

City of Milwaukie, Oregon



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

2011–2012 Annual Report

Prepared for the

Oregon Department of Environmental Quality

November 1, 2012

Assisted by:



**National Pollutant Discharge Elimination System (NPDES)
Municipal Storm Water System Annual Report**

I, the undersigned, hereby submit this National Pollutant Discharge Elimination System (NPDES) Municipal Storm Water System Annual Report in accordance with NPDES Permit Number 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 is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.



Name: Gary Parkin
Title: Engineering Director
City of Milwaukee

Table of Contents

Section	Page No.
1.0 Introduction.....	1
1.1 MS4 NPDES Permit Background.....	1
1.2 Document Organization	1
2.0 Adaptive Management Process Implementation	2
2.1 Adaptive Management Program	2
2.2 SWMP Updates and Adaptive Management.....	3
2.3 SWMP Updates for the 2011-2012 Reporting Year	4
3.0 Summary of Program Expenditures.....	4
4.0 Monitoring Data	5
4.1 Summary of the Comprehensive Clackamas County Stormwater Monitoring Plan (CCCSMP).....	5
4.2 CCCSMP Updates and Modifications for the 2011-2012 Reporting Year..	6
4.3 Summary of Monitoring Data	6
5.0 Overview of Planning and Land Use Changes, UGB Expansions and New Development Activities	7
5.1 Stormwater Planning, Land Use Changes, and UGB Expansions.....	7
5.2 Summary of Development Activities Within the UGB.....	7
6.0 Additional Activities.....	8

List of Tables

Table 1: Summary of the MS4 NPDES Annual Report Requirements	2
Table 2: Forecasted (Non-Audited) Expenditures for 2011–2012 and 2012–2013	5
Table 3: Street Sweeping Activities for 2011–2012.....	9

List of Appendices

Appendix A Milwaukie SWMP Implementation Status

Appendix B Milwaukie Monitoring Data

Appendix C TMDL Implementation Plan

1.0 Introduction

1.1 MS4 NPDES Permit Background

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from the City of Milwaukie 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 City of Milwaukie along with the cities of Lake Oswego, Gladstone, West Linn, Oregon City, Wilsonville, Happy Valley, Johnson City, and Rivergrove, the Oak Lodge Sanitary District, and Clackamas County. Each co-permittee is a relatively small community, most having populations between 15,000 and 25,000 with some (Johnson City, Rivergrove) having populations significantly smaller.

The City's MS4 NPDES permit was reissued March 16, 2012, after a multi-year negotiation process with DEQ and an additional year-long delay related to an appeal. The 2012 reissued permit was not appealed, and thus maintains an effective date of March 16, 2012.

Each co-permittee is required to submit an annual report, summarizing accomplishments and implementation of their individual Stormwater Management Plans (SWMPs). In conjunction with the reissuance of the City's permit, SWMP updates to address requirements of the reissued permit were submitted and approved by DEQ. This annual report documents stormwater management activities from July 1, 2011 to June 30, 2012. Because the permit was reissued in the middle of the reporting year, this annual report documents stormwater management efforts under Milwaukie's 2004 MS4 permit (and 2006 SWMP) and, to the extent applicable, documents stormwater management efforts under Milwaukie's 2012 MS4 permit (and 2012 SWMP). Please note that activities and requirements of the 2012 permit and 2012 SWMP are only applicable after the permit reissuance date of March 16, 2012.

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 2012 MS4 NPDES permit. Because the permit reissuance occurred in the middle of the reporting year, annual reporting requirements applicable to just the 2012 permit are specifically identified.

