



City of West Linn, Oregon

NPDES MS4 Permit Annual Report

2018 – 2019 Reporting Year

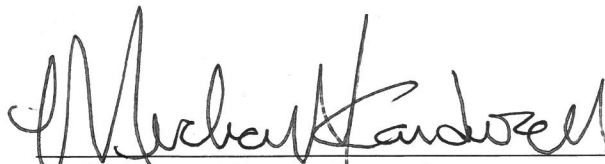
Prepared for the
Oregon Department of Environmental Quality October 31st, 2019

City of West Linn

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

JULY 1ST, 2018 – June 30th, 2019

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.



Date

10-31-19

Environmental Services Supervisor
City of West Linn Public Works

Table of Contents

<u>Section</u>	<u>Page No.</u>
1.0 INTRODUCTION	1
1.1 NPDES MS4 Permit Background.....	1
1.2 Document Organization.....	1-2
2.0 ADAPTIVE MANAGEMENT PROCESS IMPLEMENTATION.....	3
3.0 PROGRAM EXPENDITURES.....	4
4.0 ENVIRONMENTAL MONITORING PROGRAM.....	5-6
4.1 Summary of Monitoring Data.....	6
5.0 OVERVIEW OF PLANNING AND LAND USE CHANGES, UGB EXPANSIONS AND NEW DEVELOPMENT ACTIVITIES.....	7
5.1 Summary of Land Use Changes and UGB Expansions.....	7
5.2 Development Activities within the UGB.....	7-8
6.0 ADDITIONAL 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
7.0 TMDL IMPLEMENTATION.....	11-12

List of Tables

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: Willamette and Tualatin Rivers TMDL Implementation Status
Appendix D: Solve Events within 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) Permit No. 101348, 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, 2018 to June 30, 2019**. 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 16th, 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 included as Appendix C.

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 1st, 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) 2018 – 2019, and a projection of the City’s expenditures for FY 2019 - 2020 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, 2019			
	Department No. 432 Surface	Department No. 433 Sewer	Total Environmental Services Fund #505
Funding Sources:			
Charges for Services	\$ 960,000	\$ 2,600,000	\$ 3,560,000
SDC Reimbursement Fees	8,000	83,000	91,000
Interest	5,000	13,000	18,000
Transfer from other Funds	0	0	0
Misc.	0	0	0
Total	\$ 973,000	\$ 2,696,000	\$ 3,669,000
Expenditures			
Personal Services	\$ 424,000	\$ 194,000	\$ 618,000
Materials and Services	160,000	202,000	362,000
Capital Outlay	229,000	282,000	511,000
Transfers	0	0	0
Total	\$ 813,000	\$ 678,000	\$ 1,491,000
Projected Expenditures for 2019-2020			
Personal Services	\$ 544,000	\$ 276,000	\$ 820,000
Materials and Services	263,000	204,000	467,000
Capital Outlay	1,500,000	992,000	2,492,000
Transfers	0	0	0
Total	\$ 2,307,000	\$ 1,472,000	\$ 3,779,000

4.0 ENVIRONMENTAL MONITORING PROGRAM

The 2018-2019 reporting year represents the 2nd 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, Instream Monitoring 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.

Stormwater Monitoring 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 Outfall sample results are presented in Appendix B.

During the 2018-2019 monitoring year, the City collected required Instream samples (3) during storm events at 3 sites, but only collected Instream samples for 1 of the 2 dry weather samples required due to employee scheduling conflicts. The City collected the required samples (3) during storm events for their Stormwater Outfall Monitoring program. The City will attempt to collect an additional dry weather instream event during the 2019-2020 fiscal year to meet the City's monitoring requirements of the 2017 CCCSMP. However, collectively participants in the CCCSMP have met their 2018-19 monitoring requirements (i.e., data points), due to additional instream sampling conducted by WES.

Table 3 – West Linn Instream & Stormwater Outfall Monitoring Locations and Frequencies				
Site #	Creek Name, Location & Receiving Water	Collection Method	Required Frequency	Weather
Instream Monitoring				
WL_01	Trillium Creek at 3821 Calaroga Road that flows to the Willamette River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
WL_02	Tanner Creek at 4103 Imperial Drive that flows to the Willamette River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
WL_03	Unnamed Creek at Ryan Ct. & Johnson Road that flows to the Tualatin River	Grab & Composite	5/year	Dry Weather (2/year) & Storm Events (3/year)
Stormwater Outfall Monitoring				
WL_04	Barlow Creek Outfall at Summit St. & Horton Rd. that flows to the Willamette River	Composite	3/year	Storm Events Only

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 FY 2018/19. There were 3 annexations in this FY:

- 3.75 Acres at 22915 Weatherhill Road Changed from County FU-10 to R-7
- 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 were a total of 8.66 acres annexed into city limits.

5.2 Development Activities within the UGB

October 22, 2018 a Water Resource Protection Area permit was approved at 2180 8th Court to reduce the width of the water resource area. This property is mostly existing parking lot and invasive plant life. No construction was proposed within the Water Resource Area and mitigation and re-vegetation were conditions of approval.

October 16, 2018 a Water Resource Protection Area permit was approved at 19738 Wildwood Drive for the purposes of constructing a single-family home. This land was vacant prior to this approval. This site created 2,510 sq. ft. of impervious surface/disturbed area to be treated on-site with a rain garden and the applicant chose to mitigate off-site at a 2:1 ratio (5,020 sq. ft. of off-site credits) A building permit was issued for this project on April 17, 2019 and it is currently under construction.

On July 16, 2018 the annexation of property at 22864 Weatherhill Road was approved by City Council. The property brought 2.35 acres into the City limits without changing the urban growth boundary because this property was considered an ‘island’. This property is located near the middle of the City

and had not been annexed as land around it was brought into the City. No further land use action has been taken on this property. The property was brought into the City with one single-family home.

On July 16, 2018 the annexation of property at 22870 Weatherhill Road was approved by City Council. The property brought 2.56 acres into the City limits without changing the urban growth boundary because this property was considered an ‘island’. This property is located near the middle of the City and had not been annexed as land around it was brought into the City. The property was brought into the City with an existing single-family home and an accessory structure. A 12-lot subdivision was approved by the Planning Commission October 16, 2019.

On March 3, 2019 the annexation of property at 22915 Weatherhill Road was approved by City Council. The property brought 3.75 acres into the City limits without changing the urban growth boundary because this property was considered an ‘island’. This property is located near the middle of the City and had not been annexed as land around it was brought into the City. No further land use action has been taken on this property. The property was brought into the City with one single-family home and 2-3 existing accessory structures.

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 2018-2019 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 (2)	9,070	9,070
Privately Maintained Storm Detention (2)	312,132	128,000
Public Water Quality (1)	97,095	82,052
Private Storm Chambers (onsite retention) (3)	6,375	6,375
Total Square Feet	424,672	225,497
Acres	9.75	5.18

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 in August of 2018. 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 µS/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 th 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
ACWA Annual Conference	Bend	7/25-7/27/18	1
APWA National Conference	Kansas City, MO	8/26-8/29/18	1
DEQ Implementing the Willamette Basin Temperature TMDL	Portland	10/10/18	1
APWA Fall Conference	Canyonville	10/16-10/18/18	1
2019 Erosion and Stormwater Management Summit	Keizer	1/29/19	3
BMP Sizing Tools overview	Salem	3/13/19	1
DEQ Phase 1 MS4 NPDES Permitting Update	Portland	4/9/19	2

Table 6 – Employee Training & Relevant Conference Attendance

Name of Training	Location	Dates	Number of Employees
Environmental Law Education Center Conference on Toxics	Portland	5/1/19	1
ACWA Stormwater Summit	Eugene	5/8/19	2
Target Specialty Products- Portland Field Day	Portland	9/11/2018	5
Pesticide Right of Way Training	Portland	12/1/2018	1
Pesticide Right of Way Training	Portland	12/8/2018	1

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 2017-2018 NPDES MS4 Annual Report was posted to the City’s website on October 25, 2018 for public review and removed October 30, 2018, without any comments. The city submitted the annual report to DEQ before the deadline of November 1st, 2018.

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

The September 2019 Storm Drainage Master Plan, anticipated to be adopted by the City Council in November 2019, included a comprehensive review of the West Linn Municipal Code, West Linn Public Works Design Standards and Standard Construction Specifications (PWDS), and the West Linn Community Development Code (CDC). The Master Plan includes recommended updates to the PWDS and CDC intended to improve consistency with the NPDES MS4 permit requirements and guide developers implementing stormwater management in the City. Some of the recommendations were incorporated into the PWDS in October 2018. Others are under further review and consideration by City Staff.

