dissolved)	
Copper, dissolved	0.400 µg/L
Copper, total	0.400 – 2.00 µg/L
Lead, dissolved	0.100 µg/L
Lead, total	0.100 µg/L
Zinc, dissolved	2.50 – 5.00 µg/L
Zinc, total	2.50 – 5.00 µg/L
Mercury, dissolved	0.200 ng/L
Mercury, total	0.200 ng/L

RESULTS

The qualifier codes were described in Table B-4 in Appendix B.

Tables C-3 to C-19 present summary statistics of the ambient monitoring data from 17 monitoring sites for July 1, 2025, to June 30, 2026. CWS includes the monitoring results at two additional ambient monitoring sites (Tualatin River at Golf Course Road and Rock Creek at Quatama). These sites were monitored for the full complement of water quality parameters specified in the Permit. All sites were sampled three or more times between May 1 and October 31 and three or more times between November 1 and April 30, quarterly for metals, and semiannually for mercury.

The monitoring site located at the Tualatin River at Highway 219 Bridge was not used for watershed monitoring when the Hillsboro WRRF was not directly discharging to the Tualatin River. The backup site at the Tualatin River at Golf Course Road was used in its place.

Sampling at the Scoggins Creek tributary below Hagg Lake was stopped in 2025 due to issues with access. CWS replaced this site with a new monitoring location, Scoggins Creek at New Highway 47, which is located less than 4 miles downstream from the former monitoring location.

Tables C-3 to C-19 display the minimum, median, maximum, and selected percentiles of the data. The Method Reporting Limit (MRL) values were used in the calculation of summary statistics for cases where the result was less than the MRL (nondetects). For example, if the result was <2, the value 2 was used in the statistical calculations.

Table C-3: Ambient Monitoring Data Statistical Summary for Tualatin River at Boones Ferry Road									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	25	0.047	0.05	0.058	0.142	0.289	0.4066	0.562
Conductivity, Field	µS/cm	25	88.1	119.86	146.6	221.4	265.5	295.56	304.3
Copper, Dissolved	µg/L	6	0.895	0.9365	0.996	1.14	1.53	1.73	1.83
Copper, Total Recoverable	µg/L	6	1.62	1.715	1.865	2.03	2.03	2.105	2.18
Dissolved Oxygen	mg/L	25	5.47	5.89	6.76	7.52	9.48	10.086	10.64
E. coli, Most Probable Number	MPN/100 mL	24	15	16.3	18.5	30	63.75	109.2	131
Hardness, Total	mg/L	6	47.1	50.75	55.575	62.9	67.9	74.05	79.8
Lead, Dissolved	µg/L	6	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	6	0.11	0.126	0.1435	0.1755	0.21875	0.269	0.314
Mercury by Purge & Trap, Dissolved	ng/L	2	0.549	0.6381	0.77175	0.9945	1.21725	1.3509	1.44
Mercury by Purge & Trap, Total	ng/L	2	1.23	1.363	1.5625	1.895	2.2275	2.427	2.56
Nitrate/Nitrite-N, Dissolved	mg/L	24	1.05	1.443	1.7275	2.515	3.48	4.06	4.28
Organic Carbon, Total Non-purgeable	mg/L	23	1.9	2.064	2.38	2.96	3.695	4.394	5.27
Orthophosphate-P, Dissolved	mg/L	23	0.037	0.0402	0.044	0.06	0.0915	0.11	0.411
pH, Field	S.U.	25	6.76	6.844	6.93	7.03	7.07	7.136	7.19
Temperature	°C	25	6.113	8.189	10.162	12.502	18.781	21.318	23.668
Total Phosphorus-P	mg/L	24	0.075	0.0816	0.09625	0.118	0.16175	0.2795	0.484
Total Suspended Solids	mg/L	24	2.8	3.46	4.3	6.335	8.85	16.16	30.4
Turbidity, Field	NTU	25	2.23	2.562	3.23	5.38	8.74	13.67	32.99
Zinc, Dissolved	µg/L	6	5.08	5.08	5.1925	5.69	7.2375	8.17	8.64
Zinc, Total Recoverable	µg/L	6	5.67	6.37	7.3675	8.49	9.4475	10.545	11.4

Table C-4: Ambient Monitoring Data Statistical Summary for Tualatin River at Jurgens Park									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	25	0.011	0.0238	0.045	0.082	0.206	0.2874	0.327
Conductivity, Field	µS/cm	25	83.6	111.78	135.6	200.7	240.4	271	308.8
Copper, Dissolved	µg/L	6	0.898	0.921	0.9705	1.18	1.5425	1.695	1.77
Copper, Total Recoverable	µg/L	6	1.54	1.7	1.9025	2.03	2.03	2.05	2.07
Dissolved Oxygen	mg/L	25	5.32	5.766	6.75	7.37	9.52	10.092	10.71
E. coli, Most Probable Number	MPN/100 mL	24	15	17.3	22.5	29	49.75	93	228
Hardness, Total	mg/L	6	45.4	48.9	53.45	56.7	66.85	72.9	75.6
Lead, Dissolved	µg/L	6	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	6	0.104	0.1045	0.11025	0.1285	0.16925	0.205	0.228
Mercury by Purge & Trap, Dissolved	ng/L	2	0.475	0.5695	0.71125	0.9475	1.18375	1.3255	1.42
Mercury by Purge & Trap, Total	ng/L	2	1.04	1.168	1.36	1.68	2	2.192	2.32
Nitrate/Nitrite-N, Dissolved	mg/L	23	1	1.25	1.5	1.98	2.49	3.246	4.51
Organic Carbon, Total Non-purgeable	mg/L	23	1.79	1.962	2.145	2.69	3.4	4.092	5.13
Orthophosphate-P, Dissolved	mg/L	23	0.035	0.0382	0.042	0.05	0.069	0.0984	0.336
pH, Field	S.U.	25	6.6	6.708	6.9	7.01	7.1	7.148	7.21
Temperature	°C	25	5.76	7.9562	10.068	11.992	18.608	21.3282	23.938
Total Phosphorus-P	mg/L	24	0.076	0.0793	0.088	0.11	0.13575	0.2183	0.405
Total Suspended Solids	mg/L	24	2.4	2.66	3.2	5.3	8.05	15.2	24
Turbidity, Field	NTU	25	2.17	2.564	3.26	5.64	9.03	13.654	32.22
Zinc, Dissolved	µg/L	6	4.74	4.91	5.08	5.08	5.605	6.54	7.3
Zinc, Total Recoverable	µg/L	6	5.07	5.075	5.08	5.15	6.6075	7.885	8.7

Table C-5: Ambient Monitoring Data Statistical Summary for Tualatin River at Highway 210 Bridge (Scholls)									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	18	0.04	0.0431	0.05675	0.0855	0.20225	0.3046	0.389
Conductivity, Field	µS/cm	20	79.5	115.15	138.3	170.15	240.825	274.51	331.8
Copper, Dissolved	µg/L	4	0.89	0.8978	0.9095	1.183	1.54	1.702	1.81
Copper, Total Recoverable	µg/L	4	1.82	1.883	1.9775	2.03	2.2125	2.541	2.76
Dissolved Oxygen	mg/L	20	7.32	7.504	7.675	8.435	9.48	10.091	11.29
E. coli, Most Probable Number	MPN/100 mL	20	19	34.3	39.5	57.5	86.25	112.6	201
Hardness, Total	mg/L	4	50.1	50.82	51.9	54.85	58.925	62.03	64.1
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.17	0.1739	0.17975	0.2355	0.29525	0.3083	0.317
Mercury by Purge & Trap, Dissolved	ng/L	2	0.467	0.5283	0.62025	0.7735	0.92675	1.0187	1.08
Mercury by Purge & Trap, Total	ng/L	2	1.12	1.241	1.4225	1.725	2.0275	2.209	2.33
Nitrate/Nitrite-N, Dissolved	mg/L	20	0.04	1.3207	1.6675	1.985	3.4575	4.065	4.49
Organic Carbon, Total Non-purgeable	mg/L	19	1.73	1.908	2.085	2.72	3.205	4.374	5.14
Orthophosphate-P, Dissolved	mg/L	19	0.035	0.0358	0.0435	0.053	0.1045	0.2532	0.888
pH, Field	S.U.	20	6.9	6.93	7.0025	7.1	7.1425	7.201	7.25
Temperature	°C	20	4.942	8.1513	9.99	13.0475	16.80375	19.871	20.193
Total Phosphorus-P	mg/L	20	0.08	0.0886	0.09925	0.116	0.16425	0.3261	0.969
Total Suspended Solids	mg/L	20	6.2	6.76	7.8	8.75	13.25	16.82	19.8
Turbidity, Field	NTU	20	4.7	5.018	5.6175	7.105	11.55	13.894	22.58
Zinc, Dissolved	µg/L	4	5.08	5.08	5.08	5.08	5.6025	6.543	7.17
Zinc, Total Recoverable	µg/L	4	6.32	6.323	6.3275	7.235	8.4825	9.099	9.51

Table C-6: Ambient Monitoring Data Statistical Summary for Tualatin River at Rood Bridge Road									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	24	0.01	0.0159	0.0195	0.027	0.03125	0.0347	0.038
Conductivity, Field	µS/cm	26	69.6	93.35	97.45	104.05	108.825	122.65	134.8
Copper, Dissolved	µg/L	6	0.749	0.75	0.792	0.9825	1.4625	1.64	1.68
Copper, Total Recoverable	µg/L	6	1.56	1.615	1.76	2.03	2.1275	2.535	2.91
Dissolved Oxygen	mg/L	26	8.07	8.3	8.605	9.21	10.045	10.6	11.71
E. coli, Most Probable Number	MPN/100 mL	24	20	32.5	47.75	82	136.75	174.4	179
Hardness, Total	mg/L	6	33.9	35.6	37.675	38.85	41.6	42.8	43.1
Lead, Dissolved	µg/L	6	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	6	0.114	0.119	0.1515	0.238	0.25775	0.3	0.337
Mercury by Purge & Trap, Dissolved	ng/L	2	0.377	0.4533	0.56775	0.7585	0.94925	1.0637	1.14
Mercury by Purge & Trap, Total	ng/L	2	0.958	1.0902	1.2885	1.619	1.9495	2.1478	2.28
Nitrate/Nitrite-N, Dissolved	mg/L	24	0.051	0.08	0.147	0.542	1.235	1.379	1.64
Organic Carbon, Total Non-purgeable	mg/L	22	1.38	1.508	1.6225	1.83	2.395	3.171	5.22
Orthophosphate-P, Dissolved	mg/L	23	0.02	0.022	0.0235	0.028	0.033	0.0378	0.039
pH, Field	S.U.	26	6.17	6.515	6.745	6.955	7.24	7.27	7.49
Temperature	°C	26	4.436	7.597	9.30175	12.011	16.74125	17.898	18.64
Total Phosphorus-P	mg/L	24	0.057	0.0646	0.07	0.0795	0.08575	0.1069	0.119
Total Suspended Solids	mg/L	24	5.2	6.52	7	9.3	17.25	19.54	23
Turbidity, Field	NTU	26	5.14	5.495	6.0225	7.005	12.125	14.83	19.3
Zinc, Dissolved	µg/L	6	2.54	2.54	3.175	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	6	2.54	2.725	3.4525	5.08	5.08	5.08	5.08

Table C-7: Ambient Monitoring Data Statistical Summary for Tualatin River at Hwy 219 Bridge									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	12	0.01	0.0106	0.01825	0.0235	0.02925	0.03	0.031
Conductivity, Field	µS/cm	14	68.5	91.9	96	102.5	106	116.4	119
Copper, Dissolved	µg/L	3	0.74	0.7438	0.7495	0.759	0.8775	0.9486	0.996
Copper, Total Recoverable	µg/L	4	2.03	2.03	2.03	2.03	2.03	2.03	2.03
Dissolved Oxygen	mg/L	14	8.73	9.02	9.425	10.135	10.85	10.9	11.9
E. coli, Most Probable Number	MPN/100 mL	11	20	24	30	35	59	101	108
Hardness, Total	mg/L	11	26.9	34.1	36.65	40.6	41.75	47.5	47.9
Lead, Dissolved	µg/L	3	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.209	0.2114	0.215	0.2585	0.313	0.3364	0.352
Mercury by Purge & Trap, Dissolved	ng/L	1	0.664	0.664	0.664	0.664	0.664	0.664	0.664
Mercury by Purge & Trap, Total	ng/L	1	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Nitrate/Nitrite-N, Dissolved	mg/L	11	0.342	0.479	0.6025	1.19	1.315	1.44	1.45
Organic Carbon, Total Non-purgeable	mg/L	10	1.24	1.438	1.535	1.69	2.12	2.834	3.05
Orthophosphate-P, Dissolved	mg/L	11	0.019	0.019	0.0205	0.022	0.027	0.031	0.032
pH, Field	S.U.	14	6.8	6.865	7	7.1	7.2	7.221	7.3
Temperature	°C	14	4.3	7.2	7.375	9.35	10.4	12	15.27
Total Phosphorus-P	mg/L	11	0.066	0.068	0.0735	0.075	0.08	0.087	0.103
Total Suspended Solids	mg/L	11	5	7.2	12.9	14.6	16.9	18.6	18.6
Turbidity, Field	NTU	14	6.5	7.26	9.05	13.1	15.975	19.28	56.5
Zinc, Dissolved	µg/L	3	5.08	5.08	5.08	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	4	5.08	5.08	5.08	5.08	5.18	5.36	5.48

Table C-8: Ambient Monitoring Data Statistical Summary for Tualatin River at Golf Course Road									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	20	0.01	0.01	0.01075	0.017	0.02025	0.0211	0.023
Conductivity, Field	µS/cm	21	65.8	80.4	86.9	91.5	95.6	99.4	104.9
Copper, Dissolved	µg/L	4	0.785	0.7904	0.7985	0.8595	0.9745	1.0798	1.15
Copper, Total Recoverable	µg/L	4	1.53	1.68	1.905	2.03	2.275	2.716	3.01
Dissolved Oxygen	mg/L	21	8.51	9.16	9.59	9.94	10.63	10.78	11.64
E. coli, Most Probable Number	MPN/100 mL	21	23	37	46	91	120	185	261
Hardness, Total	mg/L	4	28.6	30.82	34.15	37.15	38.65	39.28	39.7
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.103	0.1036	0.1045	0.118	0.17025	0.2409	0.288
Mercury by Purge & Trap, Dissolved	ng/L	2	0.273	0.3032	0.3485	0.424	0.4995	0.5448	0.575
Mercury by Purge & Trap, Total	ng/L	2	0.688	0.7322	0.7985	0.909	1.0195	1.0858	1.13
Nitrate/Nitrite-N, Dissolved	mg/L	21	0.026	0.028	0.144	0.318	0.537	0.682	0.853
Organic Carbon, Total Non-purgeable	mg/L	20	0.965	1.058	1.1825	1.335	1.71	1.963	2.6
Orthophosphate-P, Dissolved	mg/L	20	0.008	0.009	0.014	0.016	0.017	0.0204	0.026
pH, Field	S.U.	21	6.36	6.57	6.73	7.03	7.17	7.24	7.39
Temperature	°C	21	5.146	7.907	8.568	11.488	14.132	14.483	18.393
Total Phosphorus-P	mg/L	21	0.032	0.033	0.042	0.046	0.066	0.076	0.084
Total Suspended Solids	mg/L	21	2.6	5	5.8	8.6	18.6	20.4	23.2
Turbidity, Field	NTU	21	2.94	4.08	5.19	6.07	14.39	14.74	19.54
Zinc, Dissolved	µg/L	4	2.54	3.302	4.445	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	4	4.65	4.779	4.9725	5.08	5.0825	5.087	5.09

Table C-9: Ambient Monitoring Data Statistical Summary for Tualatin River at Fern Hill Road									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	24	0.01	0.01	0.011	0.0145	0.01875	0.021	0.026
Conductivity, Field	µS/cm	23	66.88	69.336	74.395	85.93	92.05	96.958	106.93
Copper, Dissolved	µg/L	5	0.667	0.6994	0.748	0.753	0.775	0.8422	0.887
Copper, Total Recoverable	µg/L	5	1.51	1.546	1.6	1.88	2.03	2.12	2.18
Dissolved Oxygen	mg/L	22	7.62	8.424	8.9825	9.51	10.3575	10.891	11.46
E. coli, Most Probable Number	MPN/100 mL	24	17	26	42	80.5	121.75	199.5	238
Hardness, Total	mg/L	5	27.1	27.98	29.3	30.9	34.9	37.3	38.9
Lead, Dissolved	µg/L	5	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	5	0.102	0.1072	0.115	0.129	0.13	0.1918	0.233
Mercury by Purge & Trap, Dissolved	ng/L	2	0.289	0.3311	0.39425	0.4995	0.60475	0.6679	0.71
Mercury by Purge & Trap, Total	ng/L	2	0.686	0.7564	0.862	1.038	1.214	1.3196	1.39
Nitrate/Nitrite-N, Dissolved	mg/L	24	0.017	0.0239	0.1115	0.199	0.468	0.5341	0.629
Organic Carbon, Total Non-purgeable	mg/L	22	0.966	1.001	1.085	1.22	1.48	1.835	3.28
Orthophosphate-P, Dissolved	mg/L	23	0.005	0.0052	0.0065	0.011	0.0125	0.018	0.024
pH, Field	S.U.	22	6.94	7.102	7.175	7.225	7.35	7.38	7.4
Temperature	°C	23	6.823	8.8116	9.9835	12.21	13.5905	17.656	18.273
Total Phosphorus-P	mg/L	24	0.025	0.0273	0.03	0.0435	0.055	0.0706	0.121
Total Suspended Solids	mg/L	24	3.6	4.66	5.35	8.7	14.35	21.94	43.8
Turbidity, Field	NTU	22	1.78	2.013	3.0675	4.525	10.5175	18.245	53.24
Zinc, Dissolved	µg/L	5	2.54	2.54	2.54	2.54	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	5	2.54	2.604	2.7	5.08	5.08	5.992	6.6

