

# City of West Linn, Oregon



## 2015-2016 NPDES Annual Report

National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) and Total Maximum Daily Load (TMDL) Implementation Plans for the Willamette River & Tualatin River

Prepared for the Oregon Department of Environmental Quality ~ November 1, 2016

## City of West Linn

### NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM MUNICIPAL STORMWATER SYSTEM ANNUAL REPORT

JULY 1<sup>ST</sup>, 2015 – June 30<sup>th</sup>, 2016

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater System Annual Report in accordance with NPDES Permit No. 101348. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our 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

10-25-2016

Date

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## 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 through the Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit No. 101348, issued to Clackamas County and its co-permittees. Clackamas County co-permittees include the Cities of West Linn, Lake Oswego, Gladstone, Milwaukie, Oregon City, Wilsonville, Happy Valley, Johnson City, Rivergrove, the Oak Lodge Sanitary District, Clackamas County, Clackamas County Service District No.1 and Surface Water Management Agency of Clackamas County. Each co-permittee is a relatively small community, most having populations between 15,000 and 25,000 with some (Johnson City and Rivergrove) have significantly smaller populations.

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

Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual SWMP's. This annual report documents stormwater management activity from **July 1<sup>st</sup>, 2015 to June 30<sup>th</sup> 2016** in conjunction with the City's reissued MS4 NPDES permit.

### 1.2 Document Organization

The following table (Table 1) outlines the organization of this annual report document, with respect to the annual reporting requirements per Schedule B (5) of the City's MS4 NPDES permit. Each section of this report corresponds to the specific requirement for annual report submittals found in Schedule B.5 of the permit. This report emphasized efforts and activities associated with individual Best Management Practices (BMPs) from the City's effective 2012 SWMP, as summarized in Appendix A.

**Table 1 -- Annual Reporting Requirements**

Annual Reporting Requirements		Section Location in this Report
A	Status of implementing SWMP elements, including progress in meeting measureable goals.	Appendix A
B	Status of any public education effectiveness evaluation conducted during the reporting year, and a summary of how results were used in adaptive management	Appendix A
C	Summary of the adaptive management process implementation during the reporting year including new BMPs.	2.0
D	Proposed changes to SWMP program elements to reduce TMDL pollutants to the Maximum Extent Practicable (MEP).	2.2
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 is accumulated throughout the reporting year.	4.0 & Appendix B

G	Any proposed modifications to the monitoring plan necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	4.2
H	A summary describing the number and nature of enforcement actions, inspections, and public education programs.	Appendix A
I	An overview, as related to MS4 discharges, describing land use changes, UGB expansion, land annexations, and new development activities. The number of new post-construction permits issued and an estimate of new and replaced impervious surface must also be included.	6.0
J	A summary related to MS4 discharges describing concept planning or other activities in preparation of UGB expansions and land annexations.	6.0
K	Additional elements required for submittal by November 1 <sup>st</sup> , 2015: <ul style="list-style-type: none"> <li>• The TMDL Pollutant Load Reduction Evaluation</li> <li>• The Wasteload Allocation Attainment Assessment</li> <li>• The 303 (d) Evaluation</li> </ul>	5.1

## 2.0 Adaptive Management Process Implementation

### 2.1 Adaptive Management Program

In accordance with the issuance of the City's renewed MS4 NPDES permit (in 2012), the City was required to document their adaptive management approach to assess annually and modify, as necessary, existing and new SWMP components. The City submitted their adaptive management approach to DEQ on November 1<sup>st</sup>, 2012, as required in the reissued NPDES MS4 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 their permit renewal application and updated permit requirements. Documentation of the adaptive management approach was not explicitly required until issuance of this permit (2012). The City's adaptive management approach maintains consistency with the City's historical approach for implanting 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 gage whether implementation was deemed to be effective or whether there are suggested improvement to be made. Suggested adjustments to BMP implementation will include consideration of resource availability, budget/funding, and overall need. For this annual report, no adaptive management changes were made to the SWMP as a result of this annual process.

Every five 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.

### 2.2 SWMP Updates for the 2015-2016 reporting year

The 2015-2016 reporting year is the fourth year in which the City's effective SWMP has been implemented. No updates were made to the 2012 SWMP or BMP measureable goals and tracking measures beyond those submitted to DEQ in May 2012.

### 3.0 Summary of Program Expenditures

A summary of the City of West Linn's Environmental Services Division (ESD) funding sources, expenditures for the 2015-2016 fiscal year and a projection of the City's expenditures for the 2016-2017 fiscal year are provided in Table 2 below.

**Table 2 -- City of West Linn Environmental Services Fund for the FY ending June 30th, 2016**

	Surface Water	Sewer	Environmental Services
<b>Funding Sources:</b>			
Charges for Services	\$ 827,073	\$ 2,256,342	\$ 3,083,415
SDC Reimbursement Fees	33,359	28,288	61,647
Interest	-	-	-
Transfer from other Funds	-	-	-
Misc.	29,725	47,631	77,356
Total	<u>\$ 890,157</u>	<u>\$ 2,332,261</u>	<u>\$ 3,222,418</u>
<b>Expenditures</b>			
Personal Services	\$ 467,261	\$ 210,007	\$ 677,268
Materials and Services	148,559	145,521	294,080
Capital Outlay	410,761	382,289	793,050
Transfers	352,000	765,000	1,117,000
Total	<u>\$ 1,378,581</u>	<u>\$ 1,502,817</u>	<u>\$ 2,881,398</u>
<b>Projected Expenditures for 2016-17</b>			
Personal Services	\$ 470,000	\$ 341,000	\$ 811,000
Materials and Services	176,000	317,000	493,000
Capital Outlay	350,000	955,000	1,305,000
Transfers	450,000	744,000	1,194,000
Total	<u>\$ 1,446,000</u>	<u>\$ 2,357,000</u>	<u>\$ 3,803,000</u>

## **4.0 Monitoring Data**

### **4.1 Summary of the Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP)**

Per the 2004 MS4 NPDES 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 plan 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 Permit.

As described in the CCCSMP, the MS4 NPDES 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, and the City's sampling efforts are outlined in more detail in 5.3 and in the CCCSMP. Results of the instream and outfall sample collection efforts are provided in Appendix B.

### **4.2 CCCSMP Updates and Modifications**

There were no updates or modifications to the CCCSMP this reporting year.

### **4.3 Summary of Monitoring Data**

The City's reissued MS4 NPDES permit (effective date: March 16, 2012) prescribed new monitoring requirements that were to take effect October 1, 2012. Monitoring requirements included instream and stormwater outfall monitoring, mercury monitoring, pesticide monitoring and biological monitoring. In accordance with the latest CCCSMP, West Linn conducts instream and outfall monitoring. 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

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 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 sampling results are included and summarized in Appendix B.

The City of West Linn participated in a coordinated pesticide monitoring effort with other Clackamas County co-permittees and the U.S. Geological Survey (USGS). Sediment and instream water samples were collected in the summer of 2013. Preliminary results were provided by USGS to the participating jurisdictions in April 2014. The USGS submitted the draft report for final internal review and approval on October 8, 2015. The report entitled, "Storm-event transport of urban-use pesticides to streams likely impairs invertebrate assemblages," was accepted on March 1<sup>st</sup>, 2016. The report can be found online at: <https://pubs.er.usgs.gov/publication/70171081>.

The City of West Linn conducted dry and wet weather mercury sampling events on March 20<sup>th</sup>, 2013 and May 29<sup>th</sup>, 2013. As the initial obligations for mercury monitoring were fulfilled, and as DEQ was unclear in how they intended to use the data, in December 2014 the City asked DEQ to forgo the next round of mercury sampling. DEQ agreed that an additional round would not be necessary at this time.

Biological monitoring was conducted by Cole Ecological, Inc., early in the permit cycle and a final report was prepared in February 2014 for the cities of Gladstone, Lake Oswego, Milwaukie, Wilsonville, Oregon City and West Linn. The objectives of the study were twofold: to assess the current status of chemical, physical, and biological conditions in 17 streams across the six jurisdictions, and to determine whether noticeable trends in improvement or decline in biological conditions are occurring. The report entitled, "Clackamas County NPDES MS4 Co-permittees 2013 Coordinated Macroinvertebrate Assessment," can be found by going to the City's website: <http://westlinnoregon.gov/publicworks/npdes-program>.

## **5.0 Additional Activities**

The following stormwater-related activities occurred within the City and are documented here to allow for more detail given the space constraints associated with providing text in Appendix A. A description of activities is provided by the applicable BMP. The annual progress associated with all remaining BMP's is provided in Appendix A.

### **5.1 SWMP Element #5: Public Involvement and Participation**

Schedule A.4.e of the City's MS4 NPDES permit requires that we provide opportunities for the public to participate in the development, implementation, and modification of the City's stormwater management program. Annual Reports are one among many reports that have to go before the public for comments in this permit term (2012-2017). The final draft of last year's report, the 2014-2015 NPDES Annual Report, was posted to the City of West Linn website on October 28<sup>th</sup>, 2015 for public review. No comments were added by the public and a hard copy plus an electronic copy was sent to Oregon DEQ before the deadline of November 1<sup>st</sup>, 2015.

An explanation of each report is below and almost all of the reports can be found at: <http://westlinnoregon.gov/publicworks/npdes-program>. The studies have helped target and identify specific issues that need to be addressed to maintain waterbody health and help formulate BMP activities (measurable goals and tracking measures) that can be used to support improvements.

