

# **City of West Linn, Oregon**

# NPDES MS4 Permit Annual Report

2017 – 2018 Reporting Year

*Prepared for the* Oregon Department of Environmental Quality October 31<sup>st</sup>, 2018

### **City of West Linn**

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

JULY 1<sup>ST</sup>, 2017 – June 30<sup>th</sup>, 2018

I, the undersigned, hereby submit this NPDES MS4 Annual Report in accordance with 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 known violations.

<u> Il Date 10-29-201</u>8 JC. Mike Cardwe Environmental services Supervisor City of West Linn Public Works

### **Table of Contents**

Page No.

	_		
10			1
1.0	1 1	NPDES MS4 Permit Background	1
	1.2	Document Organization	1-2
2.0	ADAPT	TIVE MANAGEMENT PROCESS IMPLEMENTATION	3
3.0	PROG	RAM EXPENDITURES	4
4.0	ENVIR	ONMENTAL MONITORING PROGRAM	5-6
	4.1	Summary of Monitoring Data	6
5.0	OVER\ DEVEL	/IEW OF PLANNING AND LAND USE CHANGES, UGB EXPANSIONS AND NEW OPMENT ACTIVITIES	7
	5.1	Summary of Land Use Changes and UGB Expansions	7
	5.2	Development Activities within the UGB	7-8
6.0	ADDIT	IONAL ACTIVITIES (STORMWATER MANAGEMENT PLAN)	9
	6.1	SWMP #1: Illicit Detection & Elimination	9
	6.2	SWMP #4: Education & Outreach	9-10
	6.3	SWMP #5: Public involvement & Participation	10
	6.4	SWMP #6: Post-Construction Site Runoff	10

### **List of Tables**

Section

Table 1: Summary of the 2012 NPDES MS4 Annual Report Requirements	2
Table 2: Environmental Services Division (ESD) Funding Sources & Expenditures	4
Table 3: Monitoring Locations and Frequencies	7
Table 4: Public and Private Best Management Practices	8
Table 5: Dry Weather Field Screening Results	9
Table 6: Staff Training	.9-10

### List of Appendices

Appendix A: West Linn SWMP Implementation Status

Appendix B: West Linn Monitoring Data

Appendix C: Annual Report for Tualatin Basin Public Awareness Committee

Appendix D: Clackamas River Water Providers Accomplishments for the City of West Linn

Appendix E: Regional Coalition for Clean Rivers & Streams Annual Report

### 1.0 INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of West Linn (City) through the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) <u>Permit No. 101348</u>, issued to Clackamas County and its 12 co-permittees. Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual Stormwater Management Plans (SWMP).

This annual report fulfills the reporting requirement under the City's Phase 1 NPDES MS4 permit for the reporting period of **July 1, 2017 to June 30, 2018**. This reporting period is the sixth year implementing the 2012 NPDES MS4 Permit (2012 Permit). The 2012 Permit expired on March 1, 2017 and is in administrative extension.

### 1.1 NPDES MS4 Permit Background

The City's NPDES MS4 permit was originally issued in 1995 to Clackamas County's co-permittees including the cities of West Linn, Lake Oswego, Gladstone, Milwaukie, Oregon City, Wilsonville, Happy Valley, Johnson City, and Rivergrove, the Oak Lodge Water Services District (OLWSD), Clackamas County Service District No. 1 (CCSD#1) and Surface Water Management Agency of Clackamas County (SWMACC). The City's NPDES MS4 permit was most recently reissued 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 2012 Permit also includes the City's Stormwater Management Plan (SWMP), which was approved by DEQ on May 16<sup>th</sup>, 2012. On February 28, 2017, the City submitted to DEQ a Permit Renewal Application. 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 table below outlines the organization of this annual report document, with respect to the annual reporting requirements per Schedule B.5 of the City's 2012 Permit. Specific Best Management Practices (BMPs) and activities are summarized in Appendix A. The City's TMDL Implementation Plan Annual Report for the Willamette and Tualatin River Basins is not included in this year's submittal. DEQ requested completion of an online survey for the 2017-2018 reporting year instead of preparation of the TMDL Implementation Plan Annual Report. The City has completed the online survey.

	Table 1 – 2012 NPDES MS4 Annual Reporting Requirements					
	Annual Reporting Requirements from Schedule B.5.a j.	Location in document				
a.	The status of implementing the Stormwater Management Program (SWMP) and each SWMP element, including progress in meeting the measurable goals in the SWMP.	Appendix A				
b.	Status or results or both of any public education effectiveness evaluation conducted during the reporting year and a summary of how results were or will be used for adaptive management.	Appendix A – Element 4				
c.	A summary of the adaptive management process implementation during the reporting year, including any proposed changes to the SWMP (e.g., new BMPs) identified through implementation of the adaptive management process.	2.0				
d.	Any proposed changes to SWMP program elements that are designed to reduce Total Maximum Daily Loads (TMDL) pollutants to the Maximum Extent Practicable (MEP).	None this reporting year				
e.	A summary of total stormwater program expenditures and funding sources over the reporting fiscal year and those anticipated in the next fiscal year.	3.0				
f.	A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year and any assessments or evaluations conducted.	4.1, 6.1 & Appendix B				
g.	Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	None this reporting year				
h.	A summary describing the number and nature of enforcement actions, inspections, and public education programs, including results of ongoing field screening and follow-up activities related to illicit discharges.	6.1 & Appendix A – Element 1				
i.	A summary, as related to MS4 discharges, describing land use changes, Urban Growth Boundary (UGB) expansion, land annexations, and new development activities that occurred within these areas during the reporting year. The number of new post-construction permits issued and an estimate of the total new and replaced impervious surface area related to development projects that commenced during the reporting year.	5.0 & Table 4				
j.	A summary, as related to MS4 discharges, describing concept planning or other activities conducted in preparation of UGB expansion or land annexation, if anticipated for the following year.	None this reporting year				

### 2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION

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 adaptive management approach to DEQ on November 1<sup>st</sup>, 2012, as required in the 2012 Permit.

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 the permit renewal application and updated permit requirements. The City's adaptive management approach maintains consistency 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 gauge whether implementation was deemed to be effective or whether there are suggested improvements to be made. Suggested adjustments to BMP implementation may 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:

- Is technology or information available that would help improve or refine BMPs?
- How representative are the measurable goals and tracking measures to the BMP objective?
- Are resources available to make changes to the measurable goals and BMP objectives?

Additionally, technical investigations and studies required in the permit also inform adaptive management changes. During the 2012-2017 permit term, such studies included a water quality trends analysis, pollutant load reduction evaluation, hydromodification assessment, and a retrofit assessment. All studies were submitted according to the 2012 Permit deadlines. A summary of proposed SWMP modifications was submitted with the City's Permit Renewal Application on February 28, 2017, but as stated previously, those modifications have not been implemented pending reissuance of the permit.

### **3.0 PROGRAM EXPENDITURES**

A summary of the City's Environmental Services Division (ESD) funding sources, expenditures for the fiscal year (FY) 2017 – 2018, and a projection of the City's expenditures for FY 2018 - 2019 are provided in Table 2 (see orange highlight for surface water).

Table 2 – City of West Linn Environmental Services Fund for the FY ending June 30th, 2018							
							Total
	D	epartment		D	epartment	En	vironmental
		No. 432			No. 433		Services
		Surface			Sewer		Fund #505
Funding Sources:							
Charges for Services	\$	915,000		\$	2,460,000	\$	3,375,000
SDC Reimbursement Fees		38,000	#		20,000		58,000
Interest		-			-		-
Transfer from other Funds		-			-		-
Misc.		30,000			35,000		65,000
Total	\$	983,000		\$	2,515,000	\$	3,498,000
			:				
Expenditures							
Personal Services	\$	450,000		\$	175,000	\$	625,000
Materials and Services		120,000			145,000		265,000
Capital Outlay		1,050,000			95,000		1,145,000
Transfers		390,000			957,000	_	1,347,000
Total	\$	2,010,000		\$	1,372,000	\$	3,382,000
			:				
Projected Expenditures for 2018-2019							
Personal Services	\$	501,000		\$	297,000	\$	798,000
Materials and Services		225,000			210,000		435,000
Capital Outlay		350,000			800,000		1,150,000
Transfers		400,000			870,000		1,270,000
Total	\$	1,476,000		\$	2,177,000	\$	3,653,000

### 4.0 ENVIRONMENTAL MONITORING PROGRAM

The 2017-2018 reporting year represents the 1<sup>st</sup> year implementing the 2017 Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP). The CCCSMP was originally developed in 2007, in an effort to implement an effective environmental monitoring program that adequately met all permit requirements and objectives for Clackamas co-permittees. A revision to the CCCSMP was made in 2012 to address instream, stormwater outfall, biological, mercury and pesticide monitoring requirements outlined in the 2012 Permit.

Beginning in the spring of 2016, the City, in collaboration with other Clackamas co-permittees, participated in a series of workshops to identify updates and modifications to the 2012 CCCSMP. 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.

On December 16, 2016 the City submitted a 30-day notice to DEQ to approve the updates to the CCCSMP. As the City did not receive a response from DEQ within 30 days, the proposed modifications were deemed approved without written documentation. Implementation of the 2017 CCCSMP began July 1, 2017 and serves as an established agreement between 11 of the 13 Clackamas Co-permittees to conduct a coordinated monitoring effort. The following Clackamas County co-permittees are participants in the 2017 CCCSMP: Clackamas County Service District 1 (CCSD#1), Clackamas County, the cities of Gladstone, Happy Valley, Milwaukie, Oregon City, Rivergrove, West Linn and Wilsonville; Oak Lodge Water Services District (OLWSD) and the Surface Water Management Agency of Clackamas County (SWMACC).

As described in the 2017 CCCSMP, stormwater monitoring programs require two components. The first component is **program monitoring**, which involves the tracking and assessment of programmatic activities, such as erosion and sediment control, stormwater conveyance system cleaning and maintenance, industrial and business inspection programs and public education and outreach. These are further described in the City's SWMP, through the use of performance indicators or metrics. The second component is **environmental monitoring**, which includes visual monitoring and the collection and analysis of Instream and Stormwater Outfall samples. Visual monitoring efforts include Dry Weather Field Screening as described in the City's SWMP under the "Implement the Illicit Discharge Elimination Program" BMP. Results for dry weather field screening are detailed in Section 6.1, Table 5. The purpose of the CCCSMP is to address the environmental monitoring components of the 2012 Permit requirements.