Table C-10: Ambient Monitoring Data Statistical Summary for Scoggins Creek at New Hwy 47									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	17	0.01	0.01	0.01	0.014	0.027	0.031	0.056
Conductivity, Field	µS/cm	17	64	65.5	70.7	79.3	93.8	100.1	101.7
Copper, Dissolved	µg/L	3	0.815	0.8396	0.8765	0.938	0.974	0.9956	1.01
Copper, Total Recoverable	µg/L	3	2.03	2.03	2.03	2.03	2.03	2.03	2.03
Dissolved Oxygen	mg/L	17	9.47	9.92	10.71	11.51	11.95	12.03	12.15
E. coli, Most Probable Number	MPN/100 mL	17	1	12.8	18	26	40	122.8	345
Hardness, Total	mg/L	3	29.4	30.16	31.3	33.2	34.85	35.84	36.5
Lead, Dissolved	µg/L	3	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	3	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Mercury by Purge & Trap, Dissolved	ng/L	2	0.318	0.3376	0.367	0.416	0.465	0.4944	0.514
Mercury by Purge & Trap, Total	ng/L	2	0.834	0.8487	0.87075	0.9075	0.94425	0.9663	0.981
Nitrate/Nitrite-N, Dissolved	mg/L	17	0.02	0.1492	0.224	0.253	0.42	0.5348	0.797
Organic Carbon, Total Non-purgeable	mg/L	14	0.988	1.032	1.0825	1.34	1.615	1.87	2.64
Orthophosphate-P, Dissolved	mg/L	17	0.005	0.005	0.005	0.01	0.012	0.013	0.024
pH, Field	S.U.	17	6.88	6.938	7.04	7.12	7.25	7.298	7.35
Temperature	°C	17	4.97	6.7012	7.819	8.311	9.254	10.9372	13.52
Total Phosphorus-P	mg/L	17	0.025	0.025	0.025	0.039	0.044	0.0444	0.071
Total Suspended Solids	mg/L	17	1.3	1.52	1.8	3.8	5.4	7.062	8.6
Turbidity, Field	NTU	17	2.89	3.294	4.16	5.23	8.51	12.014	15.98
Zinc, Dissolved	µg/L	3	5.08	5.08	5.08	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	3	5.08	5.08	5.08	5.08	5.08	5.08	5.08

Table C-11: Ambient Monitoring Data Statistical Summary for Gales Creek at New Highway 47									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	21	0.01	0.01	0.011	0.013	0.016	0.024	0.028
Conductivity, Field	µS/cm	21	67.1	80.7	93	107.9	127.9	139.5	143.9
Copper, Dissolved	µg/L	4	0.505	0.5128	0.5245	0.7345	0.971	1.0304	1.07
Copper, Total Recoverable	µg/L	4	1.42	1.603	1.8775	2.03	2.0825	2.177	2.24
Dissolved Oxygen	mg/L	21	7.34	7.77	9.03	10.37	11.01	11.36	12.6
E. coli, Most Probable Number	MPN/100 mL	20	12	16.8	26	56	113.75	220.9	345
Hardness, Total	mg/L	4	35.6	37.55	40.475	42.95	46.5	51.36	54.6
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.102	0.102	0.102	0.1135	0.13625	0.1565	0.17
Mercury by Purge & Trap, Dissolved	ng/L	2	0.265	0.3284	0.4235	0.582	0.7405	0.8356	0.899
Mercury by Purge & Trap, Total	ng/L	2	0.517	0.6353	0.81275	1.1085	1.40425	1.5817	1.7
Nitrate/Nitrite-N, Dissolved	mg/L	21	0.04	0.041	0.094	0.17	0.345	0.454	0.71
Organic Carbon, Total Non-purgeable	mg/L	18	0.639	0.7868	0.8415	1.085	1.435	2.012	2.7
Orthophosphate-P, Dissolved	mg/L	21	0.01	0.013	0.014	0.017	0.022	0.025	0.029
pH, Field	S.U.	21	6.58	6.94	7.01	7.21	7.31	7.4	7.43
Temperature	°C	21	3.511	7.505	7.996	10.099	14.033	18.838	21.223
Total Phosphorus-P	mg/L	21	0.029	0.032	0.032	0.044	0.051	0.067	0.185
Total Suspended Solids	mg/L	20	2.2	2.773	3.85	4.8	9.9	31.34	112
Turbidity, Field	NTU	21	1.89	2.25	2.53	4.06	5.91	15.82	47.75
Zinc, Dissolved	µg/L	4	2.56	3.316	4.45	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	4	5.08	5.08	5.08	5.08	5.64	6.648	7.32

Table C-12: Ambient Monitoring Data Statistical Summary for Rock Creek at Quatama									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	21	0.01	0.019	0.024	0.03	0.044	0.062	0.07
Conductivity, Field	µS/cm	21	100.3	123	139.3	189.8	257	285.8	337.7
Copper, Dissolved	µg/L	4	0.473	0.5873	0.75875	0.9025	1.34325	2.0493	2.52
Copper, Total Recoverable	µg/L	4	0.855	1.2075	1.73625	2.03	2.2975	2.779	3.1
Dissolved Oxygen	mg/L	21	2.88	4.06	5.36	8.61	10.06	10.76	12.61
E. coli, Most Probable Number	MPN/100 mL	21	17	22	32	131	344	727	1550
Hardness, Total	mg/L	4	46.4	50.39	56.375	75.4	106.825	135.13	154
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.19	0.199	0.2125	0.2375	0.261	0.2718	0.279
Mercury by Purge & Trap, Dissolved	ng/L	2	0.434	0.7346	1.1855	1.937	2.6885	3.1394	3.44
Mercury by Purge & Trap, Total	ng/L	2	0.938	1.4042	2.1035	3.269	4.4345	5.1338	5.6
Nitrate/Nitrite-N, Dissolved	mg/L	21	0.04	0.077	0.117	0.186	0.742	0.914	0.977
Organic Carbon, Total Non-purgeable	mg/L	17	2.69	2.828	3.33	4.75	5.51	6.604	6.96
Orthophosphate-P, Dissolved	mg/L	21	0.023	0.026	0.029	0.052	0.076	0.096	0.112
pH, Field	S.U.	21	6.78	6.89	7.04	7.15	7.28	7.3	7.39
Temperature	°C	21	2.305	6.994	8.938	11.567	15.5	18.084	19.146
Total Phosphorus-P	mg/L	21	0.067	0.083	0.086	0.131	0.173	0.202	0.245
Total Suspended Solids	mg/L	21	2	3.2	3.6	6.6	9.8	11.6	49.6
Turbidity, Field	NTU	21	3.86	3.92	5.09	7.93	10.15	12.01	42.44
Zinc, Dissolved	µg/L	4	2.54	3.302	4.445	5.28	43.61	112.244	158
Zinc, Total Recoverable	µg/L	4	6.86	7.082	7.415	8.4	50.4	124.56	174

Table C-13: Ambient Monitoring Data Statistical Summary for Dairy Creek at Highway 8									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	16	0.01	0.022	0.0295	0.034	0.04275	0.0525	0.064
Conductivity, Field	µS/cm	16	99	104.65	111.1	123.2	128.75	133.5	138.5
Copper, Dissolved	µg/L	3	0.554	0.6732	0.852	1.15	1.3	1.39	1.45
Copper, Total Recoverable	µg/L	3	1.25	1.406	1.64	2.03	2.03	2.03	2.03
Dissolved Oxygen	mg/L	16	6.56	6.725	6.865	8.195	10.0875	10.56	12.06
E. coli, Most Probable Number	MPN/100 mL	16	28	43.5	62	82.5	166	224.5	308
Hardness, Total	mg/L	3	45.1	45.48	46.05	47	49.25	50.6	51.5
Lead, Dissolved	µg/L	3	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	3	0.175	0.1956	0.2265	0.278	0.3325	0.3652	0.387
Mercury by Purge & Trap, Dissolved	ng/L	1	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Mercury by Purge & Trap, Total	ng/L	1	2.16	2.16	2.16	2.16	2.16	2.16	2.16
Nitrate/Nitrite-N, Dissolved	mg/L	16	0.086	0.1735	0.219	0.421	1.7125	2.135	3.05
Organic Carbon, Total Non-purgeable	mg/L	14	1.52	1.849	2.58	3.025	3.26	4.39	4.54
Orthophosphate-P, Dissolved	mg/L	16	0.023	0.023	0.03525	0.053	0.06725	0.0745	0.093
pH, Field	S.U.	16	6.72	6.76	6.9	7.02	7.1125	7.22	7.35
Temperature	°C	16	3.446	7.1585	7.87125	10.6325	18.48725	19.0005	19.817
Total Phosphorus-P	mg/L	16	0.07	0.076	0.09775	0.114	0.13425	0.148	0.163
Total Suspended Solids	mg/L	16	2.71	4	4.135	7.65	12.8	17.6	26.8
Turbidity, Field	NTU	16	3.58	3.99	4.425	5.965	9.385	12.84	29.3
Zinc, Dissolved	µg/L	3	2.54	3.048	3.81	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	3	2.55	3.056	3.815	5.08	5.135	5.168	5.19

Table C-14: Ambient Monitoring Data Statistical Summary for McKay Creek at Padgett									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	20	0.01	0.0155	0.01975	0.0265	0.03225	0.0484	0.054
Conductivity, Field	µS/cm	20	77.1	114.04	129.4	147.7	168.55	174.41	187.1
Copper, Dissolved	µg/L	4	0.454	0.4573	0.46225	0.5015	0.7285	1.0714	1.3
Copper, Total Recoverable	µg/L	4	0.688	1.0906	1.6945	2.03	2.03	2.03	2.03
Dissolved Oxygen	mg/L	20	5.51	5.746	7.0125	8.465	10.2075	10.668	12.17
E. coli, Most Probable Number	MPN/100 mL	19	28	32	42.5	112	191.5	328.2	687
Hardness, Total	mg/L	4	55.3	57.43	60.625	64.5	66.95	67.58	68
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.102	0.102	0.102	0.119	0.14175	0.1521	0.159
Mercury by Purge & Trap, Dissolved	ng/L	2	0.467	0.5263	0.61525	0.7635	0.91175	1.0007	1.06
Mercury by Purge & Trap, Total	ng/L	2	0.814	0.8916	1.008	1.202	1.396	1.5124	1.59
Nitrate/Nitrite-N, Dissolved	mg/L	20	0.08	0.0948	0.281	0.7295	1.895	2.263	2.38
Organic Carbon, Total Non-purgeable	mg/L	17	1.34	1.39	1.69	2.2	3.37	4.28	5.08
Orthophosphate-P, Dissolved	mg/L	20	0.02	0.021	0.0255	0.037	0.0575	0.0639	0.074
pH, Field	S.U.	20	6.51	6.776	6.9425	7.075	7.1425	7.27	7.44
Temperature	°C	20	3.721	7.1404	8.59375	11.477	15.59275	18.4661	19.831
Total Phosphorus-P	mg/L	20	0.055	0.055	0.05775	0.0765	0.126	0.1359	0.158
Total Suspended Solids	mg/L	20	2	2.67	2.8	3.8	5.55	7.84	22.6
Turbidity, Field	NTU	20	3.51	3.899	4.27	5.28	6.34	7.252	11.67
Zinc, Dissolved	µg/L	4	2.54	3.302	4.445	5.08	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	4	3.43	3.925	4.6675	5.08	5.08	5.08	5.08

Table C-15: Ambient Monitoring Data Statistical Summary for Rock Creek at Brookwood									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	19	0.01	0.0248	0.0285	0.033	0.0355	0.0472	0.048
Conductivity, Field	µS/cm	19	107	129.1	175.15	192.6	249.3	268.06	375.9
Copper, Dissolved	µg/L	4	1.02	1.086	1.185	1.27	1.655	2.294	2.72
Copper, Total Recoverable	µg/L	4	1.29	1.512	1.845	2.03	2.4375	3.171	3.66
Dissolved Oxygen	mg/L	19	5.48	6.052	7.345	8.76	10.25	10.706	12.58
E. coli, Most Probable Number	MPN/100 mL	18	32	42.7	76	161.5	355.5	450.9	517
Hardness, Total	mg/L	4	44.2	52.84	65.8	91	116	128.6	137
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.162	0.2253	0.32025	0.41	0.4625	0.4904	0.509
Mercury by Purge & Trap, Dissolved	ng/L	2	0.394	0.5576	0.803	1.212	1.621	1.8664	2.03
Mercury by Purge & Trap, Total	ng/L	2	1.12	1.335	1.6575	2.195	2.7325	3.055	3.27
Nitrate/Nitrite-N, Dissolved	mg/L	19	0.097	0.1474	0.1895	0.207	0.6325	0.799	0.917
Organic Carbon, Total Non-purgeable	mg/L	18	2.55	2.894	3.225	4.325	5.5075	5.962	7.36
Orthophosphate-P, Dissolved	mg/L	19	0.032	0.0378	0.0495	0.066	0.104	0.1386	0.163
pH, Field	S.U.	19	6.65	7.048	7.25	7.35	7.43	7.478	7.59
Temperature	°C	19	2.342	7.0722	8.53	11.482	15.119	18.698	19.768
Total Phosphorus-P	mg/L	19	0.098	0.1018	0.1115	0.153	0.1865	0.2282	0.245
Total Suspended Solids	mg/L	19	3.2	4.24	4.8	5.8	10.1	16.64	48
Turbidity, Field	NTU	19	4.09	5.572	6.015	7.51	10.035	12.868	31.43
Zinc, Dissolved	µg/L	4	2.54	3.302	4.445	6.485	28.9175	66.767	92
Zinc, Total Recoverable	µg/L	4	4.85	6.053	7.8575	11.63	38.05	80.62	109

Table C-16: Ambient Monitoring Data Statistical Summary for Beaverton Creek Near Orenco									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	20	0.01	0.0211	0.025	0.0325	0.04075	0.0451	0.057
Conductivity, Field	µS/cm	20	104.5	142.42	183.675	207.65	245.8	255.17	282.1
Copper, Dissolved	µg/L	4	1.39	1.408	1.435	1.54	1.915	2.428	2.77
Copper, Total Recoverable	µg/L	4	1.72	1.825	1.9825	2.115	2.5525	3.259	3.73
Dissolved Oxygen	mg/L	20	4.54	5.386	6.2625	8.275	9.47	10.53	12.44
E. coli, Most Probable Number	MPN/100 mL	18	29	39.9	100.5	160	365	469.1	921
Hardness, Total	mg/L	4	41.9	53.96	72.05	95.05	109	110.8	112
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.1045	0.107	0.107	0.107
Lead, Total Recoverable	µg/L	4	0.288	0.3213	0.37125	0.409	0.453	0.5142	0.555
Mercury by Purge & Trap, Dissolved	ng/L	2	0.425	0.5995	0.86125	1.2975	1.73375	1.9955	2.17
Mercury by Purge & Trap, Total	ng/L	2	1.23	1.483	1.8625	2.495	3.1275	3.507	3.76
Nitrate/Nitrite-N, Dissolved	mg/L	20	0.109	0.1348	0.186	0.2475	0.543	0.7117	0.944
Organic Carbon, Total Non-purgeable	mg/L	18	2.69	2.972	3.34	4.65	5.5275	5.95	6.6
Orthophosphate-P, Dissolved	mg/L	19	0.035	0.0428	0.057	0.086	0.1315	0.154	0.173
pH, Field	S.U.	20	6.89	6.939	7.1425	7.32	7.4425	7.471	7.6
Temperature	°C	20	2.256	7.0867	10.252	12.6645	16.85625	19.4254	20.87
Total Phosphorus-P	mg/L	20	0.109	0.1128	0.1275	0.1575	0.21375	0.2623	0.274
Total Suspended Solids	mg/L	20	2.4	3.84	4.2	5.6	7.75	10.96	32.4
Turbidity, Field	NTU	20	4.58	5.304	5.475	6.745	8.9725	11.888	17.84
Zinc, Dissolved	µg/L	4	2.67	3.393	4.4775	7.79	11.925	14.49	16.2
Zinc, Total Recoverable	µg/L	4	5.26	6.682	8.815	13.15	18.375	22.11	24.6

Table C-17: Ambient Monitoring Data Statistical Summary for Chicken Creek at Scholls-Sherwood									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	21	0.01	0.024	0.028	0.038	0.046	0.059	0.064
Conductivity, Field	µS/cm	21	70.8	81.3	88.7	106.1	140.9	166.8	181.1
Copper, Dissolved	µg/L	4	0.406	0.4363	0.48175	1.0935	2.145	2.982	3.54
Copper, Total Recoverable	µg/L	4	2.03	2.03	2.03	2.12	2.725	3.652	4.27
Dissolved Oxygen	mg/L	21	5.66	5.86	8.13	9.04	10.55	10.95	11.99
E. coli, Most Probable Number	MPN/100 mL	21	35	64	99	167	345	980	2420
Hardness, Total	mg/L	4	37.3	37.81	38.575	41.95	53.15	68	77.9
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.16	0.1714	0.1885	0.1985	0.20675	0.2207	0.23
Mercury by Purge & Trap, Dissolved	ng/L	2	0.487	0.6183	0.81525	1.1435	1.47175	1.6687	1.8
Mercury by Purge & Trap, Total	ng/L	2	1.75	1.933	2.2075	2.665	3.1225	3.397	3.58
Nitrate/Nitrite-N, Dissolved	mg/L	21	0.286	0.359	0.405	0.611	1.06	1.4	1.55
Organic Carbon, Total Non-purgeable	mg/L	20	1.07	1.25	1.53	2.01	3.495	4.253	6.26
Orthophosphate-P, Dissolved	mg/L	20	0.016	0.0188	0.02475	0.0295	0.04425	0.0462	0.054
pH, Field	S.U.	21	6.56	6.66	6.77	7.01	7.1	7.18	7.25
Temperature	°C	21	3.58	7.068	9.233	11.439	13.606	17.949	18.504
Total Phosphorus-P	mg/L	21	0.054	0.062	0.065	0.101	0.122	0.154	0.169
Total Suspended Solids	mg/L	21	2.2	3.2	3.4	4.6	6.4	21.8	32.4
Turbidity, Field	NTU	21	4.67	5.87	6.19	7.46	9.8	14.6	21.69
Zinc, Dissolved	µg/L	4	5.08	5.47	6.055	6.495	7.3575	8.703	9.6
Zinc, Total Recoverable	µg/L	4	5.08	6.736	9.22	10.95	11.75	12.56	13.1