7.0 TMDL Implementation

This section supplements TMDL Implementation activities documented in Appendix C.

The City of West Linn Parks and Recreation Department plays a large part managing streams and open spaces as part of the City's temperature management strategies. Appendix C provides a comprehensive summary of temperature management activities to meet the City's TMDL Implementation Plan requirements. A summary of the City's Parks and Recreation Department outreach programs and current activities is provided below to supplement Appendix C information.

1. Parks & Rec Volunteer Program: The Parks & Recreation Department has a robust volunteer program to remove invasive weeds and restore areas around streams in City parks including Mary S. Young, Burnside and Maddax Woods Parks. The program has the following goals:

- To recognize each volunteer's efforts through expressions of appreciation.
- To provide opportunities for volunteers to learn as much as possible about the organization's policies and programs.
- To place each volunteer in a position best utilizing their skills and in which they are most comfortable.
- To provide opportunity for growth and greater responsibility with helpful training and guidance.

The Department partners with SOLVE to host monthly work parties. See Appendix D for a complete list of SOLVE events.

2. Parks Recreation and Open Space Master Plan (PROS) Update: After an extensive public process, the Parks and Recreation Department updated their 2007 Master Plan. The overarching goal was to create a Master Plan that is relevant, implementable and inspiring to City residents. The Master Plan was approved by Council October 14, 2019.

3. West Linn Beaver Ambassadors: This is a natural resource awareness, education, and management program that uses beavers as a tool to teach and explore how we think about the natural resources in West Linn. Ambassadors work with schools, organizations, individuals, volunteers and at community events to celebrate and promote the function of beavers in our parks and rivers. By building dams, beavers slow water flow into the Willamette and Tualatin Rivers which helps to regulate flooding, attract wading birds like heron, and provide refuge to migratory fish. Woody inputs to streams increases insect biodiversity, (macroinvertebrates), which are a major food source for a variety of salmon and bird species. Larger mammals including fishers, deer, coyotes, river otters and foxes rely on beaver pond habitat. Dams create major changes to the hydrology and geology of our waterways. Sediment moving down streams becomes captured in beaver ponds and results in better water quality as streams trickle through, around or over beaver dams.

4. Monarch Butterfly Waystation: West Linn Parks and Recreation Department is one of more than 500 agencies across the U.S. participating in conservation activities to improve natural areas and promote the availability of milkweed, crucial to the survival of the Monarch. In 2015, Marylhurst Heights Park was selected as the first park location to be planted with milkweed. This park was selected because it receives full sunlight and is already established with a variety of native trees and shrubs while bordering a wetland area. There is no chemical pesticide application in the area immediately adjacent to the habitat areas, and instead it is maintained by hand weeding.

Several other high-quality habitat areas have been identified by the West Linn Parks system as pollinator friendly parks. Parts of Mary S. Young Park was cleared of invasive species and planted with milkweed seed as an Eagle Scout candidate project in 2016. Areas at the White Oak Savanna, Fields Bridge, Willamette and Tanner Creek Parks are also being planned to support the native butterflies and bees.

Appendix A

West Linn 2018-2019 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 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 Information: Tracking Measure Status, Permit Year 2018-2019	Additional Detail Related to Activities Conducted
Element 1: Illicit Discharge Detection and Elimination								
Implement the Illicit Discharge Elimination Program	○	○	○	City of West Linn Public Works Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"> Document and implement the details of the City’s IDDE program in a Standard Operating Procedures manual by November 1, 2012. For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City’s NPDES MS4 Permit. Track and record all identified illicit discharges and how such discharges were removed. 	<ol style="list-style-type: none"> Track the status of completing the IDDE SOP manual. Track the number, location, resolution, and enforcement activities related to any illicit discharge investigation conducted. 	<ol style="list-style-type: none"> 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. There were no potential illicit discharges reported or identified during the 2018-2019 reporting year. 	
*Conduct Annual Dry Weather Field Screening	○	○	○	CWL-ESD	<ul style="list-style-type: none"> Conduct dry weather, illicit discharge inspections annually at all priority outfall locations. Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012. If necessary, update existing mapping related to outfalls and priority outfall locations in accordance with field observations. 	<ol style="list-style-type: none"> Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities. Summarize inspection results and indicate outfalls requiring sampling and/or investigations. Indicate the outcome and resolution of any investigation activities conducted. 	<ol style="list-style-type: none"> Six high priority outfalls were inspected as part of the annual dry weather field screening activities on August 7, 2018. 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. 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). 	
Implement the Spill Response Program	○	○	○	CWL-ESD and Tualatin Valley Fire and Rescue (TVFR) (via contract with the City)	<ul style="list-style-type: none"> CWL-ESD to respond to minor spills. Call Tualatin Valley Fire and Rescue to respond to significant spills. 	<ol style="list-style-type: none"> Indicate the number of spills reported to the City of West Linn Environmental Services. Track the number of spills responded to by the City of West Linn Environmental Services and Tualatin Valley Fire and Rescue. Indicate sources, causes, and types of discharges resulting from identified spill activities. 	<ol style="list-style-type: none"> No spills were reported to West Linn’s Environmental Services Division of Public Works. Tualatin Valley Fire and Rescue (TVF&R) responded to 1 spill this reporting year. A report of diesel smell was responded to by TVF&R in the parking lot at 19133 Willamette DR. A storm drain was located with a potential diesel fuel mixture in it. Absorbent pads were placed in the storm drain and the mixture removed. No source of the fuel was located. 	
Element 2: Industrial and Commercial Facilities								
Screen Existing and New Industrial Facilities	○	○	○	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.	<ol style="list-style-type: none"> Track the number of existing or new facilities subject to a stormwater industrial NPDES permit during the permit term. 	<ol style="list-style-type: none"> The one industrial business in West Linn, the West Linn Paper Company reopened in the summer of 2019. The facility operates under an NPDES permit issued by DEQ (facility #21489). 	
Conduct Priority Facility Inspections	○	○	○	CWL-ESD	Inspect identified priority industrial or commercial facilities once during the permit term.	<ol style="list-style-type: none"> Track the number and outcome of priority facility inspections conducted over the permit term. 	<ol style="list-style-type: none"> 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