In accordance with the 2017 CCCSMP, <u>Instream Monitoring</u> efforts are focused on collecting ambient water quality data during both dry weather (July 1 – September 30; May 1 to June 30) seasons and wet weather seasons (October 1 to April 30). As instream water quality tends to vary during storm events, sample collection is targeted during storm events and during dry weather conditions to allow the City to assess water quality impacts from MS4 discharges. For the 2017 CCCSMP, the City of West Linn continues to target storm events to meet their instream sampling requirement. Instream Monitoring meets the following monitoring objectives per Schedule B.1.a of the 2012 Permit:

2) Evaluate the effectiveness of BMP's in order to help determine BMP implementation priorities.

4) Evaluate status and long-term trends in receiving waters associated with MS4 stormwater discharges.5) Assess the chemical, biological and physical effects of MS4 stormwater discharges on receiving waters.

Grab samples are collected instream during dry weather conditions. During storm events, a minimum of 3 time-spaced grab samples are collected throughout the storm event to provide a single time-composited sample. A composite sample collected during a storm event allows for capture of a larger portion of the storm hydrograph and better represents fluctuating pollutant concentrations.

<u>Stormwater Monitoring</u> addresses the following monitoring objectives from Schedule B.1 of the 2012 Permit:

1) Evaluate the sources of the 2004/2006 303 (d) listed pollutants.

2) Evaluate the effectiveness of BMP's in order to help determine BMP implementation priorities.

3) Characterize stormwater based on land use type, seasonality, geography or other catchment characteristics.

5) Assess the chemical, biological and physical effects of MS4 stormwater discharges on receiving waters.6) Assess progress towards meeting TMDL pollutant load reduction benchmarks.

In West Linn, stormwater monitoring efforts are focused on capturing storm-specific data from residential land use. The collection of stormwater samples allows for the identification of pollutant sources, characterization of stormwater and indication of the effects that stormwater runoff may have on instream water quality when compared with instream water quality data.

### 4.1 Summary of Monitoring Data

Instream and Stormwater monitoring locations and required frequencies are outlined in Table 3 below. Complete instream and stormwater sample results are presented in Appendix B.

During the 2017-2018 monitoring year, the City collected required instream samples (2) during dry weather events at 3 sites, but only collected instream samples for 2 of the 3 storm events due to employee scheduling conflicts with actual rain events. Additionally, the City also collected only 2 of the required 3 storm events for their stormwater (outfall) monitoring. The City will collect an additional instream and stormwater monitoring event during the 2018-2019 fiscal year to meet the monitoring requirements of the 2017 CCCSMP.

Table 3 – West Linn Instream & Stormwater Outfall Monitoring Locations and Frequencies							
Sito #	Creek Name, Location & Receiving	Collection	Required	Weather			
JIC #	Water	Method	Frequency	weather			
Instream	Monitoring						
W/L 01	Trillium Creek at 3821 Caloroga Road	Grab &	Flugar	Dry Weather (2/year) &			
VVL_01	that flows to the Willamette River	Composite	J/ year	Storm Events (3/year)			
WI 02	Tanner Creek at 4103 Imperial Drive	Grab &	E /ugar	Dry Weather (2/year) &			
WL_02	that flows to the Willamette River	Composite	J/ year	Storm Events (3/year)			
M/L 02	Unnamed Creek at Ryan Ct. & Johnson	Grab &	<b>F</b> (	Dry Weather (2/year) &			
WL_03	Road that flows to the Tualatin River	Composite	5/year	Storm Events (3/year)			
Stormwa	Stormwater Outfall Monitoring						
	Barlow Creek Outfall at Summit St. &						
WL_04	Horton Rd. that flows to the	Composite	3/year	Storm Events Only			
	Willamette River						

### 5.0 OVERVIEW OF PLANNING AND LAND USE CHANGES, URBAN GROWTH BOUNDARIES (UGB) EXPANSIONS AND NEW DEVELOPMENT ACTIVITIES

In West Linn, annexations are typically applicant and development driven. The City and the City Council do not typically initiate the annexation of property outside of the city limits.

### 5.1 Summary of Land Use Changes and UGB Expansions

West Linn did not approve any UGB expansions or prepare for any future expansions of the UGB into the Stafford area in 17/18. There were 3 annexations in this FY:

- 1. ANX-17-01 6.47 Acres at 23190 Bland Circle Changed from County FU-10 to R-7
- 2. ANX-18-01 2.35 Acres at 22864 Weatherhill Road Changed from County FU-10 to R-7
  - 2.56 Acres at 22870 Weatherhill Road Changed from County FU-10 to R-7

There was a total of 11.38 acres annexed into city limits.

### 5.2 Development Activities within the UGB

3. ANX-18-02

During the 2017-2018 reporting year, there were 5 land use development applications reviewed and approved for compliance with water quality/quantity standards. The applications included 4 Minor Partitions yielding 9 lots, and a 12 lot subdivision. All of the land use applications were reviewed for the City's post-construction run-off standards. Of the land use applications reviewed, the following were also impacted by a Water Resource Area permit.

<u>WAP-17-01</u> August 7, 2017 Water Resource Protection Area, Willamette and Tualatin River Protection, and Flood Management Area Permits were approved to construct one single-family home at 1041 9<sup>th</sup> Street. The land was vacant prior to this approval. A building permit was issued November 15, 2017 and development created 3,456 sq. ft. of impervious area to be treated by a rain garden prior to overflowing into a nearby stream. This home is still under construction.

<u>MIP-17-02</u> A Minor Partition at 2400-2450 Willamette Falls Drive to consolidate 4 lots into 1 lot was approved so a 4 story self-storage building could be constructed. A conditional use permit (<u>CUP-16-01</u>), Class II Design Review Permit (<u>DR-16-02</u>), two Variances (<u>VAR-16-02/03</u>), a Water Resource Area Protection Permit (<u>WAP-16-06</u>) and a Willamette River Greenway Permit (<u>WRG-16-02</u>) were all required and approved. This land was vacant prior to this approval. This site created 24,226 sq. ft. of impervious surface/disturbed area to be treated with an on-site detention/treatment facilities, installed a new culvert over an existing stormwater management ditch along Willamette Falls drive and replanted native vegetation in the disturbed land inside the protected buffer for the nearby stream. A building permit was issued for this project on October 19, 2017 and is currently under construction.

<u>SUB-17-03</u> November 16, 2017, a 12-lot subdivision was approved at 3015/3001 Parker Road. This subdivision had an associated Water Resource Protection Area Permit because of its proximity to a tributary stream of Tanner Creek. Although 5 of the 12 lots are impacted by a 65-foot setback from unnamed stream, lot configuration is such to allow for sufficient building space to protect the Water Resource Area. The application was approved with a stormwater detention/treatment facility partially within the 65-foot Water Resource Area but not to be built within the resource itself. This facility will be dedicated to the City once the plat is recorded. No construction has begun and the final plat has yet to be recorded.

The City of West Linn requires stormwater management for new and redevelopment activities exceeding 500 square feet of impervious surface in accordance with the City of Portland's Stormwater Management Manual. Stormwater quality facilities installed during FY 2017-2018 include rain gardens, ponds, pervious pavement and storm chambers to retain stormwater onsite.

Table 4 – Public and Private Best Management Practices						
Type of Facilities	Drainage Area in sq. ft.	Impervious Area in sq. ft.				
Private Rain Gardens (20)	43,058	43,058				
Privately Maintained Storm Detention (1)	32,160	32,160				
Public Water Quality	431,244	261,360				
Storm Chambers (onsite retention) (6)	9,116	9,116				
Total Square Feet	515,578	345,694				
Acres	11.8	7.9				

### 6.0 ADDITIONAL ACTIVITIES

This section supplements BMP activities documented in Appendix A and is organized by specific SWMP element.

### 6.1 SWMP Element #1: Illicit Detection & Elimination – Conduct Annual Dry Weather Field Screening

Dry weather field screening was conducted at 6 locations on August 9-10, 2017. There was no recorded precipitation for more than 72 hours prior to the inspections. No illicit discharges were found. When there is any flow quantity from an outfall, the City is required to take field readings for temperature, pH, dissolved oxygen, and conductivity. Conductivity can be strongly related with the total amount of dissolved material in water, and it can have some value in detecting non-stormwater related discharges. pH can also be a good indicator of non-stormwater discharges. Where there was flow, none of the readings exceeded the action levels for pH or conductivity, which is anything outside of the range of 6.5 to 8.5 for pH and exceeding 500  $\mu$ S/cm for conductivity. Visual monitoring results from the dry weather field screening are summarized in Table 5 below.

	Table 5 – Dry Weather Field Screening Results								
Site Number	Site Location	Creek Name	Flow Quantity	Clarity	Odor	Color	Foam or Sheen	Garbage Present?	Wood Debris
1	Brandon Place	Tualatin River	None	N/A	N/A	N/A	N/A	No	None
2	13 <sup>th</sup> St @ I-205	Bernert	Low	Clear	None	Clear	None	No	None
3	Imperial Drive	Tanner	Low	Clear	None	Clear	None	No	None
4	Hollowell Trail	McLean	Trickle	Clear	None	Clear	Foam	No	None
5	Barclay & Tompkins	Barlow	Low	Clear	None	Clear	None	No	None
6	19625 Old River Drive	Robin	No	N/A	N/A	N/A	N/A	No	None

### 6.2 SWMP Element #4: Education & Outreach – Promote Staff Education Related to Environmentally Friendly Solutions

Table 6 – Employee Training & Relevant Conference Attendance						
Name of Training	Location	Dates	Number of Employees			
Clean Rivers Coalition Outreach Forum	Keizer	7/12/2017	1			
ACWA Annual Conference	Bend	7/26/2017 – 7/28/2017	1			
ASCE-EWRG & APWA 2017 Sustainable Stormwater Symposium	Portland	9/13/2017 – 9/14/2017	1			
2017 Safety & Stewardship Seminars	Wilsonville	9/27/2017	4			
NW Environmental Erosion Control Lead	Hillsboro	10/12/2017 - 10-13/2017	1			
APWA Fall Conference	Pendleton	10/17/2017 - 10/20/2017	1			
DEQ TMDL Designated Management Agency IDDE Focus	Salem	10/18/17	1			
Tri-City Wastewater Treatment Plant Tour	Oregon City	11/7/2017	6			

Table 6 – Employee Training & Relevant Conference Attendance						
Name of Training	Location	Dates	Number of Employees			
Clean Rivers Coalition Major Threats to OR Waters Forum	Keizer	11/8/2017	1			
Chemical Applicator Short Course	Wilsonville	1/9/2018 - 1/10/2018	1			
ACWA Combined meeting for Stormwater, Groundwater and Education	Keizer	1/10/2017	1			
7 <sup>th</sup> Annual Mid-Willamette Erosion Control & Stormwater Management Summit	Keizer	1/30/2018	5			
Urban Pest Management Course	Oregon City	2/7/2018	4			
APWA Spring Conference	Bend	3/5/2018 - 3/8/2018	2			
Clackamas Celebrating Water Event	Oregon City	3/20/2018	1			
Designated Management Agency TMDL Implementation 5 Year Review focus	Webinar	3/22/2018	1			
ORWEF Water Environment School 2018	Oregon City	3/27/2018 - 3/29/2018	5			
ACWA Stormwater Summit	Eugene	5/9/2018	3			

### 6.3 SWMP Element #5 BMP: Public Involvement and Participation

Schedule A.4.e of the City's 2012 Permit requires that the City provide opportunities for the public to participate in the development, implementation, and modification of the City's stormwater management program. Annual reports are provided to the public for comment. The 2016-2017 NPDES MS4 Annual Report was posted to the City's website on October 25, 2017 for public review and removed October 30, 2017, without any comments. The city submitted the annual report to DEQ before the deadline of November 1<sup>st</sup>, 2017.