Table C-18: Ambient Monitoring Data Statistical Summary for Fanno Creek at Durham									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	20	0.01	0.0256	0.0295	0.0365	0.04575	0.0648	0.107
Conductivity, Field	µS/cm	21	115.9	145	172.6	213.4	298.1	491.9	663
Copper, Dissolved	µg/L	4	0.994	1.0858	1.2235	1.39	1.7975	2.369	2.75
Copper, Total Recoverable	µg/L	4	1.28	1.505	1.8425	2.21	2.975	4.028	4.73
Dissolved Oxygen	mg/L	21	6.81	7.23	8.55	9.38	10.19	10.78	12.06
E. coli, Most Probable Number	MPN/100 mL	21	56	86	172	276	461	1550	2420
Hardness, Total	mg/L	4	43.9	52.66	65.8	88.55	126.5	167	194
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.118	0.1468	0.166
Lead, Total Recoverable	µg/L	4	0.212	0.2516	0.311	0.503	0.9215	1.3886	1.7
Mercury by Purge & Trap, Dissolved	ng/L	2	0.348	0.4952	0.716	1.084	1.452	1.6728	1.82
Mercury by Purge & Trap, Total	ng/L	2	0.813	1.1747	1.71725	2.6215	3.52575	4.0683	4.43
Nitrate/Nitrite-N, Dissolved	mg/L	23	0.187	0.235	0.282	0.355	0.5535	0.7918	1.13
Organic Carbon, Total Non-purgeable	mg/L	19	2.48	2.79	3.085	3.96	4.35	5.212	5.56
Orthophosphate-P, Dissolved	mg/L	19	0.026	0.0308	0.036	0.044	0.057	0.0672	0.073
pH, Field	S.U.	21	6.93	7.02	7.14	7.26	7.38	7.48	7.59
Temperature	°C	21	3.709	7.373	10.238	11.547	16.553	20.421	21.905
Total Phosphorus-P	mg/L	21	0.087	0.093	0.106	0.11	0.13	0.167	0.256
Total Suspended Solids	mg/L	21	2.2	2.4	3.6	5.6	13.2	18.8	84.8
Turbidity, Field	NTU	21	3.65	4.09	4.9	7.51	12.49	16.16	36.03
Zinc, Dissolved	µg/L	4	2.69	3.887	5.6825	10.64	15.175	16.21	16.9
Zinc, Total Recoverable	µg/L	4	5.58	7.206	9.645	19.8	31.5	36.72	40.2

Table C-19: Ambient Monitoring Data Statistical Summary for Dawson Creek at Brookwood									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	21	0.01	0.028	0.033	0.044	0.059	0.073	0.079
Conductivity, Field	µS/cm	21	140.3	159	265.6	302.6	324.1	371.5	767
Copper, Dissolved	µg/L	4	0.514	0.5359	0.56875	0.6005	0.7805	1.0802	1.28
Copper, Total Recoverable	µg/L	4	0.651	1.0647	1.68525	2.03	2.03	2.03	2.03
Dissolved Oxygen	mg/L	21	3.41	5.02	6.6	8.81	10.29	10.61	11.57
E. coli, Most Probable Number	MPN/100 mL	21	14	20	112	291	548	770	2420
Hardness, Total	mg/L	4	59.2	80.14	111.55	139.5	155.5	165.4	172
Lead, Dissolved	µg/L	4	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	4	0.102	0.1149	0.13425	0.1685	0.209	0.2396	0.26
Mercury by Purge & Trap, Dissolved	ng/L	2	0.224	0.4656	0.828	1.432	2.036	2.3984	2.64
Mercury by Purge & Trap, Total	ng/L	2	0.673	1.0347	1.57725	2.4815	3.38575	3.9283	4.29
Nitrate/Nitrite-N, Dissolved	mg/L	21	0.086	0.1	0.141	0.219	0.446	0.6	0.747
Organic Carbon, Total Non-purgeable	mg/L	18	1.84	2.111	2.2575	3.07	3.7925	4.469	4.94
Orthophosphate-P, Dissolved	mg/L	21	0.042	0.043	0.052	0.064	0.088	0.099	0.102
pH, Field	S.U.	21	7.06	7.12	7.18	7.37	7.53	7.61	7.67
Temperature	°C	21	4.269	7.948	10.501	11.859	17.192	19.031	21.4
Total Phosphorus-P	mg/L	21	0.093	0.098	0.117	0.129	0.162	0.166	0.192
Total Suspended Solids	mg/L	21	2	2.8	3.2	3.8	7	11.6	31.2
Turbidity, Field	NTU	21	2.33	2.82	3.72	4.73	6.8	8.69	20.36
Zinc, Dissolved	µg/L	4	2.54	3.302	4.445	5.54	6.7375	8.065	8.95
Zinc, Total Recoverable	µg/L	4	4.17	4.98	6.195	7.86	10.0375	12.175	13.6

Table C-20: Ambient Monitoring Data Statistical Summary for Wapato Creek at Gaston Rd									
Analysis Name	*Unit*	*n*	*MIN*	*10th Percentile*	*25th Percentile*	*Median*	*75th Percentile*	*90th Percentile*	*MAX*
Ammonia-N, Dissolved	mg/L	44	0.01	0.0103	0.01675	0.026	0.041	0.0813	0.135
Conductivity, Field	µS/cm	5	77.6	89.08	106.3	119.7	126.8	127.22	127.5
Copper, Dissolved	µg/L	7	0.728	0.7382	0.754	0.799	0.957	1.1	1.25
Copper, Total Recoverable	µg/L	10	1.6	1.78	2.2225	2.64	3.3625	3.685	4.45
Dissolved Oxygen	mg/L	5	4.01	5.246	7.1	8.21	9.21	9.492	9.68
E. coli, Most Probable Number	MPN/100 mL	43	25	39.6	72.5	162	238	390.4	2420
Hardness, Total	mg/L	10	28.4	29.48	35.175	44	47.85	49.6	56.8
Lead, Dissolved	µg/L	7	0.102	0.102	0.102	0.102	0.102	0.102	0.102
Lead, Total Recoverable	µg/L	10	0.204	0.3516	0.412	0.6315	1.2025	1.302	1.32
Mercury by Purge & Trap, Dissolved	ng/L	1	0.618	0.618	0.618	0.618	0.618	0.618	0.618
Mercury by Purge & Trap, Total[1]	ng/L	0							
Nitrate/Nitrite-N, Dissolved	mg/L	42	0.02	0.0227	0.0455	0.218	1.46	2.17	2.76
Organic Carbon, Total Non-purgeable	mg/L	42	1.23	1.287	1.6425	2.17	2.93	3.866	19.2
Orthophosphate-P, Dissolved	mg/L	44	0.005	0.005	0.00775	0.011	0.02025	0.0327	0.415
pH, Field	S.U.	5	6.73	5.246	6.74	6.98	7.03	7.126	7.19
Temperature	°C	5	12.159	12.7362	13.602	16.092	17.482	18.5506	19.263
Total Phosphorus-P	mg/L	43	0.037	0.056	0.0765	0.098	0.138	0.1706	1.04
Total Suspended Solids	mg/L	42	4.4	9.28	13.35	21	30.125	39.88	61
Turbidity, Field	NTU	5	29.92	35.16	43.02	45.27	46.5	47.976	48.96
Zinc, Dissolved	µg/L	7	2.54	2.54	2.54	2.54	5.08	5.08	5.08
Zinc, Total Recoverable	µg/L	10	2.97	3.015	4.93	6.495	7.145	12.03	30.3

[1]Blank cells indicate that no results were collected for that analyte during the monitoring period, reflected with a value of 0 under "n"-column.

Appendix D: Water Quality Status Report

This appendix presents information and data about the pollutants regulated under a Tualatin subbasin Total Maximum Daily Load (TMDL). The August 2001 TMDL modified previous TMDLs for phosphorus and ammonia and added new TMDLs for temperature, bacteria, and volatile solids (to address sediment oxygen demand impacts on dissolved oxygen in the tributaries). A TMDL update in August 2012 includes phosphorus and ammonia allocations for all four of CWS' water resource recovery facilities (WRRFs). The Willamette Basin Mercury TMDL was approved in February 2021.

The TMDL parameters include:

- Total phosphorus target concentrations designed to limit nuisance algal growth and achieve the instream pH criterion.
- Ammonia allocations designed to achieve the dissolved oxygen criterion in the Tualatin River.
- Settleable volatile solids allocations designed to achieve the dissolved oxygen criterion in the Tualatin River and its tributaries.
- Temperature and bacteria allocations designed to achieve ambient water quality standards in the basin.
- Mercury allocations designed to meet criteria for human health throughout the Willamette Basin, including the Tualatin subbasin.

This summary provides general information on the Tualatin River mainstem and tributary conditions during 2025. This information does not assess compliance with permit conditions or TMDL requirements. Compliance is addressed through a separate mechanism, which, for the NPDES permit, includes monthly discharge monitoring reports. Different statistics and reporting periods are used to report for permit compliance than are used for this annual summary.

The primary monitoring period for most of the Tualatin subbasin TMDLs is the dry season, May 1 to October 31. For ammonia, the monitoring period is May 1 to November 15. For bacteria, the monitoring period is the entire year. Mercury data is collected throughout the year. This report covers the 2025 monitoring year.

Total Phosphorus TMDL

The phosphorus TMDL was developed to protect the beneficial uses of aesthetics, indicated by chlorophyll a, and aquatic life, indicated by pH. The 2001 Tualatin TMDL established river and tributary loading capacities for total phosphorus expressed as concentrations (mg/L). Table D-1 shows the loading capacities and the data for the key sites for the most recent monitoring year, as well as other monitoring years selected from the period the TMDLs have been in effect.

Table D-1: History of Total Phosphorus Summer Medians (mg/L) May 1 – October 31						
Location	*2001 TMDL Loading Capacity*	*1990*	*2000*	*2010*	*2015*	*2025*
Tualatin River at Weiss Bridge	**0.10**	0.22	0.08	0.09	0.08	0.11
Tualatin River at Stafford Road	**0.10**	0.23	0.08	0.10	0.09	0.09
Tualatin River at Boones Ferry Road	**0.11**	0.23	0.08	0.10	0.09	0.10
Tualatin River at Hwy 210 Bridge	**0.10**	0.15	0.08	0.10	0.08	0.10
Tualatin River at Rood Bridge Road	**0.09**	0.10	0.06	0.08	0.06	0.07
Tualatin River at Hwy 219 Bridge	**0.04**	-	0.05	0.07	0.06	0.11
Tualatin River at Golf Course Road	**0.04**	0.05	0.03	0.04	0.03	0.04
Tualatin River at Cherry Grove	**0.04**	-	< 0.025	< 0.025	< 0.025	< 0.025
Scoggins Creek[1]	**0.04**	0.43	< 0.025	< 0.025	< 0.025	< 0.025
Gales Creek at New Hwy 47	**0.04**	0.06	0.04	0.04	0.05	0.05
Dairy Creek at Hwy 8	**0.09**	0.13	0.11	0.11	0.12	0.11
Rock Creek at Brookwood	**0.19**	-	-	0.16	0.22	0.21
Chicken Cr on Scholls-Sherwood	**0.14**	0.23	0.11	0.11	0.11	0.14
Fanno Creek at Durham Road	**0.13**	0.15	0.15	0.13	0.16	0.12

[1]Since 1990 the monitoring location on Scoggins Creek has changed several times. Here are the monitoring years at the different creek locations: Scoggins Creek at Old Highway 47 (1990-2012), Scoggins Creek below Hagg Lake at Trolley (2013-2025); Scoggins Creek at New Highway 47 (2025-2026).

Since 1988, the Tualatin River has had a phosphorus TMDL for the mainstem Tualatin River and its tributaries. Total phosphorus has the potential to impact beneficial uses in the reservoir-like section of the river, where nuisance algal growth historically occurred and elevated pH levels were observed. CWS upgraded its WRRFs and has used a combination of biological phosphorus removal and alum (aluminum sulfate) addition in the tertiary process to meet the phosphorus wasteload allocations in the TMDL for more than two decades.

Since the development of the original TMDL in 1988, the river has changed dramatically in terms of operations, flows, and water quality. Water quality modeling suggests that the Tualatin River is not as sensitive to phosphorus inputs as it once was, in part because of the reduced residence time of water in the lower river than when the TMDL wasteload allocations were established. Reduced residence time is due to higher flows from managed flows, increased WRRF flows, and flashboards no longer being used on the lower river diversion dam that would increase the depth of the lower river.

CWS entered into an agreement with Oregon DEQ to study the effectiveness of biological processes in removing phosphorus at the WRRFs while balancing and optimizing the use of alum and the effects of the higher phosphorus concentrations in the Tualatin River. Results indicate

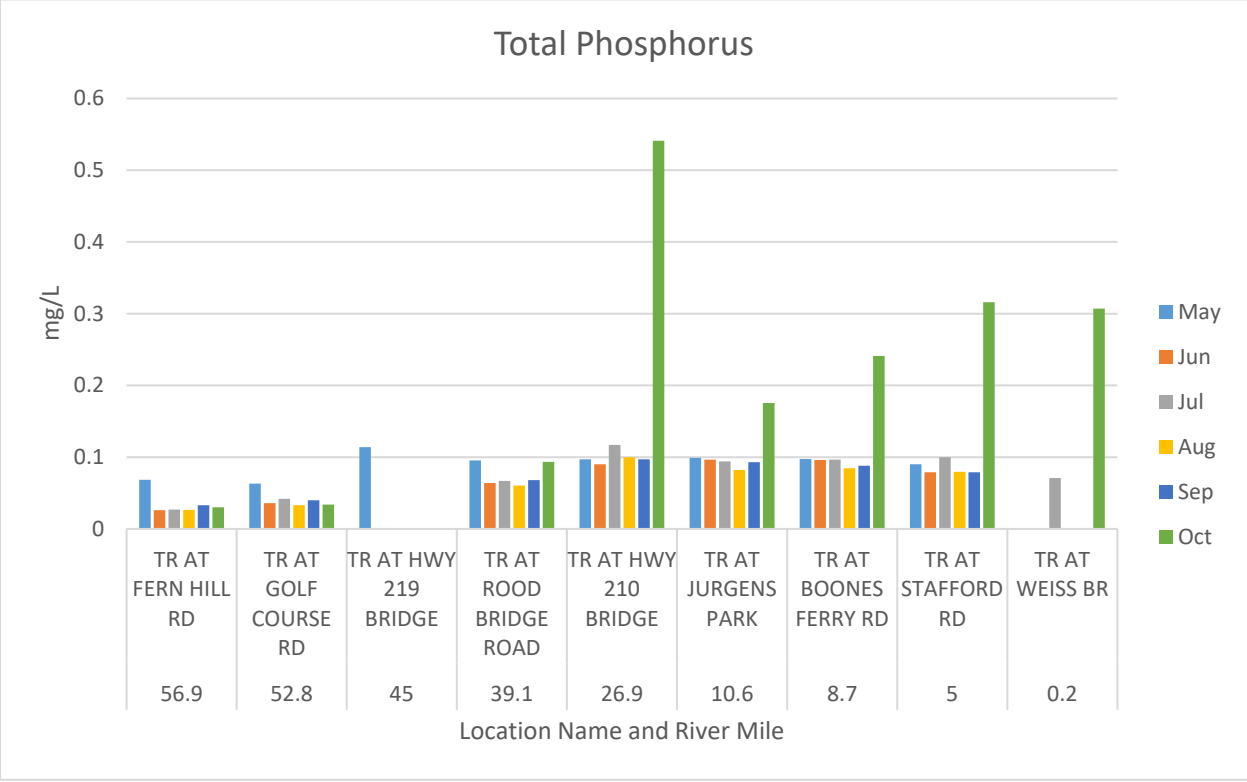
that the WRRFs can effectively reduce total phosphorus using biological processes with no or little additional alum in the tertiary process without negatively impacting water quality in the river. CWS is continuing the study in the 2025 reporting year. (DEQ has recently promulgated a new aluminum aquatic life toxicity standard in Oregon that will make it uncertain if it is practicable to continue to use alum in the tertiary process at current application rates.)

In previous years, CWS has compiled and reviewed the chlorophyll A data from the USGS station on the Tualatin River at the Oswego Diversion Dam. During the summer of 2025, the USGS station only recorded chlorophyll fluorescence. USGS is publishing the chlorophyll fluorescence data collected and is developing a calibration curve to correlate chlorophyll fluorescence concentrations to chlorophyll A concentrations. As of this report, the USGS calibration curve is not yet published. USGS will provide the concentrations on its website when the calibration curve is vetted and published.

In place of the chlorophyll A data from USGS, CWS reviewed chlorophyll A data from other monitoring stations on the Tualatin River managed by CWS.

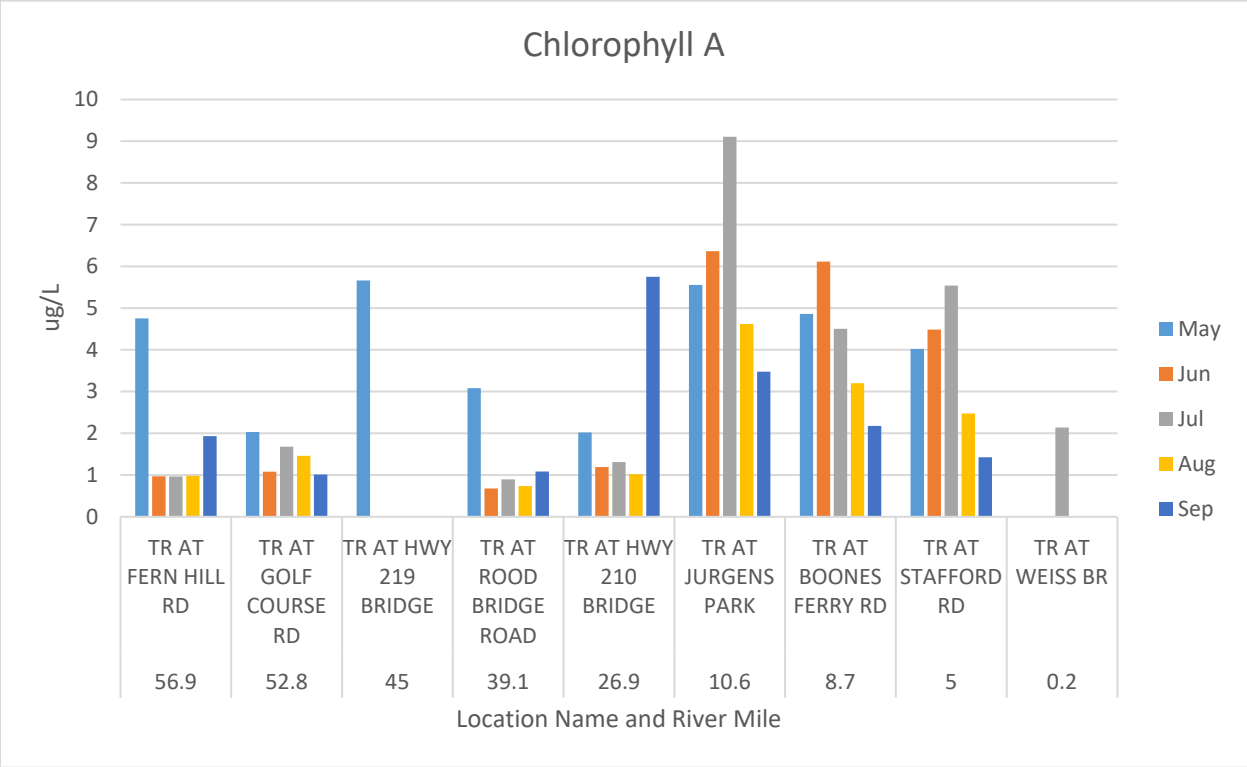
In 2025, total phosphorus was measured in the Tualatin River by CWS. Results ranged from 0.025 mg/L to 0.969 mg/L. Figure D-1 graphs the average total phosphorus concentrations by month at monitoring locations in the Tualatin River from May 1 to Oct. 31, 2025. The phosphorus season ended on September 23, 2025, with the closure of the Lake Oswego Diversion Dam.

