

City of West Linn, Oregon



2016 -2017 Annual Reports for the City of West Linn's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit and the Willamette and Tualatin Rivers Total Maximum Daily Load (TMDL) Implementation Plans

Prepared for the Oregon Department of Environmental Quality ~ October 31st, 2017

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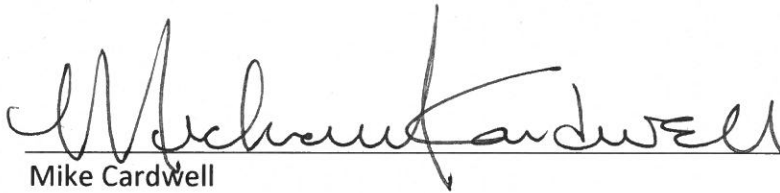
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City of West Linn

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL STORMWATER SYSTEM ANNUAL REPORT

JULY 1ST, 2016 – June 30th, 2017

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (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 knowing violations.



Mike Cardwell
Environmental Services Supervisor
City of West Linn Public Works

10-31-17
Date

1.0 Introduction

1.1 NPDES MS4 Permit Background

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 co-permittees. Clackamas County co-permittees include the City of West Linn, along with the cities of 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). Each co-permittee is a relatively small community, most having populations under 25,000 with some (Johnson City and Rivergrove) having significantly smaller populations.

The City's NPDES MS4 permit was reissued March 16, 2012 after a multi-year negotiation process with DEQ and an additional year long delay related to an appeal. The 2012 reissued permit (2012 Permit) was not appealed and thus maintains an effective date of March 16, 2012. In conjunction with the 2012 Permit, Stormwater Management Plan (SWMP) updates were submitted and approved by DEQ on May 16th, 2012.

Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual SWMPs. This annual report documents stormwater management activities from **July 1st, 2016 to June 30th 2017** in accordance with the City's 2012 Permit.

1.2 Permit Renewal & Administrative Extension

This 2016-2017 reporting period is the fifth year implementing the 2012 Permit. The 2012 Permit expired on March 1, 2017.

In accordance with Schedule F, Section A of the 2012 Permit, co-permittees must submit an application to renew the permit. The 2012 Permit states: *"if any or all of the co-permittees wish to continue an activity regulated by this permit after the expiration date, the co-permitttee must apply to have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit. The Department may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date."* The City requested that the permit renewal application be submitted in accordance with the permit expiration date in a letter to DEQ dated April 28th, 2016. The extension was granted on June 17th, 2016. The City submitted its Permit Renewal Application on February 28th, 2017. The Permit Renewal Application required an evaluation of proposed program and SWMP modifications, development of TMDL benchmarks, mapping, a maximum extent practicable (MEP) evaluation, updates to the City's environmental monitoring program, and an evaluation of proposed service area expansions and associated pollutant load estimates. Until DEQ issues a new permit, the City will continue to operate under its administratively extended 2012 Permit and 2012 SWMP.

1.3 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 BMPs and activities are summarized in Appendix A. The City's TMDL Implementation Annual Report for the Willamette and Tualatin River Basins are featured in Section 6 and Appendix C.

Table 1 – Annual Reporting Requirements

Annual Reporting Requirements from Schedule B.5.a. - j.		Section Location in this Report
a.	The status of implementing the Stormwater Management Program (SWMP) and each SWMP element, including progress in meeting the measureable goals.	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
c.	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.	2.1
d.	Any proposed changes to SWMP elements that are designed to reduce Total Maximum Daily Loads (TMDL) pollutants to the Maximum Extent Practicable (MEP).	2.2, 2.3
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.	4.3, 5.1, & Appendix B
g.	Any proposed modifications to the monitoring plan necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	4.2
h.	A summary describing the number and nature of enforcement actions, inspections, and public education programs, results of ongoing field screening and follow-up activities related to illicit discharges.	Appendix A
i.	A summary, as related to MS4 discharges, describing land use changes, Urban Growth Boundary (UGB) expansion, land annexations, and new development activities. 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.	7.1
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.	7.2
NA	Additional efforts conducted by the City	5.0 – 6.0

2.0 Adaptive Management Process Implementation

2.1 Adaptive Management Program

In accordance with the issuance of the City's NPDES MS4 permit (in 2012), the City was required to document their adaptive management approach to assess annually and modify, as necessary, existing and new SWMP components. The City submitted their 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 measureable 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:

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

Technical investigations and studies required in conjunction with compliance dates outlined in the permit also inform adaptive management changes. For the City, such studies include (but are not limited to) a water quality trends analysis, pollutant load reduction evaluation, Hydromodification assessment, and a retrofit assessment. Studies can help target and identify specific BMPs (measurable goals and tracking measures) that can be used to support improvements. The City submitted its TMDL Pollutant Load Reduction Evaluation and TMDL Benchmarks in its February 28th, 2017 Permit Renewal Application.

2.2 SWMP Update for the 2016-2017 Reporting Year

As mentioned above, the 2016 - 2017 reporting year is the 5th full year in which the City's effective 2012 SWMP has been implemented. For this permit year, there were no updates made to the 2012 SWMP or BMP measureable goals and tracking measures beyond those submitted to DEQ in May 2012. A summary of proposed SWMP modifications was submitted with the City of West Linn's Permit Renewal Application on 2/28/2017, but those modification have not been implemented pending reissuance of the permit.

2.3 2017 Proposed SWMP Modifications

As part of the permit renewal process implemented during the 2016-17 reporting year, the City, with the assistance of a consultant, reviewed the technical investigations and studies completed during the permit term in conjunction with the 5-year adaptive management factors listed above. This information informed the City's MEP evaluation and proposed SWMP changes submitted as part of the Permit Renewal Application. The proposed SWMP changes and resulting 2017 SWMP do not reflect substantive

changes from the 2012 SWMP and can be used to facilitate future permit negotiations and reissuance. The majority of changes are related to removing tasks that had a scheduled end date and have been completed. Refer to the City's 2017 Permit Renewal Application for additional detail. Please note that the proposed SWMP changes and 2017 SWMP are not proposed for implementation pending reissuance of the permit.

