



City of Wilsonville, Oregon

NPDES MS4 Permit and Willamette River TMDL Implementation Plan Annual Report

2021–2022 Reporting Year

Prepared for the
Oregon Department of Environmental Quality

December 1, 2022

CITY OF WILSONVILLE

**NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) and
TMDL IMPLEMENTATION PLAN
ANNUAL REPORT**

JULY 1, 2021 – JUNE 30, 2022

The undersigned hereby submits this National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater System Annual Report in accordance with NPDES Permit Number 101348. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information 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.



Chris Neamtzu, AICP
Community Development Director

Table of Contents

<u>Section</u>	<u>Page No.</u>
1.0 INTRODUCTION.....	1
1.1 Regulatory Background – NPDES MS4 Permit.....	1
1.2 Regulatory Background – TMDL Implementation Plan.....	1
1.3 Document Organization	2
2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION.....	3
3.0 PROGRAM EXPENDITURES	3
4.0 OVERVIEW OF PLANNING AND LAND USE CHANGES, UGB EXPANSION AND NEW DEVELOPMENT ACTIVITIES	4
4.1 Annexations and UGB Expansion.....	4
4.2 Land Use Changes and New Development Activities.....	5
5.0 ENVIRONMENTAL MONITORING.....	7
5.1 Summary of Monitoring Data	7
5.2 Temperature Monitoring.....	8

List of Tables

Table 1. Summary of the NPDES MS4 Annual Report Requirements	2
Table 2. Stormwater Program Expenditures.....	4
Table 3. Summary of Wilsonville Environmental Monitoring Activities per CCCSMP	7
Table 4. Monthly Rainfall Totals (inches) 2021-22.....	8

List of Appendices

Appendix A	SWMP Implementation Status
Appendix B	TMDL Implementation Plan Status (Temperature Management Strategies)
Appendix C	Winter Maintenance Tracking and Reporting
Appendix D	Mercury Minimization Assessment
Appendix E	Environmental Monitoring Results
Appendix F	Response to DEQ Warning Letter – Frog Pond Ridge

1.0 INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of Wilsonville (City) through a Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit 101348, issued to Clackamas County and its co-permittees, and through the total maximum daily load (TMDL) program.

This annual report fulfills the reporting requirement under the City's Phase 1 NPDES MS4 permit and the City's Willamette River TMDL Implementation Plan (TMDL Plan) for the reporting period of July 1, 2021 to June 30, 2022. The City implements a Stormwater Management Plan (SWMP) to address specific regulatory obligations of its NPDES MS4 permit for point source pollutant parameters and the TMDL Plan to address elevated temperature in Willamette River tributaries (e.g., Boeckman Creek, Coffee Lake Creek).

1.1 Regulatory Background – NPDES MS4 Permit

The City's NPDES MS4 permit was originally issued in 1995 to Clackamas County co-permittees including the cities of Lake Oswego, Oregon City, West Linn, Milwaukie, Wilsonville, Happy Valley, Johnson City, and Rivergrove, the Oak Lodge Water Services District (formerly the Oak Lodge Sanitary District), and Clackamas County.

The City's MS4 NPDES permit was most recently renewed September 15, 2021, with an effective date of October 1, 2021. The previous permit expired March 1, 2017, and had been administratively extended.

During the 2021-2022 reporting period, the City prepared an updated SWMP to meet the requirements in the 2021 MS4 NPDES permit. Additionally, the City participated in updating the Coordinated Clackamas County Stormwater Monitoring Plan (CCCSMP) to reflect the changes to the monitoring requirements as outlined in the 2021 MS4 NPDES permit. The updated SWMP and CCSMP was submitted by the December 1, 2022 due date as specified in the 2021 permit. The City will begin implementing the updated SWMP and CCSMP once the documents are approved by DEQ.

1.2 Regulatory Background – TMDL Implementation Plan

The City originally submitted its TMDL Plan to DEQ on March 31, 2008. Comments from DEQ were received and addressed by the City, and DEQ approved the City's TMDL Plan in May of 2009. In August 2014, at the end of the initial 5-year implementation period, the City updated its TMDL Plan to include refined measurable goals, performance measures and milestones.

In February 2019, the City submitted an updated TMDL Plan to DEQ for approval following the second 5-year implementation period. On November 2, 2020, the City received confirmation from DEQ that this 2019 TMDL Plan was approved.

The City's TMDL Plan identifies and describes management strategies that the City will implement to address nonpoint sources of pollution generated in the Middle Willamette River subbasin in the Willamette Basin. The **non-point source** TMDL parameter of concern is temperature, and therefore, the TMDL Plan focuses on temperature management activities. The City's NPDES MS4 permit, as implemented through the SWMP, identifies practices the City will implement to address **point sources** of pollution. The point source TMDL parameters of concern are bacteria and mercury.

1.3 Document Organization

Table 1 below outlines the organization of this annual report document, with respect to the annual reporting requirements outlined in Schedule B.5 of the City’s NPDES MS4 permit. This report emphasizes efforts and activities associated with individual Best Management Practices (BMPs) from the City’s 2012 SWMP, as summarized in Appendix A. Activities related to the City’s TMDL Plan are reported in Appendix B. Additional requirements associated with the 2021 MS4 NPDES permit are located in Appendices C and D.

Table 1. Summary of the NPDES MS4 Annual Report Requirements	
Annual reporting requirement	Location in document
a) The status of implementing the Stormwater Management Program (SWMP) and each control measure program element in Schedule A.3., including progress in meeting the measurable goals and program tracking and assessment metrics identified in the SWMP Document as well as additional annual reporting requirements identified in each section, or, prior to SWMP Document approval by DEQ, measurable goals and tracking metrics approved under the previous permit’s approved SWMP.	Appendix A
b) A summary of the adaptive management implementation and any changes or updates to programs made during the reporting year, including rationales for any proposed changes to the SWMP (e.g., new BMPs), and review of related new and historical monitoring data. This summary should also include discussion of the implications of or any findings related to recent years’ adaptive management and/or changes made to the SWMP Document, based on data from tracking measures, measurable goals, and/or any monitoring related to the change.	Section 2.0
c) Any proposed changes to SWMP program elements that are designed to reduce Total Maximum Daily Loads (TMDL) pollutants.	None this reporting year
d) A summary of education & outreach and public involvement activities, progress toward or achievement of measurable goals, and any relevant assessment of those activities. This should include planned adaptive management or other program enhancements to occur in the following years.	Appendix A – Element #4
e) A summary describing the number and nature of enforcement actions, inspections, and public education programs, including results of ongoing field screening and follow-up activities related to illicit discharges.	Appendix A – Element #1
f) A list of entities referred to DEQ for possible 1200-Z NPDES general permit coverage based on co-permittee screening activities, a list of categories of facilities inspected, and an overview of the results of inspections of commercial and industrial facilities.	Appendix A – Element #2
g) A summary of total stormwater program expenditures and funding sources over the reporting fiscal year, and those anticipated in the next fiscal year.	3.0
h) A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year submitted in the DEQ-approved Data Submission Template, and any assessments or evaluations of that data completed by the co-permittees or an authorized third party.	4.1, and online submission of data.
i) Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	None this reporting year

j) An overview, as related to MS4 discharges, of concept planning, land use changes and new development activities (including the number of new post-construction permits issued) that occurred within the Urban Growth Boundary (UGB) expansion areas during the reporting year, and those forecast for the following year, where such data is available.	5.0 & Table 4
k) The details of all corrective actions implemented associated with Schedule A.1.b.iii during the reporting year.	None this reporting year
l) Additional Annual Report requirements for 2022 per 2021 MS4 NPDES Permit: <ul style="list-style-type: none"> • Winter maintenance activities. • Mercury Minimization Assessment - Appendix 	<ul style="list-style-type: none"> • Appendix C • Appendix D

2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION

The City submitted its adaptive management approach to DEQ on November 1, 2012. The City's approach includes two elements:

1. An **annual** process to determine if the City's stormwater program is being implemented in accordance with the SWMP, and to determine if progress towards measurable goals is being made. The annual process may include program adjustments, if needed.
2. A comprehensive process at the **end of the permit term** and submitted as part of the City's permit renewal package, to identify proposed program modifications including modification, addition, or removal of BMPs incorporated into the SWMP. Such program modifications are based on a more in-depth evaluation of submitted program documentation and studies.

The City conducted a comprehensive process to identify proposed program modifications as part of their NPDES MS4 permit renewal application, submitted February 2017. For the 2020-2021 reporting year, because the City's NPDES MS4 permit is in administrative extension, no major permit modifications, including major changes to the SWMP, can be made.

The City's proposed 2022 SWMP was developed using an adaptive management process which included evaluating the City's implementation of the 2012 SWMP. The adjustments proposed to BMPs in the City's 2022 SWMP reflect improvements the City has identified while assessing the implementation of the 2012 SMWP over the past nine years. The City's goal is to effectively implement the SWMP BMPs to achieve water quality goals to the Maximum Extent Practicable (MEP).

3.0 PROGRAM EXPENDITURES

The City's stormwater management program is funded through a combination of its stormwater utility, system development charges (SDCs) for new development, and additional fees associated with erosion control, natural resources, and stormwater plan reviews and inspections. A portion of the utility fee and all SDC revenue is placed in a fund dedicated for capital improvement project (CIP) development.

For the 2021-2022 reporting year, the stormwater utility rate was \$11.90 per equivalent residential unit (ERU). The fee will not increase in 2022-2023. Future increases will be implemented with the adoption of the updated Stormwater Master Plan in 2023.

A summary of the City’s direct stormwater program expenditures for the 2021-2022 reporting year and anticipated stormwater program expenditures for the 2022-2023 reporting year are outlined below. The Natural Resources Program manages requirements for the NPDES permit and the associated costs are reflected under the Management Activities. The Public Works Department performs operations and maintenance activities and the associated costs are reflected under Maintenance Activities. Administrative support is funded separately.

Table 2. Stormwater Program Expenditures		
	Management Activities	Maintenance Activities
Reporting Year 2021-2022		
Wages and benefits	\$265,965	\$221,806
Materials and services	\$71,869	\$599,579
Reporting Year 2022-2023 (projected)		
Wages and benefits	\$298,232	\$292,810
Materials and services	\$123,700	\$818,292

4.0 OVERVIEW OF PLANNING AND LAND USE CHANGES, UGB EXPANSION AND NEW DEVELOPMENT ACTIVITIES

The City has experienced rapid growth over the last two decades. When the initial NPDES MS4 permit was issued, the City’s population was approximately 9,300. Wilsonville’s current population is approximately 26,531.

The following section outlines land use changes, Urban Growth Boundary (UGB) expansions, land annexations and new development activities that occurred during this reporting year. Figure 1 reflects the City’s current zoning and city limits.

4.1 Annexations and UGB Expansion

As of June 2022, the City’s NPDES MS4 permit area is approximately 5,001 acres.

In Wilsonville, annexations are typically applicant- and development-driven. The City and City Council do not typically initiate the annexation of property outside of the city limits. The City actively conducts development-based concept planning for large development areas to facilitate annexation. Past concept planning efforts include the following:

- **Villebois.** This 480-acre area is located along the City’s western boundary and prior to UGB expansion, this area was once the Dammasch State Hospital site, rural residential parcels and agricultural lands. The Villebois Village Master Plan was adopted in 2003 and incorporates sustainability practices and onsite stormwater management to minimize impacts of new development. This area is nearing full build out with approximately 3,017 single and multi-family units constructed.
- **Frog Pond West.** This 181-acre area is located adjacent to the City’s eastern boundary, north of Boeckman Road and west of Stafford Road. The Master Plan was adopted in spring 2017 and calls for the redevelopment of rural residential and agricultural lands to

residential. A total of nearly 124 acres have been annexed within Frog Pond West. To date, eight subdivisions consisting of 392 single family homes have been approved for construction.

- **Frog Pond East & South.** Metro approved a UGB expansion of 280 acres in December 2018 and received final approval from the Department of Land Conservation and Development in 2019. At full build-out, this area is expected to provide over 1,300 homes of varying housing types and sizes. Master Planning has begun with adoption anticipated by December 2022.
- **Coffee Creek Industrial.** This 226-acre area is located adjacent to the City's northwestern boundary and is composed of industrial, residential, and agricultural land uses. The Coffee Creek Master Plan was adopted in 2007. Annexation and redevelopment, in accordance with the Master Plan, will include regionally significant industrial land uses including warehouse, manufacturing, and office space designed according to the City's Industrial Form-based Code provisions. In 2021, the City completed construction of an industrial roadway along SW Garden Acres Road to promote development in this area. Since then, two properties each comprised of a single large industrial building have been annexed into the City.
- **Basalt Creek.** This area is located along the north and northwest boundary of the City, bound by Basalt Creek Parkway and Greenhill Lane to the north, Coffee Lake Creek on the west, and I-5 to the east. A Transportation Refinement Plan for the area was completed in August 2013, and the Basalt Creek Concept Plan was adopted in August 2018. The City updated the Urban Planning Area Agreement with Washington County and adopted Comprehensive Plan Amendments in spring 2019. Master planning is still needed. Annexation and development, in accordance with these plans and policies, will result in an attractive business district including high-tech and craft industries with office, manufacturing, and warehouse space. To date, no developmental approvals have been granted by the City.

4.2 Land Use Changes and New Development Activities

In 2014, the City prepared updated stormwater design standards, as outlined in Section 3 of its Public Works Standards, to address post-construction stormwater control in accordance with the NPDES MS4 permit requirements issued in 2012. The City requires structural stormwater controls for water quality and water quantity on all new and redevelopment projects that add or replace 5,000 square feet or more of impervious surface. The standards require the use of low impact development (LID) practices, stormwater facility sizing based on a flow duration standard, and inclusion of specific stormwater submittal requirements.

During the 2021-2022 reporting year, there were no zoning changes that would affect the types of development activities allowed or associated land usage.

During the 2021-2022 reporting year, the City issued seven post-construction permits for development activities triggering stormwater management requirements. Development activities included three housing developments, two industrial buildings, and two site remodeling projects. Development activities from 156 housing units, and an addition to a school resulted in 312,117 square feet of new and replaced impervious surface.