### 6.4 SWMP Element #6 BMP: Post-Construction Site Runoff – Review and Update the Applicable Code and Development Standards related to Stormwater Control

At a meeting on October 9, 2017, the West Linn City Council voted to adopt the West Linn Community Development Code (CDC) 17-02 amendments found in Ordinance 1662. The ordinance requires geotechnical studies to be submitted and that approval standards for grading, geotechnical hazards and storm detention and treatment elements of development and stormwater issues are addressed. The goal of the amendments to the CDC are to ensure that applicants submit thorough information on geotechnical and surface water issues to demonstrate that a site will not be prone to, or can be made safe from, erosion or slope failure and that decision-makers have adequate code authority to approve, approve with conditions, or deny applications based on these issues and conformance with City standards.

The following sections of the West Linn Community Development Code for CDC 17-02 have been amended: Chapter 2: Definitions, Chapter 24: Planned Unit Development, Chapter 28: Willamette and Tualatin River Protection, Chapter 32: Water Resource Area Protection, Chapter 55: Design Review, Chapter 56: Parks and Natural Area Design Review, Chapter 60: Conditional Uses, Chapter 85: General Provisions, and Chapter 92: Required Improvements.

# Appendix A

# West Linn 2017-2018 Stormwater Management Plan (SWMP) Implementation Status

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

					Appendix A – Status of Implementing C	omponents of West Linn's 2012 Stormwater	Management Plan (SWMP)	
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2017-2018	Additional Detail Related to Activities Conducted
Element 1: Illicit Disch	arge Detect	ion and Elii	mination					
Implement the Illicit Discharge Elimination Program	0	0	0	City of West Linn Public Works Environmental Services Division (CWL-ESD)	<ul> <li>Document and implement the details of the City's IDDE program in a Standard Operating Procedures manual by November 1, 2012.</li> <li>For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City's NPDES MS4 Permit.</li> <li>Track and record all identified illicit discharges and how such discharges were removed.</li> </ul>	<ol> <li>Track the status of completing the IDDE SOP manual.</li> <li>Track the number, location, resolution, and enforcement activities related to any illicit discharge investigation conducted.</li> </ol>	<ol> <li>(1) The City of West Linn developed an IDDE SOP (effective date: November 1, 2012). The SOP includes guidelines for identification and enforcement of illicit discharges as well as how to inspect the priority outfalls for Dry Weather Inspections.</li> <li>(2) Between 10/12/2017 and 11/3/2017 West Linn ESD investigated foam on the Tualatin River along with a DEQ representative. A City resident was concerned that there was foam on the river. The foam was determined to be naturally occurring.</li> </ol>	
*Conduct Annual Dry Weather Field Screening	0	0	0	CWL-ESD	<ul> <li>Conduct dry weather, illicit discharge inspections annually at all priority outfall locations.</li> <li>Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012.</li> <li>If necessary, update existing mapping related to outfalls and priority outfall locations in accordance with field observations.</li> </ul>	<ol> <li>Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities.</li> <li>Summarize inspection results and indicate outfalls requiring sampling and/or investigations.</li> <li>Indicate the outcome and resolution of any investigation activities conducted.</li> </ol>	<ol> <li>Six high priority outfalls were inspected as part of the annual dry weather field screening activities on August 9-10, 2017.</li> <li>Inspection results did not indicate the presence of any illicit discharges. Where water was found in the outfalls, the City tested for pH, temp., DO and conductivity. Results were within normal ranges according to the IDDE SOP, so it wasn't necessary to take any samples.</li> <li>Inspection results are provided in Section 6.1, Table 5 of this report. None of the inspection results warranted follow-up investigations. In accordance with the IDDE SOP, priority inspection locations were updated in 2012 to better reflect outfalls with solely stormwater contribution to receiving waters (i.e. avoiding inline facilities).</li> </ol>	
Implement the Spill Response Program	0	0	0	CWL-ESD and Tualatin Valley Fire and Rescue (TVFR) (via contract with the City)	<ul> <li>CWL-ESD to respond to minor spills.</li> <li>Call Tualatin Valley Fire and Rescue to respond to significant spills.</li> </ul>	<ol> <li>Indicate the number of spills reported to the City of West Linn Environmental Services.</li> <li>Track the number of spills responded to by the City of West Linn Environmental Services and Tualatin Valley Fire and Rescue.</li> <li>Indicate sources, causes, and types of discharges resulting from identified spill activities.</li> </ol>	<ol> <li>No spills were reported to West Linn's Environmental Services Division of Public Works.</li> <li>Tualatin Valley Fire and Rescue (TVF&amp;R) responded to 2 spills this reporting year.</li> <li><u>1<sup>st</sup> spill - 1817 Willamette Falls Drive:</u> a grey Toyota Corolla was leaking gasoline from its tank onto roadway. TVF&amp;R dispersed absorbent material along roadway and gutter area; a 70' long streak, no storm basins were involved. WL Police were called to try to locate the owner. Owner could not be found and Officer left their card. WL Police intended to tell the owner of the car that if there was any further clean-up needed, the car owner would be held financially responsible.</li> <li><u>2<sup>nd</sup> spill - Holly St &amp; Willamette Drive:</u> An oil spill of 2' x 4' size was observed and thought to be transmission oil. TVF&amp;R utilized absorbent to cover the area. There was no vehicle identified as the source of the oil spill.</li> </ol>	
Element 2: Industri	al and Com	mercial Fa	acilities					
Screen Existing and New Industrial Facilities	0	0	0	CWL-ESD	Notify DEQ of any existing or new industrial facilities within the City of West Linn jurisdiction that may potentially 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 one industrial business in West Linn, the West Linn Paper Company closed on 12/30/2017.	
Conduct Priority Facility Inspections	0	0	0	CWL-ESD	Inspect identified priority industrial or commercial facilities once during the permit term.	<ol> <li>Track the number and outcome of priority facility inspections conducted over the permit term.</li> </ol>	(1) No commercial or industrial inspections were performed during the reporting period. An SOP was developed to determine which commercial properties should be considered priority. Most of the high priority properties have been inspected throughout the permit term.	

\* indicates there is more information in Section 6.0 Additional Activities

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 continued – Status of Implementing Components of West Linn's 2012 Stormwater Management Plan (SWMP)							
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Informati Tracking Measure Status, Permit Ye	
Element 3: Constru	uction Site R	unoff Control						
Implement the Erosion Control Manual	0	•	•	City of West Linn Public Works Engineering Division and Planning Department	<ul> <li>Require submission of erosion control plans for development greater than 1000 ft2.</li> <li>Require a copy of all 1200-C permit applications for development greater than five acres.</li> <li>Assess new and redevelopment applications for erosion control compliance during plan review. Require erosion and sediment control plans not in compliance to be amended prior to approval in conjunction with provisions outlined in the Clackamas County Erosion Prevention and Sediment Control Manual (2008).</li> </ul>	<ol> <li>Report any updates or modifications to the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual (2008).</li> <li>Record the number of erosion control permit (City issued and DEQ issued) applications received.</li> <li>Track the number of erosion and sediment control plan reviews completed.</li> </ol>	<ol> <li>No updates or modifications to the 2009 Clac Prevention and Sediment Control Planning an occurred.</li> <li>West Linn issued a total of <u>38</u> Erosion Preven (37 Residential and <u>1</u> Commercial).</li> <li><u>38</u> Building Erosion Control plans reviewed, <u>5</u> reviews were completed during the land use process, <u>and 1</u> Erosion Control plan review w engineering construction review.</li> </ol>	
Provide Educational Information to Construction Site Operators	0	0	0	City of West Linn Public Works Department and Building Department	Provide educational information to construction site operators and the general public via brochures, flyers, pamphlets, and attachments to building and grading permit applications.	(1) Verify that this BMP was conducted.	(1) The City of West Linn Building Department has permit related flyers at its front office windo Protection Guide to Erosion Control can be for	
Conduct Erosion Control Inspections and Enforcement	0	•	•	City of West Linn Public Works Engineering Division	<ul> <li>Conduct an initial and a final site inspection on all sites with an erosion control plan for appropriate erosion control.</li> <li>As necessary, enforce appropriate erosion and sediment control in conjunction with the three-step progression as outlined on the City's website.</li> <li>Require all disturbed areas to be permanently stabilized or vegetated prior to final engineering or building inspection.</li> <li>Ensure a minimum of one additional erosion control inspection is conducted during active construction on all sites with an erosion control plan.</li> </ul>	<ol> <li>Track the number of erosion control inspections conducted each year.</li> <li>Report the number of notices of noncompliance and stop work orders issued, and describe the measures used to resolve the issue.</li> </ol>	<ul> <li>(1) The following number of erosion control (EC) conducted during the 2017 – 2018 reporting</li> <li>Preliminary Inspections: <u>4</u> Approved, <u>25</u> <u>7</u> Denied</li> <li>Mid Inspections: <u>6</u> Approved, <u>16</u> Approved Denied</li> <li>Final Inspections: <u>55</u> Approved, <u>5</u> Approved Denied</li> <li>(2) No notices of non-compliance or stop work of the 2017-2018 reporting year. Procedures for under additional activities in the column to the statement of the stateme</li></ul>	
Element 4: Educatio	on and Outr	each						
Provide Public Education and Outreach Materials Regarding Stormwater Management	0	0	0	City of West Linn Public Works Department	<ul> <li>Utilize newsletters, brochures, bill inserts, City web page, and radio advertisements to promote public awareness of stormwater quality issues and to provide information to encourage public reporting of illicit discharges.</li> <li>Continue to make annual monetary contributions to Tualatin Basin Public Awareness Committee (TBPAC).</li> </ul>	<ol> <li>Track the number, types, and topics of public educational materials dispersed to the public annually.</li> <li>Indicate any large-scale public educational campaigns initiated during a given year.</li> <li>Track coordinated public outreach activities with local co-permittees.</li> <li>Record the number of catch basins stenciled in a given year.</li> <li>Track amount donated to Tualatin Basin Public Awareness Committee (TBPAC) each year.</li> </ol>	<ol> <li>Quarterly, the City dispenses approximately 5 (Nature-Friendly Home and Yard Care) to eac where citizens are likely to visit: the first floo and the Adult Community Center.</li> <li>Appendix's C, D and E explain all of the public completed this FY.</li> <li>Coordinated educational efforts included the display for the Clackamas County Water Educ Annual Celebrating Water Event at Clackama March 20<sup>th</sup>, 2018.</li> <li>No catch basins were stenciled this reporting (5) The City paid \$900 to TBPAC, as well as funde of Clean Rivers &amp; Streams, (RCCR&amp;S) \$500 or committed to fund RCCR&amp;S \$1500 in the next</li> </ol>	
Implement a Pet Waste Program	•			City of West Linn Public Works Department & Parks and Recreation Department	<ul> <li>If pet waste is observed as a problem upon routine maintenance activities at public property, install educational signs and distribute educational door hangers at homes in the immediate vicinity of the identified problem areas.</li> <li>Continue to provide pet waste baggies and disposal areas in City parks for disposal of domestic animal waste.</li> </ul>	(1) Report on activities conducted annually.	(1) The City of West Linn currently has <u>52</u> dog was installed throughout the parks and open space 2018 reporting year, the City spent <u>\$4,798.80</u> monitors water quality facilities for pet waster observed to have issues, City staff distributes neighboring area to educate the public about pet waste issues this reporting year.	