3.0 Summary of Program Expenditures

A summary of the City's Environmental Services Division (ESD) funding sources, expenditures for the 2016 - 2017 fiscal year and a projection of the City's expenditures for the 2017-2018 fiscal year 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, 2017

	Department No. 432 Surface	Department No. 433 Sewer	Total Environmental Services Fund #505
Funding Sources:			
Charges for Services	\$ 871,111	\$ 2,367,238	\$ 3,238,349
SDC Reimbursement Fees	56,913	33,254	90,167
Interest	-	-	-
Transfer from other Funds	-	-	-
Misc.	33,535	48,365	81,900
Total	\$ 961,559	\$ 2,448,857	\$ 3,410,416
Expenditures			
Personal Services	\$ 437,669	\$ 264,571	\$ 702,240
Materials and Services	175,146	163,476	338,622
Capital Outlay	376,080	1,499,306	1,875,386
Transfers	382,000	812,000	1,194,000
Total	\$ 1,370,895	\$ 2,739,353	\$ 4,110,248
Projected Expenditures for 2017-18			
Personal Services	\$ 485,000	\$ 284,000	\$ 769,000
Materials and Services	408,000	344,000	752,000
Capital Outlay	1,700,000	625,000	2,325,000
Transfers	425,000	922,000	1,347,000
Total	\$ 3,018,000	\$ 2,175,000	\$ 5,193,000

4.0 Monitoring Data

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

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

In conjunction with requirements of the 2012 reissued NPDES MS4 permit, the 2007/2008 CCCSMP was reviewed for consistency with revised monitoring objectives. Monitoring locations and frequencies were adjusted to reflect requirements of the 2012 Permit. Additional efforts related to mercury monitoring, pesticide monitoring, macro invertebrate (biologic) monitoring and geomorphic monitoring were added to the CCCSMP. Detail related to use of a time composite sampling methodology was added. Additional information such as quality assurance procedures were also added in conjunction with Schedule B.2 of the NPDES MS4 Permit.

The updated (2012) CCCSMP was submitted to DEQ in September 2012. Comments from DEQ were received in October 2012, and final revisions to the 2012 CCCSMP were submitted to DEQ June 30, 2013. For this reporting year (2016–2017), the 2012 CCCSMP was the effective, implemented monitoring plan for the City. Modifications and revisions to the 2012 CCCSMP for purposes of the 2017-2018 reporting year are described in Section 4.2.

As described in the CCCSMP, the NPDES MS4 stormwater monitoring program requires two components. The first component is program monitoring, which involves the tracking and assessment of programmatic activities, as described in the individual permittees SWMP, through the use of performance indicators or metrics. Results of the program monitoring are reported in Appendix A as the annual tracking measures.

The second component is environmental monitoring, which includes visual monitoring and the collection and analysis of 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). Environmental monitoring includes instream sample collection and outfall sample collection. The City's sampling efforts are outlined in more detail in the CCCSMP and in Section 4.3 of this annual report. Results of the instream and outfall sample collection efforts are provided in Appendix B.

4.2 CCCSMP Updates and Modifications

Beginning in the spring of 2016, the City, in collaboration with other participants in the CCCSMP, participated in a series of workshops to identify updates and modifications to the CCCSMP due to the completion of monitoring obligations under the 2012 Permit. Key modifications include the following:

- Inclusion of OLWSD and the City of Wilsonville as participants in the CCCSMP. Instream, stormwater, and biologic monitoring activities were expanded to account for these two new participants
- Removal of mercury and pesticide monitoring activities, as those obligations have been met
- Removal of biochemical oxygen demand (BOD) and total volatile solids (for co-permittees outside of the Tualatin Basin) from the analyte list, because of the limited usefulness of the collected data to date
- Adjustment of analytical methods and reporting limits based on consistency with Code of Federal Regulations (CFR) Title 40 and current laboratory capabilities
- Adjustment of monitoring locations to ensure geographic distribution of data and to continue to inform trends analyses
- Inclusion of routine instream sampling, in addition to targeted dry weather/wet weather instream sampling activities
- Removal of Clackamas County Service District #1's (CCSD#1's) Geomorphic Monitoring activities from the CCCSMP, as physical conditions are evaluated during biologic (Macroinvertebrate) monitoring activities
- Minor editorial updates to improve clarity and consistency with current practices

Per Schedule B.2.e of the 2012 Permit, and Section 7.2 of the CCCSMP, the City submitted a 30-day notice of the proposed 2017 CCCSMP for DEQ's review and approval on December 16, 2016. As the City did not receive a response from DEQ within 30 days, the proposed modifications were deemed approved without written approval. Implementation of the 2017 CCCSMP began July 1, 2017.

The 2017 CCCSMP serves as an established agreement to conduct a coordinated monitoring effort. The current participating co-permittees include the cities of West Linn, Gladstone, Milwaukie, Oregon City, Wilsonville; OLWSD, CCSD #1, and the Surface Water Management Agency of Clackamas County (SWMACC). Monitoring conducted by CCSD #1 and SWMACC is conducted on behalf of Clackamas County and the cities of Happy Valley and Rivergrove, and they are included as participants in the 2017 Plan as well.

4.3 Summary of Monitoring Data

In accordance with the 2012 CCCSMP, the City is required to conduct instream and stormwater outfall monitoring during the 2016-17 reporting year. The City conducted instream monitoring at three locations:

Site #1: Trillium Creek at Caloroga Road, a tributary to the Willamette River,

Site #2: Tanner Creek at Imperial Drive, a tributary to the Willamette River, and

Site #3: Unnamed Creek at Ryan Court & Johnson Road, a tributary to the Tualatin River.

Stormwater outfall monitoring was conducted at an outfall to Barlow Creek, a tributary to the Willamette River (Site #4). In accordance with the frequencies outlined in the 2012 CCCSMP, time composite grab samples are taken at the instream monitoring locations a minimum of three times a year (during storm events). Single grab samples are taken during two additional monitoring events (not during storms) at the

instream monitoring locations. For instream monitoring, 50% of the samples need to be collected during the wet weather season (October 1st - April 30th). Time composite grab samples are taken at the outfall monitoring location three times a year during rain events. Complete instream and stormwater outfall sample results are presented in Appendix B.

5.0 Additional Activities (NPDES MS4 Permit)

The following stormwater-related activities and natural system improvements occurred during the 2016-2017 reporting year. This section supplements BMP activities documented in Appendix A and is organized by specific SWMP element.

