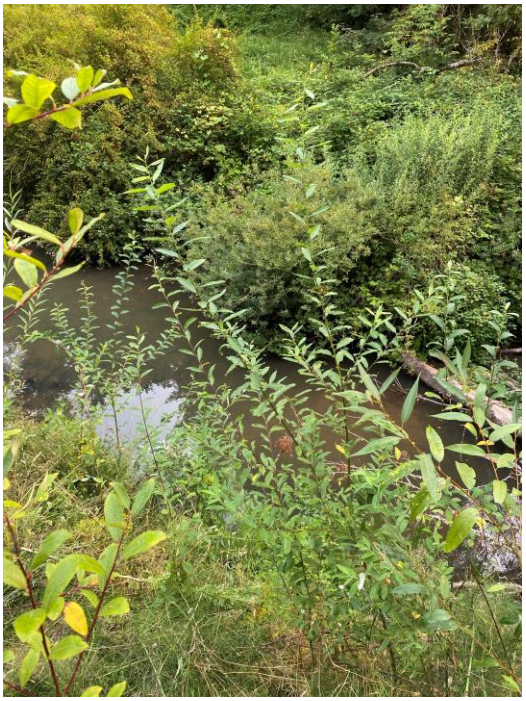
City of Oregon City, Oregon

National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Discharge Permit

2020–2021 Annual Report

Prepared for the
Oregon Department of Environmental Quality

November 1, 2021



Assisted By:

CITY OF OREGON CITY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL STORMWATER SYSTEM ANNUAL REPORT

JULY 1, 2020 – JUNE 30, 2021

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater System Annual Report in accordance with NPDES Permit No. 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.

10-6-2021

Vance Walker — Date
Public Works Operations Assistant Director
City of Oregon City

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1.0 INTRODUCTION

1.1 NPDES MS4 Permit Background and Permit Renewal

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of Oregon City (City) through the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit (Permit) No. 101348, issued to Clackamas County and its co-permittees. Clackamas County co-permittees include the City of Oregon City along with the cities of Lake Oswego, Gladstone, West Linn, Milwaukie, Wilsonville, Happy Valley, Johnson City, and Rivergrove, the Oak Lodge Water Services District, and Clackamas County. Each co-permittee is a relatively small community, most having populations under 30,000 with some (Johnson City, Rivergrove) having populations significantly smaller.

The City's effective NPDES MS4 Permit was issued March 16, 2012, after a multi-year negotiation process with DEQ and an additional year-long delay related to an appeal. The 2012 Permit was not appealed, and thus maintains an effective date of March 16, 2012. The Permit expired on March 1, 2017, and the City submitted its Permit Renewal Application on February 27, 2017. The Permit Renewal Application required an evaluation of proposed program and Stormwater Management Plan (SWMP) modifications, development of Total Maximum Daily Load (TMDL) benchmarks, mapping, a maximum extent practicable (MEP) evaluation, updates to the City's environmental monitoring program, and an evaluation of proposed service area expansions and associated pollutant load estimates. The City's Permit is currently in administrative extension, but the City has been actively participating in negotiation efforts with DEQ. Currently, however, the renewal date is unknown.

Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual SWMPs. This annual report documents stormwater management activities from July 1, 2020 to June 30, 2021 in conjunction with the City's 2012 NPDES MS4 Permit. Although an updated SWMP was prepared and submitted as part of the Permit Renewal Application, **the City's 2012 SWMP remains the effective NPDES MS4 program document for purposes of this annual report**. During this administrative extension period, the City is continuing to implement its stormwater program in accordance with the 2012 Permit.

1.2 Document Organization

The following table (Table 1) outlines the organization of this annual report document, with respect to the annual reporting requirements per Schedule B.5 of the City's Permit.

Table 1: Summary of the NPDES MS4 Annual Report Requirements

	Annual reporting requirement	Location in document
a)	Status of implementing SWMP elements, including progress in meeting measurable goals.	Appendix A
b)	Status of any public education effectiveness evaluation conducted during the reporting year, and a summary of how results were used in adaptive management.	Appendix A
c)	Summary of the adaptive management process implementation during the reporting year including new BMPs.	Section 2.0
d)	Proposed changes to SWMP program elements to reduce TMDL pollutants to the MEP.	Section 2.0
e)	A summary of total stormwater program expenditures and funding sources over the reporting fiscal year, and those anticipated in the next fiscal year.	Section 3.0
f)	A summary of monitoring program results, including monitoring data that is accumulated throughout the reporting year.	Section 4.0 & Appendix B
g)	Any proposed modifications to the monitoring plan necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	Section 4.0
h)	A summary describing the number and nature of enforcement actions, inspections, and public education programs.[a]	Section 6.0 and Appendix A
i)	An overview, as related to MS4 discharges, describing land use changes, UGB expansions, land annexations, and new development activities. The number of new post-construction permits issued and estimate of new and replaced impervious surface must also be included.	Section 5.0
j)	A summary related to MS4 discharges describing concept planning or other activities in preparation of UGB expansions or land annexations.	Section 5.0 and Appendix A
NA)	Additional efforts conducted by the City.	Section 6.0

[a] Enforcement actions, inspections, and public education programs are included in the City's SWMP as BMPs, and are reported along with the status of implementing all components of the SWMP in Appendix A.

Each section of this report corresponds to the specific Permit requirements in Schedule B.5. This report emphasizes efforts and activities associated with individual Best Management Practices (BMPs) from the City's 2012 SWMP, as summarized in Appendix A.

Per Section 5.5 of the City's Willamette Basin TMDL Implementation Plan, an annual progress report is also to be submitted to DEQ. This TMDL annual report is included in Appendix D.

The City, along with all Oregonians, continues to face unprecedented challenges in responding to the COVID-19 pandemic to protect the health of individuals and the greater community. These extraordinary circumstances are requiring measures that impact the ability of the City to strictly comply with its Permit. These measures include implementing social distancing plans, staff reassignment and rescheduling, and working remotely when possible. Due to these circumstances, the City was unable to comply with or fully execute the following BMPs as identified in Appendix A: Operations and Maintenance, Industrial and Commercial Stormwater Inspections, Education and Outreach, Staff Training, and Public Participation.

2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION

2.1 Adaptive Management Program

In accordance with the issuance of the City's NPDES MS4 Permit (in 2012), the City was required to document their adaptive management approach to assess annually and modify, as necessary,

existing and new SWMP components. The City submitted their approach to DEQ on November 1, 2012.

Historically, the City has implemented adaptive management principals to annually refine implementation methods and data collection activities in conjunction with their effective SWMP and BMPs. More significant modifications to SWMP activities occur every 5 years, in conjunction with their Permit renewal application and updated Permit requirements. The City's submitted adaptive management approach is consistent with the City's historical approach for implementing adaptive management principals.

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

Every 5 years, during the Permit renewal process and SWMP update effort, additional factors are considered as part of the City's overall adaptive management process. These factors include more detailed information related to BMP implementation, such as:

1. Whether technology or information is available that would help improve or refine BMPs,

2. How representative are the measurable goals and tracking measures to the BMP objective, and

3. Are resources available to make changes to the measurable goals and BMP objectives?

Additionally, at the end of the Permit term, technical investigations and studies completed over the Permit term are reviewed and used to help target and identify specific issues that need to be addressed to maintain waterbody health and help formulate BMP activities (measurable goals and tracking measures). During the 2012-2017 Permit term, such technical studies included a water quality trends analysis, pollutant load reduction evaluation, hydromodification assessment, and a retrofit assessment.

During the 2016-2017 Permit renewal application process, the City, with the assistance of a consultant, reviewed the adaptive management evaluation factors and the studies listed above. This information informed the City's MEP evaluation and proposed SWMP changes submitted as part of the Permit Renewal Application. Proposed program changes were categorized as an organizational change, a removed activity (due to completion), an implementation change (due to identified efficiencies and adjustments to internal processes and procedures), and a change due to consolidation of activities. An updated (2017) SWMP was also included, reflecting refinement of BMPs, measurable goals, and tracking measures, for use in future permit negotiations and reissuance.

2.2 SWMP Updates for the 2020 – 2021 Reporting Year

The 2020-2021 reporting year is the ninth full year in which the City's effective 2012 SWMP has been implemented. For the 2020-2021 Permit year, no updates were made to the 2012 SWMP or BMP measurable goals and tracking measures, due to regulatory limitations preventing Permit modifications while a Permit is in administrative extension. It should be noted that a summary of proposed SWMP modifications was submitted with Oregon City's Permit Renewal Application on

February 27, 2017, but those modifications have not been implemented pending reissuance of the Permit.

2.3 Monitoring Plan Updates for the 2020 – 2021 Reporting Year

As documented previously, the 2017 Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP) is the effective monitoring plan for the City of Oregon City. There have been no updates or modifications to the 2017 CCCSMP, pending upcoming reissuance of the NPDES MS4 Permit.

3.0 SUMMARY OF PROGRAM EXPENDITURES

A summary of the City of Oregon City's revenue and expenditures for the 2020–2021 fiscal year and a projection of the City's revenue and expenditures for the 2021–2022 fiscal year are provided in Table 2, below. Projection of expenditures is considered draft at this time.

Stormwater Fund (530)

City of Oregon City

	Fiscal Year			
	2020 Audited Actual	**2021** Unaudited Actual	**2022** Adopted Budget	**2023** Adopted Budget
Beginning Fund Balance	$ 1,625,466	$ 1,983,537	$ 2,506,230	$ 1,909,272
Stormwater Fee Rates (per EDU per month)	Rate = $10.24 / $10.54 3% rate increase	Rate = $10.54 / $10.86 3% rate increase	Rate = $10.86 / $11.72 8% rate increase	Rate = $11.72 / $12.66 8% rate increase
Revenues				
Charges for Service	3,053,495	2,992,387	3,244,006	3,374,740
Intergovernmental	46,105	2,503	-	-
Interest Income	26,225	10,121	7,000	7,000
Miscellaneous Income	14,069	64,681	-	-
Erosion Control Permits	44,675	31,688	20,000	45,000
Project Management	34,933	75,936	30,000	32,000
TOTAL Revenues	3,219,502	3,177,316	3,301,006	3,458,740
Expenditures				
Personnel Services	1,156,161	1,178,501	1,370,538	1,432,043
Materials & Services	917,962	899,004	1,159,426	1,048,500
Capital Outlay Totals	82,307	353,895	928,000	405,000
Total Transfers	705,000	105,000	440,000	525,000
TOTAL Expenditures	2,861,431	2,536,401	3,897,964	3,410,543
Change in Fund Balance	358,071	640,916	(596,958)	48,197
Ending Fund Balance	$ 1,983,537	$ 2,624,453	$ 1,909,272	$ 1,957,469
Capital Outlay - Details				
Operations New Equip. >$5000	$ -	$ 4,708	$ -	$ 5,000
Capital Construction	82,307	349,187	928,000	400,000
	$ 82,307	$ 353,895	$ 928,000	$ 405,000
Transfers - Details				
Transfer to Building Reserve	$ 600,000	$ -	$ 300,000	$ 300,000
Transfer to Equipment Replacement	105,000	105,000	140,000	225,000
	$ 705,000	$ 105,000	$ 440,000	$ 525,000

4.0 MONITORING DATA

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

Per the 2004 NPDES MS4 Permit requirements (Schedule B), the City of Oregon City, along with Clackamas County and other co-permittees, was required to develop and implement a stormwater monitoring program. Given the effort associated with implementing an effective environmental monitoring program that adequately met all Permit requirements and objectives, Clackamas County (i.e., CCSD#1 and SWMACC) and six other co-permittees including the City of Oregon City agreed to consolidate efforts and prepare one comprehensive stormwater monitoring plan. This plan, called the Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP) was prepared for submittal with the 2006 NPDES Permit Annual Compliance Reports. The CCCSMP was implemented beginning July 1, 2007, and minor editorial changes were made in 2008.

In conjunction with requirements of the 2012 NPDES MS4 Permit, the 2007-2008 CCCSMP was reviewed for consistency with revised monitoring objectives. Monitoring locations and frequencies were adjusted to reflect requirements of the 2012 Permit. Additional efforts related to mercury monitoring, pesticide monitoring, macroinvertebrate (biologic) monitoring, and geomorphic monitoring were added to the CCCSMP. A description of the proposed time-composite sampling methodology was included as an appendix to the CCCSMP. Additional information such as quality assurance procedures were also added in conjunction with Schedule B.2 of the 2012 Permit.

The updated (2012) CCCSMP was submitted to DEQ in September 2012. Comments from DEQ were received in October 2012, and final revisions to the 2012 CCCSMP were submitted to DEQ June 30, 2013.

In 2016, the City, in collaboration with other co-permittees, participated in a series of workshops to propose modifications to the CCCSMP due to completion of monitoring obligations under the 2012 NPDES MS4 Permit. Modifications reflected completion of some select, one-time monitoring obligations under the 2012 Permit and refinement of monitoring locations, parameters, and activities based on information collected over the Permit term. Key modifications included the following:

- Inclusion of Oak Lodge Water Services District and the City of Wilsonville instream, stormwater, and biologic monitoring activities;
- Removal of mercury and pesticide monitoring activities, as those obligations have been met;
- Removal of biochemical oxygen demand (BOD) and total volatile solids (for co-permittees outside of the Tualatin basin) from the analyte list, because of the limited usefulness of the collected data to date;
- Adjustment of analytical methods and reporting limits based on consistency with Code of Federal Regulations (CFR) Title 40 and current laboratory capabilities;
- Adjustment of monitoring locations to ensure geographic distribution of data and to continue to inform trends analyses;
- Inclusion of routine instream sampling, in addition to targeted dry weather/wet weather instream sampling activities;

- Removal of Clackamas County Service District #1's (CCSD #1s) geomorphic monitoring activities from the Plan, as physical conditions are evaluated during biologic (macroinvertebrate) monitoring activities; and
- Minor editorial updates to improve clarity and consistency with current practices.

Per Schedule B.2.e of the Permit and 7.2 of the CCCSMP, the City and other CCCSMP participants submitted to DEQ a 30-day notice of the proposed CCCSMP modifications for the Department's review and approval on December 16, 2016. As no response was received from DEQ within 30 days, the proposed modifications were deemed approved without written approval. Implementation of the 2017 CCCSMP began July 1, 2017. For this reporting year (2019–2020), **the 2017 CCCSMP is the effective monitoring plan for the City of Oregon City**.

As described in the CCCSMP, the NPDES MS4 stormwater monitoring program requires two components. The first component is program monitoring, which involves the tracking and assessment of programmatic activities, as described in the individual permittees SWMP, through the use of performance indicators or metrics. Results of the program monitoring are reported in Appendix A as the annual tracking measures. The second component is environmental monitoring, which includes visual monitoring and the actual collection and analysis of samples. Visual monitoring efforts for the 2020–2021 reporting year included dry weather field screening, as described in the City's SWMP under the BMP 1-2: "Conduct Annual Dry Weather Field Screening." Results of the visual monitoring efforts are reported in Appendix A under the applicable BMP. Environmental monitoring also consists of instream sample collection and outfall sample collection, and the City's sampling efforts are outlined in more detail in Sections 4.2 and 4.3 and in the CCCSMP. Results of the instream and outfall sample collection efforts for this reporting year are provided in Appendix B.

4.2 CCCSMP Updates and Modifications for the 2019–2020 Reporting Year

The 2017-2018 reporting year was the first full year implementing the revised 2017 CCCSMP. There have been no updates or modifications to the 2017 CCCSMP.

In 2018, seven Clackamas County jurisdictions, including the cities of Gladstone, Lake Oswego, Milwaukie, Oregon City, West Linn, Wilsonville, and Oak Lodge participated in biological monitoring as is expected to be required during a future NPDES MS4 Permit period.

4.3 Summary of Monitoring Data

In accordance with the 2017 CCCSMP, Oregon City is required to conduct instream and outfall monitoring. Routine instream monitoring is required at six locations reflecting four tributaries to the Willamette River. Outfall monitoring is required at two outfall locations that discharge to the Clackamas River. Time-weighted composite (during storm events) and single grab samples are taken in accordance with the frequencies outlined in Table 3 below.

During the 2020-2021 monitoring year, the City of Oregon City collected all required instream samples (four events at six sites). Only two of the three outfall samples (three events at two sites) were collected during the 2020-2011 monitoring year. Samples were unable to be collected due to the lack of late winter/early spring rainfall. The City is committed to collecting additional outfall samples during the 2021-2022 monitoring year (thus collecting four events at each location) to make up for the reduced number of samples collected during the 2020-2021 reporting year. Complete sampling results are summarized in Appendix B. The sampling results presented have been formatted to simplify the data review process.

Table 3: 2020–2021 Oregon City Monitoring Locations and Required Frequencies

Site #	Location	Sample Type	Required Frequency	Routine Sampling
In-Stream Monitoring				
OC010is	Abernethy Creek at 17082 Holly Ln (Holly Ln Bridge)	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
OC011is	Abernethy Creek at 316 17th St (17th at railroad trestle)	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
OC012is	Coffee Creek behind 415 S McLoughlin (outfall at Willamette)	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
OC013is	Park Place Creek behind 13530 Redland Rd	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
OC014is	Singer Creek at the north end of Singer Creek Park (Linn Ave)	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
OC015is	Singer Creek 502 7th St (MH - 37138 located on Center St)	Grab & Composite	4/year	Dry Weather (2/year) and Wet Weather (2/year)
Outfall Monitoring				
OC006ofm	Clackamas River at O.C. Shopping Center	Composite	3/year**	Storm Event
OC007ofm	Clackamas River at Clackamette Cove	Composite	3/year**	Storm Event

**** Only two of the three and outfall samples (three events at two sites) were collected during the 2020-2021 monitoring year. Four outfall sampling events will be collected during the 2020-2021 reporting year.**

5.0 Overview of Planning and Land Use Changes, UGB Expansions and New Development Activities

5.1 Summary of Land-Use Changes and UGB Expansions

The following land use/ zoning changes and/or annexations were approved by the City between July 1, 2020 and June 30, 2021:

- Zone Changes:
  - ZC-21-00001 – 19560 Sebastian Way - 23,994 square feet

- Annexations:
  - AN-20-00001 – 19242 S Beavercreek Road – 0.90 acres
  - AN-20-00002 – 11330 S Forest Ridge Rd – 0.49 acres
  - AN-21-00001 – 19630 S McCord Rd. – 1.05 acres

5.2 Summary of Development Activities within the UGB

During the reporting year 2020 – 2021, there were 29 development applications (8 were constructed and placed in operation, 21 were permitted and are in some phase of construction or design) reviewed and approved for compliance with water quality/water quantity standards. The projects that are completed and in operation included private detention chamber (1), private raingardens (12), public pond (1), public swale (1), pervious pavement (2 areas), miscellaneous

roadside planters. Estimated drainage area related to development projects that commenced during the reporting year equals 66.11 acres.