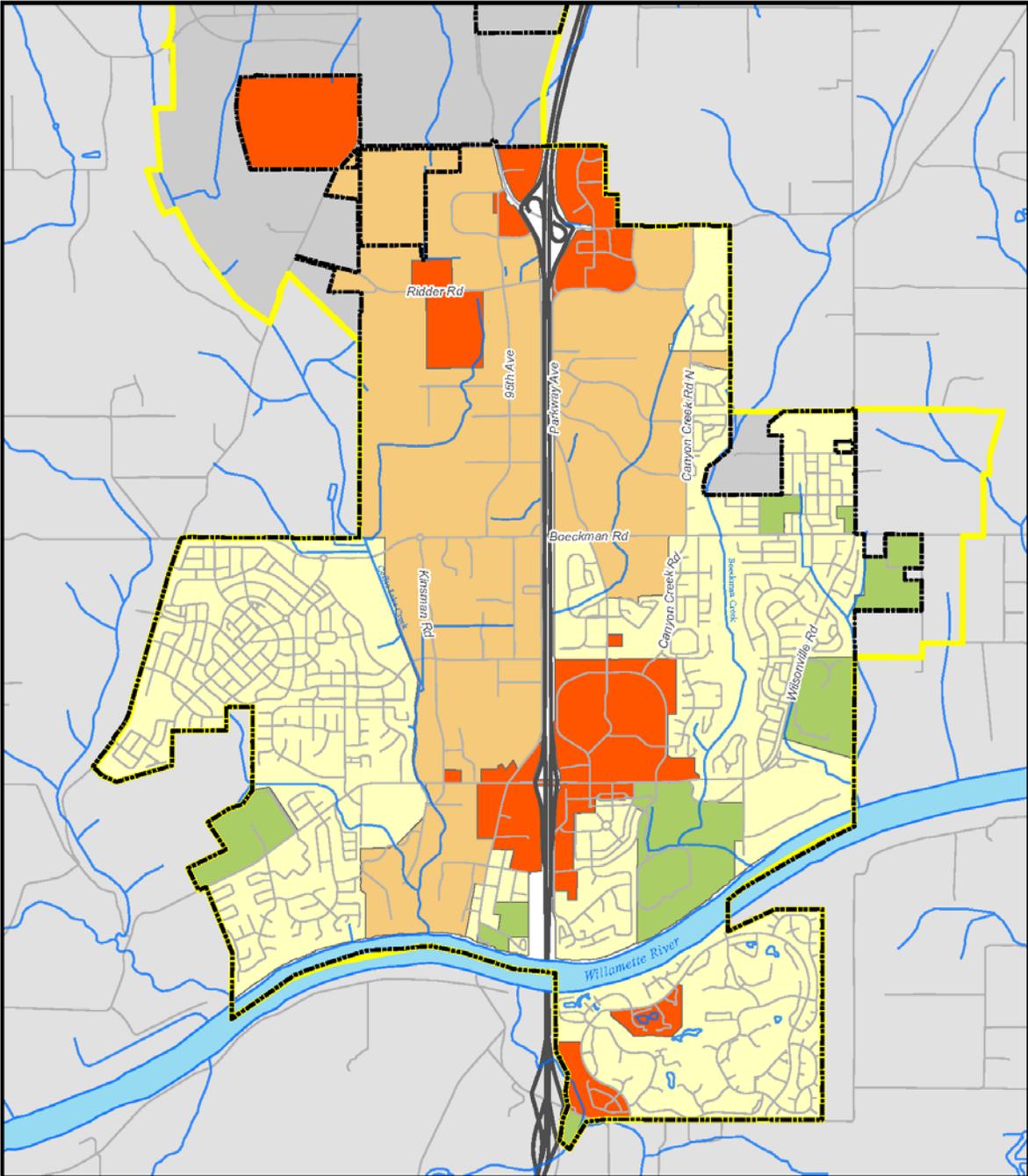


Figure 1
Zoning Types
The City of Wilsonville, Oregon (2022)

- Legend**
- ▬ UGB
 - ▬ Streams
 - ▬ Roads
 - COM
 - IND
 - PUB
 - RES



5.0 ENVIRONMENTAL MONITORING

The 2021-22 reporting year is the fifth year the City implemented the Coordinated Clackamas County Stormwater Monitoring Plan (CCCSMP). In 2016, the City opted to participate in the CCCSMP and discontinue implementation of the City's Monitoring Plan. The 2017 CCCSMP reflecting the City's participation was submitted to DEQ on December 16, 2016. No DEQ comments were received within 30 days. As a result, the City began implementing the 2017 CCCSMP in July 2017.

Detail related to the environmental monitoring activities conducted during the 2021-2022 reporting year are outlined in Section 5.1 and the results are summarized in Appendix E. The data was submitted online to DEQ on the MS4 Online Submission webpage using the Grab Data Submission Template.

5.1 Summary of Monitoring Data

Under the City's Monitoring Plan, the City has two instream monitoring locations and one stormwater outfall monitoring location. Monitoring events are grouped into the dry season and wet season to maintain compliance with the permit. The City chose to collect three of the four instream sample events during the wet weather season. The sampling schedule was determined prior to the start of the sampling year. Grab samples are collected during dry weather conditions and time-composited grab samples during rainfall events. The City contracted stormwater and instream sample collection activities during the 2021-22 reporting year. Specific monitoring locations and frequencies are outlined in Table 3.

Table 3. Summary of Wilsonville Environmental Monitoring Activities per CCCSMP				
Sampling type	Monitoring location	Waterbody name/ receiving water	Sampling frequency	Land use represented
Outfall (stormwater) monitoring	Library Detention Pond inlet at Memorial Park	Tributary to Boeckman Creek	3x/year	<ul style="list-style-type: none"> • Commercial • Residential
Ambient (instream) monitoring	Boeckman Creek at the Boeckman Road crossing	Boeckman Creek (upstream)	4x/year (min. of 2 events during the wet season)	<ul style="list-style-type: none"> • Agricultural (outside City limits) • Commercial • Residential
Ambient (instream) monitoring	Boeckman Creek at the Rose Lane footbridge in Memorial Park	Boeckman Creek (downstream)	4x/year (min. of 2 events during the wet season)	<ul style="list-style-type: none"> • Commercial • Residential

Monitoring results for all locations are summarized in Appendix E. The summary tables include parameters, methods, and results for each event collected. Additionally, a water quality standard has been added for comparison with TMDL waste load allocations, where applicable. Monthly rainfall totals for the 2021-22 reporting year are summarized in Table 4.

Stormwater outfall monitoring was conducted at the Library Detention Pond three times during the 2021-22 reporting year. The initial stormwater monitoring event occurred on September 18,

2021 during the first significant rainfall for the 2021-22 reporting year. Monitoring results showed an elevated level of E. coli during the first and second sampling event, September 18 and October 20, 2021, respectively.

Instream monitoring on Boeckman creek occurs quarterly throughout the reporting year. The April 13, 2022 sampling event was collected as a composite due to the overlapping occurrence of a wet weather event. One elevated E.coli sample was reported during the July 14, 2021 monitoring event at the upstream Boeckman Creek monitoring site. Anomalies were identified in the July 14, 2021 monitoring results for the total lead and zinc parameters. Due to the anomalies, an additional sample was taken on August 24, 2021 and analyzed for copper, lead, and zinc. The August 24 sample results did not have the previous anomalies.

Table 4. Monthly Rainfall Totals (inches) 2021-22											
July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June
0.00	0.03	2.79	2.71	5.44	9.90	4.50	2.80	4.57	4.77	4.08	2.75

Data retrieved from the National Weather Service <http://w2.weather.gov/climate/index.php?wfo=pqr>

Weather station location 7/1/2021-8/25/2021 Aurora Airport, 8/25/2021-6/30/2022 Salem Airport (McNary Field)

5.2 Temperature Monitoring

The City deployed two continuous temperature monitoring sensors during the summer of 2021. Boeckman Creek and Coffee Lake Creek were chosen as the two streams to monitor for temperature as they are the two streams within the City of Wilsonville that contribute the largest amount of flow to the Willamette River. Sensors were placed at the mouth of Boeckman Creek and Coffee Lake Creek, respectively.

Monitoring results are summarized in Appendix E. Monitoring data for Boeckman Creek and Coffee Lake Creek indicate water temperatures to be elevated above the TMDL threshold of 64 degrees regularly from June 24 through September 9, 2021. The Coffee Lake Creek monitoring results are expected as most of the watershed is located within a large, open wetland complex which is unforested. Boeckman Creek had readings above 70 degrees for 37 of 90 days during the summer of 2021. This result is unexpected and concerning for the City. Trees are considered the best management approach for preventing high water temperatures. Given the entirety of Boeckman Creek, within City limits is located within a deep ravine and heavily forested riparian corridor, the number of days that exceeded the TMDL threshold was surprising.

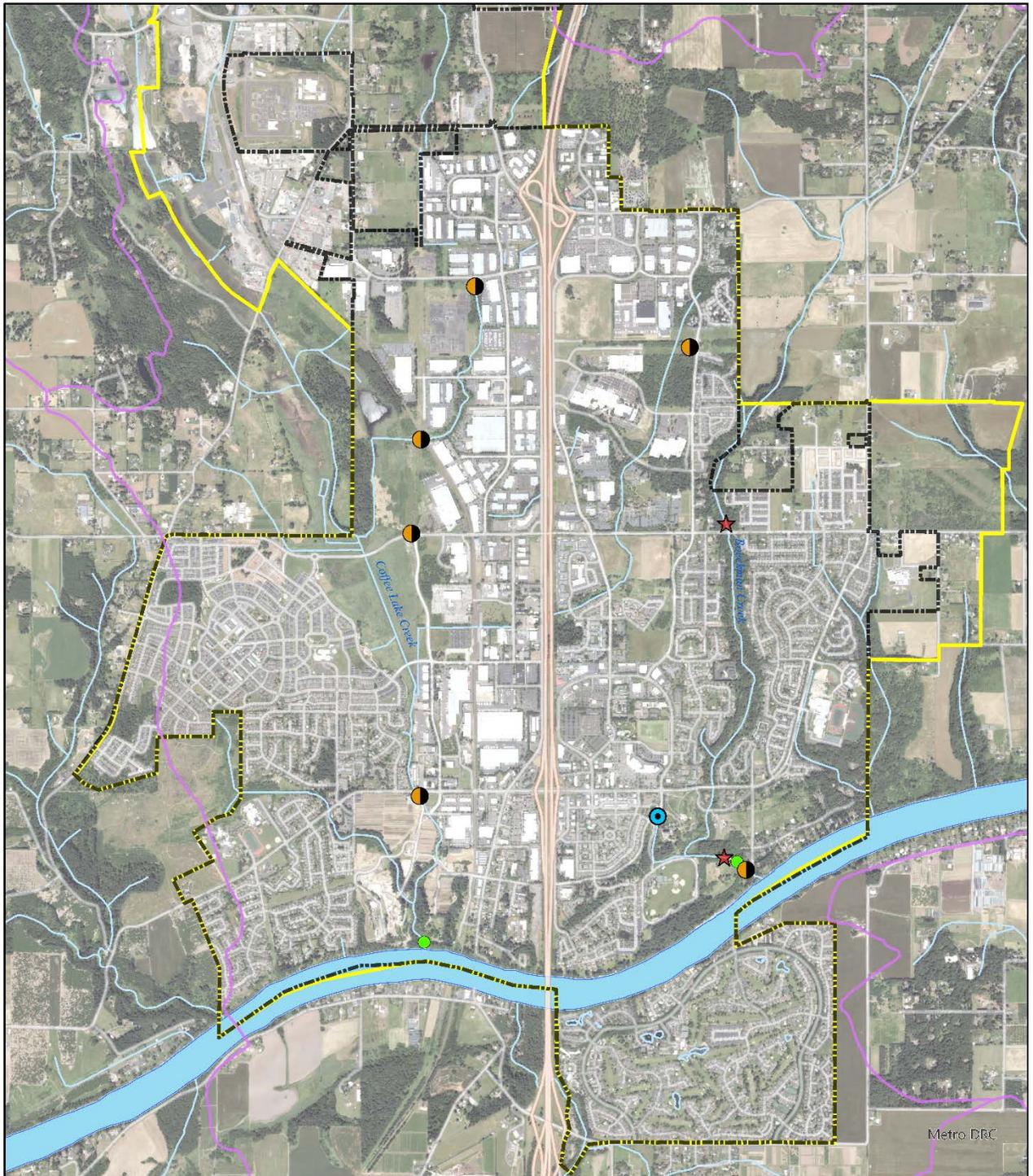


Figure C-1

Environmental Monitoring Activities
The City of Wilsonville, Oregon

- City Limits
- UGB
- Streams
- Watershed
- Temp. Monitors
- Dry Weather Outfall
- Instream Monitoring
- Stormwater Monitoring

0 0.25 0.5 1 Miles



Appendix A

SWMP Implementation Status

Appendix A. SWMP Implementation Status

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle (○) indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