5.1 SWMP Element #1 BMP: Conduct Annual Dry Weather Field Screening

Dry weather field screening was conducted at 6 locations on August 1, 2016. There was no precipitation for more than 72 hours prior to the inspections. No illicit discharges were found. Where there was 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 industrial discharges that have very high conductivity readings. pH can be a good indicator of liquid wastes from industries, which can have a very high or very low pH. Where there was flow, none of the readings exceeded the action levels for pH or conductivity, which is anything outside of the range of 6.5 to 8.5 for pH and exceeding 500 $\mu\text{S}/\text{cm}$ for conductivity. Visual monitoring results from the dry weather field screening are summarized in Table 3 below.

Table 3 – Dry Weather Field Screening Results

Site Number	Site Name	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	Light	None
2	13 th St @ I-205	Bernert	Low	Clear	None	Clear	None	None	None
3	Imperial Drive	Tanner	Low	Clear	None	Clear	None	None	None
4	Hollowell Trail	McLean	Low	Clear	None	Clear	None	Light	None
5	Barclay & Tompkins	Barlow	Trickle	Clear	None	Clear	None	Light	None
6	19625 Old River Drive	Robin	None	N/A	N/A	N/A	N/A	None	None

5.2 SWMP Element #4 BMP: Promote Staff Education Related to Environmentally Friendly Solutions

Table 4 summarizes staff training activities and dates for the 2016-2017 reporting year.

Table 4 – Staff Training

Name of Training	Location	Dates	Number of Staff
OR APWA 2016 Fall Conference	Bend	10/11/2016 – 10/14/2016	2
Clean Rivers & Streams – Stormwater Outreach Forum	Keizer	10/25/2016	1
2016 NW Pavement Management Assoc. Conference	Portland	10/25/2016 – 10/28/2016	2
Oregon Agricultural Chemicals & Fertilizer Assoc. – Safety & Stewardship Seminar	Wilsonville	11/3/2016	4
Oregon Golf Course Superintendents Assoc. – Pest Management Seminar	Portland	12/7/2016 – 12/8/2016	3
Mid-Willamette Erosion Control & Stormwater Management Summit	Keizer	1/24/2017	2
OSU/Integrated Plant Protection Center – Urban Pest Management Course	Oregon City	2/1/2017	3
ORWEF Water Environment School	Oregon City	3/28/2017	1
OR APWA 2017 Spring Conference	Seaside	4/10/2017 – 4/13/2017	1
Willamette River Toxics Reduction Partnership Meeting	Portland	5/24/2017	1
Congress for the New Urbanism	Seattle, WA	5/3/2017 – 5/6/2017	1
ACWA Stormwater Summit	Eugene	5/10/2017	2
AWWA 38 th Annual Waterworks School	Oregon City	6/20/2017 – 6/22/2017	2

5.3 SWMP Element #5 BMP: Public Involvement and Participation

Schedule A.4.e of the City's 2012 Permit require 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 2015-2016 NPDES MS4 Annual Report was posted to the City's website on 10/26/2016 for public review. No comments were received from the public and the annual report was submitted to DEQ before the deadline of November 1st, 2016.

Also during this reporting period, a 30-day public review of elements of the Permit Renewal Application was provided beginning on 1/23/2017. The elements included a summary of proposed SWMP items, a copy of the resulting 2017 SWMP, and a summary of the City's Total Maximum Daily Load (TMDL) Benchmarks. The City did not receive any comments from the public and the Permit Renewal Application packet was submitted unchanged to DEQ in hardcopy and electronic copy on February 28th, 2017.

The CCCMP was updated in this reporting period (see Section 4.2). It was submitted for public comment on 11/16/2016 and stayed on the website till 11/30/2016, prior to submittal to DEQ. No public comments were submitted.

5.4 Stormwater Retrofit Strategy Implementation and Stormwater Planning

In accordance with Schedule A.6.c of the 2012 permit and the City's July 1, 2015 *Stormwater Retrofit Strategy Plan*, the City completed one stormwater pond retrofit project this reporting period. In the City's *Stormwater Retrofit Strategy Plan*, the Bland Circle Detention Facility on Salamo Creek was identified as a possible retrofit project as the outlet structure was malfunctioning and new development was anticipated upstream. This is an in-line detention facility located at the headwaters to Salamo Creek. In the fall of 2016, as part of the public improvements associated with the Weatherhill subdivision, the contractor excavated excess sediment in the pond, planted native plants and hydro-seeded the slopes. Additionally, the project included adding a new 150' long water quality swale upstream of the detention pond.

In January 2017, the City contracted with a consultant to prepare an update to the City's 2006 Stormwater Master Plan. Capital project needs related to water quality retrofit, results from the 2015 Hydromodification assessment, and system capacity deficiencies will be addressed.

6.0 Additional Activities (TMDL Implementation)

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: The Parks and Recreation Department started the process to update their 2007 Master Plan. With the overarching goal to create a Master Plan that is relevant, implementable and inspiring to City residents, the project team along with their consultant, distributed an online survey in April 2017 to understand what was important for the citizens of West Linn concerning their park system. Along with this questionnaire, three briefs were prepared entitled: Brief #1 - Community Profile, Brief #2 - Parks and Facilities and Brief #3 - Recreation Programs and Events. A summary of the survey results and three briefs are available on the West Linn Parks & Recreation website.

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. An article about this program was posted on the City of West Linn website 5/3/2017.

5. Hidden Springs Open Space Expansion: A purchase agreement to acquire 5.5 acres of land at the end of Mohawk Way was approved by the City of West Linn Council on 9/12/2017. This purchase will close in a gap in the Hidden Springs Open Space, allowing for an expanded wildlife corridor with additional protected views.

7.0 Overview of Planning and Land Use Changes, Urban Growth Boundaries (UGB) Expansions and New Development Activities

7.1 Summary of Land Use Changes and UGB Expansions

There were two annexations resulting in 6.9 acres of area added to the City. Both properties were rezoned from FU-10 (Future Urban – 10 Acre) designation to City R-7.

There were no UGB expansions during this reporting period.