There were zero public improvement projects (CIPs), including water quality and/or flow control projects, for this reporting period. Details of these projects can be found in Appendix A

6.0 ADDITIONAL ACTIVITIES

The following stormwater-related activities occurred within the City and are not currently documented in Appendix A.

BMP 4-5 – Ensure Municipal Staff Training in Stormwater Pollution Prevention

There were forty-four stormwater staff meetings conducted during the 2020-2021 reporting period. Dates, topics, and attendees are summarized below in Table 4 on the next page.

Table 4 – Staff Meetings and Training

2020-2021

Date/Time	Attendees	BMP's /Topics	Items Discussed	Next Steps/Program Adjustments
7/2/2020	Brian Monnin, Mallory Ott	Section 4.0 Monitoring	Monitoring schedule for 2020-2021	Follow scheduled monitoring dates
7/22/2020	Brian Monnin, Andrea Matzke	TMDL IP	5 year review of Oregon City TMDL IP. Discussion of draft language	Make edits to draft TMDL IP and send to DEQ
7/28/2020	Brian Monnin, Angela Wieland	TMDL IP	Review of discussion between DEQ and OC on TMDL IP draft comments	Make edits to draft TMDL IP and send to DEQ
8/12/2020	ACWA, Phase I Permittees	NPDES MS4 Permit renewal	Legal issues that could arise from comments made during the comment period	Review DEQ response after comment period
8/12/2020	Brian Monnin, owners of Hunter Hills properties	SWMP 8-4 PWQF Site visit at Hunter Hills Subdivision to review	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
8/18/2020	Brian Monnin, Chris Hass	SWMP 8-4 PWQF	How to inspect Contech stormwater facilities	Now able to inspect Contech stormwater facilities at PWQF's
8/25/2020	Brian Monnin	SWMP 8-4 PWQF Site visit at OCSD to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
8/26/2020	Brian Monnin, Nicole Fredricks	SWMP 4-1 Public Education and Outreach	Oregon City sponsorship in the Down the River Clean Up	Annual sponsorship to Down the River Clean Up
9/2/2020	Brian Monnin, Jim Henry	SWMP 8-4 PWQF Site visit at 14130 Quail Ct. to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW

Table 4 – Staff Meetings and Training

9/29/2020	Brian Monnin, Chris	SWMP 8-4 PWQF Site visit at Edgewater Apartments to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
10/1/2020	Brian Monnin, John	SWMP 8-4 PWQF Site visit at 14138 Cleveland St. to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
10/9/2020	Brian Monnin, George Lizer	SWMP 8-4 PWQF Site visit at Wilco Farm Store to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
10/15/2020	Brian Monnin, representatives from GreyStar Property Management and Landscape consultant	SWMP 8-4 PWQF Site visit at Edgewater Apartments to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
11/5/2020	Brian Monnin, Vance Walker	NPDES MS4 Annual Report	Review and discuss 2019-2020 NPDES MS4 Annual Report	N/A
11/18/2020	Brian Monnin, John Lewis, Vance Walker	NPDES MS4 Annual Report	Review and discuss 2019-2020 NPDES MS4 Annual Report	N/A
11/30/2020	Brian Monnin, Krista Reininga, John M. Lewis, Angela Wieland	Review of NPDES MS4 permit Public Review Draft	Review NPDES MS4 draft permit and discuss comments for public review	OC submits additional comments to DEQ
11/30/2020	Brian Monnin, others	Clackamas Spill Committee meeting	Review scope and purpose of Clackamas Spill Committee	Continue to meet as a group and possible tabletop exercise
12/1/2020	Phase I Group	Review of NPDES MS4 permit Public Review Draft	Review NPDES MS4 draft permit and discuss comments for public review	OC submits additional comments to DEQ

Table 4 – Staff Meetings and Training

12/3/2020	Brian Monnin	Vegetated Stormwater Facility Training	Education sessions that address current vegetated stormwater issues	Continuing edcation
12/8/2020	Brian Monnin, GOCWC	TMDL	Update on the Strategic Restoration Action Plan for the Abernethy Creek Watershed, and temperature study on Abernethy Creek and status report of the 4 Clackamas Partnership Focused Investment Project biennium 2 proposals	Continue to discuss options for funding and scope of projects
12/21/2020	Brian Monnin, home owner	SWMP 8-4 PWQF Site visit at 14124 Cleveland St to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
12/21/2020	Brian Monnin, home owner	SWMP 8-4 PWQF Site visit at 14132 Cleveland St to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
12/21/2020	Brian Monnin, Chris Dunlop	TMDL IP	Discuss updated maps for priority shade areas and updated property details	Use updated maps and data for site inspections
12/28/2020	Brian Monnin	SWMP 8-4 PWQF Site visit at 13923 Chico Way to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
1/5/2021	Brian Monnin, Jordan Bright, Cliff Zener, Mike Johnson	SWMP 8-4 PWQF Site visit at Dawn Meadows HOA to review PWQFs and maintenance responsibilities	Discuss timeline of rehab for PWQF	Maintenance company to submit timeline for rehab of PWQF and begin work on rehabilitation of PWQF
1/11/2021	Brian Monnin, Oregon City resident	IDDE – pressure washing	Mailed ACWA IDDE Outreach flier for pressure washing/surface cleaning best practices	N/A – sent information to customer who started pressure washing company

Table 4 – Staff Meetings and Training

1/28/2021	Brian Monnin, representatives from GreyStar Property Management and Landscape consultant	SWMP 8-4 PWQF Site visit at Edgewater Apartments to review PWQFs and maintenance responsibilities	Rehabilitation of private water quality facility	Continued rehabilitation and site visits for private water quality facility
1/28/2021	Brian Monnin, John Burrell, Mallory Ott	Erosion Control and Stormwater Management	Education sessions that address current stormwater issues	Continuing education
2/2/2021	Brian Monnin, RCCRS members, FOX 12 staff	SWMP 4-1 Public Education and Outreach	Discuss FOX12 public outreach campaign	Continue to make decisions on which stormwater issues FOX12 advertises
2/22/2021	Brian Monnin, Josh Wheeler, Dante Posadas, Aaron Parker, Mike Roberts	SWMP 8-4 PWQF	Discussion of responsibilities of inspection and approval of raingardens on private parcels	Water Quality Coordinator now responsible for inspections of new PWQF's before project can close
First week of March 2021	Brian Monnin, Mallory Ott, WW/STM department	SWMP 8-4 PWQF	Annual review of Standard Operating Procedures for Private Water Quality Facilities Program	Staff will inform water quality coordinator of issues at PWQF's
3/10/2021	Brian Monnin, Mickey Yeager	SWMP 8-4 PWQF Site visit at Clackamas Community College to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
3/16/2021	Brian Monnin, Eric Hand, John Lewis, Vance Walker, Krista Reininga, Angela Wieland	Willamette Basin Mercury TMDL	Discussion of Willamette Basin Mercury TMDL and Oregon City's responsibilities	Write letter of response to DEQ, wait for NPDES permit for further Mercury guidance
4/6/2021-4/9/2021	John Lewis, Dayna Webb, Erik Hopwood	APWA Conference	Education sessions that address current public works issues	Continuing education

Table 4 – Staff Meetings and Training

4/12/2021	Brian Monnin, Fred Haller	SWMP 8-4 PWQF Site visit at 19847 Leland Rd to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
4/13/2021-4/15/2021	John Lewis	Street Maintenance and Collection Systems Virtual Spring School	Continuing education	Continuing education
4/21/2021	Brian Monnin, Phase I group	TMDL IP	Discussion on implications of Willamette Basin Mercury TMDL	Write letter of response to DEQ, wait for NPDES permit for further Mercury guidance
5/11/2021	Brian Monnin, OC maintenance staff	SWMP 8-4 PWQF Site visit at Robert Libke Safety Building to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW
5/28/2021-5/29/2021	Brian Monnin	ACWA Stormwater Summit	Education sessions that address current stormwater issues	Continuing education
5/28/2021-5/29/2021	Brian Monnin	The Nature of Green Infrastructure	Education sessions that address current green infrastructure issues	Continuing Education
6/14/2021	Brian Monnin, Mallory Ott	TMDL IP	Discussion on monitoring priority shade areas and creation of field data sheet. Discussion on how parcels changed and how to report on plantings	Begin site visits for shade priority areas. Create new spreadsheet for reporting and record keeping
6/16/2021	Brian Monnin	SWMP 8-4 PWQF Site visit at OCSD Gaffney Lane School to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's	Maintenance and Inspection Forms due annually to OCPW

Table 4 – Staff Meetings and Training

6/16/2021	Brian Monnin	SWMP 8-4 PWQF Site visit at 1005 Abernethy Rd to review PWQFs and maintenance responsibilities	Proper maintenance and upkeep of PWQF's. site inspection to ensure proper maintenance and inspections were being conducted	Maintenance and Inspection Forms due annually to OCPW
6/23/2021	Brian Monnin	SWMP 8-4 PWQF Site visit at 13990 Fir St for inspection of facilities	Proper maintenance and upkeep of PWQF's. Review responsibilities and proper reporting	Maintenance and Inspection Forms due annually to OCPW. Responsible party will call vendor for services and will send updated report to us.

Appendix A

Oregon City SWMP Implementation Status

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Appendix A. Status of Implementing Components of Oregon City's 2012 Stormwater Management Plan (SWMP)							
BMP or activity	Addresses bacteria?	Addresses mercury?	Responsible department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual report information: tracking measure status, Permit year 2020– 2021	Additional detail related to activities conducted
Element 1. Illicit Discharge Detection and Elimination							
BMP 1-1: Implement the Illicit Discharge Elimination Program	●	●	Oregon City Public Works Department (OCPW)	• Document and implement updated Standard Operating Procedures (SOPs) for the Illicit Discharge Detection and Elimination (IDDE) Program by November 1, 2012. • Conduct actions to remove identified illicit discharges in conjunction with timeframes outlined in OC's NPDES MS4 Permit. • Track and record all identified illicit discharges and how such discharges were removed.	1) Track status of documenting and updating the IDDE SOP. 2) Track the number, location, type of discharge, resolution, and enforcement action for any illicit discharge investigation conducted.	1) The IDDE SOP was updated on 7/29/16 (see BMP 1-2, item 5). 2) No illicit discharge investigations were deemed necessary as a result of annual dry weather field screening conducted during this reporting period.	1) OC developed an IDDE SOP (effective date: November 1, 2012), in conjunction with other Clackamas County co-permittees. The SOP includes guidelines for identification and enforcement of illicit discharges.
BMP 1-2: BM Conduct Annual Dry Weather Field Screening	○	○	OCPW	•	1) Track the number and location of outfalls inspected annually. 2) Summarize inspection results and track the number and location of outfalls requiring monitoring and/or investigations. 3) Report the outcome and resolution of any investigation activities. 4) Report the outcome and resolution of any code enforcement actions. 5) Track the status of updating standard procedures.	1) Nine outfalls were inspected as part of annual dry weather field screening activities. 2) Outfalls were inspected on 8/5/2020. Flow was observed at 5 of the outfalls; all discharges were a trickle and flow were characterized as permissible. 3) N/A 4) N/A 5) On 7/29/16 OC updated the IDDE SOP that includes procedures for conducting dry weather field screening. Priority sites 1 and 2 were relocated to address staff safety concerns. One site was added (site 9) as a result of a reported illicit discharge.	1) Dry weather screening was conducted at the following outfalls: 1. 99E and 6th Street (manhole 33556): 12-inch 2. 427 Main Street (manhole 33558): 15-inch 3. Abernethy Road at Tri-Lett: 15-inch 4. Clackamas River Drive: 48-inch 5. Metro Wetlands Pond: 48-inch 6. Falcon Drive: 30-inch 7. Berry Hill: 24-inch 8. Beavercreek at Hwy 213: 24-inch 9. Behind 1651 Beavercreek Road: 48-inch
BMP 1-3: EH Implement the Spill Response Program	○	○	Clackamas Fire District #1 (Hazardous Materials Team) and OCPW	• Respond to reports of hazardous and non-hazardous spills and follow the OC *Spill Response Plan*. • Report all hazardous and non-hazardous spills to DEQ as necessary.	1) Indicate the number of spills reported to OCPW and DEQ. 2) Track responses to reported spills. 3) Indicate sources, causes, and types of discharges resulting from spill activities. 4) Track any changes to the OC *Spill Response Plan*.	1) 5 spills were reported to OCPW during the 2012-2021 reporting period. 2) Responses were appropriate for each spill. See list below. 3) 4 spills required DEQ reporting. These spills were from various causes, vehicle accidents, mechanical failure, illegal dumping & ice storm. • 425 Baker Rd. – PGE pole down from ice storm. 20 gallons of oil leaked from transformer to the roadway & Coffee Creek. Environmental clean-up company was contacted to contain the spill and dispose of absorbent materials, booms, and pads. • Aladdin Way & Warner Parrott Rd. 20 gallons of hydraulic fluid leaked from broken hydraulic line on street sweeper. Absorbent material was applied, shoveled/swept up. Reported to OERS • 12073 Tolstrup Dr. – an unknown amount of hydraulic fluid leaked from broken hydraulic concrete truck. Absorbent material was applied, shoveled/swept up. Reported to OERS • 13254 Clackamas River Dr. – approximately 20 gallons of fuel dumped into storm drain flowing into roadside ditch. Environmental clean-up company was contacted to, contain the spill, vacuum up fuel remaining, excavate & removed contaminated soil and dispose of all soils, absorbent materials, booms, pads, etc. Reported to OERS. • Hwy 213 & Beavercreek – unknown amount of dumped on sidewalk during a political protest. Absorbent material was applied, shoveled/swept up. No OERS reporting required.	
Element 2. Industrial and Commercial Facilities							
BMP 2-1: BM Screen Existing and New Industrial Facilities	○	○	OCPW	• Review the business license inventory for 1200Z industries once over the permit term. • Notify DEQ of any existing or new industrial facilities within OC that may be subject to an industrial stormwater NPDES permit.	1) Track the number of existing or new facilities subject to a stormwater industrial NPDES permit during the permit term.	1) The Water Quality Coordinator continued to review all new business license applications for potential water quality-related issues. 129 business license applications were reviewed during the 2020-2021 reporting period. The screening did not identify any additional facilities potentially subject to an industrial stormwater permit.	DEQ provided additional guidance on industrial facility screening in June 2013. OC's consultant has coordinated with DEQ related to the methodology and process for identifying "potential" 1200-Z permittees.
BMP 2-2: BM	○	○	OCPW	• Pursue approval to hire staff to implement a business inspection program.	1) Track the number of inspections conducted.	1) No inspections were conducted during the 2020-2021 reporting period due to COVID-19.	• OC has not hired additional staff to implement the business inspection program.

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Appendix A. Status of Implementing Components of Oregon City's 2012 Stormwater Management Plan (SWMP)							
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Implement an Industrial/Commercial Inspection Program for High Priority Facilities				• Develop a priority list of industrial/commercial facilities for inspection. • Investigate 25% of OC's manufacturing businesses once during the permit term. • Develop an industrial/commercial inspection procedure by July 1, 2013.	2) Report on inspection results and follow up actions. 3) Report on status of documenting and updating procedures.	2) Table 2 of the Industrial/Commercial Facility Inspection Program SOP was updated January 2020 to reflect current Oregon City manufacturing-related business license holders. The 2013 Table 2 identified 31 facilities. The updated table identifies 41 manufacturing businesses potentially subject to inspection.	• OC developed an Industrial/Commercial Facility Inspection Program SOP July 1, 2013. The SOP includes procedures and guidelines related to facility screening, DEQ notification of potential industrial stormwater permit needs, and high pollutant source facility inspections. • OC investigated more than 25% of manufacturing businesses once during the permit term.
Element 3. Construction Site Runoff Control							
BMP 3-1: JB Implement the Erosion Control Ordinances	●	○	OCPW	• Review erosion control plans for all developments greater than 1,000 square feet. • Require erosion and sediment control plans not in compliance with standards to be amended and approved prior to construction. • By November 1, 2014, adopt the Clackamas County *Erosion Control Manual* or revise OC's manual in accordance with the NPDES MS4 permit requirements.	1) Record the number of erosion control plan reviews completed and approved. 2) Track the number of erosion control permits issued annually. 3) Report on the status of adopting the Clackamas manual or updating OC's manual.	1) 89 erosion control plans were reviewed and approved. 2 89 erosion control permits were issued. 3) OC has adopted the Clackamas County *Erosion Control Manual*, in conjunction with its update of the City's *Stormwater and Grading Design Standards* manual.	
BMP 3-2: JB Provide Educational Information to Construction Site Operators	○	○	OCPW	• Continue to provide OC's most current erosion control manual on OC website. • Continue to offer discounts on erosion control permits to contractors completing the Erosion Control Certification Program.	1) Track the number of contractors receiving a discount on erosion control permit fees.	1) No contractors received a discount on permit fees.	
BMP 3-3: JB Conduct Erosion Control Inspections	●	○	OCPW	• Conduct a minimum of three erosion control inspections at each permitted site. • Conduct appropriate enforcement activities for erosion control violations.	1) Record the number of erosion control inspections conducted annually. 2) Report the number of notices of non-compliance issued during inspections.	1) A total of 287 erosion control inspections were conducted this permit year. Due to the time frames with which construction occurs, some sites had all three required inspections, and some sites have only had one or two inspections at this time (construction is still ongoing). 2) 7 notices of non-compliance were issued. No stop work orders were issued.	1) The total number of inspections are comprised of: • 90 initial site visits, Inspection 1 • 99 random inspections, Inspection 2 • 98 final inspections, Inspection 3
Element 4. Education and Outreach							
BMP 4-1: bm Provide Public Education and Outreach Materials Regarding Stormwater Management EH	○	○	OCPW	• Include a water quality related article in each City newsletter, distributed to citizens three times per year. • Participate in the Regional Coalition for Clean Rivers and Streams (Coalition). • Seek out opportunities to partner with other agencies/jurisdictions/organizations to educate and promote watershed health and low impact development. • Periodically install signs near water quality structures and around OC promoting water quality. • Sponsor the volunteer catch basin stenciling program. • Distribute an annual water quality report to OC residents.	1) Track the number, types, and topics of public educational materials distributed to the public. 2) Report any large scale public educational campaigns initiated during a given year. 3) Track coordinated public outreach activities with other permittees.	1) The following educational activities were conducted (see Appendix C for details): • A total of eight water quality-related articles were included in Trail News. • OC participated in no special events due to COVID-19 and promoted one event on the city website and social media outlets (it was eventually canceled due to COVID-19). • The March 2021 utility bill included a message Be Chemical Free, Safer Lawn and Garden. • Mailed 15,352 postcards announcing availability of the Annual Water Quality Report on OC's website. • Stormwater banner displayed at City Hall (10/5/2021-10/19/2021). 2) Continued participation in regional Stormdrain Cleaning Assistance Program (SCAP) in 2020-2021 permit year. 3) Coordinated efforts included: • Continued to sponsor the "Clean Water, It's Our Future" campaign via KPTV media outlets. • Continued participation in the Coalition for Clean Rivers and Streams. • Continued participation with other agencies to promote water quality education through Clackamas River Water Providers. • Continued participation with Greater Oregon City Watershed Council • Continued participation with Clackamas County Water Education Team • Continued participation with Clackamas Community College Environmental Learning Center Advisory Team • Due to COVID restrictions, the Environmental Learning Center at Clackamas Community College was not able to deliver any in-person educational programs in Spring 2021. Plans were made to use the funds during the 2021/22 school year, to support the following programs: -Nature Striders - preschool nature education	• OC continues to conduct catch basin marking and stenciling to increase public awareness. During this reporting period 127 catch basins were either stenciled with the message "Dump No Waste – Drains to Stream" or had "No Dumping, Drains to Waterway" markers installed.