Table 1: Summary of the MS4 NPDES Annual Report Requirements

Annual reporting requirement	Location in document	2012 MS4 NPDES requirement only
a) Status of implementing SWMP elements, including progress in meeting measurable goals.	Appendix A	
b) Status of any public education effectiveness evaluation conducted during the reporting year, and a summary of how results were used in adaptive management.	Appendix A	Yes
c) Summary of the adaptive management process implementation during the reporting year including new BMPs.	Section 2.0	
d) Proposed changes to SWMP program elements to reduce TMDL pollutants to the MEP.	Section 2.0	Yes
e) A summary of total stormwater program expenditures and funding sources over the reporting fiscal year, and those anticipated in the next fiscal year.	Section 3.0	
f) A summary of monitoring program results, including monitoring data that is accumulated throughout the reporting year.	Section 4.0 & Appendix B	
g) Any proposed modifications to the monitoring plan necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.	Section 4.0	Yes
h) A summary describing the number and nature of enforcement actions, inspections, and public education programs. ^a	Appendix A	
i) An overview, as related to MS4 discharges, describing land use changes, UGB expansions, land annexations, and new development activities. The number of new post-construction permits issued and estimate of new and replaced impervious surface must also be included.	Section 5.0	Yes (partially)
j) A summary related to MS4 discharges describing concept planning or other activities in preparation of UGB expansions or land annexations.	Section 5.0	
NA) Additional Efforts Conducted by the City.	Section 6.0	

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

Each section of this report corresponds to the specific permit requirements in Schedule B(5). This report emphasizes efforts and activities associated with individual Best Management Practices (BMPs) from the City's 2006 SWMP and their effective 2012 SWMP, as summarized in Appendix A.

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 approach to DEQ on November 1, 2012.

Historically, the City has implemented adaptive management principals to annually refine implementation methods and data collection activities in conjunction their effective SWMP and BMPs. Generally, more significant modifications to SWMP activities occur every five years, in

conjunction with their permit renewal application and updated permit requirements. Documentation of such process was not explicitly required until issuance of this permit (2012). Over this permit term (2012–2017), the City will be implementing adaptive management activities as outlined in their adaptive management approach, in order to continually refine and meet their measurable goals under the MEP standard.

2.2 SWMP Updates and Adaptive Management

The City has been conducting ongoing review and modifications to their SWMP since 2008, in anticipation of their MS4 NPDES permit reissuance. In 2008, the City evaluated their stormwater management program and SWMP during development of their MS4 NPDES permit renewal application. The City's program was evaluated in accordance with three MEP factors requested by DEQ: program effectiveness, local applicability, and program resources. As a result of the stormwater management program and SWMP evaluation in 2008, there were some general modifications made to the SWMP:

- *Added measurable goals:* Measurable goals are meant to provide quantification of efforts proposed by the BMPs in the SWMP by identifying what a permittee intends to do and when an activity or milestone is to be completed.
- *Included more detail on BMP activities:* Clarifying details were provided to better describe the intent of each BMP or actions included in the BMP.
- *Revised tracking measures:* Tracking measures were revised to reflect updated details in each BMP or to improve the definition of measures being tracked.

The SWMP resulting from this evaluation was submitted with the City's permit renewal submittal on September 2, 2008.

Since 2009, the City of Milwaukie has coordinated with other local Phase I jurisdictions and with DEQ on the issuance of a renewed Clackamas County MS4 NPDES permit. Such coordinated efforts included meeting attendance, submittal of comment letters on proposed permit language, and completion of technical studies to support the development of permit language. On January 28, 2010, the City met with DEQ to discuss aspects of their existing stormwater program and concerns related to proposed permit language and requirements.

DEQ provided Phase I jurisdictions with draft MS4 NPDES permits in 2010. Prior to issuance of the draft permits for public comment, the permittees' SWMP had to be attached, as the SWMP is incorporated into the permit by reference.