BMP Title	BMP Name	Program Element(s)	Addresses bacteria?	Addresses mercury?	Responsible City Department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
CD1	Illicit Discharge Detection and Elimination	Illicit Discharge Detection and Elimination	○	○	Community Development Public Works	<ul style="list-style-type: none"> Conduct annual dry weather illicit discharge screening/inspections for all major (15 total) and priority minor outfalls (85 total). Continue to follow dry weather field screening procedures for all outfalls suspected of illicit discharges. Notify the Public Works Director of all positively identified illicit connections and take necessary actions to eliminate them. Revise procedures for conducting the illicit discharge elimination and investigation program in accordance with permit requirements by November 1, 2012. 	<ol style="list-style-type: none"> Track number of outfalls inspected annually. Summarize inspection results and indicate outfalls requiring monitoring (sampling) and/or investigations. Document the outcome and resolution of any investigation activities conducted. 	<ol style="list-style-type: none"> Six major outfalls identified as high priority sites were inspected in September after 72 hours of dry weather using the Dry Weather Field Screening Inspection Form. Outfall inspection locations can be found on figure 2. Throughout the reporting year, the Public Works Department inspected 229 outfalls and outlets as part of their routine maintenance program. Elevated specific conductance readings were identified on Coffee Lake Creek at the bridge on Wilsonville Rd. Specific sample results are listed in the Notes column. Four outfalls were either dry or had pH and specific conductance readings within limits not requiring further investigation. Exceedance of the specific conductance indicator is a regular occurrence on Coffee Lake Creek. An investigation was performed in 2019 showing that the exceedance occurs upstream of City limits. 	The City uses the exceedance of 500 microsiemens as an indicator for additional investigation. Coffee Lake Creek at Wilsonville Rd had a reading of 13330 microsiemens during the annual dry weather outfall inspection event in September 2021. An additional outfall on Boeckman road that enters the Coffee Lake Creek wetlands that routinely has a trickle of water had a slightly elevated specific conductance reading of 634 microsiemens. The pH reading was 7.5, within the acceptable range of 6.5-8.5. No additional indicators of an illicit discharge were present and therefore no further sampling was conducted.
PW/CD2	Spill Prevention, Training, and Response	Illicit Discharge Detection and Elimination Education and Outreach	○	○	Community Development Public Works	<ul style="list-style-type: none"> City staff to respond to non-hazardous material spills. Notify appropriate parties, including State and National Emergency Response Systems as necessary, of all known spills within the City. Train city staff to the OSHA First Responder Operations level. 	<ol style="list-style-type: none"> Track number of City employees attending OSHA spill-response training and/or refresher courses. Track the number of spills responded to by City staff. Track the type/source of pollutant discharges associated with each reported spill. 	<ol style="list-style-type: none"> A total of 22 City employees attended OSHA spill-response training courses and/or refresher courses during the 2021-22 reporting year. City staff responded to 9 locations of spills and/or reports of dumping during the 2021-22 reporting year. Follow up with City resources and staff were deployed to 3 spills. The details related to the type or source of each specific spill are listed in the Notes column. 	The City deployed resources to 3 spills involving rock and debris on the road. Details related to 4 citizen reports of spills, dumping, and/or illicit discharge can be found below in BMP CD6. Two spills associated with industrial inspections are detailed below in BMP PW/CD 3.
PW/CD3	Industrial and Commercial Facilities	Industrial and Commercial Facilities	○	○	Community Development Public Works	<ul style="list-style-type: none"> Review business license applications and SIC codes for new businesses to identify potential high source facilities. Obtain Environmental Survey from new businesses (i.e., non-residential sewer users) identified as a potential high pollutant source. Update facility information by sending the Environmental Survey to applicable, existing businesses every three years. Identify facilities needing NPDES 1200-Z permits and notify the facility and DEQ within 30 days. Annually inspect facilities identified as warranting inspection. Ensure illicit discharges are eliminated, if discovered. 	<ol style="list-style-type: none"> Track the number of facilities inspected annually. Track the number of existing and potential new NPDES 1200-Z permitted facilities identified annually. Track any enforcement actions associated with inspections. 	<ol style="list-style-type: none"> Two facilities received an inspection of their outdoor storage and disposal practices by the Stormwater Management Coordinator. Fifteen facilities identified as high potential pollutant sources received a windshield inspection of their outdoor areas. Twelve facilities in the City are permitted through a DEQ NPDES 1200-Z permit. One of the sites received a violation from DEQ As a result of facility inspections, four operators of facilities received letters identifying stormwater City code violations. Two of the four facilities needed to improve their outdoor transfer and storage of small plastic pellets. The third facility has ongoing issues containing their waste products and was instructed to install structural BMPs. A spill was identified at the fourth facility that required clean up and employee training. 	

Appendix A. SWMP Implementation Status

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BMP Title	BMP Name	Program Element(s)	Addresses bacteria?	Addresses mercury?	Responsible City Department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
CD4	Erosion Control and Construction Site Management	Construction Site Runoff Control Education and Outreach	●	●	Community Development	<ul style="list-style-type: none"> Require all new and redevelopment disturbing over 500 square feet to submit an erosion and sediment control plan. Conduct weekly erosion control inspections on all construction sites disturbing over 500 square feet. 	<ol style="list-style-type: none"> Track the number of erosion and sediment control plans approved. Track the number of 1200-CN and 1200-C permits issued. Track the number and frequency of erosion control inspections conducted. Track the number and type of enforcement actions taken by the City or DEQ. 	<ol style="list-style-type: none"> The City approved erosion and sediment control plans for 14 commercial, industrial, & public development sites; 5 subdivisions; and 110 single family homes during the 2021-22 reporting year. At the conclusion of the reporting year there were two 1200-CN and eleven 1200-C permits active in the City. Certified City inspectors performed a total of 427 erosion control inspections. Inspectors visit sites weekly during the wet months and monthly during dry months. Additional inspections occurred based on complaints or weather conditions. No formal enforcement actions occurred in the 2021-22 reporting year. Several residential construction sites were instructed to clean up sediment and fix or replace erosion control measures throughout the reporting year. 	
CD5	Public Education Participation	Education and Outreach Pollution Prevention for Municipal Operations Stormwater Management Facilities Operation and Maintenance Activities	○	○	Community Development	<ul style="list-style-type: none"> Publish stormwater related articles in the City newsletter and website. Organize public outreach programs such as Adopt-a-Road and volunteer monitoring of stream corridors. Label catch basins as necessary. Distribute door hangers as necessary in neighborhoods where non-stormwater discharges have been identified. Coordinate with other, local Phase I jurisdictions in providing/compiling information regarding public education effectiveness. Provide the results to DEQ by July 1, 2015. 	<ol style="list-style-type: none"> Track the number of educational articles published per year. Estimate public participation in City-sponsored volunteer events. Track the number of catch basins labeled. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, five educational/informational articles were published in the City newsletter and four were posted to the City's social media pages. City-sponsored volunteer event details for the 2021-22 reporting year are listed in the Notes column. Manhole lids over catch basins are stamped "Dump No Waste Drains to Stream". During 2021-22 reporting year the City affixed 20 catch basin markers prioritizing older neighborhoods that drain directly to outfalls without receiving treatment. 	<ul style="list-style-type: none"> Adopt a Road Participants: 64 volunteers. City's WERK Day: 50 participants removed debris, invasive plants, and planted trees in Wilsonville Parks.

Appendix A. SWMP Implementation Status

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle (○) indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

BMP Title	BMP Name	Program Element(s)	Addresses bacteria?	Addresses mercury?	Responsible City Department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
CD6	Public Reporting for Spills, Illicit Discharges, and Dumping	Education and Outreach	○	○	Community Development	<ul style="list-style-type: none"> Continue to implement the “Citizen Concern” form for public reporting of spills, illicit discharges, and dumping. Include the phone number and website for reporting illicit discharges in a minimum of one published article each year. 	<ol style="list-style-type: none"> Track the number of citizen reports of spills, illicit discharges, and dumping received each year and follow-up actions resulting from the requests. 	<ol style="list-style-type: none"> The City received four complaints from citizens during the 2021-22 reporting year related to spills, illicit discharges and dumping. Details are provided in the Notes column. 	<ul style="list-style-type: none"> August 2021 – Citizen reported observing a company dump sewage and toilet paper down a manhole and catch basin. City staff responded to site and identified location of the dumping and witnessed company spraying disinfectant onto roadway and catch basins. City staff contacted the company and instructed them to clean up the spill, and the associated infrastructure before any measurable amount of rain. City received an invoice from the company within the specified timeframe. February 2022 – Citizen reported a chemical tank dumped at the end of a trail. City Parks staff responded to site and identified the tank. TVFR responded to the site to properly dispose of the tank. May 2022 – Service provider reported a spill of a food grease barrel in a trash enclosure. City staff contacted the property manager to get the spill and adjacent infrastructure cleaned up. Spill was cleaned in accordance with City request. June 2022 – Citizen reported a strong chlorine smell outside of his apartment building and nearby City Park facilities. City Parks staff confirmed that they regularly monitor the chlorine levels in the water features and the levels are within acceptable limits. City Utilities field staff conducted supplemental chlorine tests at the apartment building and found the levels to be within acceptable limits.
PW/CD7	Municipal Staff Training for Stormwater Pollution Prevention	Education and Outreach Pollution Prevention for Municipal Operations			Community Development Public Works	<ul style="list-style-type: none"> Conduct municipal staff training related to stormwater pollution prevention as appropriate. Coordinate with other Clackamas County co-permittees regarding regional water quality efforts through scheduled co-permittee meetings. Attend applicable conferences and trainings as appropriate. 	<ol style="list-style-type: none"> Track the number of municipal staff training activities. Track number of conferences attended. Track any cost share or joint projects conducted annually with Clackamas County or other permitted agencies. 	<ol style="list-style-type: none"> City staff participated in multiple stormwater trainings this year including: spill prevention and sediment & erosion control. Overall, 11 staff from the Engineering Division, Fleet Services, and Public Works participated in stormwater pollution prevention training. Staff attended four conferences and trainings related to stormwater management during the 2021-22 reporting year. The City currently coordinates with WES and the City of Oregon City in updates to the BMP Sizing Tool (used to address post-construction stormwater requirements). 	
CD8	Public Involvement and Participation	Public Involvement and Participation			Community Development	<ul style="list-style-type: none"> Provide for public review and comment with the monitoring plan, SWMP revisions, and pollutant load reduction benchmarks. 	N/A	N/A	<ul style="list-style-type: none"> The City retains the last four years of NPDES MS4 reports on its website for public review. The City posted their renewed NPDES MS4 permit on its website in December 2021.

Appendix A. SWMP Implementation Status

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle (○) indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

BMP Title	BMP Name	Program Element(s)	Addresses bacteria?	Addresses mercury?	Responsible City Department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
CD9	Planning and Development Review	Post-Construction Site Runoff Pollution Prevention for Municipal Operations	●	●	Community Development	<ul style="list-style-type: none"> Continue to require new and redevelopment projects that add or replace over 5,000 square feet of impervious surface to install stormwater quality controls. Review all new and redevelopment plans that add or replace over 5,000 square feet for compliance with stormwater control requirements. 	<ol style="list-style-type: none"> Track number of development applications reviewed for compliance with the City's stormwater requirements. Track the number and type of structural water quality and quantity facilities installed. Track the number of CIPs or retrofits proposed/initiated for water quality improvement. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, eight development applications were reviewed for compliance with the City's stormwater requirements, which pertain to development activities that add or replace 5,000 sq. ft. or more of impervious surface. During the 2021-22 reporting year, a total of 54 structural water quality and quantity facilities were installed. Fourteen of the facilities were installed with the improvement of a roadway in a new industrial area. Details related to the facilities are provided in the Notes column. A public street improvement project began construction in 2021 which will provide stormwater treatment to two roadways in a commercial and industrial area that currently receive no treatment. Completion of the project is scheduled for 2023. Additionally, a rain garden is being added to the water treatment plant in conjunction with a plant upgrade that will provide water quality treatment to an area which previously didn't receive any. 	<ul style="list-style-type: none"> During the reporting period 2 vegetated swales, 20 planter boxes, and 4 rain gardens were installed throughout the City.
CD10	Review and Update Applicable Code and Development Standards Related to Stormwater Control	Post-Construction Site Runoff	○	○	Community Development	<ul style="list-style-type: none"> Review the City's current public works standards to minimize or eliminate identified barriers related to the use of low impact development and green infrastructure techniques. Review the City's current stormwater treatment and detention standards for compliance with new MS4 NPDES permit language (e.g., design storm, etc.). Update the City's post-construction stormwater design standards and code language by November 1, 2014. 	<ol style="list-style-type: none"> Track progress related to the review and update of the City's stormwater treatment and detention standards for compliance with the MS4 NPDES permit. 	<ol style="list-style-type: none"> The City of Wilsonville adopted updated Public Works Standards for stormwater in September 2014 to address NPDES MS4 requirements for treatment and flow control. The City's Standards were amended in December 2015 to address minor editorial and clarification items. No additional updates were made during the 2021-22 reporting year. 	
PW11	Routine Road Maintenance	Pollution Prevention for Municipal Operations	●	●	Public Works	<ul style="list-style-type: none"> Sweep all curbed City streets monthly. Schedule and conduct street maintenance activities during dry weather conditions. Continue to sponsor Adopt-a-Road program. 	<ol style="list-style-type: none"> Track street sweeping frequency. Track length of roadway swept annually. Track volume of debris removed annually. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, the City swept all curbed, public streets monthly. During the 2021-22 reporting year, a total of 3,306 miles of road were swept. During the 2021-22 reporting year, street sweeping resulted in the removal of 646 tons of debris. 	
PW/CD12	Pest Management	Pollution Prevention for Municipal Operations			Community Development Public Works	<ul style="list-style-type: none"> Follow the Integrated Pest Management principles and Pest Management Program for public landscape maintenance. Require all staff and hired contractors applying chemicals within the City to be certified. 	<ol style="list-style-type: none"> Track amount of pesticides and fertilizers applied to public property and general area of application. Estimate number and area of sites where the planting of native vegetation was incorporated into the maintenance activities. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, the City applied approximately 16.4 gallons of pesticides to 37.8 acres of public landscaping areas. The City applied approximately 2 pounds and 107 gallons of fertilizer to 8.5 acres of City Parks and other public, City owned property. During the 2021-22 reporting year, the Parks and Recreation Department planted approximately 1500 trees and 500 native plants in landscape beds and turf areas. 	

Appendix A. SWMP Implementation Status

Key to Pollutant Symbols: A full circle (●) indicates the BMP is expected to address the parameter. An empty circle (○) indicates the BMP may be expected to address the parameter. A blank cell indicates that the effect of the BMP is unknown at this time.