Figure D-1: Average Total Phosphorus Concentrations in the Tualatin River



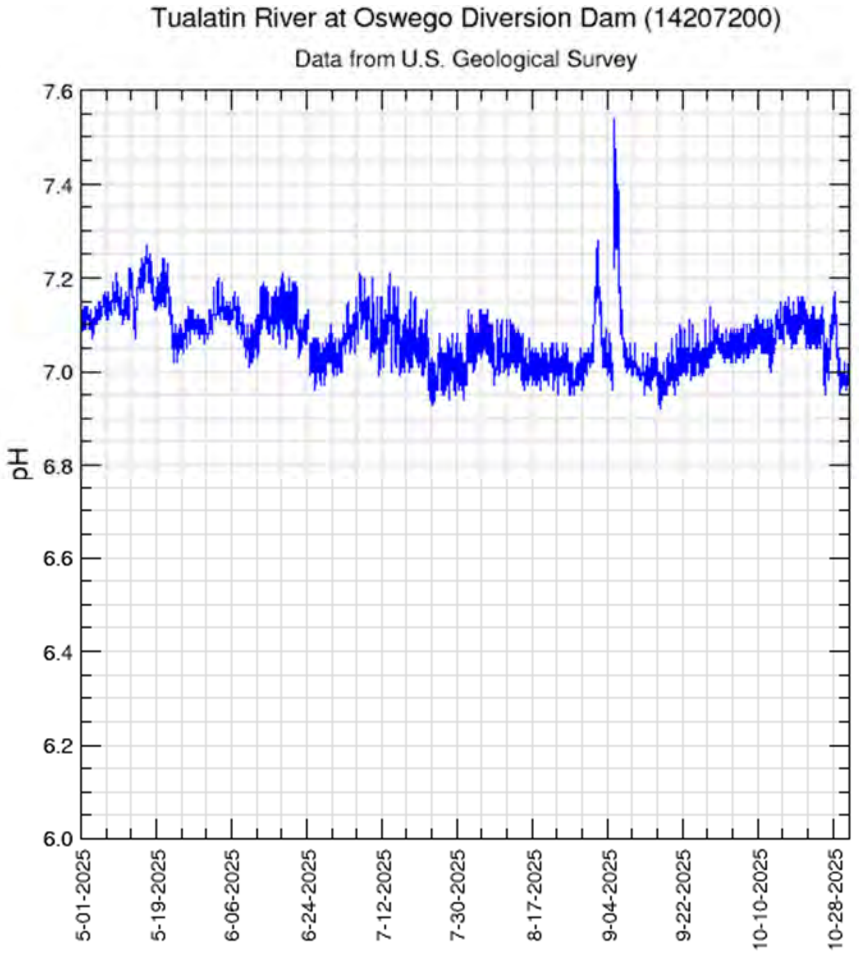
In 2025, chlorophyll A was measured in the Tualatin River by CWS. Results ranged from 0.565 ug/L to 12.70 ug/L. Figure D-2 graphs the average chlorophyll A concentrations by month at monitoring locations in the Tualatin River from May 1 to October 31, 2025. No chlorophyll A data was measured in October 2025.

Figure D-2: Average Chlorophyll A Concentrations in the Tualatin River



In 2025, pH was measured in the Tualatin River by USGS at the Oswego Diversion Dam. Results ranged from 6.9 SUs to 7.5 SUs. Figure D-3 graphs the pH concentrations in the Tualatin River at the Oswego Diversion Dam from May 1 to Oct. 31, 2025.

Figure D-3: pH Concentrations in the Tualatin River at the Oswego Diversion Dam



Dissolved Oxygen TMDL

The 2001 TMDL for Dissolved Oxygen in the Tualatin Basin establishes waste load allocations for ammonia to protect dissolved oxygen concentrations in the lower Tualatin River. The allocations are designed to achieve the dissolved oxygen criteria in the reservoir-like section of the Tualatin River, in part by ensuring that discharges from CWS' WRRFs do not measurably reduce dissolved oxygen due to ammonia discharge. The TMDL allows higher loads of ammonia in the spring and early summer when river conditions are favorable for the assimilation of ammonia, and lower ammonia loads in the fall when sediment oxygen demand consumes more oxygen, leaving less assimilative capacity.

The reservoir-like section of the Tualatin River is designated a cold-water habitat and has the following dissolved oxygen criteria:

- Grab samples: > 6.5 mg/L
- Continuous monitoring:
    - 30-day average of daily means > 6.5 mg/L
    - 7-day average of daily minimums > 5.0 mg/L
    - Daily minimum > 4.0 mg/L

CWS and the USGS are partners in a study where the USGS maintains continuous monitoring stations throughout the Tualatin Basin. Two of these stations are in the reservoir section of the river:

1) Near Scholls (river mile 24.5), downstream of the Rock Creek WRRF (river mile 37.7).
2) At the Oswego Diversion Dam (river mile 3.4), downstream of the Durham WRRF (river mile 9.2).

Graphs of the dissolved oxygen concentrations at these two locations are presented in Figure D-4 (RM 24.5) and Figure D-5 (RM 3.4). Dissolved oxygen levels decreased slightly over the summer period but generally stayed about 6.0 mg/L throughout the summer, which is a little higher than typical at the Oswego Diversion Dam.

Figure D-4

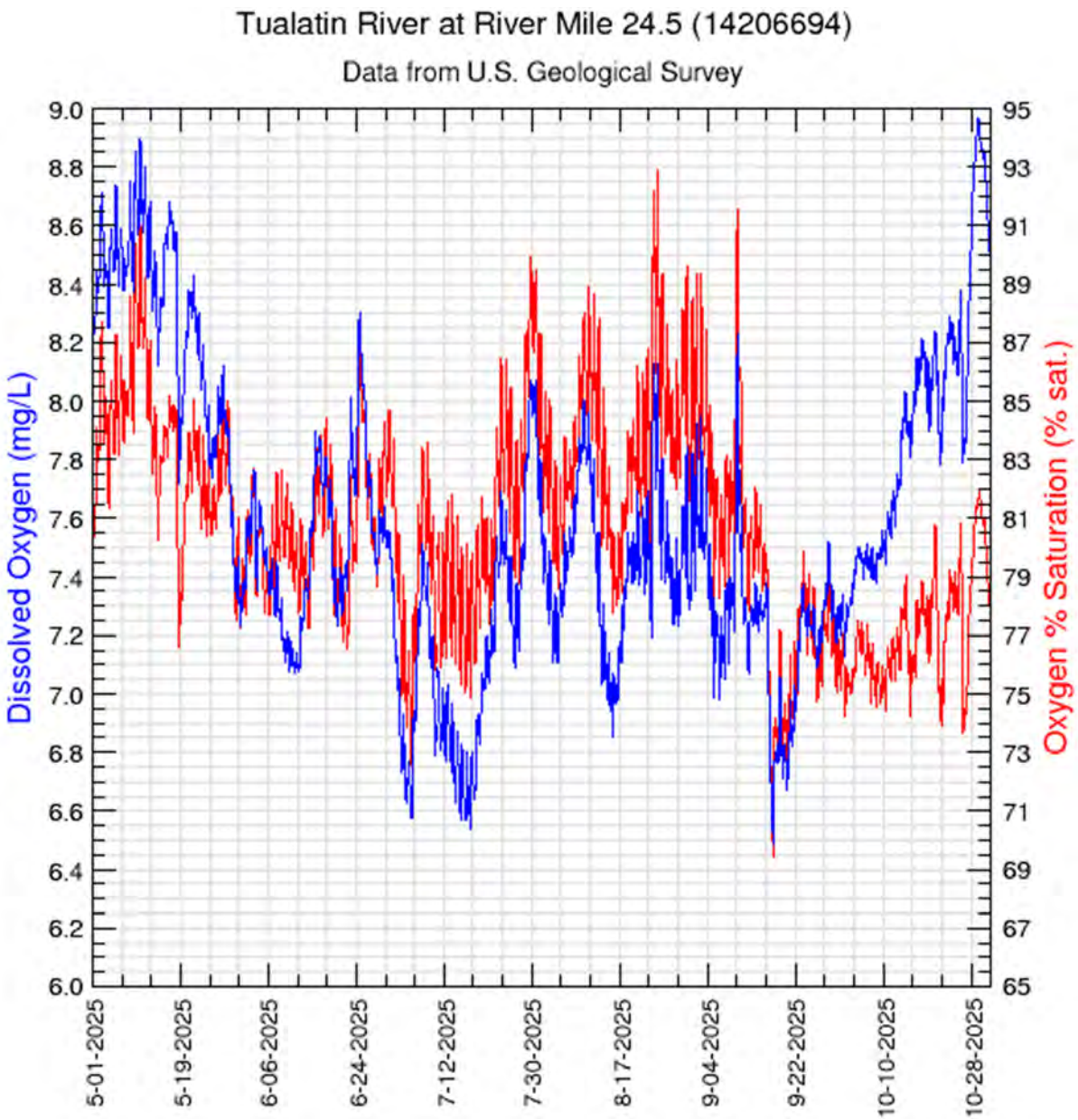
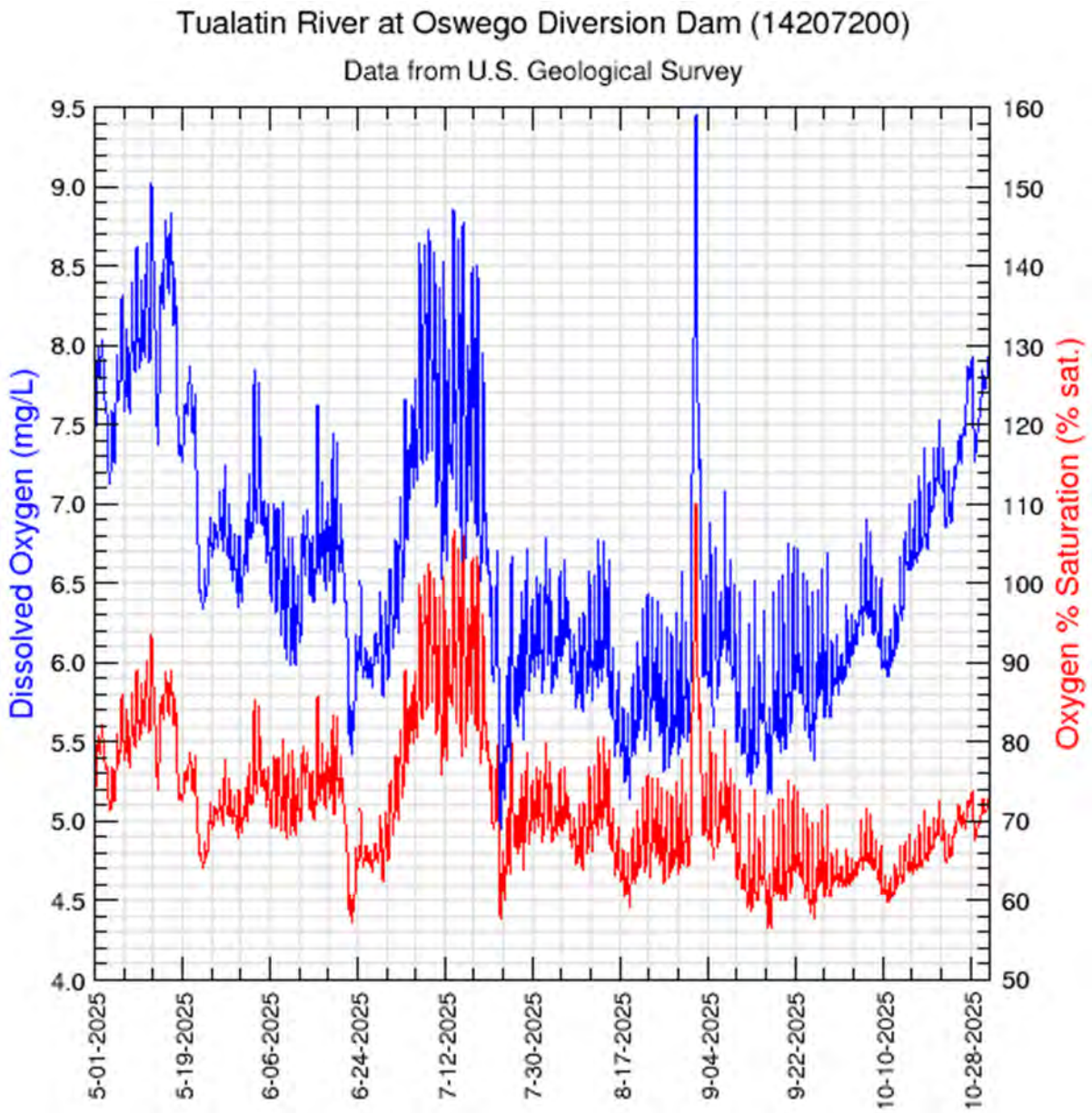
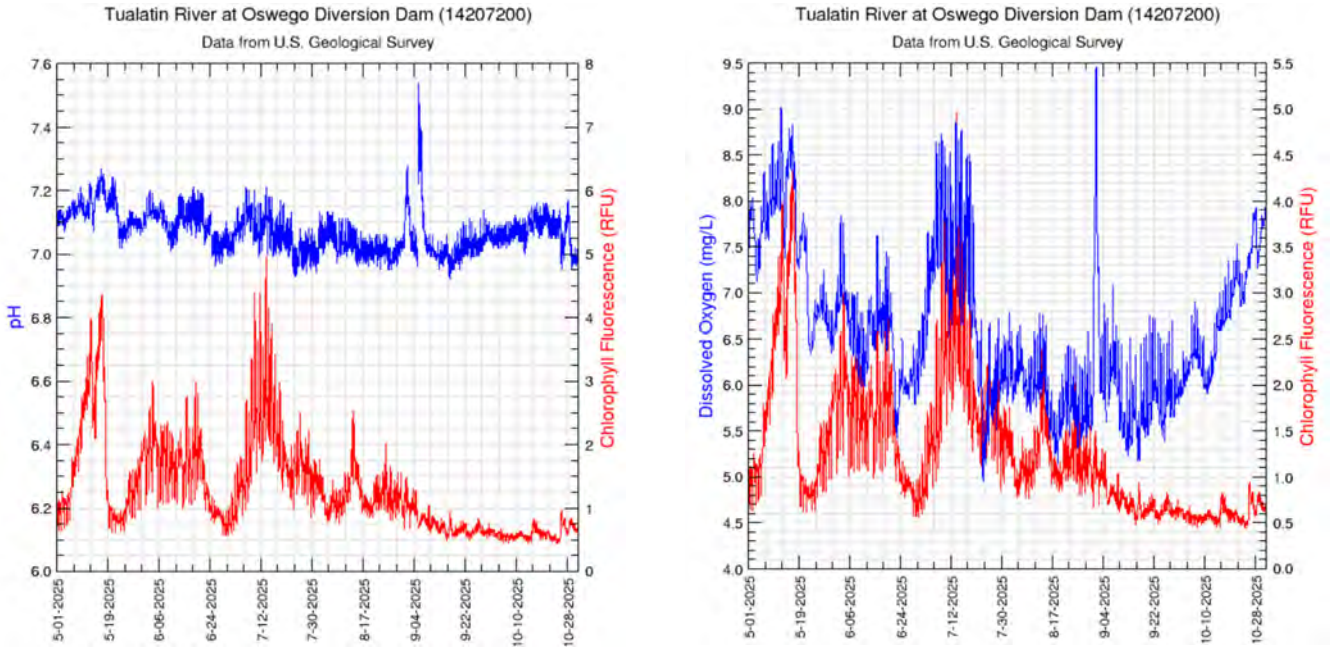

Tualatin River at River Mile 24.5 (14206694)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
9.0
8.8
8.6
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
95
93
91
89
87
85
83
81
79
77
75
73
71
69
67
65
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-5


Tualatin River at Oswego Diversion Dam (14207200)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
160
150
140
130
120
110
100
90
80
70
60
50
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Algae bloom review: As shown in Figure D-3 and Figure D-5, both pH and dissolved oxygen had a spike in concentrations at the Tualatin River at the Oswego Diversion Dam location in late August and early September. CWS reviewed these results against the measured chlorophyll fluorescence results from the USGS. CWS would expect to see an increase in chlorophyll fluorescence if there was an algae bloom during this period. According to the USGS monitoring results, there was no significant increase in chlorophyll fluorescence during the peak concentrations of pH and dissolved oxygen, therefore minimal or no algae bloom.

Figure D-6



Tributary Dissolved Oxygen TMDL

The 2001 Tualatin TMDL required reductions in settleable volatile solids loads to reduce tributary sediment oxygen demand and achieve dissolved oxygen criteria in the tributaries. Figures D-6 to D-9 show the summer dissolved oxygen levels in the tributaries. Some stream segments in the Tualatin Basin are subject to the cold-water habitat dissolved oxygen criteria given above, and some are subject to the following cold-water habitat dissolved oxygen criteria:

- Grab samples: > 8.0 mg/L
- Continuous monitoring:
  - 30-day average of daily means > 8.0 mg/L
  - 7-day average of daily minimums > 6.5 mg/L
  - Daily minimum > 6.0 mg/L

Note that Fish and Aquatic Life Uses were updated in Oregon Administrative Rules in December 2023.