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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 Information: Tracking Measure Status, Permit Year 2018-2019	Additional Detail Related to Activities Conducted
Element 3: Construction Site Runoff Control								
Implement the Erosion Control Manual	○	●	●	City of West Linn Public Works Engineering Division and Planning Department	<ul style="list-style-type: none"> Require submission of erosion control plans for development greater than 1000 ft². Require a copy of all 1200-C permit applications for development greater than five acres. 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). 	<ol style="list-style-type: none"> Report any updates or modifications to the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual (2008). Record the number of erosion control permit (City issued and DEQ issued) applications received. Track the number of erosion and sediment control plan reviews completed. 	<ol style="list-style-type: none"> No updates or modifications to the 2009 Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual have occurred. West Linn received a total of <u>52</u> Erosion Prevention Permit applications. <u>52</u> Building Erosion Control plans were reviewed, amended, and issued. 	
Provide Educational Information to Construction Site Operators	○	○	○	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.	<ol style="list-style-type: none"> Verify that this BMP was conducted. 	<ol style="list-style-type: none"> The City of West Linn Building Department has several building and permit related flyers at its front office window. An Environmental Protection Guide to Erosion Control can be found out the City website. 	
Conduct Erosion Control Inspections and Enforcement	○	●	●	City of West Linn Public Works Engineering Division	<ul style="list-style-type: none"> Conduct an initial and a final site inspection on all sites with an erosion control plan for appropriate erosion control. As necessary, enforce appropriate erosion and sediment control in conjunction with the three-step progression as outlined on the City’s website. Require all disturbed areas to be permanently stabilized or vegetated prior to final engineering or building inspection. Ensure a minimum of one additional erosion control inspection is conducted during active construction on all sites with an erosion control plan. 	<ol style="list-style-type: none"> Track the number of erosion control inspections conducted each year. Report the number of notices of non-compliance and stop work orders issued, and describe the measures used to resolve the issue. 	<ol style="list-style-type: none"> The following number of erosion control (EC) inspections were conducted during the 2018 – 2019 reporting year: <ul style="list-style-type: none"> Preliminary Inspections: <u>4</u> Approved, <u>18</u> Approved w/conditions, <u>12</u> Denied Mid Inspections: <u>5</u> Approved, <u>16</u> Approved w/conditions, <u>10</u> Denied Final Inspections: <u>28</u> Approved, <u>0</u> Approved w/conditions, <u>11</u> Denied No notices of non-compliance or stop work orders were issued during the 2018-2019 reporting year. Procedures for violations are listed under additional activities in the column to the right. 	<p>Permit violations are issued in a three step enforcement progression as follows:</p> <p>1st a written notice of the inspection findings and required corrections (Warning)</p> <p>2nd Should corrections not be implemented, a notice of non-compliance will be issued with the required corrections.</p> <p>3rd 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.</p>
Element 4: Education and Outreach								
Provide Public Education and Outreach Materials Regarding Stormwater Management	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> 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. Continue to make annual monetary contributions to Tualatin Basin Public Awareness Committee (TBPAC). 	<ol style="list-style-type: none"> Track the number, types, and topics of public educational materials dispersed to the public annually. Indicate any large-scale public educational campaigns initiated during a given year. Track coordinated public outreach activities with local co-permittees. Record the number of catch basins stenciled in a given year. Track amount donated to Tualatin Basin Public Awareness Committee (TBPAC) each year. 	<ol style="list-style-type: none"> Quarterly, the City dispenses approximately 50 TBPAC brochures (Nature-Friendly Home and Yard Care) to each of the city buildings where citizens are likely to visit: the first floor of City Hall, the Library and the Adult Community Center. Appendix’s C, D and E explain all of the public education that was completed this FY. Due to scheduling conflicts, the city was unable to provide staff for outreach activities with local co-permittees during this reporting year. No catch basins were stenciled this reporting year. The City paid \$900 to TBPAC, as well as funded \$1500 to the Regional Coalition of Clean Rivers & Streams (RCCR&S) 	<p>West Linn sponsored several earth friendly teaching/volunteer opportunities in the City this fiscal year.</p> <ul style="list-style-type: none"> January 2019 over 200 native plants planted in Mary S Young Park to prevent erosion on embankments where ivy was removed Arbor Week 4/7 - 4/13/19: tree pruning demonstrations and education and native tree and shrub giveaways in celebration of West Linn as a recipient of the Tree City USA award Earth Day Celebration brought out 200 volunteers to remove invasive weeds and plant natives, along with litter removal
Implement a Pet Waste Program	●			City of West Linn Public Works Department & Parks and Recreation Department	<ul style="list-style-type: none"> 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. Continue to provide pet waste baggies and disposal areas in City parks for disposal of domestic animal waste. 	<ol style="list-style-type: none"> Report on activities conducted annually. 	<ol style="list-style-type: none"> The City of West Linn currently has <u>55</u> dog waste bag dispensers installed throughout the parks and open spaces. During the 2018 – 2019 reporting year, the City spent <u>\$7,998.00</u> on bags. City staff monitors water quality facilities for pet waste issues. If a facility is observed to have issues, City staff distributes door hangers in the neighboring area to educate the public about pet waste. There were no pet waste issues this reporting year. 	

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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 Information: Tracking Measure Status, Permit Year 2018-2019	Additional Detail Related to Activities Conducted
Element 4: Education and Outreach Continued								
Participate in a Public Education Effectiveness Evaluation	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> 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 Effectiveness Evaluation to DEQ on July 1st, 2015. The Evaluation was completed as part of a coordinated effort with ACWA and NPDES MS4 Phase 1 and 2 permittees in Oregon.	
Ensure Staff Training for Pest Management	○	○	○	City of West Linn Public Works Street Division and Parks and Recreation Department	<ul style="list-style-type: none"> 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. 	(1) Report on training conducted every two years.	(1) The Transportation Division of Public Works received a total of <u>51</u> hours of training in Pest Management. The Parks Department staff received a total of <u>77</u> hours of Integrated Pest Management training. A total number of hours trained: <u>128</u> .	
Ensure Staff Training in Spill Response	○	○	○	Tualatin Valley Fire and Rescue	<ul style="list-style-type: none"> Provide OSHA HAZWOPER training and refresher courses to staff initially responding to spills annually. 	(1) Track the number of employees receiving OSHA HAZWOPER training annually.	(1) No City employee receives HAZWOPER training, instead we rely on TVF&R staff as needed for spill response. Also, the City relies on emergency response contractors for large spill emergencies.	
*Promote Staff Education Related to Environmentally Friendly Solutions	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"> Conduct municipal training for employees associated with stormwater management in the City. Continue to participate in, and attend environmental and water quality related professional meetings and conferences. Continue to maintain a budget for employee attendance of conferences. Continue to coordinate with other local Phase 1 jurisdictions regarding regional water quality efforts. 	(1) Track the number of employees receiving training in stormwater management annually. (2) Track Operations and Engineering staff participation in professional organizations and attendance at relevant conferences.	(1) See Table 6 on Page 9-10 for a complete listing of employee trainings on stormwater. (2) One West Linn staff is on the Board of Directors for the Association of Clean Water Agencies (ACWA) as the Chair. See Table 6 on Page 9-10 for participation in professional organizations.	These 2 tracking measures are combined in Table 6 under Section 6.2 on pages 9-10.
Element 6: Post-Construction Site Runoff								
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.	(1) Track the number of development applications reviewed for compliance with the current Stormwater requirements for treatment and detention. (2) Track any modifications to the list of currently approved structural stormwater treatment facilities. (3) Track private BMP’s that are implemented and their associated drainage areas.	(1) A total of <u>5</u> land use development applications were reviewed for compliance with stormwater treatment and detention standards. (2) No changes have been made to the list of currently approved structural stormwater treatment facilities. However, use of Infiltration facilities including, Soakage trenches and Storm Chambers are being increasingly used. (3) There were <u>7</u> new private facilities added in FY 2018-19 with <u>327,577</u> square feet of drainage area treated. See Table 4 in Section 5.2	
*Review and Update the Applicable Code and Development Standards related to Stormwater Control	●	●	●	City of West Linn Planning and Public Works Departments	<ul style="list-style-type: none"> Review the City’s current stormwater treatment standards for compliance with new NPDES MS4 permit language. 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. Update the City’s existing post-construction stormwater design standards and code language by November 1, 2014. 	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 Portland Stormwater Management Manual (2016) has been adopted by the City of West Linn for design of stormwater facilities. West Linn’s Public Works Construction Standards and Municipal Stormwater Code have been reviewed and barriers to GI and LID use in projects have been identified and addressed. Rain gardens, detention ponds, and bio swales are typically used to meet the treatment standards specified in the NPDES MS4 permit.	

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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 2018-2019	Additional Detail Related to Activities Conducted
Element 7: Pollution Prevention for Municipal Operations								
Conduct Street Area Repair	○	●	○	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	○	●	○	City of West Linn Public Works Department	Sweep each street between 3 and 6 times a year.	(1) Track the number of sweeps conducted annually. (2) Track the volume of debris removed during sweeping activities. (3) Track the amount (volume) of deicing agent used annually.	(1) <u>4 City-wide sweeps</u> were conducted. (2) Approximately <u>837.5 cubic yards</u> of material were removed. (3) <u>4,405 Gallons of deicing agent</u> was used in the winter of 2018/19.	
Implement an Integrated Pest Management Program	○	○	●	City of West Linn Public Works Department and Parks and Recreation Department	<ul style="list-style-type: none"> 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. Conduct work within public right-of-way only with certified, licensed applicators. 	(1) Track any updates or modifications to the referenced IPM procedures and protocols. (2) Track the amount of money spent on pest management chemicals each year.	(2) The City of West Linn Parks Department spent approximately \$ <u>1,700</u> on pest management chemicals. The Public Works Department, which includes the Transportation, Water and Environmental Divisions spent approximately \$ <u>900</u> . The total spent by the City was \$ <u>2,600</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	○	○	○	CWL-ESD	<ul style="list-style-type: none"> Inventory municipal facilities subject to this permit requirement by July 1, 2013. By July 1, 2013, identify and implement strategies to reduce the impact of pollutant discharges from these facilities. 	(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 2018-2019	Additional Detail Related to Activities Conducted
Element 7: Pollution Prevention for Municipal Operations								
Control Infiltration and Cross Connections to the Stormwater Conveyance System	●	○	○	CWL-ESD	<ul style="list-style-type: none"> 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. Review new and redevelopment plan submittals for possible cross-connections. Inspect for potential cross-connections during dry weather field screening activities. 	<p>(1) 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.</p> <p>(2) Describe any follow-up activities required for identified cross-connections.</p>	<p>(1) No cross connections were discovered while cleaning sanitary sewer lines, plan review or dry-weather field screening during the reporting period.</p> <p>(2) N/A</p>	
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.	<p>(1) Track any updates or modifications to the current Stormwater Master Plan approved by the City.</p> <p>(2) Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each.</p> <p>(3) Map the location and drainage area of water quality CIPs as they are constructed.</p>	<p>(1) A contract was awarded to Brown & Caldwell to update the Master Plan and the update is currently under development (anticipated to be adopted November 12, 2019). The City of West Linn is updating its Storm Drainage Master Plan (SDMP) to improve understanding of system characteristics and infrastructure in the city. The SDMP 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.</p> <p>(2) No CIP projects were implemented this reporting year.</p> <p>(3) This year we updated our GIS architecture. Our new system reflects current best practices and supports a suite of field and mobile applications that will streamline data edits and make quality control easier. Efforts to improve the completeness and accuracy of our GIS data are ongoing.</p>	