on: ar 2017-2018	Additional Detail Related to Activities Conducted
kamas County Erosion ad Design Manual have tion Permits, <u>7</u> Erosion Control plan development application as completed during	
as several building and w. An Environmental bund out the City website.	
inspections were year: Approved w/conditions, yed w/conditions. 22	Permit violations are issued in a three step enforcement progression as follows: <b>1</b> <sup>st</sup> a written notice of the inspection findings and required corrections (Warning) <b>2</b> <sup>nd</sup> Should corrections not be implemented a
ved w/conditions, <u>13</u> rders were issued during r violations are listed he right.	notice of non-compliance will be issued with the required corrections. <b>3</b> <sup>rd</sup> Should corrections remain unaddressed a stop work order will be issued. Additionally, a stop work order may be issued at any time a permit violation occurs.
50 TBPAC brochures h of the city buildings r of City Hall, the Library e education that was staffing of a stormwater cation Team (CCWET) 13 <sup>th</sup> s Community College on year. ed the Regional Coalition 6/12/2018. We have t Fiscal Year. ste bag dispensers	<ul> <li>West Linn sponsored two earth friendly teaching/volunteer opportunities in the City this fiscal year.</li> <li>Arbor Week 3/31/2018 – 4/7/2018: tree education and native tree giveaway with Bartlett Tree experts as part of the Tree Protection Project at Mary S. Young Park and the volunteer planting at Marylhurst Hts. Park. These activities were in celebration of West Linn as a recipient of the Tree City USA award that West Linn has earned every year for 25 years.</li> <li>Earth Day Celebration 4/21/2018 brought out 250 volunteers to 8 Parks to pull ivy, remove blackberries and other invasive weeds, plant native plants, litter pick up and spread bark mulch along trails.</li> </ul>
este bag dispensers es. During the 2017 – on bags. City staff issues. If a facility is door hangers in the pet waste. There were no	

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 continued– Status of Implementing Components of West Linn's 2012 Stormwater Management Plan (SWMP)								
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Inforn Tracking Measure Status, Permi	
Element 4: Education	and Outread	ch Continue	ed					
Participate in a Public Education Effectiveness Evaluation	0	0	0	City of West Linn Public Works Department	• Coordinate with other local, Phase 1 jurisdictions in providing/ compiling information regarding a public education effectiveness evaluation over the permit term.	(1) Report on activities conducted annually.	(1) The City submitted a Public Education DEQ on July 1st, 2015. The Evaluation coordinated effort with ACWA and NF permittees in Oregon.	
Ensure Staff Training for Pest Management	0	0	0	City of West Linn Public Works Street Division and Parks and Recreation Department	<ul> <li>Provide training to Public Works and Parks department crews once every two years on proper pesticide and fertilizer application rates and techniques in conjunction with guidelines outlined in the IPM Plan.</li> </ul>	<ol> <li>Report on training conducted every two years.</li> </ol>	(1) The Transportation Division of Public hours of training in Pest Management staff received a total of <u>115</u> hours of I Management training. A total number	
Ensure Staff Training in Spill Response	0	0	0	Tualatin Valley Fire and Rescue	<ul> <li>Provide OSHA HAZWOPER training and refresher courses to staff initially responding to spills annually.</li> </ul>	<ol> <li>Track the number of employees receiving OSHA HAZWOPER training annually.</li> </ol>	(1) No City employee receives HAZWOPE on TVF&R staff as needed for spill res on emergency response contractors f	
*Promote Staff Education Related to Environmentally Friendly Solutions	0	0	0	City of West Linn Public Works Department	<ul> <li>Conduct municipal training for employees associated with stormwater management in the City.</li> <li>Continue to participate in, and attend environmental and water quality related professional meetings and conferences.</li> <li>Continue to maintain a budget for employee attendance of conferences.</li> <li>Continue to coordinate with other local Phase 1 jurisdictions regarding regional water quality efforts.</li> </ul>	<ol> <li>Track the number of employees receiving training in stormwater management annually.</li> <li>Track Operations and Engineering staff participation in professional organizations and attendance at relevant conferences.</li> </ol>	<ol> <li>See Table 5 on Page 9-10 for a completive trainings on stormwater.</li> <li>One West Linn staff is on the Board on Association of Clean Water Agencies See Table 5 on Page 9-10 for participations.</li> </ol>	
Element 6: Post-Cons	truction Site	Runoff	1					
Implement Community Development Code and Public Works Design Standards for Stormwater Treatment	•	•	•	City of West Linn Public Works Department and the Planning Department	Per City's Development Code, review all new development and applicable redevelopment for conformance with current City Stormwater Standards and Ordinances.	<ul> <li>(1) Track the number of development applications reviewed for compliance with the current Stormwater requirements for treatment and detention.</li> <li>(2) Track any modifications to the list of currently approved structural stormwater treatment facilities.</li> <li>(3) Track private BMP's that are implemented and their associated drainage areas.</li> </ul>	<ol> <li>A total of <u>5</u> land use development app for compliance with stormwater treat standards.</li> <li>No changes have been made to the list structural stormwater treatment facil Infiltration facilities including, Soakag Chambers are being increasingly used</li> <li>There were <u>21</u> new private facilities a <u>84,334</u> square feet of drainage area t Section 5.</li> </ol>	
*Review and Update the Applicable Code and Development Standards related to Stormwater Control	•	•	•	City of West Linn Planning and Public Works Departments	<ul> <li>Review the City's current stormwater treatment standards for compliance with new NPDES MS4 permit language.</li> <li>Review the City's Current public works development code provisions to ensure that applicable barriers related to the use of LID or GI techniques are minimized and eliminated where practicable.</li> <li>Update the City's existing post-construction stormwater design standards and code language by November 1, 2014.</li> </ul>	Track progress related to the review of the City's Code and development standards per provision in the NPDES MS4 Permit.	The most current version of the City of Po Management Manual (2016) has been ad Linn for design of stormwater facilities. W Construction Standards and Municipal Sto reviewed and barriers to GI and LID use ir identified and addressed. Rain gardens, d swales are typically used to meet the treat in the NPDES MS4 permit.	

\* indicates there is more information in Section 6.0 Additional Activities.

ation: : Year 2017-2018	Additional Detail Related to Activities Conducted
Effectiveness Evaluation to was completed as part of a DES MS4 Phase 1 and 2	
Vorks received a total of <u>79</u> . The Parks Department ntegrated Pest of hours trained: <u>194.</u>	
R training, instead we rely ponse. Also, the City relies or large spill emergencies.	
te listing of employee Directors for the ACWA) as the Vice Chair. tion in professional	These 2 tracking measures are combined in Table 5 under Section 6.2 on pages 9-10.
lications were reviewed ment and detention	
t of currently approved ities. However, use of e trenches and Storm dded in FY 2017-18 with reated. See Table 4 in	
rtland Stormwater opted by the City of West est Linn's Public Works irmwater Code have been projects have been etention ponds, and bio tment standards specified	

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 continued– Status of Implement	ing Components of West Linn's 2012 Stormw	vater Management Plan (SWMP)	
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012 SWMP)	Annual Report Information: Tracking Measure Status, Permit Year 2017-2018	Additional Detail Related to Activities Conducted
Element 7: Pollution P	revention f	or Municipa	al Operations					
Conduct Street Area Repair	0	•	0	City of West Linn Public Works Department	Ensure all road maintenance and repair activities implement appropriate erosion and sediment control to address potential water quality impacts.	(1) All City crew are required to implement erosion control measures at all times.	Both City crews and contractors are required to implement erosion control measures at all times.	The following verbiage is typical for construction plans: "Contractor shall provide erosion control best management practices per CWL Standards. Provide catch basin protection and continual sweeping so that no mud, sediment, or rock is left on the streets, with no additional compensation."
Maintain Public Streets	0	•	0	City of West Linn Public Works Department	Sweep each street between 3 and 6 times a year.	<ol> <li>Track the number of sweeps conducted annually.</li> <li>Track the volume of debris removed during sweeping activities.</li> <li>Track the amount (volume) of deicing agent used annually.</li> </ol>	<ol> <li>(1) <u>4 City-wide sweeps</u> were conducted.</li> <li>(2) Approximately <u>16.7 cubic yards</u> of material were removed.</li> <li>(3) <u>5,077 Gallons of deicing agent</u> was used in the winter of 2017/18.</li> </ol>	
Implement an Integrated Pest Management Program	0	0	•	City of West Linn Public Works Department and Parks and Recreation Department	<ul> <li>Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within City Parks, and around water quality facilities.</li> <li>Conduct work within public right-of-way only with certified, licensed applicators.</li> </ul>	<ol> <li>Track any updates or modifications to the referenced IPM procedures and protocols.</li> <li>Track the amount of money spent on pest management chemicals each year.</li> </ol>	(2) The City of West Linn Parks Department spent approximately \$ <u>2,668</u> on pest management chemicals. The Public Works Department, which includes the Transportation, Water and Environmental Divisions spent approximately <u>\$ 739.</u> The total spent by the City was <u>\$ 3,407.</u>	The City of West Linn uses the City of Portland IPM Program as an informal guide.
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	0	0	0	CWL-ESD	<ul> <li>Inventory municipal facilities subject to this permit requirement by July 1, 2013.</li> <li>By July 1, 2013, identify and implement strategies to reduce the impact of pollutant discharges from these facilities.</li> </ul>	(1) Track strategies used to minimize pollutant discharge.	No improvements were made to the Public Works Building or yard this reporting year.	