**Table 3: FY15/16 Compliance Reporting**

	West Linn NPDES permit compliance items:	Permit Location	Completed and Sent by
1	Wasteload Allocation Attainment Assessment (WLA)A	D.3.b	2/1/2016
2	TMDL Pollutant Load Reduction Evaluation (TMDL PLRE)	D.3.c	2/1/2016
3	Hydromodification Assessment	A.5	6/1/2015
4	303 (d) Assessment	D.2	10/28/2015
5	NPDES Annual Report	B.5	10/28/2015
6	Stormwater Retrofit Plan	A.6.b	7/1/2015
7	Instream Water Quality Trends Analyses Technical Memorandum	D.3	10/21/2015

1. **Wasteload Allocation Attainment Assessment (WLA):** An evaluation of BMP scenarios to hypothetically estimate what type of structural BMP and coverage level would be needed to achieve wasteload allocations established by applicable TMDL's. It also includes a financial analysis of the costs to construct and maintain the hypothetical structural BMP's. In addition, there is a description of the constraints and limitations related to implementing structural BMPs on the level required to achieve the TMDL WLAs. Although this report was due 11/1/2015, the City asked for and was granted an extension to file the report in February 2016. This report was put on the city's website asking for comments from the public. No comments were received.
2. **TMDL Pollutant Load Reduction Evaluation (TMDL PLRE):** This report is an evaluation of the estimated pollutant loading based on current land use from all MS4 permitted areas of the city. It includes an evaluation of the pollutant load reduction based on the City's current use of structural water quality controls or BMPs. Lastly it compares the current pollutant load reduction to benchmarks established as part of the City's permit renewal in 2008. Although this report was due to DEQ on 11/1/2015, the City asked for and was granted an extension to submit the report in February 2016. This report was put on the City's website for public review but no comments were received.
3. **Hydromodification Assessment:** This is an assessment and evaluation of stream channels in the city to determine whether discharges from the MS4 have impacted stream channels and whether future development patterns are likely to contribute to additional impacts. The assessment identifies strategies to address potential hydromodification impacts. Primarily this assessment is concerned with MS4 discharges, including erosion, sedimentation and alteration to stormwater flow, volume, and duration that may cause or contribute to water quality degradation.
4. **303(d) Assessment:** In Oregon, the U.S. EPA has delegated authority to the Oregon DEQ to conduct water quality assessments to determine the status of water bodies in the state with respect to established water standards. DEQ conducts the assessments approximately every 2 years and publishes findings, including the effective 303 (d) list. The report completed by Brown & Caldwell, The City's stormwater compliance contractors, includes 3 things: an evaluation of the likelihood that discharges from the regulated MS4 cause or contribute to water quality degradation as related to specific 303 (d) parameters, an assessment of the effectiveness of the City's existing stormwater program practices in addressing and reducing applicable 303 (d) list parameters and an identification of potential stormwater management program revisions that may be considered to address and reduce the 303 (d) pollutants to the maximum extent practicable (MEP).

5. **NPDES Annual Report:** An annual review of how well the city complied with the NPDES permit.
6. **Stormwater Retrofit Plan:** The purpose of the plan is to document the City's retrofit strategy for reducing water quality impacts from existing developed areas that are underserved or lacking stormwater quality controls in accordance with NPDES permit. The objectives are to reduce pollutants of concern, reduce impacts associated with hydromodification and to make progress toward meeting total maximum daily load (TMDL) pollutant load reduction benchmarks.
7. **Instream Water Quality Trends Analyses Technical Memorandum (TM):** This TM evaluates the overall effectiveness of the City's stormwater management program by conducting a pollutant load reduction evaluation (PLRE). The PLRE includes a requirement to conduct an instream water quality trends analysis including a summary of the relationship of identified trends to stormwater discharges. The City has been collecting instream water quality monitoring data since 2002 from 3 creeks. The City's consultant, Brown & Caldwell, were retained to review the instream environmental monitoring data and develop trends analysis.

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

Dry weather field screening was conducted at 6 locations on 9/11/2015. There was no precipitation for more than 72hrs prior to the inspections. No illicit discharges were found. Where there was any flow quantity from an outfall, the City is required to take 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. 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 efforts during dry weather field screening are summarized on Table 4.

**Table 4 -- Dry Weather Field Screening Results**

Site Number	Site Name	Creek Name	Flow Quantity	Clarity	Odor	Color	Foam or Sheen	Garbage?	Wood Debris
1	Brandon Place	Tualatin River	None	N/A	N/A	N/A	N/A	Light	None
2	13 <sup>th</sup> St @ I-205	Bernert	Low	Clear	None	Clear	None	None	None
3	Imperial Drive	Tanner	Trickle	Clear	None	Clear	None	None	Light
4	Hollowell	McLean	Trickle	Clear	None	Clear	None	Light	Light
5	Barclay & Tompkins	Barlow	None	N/A	N/A	N/A	None	None	None
6	Old River Drive	Robin	None	N/A	N/A	N/A	N/A	None	None

## 5.3 SWMP Element #1 BMP: Implement the Illicit Discharges Elimination Program & Public Education

In the spring of 2016, it came to the attention of the City that several restaurants in a two block commercial area in the Willamette neighborhood were creating an unpleasant experience with garbage, unkempt recycling, grease and cigarette butts on the ground. In addition, there was a catch basin full of what appeared to be frothy grease. It was decided that the use of public education along with performing

commercial inspections was what was needed to tackle the situation. The City partnered with Clackamas County Resource Conservation and Solid Waste (CCRC&SW) Department to do public education to inform the restaurant owners and employees about proper recycling BMP's. The Clackamas County Recycle Specialist brought posters and brochures and got contact information to speak to the managers of the restaurants whenever possible. The City's role was to inform them of the environmental impacts that grease and cigarette butts can cause to our local streams and rivers. The result was that the frothy catch basin was vactored out immediately and the 4 restaurants are now putting their recycling in the right recycling bins.

#### **5.4 SWMP Element #4 BMP: Ensure staff training for pest management, ensure staff training in spill response and promote staff education related to environmentally friendly solutions.**

**Table 5: Staff Training**

Name of Training or Meeting & Presentations	Location	Date	Number of Staff
Clackamas Community College - Presented for Stormwater Landscapers Workshop	Oregon City	2/18/2016	2
CCWET 2016 Annual Celebrating Water Festival @ CCC; stormwater model presentation to grade schoolers.	Oregon City	3/15/2016	1
American Water Works Associations' (AWWA) Spring Short School	Oregon City	3/29/2016 3/31/2016	2
APWA Spring 2016 Conference	Seaside	Spring 2016	2
Oregon APWA Conference – Disaster Preparedness: Are You Ready?	Hood River	4/20/2016 4/22/2016	1
ACWA Annual Stormwater Summit	Eugene	5/11/2016	2
Clean Rivers & Streams/Intertwine Forum – Civic Center	Keizer	6/8/2016	1
CESCL: Certified Erosion and Control Lead Training	Hillsboro	6/13/2016 6/14/2016	1
AWWA Short School – Clackamas Community College	Oregon City	6/14/2016 6/17/2016	2
APWA Fall 2015 Conference – Street Maintenance & Collection Systems	Seaside	Fall 2015	4
APWA Conference – Promoting Public Works	Canyonville	10/20/2015 10/22/2015	1
Confined Space & Job Site Safety – OAWU Class	Independence	11/20/2015	4
Hazard Communication – Oregon OSHA Workshop at OUAW Conference	Hood River	12/8/2015	1

## **6.0 Overview of Planning and Land Use Changes, UGB Expansions and New Development Activities**

### **6.1 Stormwater Planning, Land Use Changes, and UGB Expansions**

No annexations or UGB expansions occurred during the period from 7/1/2015 to 6/30/2016.

### **6.2 Summary of Development Activities with the Urban Growth Boundary (UGB)**

Approximately 70% of West Linn's land use type is zoned residential while 7% is commercial/ industrial. One percent of land use is unincorporated county land, while 4% is Interstate 205 right-of-way, 6% is river and 12% is park and open space. One zone change occurred during the period 7/1/2015 to 6/30/2016

affecting a 14,000 square foot lot allowing the future partition and creation of one additional lot in the R-7 zone.

Limited revisions were made to the Community Development Code during the reporting period. Chapters 24 (Planned Unit Development (PUD)) and Chapter 32 (Water Resource Areas (WRAs)) were both modified. The Chapter 24 change prohibits PUDs on lots smaller than three acres. This change is not expected to impact water quality in WRAs since the setbacks of the WRA chapter remain in force. The Chapter 32 change removed language seeking dedication of WRAs to the City or establishment of conservation easements. This change is not expected to impact water quality in WRAs since the setbacks of the WRA chapter remain in force. The Chapter 32 code change also allows property owners of homes that pre-date September 22, 2005 to use Chapter 32 language that was in effect at that time. Since the 2005 language is, in many cases, more stringent than current language, this could have the effect of providing more protection for the WRA.

During fiscal year 2015-2016, one subdivision with six lots was approved ("Savanna Heights"). Three minor partitions were approved yielding a total of five new lots.

Ongoing public projects under construction during the reporting period include Lake Oswego's Water Treatment Plant Expansion, the Bolton Water Reservoir, Cedaroak Boat Ramp and the Sunset Elementary School. Completion of these projects is expected in 2017.