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Element 8: Stormwater Management Facilities Operation and Maintenance								
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	○	CWL-ESD	Perform cleaning and repair promptly based on inspection results.	(1) Track the length of conveyance system inspected. (2) Track the volume of debris removed during cleaning activities.	(1) <u>160</u> linear feet of stormwater pipe was inspected. (2) <u>10</u> cubic yards of debris was removed during cleaning activities.	
Conduct Catch Basin Cleaning and Maintenance	●	●	○	CWL-ESD	<ul style="list-style-type: none"> Inspect all public catch basins once per year, and clean as needed based on inspection results. Repair or replace catch basins promptly based on inspection results. Update tracking database during each maintenance cycle. 	(1) Track the number of catch basins inspected. (2) Track the volume of debris removed during cleaning activities.	(1) <u>2862</u> catch basins were inspected, and <u>551</u> catch basins were cleaned during the 2018-2019 reporting year. (2) <u>22</u> cubic yards of debris were removed from catch basins.	Ten new catch basins were constructed by the stormwater crew this fiscal year.
Public Structural Control Facility Cleaning and Maintenance	●	●	●	CWL-ESD	Inspect public structural water quality facilities annually and maintain based on inspection results.	(1) Track the number and frequency of structural facilities inspected and maintained. (2) Track the volume of debris removed during cleaning activities.	(1) The following water quality facilities were inspected and maintained during the 2018-2019 reporting year: <ul style="list-style-type: none"> Pollution Control Manholes = (145 PCMH’s), 145 inspected and 141 were Cleaned & Maintained. Detention Tanks = (27 Detention Tanks), 27 Inspected and 0 Cleaned or Maintained. Bio Swales = (18 Swales + Landscaping strips), 74 Hours were spent on maintaining them. Water Quality Ponds = (52 Ponds), 223 hours were spent on maintain. (2) The volume of debris removed during cleaning activities was: 11 cubic yards from Pollution Control Manholes.	
Private Water Quality Facility Maintenance Program	●	●	●	CWL-ESD & Engineering Dept.	<ul style="list-style-type: none"> Require new private water quality facilities to submit maintenance agreements to the City. Require submittal of annual reports related to inspection and maintenance activities for private water quality facilities with existing maintenance agreements. Continue to work to identify the responsible parties associated with private water quality facilities that do not have an existing maintenance agreement. Provide formalized structural stormwater facilities inspection and maintenance documentation to private facility owners by July 1, 2013. 	(1) Track the number of new maintenance agreements submitted to the City each year. (2) Track number of new and existing annual maintenance reports received each year.	(1) <u>9</u> new Private Stormwater maintenance agreements were recorded through the City’s Engineering Department and the Clackamas County Recorder’s Office during the 2018-2019 reporting year. (2) A total of <u>36</u> inspection reports were received during the 2018-2019 reporting year after sending letters requesting private water quality facility owners to inspect and maintain their facilities. The inspection reports are due by October 1 st of each year for all facilities with or without a recorded maintenance agreements.	

Appendix B

West Linn 2018-2019 Monitoring Data

Appendix B – Stormwater Monitoring Data

Location - Culvert near 3821 Calaroga Drive INSTREAM MONITORING Sample Site # WL_01 Stream Name - Trillium Creek									
Analysis	Units	Grab Sample #1 Dry Weather 8/8/2018	Composite #1	Composite #2	Composite #3	Statistics			Notes
			Storm Event 11/2/2018	Storm Event 1/17/2019	Storm Event 6/28/2019	High	Low	Mean	
Conductivity - Field	µS/cm	196.9	111.6	100.5	127.7	196.9	100.5	134.2	4
Dissolved Oxygen - Field	mg/L	9.7	11.1	11.9	10.4	11.9	9.7	10.8	
Dissolved Oxygen - Winkler	mg/L	7.3	8.7	11.0	8.0	11.0	7.3	8.8	
Dissolved Oxygen - Field	% Saturation	105	107	99	100	107	99	103	
pH - Field	Std Units	7.6	6.7	6.9	7.65	7.65	6.7	7.21	
Temperature - Field	°C	18.5	13.6	6.2	13.3	18.5	6.2	12.9	
Ammonia Nitrogen Low Seal	mg/L	ND	ND	ND	ND	ND	ND	ND	3
Copper	ug/L	1.88	5.23	5.45	6.34	6.34	1.88	4.72	1,2
Copper, Dissolved	ug/L	3.92	3.94	2.34	5.44	5.44	2.34	3.91	
E. coli	MPN/100mL	308	194	435	1300	1300	194	559	
Hardness	mg CaCO ₃ /L	80.0	72.0	42.0	60.0	80.0	42.0	64	3
Lead	ug/L	4.42	3.48	0.924	0.241	4.42	0.241	2.26	
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	ND	
Nitrate-Nitrite Seal	mg/L	0.34	0.55	0.49	0.55	0.55	0.34	0.48	
Ortho Phosphate Seal	mg/L	0.102	ND	ND	ND	0.102	ND	0.02	
Total Phosphate Seal	mg/L	0.11	0.05	0.12	0.20	0.20	0.05	0.12	
Total Solids	mg/L	240.0	110.0	70.0	170.0	240.0	70.0	147.5	
Total Dissolved Solids	mg/L	159.0	10.0	79.0	116.0	159.0	10.0	91.0	
Total Suspended Solids	mg/L	4.0	20.0	3.0	7.0	20.0	3.0	8.5	
Volatile Solids	mg/L	60.0	40.0	30.0	30.0	60.0	30.0	40.0	
Zinc	ug/L	9.22	37.6	21.2	15.5	37.6	9.22	20.88	3
Zinc, Dissolved	ug/L	19.7	8.05	19.7	24.0	24.0	8.05	17.9	
Storm Event Rainfall	Inches	N/A	0.10	0.10	0.30	N/A			3

Notes: Red font indicates a potential QA/QC issue.

(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.

Appendix B – Stormwater Monitoring Data

Location - Culvert near 4103 imperial Drive									
INSTREAM MONITORING									
Sample Site # WL_02									
Stream Name - Tanner Creek									
Analysis	Units	Grab Sample #1	Composite #1	Composite #2	Composite #3	Statistics			Notes
		Dry Weather 8/8/2018	Storm Event 11/2/2018	Storm Event 1/17/2019	Storm Event 6/28/2019	High	Low	Mean	
Conductivity - Field	µS/cm	122.0	89.5	99.3	114.3	122.0	89.5	86.0	
Dissolved Oxygen - Field	mg/L	9.5	11.0	11.3	10.2	11.3	9.5	10.5	
Dissolved Oxygen - Field	% Saturation	101	108	97	99	108	97	101	
pH - Field	Std Units	7.6	6.6	6.9	7.4	7.6	6.6	7.1	
Temperature - Field	°C	18.5	13.7	7.7	14.0	18.5	7.7	13.5	
Ammonia Nitrogen Low Seal	mg/L	ND	ND	ND	ND	ND	ND	ND	3
Copper	ug/L	3.04	6.68	3.51	4.1	6.68	3.04	4.33	
Copper, Dissolved	ug/L	6.79	5.72	1.14	4.35	6.79	1.14	4.50	
E. coli	MPN/100mL	156	1986	112	461	1986	112	679	1, 2
Hardness	mg CaCO ₃ /L	42.0	48.0	44.0	50.0	50.0	42.0	46.0	
Lead	ug/L	4.75	5.23	0.58	ND	5.23	ND	2.64	3
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	ND	3
Nitrate-Nitrite Seal	mg/L	0.76	0.41	0.79	0.59	0.79	0.41	0.63	
Ortho Phosphate Seal	mg/L	0.12	ND	ND	ND	0.12	ND	0.03	3
Total Phosphate Seal	mg/L	0.06	ND	0.09	0.17	0.17	ND	0.08	3
Total Solids	mg/L	150.0	50.0	160.0	160.0	160.0	50.0	130.0	
Total Dissolved Solids	mg/L	94.0	24.0	53.0	108.0	108.0	24.0	69.75	
Total Suspended Solids	mg/L	ND	9.0	2.0	4.0	9.0	ND	3.75	3
Volatile Solids	mg/L	30.0	50.0	30.0	30.0	50.0	30.0	35.0	
Zinc	ug/L	9.73	44.3	68.9	25.7	68.9	9.73	37.2	
Zinc, Dissolved	ug/L	17.8	23.1	60.2	34.8	60.2	17.8	34.0	
Storm Event Rainfall	inches	N/A	0.10	0.10	0.30				3

Notes: Red font indicates a potential QA/QC issue.