The City reviewed and updated their 2008 SWMP in conjunction with the 2010 draft MS4 NPDES permit language and submitted their SWMP to DEQ in August 2010. Modifications to the City's 2008 SWMP included the following:

- *Reorganization of the SWMP:* The City's SWMP was reformatted to reflect the proposed permit language and BMP elements outlined in the draft permit.
- *Addition and Modification of BMPs:* The draft permit contained additional requirements not previously reflected in the SWMP. Such requirements were related to illicit discharge detection and elimination, public education, public involvement, post-construction stormwater management, and pollution prevention for municipal operations. Existing BMPs were modified to address the additional requirements as applicable, and BMPs were added to address new requirements.

- *Update of Measurable Goals:* Measurable goals were modified to more specifically indicate the activity or activities to be conducted, in accordance with EPA's guidance document: "Measurable Goals Guidance for Phase II Small MS4s".
- *Inclusion of Compliance Dates:* Some of the requirements outlined in the draft permit will require planning and funding by the City in order to address. As a result, compliance dates are included in the draft permit language to allow the City time to implement such requirements. Such dates are also reflected in the SWMP.

For Clackamas County co-permittees, permit issuance was delayed in 2011 due to appeal. The City submitted a revised SWMP (2011 SWMP) to DEQ during the appeal period to reflect changes in implementation processes and reconsideration of BMP activities in consideration of their MEP standard. Following resolution of the permit appeal (in November 2011), the permit was submitted for public comment and the City of Milwaukie's 2011 SWMP was attached to the public comment version of the draft Clackamas County MS4 NPDES permit. Following the public comment period, the Clackamas County MS4 NPDES permit was reissued on March 16, 2012. Minor modifications to the City's 2011 SWMP were made in conjunction with the finalized permit language and compliance dates and submitted to DEQ on May 1, 2012.

2.3 SWMP Updates for the 2011-2012 Reporting Year

The City of Milwaukie's 2012 SWMP reflects the addition of multiple BMPs including:

- Screen Existing and New Industrial Facilities
- Participate in a Public Education Effectiveness Evaluation
- Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities
- Private Water Quality Facility Maintenance Program

Additionally, significant modifications and changes to implementation activities were made to the following BMPs:

- Implement the Illicit Discharges Program
- Conduct Industrial and Commercial Inspections
- Implement Municipal Development Codes

Implementation of identified new and modified BMPs reflect an adaptive management process to address new permit requirements but also build on past, successful implementation efforts. Specific to targeted reduction in TMDL pollutants, the City's updated SWMP should address TMDL pollutants through a combination of public education efforts, enhanced maintenance activities, and programmatic changes to their post-construction standards and water quality facility tracking efforts.

3.0 Summary of Program Expenditures

Stormwater program expenditures are funded from stormwater utility fees collected. The stormwater utility fee for one or two family residential customers is \$11.44 monthly. The City recently (August 2012) had a rate increase. Low income customers pay 50% of the utility fee. The commercial properties are charged based on the total amount of measured impervious surface divided by one EDU (2,706 sq. ft.) At this time the City is looking at implementing a residential customer stormwater reduction program for customers that treat stormwater on site.

Forecasted (non-audited) expenditures for 2011–2012 and 2012–2013 are listed below. Expenditures for 2011–2012 were originally overestimated.

Table 2: Forecasted (Non-Audited) Expenditures for 2011–2012 and 2012–2013

2011–2012	
Personnel Services / 5.25 FTEs	*418,000
Materials and Services	*294,000
Capital Outlay	340,000
Transfers	<u>837,000</u>
Total	*\$1,889,000

2012–2013	
Personnel Services / 5.25 FTEs	*411,000
Materials and Services	*339,000
Capital Outlay	1,175,000
Transfers	<u>740,000</u>
Total	*\$2,665,000

* These numbers are estimated, not audited

4.0 Monitoring Data

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

Per the 2004 MS4 NPDES permit requirements (Schedule B), the City of Milwaukie, along with Clackamas County and other co-permittees, was required to develop and implement a stormwater monitoring program. Given the effort associated with implementing an effective environmental monitoring program that adequately met all permit requirements and objectives, Clackamas County (i.e., CCSD#1 and SWMACC) and six other co-permittees including the City of Milwaukie 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. For this reporting year (2011–2012), the 2008 CCCSMP is the effective, implemented monitoring plan for the City of Milwaukie.