Appendix A continued– Status of Implementing Components of West Linn's 2012 Stormwater Management Plan (SWMP)								
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012 SWMP)	Annual Report Information: Tracking Measure Status, Permit Year 2017-2018	Additional Detail Related to Activities Conducted
Element 7: Pollution F	Prevention for	or Municipa	al Operations	·				
Control Infiltration and Cross Connections to the Stormwater Conveyance System	•	0	0	CWL-ESD	<ul> <li>Annually investigate for cracking and breakage, and repair as necessary based on the results of the inspection, a minimum of 5,000 linear feet of sanitary lines.</li> <li>Review new and redevelopment plan submittals for possible cross-connections.</li> <li>Inspect for potential cross-connections during dry weather field screening activities.</li> </ul>	<ol> <li>Indicate whether any sanitary sewer cross- connections were identified during sanitary line testing, during the plan review process, or during dry-weather field screening activities on an annual basis.</li> <li>Describe any follow-up activities required for identified cross-connections.</li> </ol>	<ol> <li>No cross connections were discovered while cleaning sanitary sewer lines, plan review or dry-weather field screening during the reporting period.</li> <li>N/A</li> </ol>	In the past 7 years, WL Public Works has completed over 125,000 linear feet of Cured-in-Place-Pipe (CIPP) on its sewer mains within the City. The City is completing an update to its Sanitary Sewer Master Plan that will include recommendations for future Inflow and Infiltration reduction strategies.
Conduct Master Planning for Stormwater Quality Improvement	•	•	•	City of West Linn Public Works Department	Ensure water quality is considered during the development of flood control CIPs.	<ol> <li>Track any updates or modifications to the current Stormwater Master Plan approved by the City.</li> <li>Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each.</li> <li>Map the location and drainage area of water quality CIPs as they are constructed.</li> </ol>	<ul> <li>(1) No updates were made to the Surface Water Master Plan in this reporting period. A contract was awarded to Brown &amp; Caldwell to update the Master Plan and is expected to be complete in early 2019. The City of West Linn is updating its Surface Water Master Plan (SMP) to improve understanding of system characteristics and infrastructure in the city. The SMP will support the prioritization of capital improvement projects (CIPs) and programmatic activities to address conveyance, capacity, and water quality for both existing and future development.</li> <li>(2) <u>PW-17-02 Valley View @ Suncrest Drive:</u> Upgraded the stormwater system to reduce flooding of local homes. <u>PW-17-03 Mary S. Young Park Culvert Replacement:</u> Contractor replaced washed out 18" Galvanized Culvert and replaced it with 24" N-12 HDPE pipe, 12" + rip/rap concrete spillway, jute netting on slopes and 1 foot compacted rock over fill for trail. <u>PW-17-05 Tanner Ridge @ Rosemont West Linn Funded Improvements:</u> Tanner Ridge is a 50 lot subdivision just built by Icon Construction between Rosemont Road and Parker Road. The City contracted with ICON Construction to construct Improvements on the North side of Rosemont and the South side of Parker to improve the stormwater system and install green street swales. These improvements eliminated standing water on Rosemont and added water quality stormwater facilities along Parker.</li> <li>(3) In May 2018, West Linn Public Works saw the retirement of their GIS coordinator that had worked for the City for 20 years. A new GIS coordinator started soon after and will continue the trend of mapping all new infrastructure.</li> </ul>	

### 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.

				Apper	ndix A continued – Status of Implementing Com	nponents of West Linn's 2012 Stormy	vater Management Plan (SWMP)
Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and SVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Inform Tracking Measure Status, Permit
Element 8: Stormwat	er Manageme	nt Facilities Op	peration and M	laintenance			
Conduct Stormwater Conveyance System Cleaning and Maintenance	•	•	0	CWL-ESD	Perform cleaning and repair promptly based on inspection results.	<ol> <li>Track the length of conveyance system inspected.</li> <li>Track the volume of debris removed during cleaning activities.</li> </ol>	<ul> <li>(1) <u>200</u> linear feet of stormwater pipe was</li> <li>(2) <u>10</u> cubic yards of debris was removed of</li> </ul>
Conduct Catch Basin Cleaning and Maintenance	•	•	0	CWL-ESD	<ul> <li>Inspect all public catch basins once per year, and clean as needed based on inspection results.</li> <li>Repair or replace catch basins promptly based on inspection results.</li> <li>Update tracking database during each maintenance cycle.</li> </ul>	<ol> <li>Track the number of catch basins inspected.</li> <li>Track the volume of debris removed during cleaning activities.</li> </ol>	<ol> <li>(1) <u>2853</u> catch basins were inspected, and cleaned during the 2017-2018 reportin</li> <li>(2) <u>63</u> cubic yards of debris were removed</li> </ol>
Public Structural Control Facility Cleaning and Maintenance	•	•	•	CWL-ESD	Inspect public structural water quality facilities annually and maintain based on inspection results.	<ol> <li>Track the number and frequency of structural facilities inspected and maintained.</li> <li>Track the volume of debris removed during cleaning activities.</li> </ol>	<ol> <li>The following water quality facilities w maintained during the 2017-2018 repo</li> <li>Pollution Control Manholes = (145 and 145 were Cleaned &amp; Maintaine</li> <li>Detention Tanks = (27 Detention T Cleaned or Maintained.</li> <li>Bio Swales = (18 Swales + Landscap spent on maintaining them.</li> <li>Water Quality Ponds = (49 Ponds), maintain.</li> <li>The volume of debris removed during cubic yards from Pollution Control Ma</li> </ol>
Private Water Quality Facility Maintenance Program	•	•	•	CWL-ESD & Engineering Dept.	<ul> <li>Require new private water quality facilities to submit maintenance agreements to the City.</li> <li>Require submittal of annual reports related to inspection and maintenance activities for private water quality facilities with existing maintenance agreements.</li> <li>Continue to work to identify the responsible parties associated with private water quality facilities that do not have an existing maintenance agreement.</li> <li>Provide formalized structural stormwater facilities inspection and maintenance documentation to private facility owners by July 1, 2013.</li> </ul>	<ol> <li>Track the number of new maintenance agreements submitted to the City each year.</li> <li>Track number of new and existing annual maintenance reports received each year.</li> </ol>	<ol> <li><u>19</u> new Private Stormwater maintenare recorded through the City's Engineer Clackamas County Recorder's Office reporting year.</li> <li>A total of <u>65</u> inspection reports were 2017-2018 reporting year after sendi private water quality facility owners their facilities. The inspection reports of each year for all facilities with or v maintenance agreements.</li> </ol>

nation: it Year 2017-2018	Additional Detail Related to Activities Conducted
s inspected. during cleaning activities.	
d <u>731</u> catch basins were ng year. d from catch basins.	Seven new catch basins were constructed by the stormwater crew this fiscal year.
vere inspected and orting year: 5 PCMH's), 145 inspected ed. Tanks), 27 Inspected and 0 ping strips), 41 Hours were , 262 hours were spent on g cleaning activities was: 33 Janholes.	
ance agreements were ring Department and the during the 2017-2018 e received during the ling <u>154</u> letters requesting to inspect and maintain ts are due by October 1 <sup>st</sup> without a recorded	The Environmental Technician inspected <u>27</u> private stormwater facilities, mostly rain gardens in this reporting period. These inspections were conducted on homes that have failed to return their inspection and maintenance forms back to the city in the last 4 years.

Appendix B

West Linn 2017-2018 Monitoring Data

	Location - Culver	t near 3821 Calaro	ga Drive						
INSTREAM MONITORING	Sample Site # W	L_01							
	Stream Name - T	rillium Creek							
		Grab Sample #1	Composite #1	Composite #2	Grab Sample #2		Statistics		
Analysis	Units	Dry Weather	Storm Event	Storm Event	Dry Weather	High	Low	Mean	Notes
		8/16/2017	10/12/2017	12/19/2017	6/11/2018	ingn	LOW	IVICAL	
Conductivity - Field	μS/cm	154.2	38.7	109.3	111.4	154.2	38.7	103.4	
Dissolved Oxygen - Field	mg/L	8.7	9.4	10.7	9.6	10.7	8.7	9.6	
Dissolved Oxygen - Winkler	mg/L	8.8	10.5	10.7	10.2	10.7	8.8	10.1	4
Dissolved Oxygen - Field	% Saturation	85	82	93	91	93	82	87.8	
pH - Field	Std Units	7.7	7.9	7.4	7.2	7.2	7.9	7.6	
Temperature - Field	°C	15.7	10.0	9.1	12.5	15.7	9.1	11.8	
Ammonia Nitrogen Low Seal	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	ND	ND	ND	3
Copper	ug/L	1.5	7.8	1.7	4.4	7.8	1.5	3.9	
Copper, Dissolved	ug/L	1.7	3.8	0.8	3.5	3.8	0.80	2.5	
E. coli	MPN/100mL	67	2421	228	770	2421	67	872	1, 2
Hardness	mg CaCO₃/L	78.0	22.0	68.0	44.0	78.0	22.0	53.0	
Lead	ug/L	0.12	1.3	0.35	0.31	1.3	0.12	0.52	
Lead, Dissolved	ug/L	0.02	0.06	0.01	0.08	0.08	0.01	0.04	
Nitrate-Nitrite Seal	mg/L	0.50	0.54	0.52	0.45	0.54	0.45	0.50	
Ortho Phosphate Seal	mg/L	< 0.01	0.04	0.04	0.04	0.04	ND	0.03	3
Total Phosphate Seal	mg/L	< 0.04	0.20	0.12	< 0.04	0.20	ND	0.08	3
Total Solids	mg/L	175.0	117.0	173.0	104.0	175.0	104.0	142.3	
Total Dissolved Solids	mg/L	188.0	78.0	134.0	93.0	188.0	78.0	123.3	
Total Suspended Solids	mg/L	7.0	59.0	16.0	6.0	59.0	6.0	22.0	
Volatile Solids	mg/L	53.0	40.0	46.0	34.0	53.0	34.0	43.3	
Zinc	ug/L	5.0	41.0	16.0	14.0	41.0	5.0	19.0	
Zinc, Dissolved	ug/L	3.0	13.0	5.0	11.0	13.0	3.0	8.0	
Storm Event Rainfall	Inches	N/A	0.90	0.21	N/A				3

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

(4) Dissolved Oxygen (Winker Method) samples are taken once at site WL\_01 site only, per sampling event as QA/QC for comparison with the electronic meter.