Figure D-7

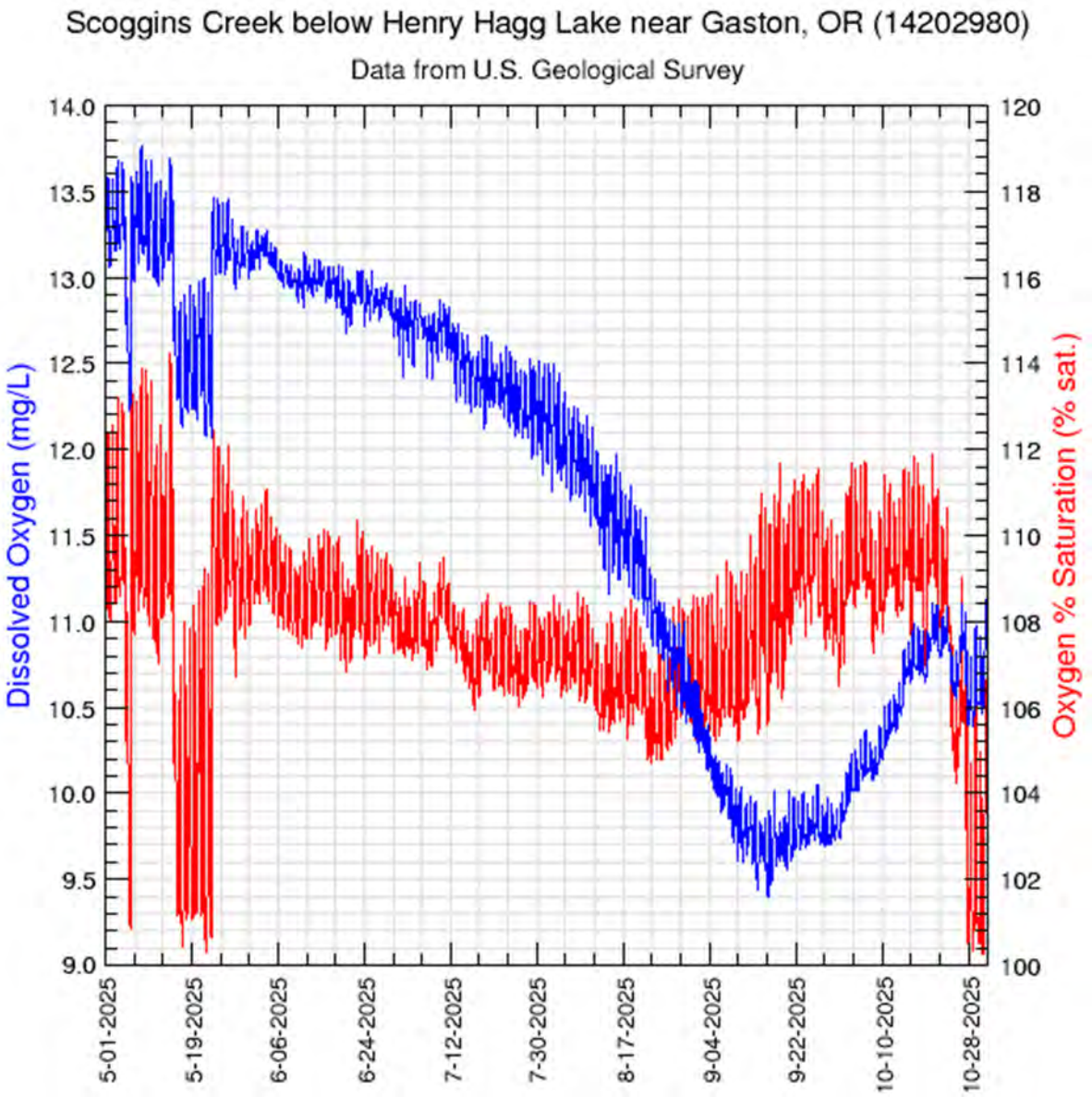

Scoggins Creek below Henry Hagg Lake near Gaston, OR (14202980)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
9.5
9.0
120
118
116
114
112
110
108
106
104
102
100
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-8

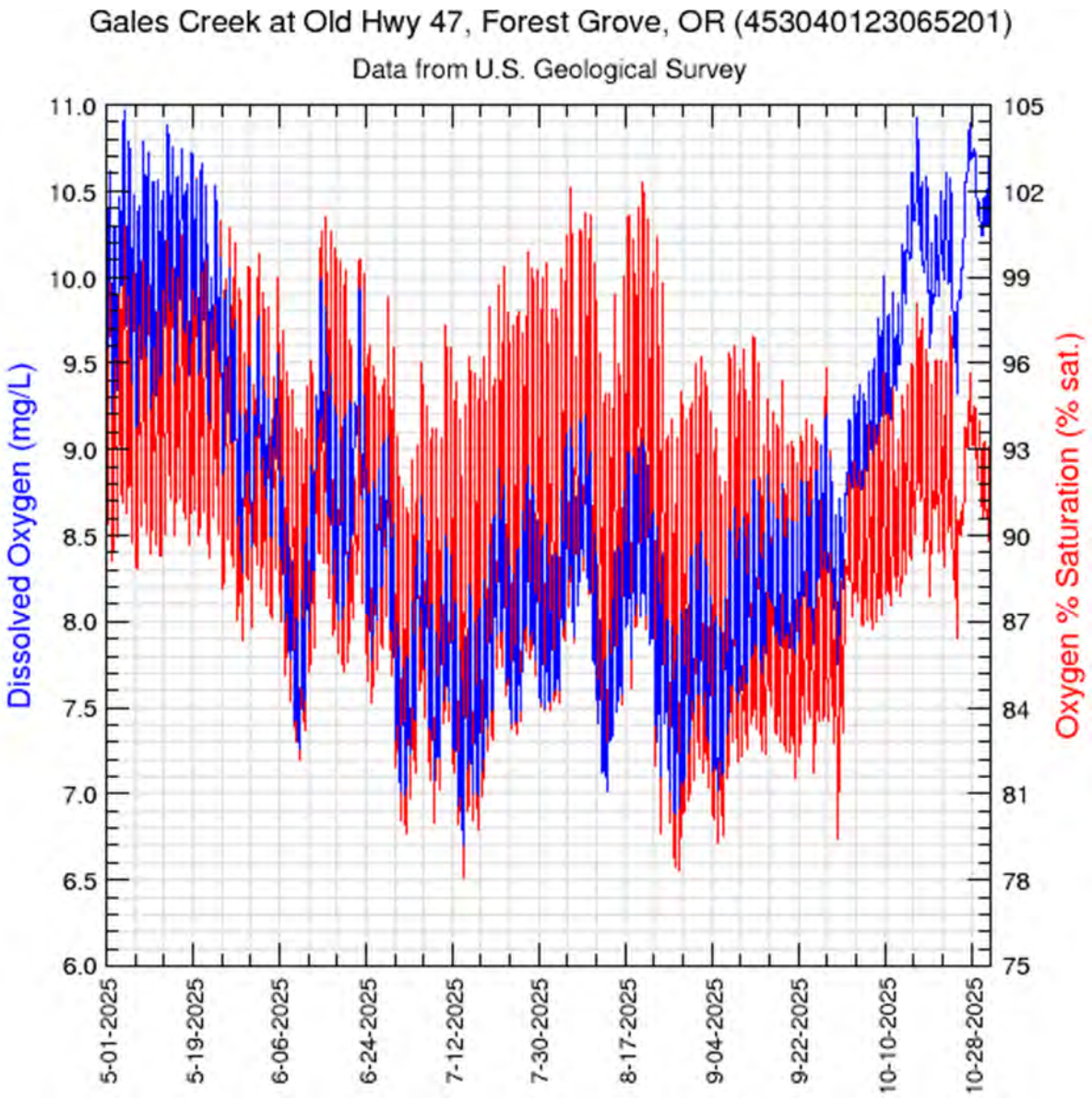

Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
105
102
99
96
93
90
87
84
81
78
75
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-9

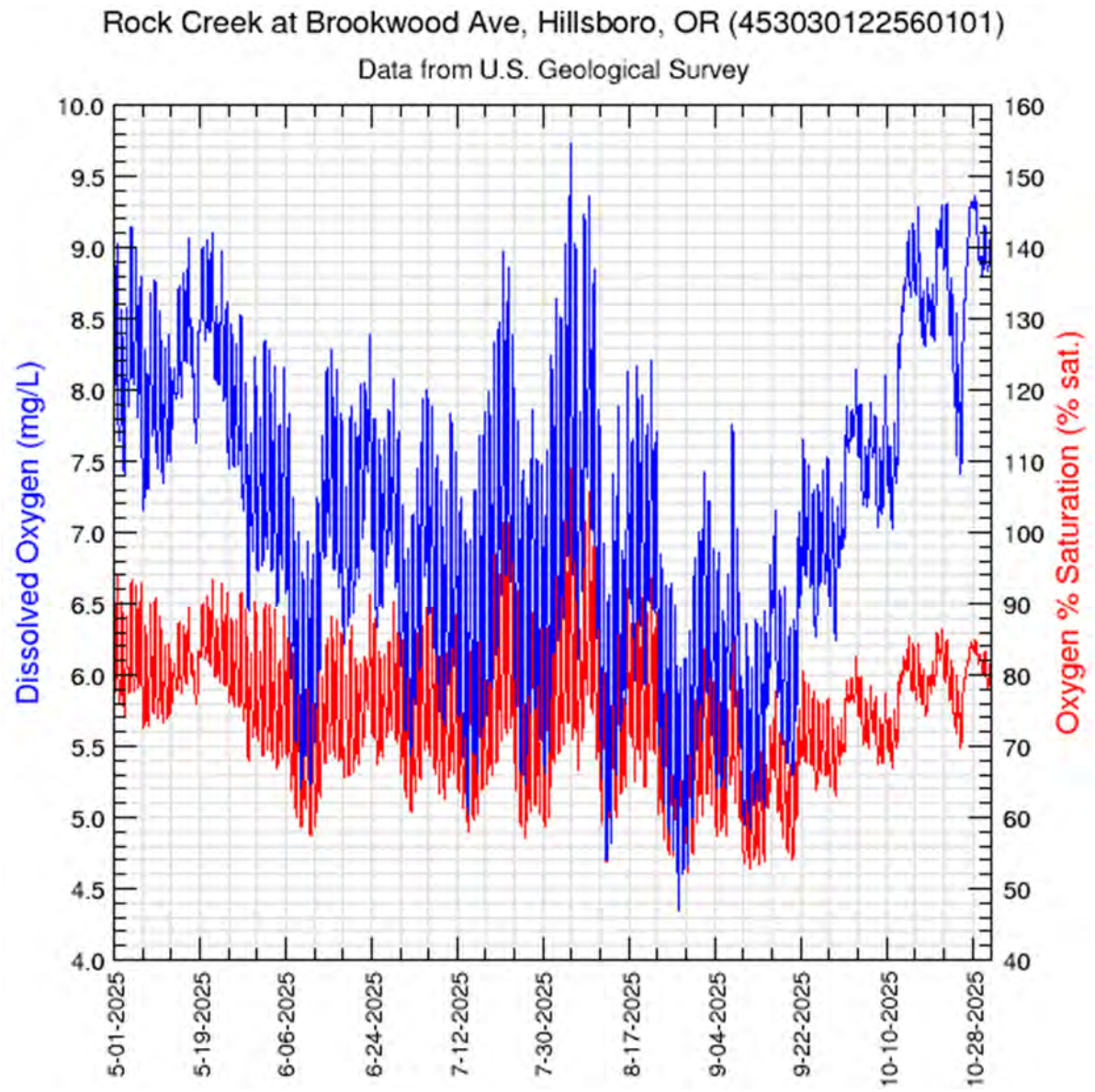
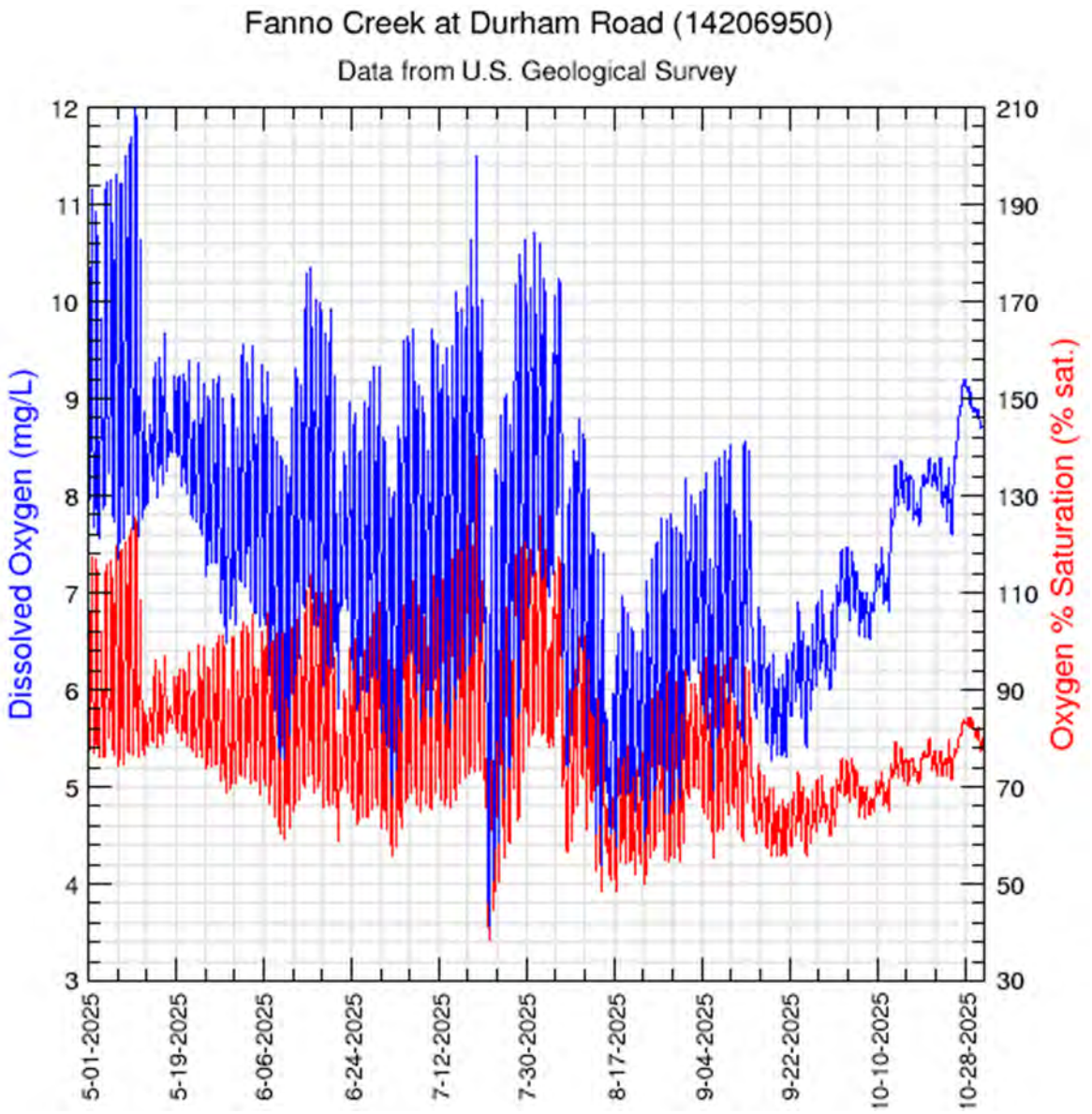

Rock Creek at Brookwood Ave, Hillsboro, OR (453030122560101)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
160
150
140
130
120
110
100
90
80
70
60
50
40
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

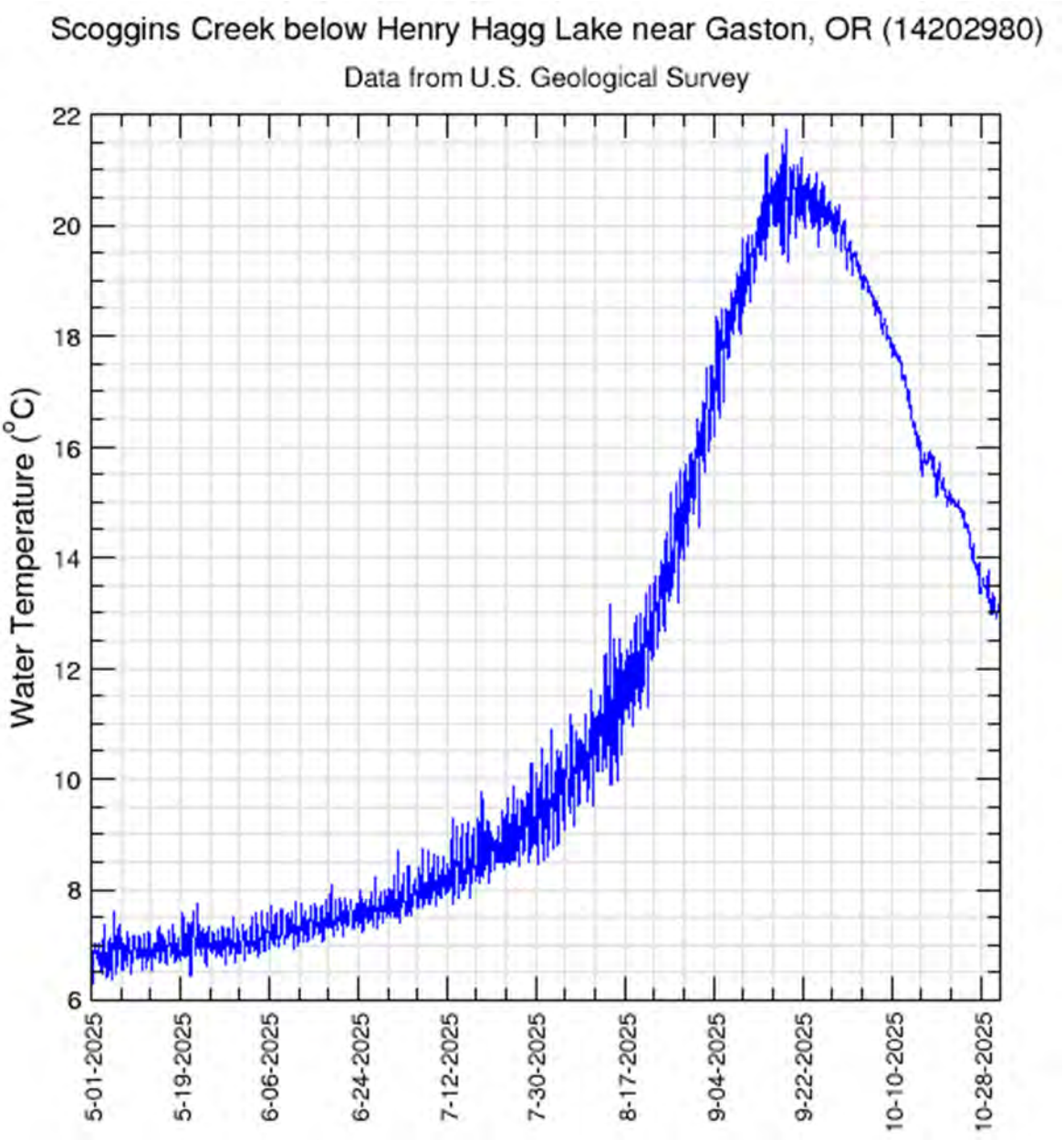
Figure D-10


Fanno Creek at Durham Road (14206950)
Data from U.S. Geological Survey
Dissolved Oxygen (mg/L)
Oxygen % Saturation (% sat.)
12
11
10
9
8
7
6
5
4
3
210
190
170
150
130
110
90
70
50
30
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Temperature TMDL

The temperature TMDL applies to both the mainstem and the tributaries. The TMDL target is based on percent effective shade with the environmental goal of meeting the water quality temperature criteria. Most of the Tualatin Basin is subject to the salmonid fish rearing beneficial use, which has the criterion of 18 degrees Celsius throughout the year. The temperature TMDL was developed as a basin-scale TMDL in response to the water quality-limited status of selected tributaries and the lower mainstem of the river, as indicated by the data from the Farmington Road gauging station. There are sites and times in the upper Tualatin Basin where the applicable beneficial use is salmonid spawning, which has a criterion of 13 degrees Celsius. Figures D-10 to D-15 display graphs of summer temperatures at selected sites with continuous monitors.