(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.

Appendix B – Stormwater Monitoring Data

Location - Culvert @ Johnson Rd & Ryan Ct									
INSTREAM MONITORING Sample Site # WL_03									
Stream Name - Unnamed Creek									
Analysis	Units	Grab Sample #1	Composite #1	Composite #2	Composite #3	Statistics			Notes
		Dry Weather	Storm Event	Storm Event	Storm Event	High	Low	Mean	
		8/8/2018	11/2/2018	1/17/2019	6/28/2019				
Conductivity - Field	µS/cm	156.3	87.4	123.6	140.8	156.3	87.4	127.0	
Dissolved Oxygen - Field	mg/L	8.4	10.0	10.6	9.6	10.6	8.4	9.7	
Dissolved Oxygen - Field	% Saturation	93	98	92	95	98	92	95	
pH - Field	Std Units	7.4	6.3	7.0	7.3	7.4	6.3	7.0	
Temperature - Field	°C	19.9	14.0	8.0	14.7	19.9	8.0	14.2	
Ammonia Nitrogen Low Seal	mg/L	ND	ND	ND	ND	ND	ND	ND	3
Copper	ug/L	2.15	6.50	2.52	3.27	6.50	2.15	3.61	
Copper, Dissolved	ug/L	4.4	5.3	ND	3.4	5.3	ND	3.27	
E. coli	MPN/100mL	1733	727	31	435	1733	31	732	1, 2
Hardness	mg CaCO ₃ /L	54.0	72.0	60.0	80.0	80.0	54.0	66.5	
Lead	ug/L	5.58	3.17	0.67	0.42	5.58	0.42	2.46	
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	ND	3
Nitrate-Nitrite Seal	mg/L	0.25	0.18	0.60	0.42	0.60	0.18	0.36	
Ortho Phosphate Seal	mg/L	0.15	ND	ND	ND	0.15	ND	0.03	3
Total Phosphate Seal	mg/L	0.12	ND	0.08	0.15	0.15	ND	0.08	3
Total Solids	mg/L	140.0	60.0	150.0	160.0	160.0	60.0	127.5	
Total Dissolved Solids	mg/L	120.0	61.0	30.0	98.0	120.0	30.0	77.3	
Total Suspended Solids	mg/L	9.0	5.0	2.0	2.0	9.0	2.0	4.5	
Volatile Solids	mg/L	30.0	30.0	40.0	40.0	40.0	30.0	35.0	
Zinc	ug/L	16.7	43.6	63.0	111.0	111.0	16.7	58.3	
Zinc, Dissolved	ug/L	15.5	27.6	62.2	59.1	62.2	15.5	41.1	
Rain Fall Data in Inches	Inches	N/A	0.10	0.10	0.30				3

Notes: Red font indicates a potential QA/QC issue.

(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.

Appendix B – Stormwater Monitoring Data

STORMWATER OUTFALL MONITORING Location - Horton Rd. @ Summit St. Outfall Sample Site # WL_04 Stream Name - Barlow Creek Land Use - Residential								
Analysis	Units	Composite #1	Composite #2	Composite #3	Statistics			Notes
		Storm Event	Storm Event	Storm Event	High	Low	Mean	
		11/2/2018	1/17/2019	6/28/2019				
Conductivity - Field	µS/cm	82.1	86.2	102.9	102.9	82.1	90.4	
Dissolved Oxygen - Field	mg/L	6.6	9.1	8.0	9.1	6.6	7.9	
Dissolved Oxygen - Field	% Saturation	66	86	82	86	66	78	
pH - Field	Std Units	5.2	7.9	7.0	7.9	5.2	5.0	
Temperature - Field	°C	14.8	10.4	15.6	15.6	10.4	13.6	
Ammonia Nitrogen Low Seal	mg/L	ND	ND	ND	ND	ND	ND	3
Copper	ug/L	15.7	5.8	2.6	15.7	2.6	8.0	
Copper, Dissolved	ug/L	14.2	2.4	2.6	14.2	2.4	6.4	
E. coli - Colilert	MPN/100mL	13	206	96	206	13	37	1, 2
Hardness	mg CaCO ₃ /L	68.0	44.0	48.0	68.0	44.0	53.3	
Lead	ug/L	4.79	1.38	ND	4.79	ND	2.05	3
Lead, Dissolved	ug/L	ND	ND	ND	ND	ND	ND	3
Nitrate-Nitrite Seal	mg/L	1.05	1.61	1.77	1.77	1.05	1.47	
Ortho Phosphate Seal	mg/L	ND	ND	ND	ND	ND	ND	3
Total Phosphate Seal	mg/L	ND	0.11	0.13	0.13	ND	0.08	3
Total Solids	mg/L	70.0	80.0	90.0	90.0	70.0	80.0	
Total Dissolved Solids	mg/L	61.0	56.0	103.0	103.0	56.0	73.3	
Total Suspended Solids	mg/L	4.0	ND	ND	4.0	ND	1.33	3
Volatile Solids	mg/L	20.0	30.0	30.0	30.0	20.0	26.7	
Zinc	ug/L	106.0	48.8	14.1	106.0	14.1	56.3	
Zinc, Dissolved	ug/L	63.0	18.4	34.5	63.0	18.4	38.6	
Rain Fall Data in Inches	Inches	0.10	0.10	0.30				

Notes: Red font indicates a potential QA/QC issue.

(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

West Linn 2018-2019
Willamette & Tualatin Rivers
TMDL Implementation Status

Appendix C

Tualatin and Willamette TMDL Implementation Plan Annual Report

Along with Section 7.0 in this report, Table C-1 summarizes the City's efforts to implement pollutant reduction measures specified in the Total Maximum Daily Load (TMDL) Implementation Plans (IPs) for the Willamette River and the Tualatin River. The City's NPDES MS4 permit serves as the Willamette River and Tualatin River TMDL IPs for point source TMDL parameters including bacteria, mercury, total phosphorus (as a surrogate for pH and chlorophyll a), and settleable volatile solids (as a surrogate for dissolved oxygen). Progress toward implementing best management practices (BMPs) to address these parameters is summarized in Appendix A of this document with additional information described in Sections 6.0 and 7.0 of this report. The respective IPs include management strategies to address temperature as a non-point source TMDL parameter.

Willamette River TMDL IP

The City of West Linn originally submitted its Willamette River TMDL IP to the Oregon Department of Environmental Quality (DEQ) on March 31, 2008. DEQ approved the IP on May 9, 2009. An updated version of the Willamette River TMDL IP is dated April 30, 2014 and was approved by DEQ August 18, 2014. The 2018-19 reporting period, is the City's fifth year of the 2014 Willamette River TMDL IP's 5-year implementation term. The TMDL parameters of concern for the Willamette River are: 1) bacteria 2) mercury and 3) temperature.

The City submitted a combined Willamette and Tualatin River TMDL IP to DEQ in March 2019 and is awaiting DEQ comments prior to implementation.

Tualatin River TMDL IP

The Tualatin River TMDL IP was originally submitted to DEQ in August 2003. It was revised and submitted to DEQ in June 2014 and was approved by DEQ on August 18, 2014. The 2018-19 reporting period is the City's fifth year of the 2014 Tualatin River TMDL IP's 5-year implementation term. There are five TMDL pollutant parameters of concern for the Tualatin River: 1) bacteria, 2) mercury, 3) temperature, 4) pH and chlorophyll a, with total phosphorus as a surrogate parameter, and 5) dissolved oxygen, with settleable volatile solids (SVS) as a surrogate parameter.

As mentioned previously, the City submitted a combined Willamette and Tualatin River TMDL IP to DEQ in March 2019 and is awaiting DEQ comments prior to implementation.

USGS and the City of West Linn

The City of West Linn entered into a new Joint Funding Agreement (JFA) with the U.S. Department of the Interior, U.S. Geological Survey (USGS) on October 1st, 2016 for Water Resource Investigations and to participate in a hydrologic streamflow data collection program on the Tualatin River. The JFA extends from 10/01/2016 through 9/30/2021. City costs will be \$9,045 over the 5 year term. The USGS number for this project is YF00D7U and the gauge is at river mile 1.8. Other local agencies that fund this study are: Clean Water Services (CWS), Clackamas County Water Environment Services, (WES), and the City of Lake Oswego.