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						-Field Trips to Environmental Learning Center – for K-5 grades in Oregon City School District -Vegetated Stormwater Facilities – continuing education for adults • Continued to sponsor the Down the River Clean Up event	
BMP 4-2: Participate in a Public Education Effectiveness Evaluation	○	○	OCPW	• Coordinate with other local, Phase I jurisdictions in providing/compiling information regarding a public education effectiveness evaluation by July 1, 2015.	1) Report on activities conducted annually.	1) OC submitted a Public Education Effectiveness Evaluation Summary to DEQ on June 29, 2015.	The Association of Clean Water Agencies (ACWA) Stormwater Committee completed a coordinated effort to compile existing educational survey information and develop conclusions to inform how public education efforts result in behavioral change. The study was conducted by DHM Consulting with cost shared among interested Phase I and Phase II communities, including OC.
BMP 4-3: JW JT Conduct Staff Training for Pest Management	○	○	OCPW and Parks	• Ensure OCPW and Parks Dept. staff conducting pest management activities are certified for spraying activities according to OSHA requirements. • Ensure licensed staff attends annual refresher courses.	1) Track the number of employees licensed for spraying activities. 2) Report number of employees that attended initial or refresher training.	1) Staff licensed for spraying activities: OCPW = 7, Parks Dept. = 6 2) Five OCPW staff and zero Parks Department staff attended refresher training classes during the reporting period. Parks staff scheduled training was cancelled due to ice storm.	Annual refresher training is not required. OCPW and Parks Department staff attend refresher training per requirements of their licensing.
BMP 4-4: BM Conduct Staff Training in Spill Response	○	○	OCPW	• Provide non-hazardous spill response training annually through monthly safety meetings. • Coordinate annual training and refresher courses for staff initially responding to spills using OSHA hazardous materials educational resources.	1) Track spill-related training and education.	1) Spill response training was not conducted due to COVID 19 restrictions on group sizes.	
BMP 4-5: BM Ensure Municipal Staff Training in Stormwater Pollution Prevention	○	○	OCPW	• Conduct municipal training for employees associated with stormwater management in OC. • Coordinate with other Clackamas County co-permittees regarding regional water quality efforts. • Participate in training and advisory committee opportunities available through state and local agencies and groups. • Conduct regular stormwater staff meetings once or twice a year.	1) Track the number of employees receiving training in stormwater management annually. 2) Track OC staff participation in groups, committees, and organizations relevant to stormwater quality management. 3) Track regular stormwater staff meetings and staff attendance at those meetings.	1) OCPW Employees receiving training in stormwater management: • Three employees attended APWA Conferences 4/6/2021-4/9/2021) • Five employees attended OSUs Pesticide Safety Education Program PSEP (11/18/2021-11/19/2020) • One employee attended Street Maintenance and Collection Systems Virtual Spring School (4/13/2021 – 4/15/2021) • Three employees attended Erosion Control and Stormwater Management (1/28/2021) • One employee attended Vegetated Stormwater Facility training (12/3/2020) • One employee attended The Nature of Green Infrastructure (5/28/2021-5/29/2021) • One employee attended ACWA Stormwater Summit (5/12/2021-5/13/2021) 2) OC staff participates in the following groups and organizations: • ACWA - active participant in the ACWA Stormwater committee and Phase I Stormwater subcommittee • Continued collaboration with other co-permittees on Comprehensive Clackamas Stormwater Monitoring Program • Greater Oregon City Watershed Council • Clackamas County Water Education Team • Regional Coalition for Clean Rivers and Streams 3) There were 44 stormwater staff meetings conducted during the 2020-2021 reporting period.	3) Dates, topics, and attendees are summarized in Table 4 in Section 6.0 of the annual report.
Element 6. Post-Construction Site Runoff							
BMP 6-1:JWHeeler Implement Municipal Construction Standards	●	●	OC Community Development	Per OC's Development Code, review all new development and applicable redevelopment for conformance with current city stormwater standards and ordinances.	1) Track the number of development applications reviewed and approved for compliance with stormwater regulations. 2) Track the number, type, and drainage area of treatment facilities constructed annually.	1) 29 development applications (some of which were permitted in previous reporting years but never completed construction) were reviewed and approved for compliance with water quality/water quantity standards. For applications that proceed to the construction phase all constructed treatment facilities will be noted in the appropriate reporting period. 2) The following were constructed and placed in operation during the reporting period of 7/1/2020 through 6/30/2021: 8 developments: 1 Private Detention Chamber, 1 Private Detention Pipe, 12 Private Raingardens, 1 Public Pond, 1 Pubic Swale, 2 areas of Private pervious pavement and some Public roadside planters • Total drainage area = 66.11 acres	- <u>Details of treatment facility construction:</u> - Oregon City Police Station (GLUA 19-00011) – PRIVATE Contech Detention Chambers, 7.93 acres - Holcomb Plaza Apartments (SP 15-13) – 256 feet of PRIVATE 42" HDPE Pipe, 0.58 acres - Hillock Heights Subdivision (TP 17-01) – 8 lot subdivision with a 3,669 sf PUBLIC stormwater facility, 1.93 acres

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						3) 13 developments have been permitted and are in some phase of construction, but not yet complete. • Total drainage area = 86.01acres 4) 8 developments are seeking permits for construction. They have not started construction or completed permitting. • Total drainage area = 35.71 acres	- Parker Knoll Subdivision TP 17-02,11 lot Subdivision, 1 PUBLIC swale and 11 PRIVATE raingardens, 2.56 acres - Metro Newell Creek Park SP 17-29, 28,071 PRIVATE Pervious Pavement, 7,870 SF Storm Planter, 31.43 acres - Forest Edge Apartments Rehabilitation, PR 126-2019, 1 PRIVATE Detention Pond, 12.77 acres - Milner Vet Clinic Parking Lot, PR 131-2019, PRIVATE pervious pavement, 0.22 acres - Tyrone Woods Park, PR 144-2019, 1 PRIVATE raingarden and various Roadside Planters, 8.28 acres - Latourette Park, GR 20-0005,1 Private raingarden, 0.80 acres <u>Under Construction by not yet complete:</u> - Dotson Subdivision TP 17-09, 12 lot subdivision, 1 PUBLIC Stormwater Pond and roadside planters, 2.92 acres - Canemah Cottages (SP 17-145) – 7 PRIVATE stormwater planters and a PRIVATE 1,089 cf underground detention system, 0.45 acres - Caldera Subdivision TP 17-08, 5 lot subdivision, 3 PRIVATE raingardens, numerous roadside planters1.15 acres - Harrison St Apartments SP 17-168/SP 18-118, PRIVATE pervious pavement and PRIVATE underground detention pipe, 0.15 acres - Gardiner Middle School Replacement, PR 139-2019, 1 PRIVATE detention pond, 18.25 acres - Edward Oaks Subdivision TP 18-02, 1 PUBLIC Stormwater Facility, 1.97 acres - Rowland Subdivision, PR 135-2019, 1.0 acres - Lazy Creek Lane Subdivision, PR 142-2019, 1.99 acres - Harley Apartments SP 18-125, 1 PRIVATE Stormwater Pond, Private and Public Stormwater Roadside Planters, 1.61 acres - Clairmont Mobile Homes Expansion, PR 143-2019, 28.93-acre property, 54,685 stormwater management area, 6.111 sf of Private rain garden and storm planters - Timberview Apartments, SP 14-01, 1 Public Pond, 4505 sf, 1 Private Contech Detention Chamber 4327 sf and public stormwater roadside planters, 9.72-acre property

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							- Oregon City Operations Complex, PR 158-2020, 4.79-acre property, 50,135 sf stormwater management area, 1,580 sf of Private rain gardens and storm planters - Advantis Credit Union, PR 161-2020, 13.08-acre property, 202,220 sf stormwater management area, 17,720 sf of Private rain gardens and stormwater pond <u>Under Permit Review, not started Construction:</u> - Cunningham Partition, MP 18-04, 0.76 acres - Marquis Parking Lot SP 18-119, 2 PRIVATE raingardens, 1.84 acres - Minton Subdivision, PR 140-2019, 0.88 acres - Hiram Subdivision, PR 149-2019, 2.39 acres - Beavercreek North Campus, PR 148-2019, 11.75-acre property with 25,315 sf of Private stormwater ponds - 950 South End Expansion, SP 18-106/PR 150-2019, 1.18-acre property, with existing 4,940 cf Private storm chamber and a new 872 sf of Private storm planter - Oregon City Christian Church Expansion, PR 98-2020, 8.55 acres - Willamette Falls Hospital Expansion, PR 151-2020, 8.36 acres
BMP 6-2: JWheeler Review and Update Code and Development Standards related to Stormwater Quality Control	●	●	OC Community Development	• Review OC's current/planned stormwater treatment and detention standards for compliance with new NPDES MS4 permit language. • Review OC's current public works development code provisions to ensure that applicable barriers to LID or green infrastructure (GI) are minimized and eliminated where practicable. • If necessary, update OC's post-construction stormwater design standards and code language by November 1, 2014.	1) Track progress related to review of OC's code and development standards per provisions in the NPDES MS4 permit. 2) Track any code/standards modifications made by ordinance.	1) The update has been completed to OC's *Stormwater and Grading Design Standards* to meet the current NPDES MS4 permit language. The update prioritizes the use of LID and GI to the maximum extent practicable and addresses flow duration. 2) OC reviewed and updated the Oregon City Municipal Code Chapter 13.12 Stormwater Management, the *Stormwater and Grading Design Standards* manual, and the *Erosion and Sediment Control Standards* manual. The updated manuals were adopted through Resolution 15-14 and the associated municipal code update was adopted by Ordinance 15-1006 on May 20, 2015. No modifications were made during this reporting period.	Stormwater Standards were updated and adopted March 2020.
Element 7. Pollution Prevention for Municipal Operations							
BMP 7-1: JT Conduct Street Sweeping and Roadway Repair Activities	●	●	OCPW	• Sweep city streets every 3-4 months on average, more frequently in high traffic areas and during leaf pick up and following deicing activities.	1) Track the average number of citywide sweeps per year. 2) Estimate the miles of streets swept per year. 3) Track volume of debris removed.	1) 10.4 city-wide sweeps were conducted for this reporting period. 2) During the 2020-2021 reporting period, 7,690 miles of roadway were swept. 3) 3,189 cubic yards of debris were removed as a result of sweeping and leaf pickup activity.	

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BMP 7-2: JW JT Minimize Pollutant Discharges Associated with Landscape Management Practices	○	○	OCPW and Parks	• All chemical applicators, both contractor and city, must follow state laws related to the use of pesticides. • Applicators will complete spray reports for the application of chemicals.	1) Track any program changes regarding chemical application practices used by OC.	1) Both city and contracted chemical applicators comply with 2300-A, pesticide general permit requirements. Pesticide applications are kept at least three feet away from any water's edge. There were no program changes regarding chemical application practices used by OC.	
BMP 7-3: EH BM Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	○	○	OCPW	• By July 1, 2013, inventory municipal facilities subject to this permit requirement. • By July 1, 2013, identify whether there is a need for additional strategies to minimize discharge from these facilities.	1) Track updates to strategies used to minimize pollutant discharge from municipal waste storage facilities	1) OC developed a Stormwater Pollution Prevention Strategy document for municipal operations (SWPPS) July 1, 2013. The SWPPS includes a description of each of OC's six facilities that treat, store, or transport municipal waste. Additionally, it identifies potential pollutant sources as well as short and long term pollution reduction strategies. The SWPPS was updated during the 2020-2021 reporting period to reflect these changes.	OCPW purchased 13895 Fir Street for the future home of OCPW Complex. The Fir Complex is under construction and will be added to the current facilities list and be monitored quarterly.
BMP 7-4: EH Control Infiltration and Cross Connections to the City's Stormwater Conveyance System	●		OCPW	• Review new and redevelopment for possible cross-connections. • Eliminate cross connections upon identification.	1) Report whether any cross connections were discovered and describe follow up activities.	1) One cross-connection was discovered and corrected during this reporting period. • 16423 Kitty Hawk Ave. – This cross-connection was during acceptance video inspection of a newly constructed subdivision. The corrections were completed by the builder.	• Dye tests are performed by OCPW upon request from plumbing inspector if there are questions regarding sewer connections. Routine storm sewer video inspection continues, and cross-connections are repaired when identified.
BMP 7-5: BM Coordinate with Local Fire Department related to Pollutant Discharge from Fire Fighting Training Activities			OCPW	• By November 1, 2012, contact Clackamas Fire District #1 to determine what activities are conducted to minimize pollutant discharges associated with firefighting training activities. • As applicable, provide educational information to Clackamas Fire District #1 by November 1, 2012.	1) Track contacts made with Clackamas Fire District #1.	1) No contacts were made during this reporting period.	On 9/12/12 OC's Water Quality Coordinator contacted Clackamas Fire District #1 to discuss firefighting training activities conducted in OC. Per an email dated 9/13/12 the Battalion Chief for Training & Safety confirmed that all foam drills were conducted at their primary training facility in Clackamas. Any training activities at the four OC stations use water only.
BMP 7-6: DW EH Jwh Conduct Master Planning and Implement Capital Projects for Stormwater Quality Enhancement	●	●	OCPW	• The *Oregon City Stormwater Master Plan dated July 2019 was adopted by Ordinance 19-1014 on March 18, 2020 and became effective April 17, 2020* • Prioritize CIPs by funding availability and water quality/flood control benefit. • Update maps to include location and drainage area of any new stormwater quality CIPs.	1) Track master planning activities. 2) Track number and cost of major (water quality) CIP projects and discuss added benefit. 3) Map the location and drainage area of water quality related CIPs.	The update to OC's *City-wide Stormwater Master Plan* was adopted by City Commission on April 17, 2020. 2) Stormwater disconnections from the Sanitary Sewer System completed (CI 19-017) • One in-house projects were completed during this reporting period for total cost of $5000. 3) A Stormwater Assessment Outfall Project and Scattering Canyon outfall project are anticipated to be constructed within the 2021-2022 reporting period. 3) Mapping: • The new storm sewers were added into the OCMap GIS System. New stormwater BMPS from development were mapped after the project completed construction. • The CIP projects have been mapped.	2) Following are details of the contracted CIP projects completed during this reporting period: • Inflow Reduction Project (CI 19-017). Construction of approximately 1061 linear feet of 8-inch and 1187 linear feet of 12-inch storm main to disconnect known sources of stormwater inflow from the sanitary sewer system, reconnection of two sewer laterals with two new clean outs, new connection of one storm lateral with one new cleanout, construction of eighteen (18) 48-inch manholes, replace twelve (12) catch basins. • Installed 1 soaker infiltrator trench at 137 Belle Ct.

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Element 8. Stormwater Management Facilities Operation and Maintenance							
BMP 8-1: Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	OCPW	• Maintain, repair, and/or replace conveyance system components when needed, based on ongoing inspections. • Update the stormwater system map when discrepancies are found.	1) Estimation of the volume of debris removed per year during public conveyance system cleaning activities (in conjunction with BMP 8-2).	See BMP 8-2.	
BMP 8-2: **EH** Conduct Catch Basin Cleaning and Maintenance	●	●	OCPW	• Inspect at least 33% of the public catch basins annually. • Schedule the repair, and replacement of catch basins as needed, based on inspections. • Update the stormwater system map when discrepancies are found.	1) Track the percentage of total public catch basins inspected and/or maintained annually. 2) Track the volume of sediment removed during cleaning activities conducted annually (also includes volume from BMP 8-1). 3) Track the number of catch basin replacements annually. 4) Track the number of public catch basins added to OC's catch basin inventory annually.	1) 15% of public catch basins were maintained during this reporting period. 2) 61 cubic yards of sediment were removed (includes sediment from pipes, culverts, manholes, open channels, and catch basins). 3) No catch basins were replaced or repaired. 4) OC's catch basin inventory was reduced by 309 catch basins this year to a total of 4,168. Reduction was a result of a thorough review of storm utility maps. Many catch basins previously listed as OC were private or owned by other agencies.	15% = 646 public catch basins
BMP 8-3: **EH** Public Structural Control Facility Cleaning and Maintenance	●	●	OCPW	• Inspect and maintain public structural control facilities in accordance with documented frequencies and procedures. • Update the public structural control facility inventory as needed. • Update the stormwater system map in accordance with new public facility installations and when discrepancies are found.	1) Track the number of public structural facilities inspected and maintained. 2) Track the volume of sediment removed during cleaning. 3) Track changes to the public structural control facility inventory as needed.	1) 494 public structural facilities were inspected during the reporting period. See the next column for maintenance details. 2) 0 cubic yards of sediment were removed during maintenance/cleaning. 3) Additional public structural facilities added to inventory: • 1 swale • 1 soaker trench infiltrator • 4 rain gardens • 120 roadside stormwater planters • 3 pollution control manholes were added to the inventory this past year.	1) The following public structural facilities were inspected and maintained during the reporting period: • Ponds (82) = 82 inspected; 82 maintained • swales/bioswales (28) = 28 inspected & maintained. • soaker trench infiltrators (3) == 3 inspected; 3 maintained • rain gardens (5) = 5 inspected; 5 maintained • roadside planters (156) = 156 inspected; 156 maintained • detention pipes (44) = 0 inspected due to CV-19 quarantine & ice storm. • water quality vaults (8) = 0 inspected due to CV-19 quarantine & ice storm • pollution control/flow control manholes (168) = 19inspected, 2 cleaned due to CV-19 quarantine & ice storm
BMP 8-4: Wh Private Structural Control Facility Cleaning and Maintenance	●	●	OCPW	• Require new private water quality facilities to submit maintenance agreements to OC. • Compile an inventory of existing private structural water quality facilities and work to collect maintenance agreements for these by July 1, 2013. • Implement an inspection strategy for private water quality facilities by July 1, 2013.	1) Track the number of maintenance agreements submitted to OC each year. 2) Track progress related to the inventory and mapping of existing private structural facilities. 3) Track the status of updating the inventory and map of private water quality facilities. 4) Track the status of developing procedures in accordance with permit requirements.	1) OC continues to require maintenance agreements for private water quality facilities. Six maintenance agreements were recorded during this reporting period. 2) Files have been reviewed for existing private structural facilities. An inventory list has been created. 3) Initial mapping is complete, refinements ongoing. 4) OC developed SOPs for public water quality facilities and private water quality facilities July 1, 2013. The SOPs outline procedures for ongoing mapping and inventory activities, as well as facility inspections. For private facilities, OC requires a maintenance agreement and submission of annual inspection records.	11) The following are details for the newly recorded private water quality facilities: - Oregon City Police Station (GLUA 19-00011) – Private Contech Detention Chambers, 7.93 acres - Holcomb Plaza Apartments (SP 15-13) – 256 feet of PRIVATE 42" HDPE Pipe, 0.58 acres - Metro Newell Creek Park SP 17-29, 28,071 PRIVATE Pervious Pavement, 7,870 SF Storm Planter, 31.43 acres - Forest Edge Apartments Rehabilitation, PR 126-2019, 1 PRIVATE Detention Pond, 12.77 acres - Milner Vet Clinic Parking Lot, PR 131-2019, PRIVATE pervious pavement, 0.22 acres

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.