	Location - Culv	ert near 4103 impe	erial Drive							
INSTREAM MONITORING	Sample Site # \	NL_02								
	Stream Name - Tanner Creek									
		Grab Sample #1	Composite #1	Composite #2	Grab Sample #2		Statistics			
Analysis	Units	Dry Weather	Storm Event	Storm Event	Dry Weather	Lliab	Law	Maara	Notes	
		8/16/2017	10/12/2017	12/19/2017	6/11/2018	High	LOW	wean		
Conductivity - Field	μS/cm	101.3	34.8	46.6	96.6	101.3	34.8	69.8		
Dissolved Oxygen - Field	mg/L	8.2	9.1	9.8	9.6	9.8	8.2	9.2		
Dissolved Oxygen - Field	% Saturation	84	81	88	91	91	81	86		
pH - Field	Std Units	7.6	7.4	7.0	7.1	7.6	7.0	7.3		
Temperature - Field	°C	15.4	10.6	9.7	12.6	15.4	9.7	12.1		
Ammonia Nitrogen Low Seal	mg/L	< 0.05	> 0.05	< 0.05	< 0.05	ND	ND	ND	3	
Copper	ug/L	2.1	10.3	8.4	2.9	10.3	2.1	5.9		
Copper, Dissolved	ug/L	1.5	5.0	4.5	2.2	5.0	1.5	3.3		
E. coli	MPN/100mL	154	2421	1550	579	2421	154	1176	1, 2	
Hardness	mg CaCO₃/L	44.0	19.0	33.0	34.0	44.0	19.0	32.5		
Lead	ug/L	0.12	1.22	0.95	0.27	1.22	0.12	0.64		
Lead, Dissolved	ug/L	0.03	0.08	0.07	0.05	0.08	0.03	0.06		
Nitrate-Nitrite Seal	mg/L	0.58	0.40	0.67	0.78	0.78	0.40	0.61		
Ortho Phosphate Seal	mg/L	< 0.1	0.04	0.03	0.03	0.04	ND	0.03	3	
Total Phosphate Seal	mg/L	< 0.04	0.20	0.13	< 0.04	0.20	ND	0.08	3	
Total Solids	mg/L	113.0	94.0	114.0	89.0	114.0	89.0	102.5		
Total Dissolved Solids	mg/L	120.0	74.0	82.0	78.0	120.0	74.0	88.5		
Total Suspended Solids	mg/L	2.0	50.0	23.0	7.0	50.0	2.0	20.5		
Volatile Solids	mg/L	41.0	40.0	50.0	28.0	50.0	28.0	39.8		
Zinc	ug/L	7.0	42.0	90.0	18.0	90.0	7.0	39.3		
Zinc, Dissolved	ug/L	5.0	13.0	47.0	13.0	47.0	5.0	19.5		
Storm Event Rainfall	inches	N/A	0.90	0.21	N/A				3	

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

	Location - Culv	ert @ Johnson Rd a	& Ryan Ct						
INSTREAM MONITORING	Sample Site # \	WL_03							
	Stream Name	- Unnamed Creek							
		Grab Sample #1	Composite #1	Composite #2	Grab Sample #2		Statistics		
Analysis	Units	Dry Weather	Storm Event	Storm Event	Dry Weather	Lliab	Loui	Maan	Notes
		8/16/2017	10/12/2017	12/19/2017	6/11/2018	⊓ıgrı	LOW	wear	
Conductivity - Field	μS/cm	132.0	42.2	56.1	109.7	132.0	42.2	85.0	
Dissolved Oxygen - Field	mg/L	6.6	8.3	9.8	8.9	98.8	6.6	8.4	
Dissolved Oxygen - Field	% Saturation	68	75	87	84	87	68	78.5	
pH - Field	Std Units	7.5	7.4	7.0	7.0	7.5	7.0	7.2	
Temperature - Field	°C	16.2	11.2	9.8	12.9	16.2	9.8	12.5	
Ammonia Nitrogen Low Seal	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	ND	ND	ND	3
Copper	ug/L	1.2	3.7	6.2	2.0	6.2	1.2	3.3	
Copper, Dissolved	ug/L	0.90	2.5	2.0	1.6	2.5	0.90	1.8	
E. coli	MPN/100mL	110	1730	272	308	1730	110	605	1, 2
Hardness	mg CaCO₃/L	61.0	18.0	47.0	40.0	61.0	18.0	41.5	
Lead	ug/L	0.10	0.40	1.67	0.23	1.67	0.10	0.60	
Lead, Dissolved	ug/L	< 0.01	0.04	0.02	0.05	0.05	ND	0.03	3
Nitrate-Nitrite Seal	mg/L	0.18	0.26	0.39	0.73	0.73	0.18	0.39	
Ortho Phosphate Seal	mg/L	< 0.1	0.04	0.03	0.03	0.04	ND	0.03	3
Total Phosphate Seal	mg/L	< 0.04	0.10	0.28	< 0.04	0.28	ND	0.19	3
Total Solids	mg/L	143.0	58.0	201.0	100.0	201.0	58.0	125.5	
Total Dissolved Solids	mg/L	154.0	64.0	91.0	92.0	154.0	64.0	100.3	
Total Suspended Solids	mg/L	4.0	13.0	68.0	2.0	68.0	2.0	21.8	
Volatile Solids	mg/L	44.0	28.0	59.0	34.0	59.0	28.0	41.3	
Zinc	ug/L	13.0	36.0	207.0	27.0	207.0	13.0	70.8	
Zinc, Dissolved	ug/L	8.0	24.0	97.0	23.0	97.0	8.0	38.0	
Rain Fall Data in Inches	Inches	N/A	0.90	0.21	N/A				3

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

	Location - Horton Rd. @ Summit St. Outfall							
STORMWATER OUTFALL MONITORING	Sample Site # V	VL_04						
	Stream Name - Barlow Creek							
	Land Use - Resi	dential						
		Composite #1	Composite #2		Statistics			
Analysis	Units	Storm Event	Storm Event	High	Low	Moon	Notes	
		10/12/2017	12/19/2017	півії	LOW	IVIEdI		
Conductivity - Field	μS/cm	42.2	14.9	42.2	14.9	28.6		
Dissolved Oxygen - Field	mg/L	8.5	10.3	10.3	8.5	9.4		
Dissolved Oxygen - Field	% Saturation	80	91	91	80	85.5		
pH - Field	Std Units	7.7	7.0	7.7	7.0	7.4		
Temperature - Field	°C	12.9	9.0	12.9	9.0	11.0		
Ammonia Nitrogen Low Seal	mg/L	0.14	< 0.05	0.14	ND	0.07	3	
Copper	ug/L	19.5	20.2	20.2	19.5	19.9		
Copper, Dissolved	ug/L	16.1	15.0	16.1	15.0	15.6		
E. coli - Colilert	MPN/100mL	980	2421	2420	980	1700	1, 2	
Hardness	mg CaCO₃/L	14.0	9.0	14.0	9.0	11.5		
Lead	ug/L	0.60	0.85	0.85	0.60	0.73		
Lead, Dissolved	ug/L	0.25	0.20	0.25	0.20	0.23		
Nitrate-Nitrite Seal	mg/L	0.67	0.19	0.67	0.19	0.43		
Ortho Phosphate Seal	mg/L	0.03	0.06	0.06	0.03	0.05		
Total Phosphate Seal	mg/L	0.05	0.13	0.13	0.05	0.09		
Total Solids	mg/L	45.0	63.0	63.0	45.0	54.0		
Total Dissolved Solids	mg/L	67.0	31.0	67.0	31.0	49.0		
Total Suspended Solids	mg/L	5.0	10.0	10.0	5.0	7.5		
Volatile Solids	mg/L	27.0	39.0	39.0	27.0	33.0		
Zinc	ug/L	42.0	31.0	42.0	31.0	36.5		
Zinc, Dissolved	ug/L	36.0	25.0	36.0	25.0	30.5		
Rain Fall Data in Inches	Inches	0.90	0.21					

(1) MPN = Most Probable Number.

(2) Grey shading indicates samples that exceed the E. coli standard of 406 MPN/100mL.

(3) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit" and treated as 0 for calculations.