BMP Title	BMP Name	Program Element(s)	Addresses bacteria?	Addresses mercury?	Responsible City Department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
PW/CD13	Municipal Facility Stormwater Management	Pollution Prevention for Municipal Operations	○	○	Community Development Public Works	<ul style="list-style-type: none"> Inventory municipal facilities subject to this permit requirement. Identify and implement strategies to minimize discharges from identified municipal facilities by July 1, 2013. 	<ol style="list-style-type: none"> Inventory municipal facilities and develop strategies to reduce the impact of stormwater runoff from municipal facilities. 	<ol style="list-style-type: none"> The City adopted their Stormwater Pollution Prevention Strategy (SWPPS) for municipal facilities in 2013. Applicable municipal facilities include the Three Bay Facility, the SMART Operations & Fleet Facility, and the Memorial Park Maintenance Barn. For the 2021-22 reporting period, the oil water separator at the SMART Operations & Fleet Facility was cleaned every four months and a stormwater pretreatment vault at the SMART Bus station was serviced annually. 	
PW14	Conveyance System Cleaning	Stormwater Management Facilities Operation and Maintenance Activities	○	○	Public Works	<ul style="list-style-type: none"> Inspect public conveyance system annually for maintenance needs. Maintain and repair public conveyance system as needed based on inspections. 	<ol style="list-style-type: none"> Estimate the length of conveyance system serviced each year. Estimate type and volume of debris removed. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, the City cleaned and maintained approximately 24,498 linear feet of the stormwater conveyance system (mains and laterals). Approximately 9.9 cubic yards of debris was removed in conjunction with conveyance system cleaning activities during the 2021-22 reporting year. 	
PW15	Catch Basin Cleaning	Stormwater Management Facilities Operation and Maintenance Activities	●	●	Public Works	<ul style="list-style-type: none"> Clean all high-priority public catch basins (approximately 25% of all public catch basins) annually and the remaining public catch basins over a four-year period. Inspect catch basins for maintenance and repair needs during catch basin cleaning activities. Schedule catch basin repair activities as needed, based on inspections. 	<ol style="list-style-type: none"> Track percent of total catch basins cleaned each year. Track number of catch basin repair activities conducted each year. Estimate volume of debris removed annually. 	<ol style="list-style-type: none"> During the 2021-22 reporting year, the City cleaned 1,221 catch basins, reflecting 39 percent of all public catch basins in the City. During the 2021- 22 reporting year, 3 catch basins were repaired. During the 2021-22 reporting year, 154 cubic yards of debris was removed from catch basins. 	
PW/CD16	Structural Control Cleaning	Stormwater Management Facilities Operation and Maintenance Activities	●	●	Community Development Public Works	<ul style="list-style-type: none"> Inspect public structural controls annually and maintain and repair as needed. Ensure maintenance of new private structural stormwater facilities serving 5,000 square feet of area or greater through the tracking of <i>Stormwater Maintenance and Access Easement</i> agreements. Maintain GIS "atlas" for both public and private water quality structural controls. 	<ol style="list-style-type: none"> Track number of public stormwater structural controls inspected. Track number of public stormwater structural controls maintained. Track covenant agreements on file and annual maintenance reports submitted for private stormwater structural control facilities. Track number of private stormwater structural controls inspected and maintained. 	<ol style="list-style-type: none"> The City has identified 99 structural controls at 33 sites. During the 2021-22 reporting year, the City inspected 69 public structural controls. During the 2021-22 reporting year, the City maintained 56 public structural controls. For the 2021-22 reporting year, there were 116 private stormwater maintenance agreements on file. Annual inspection and maintenance report requests were sent to 113 facility owners in March 2022, and 36 maintenance reports were returned. During FY 2021-22, the City inspected 67 sites containing multiple private stormwater facilities. Most of the parties responsible for private facility maintenance performed some type of maintenance over the course of the year. Follow up inspections by City staff found that fourteen facilities needed minor additional maintenance. 	

Appendix B

TMDL Implementation Plan Status

Table B-1. Management Strategies for Temperature Reduction

BMP or Activity	Commitment/ Implementation Strategy	Measurable Goal(s) Methods to meet strategies	Implementation Tracking/Performance Measure Demonstration of implementation	Timeline	Milestones /Intermediate indicators of progress	Responsible City Department	Status (to be populated with each annual report)
Riparian Area Management	Enforce riparian buffers to protect existing vegetation and minimize impacts to surface waters due to development.	Continue to implement Wilsonville Municipal Code (WMC), Chapter 4 – Planning and Land Development, related to the following: <ul style="list-style-type: none"> Section 4.139 - Implementation of the Significant Resource Overlay Zone (SROZ). The SROZ reflects compliance with Title 3 and Title 13 requirements. Section 4.600 – Limitations on tree removal and tree cutting in the SROZ. 	<ul style="list-style-type: none"> Annually track WMC and Comprehensive Plan updates related to Title 3/ 13 compliance. 	Ongoing	N/A – WMC is currently consistent with Title 3/13 compliance.	Community Development	
	Evaluate opportunities for targeted planting to improve shade conditions throughout Wilsonville waterbodies	Conduct a desktop GIS evaluation and inspect/ ground truth sites identified as public planting opportunity areas in the 2008 Shade Opportunity Mapping exercise.	<ul style="list-style-type: none"> Document planting progress and overall site feasibility based on the desktop GIS evaluation and inspection/ ground truthing efforts. In conjunction with site inspection results, identify ongoing replanting and maintenance needs. 	November 2022	<ul style="list-style-type: none"> By June 30, 2021, compile mapping information per 2008 Shade Opportunity Mapping exercise and updated aerial imagery. By April 1, 2022, ground truth public planting sites identified in the 2008 Shade Opportunity Mapping exercise. By November 1, 2022, prepare a maintenance and planting schedule for applicable public planting sites based on ground truthing exercise. 	Community Development	During the 2021-22 reporting year, City staff reviewed potential planting sites in the 2008 Shade Opportunity Mapping, and prepared a preliminary schedule, where practicable, for public planting sites.
		Continue participation in opportunistic planting efforts with local and state agencies and organizations.	<ul style="list-style-type: none"> As applicable, document planting and habitat enhancement activities on public property and private property. 	Ongoing	N/A – Implementation is ongoing and opportunistic.	Community Development	During the 2021-22 reporting year, a site identified within the Shade Opportunity Mapping (Page C3), located in Memorial, was planted with trees. Within this riparian area of a tributary to Boeckman Creek, City staff installed 750 native tree saplings.
		Continue partnerships and financial contributions to Friends of Trees in support of riparian planting projects. Partnership may include in-kind staff participation on governing boards, technical/ permitting support for sponsored projects within the City, or financial contributions.	<ul style="list-style-type: none"> Annually contribute a minimum of \$5,000 to Friends of Trees. Annually obtain status reports from Friends of Trees to identify planting locations over the reporting year. 	Ongoing	Beginning with the FY 2020-21 annual report, report on financial contributions to Friends of Trees.	Community Development	During the 2021-22 reporting year, the City contributed \$15,000 to Friends of Trees.

Table B-1. Management Strategies for Temperature Reduction

BMP or Activity	Commitment/ Implementation Strategy	Measurable Goal(s) Methods to meet strategies	Implementation Tracking/Performance Measure Demonstration of implementation	Timeline	Milestones /Intermediate indicators of progress	Responsible City Department	Status (to be populated with each annual report)
		Assess riparian planting and restoration capital project needs in accordance with DEQ's March 2020 cold water refugia (CWR) study and efforts associated with the City's Stormwater Master Plan (SMP) update.	<ul style="list-style-type: none"> Review results of DEQ's CWR study (March 2020) and identify potential CWR opportunity areas relevant to the City. Assess feasibility of planting activities at CWR opportunity areas using GIS mapping and/or field investigation efforts. Conduct stream assessment to assess vegetative cover conditions along specific stream reaches and identify restoration-related capital project needs as part of the SMP update. As applicable, incorporate planting and restoration project needs into the City's stormwater capital improvement program. Annually document completion of riparian planting and restoration capital projects per the City's SMP update. 	Ongoing	<ul style="list-style-type: none"> By June 30, 2021, review the DEQ CWR study and summarize findings and relevant CWR opportunity areas. By June 30, 2022, evaluate the continued applicability of unconstructed riparian planting and restoration CIPs per the City's 2012 SMP, for inclusion in the 2022 SMP Update. By June 30, 2022, summarize results from the stream assessment effort. <p>Please note that capital project implementation is subject to prioritization schedules and approval of the SMP by City Council.</p>	Community Development	An update to the SMP will be completed in 2023, which will include an evaluation of riparian planting and restoration CIPs and a summary of the stream assessment results.
Design Standards for New and Redevelopment	Implement design standards that promote infiltration for public and private development projects.	Promote the use of infiltration for stormwater management through updated stormwater design standards, facility details, sizing tools, and the City's SMP update.	<ul style="list-style-type: none"> As applicable, document changes or updates to the City's stormwater design standards. As applicable, incorporate water quality project needs into the City's stormwater capital improvement program. 	Ongoing	By April 1, 2021, prepare a user manual for developers and engineers with standard details for recommended stormwater treatment facilities. Please note that capital project implementation is subject to prioritization schedules and approval of the SMP by City Council.	Community Development	The user manual has been completed and will be posted on the City's website.
Education for Temperature Management	Continue to provide information regarding temperature related issues and shade preservation efforts to the public.	Using the City newsletter, annually distribute a minimum of one article related to temperature issues and management approaches.	<ul style="list-style-type: none"> Annually track the number and content of temperature – related articles distributed to City residents by the City. Annually document shade planting incentives (materials, trainings, etc.) provided to citizens. 	Ongoing	Beginning with the FY 2020-21 annual report, report on article publications related to temperature management.	Community Development	The City published one article related to the temperature of streams and promoting trees for shade.
		Promote regional programs targeted at improving habitat on private property. Continually distribute information regarding regional programs in City outlets.	<ul style="list-style-type: none"> Annually document the methods of information distribution conducted by the City. 	Ongoing	N/A – Implementation is ongoing.	Community Development	
		Participate in student education and outreach activities in local schools, providing instruction on the importance of maintaining riparian buffers for shade and temperature management.	<ul style="list-style-type: none"> As applicable, document participation and activities conducted with local schools. 	Ongoing	N/A – Implementation is ongoing.	Community Development	
		Support staff training opportunities related to water quality, TMDL compliance, and temperature management through conference attendance and other education activities.	<ul style="list-style-type: none"> Annually provide up to 8-hours of staff training activities. 		Beginning with the FY 2020-21 annual report, report on staff trainings and conference attendance.		Staff attended three online conferences related to TMDL and water quality issues.
Environmental Monitoring	Monitor surface water temperature to document status and evaluate trends with	In conjunction with NPDES MS4 requirements, conduct sampling for temperature at required instream monitoring locations.	<ul style="list-style-type: none"> As applicable, annually report any modification to existing temperature monitoring activities. 	Ongoing	N/A – Implementation is ongoing.	Community Development	

Table B-1. Management Strategies for Temperature Reduction

BMP or Activity	Commitment/ Implementation Strategy	Measurable Goal(s) Methods to meet strategies	Implementation Tracking/Performance Measure Demonstration of implementation	Timeline	Milestones Intermediate indicators of progress	Responsible City Department	Status (to be populated with each annual report)
	respect to water quality standards.	Conduct ongoing temperature monitoring in the Coffee Lake Creek and Boeckman Creek watersheds over this 5-year TMDL implementation period to build on historic datasets and identify anomalies.	<ul style="list-style-type: none"> Annually summarize this supplemental monitoring in tabular and narrative format. 	Ongoing	<ul style="list-style-type: none"> By April 1, 2021, determine whether updates to the CCCSMP to include additional Coffee Lake Creek monitoring sites may be warranted. 	Community Development	Results from the 2021 monitoring activities can be found in Section 5.2 and Appendix E.

Appendix C

Winter Weather Tracking and Reporting

Appendix C. Winter Maintenance Tracking and Reporting

BMP Name	Program Element(s)	Responsible City Department	Tracking measures (2012 SWMP)	Annual Report Information (Tracking Measure Status 2021-2022)	Notes
Winter Operations and Maintenance Program	Pollution Prevention and Good Housekeeping for Municipal Operations	Public Works	<ol style="list-style-type: none"> 1. Track type of material used and number of events material was used 2. Quantities and general location of each material used (pounds per mile) 3. Actions to protect waters of the state 	<ol style="list-style-type: none"> 1. Magnesium chloride and sand were applied to portions of local roads during one winter weather event. 2. Magnesium chloride was applied at a rate of 77 gallons per mile. Sand was applied at a rate of 1,667 pounds per mile. 3. Sand was removed from roads with a street sweeper 	

Appendix D

Mercury Minimization Assessment

Mercury Minimization Assessment for the City of Wilsonville

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

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

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

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

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

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

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

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

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

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

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

The prevention and reduction of sediment in runoff has been a focus of the City's stormwater management program since the first MS4 permit-required Stormwater Management Plan (SWMP) was developed in the early 1990's. The City uses an adaptive management approach to continually improve upon existing stormwater BMPs over time as new knowledge is gained regarding the effectiveness and efficiency of these practices. The City has submitted the results of its adaptive management process as applicable in annual reports since the original SWMP became effective. The City has also conducted detailed quantitative and qualitative adaptive management analyses as part of each NPDES MS4 permit renewal. The City's 2022 MS4 Annual Compliance Report, due to DEQ on December 1, 2022, provides the latest summary of BMP implementation according to the

pre-existing 2012 SWMP. A new SWMP that meets the conditions of the recently issued 2021 NPDES MS4 permit is also being submitted to DEQ for approval on December 1, 2022.

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

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

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

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

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

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

Appendix E

Environmental Monitoring Results
2021-2022

Instream Monitoring - 2021-2022									
Location - Boeckman Creek at Memorial Park									
COMPOSITE/ GRAB RAINFALL (Y/N) DATE				Results					
				DRY SEASON (July 1 to September 30; May 1 to June 30)		WET SEASON (October 1 to April 30)			
				Grab	Grab	Grab	Composite	Grab	
				N	N	N	Y	N	
Analysis	Method	Units	WQ Std	7/14/2021	10/13/2021	1/12/2022	4/13/2022	8/24/2021*	Notes
Storm Event Rainfall (if applicable)	gauge or rainfall record	Inches					0.40		
Conductivity - Field	SM 2520B	uS		249.8	187.0	123.8	109.6		
Temperature - Field	SM 2550B	°C	18	17.2	13.8	10.0	9.1		2
pH - Field	SM 4500 H+B	Std Units		7.12	6.87	6.18	7.23		
Dissolved Oxygen - Field	SM 4500 O G	mg/L	6.5	8.42	10.68	11.11	9.94		3
Copper, TOTAL	EPA 200.8/3010A	ug/L		1.7	2.3	1.5	2.00	4.60	
Copper, DISSOLVED	EPA 200.8/FILTER	ug/L		1.10	2.3	0.6	1.40	0.74	
E. coli	SM 9223B	MPN/100mL	406	83.9	228.2	30.5	178.9		1
Hardness	SM 2340C	mg/L		80	52	44	41		
Lead, TOTAL	EPA 200.8/3010A	ug/L		ND	0.130	0.20	0.03	0.16	
Lead, DISSOLVED	EPA 200.8/FILTER	ug/L		0.03	0.04	0.03	0.08	ND	
Ammonia Nitrogen	SM 4500 NH3F	mg/L		0.03	0.02	0.02	0.02		
Nitrate-Nitrite	SM 4500-NO3 F	mg/L	10	0.50	0.46	2.89	1.47		
Phosphorus, TOTAL	SM 4500-P F	mg/L	0.1	0.185	0.149	0.061	0.078		
Phosphorus, ortho-phosphate	SM 4500-P F	mg/L		0.08	0.06	0.04	0.03		
Zinc, TOTAL	EPA 200.8/3010A	ug/L		5.00	6.9	8.6	47.7	4.9	
Zinc, DISSOLVED	EPA 200.8/FILTER	ug/L		53.6	5.2	5.4	29.9	0.7	
Total Dissolved Solids	SM 2540E	mg/L		171	139	95	79		
Total Suspended Solids	SM 2540D	mg/L		2.2	6.40	8.4	6.40		