Appendix A. Status of Implementing Components of Oregon City's 2012 Stormwater Management Plan (SWMP)							
BMP or activity	Addresses bacteria?	Addresses mercury?	Responsible department	Measurable goals (2012 SWMP)	Tracking measures (2012 SWMP)	Annual report information: tracking measure status, Permit year 2020– 2021	Additional detail related to activities conducted
							- Tyrone Woods Park, PR 144-2019, 1 PRIVATE raingarden and various Roadside Planters, 8.28 acres 2) The following are details for newly constructed PUBLIC improvements to be maintained by the City: - Hillock Heights Subdivision (TP 17-01) – 8 lot subdivision with a 3,669 sf PUBLIC stormwater facility, 1.93 acres - Parker Knoll Subdivision TP 17-02,11 lot Subdivision, 1 PUBLIC swale and 11 PRIVATE raingardens, 2.56 acres

Appendix B

Oregon City Monitoring Data

Outfall Monitoring - Oregon City 2020 - 2021
Location - Oregon City Shopping Center
Sample Site # OC006
Stream Name - Clackamas River
Land Use - Commercial

		Results					
		Composite Wet Weather	Composite Wet Weather	Statistics			
Analysis	Units	12/30/2020	2/18/2021	High	Low	Mean	Notes
Hardness	mg/L	20.0	32.0	**32.0**	**20.0**	**26.0**	
Total Dissolved Solids	mg/L	7.00	52.0	**52.0**	**7.00**	**29.5**	
Total Suspended Solids	mg/L	19	100	**100**	**19**	**60**	
Copper	mg/L	0.00594	0.0185	**0.0185**	**0.0059**	**0.0122**	
Lead	mg/L	0.00310	0.00809	**0.00809**	**0.00310**	**0.00560**	
Zinc	mg/L	0.0430	0.137	**0.137**	**0.043**	**0.090**	
Nitrate-Nitrite	mg/L	0.104	0.154	**0.154**	**0.104**	**0.129**	
Orthophosphate as P	mg/L	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Phosphorus	mg/L	0.06	0.24	**0.24**	**0.06**	**0.15**	
Ammonia as N	mg/L	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	12	NM	**12**	**12**	**12**	(1) (2)
E. coli - Colilert	MPN/100mL	152	548	**548**	**152**	**350**	(3) (4)
Dissolved Copper	mg/L	0.00516	0.00495	**0.00516**	**0.00495**	**0.00506**	
Dissolved Lead	mg/L	0.00254	0.000418	**0.00254**	**0.00042**	**0.00148**	
Dissolved Zinc	mg/L	0.0412	0.0444	**0.0444**	**0.0412**	**0.0428**	
Temperature - Field	°C	7.0	7.5	**7.5**	**7.0**	**7.3**	
Dissolved Oxygen - Field	mg/L	12.29	11.54	**12.29**	**11.54**	**11.92**	
Dissolved Oxygen - Field	% Saturation	101.2	95.6	**101.2**	**95.6**	**98.4**	
pH - Field	Std Units	7.23	7.19	**7.23**	**7.19**	**7.21**	
Conductivity - Field	µS/cm	18.47	162.4	**162.4**	**18.47**	**90.4**	
Storm Event Rainfall	Inches	0.41	0.30	**0.4**	**0.30**	**0.36**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Outfall Monitoring - Oregon City 2020 - 2021 Location - Clackamette Cove Sample Site # OC007 Stream Name - Clackamas River Land Use - Industrial							
		Results					
		Composite Wet Weather	Composite Wet Weather	Statistics			
Analysis	Units	12/30/2020	2/18/2021	High	Low	Mean	Notes
Hardness	mg/L	100	136	**136**	**100**	**118**	
Total Dissolved Solids	mg/L	146	189	**189**	**146**	**168**	
Total Suspended Solids	mg/L	29	32	**32**	**29**	**31**	
Copper	mg/L	0.00522	0.00705	**0.00705**	**0.00522**	**0.00614**	
Lead	mg/L	0.00210	0.00274	**0.0027**	**0.00210**	**0.00242**	
Zinc	mg/L	0.0548	0.0589	**0.0589**	**0.0548**	**0.0569**	
Nitrate-Nitrite	mg/L	ND	0.462	**0.462**	**0.05**	**0.256**	(2)
Orthophosphate as P	mg/L	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Phosphorus	mg/L	0.12	0.14	**0.14**	**0.12**	**0.13**	
Ammonia as N	mg/L	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	7.8	**7.8**	**7.8**	**7.8**	(1) (2)
E. coli - Colilert	MPN/100mL	145	110	**145**	**110**	**128**	(3)
Dissolved Copper	mg/L	0.00456	0.00326	**0.00456**	**0.00326**	**0.00391**	
Dissolved Lead	mg/L	0.00162	0.000497	**0.00162**	**0.00050**	**0.00106**	
Dissolved Zinc	mg/L	0.0530	0.0320	**0.0530**	**0.0320**	**0.0425**	
Temperature - Field	°C	6.5	6.8	**6.8**	**6.5**	**6.7**	
Dissolved Oxygen - Field	mg/L	7.35	7.84	**7.84**	**7.35**	**7.60**	
Dissolved Oxygen - Field	% Saturation	59.6	63.9	**63.9**	**59.6**	**61.8**	
pH - Field	Std Units	7.1	7.22	**7.22**	**7.10**	**7.16**	
Conductivity - Field	µS/cm	238	427	**427**	**238**	**333**	
Storm Event Rainfall	Inches	0.41	0.30	**0.4**	**0.30**	**0.36**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - 17082 Holly Ln (Holly Ln Bridge)
Sample Site # OC010
Stream Name - Abernethy Creek (Upstream)

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	80.0	52.0	44.0	52.0	**80.0**	**44.0**	**57.0**	
Total Dissolved Solids	mg/L	111	90.0	71.0	72.0	**111**	**71.0**	**86.0**	
Total Suspended Solids	mg/L	11	4	12	26	**26**	**4**	**13**	
Copper	mg/L	ND	ND	ND	ND	**0.002**	**0.001**	**0.001**	(2)
Lead	mg/L	ND	ND	0.000310	0.000309	**0.000310**	**0.0001**	**0.00020**	(2)
Zinc	mg/L	ND	ND	ND	ND	**0.002**	**0.002**	**0.002**	(2)
Nitrate-Nitrite	mg/L	0.303	0.295	1.24	0.7	**1.240**	**0.295**	**0.635**	
Orthophosphate as P	mg/L	ND	ND	0.149	0.137	**0.149**	**0.05**	**0.097**	(2)
Phosphorus	mg/L	0.11	0.10	0.05	0.14	**0.14**	**0.05**	**0.10**	
Ammonia as N	mg/L	ND	ND	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	NM	NM	NM	**NM**	**NM**	**NM**	(1) (2)
E. coli - Colilert	MPN/100mL	124	25	26	435	**435**	**25**	**153**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	ND	**0.001**	**0.001**	**0.001**	(2)
Dissolved Lead	mg/L	ND	ND	ND	0.000252	**0.000252**	**0.0001**	**0.000138**	(2)
Dissolved Zinc	mg/L	ND	ND	ND	ND	**0.002**	**0.002**	**0.002**	(2)
Temperature - Field	°C	16.8	6.7	7.3	17.4	**17.4**	**6.7**	**12.1**	
Dissolved Oxygen - Field	mg/L	8.37	11.14	11.97	8.88	**11.97**	**8.37**	**10.09**	
Dissolved Oxygen - Field	% Saturation	85.9	90.1	98.4	92.3	**98.4**	**85.9**	**91.7**	
pH - Field	Std Units	7.67	7.65	7.67	7.63	**7.67**	**7.63**	**7.66**	
Conductivity - Field	µS/cm	134.3	110.2	71.8	94.2	**134.3**	**71.8**	**102.6**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - 316 17th St at Railroad Trestle
Sample Site # OC011
Stream Name - Abernethy Creek (Downstream)

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	68.0	60.0	56.0	48.0	**68.0**	**48.0**	**58.0**	
Total Dissolved Solids	mg/L	107	105	48.0	71.0	**107**	**48.0**	**82.8**	
Total Suspended Solids	mg/L	7	4	152	15	**152**	**4**	**45**	
Copper	mg/L	ND	ND	0.00418	0.00229	**0.00418**	**0.001**	**0.00237**	(2)
Lead	mg/L	ND	ND	0.00199	0.000457	**0.00199**	**0.0001**	**0.00066**	(2)
Zinc	mg/L	ND	ND	0.0113	ND	**0.0113**	**0.002**	**0.0043**	(2)
Nitrate-Nitrite	mg/L	0.302	0.337	1.28	0.7	**1.28**	**0.302**	**0.655**	
Orthophosphate as P	mg/L	ND	ND	ND	0.147	**0.147**	**0.05**	**0.074**	(2)
Phosphorus	mg/L	0.11	0.09	0.17	0.19	**0.19**	**0.09**	**0.14**	
Ammonia as N	mg/L	ND	ND	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	8.3	NM	NM	NM	**8.3**	**8.3**	**8.3**	(1) (2)
E. coli - Colilert	MPN/100mL	219	75	32	1986	**1986**	**32**	**578**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	ND	**0.001**	**0.001**	**0.001**	(2)
Dissolved Lead	mg/L	ND	ND	0.000219	0.000270	**0.000270**	**0.0001**	**0.000172**	(2)
Dissolved Zinc	mg/L	ND	0.00454	ND	0.00550	**0.00550**	**0.002**	**0.0035**	(2)
Temperature - Field	°C	18.5	7.1	7.2	17.0	**18.5**	**7.1**	**12.5**	
Dissolved Oxygen - Field	mg/L	7.99	11.02	11.80	8.24	**11.80**	**7.99**	**9.76**	
Dissolved Oxygen - Field	% Saturation	84.9	90.0	96.8	85.0	**96.8**	**84.9**	**89.2**	
pH - Field	Std Units	7.62	7.59	7.41	7.47	**7.62**	**7.41**	**7.52**	
Conductivity - Field	µS/cm	147.8	122.9	72.5	98.8	**148**	**72.5**	**111**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.0**	**0.0**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - Behind 415 S McLoughlin Blvd
Sample Site # OC012
Stream Name - Coffee Creek

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	48.0	38.0	44.0	56.0	**56.0**	**38.0**	**46.5**	
Total Dissolved Solids	mg/L	58.0	76.0	69.0	86.0	**86.0**	**58.0**	**72.3**	
Total Suspended Solids	mg/L	2	ND	11	9	**11**	**1**	**6**	(2)
Copper	mg/L	ND	ND	ND	ND	**0.002**	**0.001**	**0.001**	(2)
Lead	mg/L	0.000245	ND	0.000235	0.000454	**0.000454**	**0.0001**	**0.00026**	(2)
Zinc	mg/L	0.00758	0.00635	0.0141	0.0105	**0.0141**	**0.0064**	**0.0096**	
Nitrate-Nitrite	mg/L	1.91	2.07	3.16	2.3	**3.16**	**1.91**	**2.36**	
Orthophosphate as P	mg/L	ND	ND	ND	0.0820	**0.0820**	**0.05**	**0.06**	(2)
Phosphorus	mg/L	ND	ND	ND	0.12	**0.12**	**0.025**	**0.05**	(2)
Ammonia as N	mg/L	ND	ND	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	NM	NM	NM	**NM**	**NM**	**NM**	(1) (2)
E. coli - Colilert	MPN/100mL	613	50	31	387	**613**	**31**	**270**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	ND	**0.001**	**0.001**	**0.001**	(2)
Dissolved Lead	mg/L	ND	ND	ND	0.000215	**0.000215**	**0.0001**	**0.000129**	(2)
Dissolved Zinc	mg/L	0.00687	0.00807	0.0139	0.0110	**0.0139**	**0.00687**	**0.0100**	
Temperature - Field	°C	15.8	10.1	9.1	14.6	**15.8**	**9.1**	**12.4**	
Dissolved Oxygen - Field	mg/L	9.63	11.10	11.62	10.01	**11.62**	**9.63**	**10.59**	
Dissolved Oxygen - Field	% Saturation	96.9	97.7	99.9	98.2	**99.9**	**96.9**	**98.2**	
pH - Field	Std Units	7.52	7.66	7.35	7.47	**7.66**	**7.35**	**7.50**	
Conductivity - Field	µS/cm	87.8	80.4	90.5	80.2	**90.5**	**80.2**	**84.7**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - Behind 13530 Redland Rd
Sample Site # OC013
Stream Name - Park Place Creek

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	144	112	140	92.0	**144**	**92**	**122**	
Total Dissolved Solids	mg/L	214	188	177	161	**214**	**161**	**185**	
Total Suspended Solids	mg/L	23	7	6	7	**23**	**6**	**11**	
Copper	mg/L	ND	ND	ND	0.00363	**0.00363**	**0.001**	**0.00191**	(2)
Lead	mg/L	ND	ND	ND	0.000531	**0.000531**	**0.0001**	**0.00021**	(2)
Zinc	mg/L	ND	0.00457	0.00846	0.0134	**0.0134**	**0.002**	**0.0071**	(2)
Nitrate-Nitrite	mg/L	0.0427	1.3922	1.8211	1.53	**1.8211**	**0.0427**	**1.1965**	
Orthophosphate as P	mg/L	ND	ND	ND	0.116	**0.116**	**0.05**	**0.067**	(2)
Phosphorus	mg/L	0.12	0.09	0.09	0.22	**0.22**	**0.09**	**0.13**	
Ammonia as N	mg/L	0.3	ND	0.9	ND	**0.9**	**0.05**	**0.3**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	7.0	9.3	NM	**9.3**	**7.0**	**8.2**	(1) (2)
E. coli - Colilert	MPN/100mL	28	32	35	579	**579**	**28**	**169**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	0.00337	**0.00337**	**0.001**	**0.00159**	(2)
Dissolved Lead	mg/L	ND	ND	ND	0.000466	**0.000466**	**0.0001**	**0.000192**	(2)
Dissolved Zinc	mg/L	ND	0.00667	0.00940	0.0148	**0.0148**	**0.002**	**0.0082**	(2)
Temperature - Field	°C	16.1	7.9	9.0	16.2	**16.2**	**7.9**	**12.3**	
Dissolved Oxygen - Field	mg/L	3.63	6.05	7.62	6.06	**7.62**	**3.63**	**5.84**	
Dissolved Oxygen - Field	% Saturation	36.6	50.4	65.4	61.4	**65.4**	**36.6**	**53.5**	
pH - Field	Std Units	7.03	6.97	6.99	7.00	**7.03**	**6.97**	**7.00**	
Conductivity - Field	µS/cm	329	256	281	184.1	**329**	**184.1**	**263**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - North end of Singer Creek Park
Sample Site # OC014
Stream Name - Singer Creek (Upstream)

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	52.0	36.0	44.0	52.0	**52.0**	**36**	**46.0**	
Total Dissolved Solids	mg/L	76.0	71.0	54.0	91.0	**91.0**	**54.0**	**73.0**	
Total Suspended Solids	mg/L	15	10	6	14	**15**	**6**	**11**	
Copper	mg/L	ND	ND	ND	ND	**0.002**	**0.001**	**0.0013**	(2)
Lead	mg/L	0.000451	0.000394	0.000295	0.000969	**0.000969**	**0.000295**	**0.00053**	
Zinc	mg/L	ND	ND	ND	0.00643	**0.00643**	**0.002**	**0.0031**	(2)
Nitrate-Nitrite	mg/L	2.19	2.12	3.21	2.6	**3.21**	**2.12**	**2.53**	
Orthophosphate as P	mg/L	ND	0.104	ND	0.0870	**0.104**	**0.05**	**0.07**	(2)
Phosphorus	mg/L	ND	ND	ND	0.15	**0.15**	**0.025**	**0.06**	(2)
Ammonia as N	mg/L	ND	ND	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	NM	NM	9.0	**9.0**	**9.0**	**9.0**	(1) (2)
E. coli - Colilert	MPN/100mL	1120	17	5	980	**1120**	**5**	**531**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	ND	**0.001**	**0.001**	**0.001**	(2)
Dissolved Lead	mg/L	ND	0.000229	0.000509	0.000380	**0.000509**	**0.0001**	**0.000305**	(2)
Dissolved Zinc	mg/L	ND	ND	0.00432	ND	**0.00432**	**0.002**	**0.00258**	(2)
Temperature - Field	°C	14.3	8.8	9.0	13.4	**14.3**	**8.8**	**11.4**	
Dissolved Oxygen - Field	mg/L	9.86	11.18	11.43	10.06	**11.43**	**9.86**	**10.63**	
Dissolved Oxygen - Field	% Saturation	96.8	96.4	99.0	97.1	**99.0**	**96.4**	**97.3**	
pH - Field	Std Units	7.64	7.73	7.46	7.35	**7.73**	**7.35**	**7.55**	
Conductivity - Field	µS/cm	91.9	81.3	84.6	73.1	**91.9**	**73.1**	**82.7**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

(2) An "ND" designation is understood to be "less than the lower reporting limit " and treated as 1/2 the reporting limit for calculations. N/A is Not Applicable. NM is Not Measured.