The City of West Linn requires stormwater management and erosion control 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 6: Public and Private BMP's**

Type of Facilities	Total Drainage Area in SF	Impervious Area (new or redeveloped) in SF
Private Rain Gardens (20)	43,268	43,268
Privately-Maintained Storm Detention (1)	60,000	60,000
Public Water Quality Facilities	0	0
Totals	103,268 sf	103,268 sf

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.

Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and TVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2015-2016	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"><li>Document and implement the details of the City’s IDDE program in a Standard Operating Procedures manual by November 1, 2012.</li><li>For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City’s MS4 NPDES Permit.</li><li>Track and record all identified illicit discharges and how such discharges were removed.</li></ul>	<ol style="list-style-type: none"><li>Track the status of completing the IDDE SOP manual.</li><li>Track the number, location, resolution, and enforcement activities related to any illicit discharge investigation conducted.</li></ol>	<ol style="list-style-type: none"><li>The City of West Linn developed an IDDE SOP (effective date: November 1, 2012). The SOP includes guidelines for identification and enforcement of illicit discharges as well as how to inspect the priority outfalls for Dry Weather Inspections.</li><li>There was one illicit discharge discovered during the reporting year. See section 5.3 Additional Activities on pages 7-8 for details and results.</li></ol>	In 2009, the City Council added Ordinance No. 1585 to comply with the business recycling requirements set forth in Metro Code Chapter 5.10. A significant increase in business recycling will assist the Metro region in achieving waste reduction goals, conserve natural resources and reduce greenhouse gas emissions.
Conduct Annual Dry Weather Field Screening	○	○	○	City of West Linn Public Works Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"><li>Conduct dry weather, illicit discharge inspections annually at all priority outfall locations.</li><li>Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012.</li><li>If necessary, update existing mapping related to outfalls and priority outfall locations in accordance with field observations.</li></ul>	<ol style="list-style-type: none"><li>Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities.</li><li>Summarize inspection results and indicate outfalls requiring sampling and/or investigations.</li><li>Indicate the outcome and resolution of any investigation activities conducted.</li></ol>	<ol style="list-style-type: none"><li>6 high priority outfalls were inspected as part of the annual dry weather field screening activities on 9/11/2015.</li><li>Inspection results are provided in Section 7.0 of this report. Inspection results were overall good. If we did come across any water in the outfalls, we tested the water parameters and they were within normal ranges according to the IDDE SOP, so it wasn’t necessary to take any samples.</li><li>Inspection results are provided in Section 7.0 of this report. None of the inspection results warranted follow-up investigations. In accordance with the IDDE SOP, priority inspection locations were updated to better reflect outfalls with solely stormwater contribution to receiving waters.</li></ol>	
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"><li>CWL-ESD to respond to minor spills.</li><li>Call Tualatin Valley Fire and Rescue to respond to significant spills.</li></ul>	<ol style="list-style-type: none"><li>Indicate the number of spills reported to the City of West Linn Environmental Services.</li><li>Track the number of spills responded to by the City of West Linn Environmental Services and Tualatin Valley Fire and Rescue.</li><li>Indicate sources, causes, and types of discharges resulting from identified spill activities.</li></ol>	<ol style="list-style-type: none"><li>Only one spill was reported to the City on 8/30/2015 at 19120 Willamette Drive.</li><li>The City and TVR&amp;R responded to one spill.</li><li>On 8/30/2015, TVF&amp;R responded to a fuel tanker truck that was leaking diesel fuel due to hitting a safety bollard at the 19120 Willamette Drive Chevron Gas Station. Initially it was thought that between 1 – 2 thousand gallons of fuel was lost but later the amount of fuel lost was downgraded to approximately 10-20 gallons because it was the pipes under the truck that were damaged, not the tank or valves that control the tank itself. The officials called HAZMAT, but decided to not have them respond because the truck was no longer leaking, and WL Public Works and a Professional spill response cleanup company were on the scene. This is OERS incident #2015-1984.</li></ol>	In March 2014, the City contracted with SLR Global Environmental Solutions to prepare a plan for the Public Works Yard called, “Spill Prevention, Control and Countermeasure Plan”. This is in accordance with the USEPA regulations contained in Title 40 of the Code of Federal Regulations, Part 112 – SPCC Rule. The City is mandated to follow this rule because we have oil products in the mechanics bay that exceeds 1,320 gallons. The City has approximately 7,600 gallons of above ground oil storage capacity.
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"><li>Track the number of existing or new facilities subject to a stormwater industrial NPDES permit during the permit term.</li></ol>	<ol style="list-style-type: none"><li>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.</li></ol>	CWL-ESD reviewed their existing business license inventory 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"><li>Track the number and outcome of priority facility inspections conducted over the permit term.</li></ol>	<ol style="list-style-type: none"><li>The Environmental Technician from CWL-ESD inspected 5 commercial businesses during the reporting year. They included: 1) McDonald’s at 18850 Willamette Drive, 2) La Fiesta Mexican Restaurant 3) J.Wiley’s Restaurant (4) West Linn Saloon 5) Little Cooperstown Restaurant.</li></ol>	<p>McDonald’s hired a contractor to clean an 8 filter cartridge vault, a PCMH and cleared the detention pond of invasives. The stormwater system works well now.</p> <p>The rest of the inspections were performed in the alley behind the restaurants in a two block area of Knapp’s Alley in the Willamette Neighborhood. See illicit discharge section for more details.</p>



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Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury and TVS?	Addresses Phosphorus?	Responsible Division/ Department	Measurable Goals (2012 SWMP)	Tracking Measures	Annual Report Information: Tracking Measure Status, Permit Year 2015-2016	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"><li>Require submission of erosion control plans for development greater than 1000 ft².</li><li>Require a copy of all 1200-C permit applications for development greater than five acres.</li><li>Assess new and redevelopment applications for erosion control compliance during plan review. Require erosion and sediment control plans not in compliance to be amended prior to approval in conjunction with provisions outlined in the Clackamas County Erosion Prevention and Sediment Control Manual (2008).</li></ul>	<ol style="list-style-type: none"><li>Report any updates or modifications to the Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual (2008).</li><li>Record the number of erosion control permit (City issued and DEQ issued) applications received.</li><li>Track the number of erosion and sediment control plan reviews completed.</li></ol>	<ol style="list-style-type: none"><li>No updates or modifications to the 2008 Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual have occurred.</li><li>West Linn issued a total of <u>41</u> Erosion Prevention Permits, (39 Residential and <u>2</u> Commercial).</li><li><u>41</u> Building Erosion Control plans reviewed, <u>22</u> Erosion Control Plan reviews were completed during the land use development applications process, <u>3</u> Erosion Control plans reviewed completed during Engineering Division construction review.</li></ol>	The newest version of the Oregon DEQ 1200-CN General Permit for NPDES Stormwater Discharge Permit was published on Dec. 15 <sup>th</sup> , 2015 and expires on Dec. 14 <sup>th</sup> , 2020.
Provide Educational Information to Construction Site Operators	○	○	○	City of West Linn Public Works Department and Building Department	<ul style="list-style-type: none"><li>Provide educational information to construction site operators and the general public via brochures, flyers, pamphlets, and attachments to building and grading permit applications.</li></ul>	<ol style="list-style-type: none"><li>Verify that this BMP was conducted.</li></ol>	<ol style="list-style-type: none"><li>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.</li></ol>	
Conduct Erosion Control Inspections and Enforcement	○	●	●	City of West Linn Public Works Engineering Division	<ul style="list-style-type: none"><li>Conduct an initial and a final site inspection on all sites with an erosion control plan for appropriate erosion control.</li><li>As necessary, enforce appropriate erosion and sediment control in conjunction with the three-step progression as outlined on the City’s website.</li><li>Require all disturbed areas to be permanently stabilized or vegetated prior to final engineering or building inspection.</li><li>Ensure a minimum of one additional erosion control inspection is conducted during active construction on all sites with an erosion control plan.</li></ul>	<ol style="list-style-type: none"><li>Track the number of erosion control inspections conducted each year.</li><li>Report the number of notices of non-compliance and stop work orders issued, and describe the measures used to resolve the issue.</li></ol>	<ol style="list-style-type: none"><li>The following number of erosion control (EC) inspections were conducted during the <b>2015-2016</b> reporting year:  Preliminary Inspections: <u>16</u> Approved, <u>20</u> Approved w/conditions, <u>11</u> Denied Mid Inspections: <u>16</u> Approved, <u>6</u> Approved w/conditions, <u>3</u> Denied Final Inspections: <u>39</u> Approved, <u>2</u> Approved w/conditions, <u>4</u> Denied Total EC Inspections: <u>71</u> Approved, <u>28</u> Approved w/conditions, <u>18</u> Denied Total All Erosion Control Inspections: <u>117</u>  <ol style="list-style-type: none"><li>No notices of non-compliance or stop work orders were issued during the 2015-2016 reporting year. Procedures for violations are listed under additional activities in the column to the right.</li></ol></li></ol>	<p>Permit violations are issued in a three step enforcement progression as follows:</p> <p><b>1st</b> a written notice of the inspection findings and required corrections (Warning)</p> <p><b>2nd</b> Should corrections not be implemented, a notice of non-compliance will be issued with the required corrections.</p> <p><b>3rd</b> 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"><li>Utilize newsletters, brochures, bill inserts, City web page, and radio advertisements to promote public awareness of stormwater quality issues and to provide information to encourage public reporting of illicit discharges.</li><li>Continue to make annual monetary contributions to Tualatin Basin Public Awareness Committee (TBPAC).</li></ul>	<ol style="list-style-type: none"><li>Track the number, types, and topics of public educational materials dispersed to the public annually.</li><li>Indicate any large-scale public educational campaigns initiated during a given year.</li><li>Track coordinated public outreach activities with local co-permittees.</li><li>Record the number of catch basins stenciled in a given year.</li><li>Track amount donated to TB PAC each year.</li></ol>	<ol style="list-style-type: none"><li>Quarterly, the City dispense approximately 50 TBPAC made 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.</li><li>No large scale public educational campaigns were initiated.</li><li>Coordinated efforts included: One employee from West Linn’s ESD staffed a stormwater display for the Clackamas County Water Education Team (CCWET) 11<sup>th</sup> Annual “Celebrating Water” Event at Clackamas Community College on March 15<sup>th</sup>, 2016. 2 Employees from West Linn led a class at Clackamas Community College on 2/18/2016 for Landscapers.</li><li>No catch basins were stenciled this reporting year.</li><li>The City paid \$900 to TBPAC in June 2016.</li></ol>	<p>In the 2016 Drinking Water Quality Report the City added a Pollution Prevention page to explain stormwater runoff and how to deal sustainably with everyday types of activities such as: lawn and garden care, vehicle care, pressure washing, picking up after pets. <b>(See Appendix E).</b></p> <p>Some of the titles of documents on our website are as follows:</p> <ul style="list-style-type: none"><li>Low Impact Development Approaches Handbook</li><li>Private Water Quality Facilities Program – OSU Field Guide</li><li>Yard Care Brochure</li><li>Rain Garden Guide</li><li>Weed Guide</li></ul>
Implement a Pet Waste Program	●			City of West Linn Public Works Department & Parks and Recreation Department	<ul style="list-style-type: none"><li>If pet waste is observed as a problem upon routine maintenance activities at public property, install educational signs and distribute educational door hangers at homes in the immediate vicinity of the identified problem areas.</li><li>Continue to provide pet waste baggies and disposal areas in City parks for disposal of domestic animal waste.</li></ul>	<ol style="list-style-type: none"><li>Report on activities conducted annually.</li></ol>	<ol style="list-style-type: none"><li>The City of West Linn currently has 50 dog waste bag dispensers installed throughout the parks and open spaces. During the 2015-2016 reporting year, the City spent \$6,240 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. One Water Quality Facility had a pet waste issue where the dog owner would bag the waste but just left it on the ground. The City installed a sign saying “Dog Waste, may be a major source of bacteria in stream and rivers.” The City has periodically gone by to see if the dog waste is being picked up and the sign seems to have worked because there are no longer bags of dog feces on the ground.</li></ol>	