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 actual collection and analysis of samples. Visual monitoring efforts include dry weather field screening as described in the City’s SWMP under the following BMP: “Implement the Illicit Discharge Elimination Program”. Results of the visual monitoring efforts are reported in Appendix A under the

applicable BMPs. Environmental monitoring also consists of instream sample collection and outfall sample collection, and the City's sampling efforts are outlined in more detail in Section 4.2 and 4.3 and in the CCCSMP. Results of the instream and outfall sample collection efforts are provided in Appendix B.

4.2 CCCSMP Updates and Modifications for the 2011-2012 Reporting Year

New requirements related to stormwater monitoring were outlined in the City's reissued MS4 NPDES permit (dated March 16, 2012). New requirements included the documentation of a rationale related to the time-composite sampling methodology, documentation of laboratory quality assurance and control procedures, and inclusion of mercury, pesticide, and macroinvertebrate monitoring. Monitoring frequencies and parameters were also revised.

As a result, the permittees participating in the CCCSMP modified the CCCSMP in 2012 to reflect the new permit language and requirements. The revised CCCSMP was submitted to DEQ on September 1, 2012. Implementation of the revised CCCSMP began October 1, 2012. Some activities (training, monitoring procedures, etc) were conducted during the 2011-2012 reporting year in anticipation of the reissued MS4 NPDES permit and updated CCCSMP.

For the City of Milwaukie, continuous, instream monitoring activities along Johnson Creek are being conducted as a joint effort with the US Geological Survey (USGS). However, pollutant parameters including conductivity, pH, dissolved oxygen, and total dissolved solids are not being collected in accordance with requirements of the 2012 MS4 NPDES permit. The City intends to apply for a permit modification to update Table B-1 of the reissued (2012) MS4 NPDES permit to reflect the monitoring efforts employed by the City and USGS. The request for permit modification will be submitted in late 2012/early 2013.

4.3 Summary of Monitoring Data

In accordance with the 2008 CCCSMP, Milwaukie conducted instream and outfall monitoring. Continuous instream monitoring of Johnson Creek was performed by USGS. The City conducted instream monitoring at one location (Minthorn Springs Creek at Harmony Road), a tributary to the Kellogg Creek. Outfall monitoring was conducted at one outfall location (Roswell Street prior to discharge in Johnson Creek).

Time composite grab samples are required at the instream monitoring location twice during the reporting year (during storm events). Single grab samples are also required during two additional monitoring events (not during storms) at the instream monitoring location. Time composite grab samples are required at the outfall monitoring location four times during a reporting year.

The City's reissued MS4 NPDES permit (effective date: March 16, 2012) prescribed new monitoring requirements. Monitoring requirements of the reissued permit are to take effect October 1, 2012. Because the permit was reissued prior to the end of the 2011-2012 monitoring year, the City was not able to collect all instream and outfall samples. The two instream samples required during storm events were collected, and two of the four required stormwater outfall samples were collected.

Complete sampling results are summarized and included in Appendix B. The sampling results presented have been formatted to simplify data review process.

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

5.1 Stormwater Planning, Land Use Changes, and UGB Expansions

The City of Milwaukie is currently updating their Citywide Stormwater Master Plan. Updates to the Master Plan include evaluation of flooding and capacity deficiencies, but also include water quality capital improvement projects, retrofit projects for water quality enhancement, and evaluation of UIC's requiring retrofit or decommissioning. The updated Master Plan will aim to address requirements of the City's retrofit assessment, due November 1, 2014. Completion of the Master Plan is expected during the 2012–2013 reporting year.

During the 2011–2012 reporting year, the City did not receive any applications pertaining to zone changes.