(3) MPN = Most Probable Number

(4) Shading indicates samples that exceed the E. coli standard of 406 MPN/100mL. A TMDL Implementation Plan (8/20) and associated SWMP strategies are implemented by the City to address bacteria.

(5) Rainfall totals from the start of the event through sample collection.

Instream Monitoring - Oregon City 2020 - 2021
Location - 502 7th St (Manhole # 37138)
Sample Site # OC015
Stream Name - Singer Creek (Downstream)

		Results							
		Grab Sample Dry Weather	Grab Sample Wet Weather	Grab Sample Wet Weather	Grab Sample Dry Weather	Statistics			
Analysis	Units	8/10/2020	11/2/2020	2/8/2021	6/14/2021	High	Low	Mean	Notes
Hardness	mg/L	40.0	44.0	48.0	48.0	**48.0**	**40**	**45.0**	
Total Dissolved Solids	mg/L	91.0	72.0	64.0	65.0	**91**	**64.0**	**73**	
Total Suspended Solids	mg/L	10	8	40	15	**40**	**8**	**18**	
Copper	mg/L	ND	ND	0.00220	0.00333	**0.00333**	**0.001**	**0.00213**	(2)
Lead	mg/L	0.00122	0.000994	0.00245	0.00217	**0.00245**	**0.00099**	**0.00171**	
Zinc	mg/L	0.0135	0.00866	0.0135	0.0162	**0.0162**	**0.0087**	**0.0130**	
Nitrate-Nitrite	mg/L	2.21	1.50	2.65	1.81	**2.65**	**1.500**	**2.04**	
Orthophosphate as P	mg/L	ND	ND	0.174	0.133	**0.174**	**0.05**	**0.10**	(2)
Phosphorus	mg/L	0.06	0.13	0.06	0.17	**0.17**	**0.06**	**0.11**	
Ammonia as N	mg/L	ND	ND	ND	ND	**0.05**	**0.05**	**0.05**	(2)
Dissolved Oxygen - Winkler	mg/L	NM	NM	NM	NM	**NM**	**NM**	**NM**	(1) (2)
E. coli - Colilert	MPN/100mL	488	54	47	921	**921**	**47**	**378**	(3) (4)
Dissolved Copper	mg/L	ND	ND	ND	0.00388	**0.00388**	**0.001**	**0.00172**	(2)
Dissolved Lead	mg/L	0.00026	0.000448	0.000395	0.000852	**0.000852**	**0.000260**	**0.000489**	
Dissolved Zinc	mg/L	ND	0.00628	0.00775	0.0130	**0.0130**	**0.002**	**0.00726**	(2)
Temperature - Field	°C	16.4	10.2	8.6	14.3	**16.4**	**8.6**	**12.4**	
Dissolved Oxygen - Field	mg/L	9.52	11.02	11.68	10.09	**11.68**	**9.52**	**10.58**	
Dissolved Oxygen - Field	% Saturation	97.4	97.6	99.6	98.6	**99.6**	**97.4**	**98.3**	
pH - Field	Std Units	7.71	7.72	7.42	7.43	**7.72**	**7.42**	**7.57**	
Conductivity - Field	µS/cm	100.7	91.5	93.5	76.6	**100.7**	**76.6**	**90.6**	
Storm Event Rainfall	Inches	0.00	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	(5)

Notes:

(1) Dissolved Oxygen (Winker Method) samples are taken once per sampling event as QA/QC for electronic meter.

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(5) Rainfall totals from the start of the event through sample collection.

Appendix C

Public Education and Outreach Information

Public Education and Awareness Activities
July 1, 2020 – June 30, 2021

Summary of Activities

Date	Event	Location	Contact Total	Program/Subject
Summer 2020	Trail News – Summer	Oregon City Public Buildings and City website	All OC residents and general public	Develop a water smart landscape – ways to minimize erosion into local streams
8/19/2020	City Commission Meeting	Oregon City – City Hall	Facebook and Instagram	Presented student with Honorable Mention award for "River Starts Here" student video contest
Fall 2020	Trail News – Autumn	Oregon City Public Buildings and City website	All OC residents and general public	Trying to Beat the Heat! – article on stream shade partnership with GOCWC Leaf Season is Here! Encouraging citizens not to blow leaves on the street Code Enforcement – Fall Leaves, tips on leaf management
9/28/2020	Posting TMDL IP	Oregon City website	All OC residents and general public	Added updated TMDL IP to webpage
10/5/2020 to 10/19/2020	Stormwater Banner Display at City Hall	625 Center St Oregon City OR	Visitors & staff at City Hall	Display featuring Oregon City's major streams; tips to improve water quality
1/11/2021	IDDE Pressure Washing ACWA tool kit	18882 Atlanta Dr.	Single resident	IDDE – sent information to customer who started pressure washing company
March 2021	Message on utility bill	Oregon City water customers	Oregon City water customers	Be chemical free! Safer lawn and garden
Winter 2020-2021	Trail News – Winter	Oregon City Public Buildings and City website	All OC residents and general public	Spills and Leaks/Spills Happen Best practices for cleaning up spills and leaks Homeowner tips for Winter-De Icing To Sand or Not to Sand – OC's BMPs for icy roads
Spring 2021	Trail News – Spring	Oregon City Public Buildings and City website	All OC residents and general public	Attention Humans- pick up after your animals
4/27/2021	Annual Water Quality Report	N/A	15,352**, available on city website	Water Quality Information
2020-2021	KPTV Public Service Announcements	N/A	Metro area	Television & web information about water quality
2020-2021	Stormwater Design Brochure	City Hall and Building Department and website	Visitors & Staff of buildings and website	Design guidance for developers in City of Oregon City
2020-2021	Regional Coalition for Clean Rivers & Streams	N/A	Metro area	Pollution prevention messages via website and social media

2020-2021	Clackamas River Water Providers	N/A	Residents with the Clackamas River as drinking water source	Various programs to promote source water protection, water conservation, and water quality awareness

**A postcard was mailed to each Oregon City address announcing the on-line availability of the annual water quality report. Those with limited internet access were encouraged to request a printed copy of the report.

Specific Activity Information

Trail News Articles

Summer 2020

Develop a Water Smart Landscape

- Minimize steep slopes that could cause erosion
- Choose native plants and minimize the need for additional nutrients that could wash into waterways
- Choose landscapes that help cycle nutrients and pollutants

Fall 2020

Trying to Beat the Heat

- Highlights stream shade improvements the Greater Oregon City Watershed Council is doing on Abernethy Creek
- Weed and invasive removal and plantings funded by City of Oregon City
- Please call if interested in improving stream shade opportunity on your property

Leaf Season is Here!

- Highlights the city's efforts to remove leaves from local streets by street sweeping
- Discourages homeowners from blowing or raking leaves into the street
- If ponding occurs on your street, clear the catch basins

Code Enforcement- Fall Leaves

- Article discouraging property owners from blowing or raking leaves into streets or catch basins
- Keep catch basins cleared

Winter 2020-2021

Homeowner Tips for Winter Weather: De-Icing

- Be sure to read labels of products and try to purchase eco-friendly products
- Follow application rates, don't over apply
- Sweep up sand and gravel after snow melts

To Sand or Not to Sand – That is the Question…

- Explanation of OCPWs winter road preventative measures
- Discussion of when to use sand vs. Magnesium Chloride
- Magnesium Chloride doesn't require sweeping like sand does

Spills and Leaks/Spills Happen

- Informational flyer produced by ACWA

- Prevention is Key
- List of possible contaminants
- How to clean up a spill

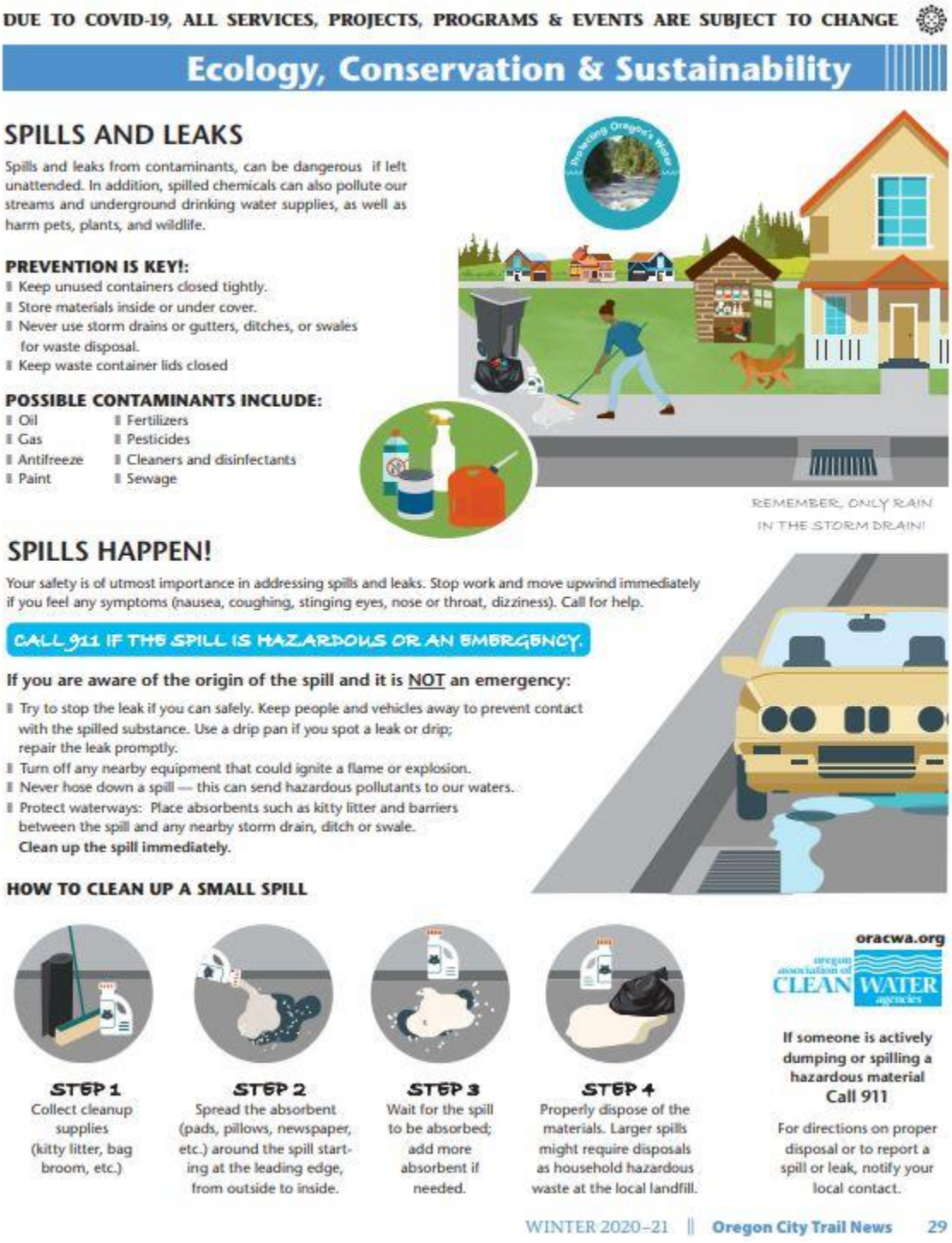


Figure 1: Graphic Included with Summer 2020-2021 Trail News Article About Spills and Leaks

<u>Spring 2021</u>

Attention Humans, Attention Animals

- Please clean up after your pets add

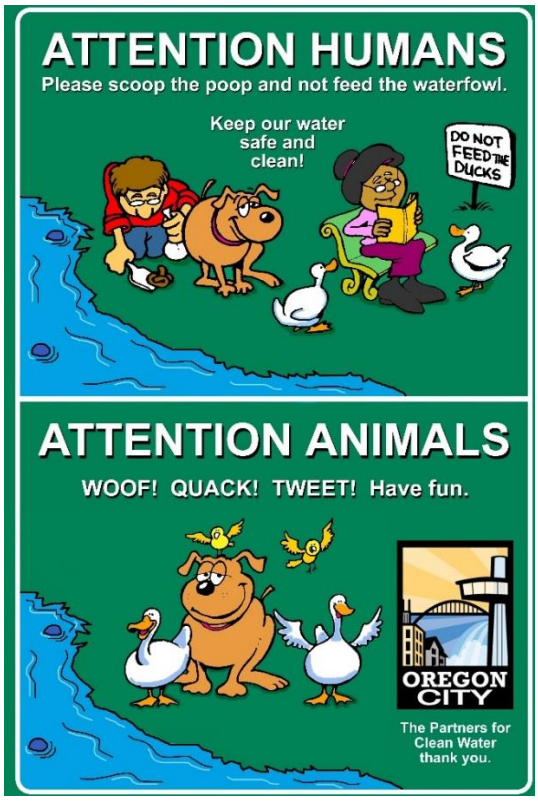


Figure 2: Graphic Included with Summer 2020-2021 Trail News Article About Reducing Bacteria Levels

Miscellaneous Items

Carpet Cleaning Informational Hand Out to Customer

Message on March 2021 Utility Bill

Want a safer lawn and garden for your children and pets? Be chemical-free! Oregon City's rivers and streams will benefit too. Go to www.cleanriversandstreams.org, https://theriverstartshere.org/ or www.oregonmetro.gov for great suggestions.

Annual Water Quality Report – 4/27/2021

The 2020 report included the following topics specific to stormwater:

- Clackamas River – Our Drinking Water Source
- Protecting our drinking water source
- Monitoring For Contaminants
- Stormwater Management
- 2020 System Improvements Projects
- Pollution prevention suggestions:
    - Lawn and garden care
    - Vehicle care
    - Roof treatments
    - Pressure washing
    - Pet waste
- Photos/graphics with accompanying captions:
    - Riparian Health- does a stream flow through your property

Beginning on April 27, 2021, a total of 15,352 postcards were mailed to Oregon City residents announcing the on-line availability of the annual water quality report. Those with limited internet access were encouraged to request a printed copy of the report.

Figure 3: Photo on 2021 Annual Water Quality Report Postcard

Stormwater Banner Display at City Hall – 10/5/2021 to 10/18/2021

Visitors to City Hall, as well as city staff, could view our stormwater banner display featuring Oregon City's largest basins and streams. Included are the following suggestions to prevent stormwater runoff pollution and to improve water quality:

- Never dump anything down storm drains or into streams
- Sweep driveways and patios clean instead of hosing them down
- Repair your vehicles if they are leaking oil, antifreeze, or other fluids
- Take your car to a car wash, or wash it on the lawn instead of the driveway
- Minimize your use of fertilizers and pesticides; consider going organic
- Plant native trees and shrubs; if you have a stream flowing through your property streamside plantings will help reduce the temperature of the water
- Pick up after your pet

The banner includes contact information for the Greater Oregon City Watershed Council and how to obtain additional information about Oregon City's Stormwater Management Plan.

The Oregon City Website – ongoing throughout the year

A wide variety of information pertaining to stormwater, water quality, and Oregon City's NPDES MS4 permit is available to the public at www.orcity.org.

Collaboration with Other Agencies

Clackamas River Water Providers – ongoing throughout the year

Oregon City, through its association with South Fork Water Board, partners with other agencies that use the Clackamas River for potable water, to promote source water protection and water conservation. Programs include water quality monitoring and a pesticide outreach program. For specific information, and to read their annual report, visit the CRWP website at www.clackamasproviders.org.

"Clean Water, It's Our Future" Campaign on KPTV Chanel 12 on Television and Website (https://www.kptv.com/water/)

Oregon City continues to partner with other agencies in the Portland metro area in sponsoring public education messaging via KPTV media outlets. The campaign identifies simple things that can be done to keep our rivers and streams healthy. The following topics were highlighted on their website, social media, and television during the 2020-2021 campaign:

- Reducing stress while gardening
- Car maintenance
- Water friendly weed control
- Clean gutters and storm drains
- Fall lawn tips
- Clean driveways

Clean Water – It's Our Future

Clean Water Partners – Partnership Review

Commercial Production & PSA Topic Campaign- Recap

July 2020 – September 2020
- Car Washing (:15 and :30)
- Lawn Chemicals (:15 and :30)

October 2020 – November 2020
- Rainy Day (:15 and :30)
- Fall Lawn Tips (:15 and :30)

December 2020 – May 2021
- Rain Ready (:15 and :30)
- Sweep, Don't Wash (:15 and :30)

June 2021
- Water Conservation (:15 and :30)
- Car Washing (:15 and :30)

FOX 12 OREGON FOX 12 PLUS

Recap – Year to Date - TV

Television Campaign Recap: July 2020 – June 2021

FOX 12-
- Good Day Oregon (5a-9a)
- Evening News (4p-7p)
- PSA Rotators (5a-1135p)

FOX 12 Plus-
- Prime News (8p-9p)
- Prime News/Late News (8p-10p)
- PSA Rotators (5a-11:35p)

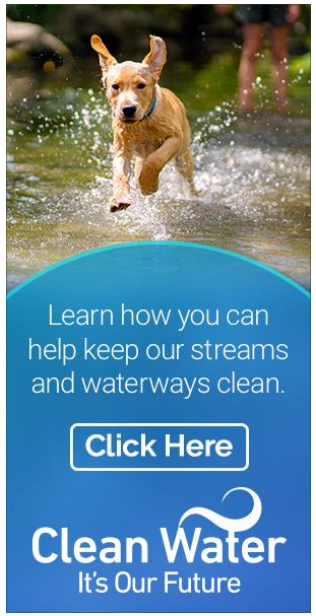
How many commercials ran?
- 857x Commercials ran
  - 341x 30-second spots
  - 516x 15-second spots

# of Added Value Commercials
- 381x $0 spots ran

Television Impressions - 16,663,300 Adults 35+
Television Reach – 98.8% Adults 35+
Frequency – 10x

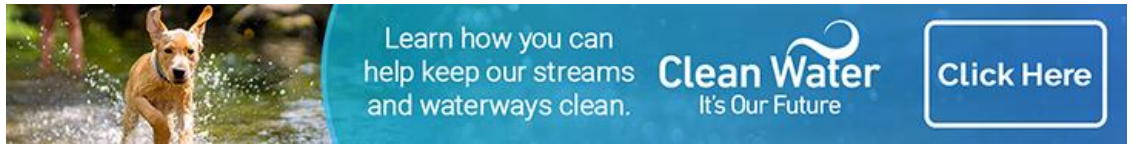
Recap – Year to Date – KPTV.com

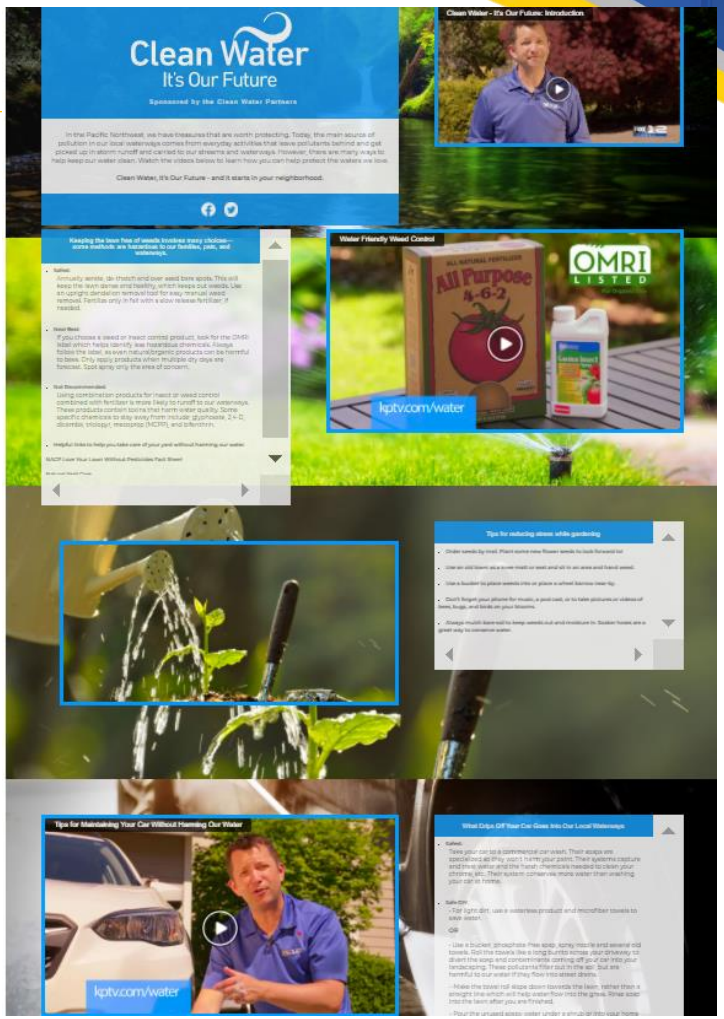
KPTV.com Campaign Recap: July 2020 – June 2021



These Banner ads click directly to KPTV.com/Water.