Figure D-11



NOTE: As seen in previous reporting years, the water temperature at Scoggins Creek slowly increases during the summer months and then drops off in the early fall. Hagg Lake reservoir reaches its full capacity between May and June, depending on the water year. Stored water is released from Hagg Lake from the bottom of the reservoir. During the summer, as cold water is discharged from the reservoir, the temperature of the reservoir increases until the lake turnover effect occurs when colder, denser water at the bottom of the reservoir mixes with the warmer, lighter water at the surface of the reservoir. The temperature graph in Figure D-10 depicts the annual pattern. Although the water temperature increases during the summer, the overall peak temperature of Scoggins Creek is 4-6 degrees Celsius cooler than other locations monitored along the Tualatin River, as shown in the following charts.

Figure D-12

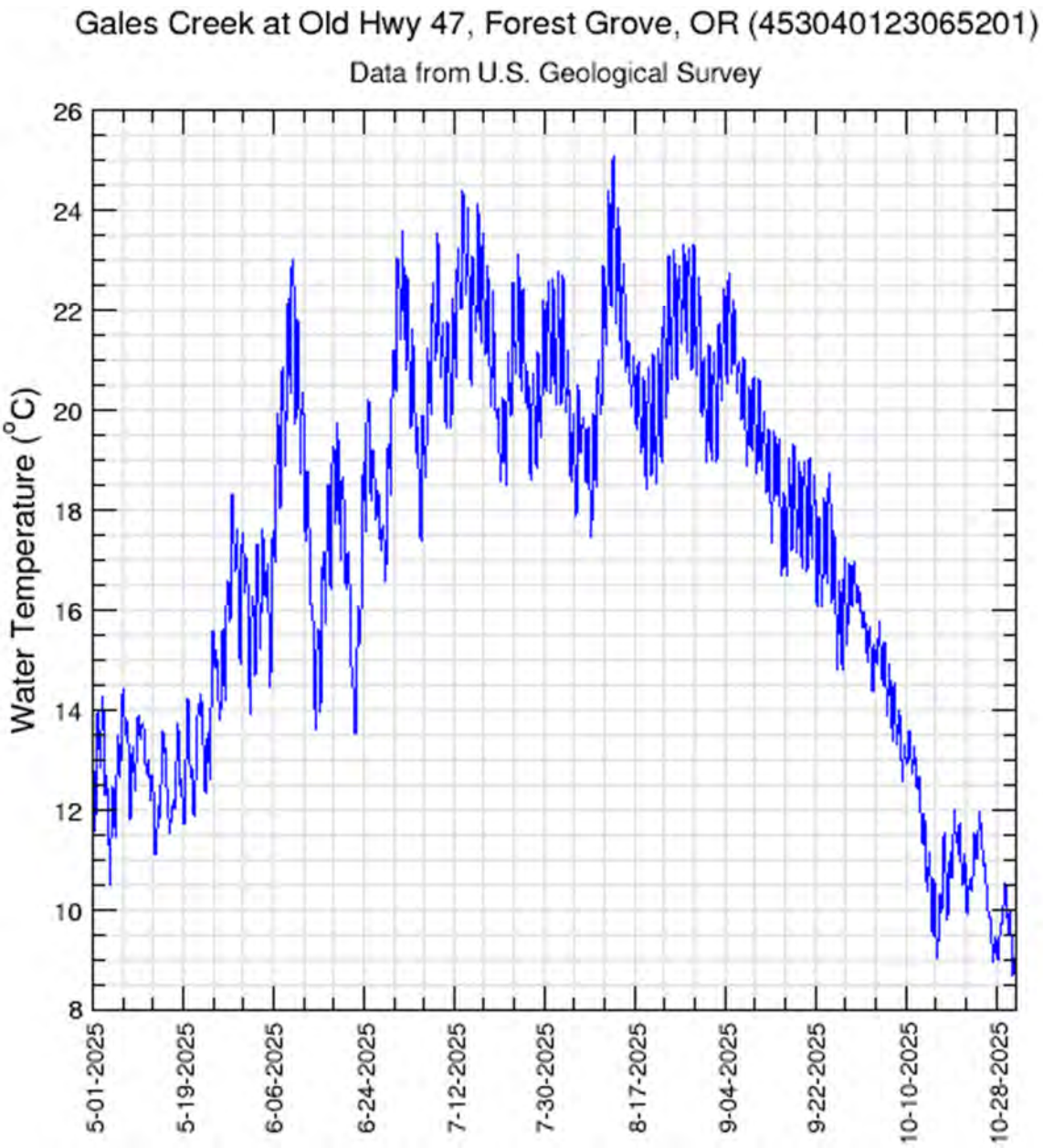

Gales Creek at Old Hwy 47, Forest Grove, OR (453040123065201)
Data from U.S. Geological Survey
Water Temperature (°C)
26
24
22
20
18
16
14
12
10
8
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-13

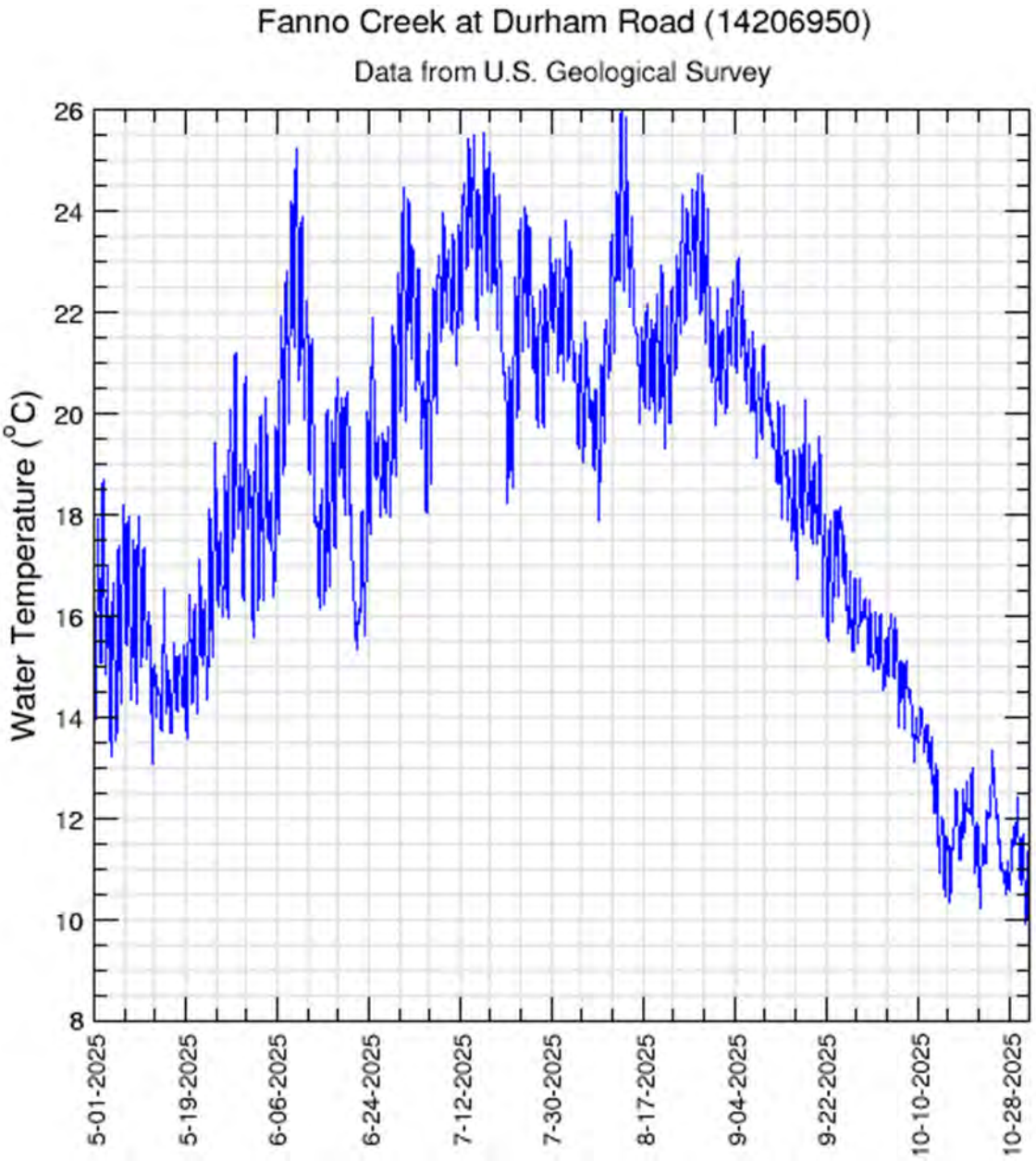
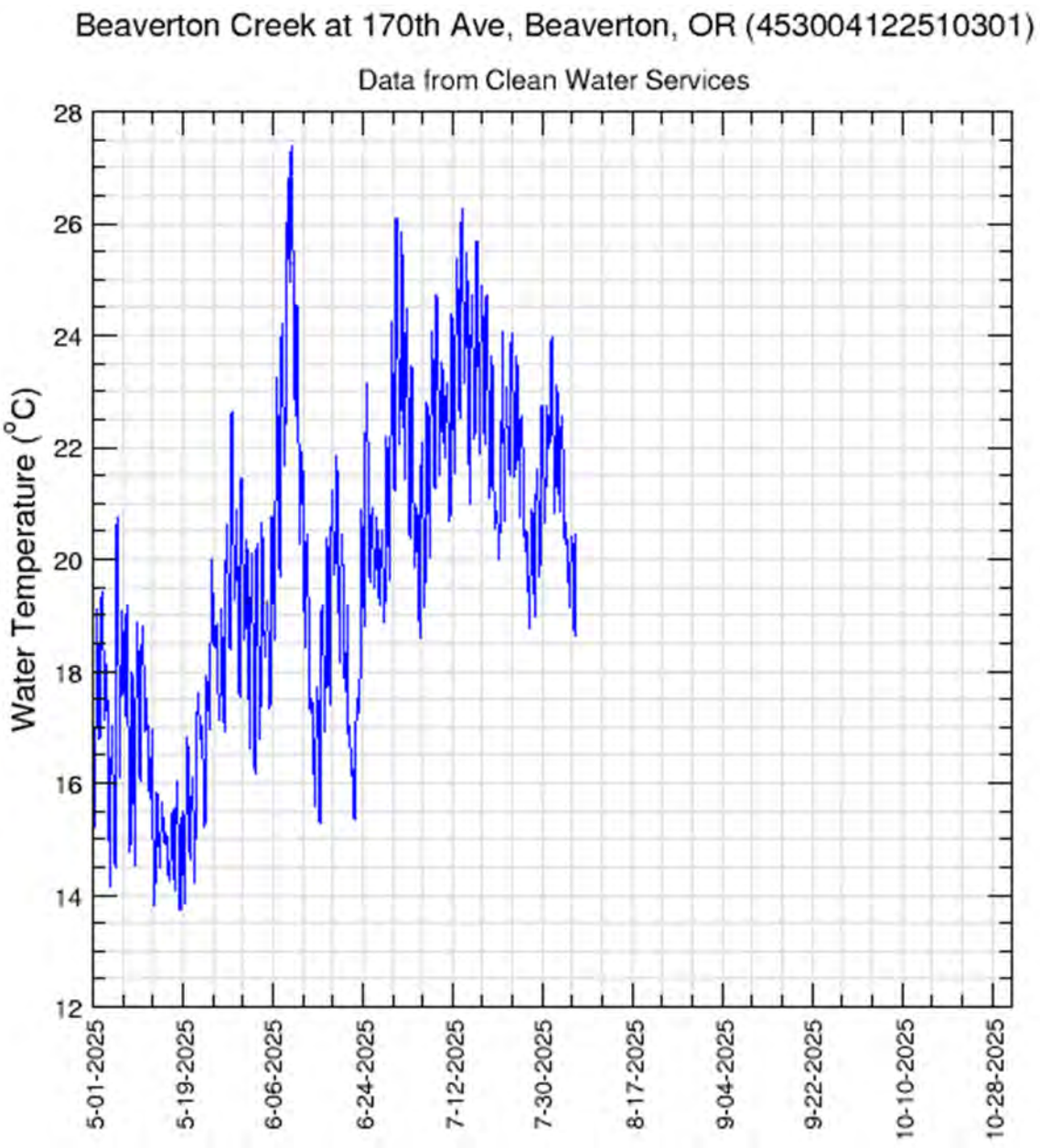

Fanno Creek at Durham Road (14206950)
Data from U.S. Geological Survey
Water Temperature (°C)
26
24
22
20
18
16
14
12
10
8
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-14



NOTE: For the second half of the monitoring period, USGS was required to remove its equipment from this monitoring location due to construction at the monitoring bridge location. There were concerns about the safety of the equipment and potential impacts of the water quality measurements during construction. The future status of this monitoring location is unknown.

Figure D-15

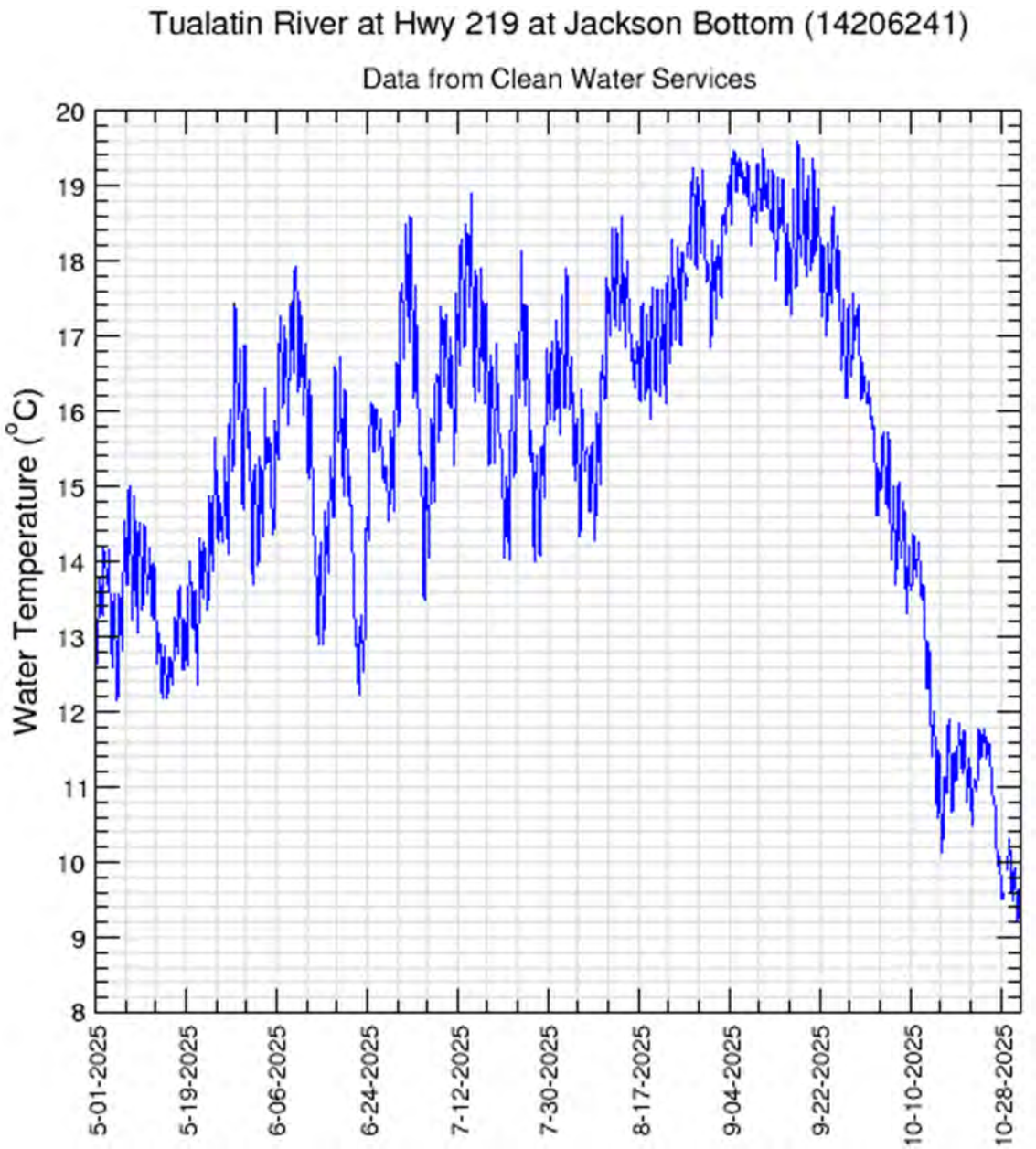
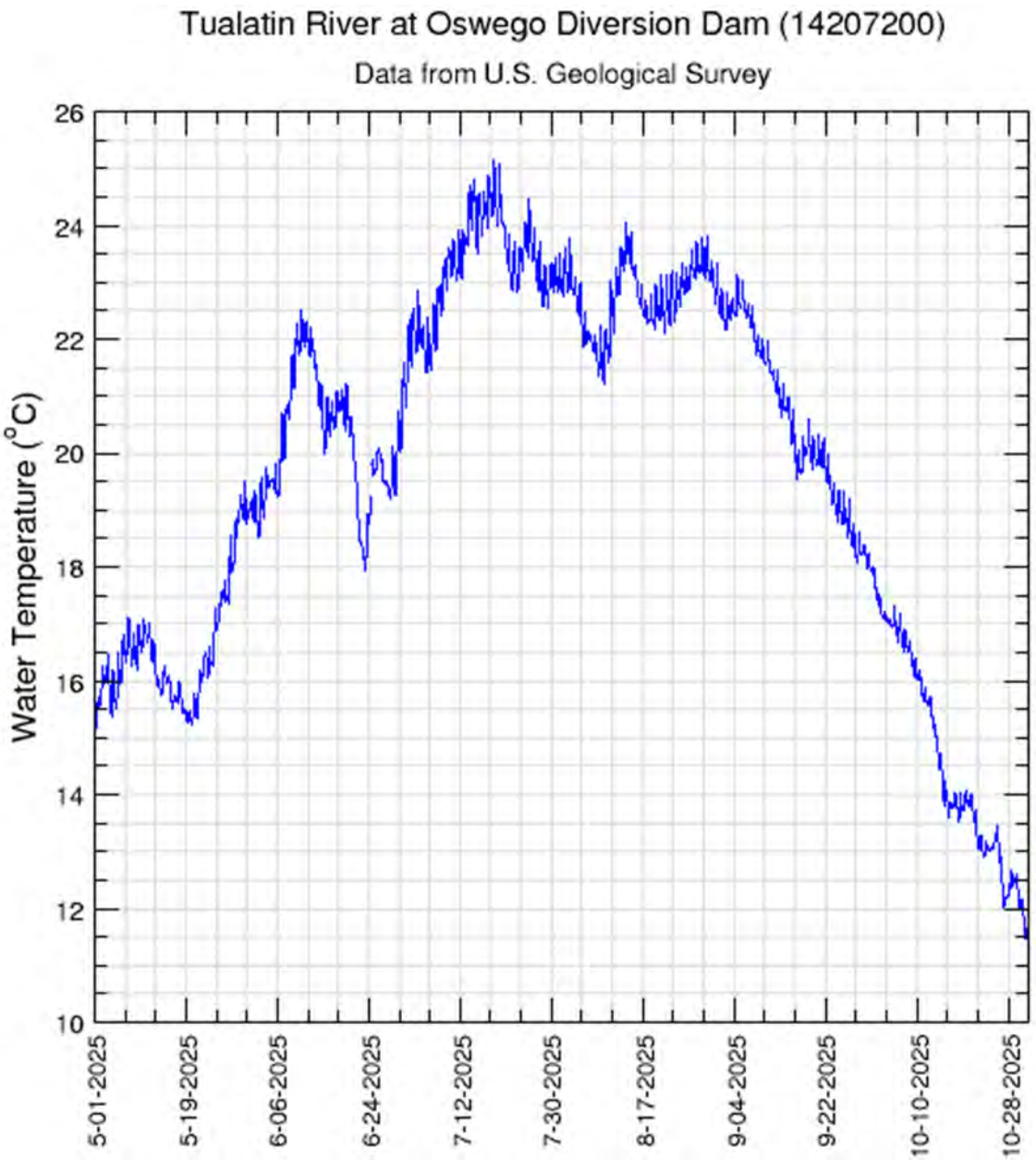

Tualatin River at Hwy 219 at Jackson Bottom (14206241)
Data from Clean Water Services
Water Temperature (°C)
20
19
18
17
16
15
14
13
12
11
10
9
8
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Figure D-16


Tualatin River at Oswego Diversion Dam (14207200)
Data from U.S. Geological Survey
Water Temperature (°C)
26
24
22
20
18
16
14
12
10
5-01-2025
5-19-2025
6-06-2025
6-24-2025
7-12-2025
7-30-2025
8-17-2025
9-04-2025
9-22-2025
10-10-2025
10-28-2025

Bacteria TMDL

The bacteria TMDL is designed to protect the most sensitive designated use of water contact recreation and applies to both the Tualatin River and its tributaries. Unlike the other TMDLs on the Tualatin, it has both a summer and a winter component. The bacteria test used is Standard Methods 9223B (Most Probable Number/100 m/L).