7.2 Summary of Development Activities within the Urban Growth Boundary (UGB)

During the 2016-2017 reporting year, there were 11 land use development applications reviewed and approved for compliance with water quality/quantity standards. The applications included two subdivisions composing a total of 84 lots. Four minor partitions were approved resulting in a total of 11 new lots. A Conditional Use Permit for a 106,487 square foot self-storage structure was approved adjacent to Bernert Creek and associated wetlands.

Ongoing public projects under construction during the reporting period include Lake Oswego's Water Treatment Plant Expansion and the Bolton Water Reservoir. The Cedaroak Boat Ramp project was completed in the reporting period. Improved parking and circulation yielded a net increase in impervious surface of 16,710 square feet.

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 in the City include bio-swales, rain gardens, ponds, and pervious pavement.

Table 5 – Public and Private BMP's

Type of Facilities	Total Drainage Area in SF	Impervious Area (new or redeveloped) in SF
Private Rain Gardens (20)	27,608	27,608
Privately-Maintained Storm Detention (1)	128,000	128,000
Public Water Quality Facilities	0	0
Totals	155,608	155,608

Appendix A

West Linn 2016-2017 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 2016-2017	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 illicit discharges discovered in this reporting period.	
Conduct Annual Dry Weather Field Screening	○	○	○	City of West Linn Public Works Environmental Services Division (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">6 high priority outfalls were inspected as part of the annual dry weather field screening activities on 8/1/2017.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 5.1, Table 3 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	○	○	○	City of West Linn Public Works Environmental Services Division (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 3 spills this reporting year.A.) TVF&R responded to a fuel leak at 1922 Aztec Ct on 12/11/2016. The source was fuel from a firewood delivery truck. The investigation revealed a non-slick surface but a rainbow appearance on the entire street. Because there was no detectable slick spots that the fire fighters could put oil absorbent on, they cleared the scene.	<p>(3) B.) TVF&R responded to a fuel spill at 2115 8th Ct. on 2/10/2017. An older model vehicle’s fuel line had come unhooked from the fuel pump. The fire fighters stopped the leak by plugging the fuel line back into the fuel pump and used kitty litter to absorb the fuel on the asphalt.</p> <p>(3) C.) On 3/24/2017 TVF&R responded to a light sheen of fuel on the north side of HWY 43 at the intersection of Elliott that extended for a half mile. No isolated spill location was found and the fire fighters notified WA County Consolidated Communications Agency to advise ODOT.</p>
Element 2: Industrial and Commercial Facilities								
Screen Existing and New Industrial Facilities	○	○	○	City of West Linn Public Works Environmental Services Division (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 City of West Linn has only one active 1200-Z permit holder - West Linn Paper Company. There were no new industrial facilities located in West Linn during the permit year.	The City’s ESD reviewed the existing business license inventory in 2013 to determine whether any existing businesses would be subject to an industrial stormwater NPDES permit. None were found to need an industrial NPDES Permit.
Conduct Priority Facility Inspections	○	○	○	City of West Linn Public Works Department Environmental Services Division (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">The Environmental Technician from the City’s ESD inspected 5 commercial businesses during the reporting year.<ul style="list-style-type: none">Chase BankLes Schwab Tire CenterRoselinn Care CenterCedaroak Commercial CenterSummerlinn Building	

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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 2016-2017	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 issued a total of <u>46</u> Erosion Prevention Permits, (44 Residential and <u>2</u> Commercial).<u>46</u> Building Erosion Control plan reviews were conducted. <u>44</u> reviews were completed during the land use development applications process, and <u>2</u> reviews were completed during Engineering Division construction review.	
Provide Educational Information to Construction Site Operators	○	○	○	City of West Linn Public Works Department and Building Department	<ul style="list-style-type: none">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 West Linn Building Department gives all builders and home owners who are applying for an erosion control permit a copy of the West Linn Environmental Protection Guide that is included in the “Guide to Permits and Inspections” booklet. The Environmental Protection Guide is also available at City Hall and on 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 2016 – 2017 reporting year: Preliminary Inspections: <u>7</u> Approved, <u>21</u> Approved w/conditions, <u>11</u> Denied Mid Inspections: <u>8</u> Approved, <u>21</u> Approved w/conditions, <u>20</u> Denied Final Inspections: <u>37</u> Approved, <u>1</u> Approved w/conditions, <u>12</u> Denied Total EC Inspections: <u>52</u> Approved, <u>43</u> Approved w/conditions, <u>43</u> Denied <ol style="list-style-type: none">No notices of non-compliance or stop work orders were issued during the 2016-2017 reporting year. Procedures for violations are listed under additional activities in the column to the right.	Permit violations are issued in a three step enforcement progression as follows: 1st a written notice of the inspection findings and required corrections (Warning) 2nd Should corrections not be implemented, a notice of non-compliance will be issued with the required corrections. 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.
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.The Public Effectiveness Evaluation Summary was submitted to DEQ on July 1st, 2015.Coordinated educational efforts included the staffing of a stormwater display for the Clackamas County Water Education Team (CCWET) 12th Annual “Celebrating Water” Event at Clackamas Community College on March 21st, 2017.No catch basins were stenciled this reporting year.The City paid \$900 to TBPAC on 5/9/2017.	Educational materials available on the City’s website include: <ul style="list-style-type: none">Low Impact Development Approaches HandbookPrivate Water Quality Facilities Program – OSU Field GuideYard Care BrochureRain Garden GuideWeed GuideGrow Smart, Grow Safe DatabaseNative Plants for Willamette Valley Yards BookletOperation and Maintenance for Private Property Owners
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 50 dog waste bag dispensers installed throughout the parks and open spaces. During the 2016 – 2017 reporting year, the City spent \$6,279.30 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.	