Notes:

- (1) MPN = Most Probable Number
- (2) WQ standard of 18 C per DEQ's Temperature Water Quality Standard Implementation IMD 2008 for salmon and trout rearing and migration.
- (3) No DO TMDL for the Willamette River; 6.5mg/L selected as target minimum DO concentration for cool water habitat.
- * Additional sample collected for metals analysis due to anomalies on 7/14/2021 report

Instream Monitoring - 2021-2022 Location - Boeckman Creek at Boeckman Rd.									
				Results					Notes
				DRY SEASON (July 1 to September 30; May 1 to June 30)		WET SEASON (October 1 to April 30)			
				Grab	Grab	Grab	Composite	Grab	
COMPOSITE/ GRAB RAINFALL (Y/N) DATE				N	N	N	Y	N	
				7/14/2021	10/13/2021	1/12/2022	4/13/2021	8/24/2021*	
Analysis	Method	Units	WQ Std						Notes
Storm Event Rainfall (if applicable)	gauge or rainfall record	Inches					0.40		
Conductivity - Field	SM 2520B	uS		196	152.2	107.70	97.9		
Temperature - Field	SM 2550B	°C	18	17.4	9.40	10.0	9.2		2
pH - Field	SM 4500 H+B	Std Units		7.14	7.02	6.42	6.87		
Dissolved Oxygen - Field	SM 4500 O G	mg/L	6.5	7.89	10.34	11.27	9.87		3
Copper, TOTAL	EPA 200.8/3010A	ug/L		1.40	2.2	1.2	1.50	3.20	
Copper, DISSOLVED	EPA 200.8/FILTER	ug/L		0.79	1.2	0.6	1.10	2.30	
E. coli	SM 9223B	MPN/100mL	406	727	116.2	86.2	365.4		1
Hardness	SM 2340C	mg/L		60	36	24	35.8		
Lead, TOTAL	EPA 200.8/3010A	ug/L		ND	0.55	0.2	0.26	0.23	
Lead, DISSOLVED	EPA 200.8/FILTER	ug/L		0.05	0.05	0.03	0.062	0.044	
Ammonia Nitrogen	SM 4500 NH3F	mg/L		0.09	0.04	0.01	0.02		
Nitrate-Nitrite	SM 4500-NO3 F	mg/L	10	0.27	0.19	3.57	1.94		
Phosphorus, TOTAL	SM 4500-P F	mg/L	0.1	0.168	0.155	0.046	0.069		
Phosphorus, ortho-phosphate	SM 4500-P F	mg/L		0.07	0.05	0.03	0.03		
Zinc, TOTAL	EPA 200.8/3010A	ug/L		7.4	16.9	5.7	9.4	7.5	
Zinc, DISSOLVED	EPA 200.8/FILTER	ug/L		27.7	8.8	4.1	5.8	3.3	
Total Dissolved Solids	SM 2540E	mg/L		133	113	84	72		
Total Suspended Solids	SM 2540D	mg/L		4.6	23.60	4.0	5.2		

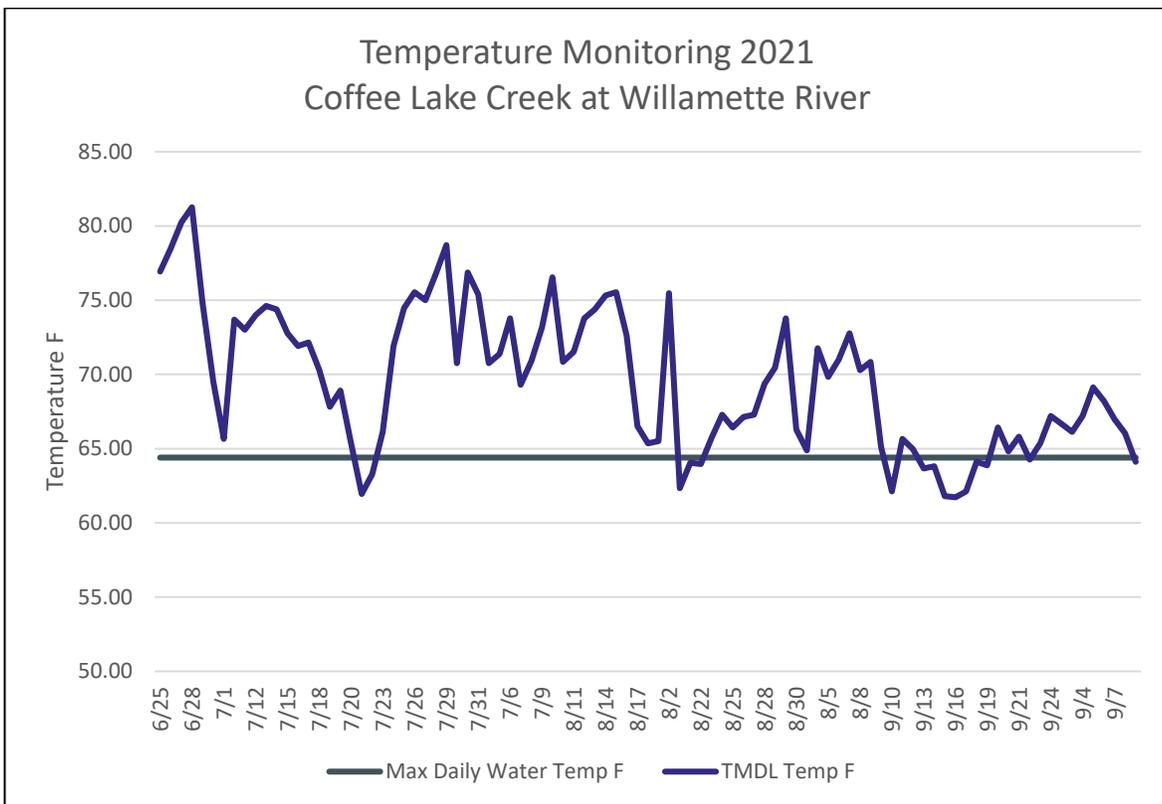
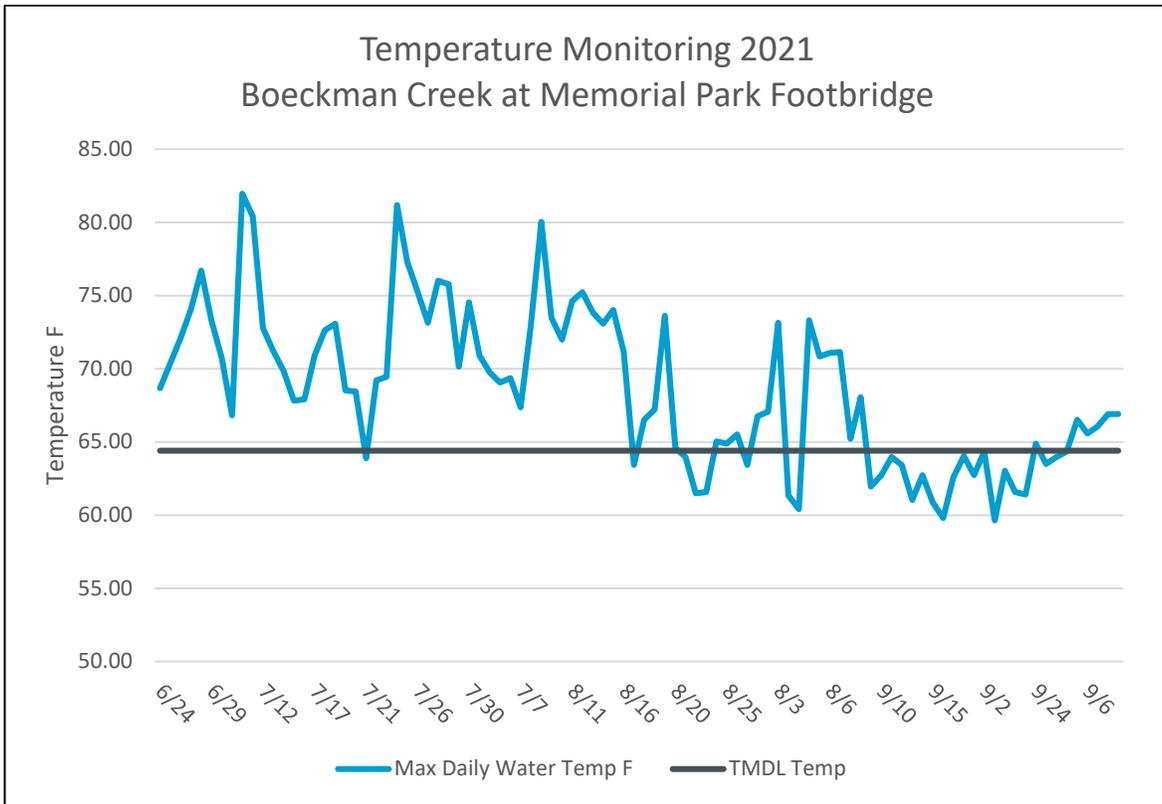
Notes:

- (1) MPN = Most Probable Number
- (2) WQ standard of 18 C per DEQ's Temperature Water Quality Standard Implementation IMD 2008 for salmon and trout rearing and migration.
- (3) No DO TMDL for the Willamette River; 6.5mg/L selected as target minimum DO concentration for cool water habitat.
- * Additional sample collected for metals analysis due to anomalies on 7/14/2021 report

Outfall Monitoring - 2021-2022 Location - Library Pond at Memorial Park							
				Results			Notes
				Composite	Composite	Composite	
COMPOSITE/ GRAB RAINFALL (Y/N) DATE	Y	Y	Y				
	9/18/2021	10/20/2021	1/11/2022				
Analysis	Method	Units	WQ Std				
Storm Event Rainfall (if applicable)	gauge or rainfall record	Inches		1.21	0.13	0.11	
Conductivity - Field	SM 2520B	uS		36.68	36.34	52.12	
Temperature - Field	SM 2550B	°C	18	17.6	14.4	9.6	2
pH - Field	SM 4500 H+B	Std Units		5.49	5.47	6.23	
Dissolved Oxygen - Field	SM 4500 O G	mg/L	6.5	9.18	9.77	11.29	3
Copper, TOTAL	EPA 200.8/3010A	ug/L	20	6.20	4.70	2.60	
Copper, DISSOLVED	EPA 200.8/FILTER	ug/L		4.80	3.10	1.70	
E. coli	SM 9223B	MPN/100mL	406	1553.07	1011.10	344.8	1
Hardness	SM 2340C	mg/L		6.0	10.0	11.0	
Lead, TOTAL	EPA 200.8/3010A	ug/L	15	1.20	2.00	0.500	
Lead, DISSOLVED	EPA 200.8/FILTER	ug/L		0.17	1.20	0.12	
Ammonia Nitrogen	SM 4500 NH3F	mg/L		0.12	0.04	0.03	
Nitrate-Nitrite	SM 4500-NO3 F	mg/L	10	0.26	0.55	0.21	
Phosphorus, TOTAL	SM 4500-P F	mg/L		0.213	0.130	0.048	
Phosphorus, ortho-phosphate	SM 4500-P F	mg/L		0.13	0.07	0.03	
Zinc, TOTAL	EPA 200.8/3010A	ug/L	120	43.40	49.30	40.80	
Zinc, DISSOLVED	EPA 200.8/FILTER	ug/L		33.70	39.60	26.40	
Total Dissolved Solids	SM 2540E	mg/L		42	48	35	
Total Suspended Solids	SM 2540D	mg/L	100	11.2	4.40	4.4	

Notes:

- (1) MPN = Most Probable Number.
- (2) WQ standard of 18 C per DEQ's Temperature Water Quality Standard Implementation IMD 2008 for salmon and trout rearing and migration.
- (3) No DO TMDL for the Willamette River; 6.5mg/L selected as target minimum DO concentration for cool water habitat.



Appendix F

Response to DEQ Warning Letter -

Frog Pond Ridge

Table of Contents

1. **DEQ Warning Letter** (September 14, 2022)
2. **City Response Letter and Action Plan** (November 14, 2022)
3. **Erosion Control Staff Training – PowerPoint presentation** (October 10, 2022)
4. **Erosion Control Training Sign-in Sheet** (October 10, 2022)
5. **CESCL Training Invoice** (October 12, 2022)



Oregon

Kate Brown, Governor

Department of Environmental Quality
Northwest Region Portland Office/Water Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100
(503) 229-5263
FAX (503) 229-6957
TTY 711

September 14, 2022

Kerry Rappold
City of Wilsonville
29799 SW Town Center Loop E
Wilsonville, OR 97070

RE: Warning Letter with Opportunity to Correct
2022-WLOTC-7643
DEQ File Number: 108016; EPA Permit Number: ORS101348
City of Wilsonville

Dear Mr. Rappold:

The City of Wilsonville has had coverage under the Clackamas Group NPDES MS4 Phase I permit since December 15, 1995. The permit was renewed in 2004 and 2005, modified in 2007, renewed again in 2012, and September 15, 2021. This permit authorizes discharges of municipal stormwater to surface waters of the state.

On August 8, 2022, DEQ inspected the 17-acre Frog Pond Ridge construction site within the City of Wilsonville for compliance with the 1200-C construction stormwater general permit. The site was out of compliance with the 1200-C permit. A City of Wilsonville MS4 inspector was onsite at the time of the DEQ inspection. As part of the investigation regarding the construction site, DEQ determined that the City of Wilsonville was not abiding by the MS4 permit related construction site inspection responsibilities. The City of Wilsonville did not ensure that the Frog Pond Ridge construction site was implementing the erosion and sediment control plan (ESCP) as required by Element CD4 of the City's stormwater management plan (SWMP). DEQ noted that best management practices (BMPs) were not implemented at the site allowing sediment to enter the MS4 with the potential to travel to the north fork of Meridian Creek, which is a water of the state. Specific BMPs missing from the site included a concrete washout facility, construction site entrance, stormdrain inlet protection and incorrect silt fence installation. Based on the condition of the site on August 8, 2022, the City of Wilsonville should have issued a stop work order as is referenced in CD4 of the SWMP. During the subsequent investigation of the construction site, as well as an additional site visit with City representatives on August 29, 2022, DEQ determined that the City is out of compliance with its MS4 permit.