CWS conducts several activities to reduce the bacteria levels in the Tualatin River and its tributaries. At CWS' WRRFs, the effluent is disinfected before discharge to the river. To reduce the amount of bacteria entering streams via stormwater, CWS employs BMPs designed to help prevent contamination of stormwater by bacteria and other pollutants. These BMPs include addressing and preventing illicit discharges such as cross connections; implementing proper operations and maintenance by detecting cross connections and preventing overflows; and public education and outreach, including education to prevent bacterial contamination from pet and wildlife waste.

CWS has implemented a robust monitoring program to track the concentration of bacteria in the Tualatin River and its tributaries. In addition to collecting data according to the Stormwater Monitoring Plan, CWS is conducting a Microbial Source Tracking (MST) study using the protocol outlined in The California Microbial Source Identification Manual: A Tiered Approach to Identifying Fecal Pollution Sources to Beaches (Griffith, et al. 2013). The monitoring protocol calls for escalating sampling intensity. Figure D-16 displays the data from monitoring locations on the river and on the major tributaries near their confluences with the river.

Figure D-17: E.coli Concentrations in Ambient Monitoring Sites

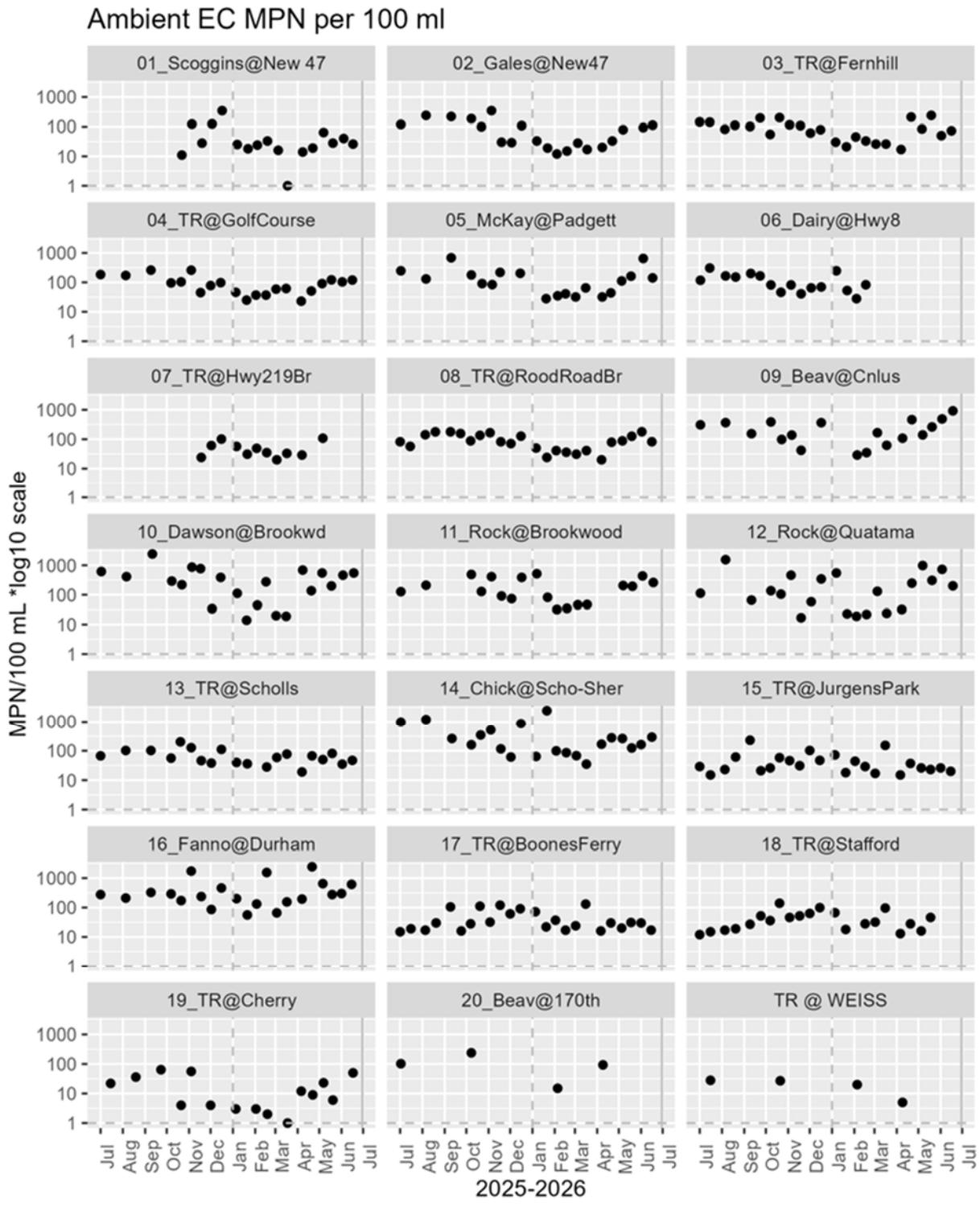


Table D-2 presents monitoring locations in the Tualatin River and the corresponding river miles.

Table D-2: Tualatin Basin Sample Locations		
ID	*Location*	*River Mile**
01	Scoggins Creek at New Highway 47	
02	Gales Creek at New Highway 47	
03	Tualatin River at Fernhill Road	56.9
04	Tualatin River at Golf Course Road	52.8
05	McKay Creek at Padgett Road	
06	Dairy Creek at Highway 8	
07	Tualatin River at Hwy 219 Bridge	45.0
08	Tualatin River at Rood Bridge Road	39.1
09	Beaverton Creek at Cornelius near Orenco	
10	Dawson Creek at Brookwood	
11	Rock Creek at Brookwood	
12	Rock Creek at Quatama	
13	Tualatin River at Hwy 210 Bridge	27.1
14	Chicken Creek on Scholls-Sherwood	
15	Tualatin River at Jurgens Park	10.6
16	Fanno Creek at Durham	
17	Tualatin River at Boones Ferry Road	8.7
18	Tualatin River at Stafford Road	5.0
19	Tualatin River at Cherry Grove	80.0
20	Beaverton Creek at 170th Avenue	

*River miles are shown for the Tualatin River only

Willamette Basin Mercury TMDL Annual Report (Schedule D.14.c.iii)

This annual report documents the continued implementation of BMPs and other actions that CWS is implementing to decrease sediment as a surrogate for mercury.

On February 4, 2021, the EPA issued a Willamette Basin mercury TMDL, which notes that the primary source of mercury in the basin is from atmospheric deposition. The mercury in the air originates from national and global sources. Once it's deposited on the landscape, the major pathways to streams are erosion of sediment-bound mercury and surface runoff. The TMDL notes that management practices on various land uses (forestry, agriculture, and urban) influence the amount of mercury that reaches streams and rivers in the Willamette Basin.

The TMDL includes measures that are to be undertaken by point source discharges and nonpoint sources to reduce mercury levels. TMDL provisions for point source discharges will be implemented through the NPDES permit. On March 3, 2021, DEQ notified Designated Management Agencies (DMAs), including CWS and the cities in Washington County, of their obligations under the TMDL. DMAs were required to submit a TMDL implementation plan by September 3, 2022. CWS developed and submitted the Willamette Basin Mercury TMDL Implementation Plan on behalf of itself and the co-implementers in 2022. The Willamette Basin Mercury TMDL Implementation Plan is a single, comprehensive TMDL implementation plan and includes the cities as co-implementers. The scope of the TMDL implementation plan includes the work being done in the MS4 program and in natural areas in the Tualatin River watershed. The TMDL implementation plan is discussed further in the Willamette Basin Mercury TMDL: Mercury Minimization Assessment, submitted separately alongside the 2024 Stormwater Annual Report. CWS is also preparing a Willamette Basin Mercury TMDL: Mercury Effectiveness Evaluation as part of the 2023 Permit renewal application package due to DEQ by June 3, 2027.

CWS has a history of implementing mercury reduction activities dating to the early 2000s. CWS updated its Mercury Minimization Plan (MMP) in 2015 and 2021, and is preparing an updated MMP as part of the 2023 Permit renewal application package. The MMP identifies programs and activities that CWS implements to reduce the levels of mercury conveyed to the WRRFs. Key elements of CWS' MMP include screening significant industrial users for mercury; requiring specific industrial users to develop mercury minimization plans; implementing a dental amalgam program to control mercury discharges from dental offices; and targeting outreach to medical establishments, schools, and commercial laboratories. Actions taken to implement the MMP are documented in the CWS Pretreatment Annual Report.

CWS and the co-implementers conduct a comprehensive stormwater management program in urban Washington County. The best management practices implemented by CWS and the co-implementers are effective in reducing sediment discharges to receiving streams. Since the major pathway of mercury delivery to streams is through erosion of sediment-bound mercury and surface runoff, these best management practices are also effective at reducing mercury discharges. Best management practices and programs that are effective at reducing sediment discharges — and thereby mercury — include the illicit discharge detection and elimination program, industrial and commercial facilities stormwater programs, construction site runoff control, public education and outreach, post-construction site runoff and retrofit programs, pollution prevention for municipal operations, and stormwater management facilities operation

and maintenance activities. Actions taken to implement these best management practices and programs are documented in this Stormwater Annual Report.

CWS implements an extensive mercury monitoring program. Figure D-17 presents total mercury at five MS4 sampling sites based on data from 2017-2024. Figure D-18 presents total mercury at 16 ambient sampling sites based on data from 2017-2024. The elevated February 2017 total mercury result at the Gales Creek ambient sampling location coincided with a winter storm, resulting in high stream flows and correlating with an elevated TSS concentration at that site. CWS has instituted paired sampling for total and dissolved mercury with total suspended solids. Mercury and TSS data from the stormwater and ambient monitoring sites are submitted electronically with the Stormwater Annual Report.

Figure D-18: Total Mercury Concentrations at MS4 Sampling Locations

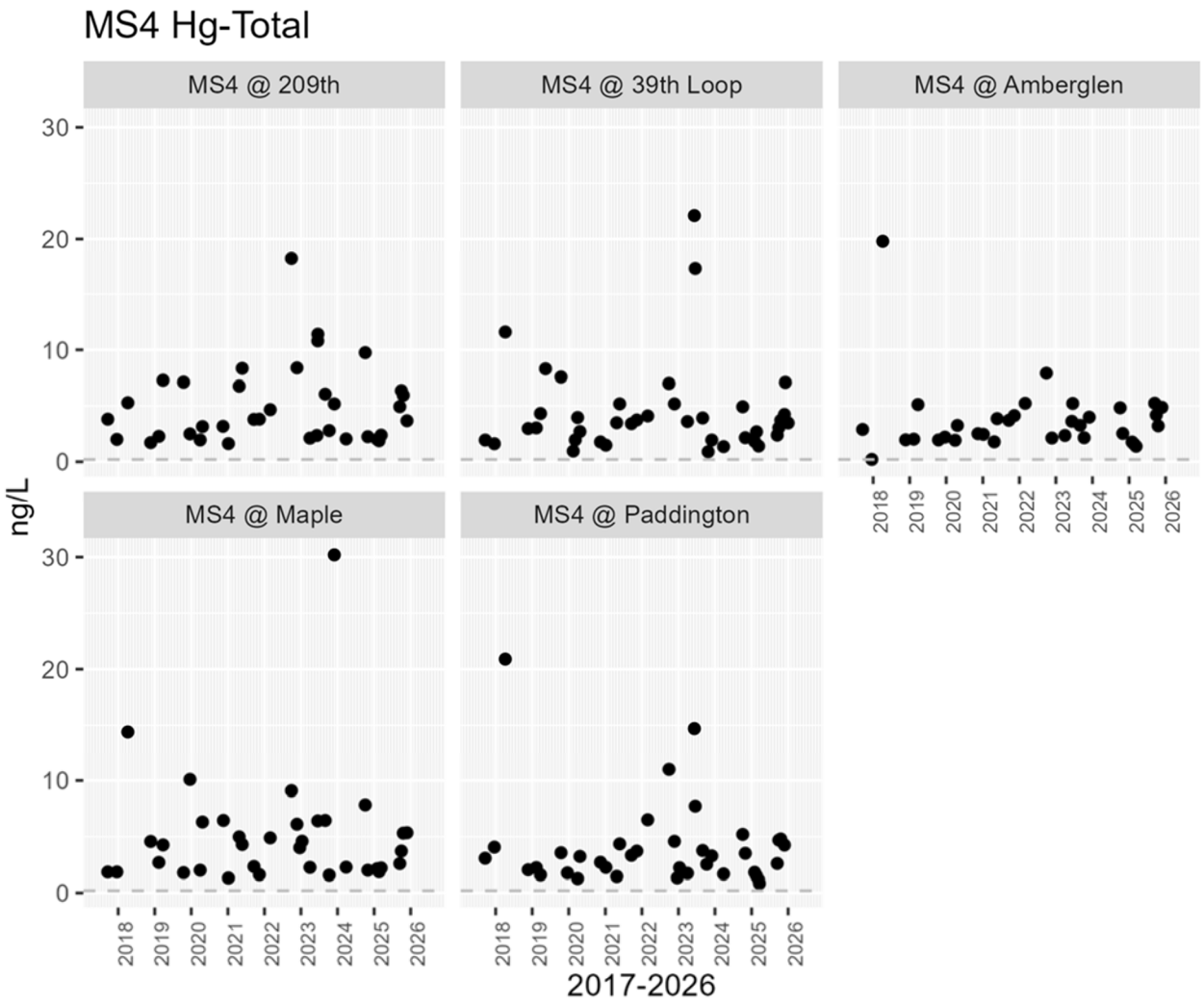
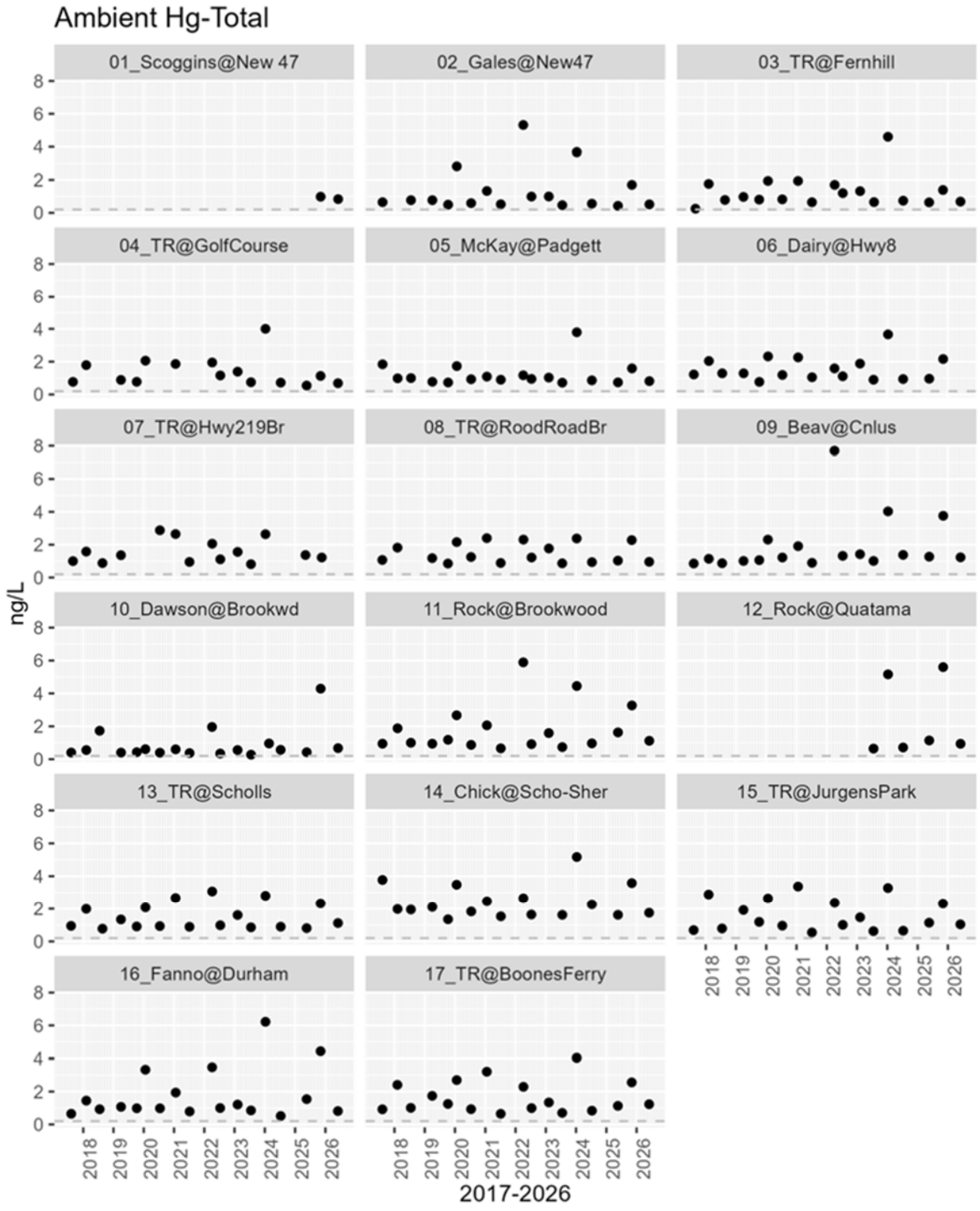


Figure D-19: Total Mercury Concentrations at Ambient Sampling Locations



Appendix E: Planning and Land Use Changes

CWS is responsible for providing sanitary sewer service and stormwater management throughout urban Washington County. CWS meets these responsibilities by, among other things, reviewing and issuing permits for construction and modification of, or connection to, the public sanitary and stormwater management systems and for erosion control.