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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 2016-2017	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 Street Division received a total of <u>83</u> hours of training in Pest Management. The Parks Department staff received a total of <u>32</u> hours of Integrated Pest Management training.	
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) Two Public Works employees attended the Annual ACWA Stormwater Summit in Eugene on May 10th, 2017. Two employees attended the Mid-Willamette Erosion Control & Stormwater Management Summit on January 24th, 2017. (2) One employee presented a stormwater model at the Clackamas County Water Education Team’s (CCWET) 2017 Annual Celebrating Water Festival at Clackamas Community College on March 21st, 2017. One West Linn staff is on the Board of Directors for the Association of Clean Water Agencies (ACWA) as the Secretary/Treasurer.	(2) West Linn staff regularly participates in the following groups and organizations: - ACWA stormwater committee meetings - Continued collaboration with other Clackamas co-permittees on the Comprehensive Clackamas County Stormwater Monitoring Program (CCCSMP). - Clackamas County Water Education Team, (CCWET). - American Public Works Association conferences, (APWA). - Tualatin Basin Public Awareness Committee, (TBPAC). - Clean Rivers Coalition (CRC)
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>11</u> land use development applications were reviewed for compliance with stormwater treatment and detention standards. (2) There were no modifications to the list of currently approved stormwater treatment and detention facilities. (3) There were <u>12</u> new private facilities added in FY 2016-17 with <u>155,608</u> square feet of drainage area treated.	
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 practicableUpdate 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.	(1) The most current version of the City of Portland Stormwater Management Manual 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 or LID use in projects have been identified and addressed. Rain gardens, detention ponds, and bio-swale water quality facilities are typical facilities used to meet the 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 2016-2017	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>6 City-wide sweeps</u> were conducted. (2) Approximately <u>923 cubic yards</u> of material were removed. (3) <u>10,449 Gallons of deicing agent</u> was used in the winter of 2016/17.	
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.	(1) The City of Portland Integrated Pest Management (IPM) Program Manual was updated on 6/29/2016. (2) The City spent approximately: \$ <u>4,676.00</u> on pest management chemicals.	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	○	○	○	City of West Linn Public Works Department Environmental Services Division	<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.	Public Works crews received plow and chain training on 11/8/2016 and track hoe training on 1/9/2017. Both trainings emphasized what to do in case of oil and/or sand spillage.	
Control Infiltration and Cross Connections to the Stormwater Conveyance System	●	○	○	City of West Linn Environmental Services Division	<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.	(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. (2) Describe any follow-up activities required for identified cross-connections.	(1) No cross connections were discovered during the reporting period. (2) N/A	West Linn has a strong curried-in-place (CIPP) program that has been in effect for 7 years. The 2017 Sewer Rehabilitation Project PW-16-06 relined: <ul style="list-style-type: none">31,543 LF – 8 inch1,162 LF – 10 inch193 LF – 14 inch For a total of: <u>32,898 LF of sanitary pipe.</u>
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.	(1) Track any updates or modifications to the current Stormwater Master Plan approved by the City. (2) Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each. (3) Map the location and drainage area of water quality CIPs as they are constructed.	(1) No updates were made to the Stormwater Master Plan in this reporting period. A contract was awarded to Brown & Caldwell to update the Plan and is expected to be complete in the 17/18 FY. The Master Plan guides development as well as future City project needs by identifying current deficiencies, future anticipated deficiencies, and recommending improvements to correct deficiencies to provide for system needs. (2) The following CIP project with stormwater elements were under construction during fiscal year 2016-2017: <ul style="list-style-type: none">PW-16-06 2017 Sanitary Sewer Rehab (Phase 7) (3) Project locations are mapped in the City's GIS. Detailed information for the public for each project can be found at: westlinnoregon.gov/publicworks/public-improvement-projects-0 .	(2) Detail related to the Public Improvement/ Stormwater-related CIPs constructed includes: <ul style="list-style-type: none">PW-16-06 2016 Sanitary Sewer Rehab: 32, 898 linear feet of sewer pipe lining to reduce groundwater/stormwater inflow and infiltration.

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Appendix A continued – Status of Implementing Components of West Linn’s 2012 Stormwater Management Plan (SWMP)

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Element 8: Stormwater Management Facilities Operation and Maintenance								
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	○	City of West Linn Environmental Services Division	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>6,109</u> linear feet of stormwater pipe was inspected. (2) <u>150</u> cubic yards of debris was removed during cleaning activities.	As a part of the 2017 Road Program (PW-17-01), all stormwater pipes were inspected before new waterlines were installed and before the streets were paved.
Conduct Catch Basin Cleaning and Maintenance	●	●	○	City of West Linn Environmental Services Division	<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>2719</u> catch basins were inspected, and <u>614</u> catch basins were cleaned during the 2016-2017 reporting year. (2) <u>500</u> cubic yards of debris were removed from catch basins.	
Public Structural Control Facility Cleaning and Maintenance	●	●	●	City of West Linn Environmental Services Division	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 2016-2017 reporting year: <ul style="list-style-type: none"> I. Pollution Control Manholes = <u>0</u> Inspected and <u>0</u> were Cleaned & Maintained II. Detention Tanks = <u>0</u> Inspected and <u>0</u> Cleaned & Maintained III. Bio Swales = 3 Inspected and <u>3</u> Maintained IV. Water quality ponds = <u>47</u> Inspected and <u>47</u> Maintained (2) The volume of debris removed during cleaning activities conducted: <u>415</u> cubic yards. (Includes Bio Swales and WQ Ponds).	The City’s Environmental Services Stormwater crews routinely perform the following maintenance activities on all public stormwater control facilities: <ul style="list-style-type: none"> remove, trim & inventory trees, lay mulch, pest management for bees & mosquitoes, remove unwanted and/or overgrown brush, blackberries, and weeds.
Private Water Quality Facility Maintenance Program	●	●	●	City of West Linn Environmental Services Division	<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>12</u> new maintenance agreements were recorded through the City’s Engineering Department and the Clackamas County Recorder’s Office during the 2016-2017 reporting year. (2) A total of <u>55</u> inspection reports were received during the 2016-2017 reporting year after sending <u>144</u> letters requesting private water quality facility owners to inspect their facilities. The inspection reports are due by October 1 st of each year for all facilities with or without a recorded maintenance agreements.	Select multi-family and business complexes were inspected by the City: <ul style="list-style-type: none"> Cascade Summit Le Chevalier Subdivision Summerlinn Complex 5 homes in Renaissance Ridge 2 Subdivision Chase Bank Les Schwab Tire Center Roselinn Care Center Cedaroak Commercial Center Summerlinn Building