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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"><li>Coordinate with other local, Phase 1 jurisdictions in providing/ compiling information regarding a public education effectiveness evaluation over the permit term.</li></ul>	(1) Report on activities conducted annually.	(1) The West Linn summary was sent to DEQ on July 1st, 2015 of the DHM report entitled, “DHM Public Education Effectiveness Evaluation”. The summary complies with the Permit’s NPDES MS4 Permit requirement Schedule A.4.d.vi.	The ACWA Stormwater Committee initiated a coordinated effort to compile existing educational survey information and develop conclusions to inform how public education efforts result in behavioral change in 2013. DHM Consulting was awarded a contract to compile available survey information and formulate conclusions. ACWA coordinated with DEQ to ensure that the study would meet DEQ’s intended requirements. Costs were shared amongst ACWA Phase I and Phase II communities, and West Linn participated in the effort.
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"><li>Provide training to Public Works and Parks department crews once every two years on proper pesticide and fertilizer application rates and techniques in conjunction with guidelines outlined in the IPM Plan.</li></ul>	(1) Report on training conducted every two years.	(1) The Street Division received a total of <u>49 hours</u> of training in Pest Management. The Parks Department received a total of <u>80 hours</u> of Integrated Pest Management training.	
Ensure Staff Training in Spill Response	○	○	○	Tualatin Valley Fire and Rescue	<ul style="list-style-type: none"><li>Provide OSHA HAZWOPER training and refresher courses to staff initially responding to spills annually.</li></ul>	(1) Track the number of employees receiving OSHA HAZWOPER training annually.	(1) No City employee receives HAZWOPER training, instead we rely on TVF&R. Also, the City has a number of Emergency Response Contractors that we can call for spill emergencies: NW Hazmat, of Springfield, OR; Clearwater Environmental Services, in Wilsonville; Clean Harbors in Clackamas and NWFF Environmental of Portland.	
Promote Staff Education Related to Environmentally Friendly Solutions	○	○	○	City of West Linn Public Works Department	<ul style="list-style-type: none"><li>Conduct municipal training for employees associated with stormwater management in the City.</li><li>Continue to participate in, and attend environmental and water quality related professional meetings and conferences.</li><li>Continue to maintain a budget for employee attendance of conferences.</li><li>Continue to coordinate with other local Phase 1 jurisdictions regarding regional water quality efforts</li></ul>	(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 WLPW employees attended the Annual ACWA Stormwater Summit in Eugene on May 11 <sup>th</sup> , 2016. -One WLPW employee went to the Certified Erosion and Control Lead Training on June 13 <sup>th</sup> , 2016. -One employee went to the Vegetated Private W.Q. Facility Management Training held at the Portland Community College for 2 days of training on May 23 <sup>rd</sup> , 2016 and May 25 <sup>th</sup> , 2016. -Two employees attended the Mid-Willamette Erosion Control & Stormwater Management Summit January 26 <sup>th</sup> , 2016. (2) -2 employees taught a 4 hour class at Clackamas Community College for Landscape professionals. -1 employee presented a stormwater model at the Clackamas County Water Education Team’s (CCWET) 2016 Annual Celebrating Water Festival at Clackamas Community College on March 15 <sup>th</sup> , 2016.	West Linn Staff regularly participate in the following groups and organizations: <ul style="list-style-type: none"><li>Association of Clean Water Agencies (ACWA) subcommittee meetings</li><li>Continued collaboration with other co-permittees on the Comprehensive Stormwater Monitoring Program (CCCSMP)</li><li>Regional Coalition for Clean Rivers and Streams</li><li>Clackamas County Water Education Team</li><li>American Public Works Association conferences</li></ul>
Element 6: Post-Construction Site Runoff E								
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 Stromwater 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 22 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 21 new private facilities added in FY2016 with 103,268 square feet of drainage area treated. During fiscal year 2015-2016, one subdivision with six lots was approved (“Savanna Heights”). Three minor partitions were approved yielding a total of five new lots. A summary table of private water quality facilities (in accordance with the development applications) is provided in Table 8 in Section 7.2.	
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"><li>Review the City’s current stormwater treatment standards for compliance with new MS4 NPDES permit language.</li><li>Review the City’s Current public works development code provisions to ensure that applicable barriers related to the use of LID or GI techniques are minimized and eliminated where practicable</li><li>Update the City’s existing post-construction stormwater design standards and code language by November 1, 2014.</li></ul>	Track progress related to the review of the City’s Code and development standards per provision in the MS4 NPDES 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 codes have been reviewed and no known barriers exist to inhibit GI or LID use in projects. The City of West Linn Public Works Construction Standards requires development to meet its post-construction stormwater management codes. Rain gardens, detention ponds, and bio-swale water quality facilities are typical to meet the standards specified in the MS4 NPDES permit.	