# Appendix C

# Tualatin Basin Public Awareness Committee Annual Report

July 1, 2017 – June 30<sup>th</sup>, 2018

# **Tualatin Basin Public Awareness Committee**

# Annual Report July 2017 – June 2018

The Tualatin Basin Public Awareness Committee (TBPAC) is a group of dedicated individuals with the single goal of protecting the Tualatin River Watershed through innovative stormwater public awareness and education activities. The TBPAC "Partners for Clean Water" have met since 1993 to leverage resources to deliver healthy watershed outreach programs at little or no cost to Tualatin Basin residents. The Fiscal Year 2018 participants included:

### **Sponsors**

Rebecca Tillson, Portland Bureau of Environmental Services Sonja Johnson, City of Lake Oswego Beth Randolph, City of West Linn Marissa Grass, City of Tigard Lacey Sullivan, Tualatin Soil & Water Conservation District Courtney Threewitt, Washington County Operations & Maintenance Gari Johnson, Clackamas County Water Environment Services Ely O'Connor, Clean Water Services Eli Bonilla, Clean Water Services Karen DeBaker, Clean Water Services

### **In-Kind Partners**

April Olbrich, Tualatin River Watershed Council Ruby Buchholz, Tualatin Riverkeepers Mary Logalbo, West Multnomah Soil & Water Conservation District

### **Designated Management Agencies**

Sheila Ault, OR Department of Agriculture Amin Wahab, City of Portland BES Sonja Johnson, City of Lake Oswego Roy Iwai, Multnomah County Mike Cardwell/Beth Randolph, City of West Linn John Nagy, Clackamas County WES Andrew Swanson, Clackamas County WES Todd Watkins, Washington County Rocky Brown, Washington County Donna Hempstead, Washington County Wade Peerman, DEQ Raj Kapur, Clean Water Services Bob Baumgartner, Clean Water Services Jerry Linder, Clean Water Services



### **Programs & Activities**

### **Stream Crossing Signs**

Members received new signs and replaced with those in poor condition in their jurisdiction. In 2014, over 200 stream crossings and signage conditions were located on Washington County public roads. Members agreed to update the most damaged signs.

### Discovery Day (\$1000)

TBPAC support helped put 142 community members on the river in 87 boats during the 29th annual Discovery Day on June 23 hosted by the Tualatin Riverkeepers. Eighty-six volunteers donated their time to assist paddlers, drive shuttles, promote and manage the event.

### Rumba al Rio (\$500)

The program is a partnership between the Tualatin Riverkeepers and Adelante Mujeres program which targets women and children. Rumba al Rio was incorporated into a week-long nature camp with Adelante Chicas.

### Naturescaping for Clean Rivers Workshop (\$53)

Twenty-one folks registered and 12 attended the Naturescaping class on June 3 at the Tualatin Soil & Water Conservation District (TSWCD) office in Hillsboro. TBPAC sponsored the refreshments. TBPAC will continue to work with TWSCD to sponsor additional workshops and assist with promotion.

### **Stormwater Tabletop Displays**

Members continued shared use of two stormwater interactive displays local community events.

### Will Hornyak "Living Stream" School Presentations (\$2480)

Storyteller Will Hornyak presented "Living Streams" presentations to 1,345 students in four schools, average of two assemblies per school:

- April 3: McKinney Elementary (Hillsboro) 300 students
- April 26: Quatama Elementary (Hillsboro) 320 students
- May 21: Markham Elementary (SW Portland) 475 students
- May 25: Reedville Elementary (Beaverton) 250 students

### McKinney Elementary:

Our third graders at McKinney absolutely loved having Will Hornyak visit our school. He is a great storyteller and the kids were very engaged with the story. Even some of our kids that struggle to pay attention had their eyes on him the whole time! They were laughing and learning. They came back from the story, talking about it the rest of the week. They learned about why it is important to keep water clean and the journey of water/living things all with a smile on their face. Thank you!

<u>Markham Elementary:</u> Great crowd involvement! Will left our students with not only a deeper understanding of protecting the environment, but also of protecting this corner of the greater Portland area.

### Nature-friendly Home & Yard Care Brochure

Members continued distribution of the popular brochure. Included are healthy watershed tips such as roof treatments, car washing and composting along with natural recipes for insect control, weed removal and garden soil amendment.







# Appendix D

# Clackamas River Water Providers Annual Accomplishments for the City of West Linn

July 1, 2017 – June 30<sup>th</sup>, 2018

Clackamas River Water Providers (CRWP) is a coalition of water providers that get their drinking water from the Clackamas River. The organization is made up of representatives from South Fork Water Broad for the City of West Linn and the City of Oregon City among many other cities. It was created by an Intergovernmental Agreement in the fall of 2007 to coordinate efforts regarding source water protection and public outreach and education around watershed issues, drinking water and water conservation. West Linn receives its drinking water from Clackamas River and the CRWP does Public Education for the residents of West Linn, the following is a look at the year in review.

1	AWWA Exemplary Source Water Protection Award	The CRWP were the recipient of the 2018 Exemplary Source Water Protection Award for Large Source Water Systems serving 50,001- 500,000 people by the American Water Works Association.
2	CRWP Website	Continues to be updated with outreach material, plans and reports that can be downloaded. Go to: <u>www.clackamasproviders.org</u> to visit the site.
3	Nonpoint Source Evaluation and Mitigation	ECO Biz Certification Support for West Linn Businesses.
4	Water Efficient Landscape Audit Program	3 audits were performed for West Linn Customers.
5	CRWP Staff participated at 3 Community events	7/15/2017 West Linn Old Time Fair 3/6/2018 West Linn High School Science Fair 6/13/2018 West Linn Farmers' Market.
6	2019 CRWP Children's Calendar	Trillium Creek Elementary in West Linn participated in the making of the calendar.
7	Mini Water Education Grants	2 schools in West Linn received the Grants: (3) 3 <sup>rd</sup> grade teachers at Bolton Elementary and (4) 2 <sup>nd</sup> grade teachers and (4) 5 <sup>th</sup> grade teachers at Willamette Primary.
8	Youth Education Program & Presentations	A total of 8 presentations were completed for West Linn youth: 7/25/2017 Willamette Park, Salmon Game, 50 students. 7/26/2017 Marylhurst Hts. Park, Salmon Game, 40 students. 7/27/2017 Robinwood Park, Water Cycle Play, 25 students. 9/22/2017 Bolton Primary, Fred the Fish, 25 students. 2/23/2018 Willamette Primary, Incredible Journey, 60 students. 2/27/2018 Cedar Oak Primary, Mad Science, 220 students. 3/1/2018 Willamette Primary, Incredible Journey, 60 students. 3/1/2018 Willamette Primary, Incredible Journey, 60 students.

# Appendix E

# Regional Coalition for Clean Rivers & Streams Annual Report

July 1, 2017 – June 30<sup>th</sup>, 2018



## **REGIONAL COALITION FOR CLEAN RIVERS AND STREAMS**

FISCAL YEAR 2017-2018 ANNUAL REPORT

SEPTEMBER 28, 2018



enviroissues



# FY 2017-18 OVERVIEW

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work in FY 2017-18 – initiated in the mid-1990s – of delivering coordinated messages to target behaviors linked to stormwater pollution from residential sources. The Coalition used print and digital advertising, social media and direct outreach at community events to promote stormwater messaging. The Coalition also included continued participation in the Clean Rivers and Streams Forum to develop collaborative relationships among agencies within and beyond the Portland metropolitan region.

Coalition participants are based in the Portland metropolitan region and include:

- Clackamas County Water Environment Services on behalf of members of the Clackamas copermittee group
  - o Clackamas County Service District No. 1
  - o City of Gladstone
  - o City of Lake Oswego
  - City of Milwaukie
  - City of Oregon City
  - o City of West Linn
  - o City of Wilsonville
  - o Oak Lodge Sanitary District
  - o Surface Water Management Agency of Clackamas County
- Clean Water Services (serving cities and other urban areas in Washington County)
- Multnomah County
- City of Gresham

This report covers July 1, 2017 - June 30, 2018. Supporting materials are included in an appendix.

### BACKGROUND

As identified in the 2013 Strategic Plan, the mission of the Coalition is to collaborate across the Portland metropolitan region to improve watershed health by changing household behaviors, curbing polluted runoff and better connecting people with the environments in which they live and play. Coalition members leverage their collective resources to conduct community outreach. 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 Municipal Separated Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition have diverse roles in conducting stormwater education and outreach. Clean Water Services, City of Gresham and Clackamas County Water Environment Services each have developed specific outreach programs for their jurisdictions. The Clackamas co-permittee group has used the creative materials developed by the Coalition to varying degrees. Multnomah County has permit requirements related to its roads and bridges.



The most recent cost sharing agreement among Coalition members was executed in December 2016. As of July 2017, Coalition members will develop a scope of work and cost sharing agreement and work under the Managing Oregon Resources Efficiently Intergovernmental Agreement (MORE-IGA) for FY 2017-18 activities.

### **REGIONAL AUDIENCE**

The Coalition targets 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 chemical pesticides applied to yards and lawns, nutrient 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 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.

### FY 2017-18 ACTIVITIES AND RESULTS

Activities during the reporting period focused on continuing to implement the Coalition's existing strategic plan with messaging and outreach using *The River Starts Here* marketing slogan.

### STRATEGIC PLAN IMPLEMENTATION

The Coalition acted on strategic plan goals as summarized below:

### Goal 1: Maintain a functioning Coalition

The Coalition maintained the approach and activities conducted in previous years of social media posts, advertising and community events. The Coalition meets several times a year for coordination and



collaboration. The Coalition continued efforts to expand its membership to increase the impact of its public education campaign.

### 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 newspaper and web advertising. Coalition representatives also continued to use temporary tattoos and branded T-shirts and banners to help promote clean water messages at individual outreach events held throughout the year. Clackamas Water Environment Services continues to provide a raindrop costume/prop inspired by *The River Starts Here* logo which is used to bring awareness in a light-hearted way at community events.



### Figure 1: Raindrop costume at The Big Float 2017 photobooth

### Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for future collaboration among agencies. The Coalition continues to conduct interactive outreach at community events and uses social media to broaden the Coalition's reach and determine any changes in messaging.



# **MESSAGING AND OUTREACH**

### **A**DVERTISING

Backyard Habitat Certification event boosted post

The Coalition boosted a post promoting an upcoming event hosted by the City of Gresham. The event showcased backyard habitats for pollinators with a focus on native plants.

The boosted post targeted men and women who are at least 30 years old, live in Gresham and are identified by Facebook as having two interests related to the event.

#### Metrics summary

\$13
1,018
\$12.77
108
12
0.012%

Clean Rivers and Streams Sponsored · 🛇 🖬 Like Page

Gresham residents: want to support our local pollinators and bring joy into your yard? Enroll in the Backyard Habitat program by Friday April 6th and receive \$35 in native plants-available for pick up on EARTHDAY April 28th! https://greshamoregon.gov/backyardhabitat/



Figure 2: The boosted post on Facebook



<sup>\*</sup> CPM is cost per 1,000 impressions.

<sup>&</sup>lt;sup>+</sup> CTR is click-through-rate.

#### **Display ads in Pamplin Community Newspapers**

Print ads were placed in Pamplin Community Newspapers in the Coalition area to promote The River Starts Here messaging. A summary of publications the print ads appeared in is shown in Table 3.