Based upon the information above, DEQ has concluded that the City of Wilsonville is responsible for the following violation of Oregon environmental law:

VIOLATION:

ORS 468B.025(2): No person shall violate the conditions of any waste discharge permit issued under ORS 468B.050 (water quality permit). This violation is for failing to substantially

implement a stormwater plan in accordance with an NPDES permit. Pursuant to OAR 340-012-0055(1)(r), this is a class I violation.

- (1) Permit Schedule A.1.c. of the 2021 MS4 permit requires that the DEQ-approved Stormwater Management Plan currently in effect at the time of the September 15, 2021 permit renewal should continue to be implemented until the updated SWMP Document has been approved by DEQ. Element CD4 of the 2012 SWMP requires that the City perform onsite inspections of construction sites to ensure compliance with approved ESCPs. Frog Pond Ridge was not in compliance with the approved ESCP on August 8, 2022 and August 29, 2022 when DEQ and City inspectors were present.
- (2) Element CD4 also requires the City to issue stop work orders or fines to sites that are out of compliance with their ESCP. The City must utilize an enforcement response plan to ensure that construction sites remain in compliance with local ordinances and other regulatory mechanisms. The City did not issue a stop work order or escalating enforcement actions to Frog Pond Ridge to compel compliance.
- (3) Element PW/CD7 of the 2012 SWMP requires the City to provide staff training for erosion and sediment control inspections and plan review activities. The City inspector on the Frog Pond Ridge construction site did not demonstrate knowledge of the City of Wilsonville's responsibilities associated the erosion and sediment control inspection.

Class I violations are the most serious violations; Class III violations are the least serious.

In order to correct the violation(s) or minimize the impacts of the violation(s) cited above, please take the following actions by the date indicated:

Corrective Actions Required

- 1) By October 15, 2022, ensure all City of Wilsonville staff with MS4 permit responsibilities receive training on the current MS4 permit as well as all stormwater related City code. Provide documentation of the training to DEQ with the MS4 annual report by December 1, 2022.
- 2) The MS4 permit issued in 2021, requires the permittee to ensure that all staff responsible for ESCP reviews, site inspections, and enforcement of the co-permittees' requirements are trained or otherwise qualified to conduct such activities, and training strategies and frequencies must be described or referenced in the SWMP Document. Construction site inspectors and plan reviewers must at a minimum be fully trained in the practices, procedures, and BMPs described in Wilsonville's 2012 SWMP, as well as the related requirements of the MS4 permit and the City's escalating enforcement procedures and responsibilities. In addition, DEQ recommends that construction inspectors receive Certified Erosion and Sediment Control Lead (CESCL) training, or refresher CESCL training if previously certified. Provide documentation of any recent construction site training to DEQ with the MS4 annual report by December 1, 2022.
- 3) Immediately begin implementing the escalating enforcement procedures as it relates to construction site compliance with City code and to ensure that all MS4 permit related responsibilities are met. By June 15, 2023, provide DEQ with an updated draft Enforcement Response Plan or similar document that describes the enforcement response procedures the City will implement when a construction site is out of compliance.
- 4) Immediately begin inspecting and reviewing all related documentation for construction sites disturbing greater than 500 square feet. Ensure that the City is meeting the construction site inspection documentation requirements contained in the 2012 SWMP. The new inspection

requirements per Schedule A.3.d.iv of the renewed permit will be required to be implemented by the December 1, 2022 deadline. All construction related documentation must be submitted with the annual report beginning December 1, 2022 and must continue to be submitted annually for the remainder of the permit term.

Please let me know if you and/or your team would like any technical assistance regarding these topics. I would be glad to meet with you.

If any of the facts in this Warning Letter with Opportunity to Correct are in error, you may provide information to me via email. DEQ will consider new information you submit and take appropriate action. If the City of Wilsonville is unable to meet the timelines in the corrective actions listed above, we will consider a revised schedule based on documented demonstrated progress submitted to DEQ.

Should these violations remain uncorrected, this matter will be referred to DEQ's Office of Compliance and Enforcement for formal enforcement action, including assessment of civil penalties and/or a department order.

Please direct any correspondence on this topic to me. If you have any questions about the content of this letter, please feel free to contact me at Ryan.A.Johnson@deq.oregon.gov or by phone at (503) 229-5347.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ryan Johnson", with a long horizontal flourish extending to the right.

Ryan Johnson, MS4 Stormwater Specialist



November 14, 2022

Mr. Ryan Johnson, MS4 Stormwater Specialist
Oregon Department of Environmental Quality
Northwest Region Portland Office/Water Quality
700 NE Multnomah Street, Suite 600
Portland, OR 97232-4100

Re: City of Wilsonville Compliance with DEQ Warning Letter with Opportunity to Correct (2022-WLOTC-7643)

Dear Mr. Johnson:

The City of Wilsonville (City) received a Warning Letter with Opportunity to Correct from the Oregon Department of Environmental Quality (DEQ), dated September 14, 2022. On August 8, 2022, DEQ inspected the 17-acre Frog Pond Ridge construction site for compliance with the 1200-C construction stormwater general permit. DEQ deemed the construction site out of compliance with the 1200-C permit requirements and initiated an enforcement action against the developer (i.e., 1200-C permit holder) of the property.

Pursuant to the City's coverage under the Clackamas Group National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Phase 1 permit, DEQ determined the City was not abiding by the MS4 permit related to construction site inspection responsibilities, such as issuing a stop work order. The Warning Letter included a list of corrective actions, which provide the basis for resolving the matter and addressing the City's MS4 responsibilities.

On August 29, 2022, City staff conducted a site visit with DEQ staff at Frog Pond Ridge. During the site visit, specific violations related to the 1200-C permit were discussed, as well as the City's compliance with its MS4 permit. In addition, on October 11, 2022, City staff conducted a virtual meeting with DEQ staff to discuss the City's response to the Warning Letter and the list of corrective actions.

An Erosion Control Program Action Plan (Attachment A) was developed to address the corrective actions, which included staff meetings, site inspections, preparing guidance documents, and training. The corrective actions as outlined in DEQ's letter dated September 14, 2022, with City responses, are summarized below:

1. *By October 15, 2022, ensure all City of Wilsonville staff with MS4 permit responsibilities receive training on the current MS4 permit as well as all stormwater related City code.*

Response: City staff prepared a training presentation about MS4 permit responsibilities and City Code requirements, as well as erosion and sediment control Best Management Practices (BMPs). To date, training has been provided to the Engineering Division staff in Community Development who are tasked to manage erosion and sediment control plan review and inspections. Although outside the scope of this correction action item, the City will also train other City staff whose responsibilities support the Engineering Inspectors' work or where such training will be informative to their job responsibilities. Training documentation will be submitted with the City's MS4 annual report.

2. *Construction site inspectors and plan reviewers must at a minimum be fully trained in the practices, procedures, and BMPs described in Wilsonville's 2012 SWMP, as well as the related requirements of the MS4 permit and the City's escalating enforcement procedures and responsibilities. In addition, DEQ recommends that construction inspectors receive Certified Erosion and Sediment Control Lead (CESCL) training, or refresher CESCL training if previously certified.*

Response: As previously mentioned, Engineering staff received training in erosion and sediment control BMPs. In addition, Engineering staff, responsible for plan review and inspections, were required to complete a CESCL training by October 26, 2022. The CESCL training is provided by Eco-3, a consulting company specializing in CESCL training programs, and includes online training in topics such as proper implementation of BMPs, modifying site plans to improve water quality, and project scheduling to maximize site efficiency. CESCL training documentation will be submitted with the City's MS4 annual report.

3. *Immediately begin implementing the escalating enforcement procedures as it relates to construction site compliance with City code and to ensure that all MS4 permit related responsibilities are met. By June 15, 2023, provide DEQ with an updated draft Enforcement Response Plan or similar document that describes the enforcement response procedures the City will implement when a construction site is out of compliance.*

Response: The escalating enforcement procedures enumerated in City Code have been applied, as necessary, to construction sites. For example, since DEQ's September 14, 2022 letter, the City has issued two stop work orders in Frog Pond Ridge that addressed the lack of coverage under DEQ's 1200- C permit for the construction of two single-family homes. City staff are also in the process of developing an enforcement flow chart that will clarify the steps and the City staff responsible for implementing escalating enforcement procedures. These procedures and escalating enforcement actions ensure MS4 permit responsibilities are satisfied. Pursuant to the requirements in the renewed

MS4 permit, an updated draft Enforcement Response Plan will be submitted to DEQ by June 15, 2023.

4. *Immediately begin inspecting and reviewing all related documentation for construction sites disturbing greater than 500 square feet. Ensure that the City is meeting the construction site inspection documentation requirements contained in the 2012 Stormwater Management Plan (SWMP). The new inspection requirements per Schedule A.3.d.iv of the renewed permit will be required to be implemented by the December 1, 2022 deadline.*

Response: All active construction sites, including private development and capital projects, have been recently inspected in the City, consistent with the inspection requirements in the 2012 SWMP, to ensure compliance with erosion and sediment control requirements. In addition, check lists have been developed for plan review and site inspection review that will ensure compliance with the new inspection requirements in the renewed MS4 permit. City Engineering staff will continue to monitor all sites within the City for compliance.

By December 1, 2022, documentation of the corrective actions will be included as an appendix in the City's MS4 annual report. The appendix will include the erosion control program action plan and other relevant documents.

We appreciate your consideration of this matter. Please let me know if you have any questions or comments. I can be reached at 503-570-1509 or guile@ci.wilsonville.or.us.

Sincerely,



Amanda R. Guile-Hinman
City Attorney

encl. Attachment A: Erosion Control Program Action Plan

cc: Bryan Cosgrove, City Manager
Chris Neamtzu, AICP, Community Development Director
Zach Weigel, PE, City Engineer
Kerry Rappold, Natural Resources Manager
Amy Pepper, PE, Development Engineering Manager
Sarah Sand, Stormwater Management Coordinator

	Due Date	Lead Staff Assignment	Action Item
<input type="checkbox"/>	9/30/2022	Amy Pepper	Schedule meeting with employee to discuss DEQ letter and expectations going forward.
<input type="checkbox"/>	9/30/2022	Amy Pepper	Complete erosion control plan review checklist and send out to Engineering Division staff to begin using.
<input type="checkbox"/>	9/30/2022	Amy Pepper	Complete Erosion control inspection checklist/form and send out to Engineering Division staff to begin using.
<input type="checkbox"/>	9/30/2022	Zach Weigel	Confirm City Engineer stop work authority.
<input type="checkbox"/>	10/7/2022	Zach Weigel	Submit Action Plan to Chris Neamtzu in response to DEQ warning letter.
<input type="checkbox"/>	10/15/2022	Amy Pepper	Complete inspection of all active construction sites and ensure compliance with all erosion control requirements.
<input type="checkbox"/>	10/15/2022	Kerry Rappold	<p>Hold meeting with MS4 staff.</p> <ul style="list-style-type: none"> • Confirm construction documentation content to include with annual report. • Feedback on Enforcement Response Plan requirements/level of detail. • Feedback on City's action plan to address corrective actions
<input type="checkbox"/>	10/15/2022	Kerry Rappold	Provide Sarah Sand documentation of attendance and content of the training to include in the MS4 annual report.
<input type="checkbox"/>	10/15/2022	Amy Pepper Kerry Rappold	<p>Develop and provide presentation / training to Engineering staff for:</p> <ul style="list-style-type: none"> • MS4 Permit requirements • Stormwater City Municipal Code requirements <p>Erosion Control BMP – similar to CESCL training</p>
<input type="checkbox"/>	10/31/2022	Amy Pepper	<ul style="list-style-type: none"> • Complete CESCL training for engineering project managers, inspectors, and stormwater management coordinator.
<input type="checkbox"/>	10/31/2022	Amy Pepper	Provide Kerry Rappold and Sarah Sand staff CESCL training attendance and dates to include in the MS4 annual report.
<input type="checkbox"/>	10/31/2022	Amy Pepper Kerry Rappold	Create Enforcement Response Plan outline.

<input type="checkbox"/>	10/31/2022	Kerry Rappold	Determine construction documentation content required to be included with annual report. Coordinate with Amy to collect required documentation.
<input type="checkbox"/>	10/31/2022	Andrew Barrett	Identify Capital Program erosion control specifications gaps.
<input type="checkbox"/>	10/31/2022	Kerry Rappold	Send City response letter to DEQ warning letter outlining agreed to Action Plan. Coordinate with Legal Department. Letter should come from Amanda.
<input type="checkbox"/>	10/31/2022	Zach Weigel	Complete Engineering Division Org Chart with clear roles and responsibilities for Erosion Control duties.
<input type="checkbox"/>	12/1/2022	Amy Pepper	Update erosion control plan review checklist and inspection forms to reflect updated SWMP.
<input type="checkbox"/>	6/15/2023	Amy Pepper Kerry Rappold	Submit draft Enforcement Response Plan to DEQ for review.

Erosion Control 101

Engineering Staff Meeting
October 10, 2022

- Kerry Rappold, Natural Resources Manager
- Amy Pepper, Development Engineering Manager
- Sarah Sand, Stormwater Coordinator



WILSONVILLE
OREGON

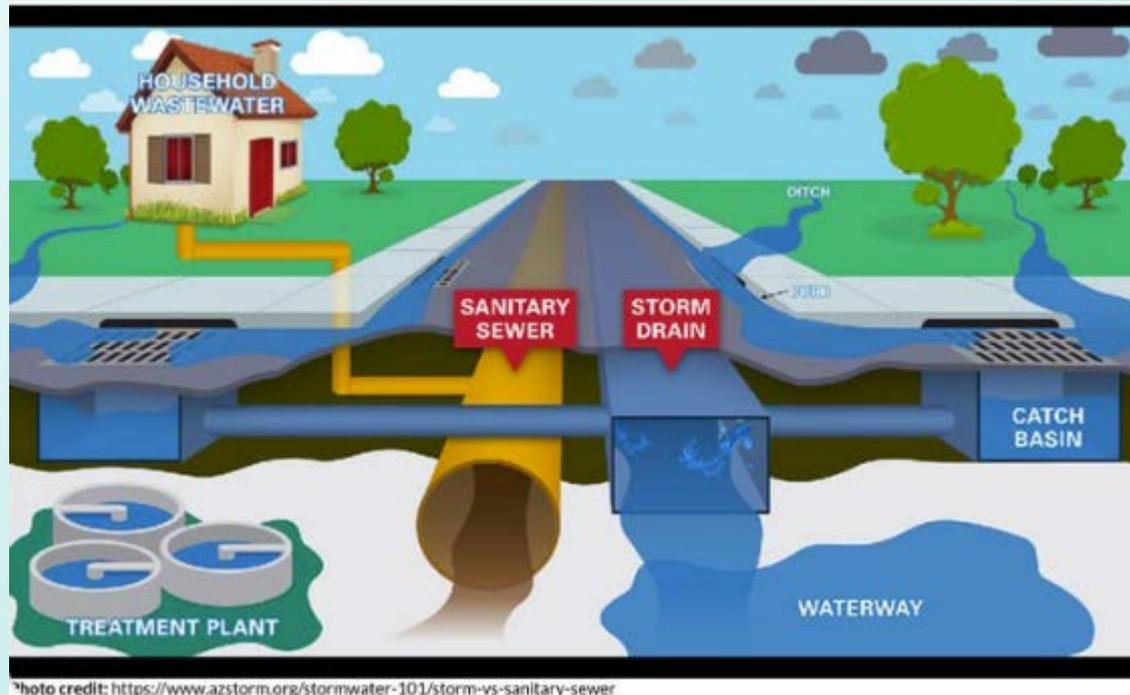


Agenda

- Stormwater Runoff
- Clean Water Act (CWA)
 - NPDES MS4 Permits
 - Construction Site NPDES Permits
- Erosion Control BMPs

What is Stormwater Runoff?