Appendix B

West Linn 2016-2017 Monitoring Data

Appendix B – Stormwater Monitoring Data

Location - Culvert near 3821 Calaroga Drive Sample Site # WL_01 Stream Name - Trillium Creek										
Analysis	Units	Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			Notes
		Dry Weather 8/24/2016	Storm Event 10/13/2016	Storm Event 2/8/2017	Storm Event 4/6/2017	Dry Weather 6/2/2017	High	Low	Mean	
Conductivity - Field	µS/cm	191.1	61.3	69.3	75.0	160.2	191.1	61.3	111.4	4 1, 2
Dissolved Oxygen - Field	mg/L	10.2	11.0	11.7	10.5	9.8	11.7	9.8	10.6	
Dissolved Oxygen - Winkler	mg/L	9.4	9.7	11.9	10.4	9.2	11.9	9.4	10.1	
E. coli - Colilert	MPN/100mL	236	> 2420	435	816	727	> 2420	236	926	
pH - Field	Std Units	7.1	7.5	6.9	7.3	7.2	7.5	6.9	7.2	
Temperature - Field	°C	15.5	13.0	6.0	10.0	13.5	15.5	10.0	11.6	
Ammonia Nitrogen Low Seal	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
BOD	mg/L	0.08	1.4	0.31	1.7	0.07	1.7	0.07	0.71	
Copper	ug/L	0.80	5.2	2.8	5.4	0.90	5.4	0.80	3.0	
Copper, Dissolved	ug/L	0.50	2.5	1.3	1.8	0.70	2.5	0.50	1.4	
Lead	ug/L	0.15	1.04	0.91	1.88	0.16	1.9	0.15	0.83	
Lead, Dissolved	ug/L	< 0.01	0.06	0.06	0.06	0.02	0.06	< 0.01	0.04	
Zinc	ug/L	3.0	59.0	18.0	31.0	6.0	59.0	3.0	23.4	
Zinc, Dissolved	ug/L	2.0	28.0	8.0	6.0	4.0	28.0	28.0	9.6	
Nitrate-Nitrite Seal	mg/L	0.48	0.47	0.76	0.62	0.69	0.76	0.47	0.60	
Ortho Phosphate Seal	mg/L	0.06	0.05	0.03	< 0.04	0.05	0.06	0.03	0.05	
Total Phosphate Seal	mg/L	< 0.04	0.08	0.05	0.22	< 0.04	0.22	< 0.04	0.09	
Total Dissolved Solids	mg/L	160.0	70.0	95.0	87.0	181.0	181.0	70.0	118.6	
Total Solids	mg/L	176.0	91.0	92.0	158.0	160.0	176.0	91.0	135.4	
Total Suspended Solids	mg/L	4.0	34.0	25.0	68.0	3.0	68.0	3.0	26.8	
Volatile Solids	mg/L	51.0	31.0	43.0	58.0	10.0	58.0	10.0	38.6	
Hardness	mg CaCO ₃ /L	79.0	20.0	28.0	42.0	80.0	80.0	20.0	49.8	
Storm Event Rainfall	Inches	N/A	1.67	1.13	1.02	N/A				3

Notes:

(1) MPN = Most Probable Number.

(2) 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 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 electronic meter.

Appendix B – Stormwater Monitoring Data

Location - Culvert near 4103 imperial Drive Sample Site # WL_02 Stream Name - Tanner Creek										
Analysis	Units	Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			Notes
		Dry Weather 8/24/2016	Storm Event 10/13/2016	Storm Event 2/8/2017	Storm Event 4/6/2017	Dry Weather 6/2/2017	High	Low	Mean	
Conductivity Field	µS/cm	120.6	61.9	61.3	66.6	97.8	120.6	61.3	81.6	1, 2
Dissolved Oxygen - Field	mg/L	9.8	10.5	11.4	10.2	9.8	11.4	9.8	10.3	
E. coli - Colilert	MPN/100mL	308	> 2420	326	1550	186	2420	308	958	
pH Field	Std Units	7.1	7.2	6.7	7.3	7.2	7.3	6.7	7.1	
Temperature Field	°C	15.8	13.8	8.0	10.0	14.3	15.8	8.0	12.4	
Ammonia Nitrogen Low Seal	mg/L	< 0.050	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
BOD	mg/L	0.16	1.8	0.33	1.3	0.10	1.8	0.10	0.74	
Copper	ug/L	0.80	7.4	2.8	6.2	1.1	7.4	0.80	3.7	
Copper, Dissolved	ug/L	0.60	3.8	1.2	3.1	0.80	3.8	0.60	1.9	
Lead	ug/L	0.12	0.62	0.84	0.93	0.13	0.93	0.12	0.53	
Lead, Dissolved	ug/L	< 0.01	0.07	0.07	0.07	0.02	0.07	< 0.01	0.05	
Zinc	ug/L	3.0	25.0	27.0	79.0	7.0	79.0	3.0	28.2	
Zinc, Dissolved	ug/L	2.0	11.0	13.0	41.0	5.0	41.0	2.0	14.4	
Nitrate-Nitrite Seal	mg/L	0.63	0.40	0.91	0.58	0.84	0.91	0.40	0.67	
Ortho Phosphate Seal	mg/L	< 0.02	< 0.04	0.03	< 0.04	0.03	< 0.04	< 0.02	0.03	
Total Phosphate Seal	mg/L	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	
Total Dissolved Solids	mg/L	128.0	76.0	80.0	83.0	117.0	128.0	76.0	96.8	
Total Solids mg/L	mg/L	105.0	79.0	80.0	92.0	103.0	105.0	79.0	91.8	
Total Suspended Solids	mg/L	3.0	18.0	22.0	32.0	2.0	32.0	2.0	15.4	
Volatile Solids	mg/L	39.0	38.0	45.0	42.0	37.0	45.0	37.0	40.2	
Hardness	mg CaCO ₃ /L	43.0	20.0	26.0	26.0	46.0	46.0	20.0	32.2	
Storm Event Rainfall	inches	N/A	1.67	1.13	1.02	N/A				3

Notes:

(1) MPN = Most Probable Number

(2) 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 reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