Tualatin River Water Trail

In a Resolution (No. 2016-08) approved by the City Council on 7/11/2016, the City has been given permission to pursue the designation of the Tualatin River Water Trail (TRWT) as a National Water Trail (NWT); the City owns and manages Fields Bridge and Willamette Park as access points for the TRWT. The designation requires that the trail remain open to the public for at least the next 10 years, be designed, constructed and maintained according to best management practices and comply with all land use plans and environmental laws. The benefits of this designation will be to have access to funding opportunities, training and technical assistance.

Table C – 1 Summary of Temperature Management Strategies for the Willamette River TMDL and the Tualatin River TMDL Implementation Plans

Pollutant	General Strategy	Commitment	Implementation Strategies	Tracking/Performance Measure	2018-2019 Activities and Accomplishments	Responsible Party(s)
Temperature	Public Education and Outreach	<ul style="list-style-type: none"> Promote riparian enhancement efforts through the distribution of information in a variety of media outlets. Ensure a minimum of 1 temperature-related piece of educational material during the 5-year implementation period. Provide funding support for agencies and organizations to aid in temperature management. 	<ul style="list-style-type: none"> Ensure Library, Senior Center, City Hall, and Parks Department all have an adequate supply of educational materials on hand at beginning of each new quarter. Provide funding for USGS to continue hydrologic and water quality monitoring on the Tualatin River. Continue coordination efforts with the Tualatin Basin Public Awareness Committee (TBPAC). Continue coordination efforts with the Regional Coalition for Clean Rivers and Streams (RCCRS). 	<ul style="list-style-type: none"> Annually document the date, content, and distribution method of temperature related educational materials. Annually document financial contributions to USGS. Annually document participation and funding contributions to TBPAC and RCCRS. 	<ul style="list-style-type: none"> TBPAC's Sponsored Programs & Activities: <ul style="list-style-type: none"> Stream-Friendly Home and Yard care brochures – 1200 printed. Naturescaping for Clean Rivers Workshops - 27 attendees for 9/23/2018 class. 28th Annual Discovery Day Event had 80 volunteers. Will Hornyak "Living Streams" presentation to 1,590 students in 4 schools. The City funded the USGS hydrologic data collection program for \$1,729 in July, 2018. The City funded \$900 to TBPAC. 	Environmental Technician of Environmental Services Division of Public Works
	Stormwater Design Standards	<ul style="list-style-type: none"> Implement the City's Stormwater Management Plan (SWMP) and Community Development Codes (CDC), to support use of infiltration-based stormwater treatment systems and tree planting. 	<ul style="list-style-type: none"> Implement design standards that include LID and additional infiltration-based guidelines for stormwater treatment. Evaluate the coverage of LID facilities and applications throughout the City. 	<ul style="list-style-type: none"> In the MS4 annual report, annually track modifications to the City's Development Standards related to the use of LID and BMPs for new and redevelopment. In the MS4 annual report, annually track LID system installations in order to assess the feasibility and success of applications. 	<p>No modifications were made to the City's Development Standards relating to the use of LID.</p>	On-going for Planning Department & Public Works Department - Engineering Division for each land use application.
	Preservation of Existing Forest Canopy	<ul style="list-style-type: none"> Implement provisions of Chapters 28 and 32 and Ordinance 1542 of the City's Development Code, which defines protection and improvement of the City's waterways and encourages tree planting. Continue to implement Chapter 32 - Water Resource Area Protection to be in compliance with OR Statewide Planning Goal 5 and Metro's Title 3 which relates to natural resources that address water quality and flood management. Implement Chapter 28 - Willamette and Tualatin River Protection of the City's Development Code to further address Metro's Title 13 requirements to protect fish and wildlife habitat. 	<p>Establish working relationships with neighborhood organizations (e.g., Tualatin Basin Neighborhood Group, to conduct activities to protect natural areas. The group has several goals and key issues that complement the Tualatin TMDL IP such as, Policy 3.1, Open Space Plan which reads in part: "... Identify and protect significant natural areas and sufficient open space." And Policy 4.1 under Natural Resources: Protect rare Oregon white oaks and significant, heritage, threatened and endangered species".</p>	<ul style="list-style-type: none"> Track any enforcement actions taken to protect existing shade. Track modifications to the City's development code. 	<ul style="list-style-type: none"> No enforcement action had to be taken to protect existing shade. No modifications were done to the Community Development Code. 	Planning Department
	Planting Activities for Identified Shade Opportunity Areas	<ul style="list-style-type: none"> Maintain a priority project list for shading. Conduct planting, plant maintenance, and supplemental irrigation activities for the identified shade opportunity areas. Utilize annual committed funds towards shading and planting activities for identified opportunity areas. (Approximately \$5,000 covers both TMDL watersheds). Promote protection of natural and riparian areas through coordination and participation in citizen groups and organizations. 	<ul style="list-style-type: none"> Inventory land features and conditions; prioritize riparian and wetland areas; select sites for planting. (Ground-truthing). Review and update/revise the existing inventory identifying potential sites. Continue to explore available options for partnering on shading projects via the City of West Linn Parks Department. Identify watershed partners and projects that support implementation efforts and participate/support of riparian restoration and LID projects. Enforce all riparian violations. 	<ul style="list-style-type: none"> Annually document coordination efforts (meeting attendance, outreach activities) with the Tualatin Basin Neighborhood Plan with regards to protection of natural areas. Track ground-truthing activities Track planting activities for publicly owned, high priority areas. Track planting activities for other identified shade opportunity areas. Track any re-vegetation and maintenance activities required. Maintain a current list of watershed partners and projects. 	<ul style="list-style-type: none"> SOLVE, the non-profit volunteer organization, finished multiple projects within the City at 7 different locations: <ul style="list-style-type: none"> Mary S. Young State Park Burnside Park Maddax Woods White Oak Savanna McLean House and Park Palomino Park <p>See Section 7.0 of this report for additional activities/programs and Appendix D for the full list of dates, event names, trees planted, areas cleared of invasives, etc.</p>	West Linn Environmental Service Division of Public Works & Parks Department

Appendix D

West Linn 2018-2019

SOLVE Events within the City of West Linn

Appendix D – SOLVE Events within the City of West Linn (in order of dates)

Site Name	Event Name	Event Date	Event Duration	Partner Organization	Pounds Trash	Area Cleared of Invasives (Sq. Ft.)	Trees Planted	Shrubs Planted	Total Volunteers	Adults	Youth	Mulched	Caged
Mary S. Young State Park	Mary S. Young Park Work Party for July	07/7/2018	3	City of West Linn Parks & Recreation	0	1000			22	15	7		
McLean House and Park	Clean-Up at McLean House and Park	07/14/2018	3	Friends of McLean Park and House	30	20000			23	20	3		
Maddox Woods	Maddax Woods Monthly Cleanup for July	07/21/2018	4	Friends of Maddax Woods	0	1000			15	4	11		
Mary S. Young State Park	Kuni Auto Center and Kuni BMW Service Day at Mary S. Young Park	08/4/2018	3	Kuni Auto Center and Kuni BMW	20	3000			14	9	5		
Mary S. Young State Park	Mary S. Young Park Work Party for August	08/4/2018	3	City of West Linn Parks & Recreation	2	2000			41	34	7		
Maddax Woods	Maddax Woods Monthly Cleanup for August	08/18/2018	4	Friends of Maddax Woods	0	300			5	5	0		
Mary S. Young State Park	Mary S. Young Park Work Party for September	09/1/2018	3	City of West Linn Parks & Recreation	1	2000			25	18	7		
Maddax Woods	Maddax Woods Monthly Cleanup for September	09/15/2018	4	Friends of Maddax Woods	0	1000			17	7	10		
Palomino Park	Ivy Pull on Trillium Creek Trail	09/15/2018	3	City of West Linn Parks & Recreation	0	3000			8	8	0		
McLean House and Park	Clean-Up at McLean House and Park	09/22/2018	3	Friends of McLean Park and House	0	15000		20	10	9	1		
Mary S. Young State Park	Mary S. Young NLYM Project	9/29/2018	3	City of West Linn Parks & Recreation	25	600			100	30	70		
Palomino Park	PGE Palomino Park Restoration	9/29/2018	3	PGE	50	10000			45	38	7		
Mary S. Young State Park	St. John the Apostle School at Mary S. Young	10/1/2018	3	St. John The Apostle School	2	2000			190	22	168		
Mary S. Young State Park	Mary S. Young Park Work Party for October	10/6/2018	3	City of West Linn Parks & Recreation	0	500			16	13	3		
Maddax Woods	Maddax Woods Monthly Cleanup for October	10/20/2018	4	Friends of Maddax Woods	20	300			30	13	17		
Burnside Park	October Burnside Nature Park Restoration	10/20/2018	3	City of West Linn Parks & Recreation	0	500			3	3	0		
Mary S. Young State Park	Mary S. Young Park Work Party for November	11/3/2018	3	City of West Linn Parks & Recreation	0	1000			52	16	36		
Mary S. Young State Park	Mary S. Young Park Work Party for December	12/1/2018	3	City of West Linn Parks & Recreation	0	1000			40	24	16		
Burnside Park	December Burnside Wilderness Park Restoration	12/15/2018	3	City of West Linn Parks & Recreation	10	1000			11	3	8		
Mary S. Young State Park	Planting at Mary S. Young Park Work Party	01/5/2018	3	City of West Linn Parks & Recreation	0	0		780	38	34	4		
Burnside Park	January Burnside Nature Park	01/19/2019	3	City of West Linn Parks & Recreation	0	100			3	3	0		