The City of Milwaukie is located entirely within the UGB. City expansion is planned for certain unincorporated areas of the City located within the UGB. Recent annexation efforts have focused on properties that lie within or near the Johnson Creek floodplain, especially those properties that have on-site sewage disposal systems. City code requires hookup to public sewer upon annexation. The City annexed a total of 17 properties within fiscal year 2011–2012. The City also had 25 new connections within the same time period.

A routine audit of sanitary sewer connections was performed in 2011. Eight properties were identified as not connected to the City's sanitary sewer. During the 2010/2011 reporting year, two of the eight properties were connected to City sewers. The remaining six properties were given a deadline to connect by December 31, 2011. As of December 31, 2011, five out of the six properties were connected to City sewer. The sixth property was given a time extension and was connected in September 2012.

5.2 Summary of Development Activities Within the UGB

Current development activities mainly involve in-fill and redevelopment of existing properties ranging from single-family homes to larger commercial developments. The City of Milwaukie requires stormwater management for new and redevelopment activities exceeding 500 square feet of impervious surface in accordance with the City of Portland's Stormwater Management Manual. Stormwater management is considered early in the development process. Recent water quality facilities installed in the City include bioswales, raingardens, and green street planter strips.

During fiscal year 2011–2012, four private redevelopment projects submitted development applications. For all private redevelopment activities, total of 4,500 square feet of new/ redeveloped impervious area is associated. Public projects were primarily associated with roadway widening and replacement (Lake Road project). A total of 4.24 acres new/ replaced impervious area is associated.

Of the private development projects, one project was associated with commercial building additions, and three projects were associated with residential additions. Only one of the development projects triggered the impervious threshold requiring stormwater quality treatment to be provided. This project was associated with a development to convert an existing house to a duplex. Stormwater quality treatment was provided for the required street improvements in

the public right of way. The total impervious area treated by the new stormwater quality facility in the public right-of-way (in this case a green street treatment), is 3,000 square feet.

No new development occurred within the City during this fiscal year.

The City constructed one capital improvement project this year on Lake Road. The improvements were to widen Lake Road to a three lane road with bike lanes in both directions and sidewalks on one side. The project constructed rain gardens to treat and detain the impervious area added. The project was completed in June of 2012.

No specific stormwater CIPs were constructed during the 2011–2012 reporting year, on account of the ongoing implementation of the updated Stormwater Master Plan and pending updated stormwater CIP list.

6.0 Additional Activities

The following stormwater-related activities occurred within the City and are not currently documented in Appendix A. A description of activities is provided by applicable BMP.

Implement the Illicit Discharge Elimination Program

A total of five illicit discharges were reported to the Public Works Department.

1. A mobile coffee vendor was found to be dumping wastewater from their trailer into a City catch basin. The catch basin was cleaned by public works and the party was cited by Code Enforcement.
2. A citizen was caught washing buckets into the street by a Code Official. The party changed their bucket washing procedure.
3. A citizen was found discharging concrete washwater to the street & catch basin. The citizen cleaned the curblineline & catch basin to staff's satisfaction.
4. An apt. complex manager was found to be applying copper sulfate to the parking lot to kill moss. Public works ordered this activity stopped and sent the manager and property owner certified letters to the same effect.
5. Public works found a bakery to be washing baking racks outside their building & discharging wash water to the storm system. The bakery was ordered to stop washing outside the building & sent the bakery a certified letter to same effect. The bakery is now having baking equipment cleaned offsite.

Conduct Annual Dry Weather Field Screening

Outfall #25273 (8/4/11) – Discovered 12 sanitary pads/napkins on concrete splash pad outside of weighted outfall screen. Traced flow upstream to MH inside OLCC warehouse. Did not find any matching materials in MH. Documented w/photos & cleaned up materials, disposing trash at OLCC. No material indicating a cross connection was found inside of weighted screen.