Appendix B – Stormwater Monitoring Data

Location - Culvert Johnson Rd at Ryan Ct Sample Site # WL_03 Stream Name - Unnamed Creek										
Analysis	Units	Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			Notes
		Dry Weather 8/24/2016	Storm Event 10/13/2016	Storm Event 2/8/2017	Storm Event 4/6/2017	Dry Weather 6/2/2017	High	Low	Mean	
Conductivity Field	µS/cm	160.2	41.5	44.9	82.6	148.4	160.2	41.5	95.5	1, 2
Dissolved Oxygen - Field	mg/L	9.8	10.4	11.0	10.0	9.0	11.0	9.0	10.0	
E. coli - Colilert	MPN/100mL	411	1200	260	575	179	1200	260	525	
pH Field	Std Units	7.0	7.2	6.5	7.2	7.0	7.2	6.5	7.0	
Temperature Field	°C	15.8	14.3	9	10.5	14.4	15.8	9.0	12.8	
Ammonia Nitrogen Low Seal	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
BOD	mg/L	0.08	1.8	0.33	1.6	0.35	1.8	0.08	0.83	
Copper	ug/L	0.70	4.8	2.5	4.0	1.1	4.8	0.70	2.6	
Copper, Dissolved	ug/L	0.50	2.2	1.1	2.0	0.80	2.2	0.50	1.3	
Lead	ug/L	0.14	0.82	0.81	0.71	0.15	0.82	0.14	0.53	
Lead, Dissolved	ug/L	< 0.01	0.06	0.08	0.04	0.01	0.08	< 0.01	0.04	
Zinc	ug/L	10.0	155.0	29.0	35.0	37.0	155.0	10.0	53.2	
Zinc, Dissolved	ug/L	3.0	95.0	16.0	17.0	28.0	95.0	3.0	31.8	
Nitrate-Nitrite Seal	mg/L	0.13	0.35	0.85	0.33	0.39	0.85	0.13	0.41	
Ortho Phosphate Seal	mg/L	0.04	0.04	0.03	< 0.04	0.04	0.04	0.03	0.04	
Total Phosphate Seal	mg/L	< 0.04	< 0.04	< 0.04	< .04	< 0.04	< 0.04	< 0.04	< 0.04	
Total Dissolved Solids	mg/L	146.0	70.0	81.0	59.0	164.0	164.0	59.0	104.0	
Total Solids mg/L	mg/L	132.0	74.0	78.0	80.0	139.0	139.0	74.0	100.6	
Total Suspended Solids	mg/L	6.0	21.0	20.0	30.0	8.0	30.0	6.0	17.0	
Volatile Solids	mg/L	42.0	32.0	40.0	34.0	41.0	42.0	32.0	37.8	
Hardness	mg CaCO ₃ /L	56.0	20.0	27.0	29.0	65.0	65.0	20.0	39.4	
Rain Fall Data in Inches	Inches	N/A	1.67	1.13	1.02	N/A				3

Notes:

(1) MPN = Most Probable Number

(2) 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 reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

Appendix B – Stormwater Monitoring Data

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	
		10/13/2016	2/8/2017	4/6/2017				
Conductivity Field	µS/cm	9.0	22.7	48.4	48.4	9.0	26.7	1, 2
Dissolved Oxygen - Field	mg/L	10.7	11.4	9.2	11.4	9.2	10.4	
E. coli - Colilert	MPN/100mL	727	61	2420	2420	61	1069	
pH Field	Std Units	7.0	6.9	6.2	7.0	6.20	6.7	
Temperature Field	°C	13.9	5.0	10.5	13.9	5.0	9.8	
Ammonia Nitrogen Low Seal	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	
BOD	mg/L	1.7	0.59	3.5	3.5	0.59	1.9	
Copper	ug/L	12.2	7.3	11.3	12.2	7.3	10.3	
Copper, Dissolved	ug/L	7.4	4.7	8.4	8.4	4.7	6.8	
Lead	ug/L	0.61	0.62	0.52	0.62	0.52	0.58	
Lead, Dissolved	ug/L	0.15	0.19	0.11	0.19	0.11	0.15	
Zinc	ug/L	45.0	29.0	33.0	45.0	29.0	35.7	
Zinc, Dissolved	ug/L	30.0	21.0	25.0	30.0	21.0	25.3	
Nitrate-Nitrite Seal	mg/L	0.22	0.84	0.33	0.84	0.22	0.46	
Ortho Phosphate Seal	mg/L	< 0.04	< 0.02	< 0.04	< 0.04	< 0.02	< 0.035	
Total Phosphate Seal	mg/L	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	
Total Dissolved Solids	mg/L	42.0	60.0	55.0	60.0	42.0	52.3	
Total Solids mg/L	mg/L	38.0	36.0	51.0	51.0	36.0	41.7	
Total Suspended Solids	mg/L	11.0	8.0	11.0	11.0	8.0	10.0	
Volatile Solids	mg/L	24.0	30.0	39.0	39.0	24.0	31.0	
Hardness	mg CaCO ₃ /L	8.0	13.0	10.0	13.0	8.00	10.3	
Rain Fall Data in Inches	Inches	1.67	1.13	1.02				

Notes:

(1) MPN = Most Probable Number

(2) 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 reporting limit" and treated as 0 for calculations. N/A is Not Applicable.

Appendix C

West Linn 2016-2017

Willamette & Tualatin Rivers

TMDL Implementation Status

Appendix C

Tualatin and Willamette TMDL Implementation Plan Annual Report

Along with Section 6.0 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 in Section 6.0 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. The most recent version of the Willamette River TMDL IP is dated April 30, 2014 and was approved with conditions by DEQ August 18, 2014. During the 2016-17 reporting period, the City is in their third year of the 5-year implementation term. The TMDL parameters of concern for the Willamette River are: 1) bacteria 2) mercury and 3) temperature.

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 with conditions on August 18, 2014. 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. During the 2016-17 reporting period, the City is in their third year of the 5-year implementation term.

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); since 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.

TMDL Pollutant Load Reduction Evaluation (PLRE) and TMDL Benchmarks

On February 28th, 2017 the City of West Linn submitted to Oregon DEQ its TMDL PLRE and TMDL Benchmarks in the NPDES MS4 Permit Renewal Application. This document can be found on the City's website.