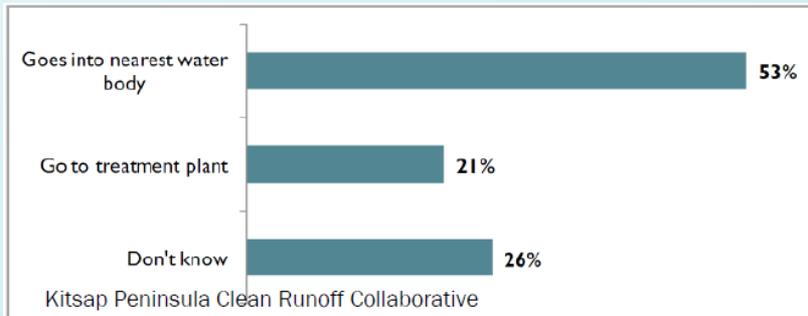
- Impervious surfaces such as roofs, road, parking lots and sidewalks prevent rainfall from soaking into the ground or being taken up by vegetation.



Where Does Stormwater Go?



Water that runs off of streets, parking lots, roof and other hard surfaces drains into the storm system of ditches and pipes.

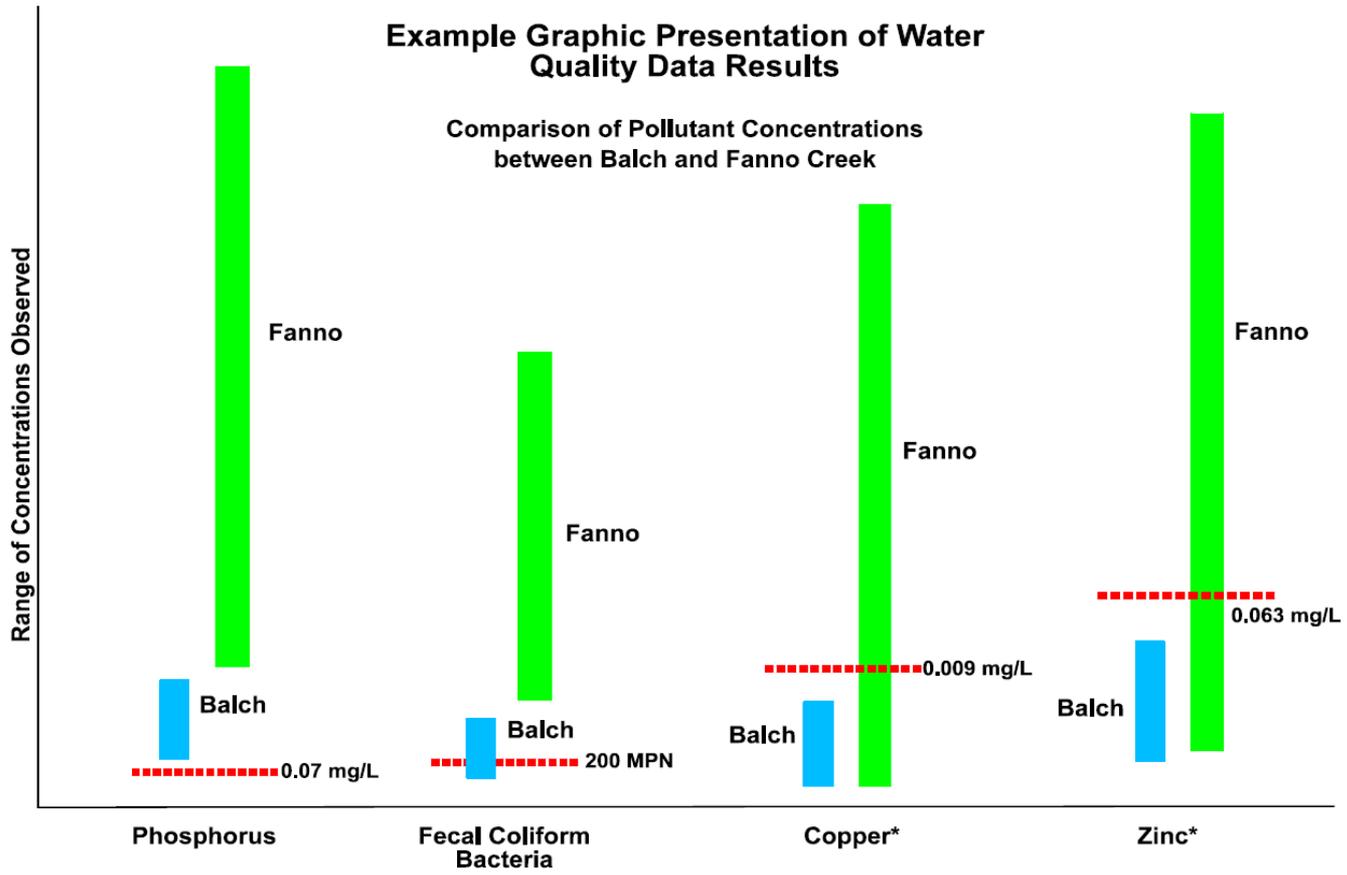


- Surface water or underground
 - Gutters, catchbasins, pipes, outfalls
 - Ditches, open channels
 - Streams and rivers
- Pollutants on ground surfaces are conveyed via stormwater and enter streams
- No end of pipe treatment system (treatment plant)

Water Quality Problems with Stormwater

- Pollutants captured and carried by runoff include:
 - Sediment,
 - Nutrients,
 - Pesticides,
 - Oil & grease,
 - Metals
 - Bacteria
 - Toxics, and
 - Trash





*Dissolved copper and zinc criteria based on a hardness of 50 mg/l.

Clean Water Act

- CWA was an amendment to the 1948 Federal Water Pollution Control Act (Truman)
- Amendment included expansion and reorganization of the act in 1972 (passed by Congress – overriding Nixon’s veto)
- Achieve the goal of restoring and maintaining the “chemical, physical and biological integrity of the nations waters”.





Clean Water Act (Amendments)

- 1972 EPA was directed to administer programs:
 - Implement water quality standards
 - Regulate the discharge of pollutants (permits and technology based effluent limits)
 - Funded construction of treatment plants
- 1977 –
 - Included Agricultural exemptions to the 404 permits
- 1981 –
 - Streamlined the construction grants process, improving the capabilities of treatment plants built under the program
- 1987 –
 - Phased out construction grants program and replaced it with the Clean Water State Revolving Fund
 - Included nonpoint source permitting (industries and municipalities)



NPDES Permitting Program

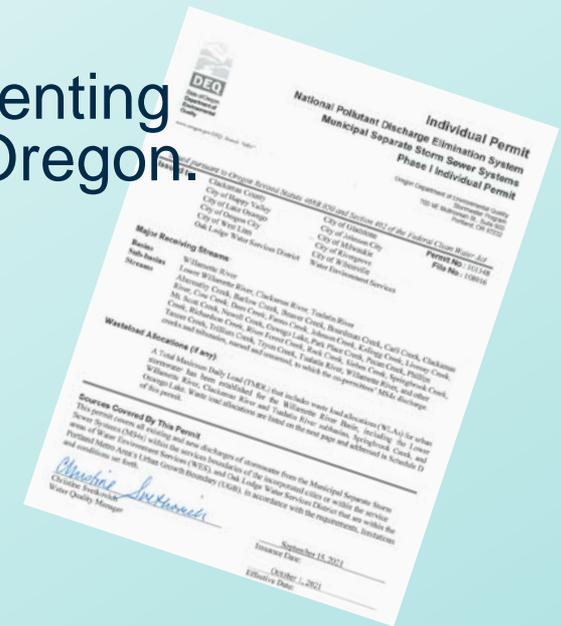
1987 Water Quality Act:

- Added non-point sources to the NPDES permitting program
 - Municipal separate storm sewer system (MS4s)
 - Industrial runoff
 - Construction site runoff (focused on erosion control)



MS4 NPDES Permitting Program

- Early 1990s – Municipalities with >100,000 in population were required to get Phase I NPDES permits for runoff from their municipal separate storm sewer systems (MS4s)
- Applied to six permit areas representing approximately 33 jurisdictions in Oregon.
 - Gresham
 - Eugene
 - Salem
 - Portland
 - Clean Water Services
 - Clackamas County



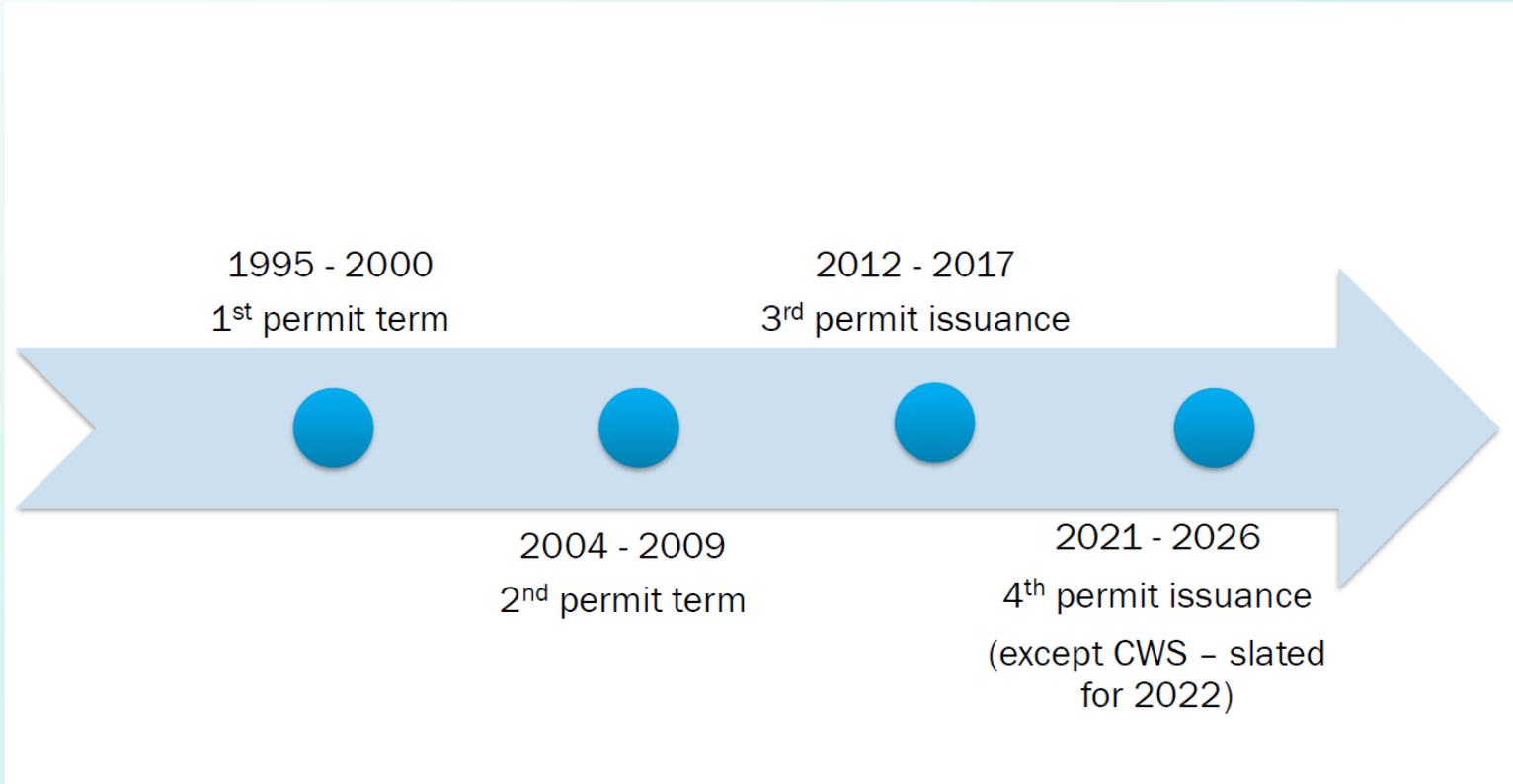


MS4 NPDES Permitting Program

- The City shares an MS4 permit with 12 co-permittees throughout Clackamas County
- The MS4 permit outlines broad requirements
 - Ex. The permittee must perform inspections of construction sites to ensure the approved ESCP is properly implemented.
- Each co-permittee develops a Stormwater Management Plan (SWMP) which details how the permittee will comply with the permit requirements
 - Ex. The City performs three inspections over the term of a Erosion Control Permit – Initial, middle, and final
- The SWMP is the key element to the City's MS4 Permit compliance.