Outfall #45009 (8/8/11) – Water ponded at outfall. No flow, dry pipe upgradient. Sediment deposited from Lake Road construction activity at outfall and creekbed. Evidence of sediment in pipe up gradient of outfall (photos taken and notified engineering dept).

Outfall #65017 (8/15/11) – Water flowing from outfall year-round. Water appears clear w/no visible sheen, solids or odors. Foam present at discharge. Unable to locate source of foam-presumed to be residential car washing.

Implement the Spill Response Program

A total of eight spills were reported and responded to by the Milwaukie Public Works (PW) Department:

1. Citizen reported a persistent wet spot on Washington St. Public Works responded to find a waterline leak. Discharge to storm was domestic water.
2. Public Works staff reported illicit discharge to storm, found mobile coffee vendor discharging wastewater to catch basin. Public Works cleaned catchbasin, notified Code Enforcement group. OERS# 2011-2126.
3. Public Works reported antifreeze spill from City vehicle, resulting in a 1.5 gallon release. Public Works cleaned up material.
4. Public Works staff reported a diesel spill of approx 1 quart on Ochoco and Main St. Staff placed booms & cleaned the curblin.
5. Public Works staff reported an oil sheen on Johnson Creek Blvd. The spill occurred within the City of Portland; staff contacted the City of Portland duty officer.
6. Milwaukie Code officer reported observing a citizen cleaning buckets into the street; material did not reach the storm system.
7. Public works staff reported a citizen dumping concrete washout into the street. The citizen cleaned the curblin & affected catchbasin preventing flow further in the system.
8. Received a call from DEQ regarding white foamy clumps floating in the Willamette River. City staff investigated to find foam flowing from south of city limits.

Conduct Street Sweeping and Roadway Repair Activities

The following street sweeping activities occurred during the 2011-2012 reporting year:

Table 3: Street Sweeping Activities for 2011–2012

Month	Miles	Debris(CY)
Jul'11	367	30.2
Aug'11	450	83.1
Sep'11	42	18.0
Oct'11	284	172.0
Nov'11	720	509.5
Dec'11	722	560.0
Jan'12	401	302.0
Feb'12	300	186.0
Mar'12	465	268.0
Apr'12	390	32.9
May'12	318	103.0
Jun'12	<u>302</u>	<u>93.0</u>
Total	4,761	2,357.7

Appendix A

Milwaukie SWMP Implementation Status

Appendix A. Status of Implementing Components of Milwaukie's MS4 NPDES Permit SWMP

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.