The co-implementers are responsible for adopting local land use regulations that implement statewide planning and land use goals to protect water quality and fish and wildlife habitat. Land use planning is also the responsibility of Metro, an elected regional government serving more than 1.5 million residents in Clackamas, Multnomah, and Washington counties. By working in partnership with Metro, Clackamas, Multnomah, and Washington counties, CWS can anticipate where growth may or may not occur under existing plans. CWS and the co-implementers coordinate their water quality, quantity, and habitat management efforts via intergovernmental agreements and day-to-day cooperation. CWS is currently working with the co-implementers to update the intergovernmental agreements by November 1, 2026.

Work on several ongoing concept plans aimed at planning development patterns was either continued or completed as noted in Table E-1. Table E-1 also highlights subbasin plans either completed or in development intended to address stormwater from a regional and/or alternate approach. Figure E-1 shows CWS' service area with the applicable zoning.

Table E-1: Co-Implementer Long-Range Land Use & Subbasin Planning Activities

Lead Co-Implementer	*Referenced Plan*	*Status*	*Plan Type / UGB Status*
City of Sherwood	Sherwood West	▪ The concept plan was completed and accepted by Metro. ▪ Continued planning is on hold pending the results of an appeal to Metro's decision, but will begin before the end of calendar year 2026. ▪ CWS has been engaged with the City of Sherwood about supporting its desire to incorporate subbasin planning into its comprehensive planning.	▪ Concept (completed) / Inside UGB
City of Tigard	River Terrace South and West	▪ The City of Tigard has been carrying out planning activities during the reporting period. ▪ CWS continues to provide planning support for sanitary sewer and stormwater for the area. ▪ The plan is expected to be completed at the end of 2026.	▪ Comprehensive / Inside UGB / ongoing
City of Beaverton	Downtown Beaverton Subbasin Strategy	▪ The City of Beaverton is challenged to fit traditional stormwater management controls into a densely urbanized redevelopment area and is looking to provide alternate approaches for managing stormwater. ▪ The plan is being prepared as part of a larger urban renewal effort. ▪ The plan will recommend a mix of engineered and nonengineered approaches to stormwater management, such as reducing existing impervious surface.	▪ Subbasin plan / Completed during the reporting year

City of Tualatin	Nyberg Subbasin Strategy	▪ The City of Tualatin has begun preparing a subbasin strategy for the Nyberg Creek / Downtown Tualatin area. ▪ This plan will provide stormwater management solutions aimed at retrofits and redevelopment. ▪ Solutions may also include retrofit opportunities where applicable and appropriate. ▪ The city is working with CWS, and completion is expected in FY27.	▪ Subbasin plan
CWS	South Bull Mountain Stormwater Concept Plan	▪ The concept plan was completed in FY25 and focused on addressing stormwater from future development ▪ The concept plan includes a mix of green and grey solutions ▪ Additional planning to assess feasibility and approach to implementation is being carried out in FY26/27	▪ Feasibility & Implementation Planning

No other significant land use changes or expansion of the Urban Growth Boundary occurred during this reporting period. Figure E-2 shows CWS' service area with urban reserves. Figure E-3 shows properties annexed to CWS in Fiscal Year 2025-2026.

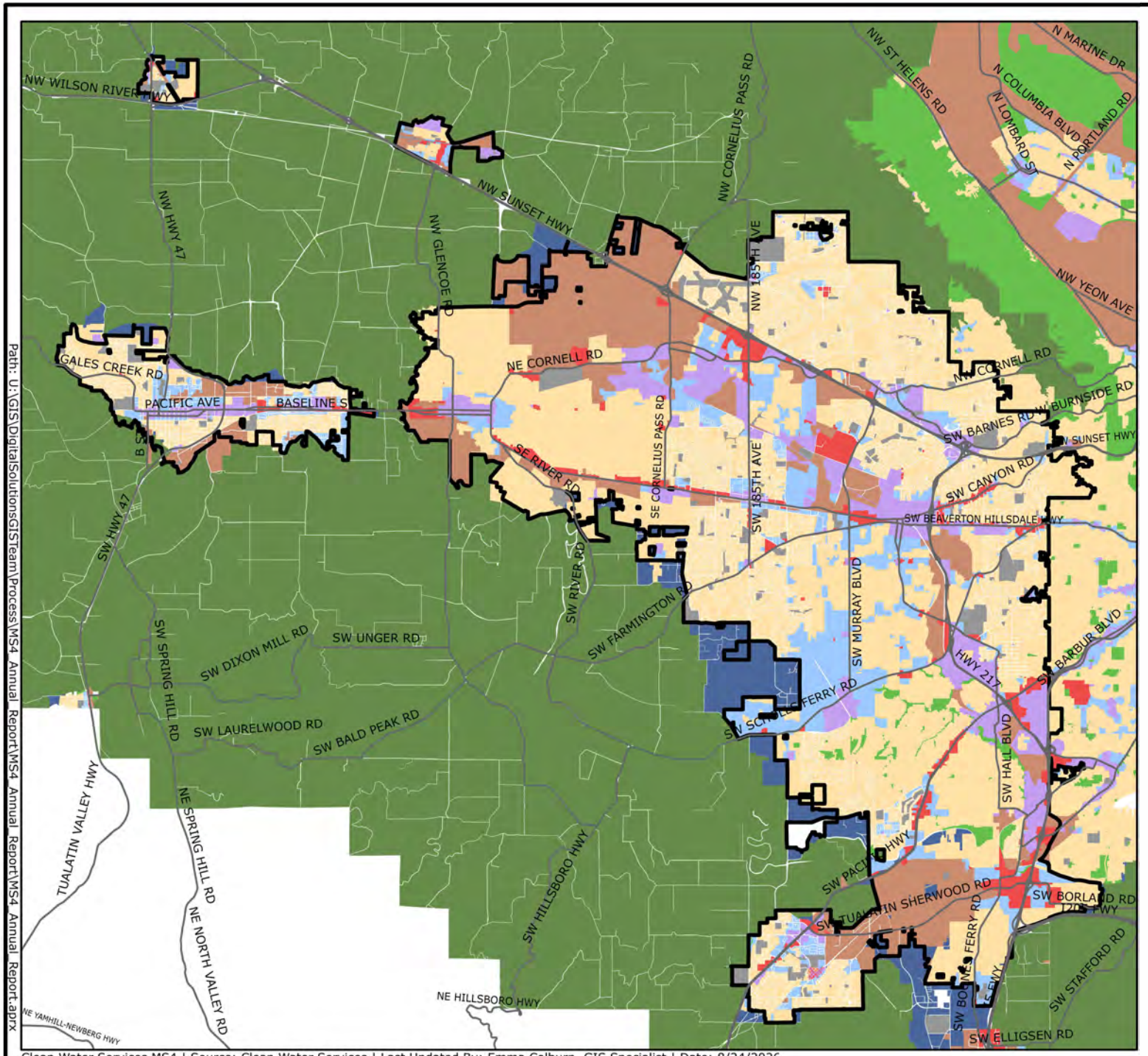
A number of areas were annexed to the CWS service area from within the Urban Growth Boundary and are now able to be served by the urban sanitary sewer and stormwater management system. Details are provided in Table E-2 and in Figure E-3. There were no deannexations from the CWS service area. There was a significant drop in annexations this reporting period due to large residential and industrial areas annexing during the previous reporting period to growth areas associated with the cities of Banks, Hillsboro, and King City as well as smaller more disparate annexations.

Table E-2: Details of Clean Water Services Annexations

Metro Proposal Number	*Location*	*Annexation Date*	*Area Annexed, acres*
WA0526	Along SW 345th Ave in Cornelius.	3/12/2026	0.53
WA1925	These seven properties are located South of SW Beef Bend Road and West of SW 137th Avenue.	7/20/2025	7.13
WA2825	This property is located north of NW Thompson Rd and East of NW 120th Ave.	9/26/2025	1.13
WA2725	Along Beef Bend Road, between SW Elsner Road and SW 155th Ave.	9/22/2025	5.27
Total			**14.06**

Figure E-1

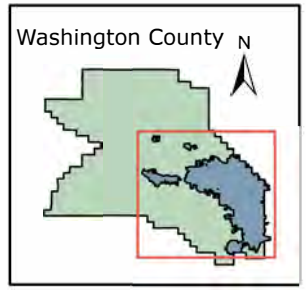
Clean Water Services MS4 Boundary with Zoning



MS4 Service Area FY25-26

Zoning

- Commercial
- Future Urban Dev.
- Industrial
- Multi Family
- Mixed Use Res.
- Public Facilities
- Parks / Open Spaces
- Rural
- Single Family



CleanWater Services

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Clean Water Services MS4 | Source: Clean Water Services | Last Updated By: Emma Colburn, GIS Specialist | Date: 8/24/2026

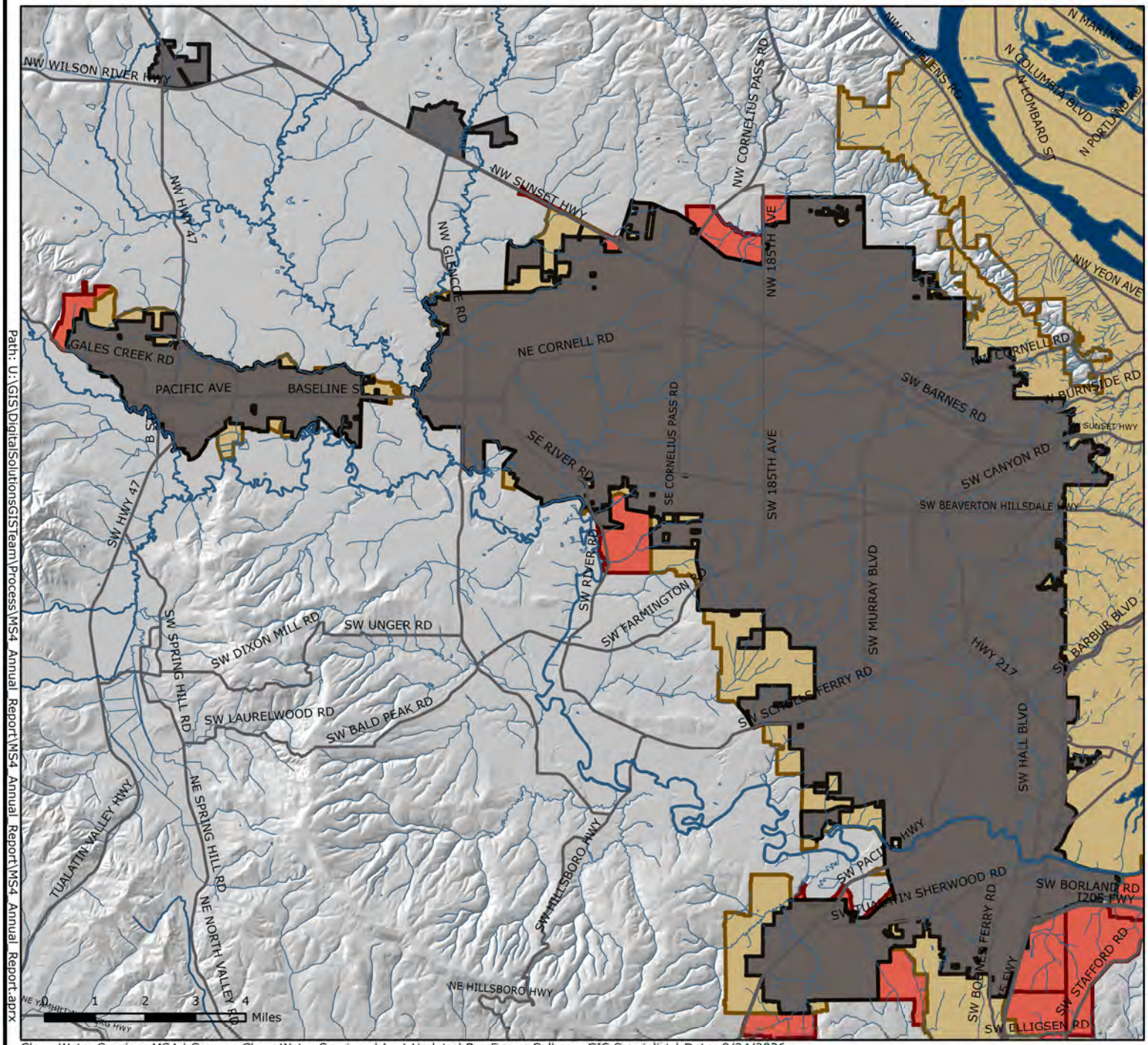
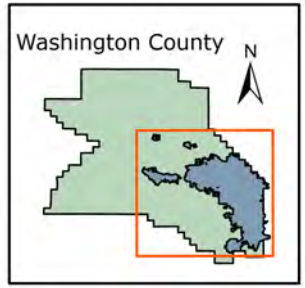


Figure E-2

Clean Water Services
MS4 Boundary
Urban Reserves
UGB Expansion

- Urban Reserves
- Current UGB End of Reporting Period
- MS4 Service Area FY25-26

Note: Areas that are not within the CWS MS4 Service boundary but are within the UGB boundary are areas yet to be annexed into CWS Service area.



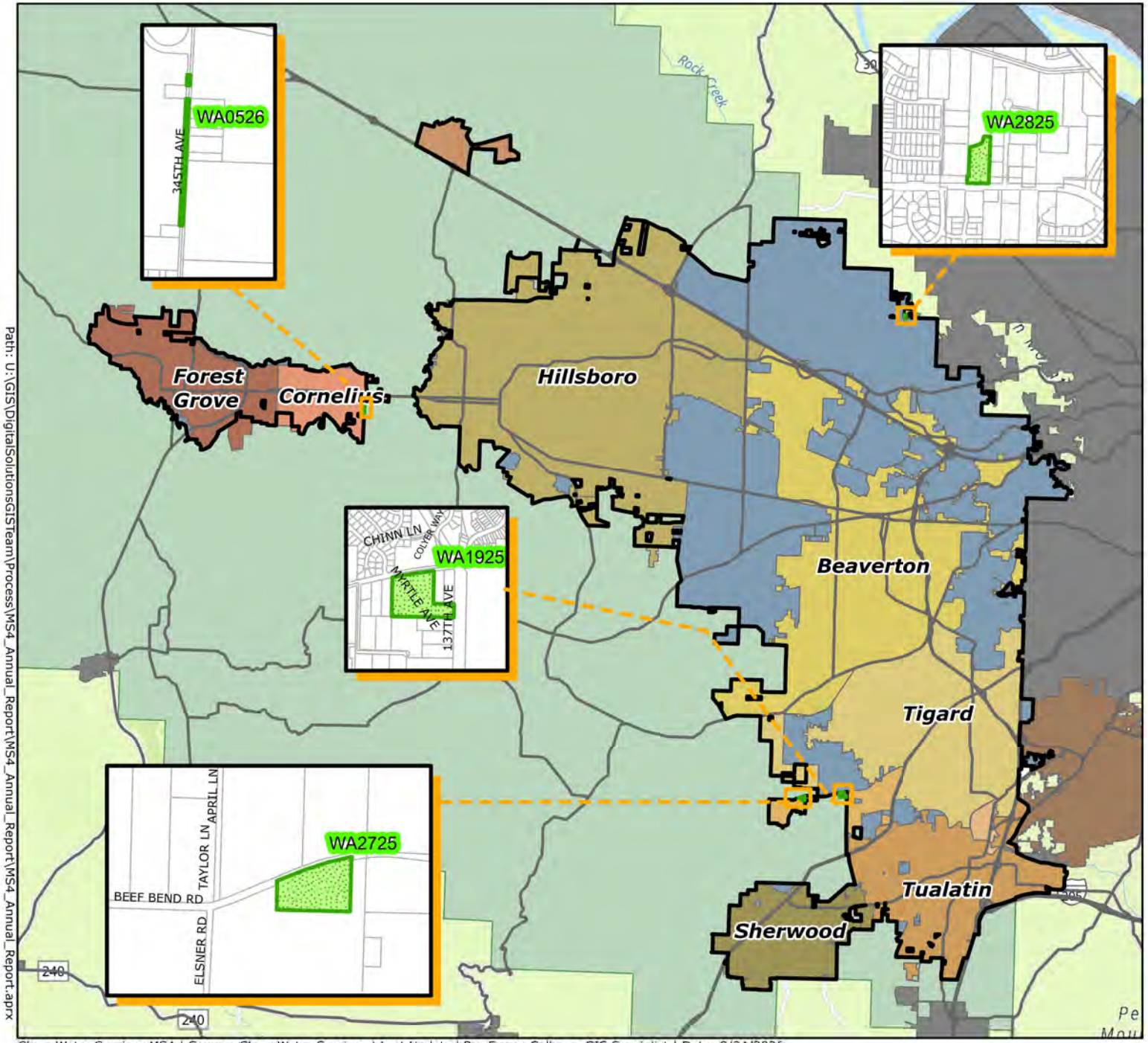
Clean Water Services

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Figure E-3

Clean Water Services FY 25-26 Annexations (14.06 acres)



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Clean Water Services MS4 | Source: Clean Water Services | Last Updated By: Emma Colburn, GIS Specialist | Date: 8/24/2026

Clean Water Services