Pamplin Community Newspapers	Circulation	Readership
June 2017		
Forest Grove News-Times	5,000	12,000
<b>Beaverton Valley Times</b>	7,000	16,800
Hillsboro Tribune	illsboro Tribune 10,000	
July 2017		
Wilsonville Spokesman	3,500	8,400
Tigard/Tualatin Times	5,250	12,600
Clackamas Review	17,000	40,800
August 2017		
West Linn Tidings	3,900	9,360
Clackamas Review	17,000	40,800
September 2017		
Molalla Pioneer	3,500	8,400
Clackamas Review	17,000	40,800

#### Table 1: Print advertisement placements by month



Figure 3: Pamplin print ad

### Digital ads on the Clackamas Reviews' website

A digital ad was placed on the Clackamas Review's website via Pamplin Media from June to September 2017 to promote The River Starts Here messaging.



Figure 4: Pamplin web ad



### **CAMPAIGN SUMMARY**

Overall, the 2017-18 campaign focused on reaching as many of the Coalition's defined regional audience as possible and promoting in-person events that allow high-quality, interactive outreach.

Media	Outlet	Investment
Digital	Facebook	\$13
Digital	Pamplin website	\$1,180
Print	Pamplin newspapers	\$3,180
	TOTAL	\$4,373

#### Table 2: 2017-18 Coalition digital and print ad placement and investment

### COMMUNITY EVENTS AND AGENCY COLLABORATION

Representatives of member agencies promoted Coalition messages throughout the fiscal year and produced collateral materials emphasizing *The River Starts Here* brand and messages to support community events.

### Big Float 2017

Four members of the Coalition partnered with the Human Access Project to help put on The Big Float on July 15, 2017. Hundreds of participants attended the festivities.

The Coalition and the Human Access Project partnered to host a photobooth. "The River Starts Here" temporary tattoos and the water drop costume drove traffic to the photobooth. The Watershed Council held a table at the event as well.

The Coalition also partnered with Verde, an environmental justice nonprofit that serves low-income communities in Portland. Tickets for free admission was offered to Verde's network as part of the Coalition's clean water advocacy efforts.



Figure 5: The Big Float 2017

The City of Gresham, a Coalition member, developed a participant survey for the event and tabulated the results. The survey included demographic and geographic questions. The Coalition and its partners gathered this information to understand where Big Float participants live.



### Clean Rivers and Streams Forum

The Clean River and Streams Forum was conceived as part of a series of workshops with goals to create a vision for a more geographically-broad (statewide) collaboration, create a formal organizational structure and operational model, and begin planning and developing creative campaigns across a larger geographic area.

The Clean Rivers Coalition hosted the FY 2016-17 Forums to create a statewide partnership for stormwater jurisdictions and water-related nonprofits in Oregon. Its mission is, "Building the bridge between clean water and healthy communities through education and engagement." The group's steering committee consists of representatives from the cities of Keizer, Gresham, Salem, and Eugene, along with Multnomah County, Marion County, the Oregon Environmental Council and Clean Water Services. Two Regional Coalition members are on this steering committee.

Clean River Forums were held in FY 2017-18. The forums were attended by 50 participants in the fall and 80 participants in the spring to discuss goals for a statewide outreach campaign and priority pollutants. The November forum provided more focused direction in developing a strategic plan for the statewide outreach campaign. The campaign will be designed to encourage people to take action to reduce water pollution.

The Clean Rivers Coalition developed, submitted and won a grant in 2017 from the Meyer Memorial Trust's Willamette River Initiative for a statewide outreach campaign for clean water. The \$100,000, two-year grant is helping fund a strategic plan and develop a brand and campaign materials. The funds will be used in three phases:

- Grant Phase I: Strategic Plan Development, February 2018 September 2018
- Grant Phase II: Branding and Outreach Campaign Development, September 2018 May 2019
- Campaign Launch: June 2019

### Additional community events

*The River Starts Here* messaging was also disseminated at the following community events during FY 2017-18:

- Clackamas County Water Education Team Teacher Workshop, Aug. 2017
- Clackamas Down the River Cleanup, Sept. 2017
- Discover Rock Creek, Nov. 2017
- Children's Clean Water Festival, March 2018
- Clackamas Celebrating Water, March 2018
- WES & SOLVE Summer Waterway Cleanups Kickoff, May 2018



Figure 6: Discover Rock Creek



### WEBSITE: THERIVERSTARTSHERE.ORG

TheRiverStartsHere.org launched in June 2015. Web content includes an image slider with Coalition messages, links to member websites, the Coalition's latest posts on Facebook and Twitter, and additional web resources.

Total traffic on the website decreased substantially from the previous year which had a larger digital advertising effort. FY 2017-18's web traffic trends are most similar to those of FY 2015-16.

Top visitor locations include Portland, Oregon City, Vancouver and Hillsboro.

Web analytics show the website is of value to some visitors, but the high bounce rate suggests others did not find the information they expected. A little over 200 visits to the events indicates visitors are looking for event information.

Returning visitors accounted for about 10 percent of all visits during the fiscal year and spent about 45seconds on the site, on average, compared to just 22 seconds for new visitors. Many website visitors return within two months.

#### Table 3: TheRiverStartsHere.org analytics overview

	2015-16	2016-17	2017-18
Total sessions	1,194	7,558	963
Bounce rate, all traffic	89%	92%	89%
Bounce rate, search (organic) traffic	87%	72%	79%
Time on site	35 seconds	20 seconds	27 seconds
Traffic type			
Direct	36%	78%	40%
Organic (search engine)	19%	3%	23%
Referral	45%	18%	37%
Sessions by device			
Mobile	16%	71%	19%
Tablet	9%	17%	6%
Desktop	74%	12%	75%



Figure 7: TheRiverStartsHere.org website graphic



### SOCIAL MEDIA

The Coalition continued posting to its previously established social media channels. Social media messages build on existing conversations and connect with organizations around the region. The Coalition delivers its messages following its seasonal messaging calendar.

### Facebook page, Clean Rivers and Streams

The Coalition continued increasing the number of Facebook posts. While slightly fewer people were reached in FY2017-18 than FY2016-17, the number of people who are engaged with the Coalition almost doubled as seen by the information on daily engaged users. This was likely caused by nearly doubling the number of posts compared to the previous fiscal year. A summary of Coalition Facebook account use is as follows:

#### Table 4: Facebook page overview

	2015-16	2016-17	2017-18
Reach	1,171	391,433	336,145
Daily engaged users	92	2,673	5,168
New likes	37	158	255
Posts	7	45	82

Lifetime total likes: 1,169

### Twitter (@riverstartshere)

The Coalition increased its Twitter posts compared to the previous fiscal year and increased the number of followers by 99. While the Coalition tweeted less, it retained a similar number of followers. A summary of use during the fiscal year is as follows:

#### Table 5: Twitter account overview

	2015-16	2016-17	2017-18
Followers	1,343	1,442	1,447
Following	1,325	1,544	1,704
<b>Coalition tweets</b>	11	54	9



# FY 2017-18 BUDGET

Table 6: FY 2017-18 expenditures

	Services	Cost
Ads		
Pamplin Community News	Print and digital ad placements in local newspapers and news websites	\$ 4,360.00
Facebook	Sponsored post promoting an event	\$ 13.00
Subtotal		\$ 4,373.00
Event sponsorships		
The Big Float	Sponsorship including event table, watershed council table and event admissions shared with community groups serving traditionally underserved communities	\$ 12,653.00
Coordination support		
Envirolssues	Annual report preparation, social media authoring	\$ 2,974.00
	TOTAL	\$ 20,000.00

### **OBSERVATIONS**

The following observations are based on results of FY 2017-18 activities and suggest ways that the Coalition could adapt its outreach to continue reaching more people.

**Statewide collaboration:** The Coalition was deeply dedicated to the establishment and convening of the Clean Rivers Coalition, which was formed in the previous fiscal year. Therefore, the Regional Coalition for Clean Rivers and Streams maintained a small but strong outreach effort this fiscal year. The current Coalition members may consider consolidating strategy and messaging or working in tandem with this new group. In either case, accessing additional funding will allow for increased reach of clean water messages through new strategic opportunities.

**Social media:** The Coalition expanded its social media presence in FY 2016-17 compared to the previous year by placing more posts throughout the year and helping raise awareness of community events. There is opportunity to further maximize the impact of social media activity by creating and following a strategic approach that links Coalition messages with current events where appropriate; finesses the tone, taking a strategic approach to post timing, and content of posts; and links messages with partners and topics of public interest to encourage greater online interaction and organic reach.

**Website:** The Coalition website serves multiple purposes and audiences. For members of the public it shares messages promoting river-friendly actions. For potential funding partners it describes the Coalition's membership and mission. There is opportunity to reevaluate the purpose and approach to the Coalition's web presence to best meet the goals for both audiences.

**Community events:** The Coalition continued to expand its activities promoting and participating in community events. In the future, Coalition members may consider encouraging further individual use of



its messages and creative collateral by member agencies. There is also an opportunity to evaluate the Coalition's activities as a whole and identify which tactics were most effective at connecting with target audiences and continue to use standardized tracking metrics for future evaluation and decision-making.

Events were publicized via the website events page. Several partner and Coalition member events were promoted on the Coalition's Facebook events calendar for greater visibility.

**Digital advertising:** This year, the Coalition chose to pursue Pamplin newspaper and website ads, and a boosted post on Facebook. Strategically placed digital ads have a high return on investment in reach and impressions. These statistics can be tracked and reported, unlike print ads. Digital advertising as a whole is an effective tool to continue under a strategic approach.

### CONCLUSION

Based on campaign results, important points to consider for the 2018-19 campaign can further optimize the Coalition's investment in outreach and advertising and increase measurable outcomes.

- Develop and follow a holistic, cross-platform campaign strategy that integrates multiple goals of promoting behavior change with Coalition messages, online engagement and community outreach events. Align existing and potentially new tools with this strategy and champion its maintenance.
- Further optimize advertising by focusing on low-cost digital advertising that also encourages engagement that can be tracked and reported through analytics.
- Evaluate and focus the Coalition's social media strategy to promote meaningful engagement with followers and relay key messages to the public.
- Take a strategic look at the website to best determine its purpose and identify its target audience.
- Consider creating a partner toolkit for easy Coalition member and third-party access to materials that promote the Coalition's key messages.
- Continue to collect standardized metrics at in-person outreach events to enable assessment, reporting and identification of the most successful tactics.