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	2016-2017 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"> Jackson Bottom Wetlands Preserve Education Center Exhibit – Completion December 2017. Stream Crossing Signs – 100 signs printed. Naturescaping for Clean Rivers Workshops - 26 attendees for 5/13/2017 class. 28th Annual Discovery Day Event had more than 200 community member’s participation. Will Hornyak “Living Streams” presentation to 2,097 students in 5 schools. The City funded the USGS hydrologic data collection program for <u>\$1,650</u> in July 14th, 2016. The City funded <u>\$900</u> 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. 	No modifications were made to the City’s Development Standards relating to the use of LID.	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. 	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”.	<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"> The City removed invasive species along four stream segments of the Sunset Creek beginning in the spring of 2016. Segments included Sun-1, Sun-2, Sun-8 and Sun-10 as referenced in the Willamette TMDL Implementation Plan. Sunset Creek has a mixture of privately owned and Clackamas County property. Shade opportunity stream native plants will be planted at two of the segments in the fall of 2017 as the other two are heavily shaded already. 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 Willamette Greenway <p>See Section 6 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 2016-2017

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
Maddax Woods	Maddax Woods Monthly Cleanup for July	07/16/2016	4	Friends of Maddax Woods	0	1600			23	20	3		
Burnside Park	July Burnside Park Beach Cleanup	07/16/2016	3		600	0			7	7	0		
Mary S. Young State Park	Mary S. Young State Park Cleanup	07/25/2016	4	Portland Brewing Co.	20	0			8	8	0		
Maddax Woods	Maddax Woods Monthly Cleanup for August	08/20/2016	4	Friends of Maddax Woods	3	800			16	15	1		
White Oak Savanna	Hands Across the Water	08/24/2016	2	White Oak Savanna Committee	0	1000			66	64	2		
Burnside Park	September Burnside Wilderness Park Restoration	09/17/2016	4		20	2500			5	5	0		
Maddax Woods	Maddax Woods Restoration	09/17/2016	4	Friends of Maddax Woods	90	100			17	16	1		
Mary S. Young State Park	Trillium Elementary Cleans Mary S. Young	09/23/2016	4	Cedaroak Park Primary School	0	30000			125	5	120		
Mary S. Young State Park	Cedar Island - Annual Down by the Riverside Cleanup	09/24/2016	3	City of West Linn	200	0			17	10	7		
Mary S. Young State Park	Mary S. Young Clean Up	09/30/2016	3	St. John the Apostle School	400	0			60	10	50		
Maddax Woods	Maddax Woods Monthly Cleanup for October	10/15/2016	4	Friends of Maddax Woods	20	150			9	9	0	100	
Mary S. Young State Park	Mary S. Young State Park Eagle Scout Part 1	10/20/2016	7		1	1000			12	2	10		
Mary S. Young State Park	Mary S. Young State Park Eagle Scout Part 2	10/22/2016	7		1	0		50	30	10	20		
Burnside Park	Athey Middle School at Burnside Wilderness Park	10/26/2016	4	Athey Middle School	5	15000			61	6	55		
Mary S. Young State Park	Athey Middle School at Mary S. Young State Park October	10/26/2016	2	Athey Middle School	5	2500			56	5	51		
White Oak Savanna	Athey Middle School at White Oak Savanna October	10/26/2016	2	White Oak Savanna Committee, Athey Middle School	2	0		240	61	6	55		
McLean House and Park	Willamette River Native Garden Trail Restoration	10/29/2016	4	Girl Scouts of the USA	0	0	6	63	17	12	5	70	
Mary S. Young State Park	Mary S. Young State Park Tree Planting for November	11/08/2016	4		0	0	65		4	4	0		15
Burnside Park	November Burnside Wilderness Park Restoration	11/19/2016	3		10	500			9	9	0		
Maddax Woods	Maddax Woods Monthly Cleanup for January	01/21/2017	4	Friends of Maddax Woods	1	200			19	16	3		
Mary S. Young State Park	Mary S. Young Park Work Party for February	02/04/2017	3		0	20000	186		11	11	0		
Maddax Woods	Maddax Woods Monthly Cleanup for February	02/18/2017	4	Friends of Maddax Woods	0	0		7	4	4	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
Burnside Park	February Burnside Wilderness Park Restoration	02/18/2017	3		0	1000			4	4	0		
Mary S. Young State Park	Mary S. Young Park Work Party for March	03/04/2017	3		5	21780			14	12	2	90	
Burnside Park	March Burnside Wilderness Park Restoration	03/18/2017	3		15	4000			15	15	0		
Maddax Woods	Maddax Woods Monthly Cleanup for March	03/18/2017	4	Friends of Maddax Woods	1	150			11	9	2		
Mary S. Young State Park	Mary S. Young Park Work Party for April	04/01/2017	3		0	2000			18	17	1		
Burnside Park	Burnside Park Earth Day Restoration	04/15/2017	4		0	1000			30	26	4		
Maddax Woods	Maddax Woods Planting Event	04/15/2017	4	Friends of Maddax Woods	0	15			15	12	3		
McLean House and Park	Earth Day at McLean House	04/22/2017	3	Friends of McLean Park and House	5	0		8	44	23	21		
Willamette Greenway	Willamette Greenway Trail	04/22/2017	3	City of West Linn Parks & Recreation	0	1500	200		37	25	12	200	
White Oak Savanna	Savanna Restoration	04/22/2017	3	White Oak Savanna Committee	0	87120			24	16	8		
Mary S. Young State Park	Mary S. Young Park Work Party for May	05/06/2017	3		0	87120			11	10	1		
Burnside Park	May Burnside Wilderness Park Restoration	05/13/2017	3		3	2000			40	23	17		
Mary S. Young State Park	Take Care of West Linn Day at Mary S Young Park	05/20/2017	3	City of West Linn Parks & Recreation	3	10000			73	38	35		
Maddax Woods	Maddax Woods Monthly Cleanup for May	05/20/2017	4	Friends of Maddax Woods	2	350		15	12	7	5		
Mary S. Young State Park	Mary S. Young Park Work Party for June	06/03/2017	3		0	10890			11	11	0		
Mary S. Young State Park	Stand Together Week at Mary S Young	06/05/2017	3		0	43560			31	30	1		
Burnside Park	June Burnside Nature Park Restoration	06/17/2017	3		0	0			0	0	0		
Pocket Park	Pocket Park Nature Restoration	06/24/2017	4		0	500			11	11	0		
White Oak Savanna	Weed Whacking Workout	06/24/2017	2	White Oak Savanna Committee	0	500			5	4	1		
Totals:					1,412	348,835	457	383	1,043	547	496	460	15