They run across all of KPTV.com, including Homepage, Weather, News. Etc.





KPTV.com Ad Impressions - 2,400,482
Ad Clicks – 3,165
CTR – .132%

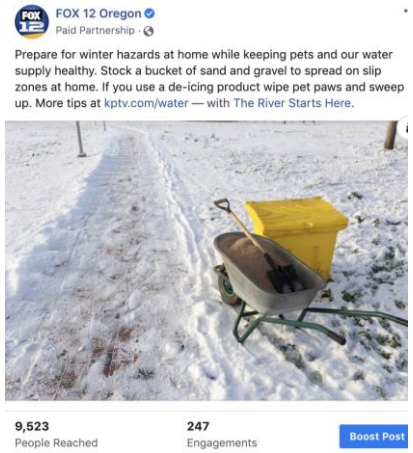
KPTV.com/Water page views- 3,945

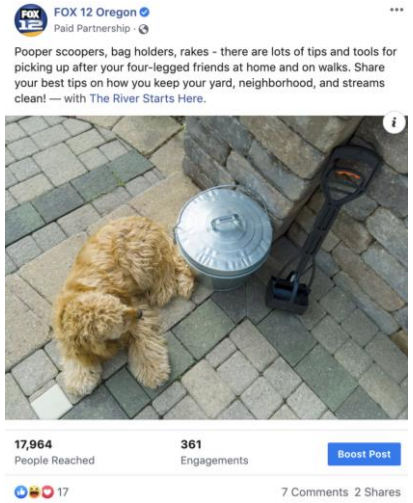
FOX 12 OREGON

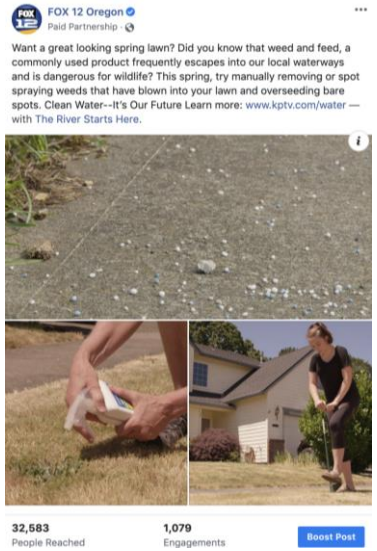
FOX 12 PLUS

Recap – Year to Date - Facebook

FOX 12 Facebook Campaign Recap: July 2020 – June 2021

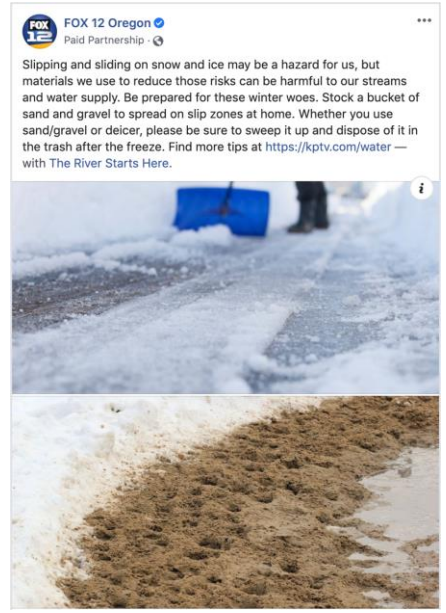






Recap – Year to Date - Facebook

FOX 12 Facebook Campaign Recap: July 2020 – June 2021



Facebook Impressions – 159,144
Clicks – 2,984
Video Views – 8,252

Recap – Year to Date – MORE GDO

FOX 12 MORE Good Day Oregon Segment & Facebook Posts – Aired May, 17th, 2021

Facebook Impressions – 15,507
Clicks – 395
Video Views – 5,892

Recap – Year to Date - Overall

Overall Campaign Performance Metrics: July 2020 – June 2021

Total Campaign Impressions – 19,258,326

*Total Impressions include all campaign elements.

	PROMISED	DELIVERED
Avg Monthly TV Impressions	**1,215,300**	**1,388,608**
Avg # of TV spots per month	**47**	**71x**
Avg Monthly Impressions on KPTV.com	**200,000**	**200,040**

Campaign In-Kind Value:

KPTV/ KPDX In-Kind PSA TV Spot placement value – **$28,173**
KPTV.com/Water Page Value - **$12,000**
FOX 12 Facebook Posts Value – **$12,000**
Digital Production Value – **$2,500**
MORE Good Day Oregon Segment production & airing **- $4,000**
Video Production Value – *($4000 per spot – no new production this last year*)
Use of FOX 12 Weather Talent - ***Priceless***

Total Campaign Investment: $63,000
Campaign Value: $121,673+

Questions

Current Campaign PSA Topic Discussion

Regional Coalition for Clean Rivers and Streams

Oregon City is one of the Clean River Partners of Clackamas County. As such, the city continues to support the effort, along with other agencies in the Portland metro area, to educate the public about the impact of stormwater runoff pollution on the health of our rivers and streams. For specific information about the current campaign – The River Starts Here – visit the Coalition website at http://theriverstartshere.org/.

Regional Coalition for Clean Rivers and Streams

Fiscal Year 2020-2021 Annual Report

September 20, 2021

Prepared by:

enviroissues

THE RIVER STARTS HERE

FY 2020-21 Overview

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work – initiated in the mid-1990s – of providing coordinated messaging about behaviors linked to stormwater pollution from residential sources across the Portland metropolitan region in Washington, Multnomah and Clackamas counties. According to 2020 Census data, Washington County has a population of 600,372. Multnomah County has a population of 815, 428 and the Clackamas County population is 421,401. The Coalition continues its brand recognition efforts by consistently using the previously developed *The River Starts Here* creative concept in its various materials. Other Coalition activities in the 2020-21 fiscal year included sponsoring and promoting the Coalition and its messages at community events.

Coalition participants include:

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

This report covers July 1, 2020 - June 30, 2021.

Background

As identified in the 2013 Strategic Plan, the Coalition continues its mission of collaborating across the Portland metropolitan region to improve watershed health by changing household behaviors, reducing polluted runoff and connecting people with their local waterways. Coalition members leverage their collective resources to conduct outreach to communities across the region with common stormwater information and messages. Coalition activities complement individual agency efforts to raise awareness of stormwater runoff and affect behavior change to prevent pollution and protect regional surface water quality. Coalition activities support commitments relative to state permits under the federal Clean Water Act (administered by the Oregon Department of Environmental Quality), including Total Maximum Daily Load and National Pollution Discharge Elimination System Municipal Separate Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition represent agencies that serve diverse population sizes from very small (Troutdale) to very large (Clean Water Services). As such the ability to run programs specific to their community is limited by funding and staffing. The Coalition represents an efficient, effective method to

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

The Coalition focuses on changing behaviors from residential sources linked to stormwater pollution prevention. Information and messages used by the Coalition are intended to reach those making purchasing and management decisions about yard care, pets and auto maintenance activities – some of the most likely sources of stormwater pollution from residents. Coalition activities address a range of surface water contaminants, including nutrients and toxics from fast-releasing synthetic fertilizers and pesticides applied to yards and lawns, pollutant loads from car washing soaps, metals and other toxics from vehicle maintenance (and unmaintained vehicles), *E. coli* from pet waste, turbidity from eroded soils and other contaminants from illicit discharges.

Key Messages

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

- Stormwater runoff is now our number one source of water pollution. When it rains, pollutants from your home, car, and garden wash into our rivers and streams.
- Bacteria from uncollected dog waste washes into our rivers and streams. You can protect our water by picking up after your pets.
- Yard and garden products wash into our rivers and streams. You can protect our water by eliminating these products or using compost and slow-release fertilizer.
- Motor oil, solvents, and soaps wash into our rivers and streams. You can protect our water by keeping car-care chemicals out of storm drains, diverting wash water onto your landscaping, and going to a car wash.

FY 2020-21 Activities and Results

Activities during the reporting period focused on continuing to implement the Coalition's strategic plan with messaging and outreach using *The River Starts Here* creative concept, developed in FY 2014-15. This concept was informed by the research summary about stormwater behavior (DHM Research, Feb. 2014) used by Coalition members in partial fulfillment of the FY 2014-2015 MS4 permit requirement to evaluate the effectiveness of permittee's education and outreach program.

Strategic Plan Implementation

A strategic plan, adopted in 2013, continued to guide Coalition efforts during the fiscal year. The Coalition acted on strategic plan goals as summarized below:

Goal 1: Maintain a functioning Coalition

Each year, Coalition members prepare an updated cost-sharing approach and budget, which was implemented in 2020-21. Members of the Coalition share their knowledge with the broader regulated communities in Oregon via the Association of Clean Water Agencies (ACWA). Members have presented

on prioritizing public behaviors to maximize pollutant reduction success and on a water pollutant risk assessment database at the past two spring ACWA conferences.

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

The Coalition continued to use collateral materials developed with *The River Starts Here* creative concept through social media outreach and digital advertising, including messaging and news for the 2020 and 2021 Student Video Contests. Partners continued to message on individual social media channels as well as the Regional Coalition for Clean Rivers and Streams.

Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for a future collaboration among agencies. Total member representation in the Coalition has increased in the past few years, bringing in more regional partners. During the 2020-2021 fiscal year, the Coalition relied more on ongoing social media outreach as most in-person outreach opportunities were cancelled or delayed due to the COVID-19 pandemic.

In spring 2020, the Coalition discussed the importance of acknowledging the intersectionality of the environmental and social justice movements. Independently, partner agencies had been in various stages of educating staff on the topics of diversity, equity and inclusion. Partners committed together to think about practices that could be implemented that would result in more inclusivity for historically marginalized and underserved populations. The partners agreed to broaden the content of their messages to include environmentally related social justice information, as well as to utilize its platform to amplify the voices of the Black, Indigenous, and People of Color (BIPOC) communities. Further, this resulted in the partners adding a specific category to the Student Video contest that recognized BIPOC filmmakers and ensure their voices are represented and heard.

Figure 1: Screenshot from Facebook post promoting donations for the Water for Warm Springs Fund.

THE RIVER STARTS HERE MESSAGING AND OUTREACH

COMMUNITY EVENTS AND AGENCY COLLABORATION

Representatives of member agencies promoted Coalition messages throughout the fiscal year using Facebook, Instagram, YouTube and Twitter. The Coalition continued to adapt to in-person event restrictions caused by COVID-19 by increasing social media posts and digital events. The primary focus of digital outreach was for the first and second annual Student Video Contests.

Student Video Contest

Students were honored at the fall 2020 Ecofilm Festival held at the Hollywood Theatre in Portland via a RSH sponsorship of the festival. The Ecofilm festival director launched a special day-of programming that focused solely on films made by young artists.

The contest videos were featured as part of the day's programming and the River Starts Here Partners created a segment interviewing the students about how they made their videos, got story ideas, etc., for the audience to virtually "meet and greet" the students after the show. As part of the sponsorship, the RSH social media links were included in the film festival e-newsletters that went out to 73,000 subscribers. The contest winners were also highlighted in social media posts from KPTV FOX 12 Oregon that reached 26,000 people.

2020 Student Video Contest Winners:

- **25-second Video Award:** Water Pollution From Cars by Ava Behunin, Art and Communication Magnet Academy, Beaverton
- **55-second Video Award:** Everyday Water Pollution Prevention by Liza Wadell and Serena Rothman, Lake Oswego High School, Lake Oswego
- **People's Choice Award:** Hazardous Materials and Recycling by Ekansh Gupta, ACCESS Academy, Portland

Figure 2: Screenshot from 2020 Student Video Contest winner in the 55-second video category

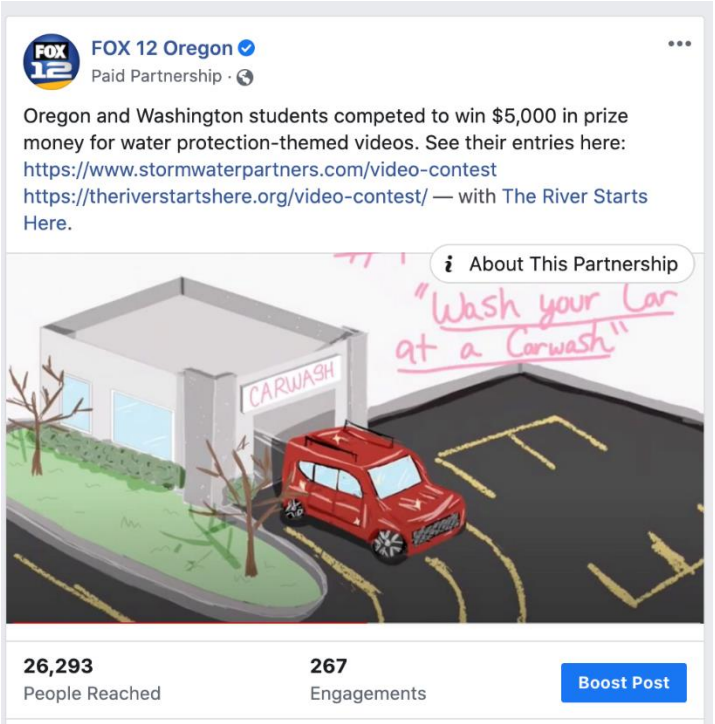


Figure 3: Screenshot of social media post by KPTV Fox 12 Oregon that reached 26,000 people.

Honorable Mentions:

- Stormwater Pollution Stop-motion by Charlie Johnson, Alliance Charter School, Oregon City
- Fishy by Jaden Winn, Wilson High School, Portland
- Walking with Trash by Charlie Abrams, Cleveland High School, Portland

Figure 4: Screenshot of 2020 Portland Ecofilm Festival Twitter posts

The second annual Student Video Contest was launched in Spring of 2021 with a deadline for video submission of June 6, 2021. 2021 Student Video Contest categories included people's choice, best BIPOC filmmaker, best community storytelling video and best clean water action in the following topics: Leave no Trace, Climate Change, Rivers are Also Drinking Water and Active Transportation. The team created factsheets to support student learning and video content accuracy on each topic.

The community storytelling topic area was new for 2021. The category was intended to highlight the work of community organizations – including watershed councils, Environmental Justice organizations, and environmental organizations – working for clean rivers and streams. Also new for 2021 was the best BIPOC filmmaker category. This prize category is intended to recognize the crucial perspectives and contributions of our Black, Indigenous, and People of Color (BIPOC) students in creating a more equitable and sustainable future. The Coalition also worked in fall and winter of 2020 to broaden the student video contest to include the Vancouver-Clark County area by sharing the model and materials with the SW Washington Stormwater Partners.

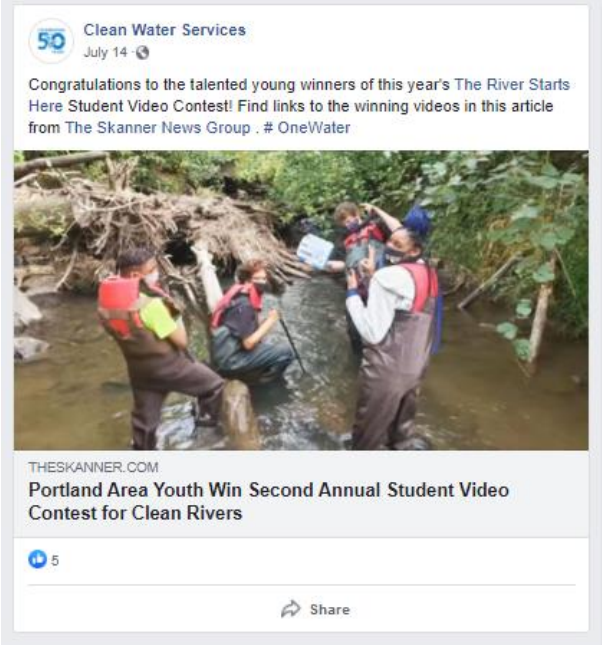


Figure 5: Screenshot of Clean Water Services Facebook post congratulating 2021 Student Video Contest winners

Changes to online learning in 2021 presented a challenge for spreading the word of the video contest. Overall, the Coalition received five entries in 2021, all entries were uploaded to the Coalition's YouTube site. Coalition partners such as Clean Water Services shared on their individual social media accounts and The Skanner picked up the press release announcing the winners. Over 1,754 community members watched student videos, which were viewed over 1,553 times. Viewers submitted over 254 likes and added hundreds of comments. Commenters shared their enthusiasm for these creative videos, and winners were announced in July 2021.