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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>667.5 cubic yards</u> of material were removed. (3) <u>2500 Gallons of deicing agent</u> was used in the winter of 2015/16.	The City conducts additional sweeping activities during special events and on an as needed basis.
Implement an Integrated Pest Management Program	○	○	●	City of West Linn Public Works Department and Parks and Recreation Department	<ul style="list-style-type: none"><li>Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within City Parks, and around water quality facilities.</li><li>Conduct work within public right-of-way only with certified, licensed applicators.</li></ul>	(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) No new updates were made to the City of Portland Integrated Pest Management (IPM) Program Manual. (2) The City spent approximately: <u>\$4,000</u> on pest management chemicals.	The City of West Linn uses the City of Portland IPM Program as an informal guide. All application is done by certified personnel.
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	○	○	○	City of West Linn Public Works Department Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"><li>Inventory municipal facilities subject to this permit requirement by July 1, 2013.</li><li>By July 1, 2013, identify and implement strategies to reduce the impact of pollutant discharges from these facilities.</li></ul>	(1) Track strategies used to minimize pollutant discharge.	In the 15/16 Fiscal Year the CWL-ESD revamped their equipment bay:  - Removed crumbling missing floor pavement and poured concrete floor with a strip drain.	Drains discharge to appropriate storm facilities
Control Infiltration and Cross Connections to the Stormwater Conveyance System	●			City of West Linn Public Works Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"><li>Annually investigate for cracking and breakage, and repair as necessary based on the results of the inspection, a minimum of 5,000 linear feet of sanitary lines.</li><li>Review new and redevelopment plan submittals for possible cross-connections.</li><li>Inspect for potential cross-connections during dry weather field screening activities.</li></ul>	(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	2016 Sewer Rehabilitation Project (Phase 6) PW-15-06 relined: <ul style="list-style-type: none"><li>8 inch -- 14,334 LF</li><li>12 inch -- 8,735 LF</li><li>15 inch -- 3,140 LF</li><li>24 inch Storm Main -- 360 LF</li></ul> For a total of: 26,584 LF
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 or modifications were made to the Master Plan in this reporting year. An update to the Surface Water Master Plan is planned to begin in the 2017 Fiscal Year. The Master Plan guides development as well as future City project needs. (2) The following CIP projects with stormwater elements were under construction during fiscal year 2015-2016: <ul style="list-style-type: none"><li>PW-15-06 2016 Sanitary Sewer Rehab (Phase 6)</li><li>PW-14-16 2015 Road Program</li><li>PW-14-06 Bolton Reservoir Replacement</li><li>Willamette River Trail</li><li>Adult Community Center Expansion</li><li>Cedaroak Boat Ramp Reconstruction</li></ul> (3) These locations are mapped in the City's GIS. Detailed information for the public for each project can be found at: <a href="http://westlinnoregon.gov/publicworks/public-improvement-projects-0">westlinnoregon.gov/publicworks/public-improvement-projects-0</a> .	(2) Detail related to the Public Improvement/ Stormwater-related CIPs constructed includes: <ul style="list-style-type: none"><li>PW-15-06 2016 Sanitary Sewer Rehab Phase 6: 26,584 linear feet of sewer pipe lining to reduce groundwater/stormwater inflow and infiltration.</li><li>PW-14-16 2015 Road Program: included installation of new storm systems, catch basins, and drainage curb.</li><li>PW-14-06 Bolton Reservoir Replacement: includes new stormwater system, curbs, and riprap added to Skyline Drive adjacent to the Reservoir site. Onsite stormwater improvements include native vegetation, a stormwater swale and detention pond as part of this project.</li><li>Willamette River Trail: Trail was built with pervious asphalt. Surrounding invasive species being removed.</li><li>Adult Community Center Expansion: 12 new parking spots and a new patio were added with pervious pavers.</li><li>Cedaroak Boat Ramp Reconstruction: a 2,900 square foot stormwater treatment facility is being added. Extensive drought tolerant and native vegetation plantings are also being done to improve soil stabilization and provide riparian habitat. Slopes are being stabilized to prevent erosion.</li></ul>

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Element 8: Stormwater Management Facilities Operation and Maintenance																																																
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	○	City of West Linn Public Works Department Environmental Services Division (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>680</u> linear feet of stormwater pipe was inspected. (2) <u>35</u> cubic yards of debris was removed during pipe cleaning activities.																																									
Conduct Catch Basin Cleaning and Maintenance	●	●	○	City of West Linn Public Works Department Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"><li>Inspect all public catch basins once per year, and clean as needed based on inspection results.</li><li>Repair or replace catch basins promptly based on inspection results.</li><li>Update tracking database during each maintenance cycle.</li></ul>	(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>649</u> catch basins were cleaned during the 2015-2016 reporting year. (2) <u>550</u> cubic yards of debris were removed from catch basins.																																									
Public Structural Control Facility Cleaning and Maintenance	●	●	●	City of West Linn Public Works Department Environmental Services Division (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 2015-2016 reporting year:  I. Pollution Control Manholes = <u>108</u> inspected and <u>108</u> were Cleaned & Maintained II. Detention Tanks = <u>0</u> Inspected and <u>0</u> Cleaned & Maintained III. Bio Swales = <u>20</u> Inspected and <u>20</u> Maintained IV. Water quality ponds = <u>49</u> Inspected and <u>49</u> Maintained  (2) The volume of debris removed during cleaning activities conducted: <u>1100</u> cubic yards. (Includes PCHM’s, Bio Swales and WQ Ponds)	Environmental Services Stormwater crews routinely perform the following maintenance on all public stormwater control facilities: trim trees, add mulch, and remove unwanted and/or overgrown brush, blackberries, and weeds.																																								
Private Water Quality Facility Maintenance Program	●	●	●	City of West Linn Public Works Department Environmental Services Division (CWL-ESD)	<ul style="list-style-type: none"><li>Require new private water quality facilities to submit maintenance agreements to the City.</li><li>Require submittal of annual reports related to inspection and maintenance activities for private water quality facilities with existing maintenance agreements.</li><li>Continue to work to identify the responsible parties associated with private water quality facilities that do not have an existing maintenance agreement.</li><li>Provide formalized structural stormwater facilities inspection and maintenance documentation to private facility owners by July 1, 2013.</li></ul>	(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>21</u> new maintenance agreements were recorded through the City’s Public Works Department Engineering Division and the Clackamas County Recorder’s Office during the 2015-2016 reporting year. (2) A total of <u>55</u> inspection reports were received during the 2015-2016 reporting year.	<table><tr><th>Type</th><th>Letters Sent</th><th>Inspection reports returned</th><th>Have MA</th><th>NO MA</th></tr><tr><td>Commercial</td><td>38</td><td>11</td><td>9</td><td>29</td></tr><tr><td>HOA’s</td><td>8</td><td>2</td><td>8</td><td>0</td></tr><tr><td>Institutions</td><td>24</td><td>2</td><td>16</td><td>8</td></tr><tr><td>Multi-Family</td><td>14</td><td>3</td><td>1</td><td>13</td></tr><tr><td>Public</td><td>1</td><td>1</td><td>1</td><td>0</td></tr><tr><td>SFD</td><td>101</td><td>36</td><td>96</td><td>5</td></tr><tr><td>Totals</td><td>187</td><td>55</td><td>131</td><td>55</td></tr></table> <p>MA=Maintenance Agreement HOA=Home Owner Association Institutions=Churches, Schools, Medical, Banks, Fire &amp; Rescue Multi-Family=Apartment Buildings Public=Lake Oswego Water Treatment Plant SFD=Single Family Dwellings</p>	Type	Letters Sent	Inspection reports returned	Have MA	NO MA	Commercial	38	11	9	29	HOA’s	8	2	8	0	Institutions	24	2	16	8	Multi-Family	14	3	1	13	Public	1	1	1	0	SFD	101	36	96	5	Totals	187	55	131	55
Type	Letters Sent	Inspection reports returned	Have MA	NO MA																																												
Commercial	38	11	9	29																																												
HOA’s	8	2	8	0																																												
Institutions	24	2	16	8																																												
Multi-Family	14	3	1	13																																												
Public	1	1	1	0																																												
SFD	101	36	96	5																																												
Totals	187	55	131	55																																												

## Appendix B

West Linn 2015-2016

Monitoring Data

# Appendix B

West Linn FY 2015-2016 - Instream Monitoring										
Location - Culvert near 3821 Calaroga Dr										
Sample Site # WL_01										
Stream Name - Trillium Creek										
		Results								Notes
		Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			
		Dry Weather	Rain Event	Rain Event	Rain Event	Dry Weather	High	Low	Mean	
Analysis	Units	8/17/2015	10/28/2015	12/17/2015	4/22/2016	6/3/2016				
Conductivity - Field	uS	189.8	70.1	52.7	57.3	161.9	189.8	52.7	106.4	4
Dissolved Oxygen - Field	mg/L	9.8	11.1	12.7	10.8	10.1	12.7	9.8	10.9	
Dissolved Oxygen - Winkler	mg/L	9.0	10.0	11.6	9.9	9.8	11.6	9.0	10.1	
pH - Field	Std Units	7.2	7.1	7.0	7.0	7.3	7.3	7.0	7.1	
Temperature - Field	°C	16.1	12.2	7.2	13.5	15.0	16.1	7.2	12.8	2, 3
E. coli - Colilert	MPN/100mL	461	2420	1200	> 2420	137	2420	137	1055	
BOD_SW	mg/L	0.1	2.8	0.8	8.3	0.2	8.3	0.1	2.4	
Copper	ug/L	0.8	8.2	6.6	20.7	1.6	20.7	0.8	7.6	
Dissolved Copper	ug/L	0.5	3.8	1.5	3.8	1.3	3.8	0.5	2.2	1
Lead	ug/L	0.10	1.81	2.21	8.18	0.15	8.18	0.10	2.49	
Dissolved Lead	ug/L	< 0.1	0.07	0.10	0.08	0.20	0.20	ND	N/A	
Zinc	ug/L	6	37	31	152	6	152	6	46	
Dissolved Zinc	ug/L	2	6	7	14	12	14	2	8	1
Ammonia Nitrogen	mg/L	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	ND	ND	ND	
Nitrate-Nitrogen	mg/L	0.400	0.600	0.570	0.530	0.670	0.670	0.400	0.554	
Total Phosphate-Phosphorus	mg/L	0.05	0.18	0.21	0.62	< 0.04	0.62	ND	N/A	
Ortho Phosphate-Phosphorus	mg/L	0.060	0.050	0.030	0.050	0.060	0.060	0.030	0.050	1
Total Dissolved Solids	mg/L	153.0	91.0	89.0	94.0	169.0	169.0	89.0	119.2	
Total Solids mg/L	mg/L	177.0	168.0	109.0	149.0	210.0	210.0	109.0	162.6	
Total Suspended Solids	mg/L	3.0	50.0	51.0	89.0	1.6	89.0	1.6	38.9	
Volatile Solids	mg/L	74.0	71.0	39.0	47.0	110.0	110.0	39.0	68.2	
Hardness	mg/L	78.0	35.0	21.6	35.0	68.0	78.0	21.6	47.5	
Rainfall	Inches	N/A	0.34	2.41	0.48	N/A				
Notes:										
(1) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit". N/A is Not Applicable.										
(2 ) MPN = Most Probable Number.										
(3) Shading indicates samples that exceed the E.coli standard of 406 MPN/100 mL.										
(4) Dissolved Oxygen (Winker Method) samples are taken once per sampling event at Site # WL_1 only as Q/C for electronic meter.										