Appendix D continued – SOLVE Events within the City of West Linn

Site Name	Event Name	Event Date	Event Duration	Partner Organization	Pounds Trash	Area Cleared of Invasives (sq. Ft.)	Trees Planted	Shrubs Planted	Total Volunteers	Adults	Youth	Mulched	Caged
Maddax Woods	Maddax Woods Monthly Cleanup for February	02/16/2019	3	Friends of Maddax Woods	10	1000			16	10	6		
Mary S. Young State Park	Mary S. Young Park Work Party for March	03/02/2019	3	City of West Linn Parks & Recreation	0	2500	27	50	20	16	4	40	
Burnside Park	March Burnside Wilderness Park Restoration	03/16/2019	3	City of West Linn Parks & Recreation	15	200			4	3	1		
Maddax Woods	Maddax Woods Monthly Cleanup for March	03/16/2019	3	Friends of Maddax Woods	20	500			17	5	12		
Mary S. Young State Park	Mary S. Young Park Work Party for March	04/6/2019	3	City of West Linn Parks & Recreation	0	2500			40	23	17		
Burnside Park	Burnside Park Earth Day Restoration	04/20/2019	3	City of West Linn Parks & Recreation	0	5000			3	3	0		
Maddax Woods	Maddax Woods Monthly Cleanup for April	04/20/2019	4	Friends of Maddax Woods	0	15		50	43	35	8		
Palomino Way Green Space	Trillium Creek Trail Ivy Removal	04/20/2019	4	City of West Linn Parks & Recreation	0	100			5	5	0		
Mary S. Young State Park	Earth Day Work Day	04/20/2019	3	City of West Linn Parks & Recreation	0	7261	20	230	100	47	53	250	
McLean House and Park	Earth Day at McLean Park	04/20/2019	3	Friends of McLean Park and House	10	375			7	7	0		
Marylhurst Heights Park	Earth Day at Marylhurst Heights Park	04/20/2019	3	City of West Linn Parks & Recreation	15	5512		13	17	6	11		
White Oak Savanna	White Oak Savanna Fire Wise Earth Day	04/20/2019	3	Neighbors for a Liveable West Linn	10	3000			49	24	25		
Burnside Park	Burnside Park Special Ivy Pull	04/27/2019	3	City of West Linn Parks & Recreation	250	2000			6	6	0		
Mary S. Young State Park	Mary S. Young Park Work Party for May	05/4/2019	3	City of West Linn Parks & Recreation	0	500	10	290	18	14	4	20	
Mary S. Young State Park	3 Rivers School at Mary S. Young	05/10/2019	1.5	City of West Linn Parks & Recreation	5	1000			107	10	97		
Maddax Woods	Maddax Woods Monthly Cleanup for May	05/18/2019	4	Friends of Maddax Woods	1	100			3	2	1		
Burnside Park	Burnside Nature Park Restoration	05/18/2019	3	City of West Linn Parks & Recreation	15	600			4	4	0		
Mary S. Young State Park	Mary S. Young Park Work Party for June	06/1/2019	3	City of West Linn Parks & Recreation	0	2500			32	24	8		
Maddax Woods	Maddax Woods Monthly Cleanup for June	06/15/2019	4	Friends of Maddax Woods	1	500			12	10	2		
Totals:					512	100,463	57	1,433	1,211	582	629	310	0

Appendix E

Regional Coalition for Clean Rivers & Streams Annual Report

July 1, 2018 – June 30, 2019



REGIONAL COALITION FOR CLEAN RIVERS AND STREAMS

FISCAL YEAR 2018-2019 ANNUAL REPORT

OCTOBER 11, 2019



PREPARED BY:



enviroissues



FY 2018-19 OVERVIEW

The Regional Coalition for Clean Rivers and Streams (Coalition) continued its work – initiated in the mid-1990s – of providing coordinated messaging to target behaviors linked to stormwater pollution from residential sources across the Portland metropolitan region. The Coalition continues its brand recognition efforts by consistently using the previously developed *The River Starts Here* creative concept in its various materials. Other Coalition activities in the 2018-19 fiscal year included sponsoring The Big Float 2018 and promoting the Coalition and its messages at community events.

Coalition participants include:

- Clackamas County
- City of Gladstone
- City of Lake Oswego
- City of Milwaukie
- City of Oregon City
- City of West Linn
- City of Wilsonville
- Oak Lodge Water Services
- Washington County
- Multnomah County
- City of Gresham/Fairview
- City of Troutdale

The Coalition continues active discussions with additional future members. Multnomah County transferred its role as Coalition fiscal agent to The City of Gresham for this fiscal year.

This report covers the time frame of July 1, 2018 - June 30, 2019. 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, reducing polluted runoff and connecting people with their local waterways. Coalition members leverage their collective resources to conduct outreach to communities across the region with common stormwater information and messages. Coalition activities complement individual agency efforts to raise awareness of stormwater runoff and affect behavior change to prevent pollution and protect regional surface water quality. Coalition activities support commitments relative to state permits under the federal Clean Water Act (administered by the Oregon Department of Environmental Quality), including Total Maximum Daily Load and Municipal Separate Storm Sewer System (MS4) programs, as well as compliance with the federal Endangered Species Act.

Participants in the Coalition represent agencies that serve diverse population sizes from very small (Troutdale) to very large (Clean Water Services). As such the ability to run programs specific to their



community is limited by funding and staffing and the Coalition represents an efficient, effective method to combine stormwater outreach funds. Coalition members continue to provide funding for the collaborative work each fiscal year based on the size of the respective community. The group's funds are shared through Multnomah county acting as the fiscal agent to purchase associated consulting services, advertising, materials, and event sponsorships. By sharing resources, the group is able to reach many thousands of people in the region compared to what entities can typically achieve on their own.

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 pesticides applied to yards and lawns, pollutant loads from car washing soaps, metals and other toxics from vehicle maintenance (and unmaintained vehicles), *E. coli* from pet waste, turbidity from eroded soils and other contaminants from illicit discharges.

Key messages

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

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

FY 2018-19 ACTIVITIES AND RESULTS

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

Strategic Plan Implementation

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

Goal 1: Maintain a functioning Coalition

Each year, Coalition members prepare an updated cost sharing approach and budget, which was implemented in 2018-19. Members of the Coalition share their knowledge with the broader regulated



communities in Oregon via the Association of Clean Water Agencies (ACWA). Members have presented on prioritizing public behaviors to maximize pollutant reduction success and on a water pollutant risk assessment database at the past two spring ACWA conferences.

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

The Coalition continued to use collateral materials developed with *The River Starts Here* creative concept through event promotion and digital advertising, including materials such as temporary tattoos, T-shirts for staffing, message banners for booths, and a large durable watershed map. Coalition members use collateral materials through individual outreach events held throughout the year.

Goal 3: Practice adaptive management

The Coalition is committed to leveraging available resources to maximize impact while setting the stage for a future collaboration among agencies. Total member representation in the Coalition has increased in the past few years, bringing in more regional partners.

THE RIVER STARTS HERE MESSAGING AND OUTREACH

COMMUNITY EVENTS AND AGENCY COLLABORATION

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

The Big Float 2018 – Event Sponsorship and Promotion

The Coalition sponsored and promoted The Big Float 2018 both in-print and online:

- The Coalition advertised The Big Float in English and Spanish on Facebook in collaboration with KOIN TV. This effort achieved over 45,000 impressions and over 400 clicks. Facebook followers increased by less than 100 from July 2017 to 2018.
- The Coalition placed quarter-page print ads in the Portland Tribune twice on behalf of the event. The Portland Tribune reports about 70,000 papers distributed throughout the metro area.