"Excellent video and program! Hoping this video inspires others across the globe as it has me; to help save our planet." – Anya Berube

"What a nice way to remind us of a way to easily make a difference. Good job!" – Anne MacDonald

2021 winners of the Student Video Contest will be reported in the 2021-2022 annual report.

WEBSITE: THERIVERSTARTSHERE.ORG

TheRiverStartsHere.org launched in June 2015 featuring *The River Starts Here* creative assets. It features

an image slider highlighting Coalition messages and includes links to member websites and additional web resources.

Summary website analytics for the fiscal year are shown below. Statistics in parenthesis are the difference between last year's and this year's data. Positive changes are shown in green, negative changes are shown in red, and inconsequential changes are shown in lavender. New data points are presented in black.

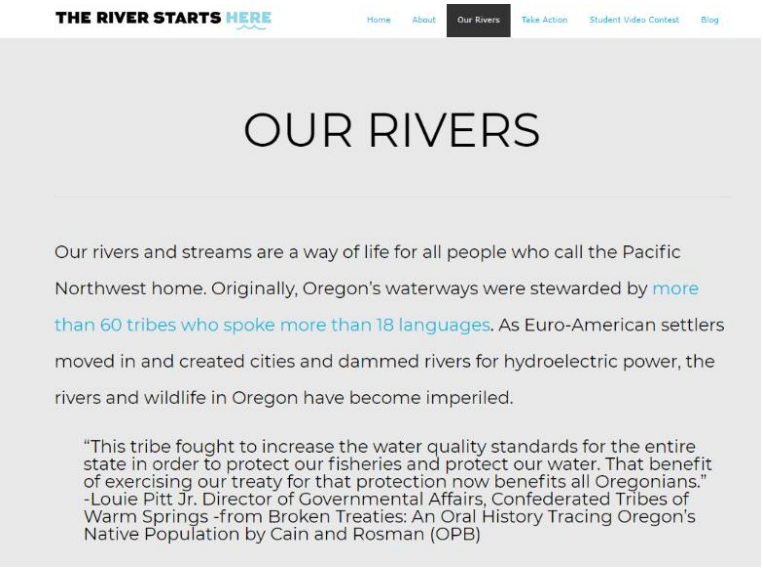


Figure 6: Screenshot from The River Starts Here website

Total sessions: 7,856 (▲214 %)

- **Users:** 5,855 (▲244%)
- **Traffic type**
  - Direct: 41% (▼21%)
  - Social: 20% (▼39%)
  - Organic (search engine): 25% (▲78%)
  - Referral: 13% (▲1200%)
- **Bounce rate:** 57% (▼25%)
- **Time on site:** 1:42 (▲2%)

During this fiscal year, web traffic has increased rapidly. In particular, total sessions and the number of users both increased by over 200%. This change is due in part to the hosting Student Video Contest content on the website.

The River Starts Here Blog

In May 2020, the Coalition began refreshing the website and added a blog. The blog created new opportunities for agency collaboration, event cross-promotion and driving traffic to partner resources.

During the fiscal year blog posts announced the winners of the 2020 Student Video contest and provided information on potential 2021 video topics. Blog posts also covered how to remove roof moss without harming rivers and streams, and announced the 2019-2020 annual report.

SOCIAL MEDIA

The Coalition continued posting to its social media channels with an increase in frequency compared to previous years. As in past years, the Coalition concentrated social media activity in spring and summer when residents have an increased interest in yard and garden activities relevant to surface water quality. Social media messages build on existing conversations and connect with organizations around the region. While spring and summer are also times for promoting events, this year presented a different challenge with the COVID-19 pandemic which resulted in no public events. The Coalition focused on promoting educational webinars and online events as opposed to in person events such as restorations and river cleanups. The Partners also collaborated with all regional watershed councils on how to encourage people to get outside and stay healthy, sane, and away from crowds using nature to find respite and joy. This group of watershed councils decided to create a Facebook group called "Together for Watersheds" where partners would take turns creating content, especially videos, to begin teaching the public about a variety of nature arts and crafts, scavenger hunt hikes with kids, creating a wildlife friendly outdoor space, identifying, and removing aggressive weeds and much more. The Coalition amplified these messages and also included some on the YouTube page.

Statistics in parenthesis are the difference between last year's and this year's data. Positive changes are shown in green, negative changes are shown in red, and inconsequential changes are shown in lavender.

Facebook page, The River Starts Here

A summary of Coalition Facebook account use during the fiscal and as of July 1, 2021, is as follows:

- **Followers ("likes"):** 1,676 (▲2)
- **Weekly organic reach:** 140 (▼153)
- **Posts:** 123 (▲34)

Facebook follower demographics breakdown:

Age	Female	Male	Total by Age
18-24	1%	1%	2%
25-34	10%	6%	16%
35-44	19%	8%	27%
45-54	17%	9%	26%
55-64	10%	4%	14%
65+	9%	4%	13%

Total by Gender	66%	32%	-

Table 1: Facebook followers by age range and gender. A large portion of the Coalition's Facebook audience is made up of women from age 35-54.

The Coalition's social media following is dominated by women. In particular, the Coalition Facebook mostly reaches women who are 35-54. The Coalition's Facebook following has also increased its reach to older people while reaching fewer young people.

Facebook ads, The River Starts Here

The Coalition continued to use low-cost social media advertising as part of its campaign in FY 2020-21. Continuing to focus on defined target audiences for messages (male v. female, age level for behavior, etc.) as well as targeting by ZIP code is a primary strategy. Most advertising was on Facebook.

A summary of Facebook ad engagement during the fiscal year is as follows:

- **Advertisements and boosted posts:** 10
- **Reach:** 141,189
- **Post engagements**: 2,477

Ads or Boosts during FY 20-21

Topic	Engagement	Reach
EPA Columbia River Basin Restoration Program	389	14,044
Gresham Tree Team	238	10,088
Website Visitors	N/A	14,376
Student Video Contest	501	2,938
Student Video Contest	308	3,739
Student Video Contest	0	63,013
Student Video Contest	287	1,882
The Chuush Fund: Water for Warm Springs	277	3,886
Backyard Habitat Certification Program	38	17,376
Car Washing Tips	439	9,847

Engagement is an interaction such as a like, comment, or click thru. **Reach** is the number of individuals who saw or interacted with the post.

*Some ads also ran on Instagram.

Twitter, @riverstartshere

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

- **Followers:** 1,441 (▲3)
- **Tweets:** 61 (▲8)

Instagram, @theriverstartshere

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

- **Followers:** 364 (▲200)
- **Posts:** 31 (▲5)

Instagram follower demographics breakdown:

Age	Female	Male	Total by Age
13-17	0%	3%	3%
18-24	7%	6%	13%
25-34	30%	25%	55%
35-44	32%	31%	63%
45-54	24%	19%	43%
55-64	5%	5%	10%
65+	3%	12%	15%
Total by Gender	61%	40%	-

The Coalition's move in 2020-2021 to consolidate Instagram handles and grow its audience has had noticeable effects on the diversity of people reached. The Instagram audience is dominated by people ages 35-44. The Coalition can continue to build a following from youth by promoting YouTube and Instagram content while reaching older people through Facebook.

YouTube, The River Starts Here

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

- **Subscribers:** 168 (▲159)
- **Videos added:** 42 (▲37)
- **Watch time (hours):** 132 (▲124)
- **Views:** 16.8K (▲+15K)

In 2019, the River Starts Here created a YouTube account for the Student Video Contest. The 2020-2021 annual report captures the large increase in viewers from the Student Video Contests.

Figure 7: Screenshot of YouTube video from The River Starts Here channel

FY 2020-21 EXPENDITURES

Category	Services	Investment
2020 Student Video Contest		
Participant awards		$1,650
Hollywood Theater	Honored Student Videos placement in the Portland EcoFilm Festival	$500
Hollywood Theater	Discounted tickets (15) for the EcoKids Film Showcase Show for student film-makers	$135
Advertisements		
Facebook	Facebook digital advertisements	$3,189.20
Coordination support		
EnviroIssues	Meeting support and member coordination, website maintenance, social media authoring	$18,000
	TOTAL	**$23,474.20**

OBSERVATIONS

The following observations are based on the results of FY 2020-21 activities and suggest future direction the Coalition may take in its mission of educating the public about the impact of stormwater runoff pollution on the health of our rivers and streams.

The FY 2020-21 efforts consisted of the Coalition continuing to use digital advertising, contracting with EnviroIssues to assist with continued social media posts, meeting coordination and data analytics, and maintaining a YouTube page and blog.

While the Coalition's online audience and its engagement continued to grow during the fiscal year due to the strategic investments into those types of content, the Student Video Contest outreach through schools continued to be challenging. The community capacity of schools, teachers and students to become involved during the ongoing COVID-19 pandemic, with disruption and uncertainty for our education system, was severely impacted.

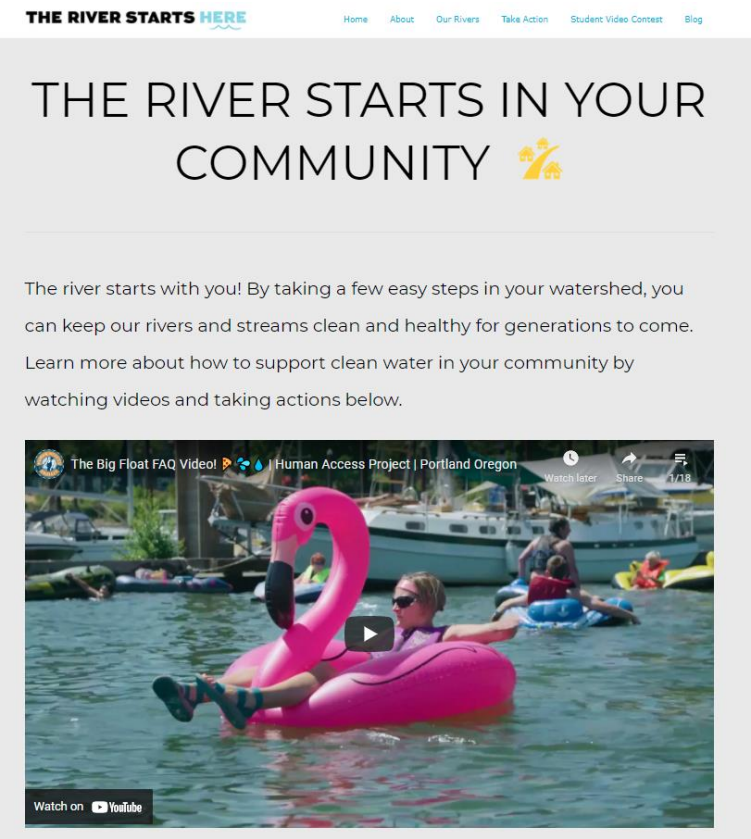


Figure 8: Screenshot from the River Starts Here website

As the 2021-22 school year begins with students in Oregon largely back in classrooms, the Coalition will again attempt an outreach strategy through school mailers, social media ads and through other community-based organizations, especially those serving marginalized populations and BIPOC youth, in an effort to achieve more diversity, equity and inclusion.

The Coalition plans to consult with new staff at Clean Water Services and Oak Lodge Sanitary District who have more specialized social media backgrounds for ideas on social media innovations in posting or purchased ads. The Coalition will also edit the student videos with applicable calls to action and branding and begin running them as advertising with a strategy to build culture and followers across the platforms.

Public Education and Awareness Activities
July 1, 2020 – June 30, 2021

Table 5: Summary of Activities

***A postcard was mailed to each Oregon City utility customer announcing the on-line availability of the annual water quality report. Those with limited internet access were encouraged to request a printed copy of the report.*

Specific Activity Information

Trail News Articles

Summer 2020

Develop a Water Smart Landscape
- Minimize steep slopes that could cause erosion
- Choose native plants and minimize the need for additional nutrients that could wash into waterways
- Choose landscapes that help cycle nutrients and pollutants

Fall 2020

Trying to Beat the Heat
- Highlights stream shade improvements the Greater Oregon City Watershed Council is doing on Abernethy Creek
- Weed and invasive removal and plantings funded by City of Oregon City
- Please call if interested in improving stream shade opportunity on your property

Leaf Season is Here!
- Highlights the city's efforts to remove leaves from local streets by street sweeping
- Discourages homeowners from blowing or raking leaves into the street
- If ponding occurs on your street, clear the catch basins

Code Enforcement- Fall Leaves
- Article discouraging property owners from blowing or raking leaves into streets or catch basins
- Keep catch basins cleared

Winter 2020-2021

Homeowner Tips for Winter Weather: De-Icing
- Be sure to read labels of products and try to purchase eco-friendly products
- Follow application rates, don't over apply
- Sweep up sand and gravel after snow melts

To Sand or Not to Sand – That is the Question…
- Explanation of OCPWs winter road preventative measures
- Discussion of when to use sand vs. Magnesium Chloride
- Magnesium Chloride doesn't require sweeping like sand does

Spills and Leaks/Spills Happen
- Informational flyer produced by ACWA
- Prevention is Key
- List of possible contaminants
- How to clean up a spill

DUE TO COVID-19, ALL SERVICES, PROJECTS, PROGRAMS & EVENTS ARE SUBJECT TO CHANGE

Ecology, Conservation & Sustainability

SPILLS AND LEAKS

Spills and leaks from contaminants, can be dangerous if left unattended. In addition, spilled chemicals can also pollute our streams and underground drinking water supplies, as well as harm pets, plants, and wildlife.

PREVENTION IS KEY!:

- Keep unused containers closed tightly.
- Store materials inside or under cover.
- Never use storm drains or gutters, ditches, or swales for waste disposal.
- Keep waste container lids closed

POSSIBLE CONTAMINANTS INCLUDE:

- Oil
- Gas
- Antifreeze
- Paint
- Fertilizers
- Pesticides
- Cleaners and disinfectants
- Sewage

REMEMBER, ONLY RAIN IN THE STORM DRAIN!

SPILLS HAPPEN!

Your safety is of utmost importance in addressing spills and leaks. Stop work and move upwind immediately if you feel any symptoms (nausea, coughing, stinging eyes, nose or throat, dizziness). Call for help.

CALL 911 IF THE SPILL IS HAZARDOUS OR AN EMERGENCY.

If you are aware of the origin of the spill and it is NOT an emergency:

- Try to stop the leak if you can safely. Keep people and vehicles away to prevent contact with the spilled substance. Use a drip pan if you spot a leak or drip; repair the leak promptly.
- Turn off any nearby equipment that could ignite a flame or explosion.
- Never hose down a spill — this can send hazardous pollutants to our waters.
- Protect waterways: Place absorbents such as kitty litter and barriers between the spill and any nearby storm drain, ditch or swale. **Clean up the spill immediately.**

HOW TO CLEAN UP A SMALL SPILL

STEP 1
Collect cleanup supplies (kitty litter, bag broom, etc.)

STEP 2
Spread the absorbent (pads, pillows, newspaper, etc.) around the spill starting at the leading edge, from outside to inside.

STEP 3
Wait for the spill to be absorbed; add more absorbent if needed.

STEP 4
Properly dispose of the materials. Larger spills might require disposals as household hazardous waste at the local landfill.

oracwa.org
oregon association of CLEAN WATER agencies

If someone is actively dumping or spilling a hazardous material Call 911

For directions on proper disposal or to report a spill or leak, notify your local contact.

Figure 1: Graphic Included with Summer 2020-2021 Train News Article About Spills and Leaks

Spring 2021

Attention Humans, Attention Animals

- Please clean up after your pets add

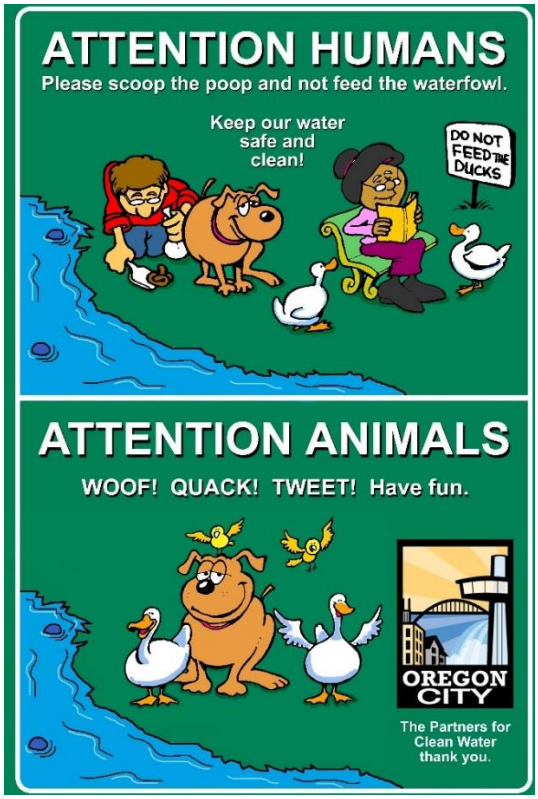


Figure 2: Graphic Included with Summer 2020 Train News Article About Reducing Bacteria Levels

Miscellaneous Items

Carpet Cleaning Informational Hand Out to Customer

Message on March 2021 Utility Bill

Want a safer lawn and garden for your children and pets? Be chemical-free! Oregon City's rivers and streams will benefit too. Go to www.cleanriversandstreams.org, https://theriverstartshere.org/ or www.oregonmetro.gov for great suggestions.

Annual Water Quality Report – 4/27/2021

The 2020 report included the following topics specific to stormwater:

- Clackamas River – Our Drinking Water Source
- Protecting our drinking water source
- Fish on the Run Irrigation Done
- Monitoring For Contaminants
- Stormwater Management
- 2020 Monitoring Data – drinking water
- 2020 System Improvements Projects
- Pollution prevention suggestions:
    - Lawn and garden care
    - Vehicle care
    - Roof treatments
    - Pressure washing
    - Pet waste
- Lead in drinking water
- Photos/graphics with accompanying captions:

- Cross Connection Backflow Prevention Program
- Riparian Health- does a stream flow through your property

Beginning on April 27, 2021, a total of 15,352 postcards were mailed to Oregon City residents announcing the on-line availability of the annual water quality report. Those with limited internet access were encouraged to request a printed copy of the report.