# Appendix B

West Linn FY 2015-2016 - Instream Monitoring										
Location - Culvert near 4103 Imperial Dr										
Sample Site # WL_02										
Stream Name - Tanner Creek										
		Results								Notes
		Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			
		Dry Weather	Rain Event	Rain Event	Rain Event	Dry Weather				
Analysis	Units	8/17/2015	10/28/2015	12/17/2015	4/22/2016	6/3/2016	High	Low	Mean	
Conductivity - Field	uS	124.8	70.4	52.9	56.3	111.7	124.8	52.9	83.2	2, 3
Dissolved Oxygen - Field	mg/L	9.8	10.8	12.3	10.7	10.2	12.3	9.8	10.8	
pH - Field	Std Units	7.0	7.0	7.0	7.2	7.3	7.3	7.0	7.1	
Temperature - Field	°C	16.2	12.9	7.8	13.5	17.4	17.4	7.8	13.6	
E. coli - Colilert	MPN/100mL	108	2420	727	2420	179	2420	108	1171	
BOD_SW	mg/L	0.1	2.6	0.7	7.1	0.12	7.1	0.1	2.1	
Copper	ug/L	0.8	8.6	4.0	12.5	1.5	12.5	0.8	5.5	
Dissolved Copper	ug/L	0.6	6.1	1.5	4.5	1.2	6.1	0.6	2.8	
Lead	ug/L	0.07	0.44	0.84	3.13	0.13	3.13	0.07	0.92	
Dissolved Lead	ug/L	0.02	0.08	0.08	0.10	0.08	0.10	0.02	0.07	
Zinc	ug/L	7	38	25	65	6	65	6	28	
Dissolved Zinc	ug/L	3	22	11	13	6	22	3	11	
Ammonia Nitrogen	mg/L	< 0.05	< 0.05	< 0.05	0.06	< 0.05	0.06	ND	N/A	1
Nitrate-Nitrogen	mg/L	0.650	0.370	0.680	0.400	0.750	0.750	0.370	0.570	1
Total Phosphate-Phosphorus	mg/L	< 0.04	0.06	< 0.01	0.23	< 0.04	0.23	ND	N/A	
Ortho Phosphate-Phosphorus	mg/L	0.030	0.050	0.030	0.030	0.040	0.050	0.030	0.150	
Total Dissolved Solids	mg/L	96.0	89.0	98.0	68.0	101.0	101.0	68.0	90.4	
Total Solids mg/L	mg/L	105.0	91.0	78.0	175.0	133.0	175.0	78.0	116.4	
Total Suspended Solids	mg/L	1.0	13.0	15.0	124.0	1.6	124.0	1.0	30.9	
Volatile Solids	mg/L	36.0	55.0	42.0	54.0	70.0	70.0	36.0	51.4	
Hardness	mg/L	43.8	27.0	16.4	25.0	39.0	43.8	16.4	30.2	
Rainfall	Inches	N/A	0.34	2.41	0.48	N/A				
Notes:										
(1) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit". N/A is Not Applicable.										
(2) MPN = Most Probable Number.										
(3) Shading indicates samples that exceed the E.coli standard of 406 MPN/100 mL.										

### Appendix B

West Linn FY 2015-2016 - Instream Monitoring											
Location - Culvert @ Johnson Rd & Ryan Ct											
Sample Site # WL_03											
Stream Name - Unnamed Creek											
		Results								Notes	
		Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics				
		Dry Weather	Rain Event	Rain Event	Rain Event	Dry Weather	High	Low	Mean		
Analysis	Units	8/17/2015	10/28/2015	12/17/2015	4/22/2016	6/3/2016	High	Low	Mean		
Conductivity - Field	uS	144.1	74.7	50.5	65.5	137.9	144.1	50.5	94.5	2, 3	
Dissolved Oxygen - Field	mg/L	9.5	10.3	11.9	9.8	9.5	11.9	9.5	10.2		
pH - Field	Std Units	7.0	6.9	7.0	6.9	7.1	7.10	6.90	7.0		
Temperature - Field	°C	17.6	13.2	8.0	13.5	16.0	17.60	8.00	13.7		
E. coli - Colilert	MPN/100mL	435	1730	1200	1300	225	1730	225	978		
BOD_SW	mg/L	0.0	1.7	0.5	5.9	0.02	5.9	0.0	1.6		
Copper	ug/L	0.9	5.0	2.9	6.4	1.0	6.4	0.9	3.2		
Dissolved Copper	ug/L	0.6	3.8	1.2	2.9	0.9	3.8	0.6	1.9	1	
Lead	ug/L	0.09	0.26	0.67	1.10	0.11	1.10	0.09	0.45		
Dissolved Lead	ug/L	< 0.01	0.06	0.09	0.04	0.04	0.09	ND	N/A		
Zinc	ug/L	15	378	46	67	14	378	14	104		
Dissolved Zinc	ug/L	8	297	30	28	12	297	8	75		
Ammonia Nitrogen	mg/L	< 0.05	< 0.05	< 0.05	0.11	< 0.05	0.11	ND	N/A	1	
Nitrate-Nitrogen	mg/L	0.150	0.210	0.540	0.300	0.440	0.540	0.150	0.328	1	
Total Phosphate-Phosphorus	mg/L	0.04	< 0.04	0.02	0.12	< 0.04	0.12	ND	N/A		
Ortho Phosphate-Phosphorus	mg/L	0.030	0.050	0.040	0.040	0.030	0.050	0.030	0.038		
Total Dissolved Solids	mg/L	105.0	82.0	74.0	67.0	151.0	151.0	67.0	95.8		
Total Solids mg/L	mg/L	129.0	78.0	74.0	93.0	201.0	201.0	74.0	115.0		
Total Suspended Solids	mg/L	4.0	6.0	15.0	41.0	11.0	41.0	4.0	15.4		
Volatile Solids	mg/L	50.0	42.0	41.0	38.0	158.0	158.0	38.0	65.8		
Hardness	mg/L	49.8	26.0	18.8	20.0	59.0	59.0	18.8	34.7		
Rainfall	Inches	N/A	0.34	2.41	0.48	N/A					
Notes:											
(1) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit". N/A is Not Applicable.											
(2 ) MPN = Most Probable Number.											
(3) Shading indicates samples that exceed the E.coli standard of 406 MPN/100 mL.											

## Appendix B

West Linn FY 2015-2016 - Outfall Monitoring										
Location - Horton Rd. @ Summit St. Outfall										
Sample Site # WL_04										
Stream Name - Barlow Creek										
		Results								
		Grab Sample #1	Composite #1	Composite #2	Composite #3	Grab Sample #2	Statistics			Notes
		Dry Weather	Rain Event	Rain Event	Rain Event	Dry Weather	High	Low	Mean	
Analysis	Units	not required	10/28/2015	12/17/2015	4/22/2016	not required				
Conductivity - Field	uS		74.9	19.7	56.6		74.9	19.7	50.4	2, 3
Dissolved Oxygen - Field	mg/L		9.86	12.6	9.65		12.6	9.7	10.7	
pH - Field	Std Units		6.6	7.0	6.75		7.0	6.6	6.8	
Temperature - Field	°C		15.2	7.3	15.2		15.2	7.3	12.6	
E. coli - Colilert	MPN/100mL		816	1050	49		1050	49	638	
BOD_SW	mg/L		2.3	0.56	7.5		7.5	0.6	3.5	
Copper	ug/L		29.9	5.5	13.7		29.9	5.5	16.4	
Dissolved Copper	ug/L		23.1	3.0	4.0		23.1	3.0	10.0	
Lead	ug/L		0.53	0.58	3.63		3.63	0.53	1.58	
Dissolved Lead	ug/L		0.19	0.10	0.07		0.19	0.07	0.12	
Zinc	ug/L		55	20	102		102	20	59	
Dissolved Zinc	ug/L		48	14	14		48	14	25	
Ammonia Nitrogen	mg/L		< 0.05	< 0.05	< 0.05		ND	ND	ND	1
Nitrate-Nitrogen	mg/L		0.960	0.310	0.510		0.960	0.310	0.593	
Total Phosphate-Phosphorus	mg/L		< 0.04	< 0.010	0.30		ND	ND	ND	1
Ortho Phosphate-Phosphorus	mg/L		0.040	< 0.025	0.050		0.040	ND	N/A	1
Total Dissolved Solids	mg/L		80.0	51.0	78.0		80.0	51.0	69.7	
Total Solids mg/L	mg/L		65.0	33.0	254.0		254.0	33.0	117.3	
Total Suspended Solids	mg/L		6.0	5.0	195.0		195.0	5.0	68.7	
Volatile Solids	mg/L		55.0	22.0	64.0		64.0	22.0	47.0	
Hardness	mg/L	16.0	10.0	29.0	29.0	10.0	18.3			
Rainfall	Inches		0.34	2.41	0.48					
Notes:										
(1) Per DEQ request, an "ND" designation is understood to be "less than the lower reporting limit". N/A is Not Applicable.										
(2 ) MPN = Most Probable Number.										
(3) Shading indicates samples that exceed the E.coli standard of 406 MPN/100 mL.										