Overall, the event was a major success, attended by about 5,000 people from across the region! See map of attendee ZIP codes in the appendix.



The Big Float 2018 – ‘Watershed Village’ Tabling

In 2018, the Coalition coordinated with regional watershed councils to conduct outreach together at The Big Float. The ‘Watershed Village’ was composed of six 10'x10' tents with six partner watershed councils.

The Coalition brought its Raindrop costume that members where to be a mascot, a large aerial map of the watersheds in the area and a mobile photo booth. Additionally, Gresham staff conducted intercept surveys of participants at the event (n=35) testing people’s level of concern for local river health (20/35 somewhat to very concerned); awareness that household chemicals cause impacts to rivers (33/35 agreed), whether they believed individuals play a role in water protection (33/35 agreed, two young people were not sure), and their rating of self awareness of things they can do to protect water (13/35 somewhat to very aware, most were middle of the road or less confident about their knowledge).



Figure 1: The Big Float 2018 ‘Watershed Village’ Crew

This was the first year the watershed councils coordinated tabling at The Big Float. Most councils had not been to The Big Float before. In addition to internal uncertainty, event leaders were not sure where to put the Watershed Village. As a result, the councils chose a traditional tabling set-up.

There were some lessons learned with the first Watershed Village. Traditional tabling set-ups are not suited for a beach party atmosphere and the photobooth location turned out to be in an area not heavily trafficked by event goers. The watershed village did not attract much attention as a result, but had approximately 50 visits over the day. The roaming photo booth did not work as well as having a stationary photo booth located with the tables, but took ~115 photos shared more than 1,500 times. The stationary photobooth attracts more visitors. Next year, the group will work with the event organizers for better booth visibility and switch back to a stationary photo booth.

The following groups were represented in the village:

- The Regional Coalition for Clean Rivers and Streams
- Clackamas River Basin Council
- North Clackamas Urban Watersheds Council
- Columbia Slough Watershed Council
- Oswego Lake Watershed Council
- Johnson Creek Watershed Council



- Sandy Watershed Council

In addition, the following groups expressed interest in attending future tabling opportunities:

- Greater Oregon City Watershed Council
- SW Watershed Resource Center

The Clackamas Down the River Cleanup & Lower Sandy River Floating Cleanup – Event Promotion

The Coalition promoted The Clackamas Down the River Cleanup through quarter-page print ads in the Portland Tribune, Clackamas Review, and Sandy Post in late August. Both events were considered a success, engaging several hundred people, in part thanks to the Coalition’s promotional partnership.

Additional community events

Oregon City promoted *The River Starts Here* as part of their *Stormwater Starts Here* booth at the Clackamas County Water Education Team event for middle school-aged children. Four hundred and fifty fourth and fifth graders participated in the event, along with 90 chaperones and 32 teachers.

Oak Lodge Water Services shared *The River Starts Here* resources at the Oak Grove Trolley Trail Festival on August 24, 2018. Brochures were distributed to many of the event’s ~500 attendees.

WEBSITE: THERIVERSTARTSHERE.ORG

TheRiverStartsHere.org launched in June 2015. The website uses a modern design featuring *The River Starts Here* creative assets (Figure 4). It features an image slider highlighting Coalition messages and includes links to member websites and additional web resources. The website URL was promoted through newspaper and web advertisements.

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

Total sessions: 1,144 (▼ 50)

- **Traffic type**
 - Direct: 34% (▼ 2)
 - Organic (search engine): 17% (▼ 2%)
 - Referral: 45% (-)
- **Bounce rate: 85% (▼ 4%)**
- **Time on site: 36 seconds (▲ :01)**

Of note, the web traffic is down, due in part to the Coalition’s focus on the use of social media to directly engage with the public. In other words, the website URL is not being heavily marketed. The Coalition understands that given its limited budget, it’s not realistic to drive people to its website, but rather a more effective approach is to advertise and educate them directly with social media followers and also paid social media advertising in addition to some other digital ad placement with Google AdWords’ Display Network. The website primarily acts as a foundation to hold and describe the structure of the



organization and basic stormwater tips with links to the social media posts in a blog format. Maintaining the website also lends credibility to its social media presence.

SOCIAL MEDIA

The Coalition continued posting to its social media channels. As in past years, the Coalition concentrated social media activity in the spring and summer time period when households in the region have an increased interest in yard and garden activities relevant to surface water quality. Social media messages build on existing conversations and connect with organizations around the region. The Coalition delivers its messages on social media following its seasonal messaging calendar and heavily promotes summer river restoration and cleanup events.

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

Facebook page, Clean Rivers and Streams

A summary of Coalition Facebook account use during the fiscal and as of July 1, 2019 is as follows:

- **Total followers (“likes”):** 1,574 (▲ 403)
- **Weekly organic reach:** 164 (▼ 50)
- **Posts:** 75 (▲ 68)

Facebook follower demographics breakdown:

Age	Female	Male	Total by Age
18-24	3%	2%	4%
25-34	12%	7%	19%
35-44	19%	8%	27%
45-54	16%	8%	24%
55-64	9%	4%	13%
65+	8%	4%	12%
Total by Gender	67%	33%	-

Table 1: Facebook followers by age range and gender

Twitter, @riverstartshere

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

- **Followers:** 1,470 (▲ 127)
- **Tweets during the period:** 49 (▲ 38)

Female	Male
67%	33%

Table 2: Twitter followers by gender



Instagram, @theriverstartshere

A summary of Coalition Instagram account use during the fiscal and as of July 1, 2019 is as follows:

- **Total followers:** 4
- **Posts:** 12

Instagram, @riverstartshere

A summary of Coalition Instagram account use during the fiscal and as of July 1, 2019 is as follows:

- **Total followers:** 114
- **Posts:** 4

FY 2018-19 BUDGET

	Services	Investment
Event sponsorship and promotion		
The Big Float 2018	Event Sponsorship	\$3,000
	KOIN Facebook Ads – English and Spanish	\$800
	Portland Tribune, ¼ page ads x 2	\$992
	Photo Booth Rental	\$750
Clackamas Down The River & Lower Sandy Floating Cleanup	Portland Tribune, Sandy Post, Clackamas Review, ¼ page ads x 3	\$1,905
Johnson Creek, Sandy, Tualatin, and Clackamas River Events	KOIN Facebook Ads	\$5,000
Materials		
Print Materials	PDX Printing Services - Vinyl banner of aerial watershed map	\$541
Coordination support		
EnviroIssues	Meeting facilitation and member coordination, website maintenance, social media authoring	\$3,245
TOTAL		\$16,233

Table 3: FY 2018-19 expenditures



OBSERVATIONS

The following observations are based on the results of FY 2018-19 activities and suggest future direction the Coalition may take in its mission of educating the public about the impact of stormwater runoff pollution on the health of our rivers and streams.

The Big Float Watershed Village group reconvened in Spring 2019 to re-imagine the village. The group drafted new plans for The Big Float 2019. Plans included a single 20'x20' tent where watersheds planned fun interactive activities for youth. The Watershed Village would be set up in a central location near other children's activities (e.g. water bounce house) and would provide shade for parents.

The Coalition's website online events calendar continues to attract traffic, but is outdated and will be updated in 2019-2020 to match the social media calendar or be replaced with the Facebook events calendar. The group has limited funding, so streamlining the administration needs is important for efficiency. The latter could include embedding the Facebook events calendar on the website so both information outlets are always synced.

Both the Coalition's **Facebook and Twitter** followings are dominated by women, particularly those 35-54. Engaging this audience may be a priority for the Coalition for the upcoming fiscal year. In contrast, attracting and engaging more men could be the Coalition's focus. A clear goal for 2019-2020 is to consolidate the Coalition's **Instagram** handles and create more original content for all social media platforms. Instagram is particularly important in reaching young people; Most of Instagram's users are 29 and younger.

The Coalition continued to use **low cost web advertising** as part of its campaign in FY 2018-19. Continuing to focus on defined target audiences for messages (male v. female, age level for behavior, etc.) as well as targeting by ZIP code is a primary strategy.

Direct, person-to-person outreach is a powerful way to share information, allows immediate feedback and compliments advertising. However, not all of the agencies have staffing to support event attendance and of the events they attend, they generally have to promote their own agency specific branding and programs (although still stormwater pollution reduction focused). As such, the Coalition is satisfied with its strategy to do the one large festival together and combine efforts with local watershed councils.

Outreach to local youth is conducted in a variety of ways by members of the Coalition. Connecting students to local rivers and developing an appreciation of natural resources and the protection of our water is one of the Coalition's goals in addition to focusing on their parents' home maintenance and yard care potential impacts. The Coalition will explore ways to engage youth in 2019-2020.