Figure 3: Photo on 2021 Annual Water Quality Report Postcard

Stormwater Banner Display at City Hall – 10/5/2021 to 10/18/2021
Visitors to City Hass, as well as city staff, could view our stormwater banner display featuring Oregon City's largest basins and streams. Included are the following suggestions to prevent stormwater runoff pollution and to improve water quality:

- Never dump anything down storm drains or into streams
- Sweep driveways and patios clean instead of hosing them down
- Repair your vehicles if they are leaking oil, antifreeze, or other fluids
- Take your car to a car wash, or wash it on the lawn instead of the driveway
- Minimize your use of fertilizers and pesticides; consider going organic
- Plant native trees and shrubs; if you have a stream flowing through your property streamside plantings will help reduce the temperature of the water
- Pick up after your pet

The banner includes contact information for the Greater Oregon City Watershed Council and how to obtain additional information about Oregon City's Stormwater Management Plan.

The Oregon City Website – ongoing throughout the year
A wide variety of information pertaining to stormwater, water quality, and Oregon City's NPDES MS4 permit is available to the public at www.orcity.org.

Collaboration with Other Agencies

Clackamas River Water Providers – ongoing throughout the year
Oregon City, through its association with South Fork Water Board, partners with other agencies that use the Clackamas

River for potable water, to promote source water protection and water conservation. Programs include water quality monitoring and a pesticide outreach program. For specific information, and to read their annual report, visit the CRWP website at www.clackamasproviders.org.

"Clean Water, It's Our Future" Campaign on KPTV Chanel 12 on Television and Website (https://www.kptv.com/water/)

Oregon City continues to partner with other agencies in the Portland metro area in sponsoring public education messaging via KPTV media outlets. The campaign identifies simple things that can be done to keep our rivers and streams healthy. The following topics were highlighted on their website, social media, and television during the 2019-2020 campaign:

- Reducing stress while gardening
- Car maintenance
- Water friendly weed control
- Clean gutters and storm drains
- Fall lawn tips
- Clean driveways

Regional Coalition for Clean Rivers and Streams

Oregon City is one of the Clean River Partners of Clackamas County. As such, the city continues to support the effort, along with other agencies in the Portland metro area, to educate the public about the impact of stormwater runoff pollution on the health of our rivers and streams. For specific information about the current campaign – The River Starts Here – visit the Coalition website at http://theriverstartshere.org/.

Appendix D

TMDL Implementation Plan Annual Report

City of Oregon City

Willamette River TMDL Implementation Plan

Annual Progress Report

Year 1

November 1, 2021

Introduction

The City of Oregon City (City) submitted its first Willamette River Total Maximum Daily Load Implementation Plan (TMDL Plan) to the Oregon Department of Environmental Quality (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 2009. On March 10, 2014 DEQ requested an update to the City's TMDL Plan which the City provided on May 30, 2014. In 2018 DEQ called for the 5 Year Review in the 2014 Plan's fourth year of implementation. The five-year review took the place of the 2017-2018 annual report and was submitted October 17, 2018. DEQ provided comments on the City's 2019 draft TMDL Plan in July 2020. The City submitted a revised draft TMDL Plan to DEQ in August 2020 and received DEQ's approval on August 23, 2020.

The July 1, 2020 – June 30, 2021 reporting year is the first year of implementation for the 2020 TMDL Plan. This annual report provides a summary of the City's efforts during this reporting year.

Background

The City's TMDL Plan identifies and describes management strategies that the City will implement to address nonpoint sources of pollution generated in the Clackamas and Middle Willamette River subbasins in the Willamette River watershed. The TMDL parameters of concern for these subbasins include temperature, bacteria, and mercury.

Management strategies for bacteria and mercury are summarized in the TMDL Plan, but compliance with the TMDL for these parameters is covered by the City's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Stormwater Permit (NPDES MS4 Permit). DEQ includes requirements within the City's NPDES MS4 permit as they pertain to TMDL pollutants associated with point sources of stormwater runoff. The NPDES MS4 permit requires best management practices (BMPs) to be applied to address sources of pollution in stormwater runoff. The NPDES MS4 permit also requires Oregon City to develop TMDL pollutant load reduction benchmarks to show progress towards meeting TMDL wasteload allocations. Finally, the NPDES MS4 permit requires adaptive management to ensure that stormwater programs are expanded and refined over time to ensure continued progress towards meeting wasteload allocations. The City was reissued their NPDES MS4 permit on March 16, 2012. The City's effective (2012) Stormwater Management Plan (SWMP) outlines BMPs to comply with the reissued permit

and address bacteria and mercury.

Stormwater runoff in the Willamette Valley is not considered a problem with respect to temperature, and therefore, temperature is not addressed under City's NPDES MS4 permit. Management strategies for temperature were developed and identified in the TMDL Plan. Historically, riparian vegetation removal and channel modifications result in reduced baseflow, reduced stream shade, and increased instream temperatures. As part of the first TMDL Plan, a Geographic Information System-based evaluation of the City's stream corridors was conducted to evaluate existing shade conditions and identify opportunities for riparian vegetation enhancement. Strategies to address temperature were identified, and a timeline and schedule for implementation were provided in the first TMDL Plan.

The 2020 TMDL Plan update allowed the City to reevaluate and update maps for stream shade opportunities. A new series of maps were created using an updated stream layer and aerial maps. The updated stream layer affected the 60-foot buffer in some locations, and existing shade layer polygons were clipped to the new buffers. The update modified some polygons, and some were eliminated. The overall acreage decreased by 3.668 acers. Five shade polygons were removed from the list. One polygon was renamed as it is now within city limits. Additional strategies to address temperature were identified and an updated timeline and schedule for implementation were provided in the updated Plan.

Implementation Status

The City's NPDES MS4 permit addresses the Willamette River TMDL requirements for bacteria and mercury. Progress towards implementing BMPs to address bacteria and mercury are summarized in Appendix A of this 2020−2021 NPDES MS4 Annual Report and TMDL Implementation Annual Report.

As required by Schedule D.3.b of the NPDES MS4 permit, Oregon City submitted a TMDL Wasteload Allocation Attainment Assessment (WLAAA) on October 29, 2015. Four hypothetical BMP scenarios were evaluated to determine what types of BMPs and coverage levels would be needed to achieve the established TMDL wasteload allocations for bacteria (E. coli). A financial analysis of the cost to construct and maintain these BMPs was included in the evaluation.

Results from the WLAAA indicate that achievement of the waste load allocation for E. coli is not practical or feasible with current structural stormwater treatment BMPs given the City's practical and physical constraints and current fiscal abilities. The City continues its work towards reducing pollutant loads and hydromodification impacts by looking for opportunities for new water quality facilities, incorporating treatment measures into transportation and road improvement projects whenever feasible, and investigating retrofit opportunities on City-owned properties.

The City's progress towards implementing strategies to address temperature is summarized in Table D-1 of this annual report. Such strategies include public education and outreach activities, implementation of development standards to promote infiltration, and shade

preservation and planting activities. As described in the TMDL Plan, the City had committed to contributing $5,000 per year for the duration of the Plan (2020 – 2025) of TMDL implementation to enhance riparian vegetation. Table D-1 lists how this commitment has been addressed during the 2020 – 2021 reporting period. In 2018 the City entered a contract with Greater Oregon City Watershed Council (GOCWC) to pursue shade planting opportunities outside of Oregon City's jurisdictional boundaries. The City has committed an additional $5,000 annually towards the partnership with GOCWC. The GOCWC annual report regarding the Abernethy Creek Shade Project is provided at the end of this Appendix.

APPENDIX D: Table D-1. City of Oregon City Summary of Strategies to Address Temperature							
Best Management Practice or Activity	**Responsible Division**	**Commitment/ Implementation Strategy** *What will be done in the next 5 years?*	**Measurable Goal** *Specific ways to implement strategy (Fiscal analysis as needed)*	**Performance Measure** *How implementation will be demonstrated*	**Timeline** **When goal will be achieved?**	**Milestone** *Intermediate indicators of progress*	**Status** *Progress update for reporting period (Gap analysis discussion as needed)*
Planting	Public Works	Utilize annual committed funds towards shading and planting activities for identified public and private opportunity areas. *($10,000 allocated annually for planting related activities.)*	Conduct a desktop GIS evaluation and ground truthing to evaluate planting progress since 2009, and to identify whether replanting or maintenance is required for identified public planting opportunity areas shown in Appendix D.	• Document results of the desktop evaluation and ground truthing. • Update maps to help catalog and schedule replanting needs for public and private property.	• Compile mapping information per Appendix D and updated aerial imagery by December 2020. • Visit all public sites as part of the ground truthing efforts by July 1, 2021. • Prepare maintenance and planting schedule for public priority planting sites based on ground truthing exercise by November 1, 2021.	All public sites will be visited, verified and reprioritized for planting by February 1, 2022.	• In August 2020 stream shade maps were created using updated aerial imagery and stream layer. Shade opportunity polygons were clipped to new buffers. Some stream channels have changed location, there are some polygons that were not present on new maps. Polygons no longer present: - Map 3-2 – NC-10, NC-11 and NC-12 - Map 3-2d – SEC-10 - Map 3-2f – UGP CP-1 is now called CP-1, as it is now within city limits - Map 3-2i – CC-21 • June 2020 Field Inspection Forms were created. • All city owned shade opportunity sites were visited by end of July 2021. • Public sites are being reprioritized for planting in 2022. • No CRW sites were identified on public parcels. • No high priority public areas were planted during this reporting period • All stormwater quality facilities were evaluated for replanting within the designated time frame • No planting activities were performed during this reporting period
			Assess opportunities to enhance cold water refugia (CWR) in accordance with public planting sites.	• Review results of DEQ's CWR study (March 2020) and identify relevant CWR opportunity areas as part of the desktop GIS evaluation. • Prioritize CWR opportunity areas in conjunction with future public planting activities.	• Integrate CWR opportunity areas (if applicable) into updated mapping by July 2021. • Incorporate CWR as a prioritization factor for future planting activities by November 1, 2021.		
			Conduct or financially support planting activities at identified for priority public and private shade opportunity areas.	• Track and map public planting and maintenance activities in accordance with funding activities. • Annually monitor previous year's plantings to evaluate survivability.	By July 2021, develop field inspection forms and procedure for monitoring planting activities in conjunction with routine stormwater inspection activities.	Beginning in July 2022, dedicated funds will be spent preparing, planting and/or maintaining identified public or private shade opportunity areas for the duration of this plan.	
			Continue partnership and funding towards the Greater Oregon City Watershed Council (GOCWC) to identify shade planting opportunities on private lands. To receive funding, GOCWC will	• Attend quarterly GOCWC meetings to discuss potential sites, objectives and timelines. • Track and map private property planting	Ongoing throughout the implementation period.	The GOCWS provides annual progress reports. The most recent report covering 2020 and plans	In partnership with GOCWC, the following low priority sites continued to be cleared of invasive species, prepared for plantings and

			be responsible for clearing, planting and maintenance for 2 years.	activities in accordance with funding activities		for 2021 is provided following this table.	plantings continued into the 2020-2021 reporting year • 17033 S Holly Lane • 17082 S Holly Lane • 17033 S Anchor Way • Staff regularly attends GOCWC monthly meetings
Hydromodification Projects	Public Works	Complete two Hydromodification Projects identified in the 2015 Hydromodification Assessment or Stormwater Master Plan during this implementation period.	Prioritize the list of hydromodification sites based on access, land ownership, partnerships, and necessity. Efforts may occur in conjunction with the finalization of the stormwater master plan.	Document results of the site prioritization effort.	Prepare prioritized project list by November 1, 2021.	At least one project will have been completed and one project will have started during the implementation period.	Scattering Canyon project will begin construction summer 2022. Assessment of outfalls to be completed July 1, 2021 to July 1, 2022.
			Initiate design and construction efforts in accordance with the site prioritization.	Track internal meetings related to project implementation.	Ongoing throughout the implementation period.		
Implement Stormwater Design Standards	Public Works	Implement Chapters 13 of the City's development code, which includes provisions for use of infiltration-based stormwater treatment systems and tree planting.	Adhere to the management standards, set forth in OCMC 13.12 and the City's updated (2016) Stormwater Design Standards.	• Provide the standards to local engineers, developers, builders, and City staff through trainings and the City's website. • Track private and public water quality facility installations, based on completion of Maintenance Covenant and Access Easement Agreement.	Ongoing throughout the implementation period.	Minor editorial revisions and updates to design standards will be conducted approximately every 3 years as needed.	Revised Standards adopted March 2020
Preservation of Existing Shade	Planning and Public Works	Continue to refine and enforce Chapter 17 of the City's code pertaining to the protection of riparian vegetation and buffer areas.	Continue to implement Chapter 17.49 of the City's NROD development code to address Title 3 and Title 13.	• Track modifications to Chapter 17.49 in accordance with Title 3 and Title 13 objectives. • Track any enforcement actions taken to protect existing shade.	Ongoing throughout the cycle.	N/A	One enforcement action taken. 16 NROD (Chapter 17.49) applications processed: • Five (5) Type II-III Natural Resource Overlay District (NROD) applications requiring impact analysis and mitigation Eleven (11) Type I NROD exemptions/verifications
Public Education	Public Works	Distribute temperature- related educational materials in the City newsletter and through direct mailings and signage.	Ensure distribution of a minimum of one temperature-related piece of educational material (i.e., flyer, signage) during each year of the implementation period.	Record temperature- related educational materials distributed annually.	Ongoing throughout the cycle.	N/A	Temperature-related articles were disseminated by OCPW in the following: • Autumn 2020 Trail News • 2021 Annual Water Quality Report See Appendix C of the City's 2020-2021 NPDES MS4 Annual Report for specific details

Abernethy Creek Shade Project – Update, September 2021

Since 2019, the Greater Oregon City Watershed Council (GOCWC) has been working with the City of Oregon City Public Works and several landowners to improve shade conditions along the banks of lower Abernethy Creek. This work is a powerful example of voluntary collaboration to restore watershed health and provide improved habitat conditions for fish and wildlife through a long-term commitment to the future of our waterways.

Specifically, we have worked with three property owners at locations along Abernethy Creek near Anchor Way and S. Holly Lane to identify projects removing and suppressing invasive species while replanting with native shrubs and trees. The council has contracted with Ash Creek Forest Management to undertake vegetation management and native species planting and maintenance at all three properties to restore habitat and reduce stream temperatures.

Site treatments vary according to specific requirements and have included treatment with herbicides approved for use near aquatic environments to suppress invasive plants and encourage the growth of native plants. This treatment is combined with practices such as string trimming and mowing to reduce competition. Timing is critical to the effective management of the sites and the watershed council provides coordination with landowners to provide access for the contractors.

Figure 1 - Ash Creek employees apply aquatic safe herbicide to reduce competition with native plantings.

A variety of species are chosen for use to build a riparian structure that will shade the creek and contribute habitat value for wildlife restoring both canopy and understory components.

Wallis

Species	Common Name	Quantity	Size	Mature Height
Shrubs				
Philadelphus lewisii	Mock Orange	150	BR	10 ft
Rubus spectabilis	Salmonberry	150	BR	13 ft
Salix sitchensis	Sitka Willow	500	Livestake or BR	26 ft
Sambucus cerulea	Blue Elderberry	200	BR	12 ft
Spiraea douglasii	Douglas Spiraea	200	BR	7 ft
	Total Shrubs:	**1,200**		
Trees				
Alnus rhombifolia	White Alder	200	BR	115 ft
Prunus emarginata	Bitter Cherry	100	BR	49 ft
	Total Trees:	**300**		
	Total Plants:	**1,500**		

Figure 2 - Table illustrating native species prescription for one of the project locations.

Concentrating on areas along the banks of the creek, planting prescriptions are developed for each site and crews are deployed during the summer to conduct site preparation work for winter planting.

Figure 3 - Abernethy Creek water levels flucuate dramatically and large wood is a critical component of riparian habitat.

Comparative photos of native plantings over a single year of growth demonstrate how these efforts are contributing to a foundation of shading to restore riparian habitat along Abernethy Creek. Reducing competition by non-native plants accelerates growth of desirable species.

Figure 4 - Sitka willow one year after planting (photo on left, June, 2020) and after two years of growth (photo on right, June, 2021).

Results

As the GOCWC works to build community support for restoring and maintaining watershed health, collaborative projects with property owners demonstrate an important component of the work needed to reduce stream temperatures for salmon, lamprey, and other fish and aquatic wildlife. The summer of 2021 proved to be very warm season with a series of extreme heat events that culminated in a remarkable series of days in late June where air temperatures near Oregon City exceeded 46 degrees Celsius (115 degrees Fahrenheit). The recorded stream temperature during this peak event at the Abernethy Creek monitoring station operated by the GOCWC was over 28 degrees Celsius (>82 degrees Fahrenheit) which significantly exceeds the

acceptable upper limits for Coho salmon and other fish and can contribute significant stress and even lead to mortality if cool water refugia are unavailable.

As shading projects mature along the banks of Abernethy Creek such as those supported by the collaboration between the City of Oregon City and the GOCWC, improved conditions are anticipated to reduce stream temperatures along restored reaches. While the limited cooling effects of shade along the streambanks cannot offset extreme weather events such as the one that occurred at the end of June, 2021, these areas will prove to be extremely important temperature refugia for fish and other aquatic species as they struggle to survive the impacts of a changing climate.

Figure 5 - Riparian habitat is being restored along this reach of Abernethy Creek below the Holly Lane bridge.

Abernethy Shade project planting plan history
September 29, 2021

Project site	Native species planted	Year
Norton 17082 S Holly Ln	Pacific willow & Sitka willow (1,000 cuttings)	2019
	Pacific willow & Sitka willow (1,000 cuttings)	2020
	*Install 250 native bare root plants**	2021
Wallis 17033 S Anchor Way		2019
	Pacific willow & Sitka willow (1,000 cuttings)	2020
	*Install 1500 native bare root and willow cuttings**	2021
Price 17033 S Holly Ln		2019
	Pacific willow & Sitka willow (1,000 cuttings) 400 native bare root plants installed	2020
	*Install 250 native bare root plants**	2021

** To be planted in Winter of 2021*
NOTE: Prices for 2021 supplemented through Bonneville Environmental Foundation funding.

Plant List

Species	Common Name	Quantity	Size	Height
Shrubs				
Lonicera involucrata	Black Twinberry	100	BR	10 ft
Oemleria cerasiformis	Indian Plum	100	BR	16 ft
Holodiscus discolor	Oceanspray	100	BR	13 ft
Salix lasiandra	Pacific Willow	500	cutting	39 ft
Salix sitchensis	Sitka Willow	500	cutting	26 ft
		1,300		
Trees				
Alnus rhombifolia	White Alder	50	BR	115 ft
Malus fusca	Western Crabapple	50	BR	39 ft
		100		
		1,400		

Figure 1 - Sample plant list from Price property – November, 2020