## Appendix C

### West Linn 2015-2016 TMDL Implementation Status



## Appendix C

### Tualatin and Willamette TMDL Implementation Plan Annual Report

Table C—1 provides a summary of the City’s efforts to implement pollutant reduction measures specified in the Total Maximum Daily Load Implementation Plans (TMDL IPs) for the Willamette River and the Tualatin River.

#### 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. The DEQ approved the plan on May 9, 2009. The most recent version of the Willamette River TMDL IP is dated April 30, 2014 and was approved by DEQ with conditions on August 18, 2014. The City is in their third year of the 5 year term.

The TMDL parameters of concern for the Willamette River are: 1) bacteria 2) mercury and 3) temperature. The management strategies for these pollutant parameters are summarized in the Willamette River TMDL IP.

#### 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. The management strategies for reducing these pollutants are summarized in the Tualatin River TMDL IP.

The City’s MS4 NPDES permit serves as the Willamette River and Tualatin River TMDL IPs for bacteria, mercury, total phosphorus, and SVS. Progress toward implementing best management practices (BMPs) to address these parameters is summarized in Appendix A of this document.

#### USGS and the City of West Linn

The City of West Linn entered into a Joint Funding Agreement (JFA) with the U.S. Department of the interior Geological Survey on October 1<sup>st</sup>, 2015 to maintain in cooperation of a hydrologic streamflow data collection program on the Tualatin River. The USGS number for this project is 14207500 and the gauge is at river mile 1.8. The total cost to continue the operation and maintenance of this gauge is \$19,950 for Federal fiscal year 2016 (10/1/2015 – 9/30/2016). The City’s share was \$1560.00. Federal matching funds was \$1,038. Other local agencies that fund this study are: Clean Water Services (CWS), Water Environment Services, Clackamas County (WES), and the City of Lake Oswego. Additional support is provided by the City of Rivergrove.

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	2015-2016 Activities and Accomplishments	Timeline/Responsible Party(s)
Temperature	Public Education and Outreach	<ul style="list-style-type: none"><li>Promote riparian enhancement efforts through the distribution of information in a variety of media outlets.</li><li>Ensure a minimum of 1 temperature-related piece of educational material during the 5-year implementation period.</li><li>Provide funding support for agencies and organizations to aid in temperature management.</li></ul>	<ul style="list-style-type: none"><li>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.</li><li>Provide funding for USGS to continue hydrologic and water quality monitoring on the Tualatin River.</li><li>Continue coordination efforts with the Tualatin Basin Public Awareness Committee (TBPAC).</li><li>Continue coordination efforts with the Regional Coalition for Clean Rivers and Streams (RCCRS).</li></ul>	<ul style="list-style-type: none"><li>Annually document the date, content, and distribution method of temperature related educational materials.</li><li>Annually document financial contributions to USGS.</li><li>Annually Document participation and funding contributions to TBPAC and RCCRS.</li></ul>	<ul style="list-style-type: none"><li>The City funded the USGS hydrologic data collection program \$1560 in July 2015.</li><li>The City funded \$900 to TBPAC and \$885 to RCCRS.</li><li>TBPAC completed the following activities:<ul style="list-style-type: none"><li>Jackson Bottom Wetlands Preserve Education Center Exhibit,</li><li>Stream Crossing Signs,</li><li>Naturescaping for Clean Rivers Workshops,</li><li>Nature-friendly Home &amp; Yard Care Brochure,</li><li>Will Hornyak “Living Streams” presentation to 4,785 students in 12 schools.</li></ul></li></ul>	City of West Linn Public Works Environmental services Division
	Stormwater Design Standards	<ul style="list-style-type: none"><li>Implement the City's Surface Water Management</li><li>Plan (SWMP) and Community Development Codes (CDC), to support use of infiltration-based stormwater treatment systems and tree planting.</li></ul>	<ul style="list-style-type: none"><li>Implement design standards that include LID and additional infiltration-based guidelines for stormwater treatment.</li><li>Evaluate the coverage of LID facilities and applications throughout the City.</li></ul>	<ul style="list-style-type: none"><li>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.</li><li>In the MS4 annual report, annually track LID system installations in order to assess the feasibility and success of applications.</li></ul>	West Linn codes define site conditions where LID may be impracticable and provide alternates for stormwater management, including offsite facilities. Stormwater facility maintenance agreements are required to be recorded in the County Deed Records for all new private facilities and enforcement actions are tracked by our Environmental Services Division.	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"><li>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.</li><li>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.</li></ul>	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"><li>Track any enforcement actions taken to protect existing shade.</li><li>Track modifications to the City's development code.</li></ul>	<ul style="list-style-type: none"><li>No enforcement action had to be taken to protect existing shade.</li><li>No modifications were done to the Community Development Code.</li></ul>	Planning Department
	Planting Activities for Identified Shade Opportunity Areas	<ul style="list-style-type: none"><li>Maintain a priority project list for shading.</li><li>Conduct planting, plant maintenance, and supplemental irrigation activities for the identified shade opportunity areas.</li><li>Utilize annual committed funds towards shading and planting activities for identified opportunity areas. (Approximately \$5,000 covers both TMDL watersheds).</li><li>Promote protection of natural and riparian areas through coordination and participation in citizen groups and organizations.</li></ul>	<ul style="list-style-type: none"><li>Inventory land features and conditions; prioritize riparian and wetland areas; select sites for planting. (Ground-truthing).</li><li>Review and update/revise the existing inventory identifying potential sites.</li><li>Continue to explore available options for partnering on shading projects via the City of West Linn Parks Department.</li><li>Identify watershed partners and projects that support implementation efforts and participate/support of riparian restoration and LID projects.</li><li>Enforce all riparian violations.</li></ul>	<ul style="list-style-type: none"><li>Annually document coordination efforts (meeting attendance, outreach activities) with the Tualatin Basin Neighborhood Plan with regards to protection of natural areas.</li><li>Track ground-truthing activities</li><li>Track planting activities for publically owned, high priority areas.</li><li>Track planting activities for other identified shade opportunity areas.</li><li>Track any re-vegetation and maintenance activities required.</li><li>Maintain a current list of watershed partners and projects.</li></ul>	<ul style="list-style-type: none"><li>Ground Truthing was completed in the FY15/16. The full list of high priority shade opportunity areas was inventoried and 4 stream segments were found to be plant worthy. All the other shade opportunity areas on the list are almost 100% shaded/planted with trees and native plant and shrubs.</li><li>The City began removing blackberry invasives on 4 stream sections in the spring of 2016. Shade opportunity stream segments: Sun-1, Sun-2, Sun-8 and Sun-10 from the Willamette TMDL Implementation Plan have all had the invasive plants removed. Next fall, the City will replant Sunset Creek with native plants.</li><li>SOLVE, the non-profit volunteer organization, finished 25 projects within the city at 5 different locations:<ul style="list-style-type: none"><li>Mary S. Young State Park</li><li>Burnside Park</li><li>Maddax Woods</li><li>White Oak Savanna</li><li>McLean House and Park</li></ul></li></ul>	West Linn Public Works Environmental Services Division & Parks Department

## Appendix D

West Linn 2015-2016

SOLVE Activities

APPENDIX D:  
SOLVE Activities in West Linn, OR from July 1st, 2015 through June 30th, 2016

	Site Name	Event Name	Event Date	Total Volunteers	Area Cleared	Planned Activities
1	Burnside Park	Burnside Wilderness Park Restoration	08/15/2015	27	200	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
2	White Oak Savanna	Join people from Japan in restoring the White Oak Savanna	08/26/2015	95	320	Students from Japan (and possibly Korea and Taiwan also) will be eager to practice their English that they have been learning at the Pacific International Academy at the Marylhurst campus. They will be coming to the White Oak Savanna to work for two hours in removing invasive plants. Would you like to team up with one of these students and then go to a nearby farm to have lunch (please bring your own brown bag lunch)? It is fun to have them practice their newly acquired English and work alongside American volunteers. The trip to the farm which is only 10 minutes away is always fun, too. We hope that you will join us with this "hands across the water" experience and do something good for the earth. Activities include: Invasive Plant Removal.
3	Mary S. Young State Park	Mary S. Young Park - Trillium Creek Primary School	09/18/2015	109	1200	Students from school will clean all areas of the park. Three fourth grade classes. Activities include: Litter Cleanup.
4	Burnside Park	Burnside Wilderness Park Restoration	09/19/2015	20	3000	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
5	White Oak Savanna	Weed Whacking Party with \$100 Door Prize	09/19/2015	5	43560	Bring your weed whacker (battery powered please) and your batteries and help take down the tall grass at the White Oak Savanna. There will be a Door Prize of \$100 for the lucky person whose name is drawn at the end of this 3 hour event. You must be present and weed whacking to win. Please wear long pants, a long sleeved shirt, good work shoes or boots, work gloves, a hat, and sunscreen. Activities include: Invasive Plant Removal.
6	Maddax Woods	Maddax Woods Park	09/19/2015	15	1000	Several projects available for your help: 1. Construct a paved path from the viewing deck to the Boat Barn area. 2. Remove invasive plants from the Woods 3. Cleanup the trails that will be Part of the Lighting in November & December. 4. Clear and blaze a new trail to Hood Street. Activities include: Invasive Plant Removal, Litter Cleanup, Maintenance & Monitoring.
7	Mary S. Young State Park	Mary S. Young Park - St. John the Apostle School	09/25/2015	56	4500	Students from school will clean all areas of the park. Activities include: Litter Cleanup.
8	Burnside Park	October Burnside Wilderness Park Restoration	10/17/2015	30	3000	Restore a beautiful nature park that has become overrun by English Ivy and other invasive. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
9	Mary S. Young State Park	Second Saturday Work Party for November	11/14/2015	5	100	Join friendly volunteers of all ages at this monthly work party. Together we pull ivy, furthering the hard work of all the volunteers over the past years who have saved hundreds of trees and prepared the site for the success of native plants. Tools provided. Activities include: Invasive Plant Removal.
10	Burnside Park	November Burnside Wilderness Park Restoration	11/21/2015	20	1000	Restore a beautiful nature park that has become overrun by English Ivy and other invasive. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
11	Burnside Park	December Burnside Wilderness Park Restoration	12/19/2015	12	1900	Restore a beautiful nature park that has become overrun by English Ivy and other invasive. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
12	Mary S. Young State Park	Mary S. Young Park Work Party	01/09/2016	33	5000	Join us at the beloved Mary S. Young Park to remove ivy at these second Saturday work days. Volunteers have worked continuously for more than 8 years to remove ivy and other non-native vegetation, plant native plants and trees, build trails, etc. You will get a good workout and feel good about contributing to the health of this beautiful forest. Tools are provided. Work gloves and sturdy footwear recommended. Activities include: Invasive Plant Removal.
13	Burnside Park	January Burnside Wilderness Park Restoration	01/16/2016	40	45000	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.