Phase I Permit Timeline





MS4 NPDES Permitting Program

- SWMPS were required to include specific categories of best management practices (BMPs).
 - Water quality standards for new development
 - Construction site standards (erosion control)
 - Illicit discharge detection and elimination programs
 - Street operations and maintenance
 - Public education
 - Public involvement
- Annual reporting is required



New Development and Redevelopment

- *Requirement:*
 - Develop, implement and enforce a program to address pollutants from new and redevelopment activities which add 5,000 sq ft of impervious surface
- **Specific activities:**
 - Implement water quality and quantity design requirements for onsite treatment
 - Prioritize low impact development/green infrastructure and onsite retention
 - Target pre-development hydrologic conditions
 - Develop ordinances
 - Require maintenance
 - Conduct inspections and development enforcement procedures



Construction Stormwater Runoff Controls

- *Requirement:*
 - Develop, implement and enforce a program to address pollutants from construction activities
 - Applies to sites disturbing 500 ft² or greater
 - Some dual regulation – both DEQ and City regulate construction sites
- **Specific activities:**
 - Adopt an ordinance (Chapter 8.317)
 - Provide guidance
 - Conduct plan reviews and site inspections
 - Conduct enforcement
 - Provide employee training



Construction Site Permits

- EC-1: Local permit issued to projects disturbing $>500 \text{ ft}^2$ and <1 acre
 - City is only authority
- 1200-CN Permit: Applies to site disturbing >1 acre and < 5 acres
 - City acts as Agent for DEQ
- 1200-C Permit: Applies to sites disturbing >5 acres (local and DEQ permit required)
 - DEQ is authority.
 - City has inspection and enforcement responsibilities through MS4 permit
- 1200-CA Permit: Issued to the City for Capital projects disturbing more than 1 acre
 - City acts as Agent for DEQ



Erosion Control Inspections

- Routine Inspections

- Performed by Assigned Inspector

	Sufficient	Needs Maintenance	N/A
Inlet Protection			
Outlet Protection			
Ground Cover			
Straw or Vegetation			
Stockpile Cover			
Straw or Vegetation			
Concrete Washout			
Not overflowing			
Garbage/Waste Containers			
In use, lid closed, not overflowing			
Perimeter Control			
Sediment Fence, wattles			
Construction Entrance			
Tracking present?			
Sediment in curb lines?			

Inlet Protection



Outlet Protection



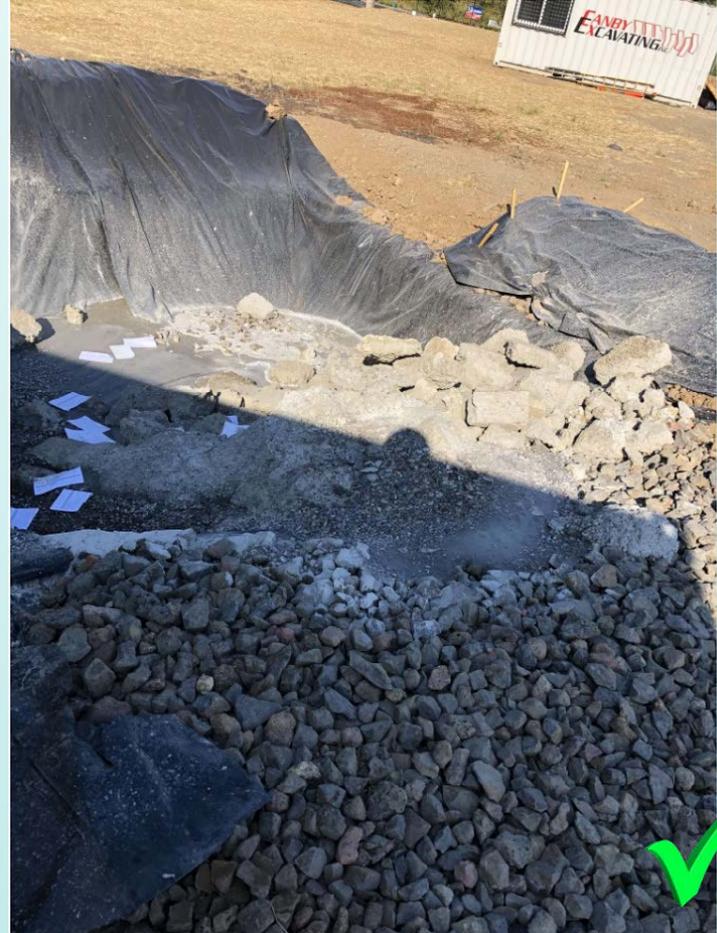
Ground Cover



Stockpile Management



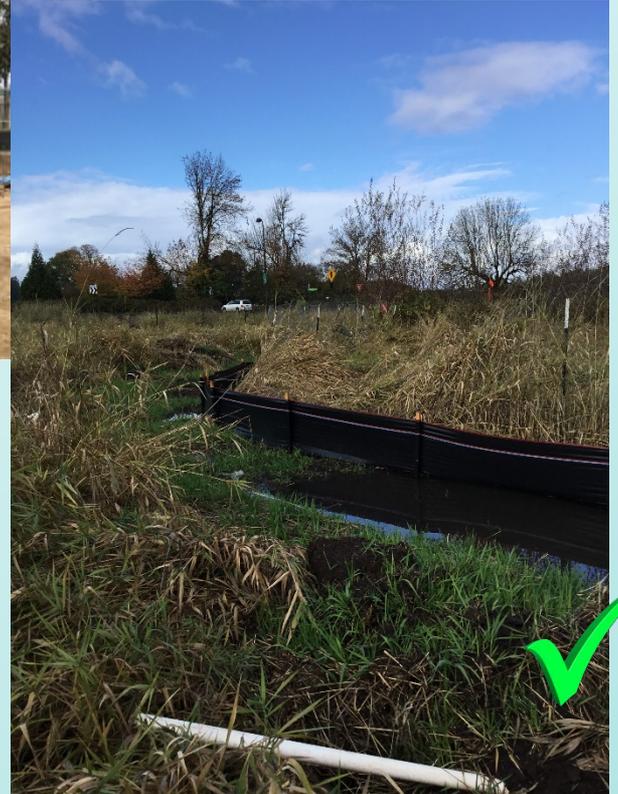
Concrete Washout



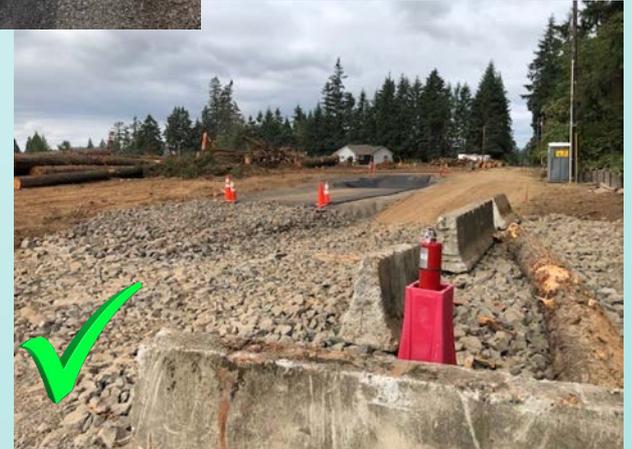
Garbage/Waste Containers



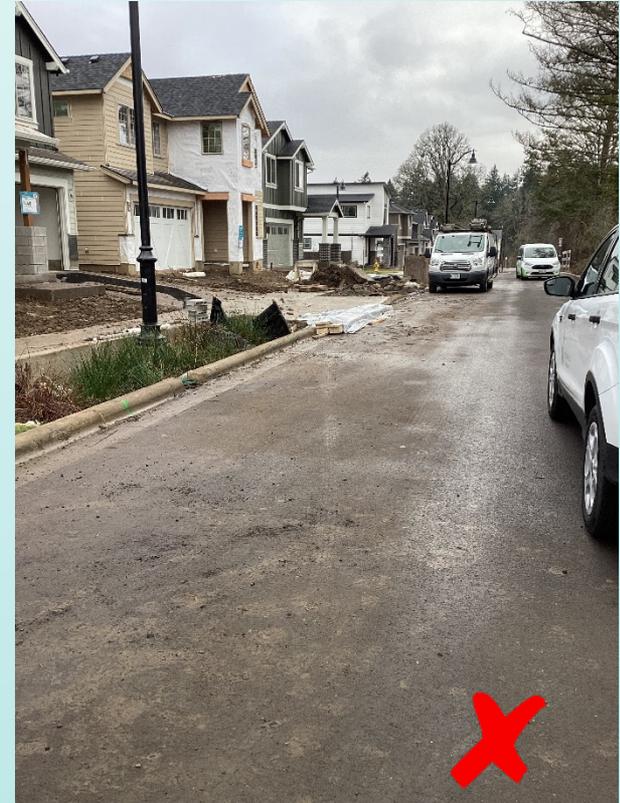
Perimeter Controls



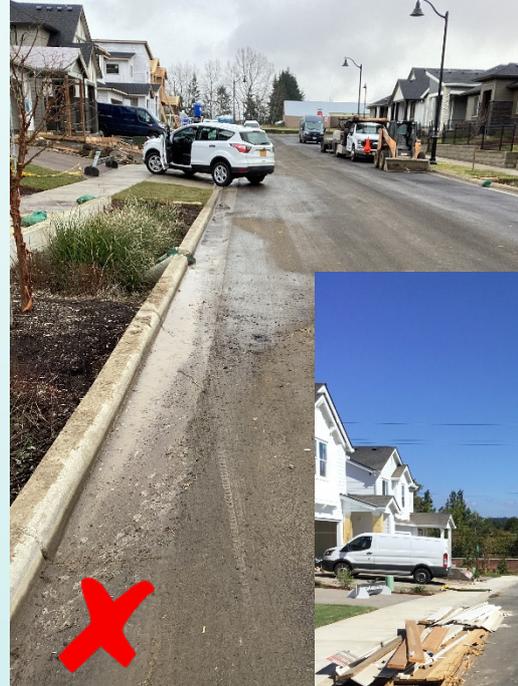
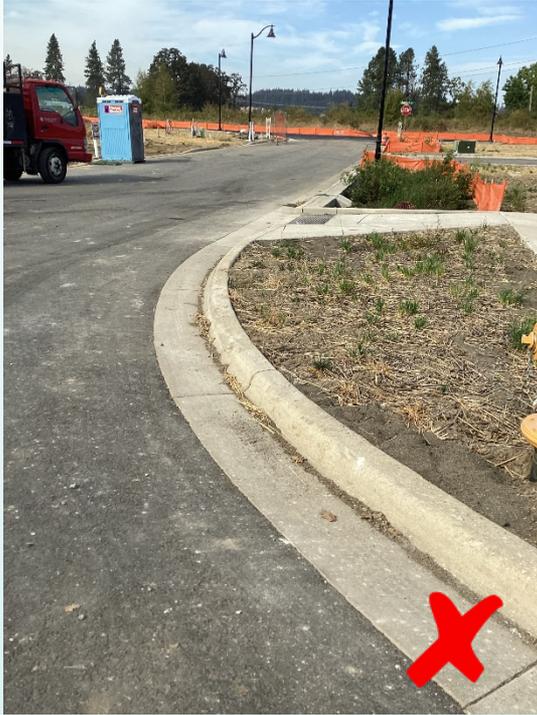
Construction Entrance



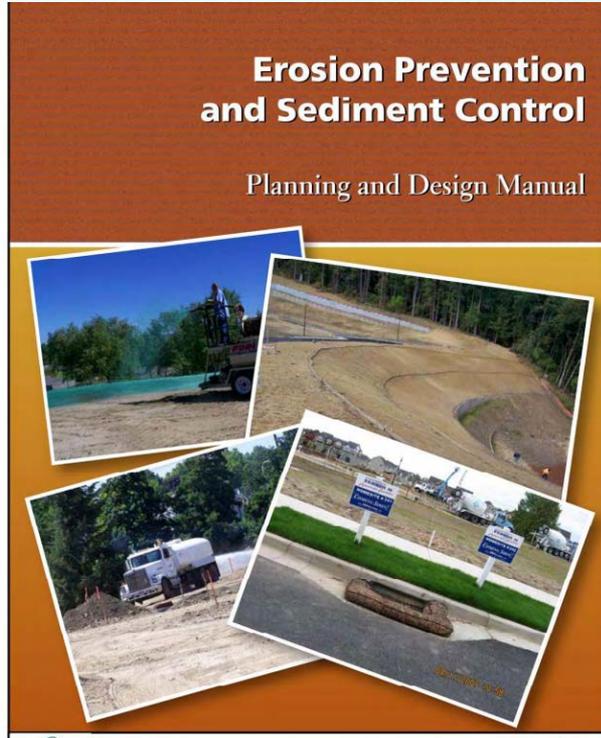
Tracking



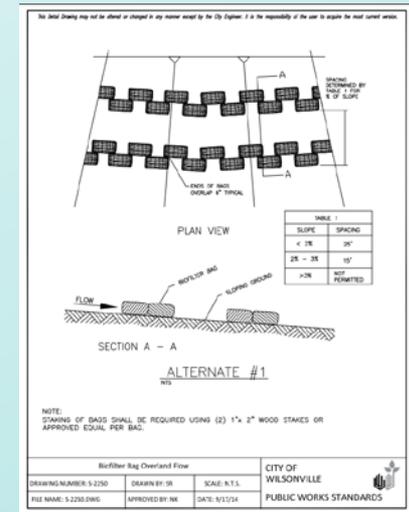
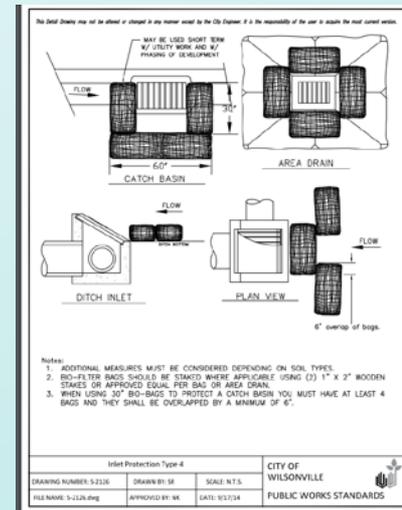
Sediment in Curb Lines



Additional Resources



<https://cleanwaterservices.org/wp-content/uploads/2022/06/erosion-prevention-and-sediment-control-manual.pdf>



<https://www.ci.wilsonville.or.us/engineering/page/detail-drawings>

ECO 3 ASSOCIATES LLC

P.O. Box 178
Auburn, WA 98071
(253) 931-8100
phil@eco-3.com
www.eco-3.com



Invoice 3970

BILL TO
City of Wilsonville
29799 SW Town Center Loop
East
Wilsonville, OR 97070

DATE 10/12/2022	PLEASE PAY \$2,250.00
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QTY	DESCRIPTION	RATE	AMOUNT
9	1FCGROL Erosion & Sediment Control Lead Certification Training Online - Government Rate - 10/24/22 - Sarah Alton, Andrew Barrett, Michael Carr, Manny Ghiselline, Mike Nacrelli, Amy Pepper, Kerry Rappold, Sarah Sand, Zach Weigel	250.00	2,250.00

SUBTOTAL	2,250.00
TAX	0.00
TOTAL	2,250.00

TOTAL DUE	\$2,250.00
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THANK YOU.