APPENDIX D:  
SOLVE Activities in West Linn, OR from July 1st, 2015 through June 30th, 2016

	Site Name	Event Name	Event Date	Total Volunteers	Area Cleared	Planned Activities
14	Mary S. Young State Park	Mary S. Young Park Work Party for February	02/13/2016	2	1500	Join us at the beloved Mary S. Young Park to remove ivy at these second Saturday work days. Volunteers have worked continuously for more than 8 years to remove ivy and other non-native vegetation, plant native plants and trees, build trails, etc. You will get a good workout and feel good about contributing to the health of this beautiful forest. Tools are provided. Work gloves and sturdy footwear recommended. Activities include: Invasive Plant Removal.
15	Burnside Park	February Burnside Wilderness Park Restoration	02/20/2016	25	90000	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
16	Burnside Park	March Burnside Wilderness Park Restoration	03/19/2016	2	50	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
17	Burnside Park	Burnside Wilderness Park Earth Day	04/16/2016	20	5000	Restore a beautiful nature park that has been overcome by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. Activities include: Invasive Plant Removal and Litter Pickup.
18	Maddax Woods	Earth Day Spring Cleanup at Maddax Woods	04/16/2016	22	6000	Families are welcome to help the Friends do a Spring cleaning in the trails and garden areas in the park. All ages and ability levels are needed. We have tools and gloves and provide donated refreshments for all. Activities include: Invasive Plant Removal, Litter Cleanup, Native Planting, Maintenance & Monitoring, Trail blazing and path paving.
19	White Oak Savanna	Spring Spruce up of the Savanna	04/23/2016	23	49005	We will be sprucing up the White Oak Savanna in West Linn by removing invasive plants. Please bring your shears or loppers, a pair of gloves, a hat, long sleeve shirt and long pants and good working shoes or boots. We will enjoy the tree swings and views when we are done. Activities include: Invasive Plant Removal.
20	Mary S. Young State Park	Earth Day Work Day at Mary S. Young Park	04/23/2016	41	30000	Celebrate Earth Day with a fun work day at beautiful Mary S. Young Park. Beautification and planting of parking strips and off-leash dog exercise area, planting & removal of invasives around shelter and interpretive area. Help make these heavily used areas at the park welcoming! Activities include: Invasive Plant Removal, Litter Cleanup, Native Planting.
21	Burnside Park	Burnside Wilderness Park: Take Care of West Linn Day	05/14/2016	8	3	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. We'd be delighted if you'd stay for our barbeque afterward. Activities include: Invasive Plant Removal and Litter Pickup.
22	Mary S. Young State Park	Take Care of West Linn Day	05/14/2016	25	4	Come out to rid the beautiful park of non native vegetation and remove trash. Individuals, families and organizations are all welcome. All volunteers will be rewarded with a lunch at noon. Tools and gloves provided. Please dress for the weather. Activities include: Invasive Plant Removal, Litter Cleanup.
23	McLean House and Park	Take Care of West Linn Day-McLean House	05/14/2016	15	4	Volunteers, you are needed to assist with house maintenance and gardening of this beautiful historic home and riverside park. Activities include: Invasive Plant Removal, painting and general clean-up.
24	Maddax Woods	Maddax Woods Monthly Cleanup for June	06/18/2016	11	1600	Families are welcome to help the Friends of Maddox Woods clean the trails and garden areas in the park. Make this a monthly tradition! All ages and ability levels are needed. We have tools and gloves and provide donated refreshments for all. Activities include: Invasive Plant Removal, Litter Cleanup, Native Planting, Maintenance & Monitoring, Trail blazing and path paving.
25	Burnside Park	June Burnside Wilderness Park Restoration	06/18/2016	9	2500	Restore a beautiful nature park that has become overrun by English Ivy and other invasives. Tools and gloves will be provided; just bring sturdy shoes and a friend. We'd be delighted if you'd stay for our barbeque afterward. Activities include: Invasive Plant Removal and Litter Pickup.

## Appendix E

West Linn 2015-2016

Water Quality Report - Pollution Prevention

## Pollution Prevention

Did you know that **stormwater runoff is the number one source of water pollution**? When it rains, pollutants from your home, driveway, car, and garden can send pollution directly into our wetlands, streams, and rivers.

Each of us contributes to stormwater pollution. Each of us can take steps to reduce stormwater pollution. Following are some easy ways to improve the health of West Linn's streams and rivers.



**Lawn and Garden Care** — Skip the weed and feed. Chemicals are harmful to children and pets. Rain can wash chemicals off your lawn and into storm drains and streams. Use slow release fertilizers or compost to add nutrients. Native plants need less water and maintenance. Learn more here:  
<http://www.oregonmetro.gov/index.cfm/go/by.web/id=24309>  
<http://extension.oregonstate.edu/gardening/>



**Vehicle Care** — Maintain your vehicles to reduce oil and fluid leaks. Motor oil, solvents, and soaps wash into our rivers and streams. Consider using EcoBiz-certified mechanics who use environmentally safe and healthy practices. Use a commercial car wash or wash your vehicle on the lawn to prevent runoff of soap and grime.  
<http://www.ecobiz.org>



**Roof Treatments** — Use alternatives to chemical treatment for moss and lichen removal. Typical chemical treatments contain copper, zinc, and iron sulfate metals that are harmful to our waterways and aquatic life. Prevent moss growth by keeping debris and leaves off the roof; sweep or use a blower to remove debris once or twice a year. Prune back overhanging tree branches to reduce shade and moisture to slow moss buildup.



**Pressure Washing** — Be stream friendly when cleaning your home, deck, sidewalk, and driveway. Pollutants from cleaning activities can flow into storm drains and ditches directly into our rivers and streams. Sweep sidewalks and driveways and place the sweepings into the garbage. If you do pressure wash, divert the runoff toward grassy or planted areas.



**Pick up after your pets** — Bacteria from uncollected dog waste washes into our rivers and streams. Pet waste can contain pathogens such as Giardia, E. coli, Salmonella, and Campylobacter — these can cause illness in humans, especially children and the elderly. Always pick up after your pet when on walks, avoid children's play areas, and remember to pick up in your own yard too.



**Does a stream flow through your property?** Learn what you can do to protect and improve the vegetation and trees alongside the water. A healthy riparian area has many benefits, including filtering sediment and pollutants from stormwater runoff and providing shade to cool stream water temperature. Elevated water temperature can negatively impact coldwater fish and other coldwater aquatic species. Visit <http://conservationdistrict.org/resources/stream>







# WATER IS LIFE.

Don't Take it for Granted

## Invisible Problem



Water infrastructure plays a critical role in protecting public health, sanitation, fire protection, promoting economic prosperity, and ensuring a good quality of life. These systems, and the people who maintain them, work silently and reliably to keep the water flowing. Because our water pipes are buried out of sight, we often take them for granted, but their maintenance and replacement is essential.

## Support Investment in Aging Infrastructure



It takes an enormous investment in infrastructure and maintenance for water treatment, storage, and delivery systems. We see roads falling apart, but infrastructure hidden under our feet is also deteriorating. It is critical that we support the investment needed to replace our aging infrastructure.

## We Are Not Alone



Cities across the country face the same problem. Much of today's public water systems were built more than 50 years ago and are entering an era of needed infrastructure replacement.

## Stay Educated on Water Issues



Learn more about the water you drink and use. Start by reading and understanding this water quality report and your water bill.

learn more at:



[westlinnoregon.gov/publicworks/water](http://westlinnoregon.gov/publicworks/water)



Customers may request a mailed paper copy of this report by contacting Public Works at (503) 656-6081 or by email at [mkaatz@westlinnoregon.gov](mailto:mkaatz@westlinnoregon.gov)



The City of West Linn will provide auxiliary aid services to persons with disabilities. To request an ADA accommodation of this information in an alternate format please contact Public Works at (503) 656-6081 or by email at [mkaatz@westlinnoregon.gov](mailto:mkaatz@westlinnoregon.gov)