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Annual Performance Measures (2006 SWMP)	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2011-2012	Additional Detail Related to Activities Conducted	Additional Activities to Address Requirements of the 2006 SWMP
Element #1 Illicit Discharge Detection and Elimination									
Implement the Illicit Discharge Elimination Program	●	●	City of Milwaukie Public Works Department	(1) Track any updates and modifications to the inspection procedures. (2) Track the number and location of outfalls inspected annually. (3) Summarize inspection results and indicate outfalls requiring monitoring (sampling) and/or investigations. (4) Indicate the outcome and resolution of any investigation activities conducted.	<ul style="list-style-type: none"> Document and implement the details of the City's IDDE program in a Standard Operating Procedures manual by November 1, 2012. For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City's MS4 NPDES Permit and procedures documented in the City's IDDE SOP. Track and record all identified illicit discharges and how such discharges were removed. 	(1) Track the status of completing the IDDE SOP manual. (2) Track the number, location, resolution and enforcement activities related to any identified illicit discharge.	(1) The City of Milwaukie developed an IDDE SOP (effective date: November 1, 2012). The SOP includes guidelines for identification and enforcement of illicit discharges and pollutant parameter action levels and guidelines for tracking activities and follow-up procedures. (2) Five Illicit discharges were reported and responded to by Milwaukie Public Works during the reporting year. A description of the illicit connections and resolution and enforcement is described in Section 6.0.	See Section 6.0	2006 SWMP Implementation activities are consistent with requirements of the 2012 SWMP. BMP: Conduct Annual Dry Weather Field Screening contains additional activities to address 2006 SWMP Implementation activities reported for this BMP.
Conduct Annual Dry Weather Field Screening	○	○	City of Milwaukie Public Works Department	New BMP per 2012 SWMP.	<ul style="list-style-type: none"> Conduct annual dry-weather illicit discharge inspections for all priority outfalls. Conduct investigations on all suspected non-permissible discharges. Develop pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2012. Annually maintain a map of dry weather screening priority locations (i.e., priority outfalls). 	(1) Track the number and location of high priority outfalls inspected during dry weather illicit discharge inspection activities. (2) Summarize inspection results and indicate outfalls requiring sampling and/or investigations. (3) Indicate the outcome and resolution of any investigation activities conducted.	(1) 64 outfalls were inspected as part of the annual dry weather field screening activities (conducted on August 8, 2011 through August 29, 2011). (2) and (3) Potential illicit discharges were identified at three outfalls. Results of the dry weather field screening for those three outfalls are documented in Section 6.0.	See Section 6.0	
Implement the Spill Response Program	○	○	Clackamas Fire District #1 (Hazardous Materials Team) and Milwaukie Public Works Department	(1) Indicate the number of spills responded to by the Public Works Department. (2) Indicate sources, causes, and resulting water quality problems resulting from spill activities.	<ul style="list-style-type: none"> Respond to all reported non-hazardous material spills. Equip all Public Works vehicles with spill response equipment, the Spill and Illicit Discharge Investigation Form, and spill response procedures continuously during the permit term. 	(1) Indicate the number of spills reported to the Public Works Department. (2) Indicate the number of spills responded to by the Public Works Department. (3) Indicate sources, causes, and resulting types of discharges resulting from spill activities.	(1) The City Public works department received calls for 7 spills during reporting year 2011-2012. (2) The City of Milwaukie responded to the 8 small spills during reporting year 2011-2012. (3) The majority of the 8 spills were oil sheens. The smallest spill reported was a water main leak and the largest was possibly up to 15 gallons of unknown material. They were reported to OERS when the material entered the storm system. Public works responded to all reports and cleaned up spills immediately. Additional information is provided in Section 6.0.	See Section 6.0	2006 SWMP Implementation activities are consistent with requirements of the 2012 SWMP.
Minimize Water Quality Impacts Related to Water Line Flushing			City of Milwaukie Public Works Department	No performance measures were proposed for reporting for this BMP.	<ul style="list-style-type: none"> When chlorinated water is discharged to the City's stormwater distribution system, the City tests the chlorine residual at all entry points to the storm sewer for a maximum allowable concentration of 0.10 PPM. Requirements for chlorination/DE chlorination are discussed at all pre-construction meetings and requirements are referenced in applicable contract documents. 	(1) Chlorine test data is tracked in monitoring sampling logs and daily logs and data is kept on file at City.	(1) The City conducted water line flushing during July 2011. All water was dechlorinated to a residual chlorine concentration of 0.1 mg/l or less. Chlorine test data has been tracked and is currently kept on file with the Water Quality Coordinator.		2012 SWMP Implementation activities took effect on March 16, 2012. Prior to the effective date of the 2012 MS4 NPDES permit, there were no tracking measures associated with this activity.
Element #2 Industrial and Commercial Facilities									
Screen Existing and New Industrial Facilities			City of Milwaukie Public Works Department	New BMP per 2012 SWMP.	<ul style="list-style-type: none"> Review the business license inventory and new industrial development applications once during the permit term to identify additional facilities needing to obtain 1200-Z permits. If facilities are identified, DEQ and the facility will be notified within 30 days. 	(1) Track the number of existing or new facilities subject to a stormwater industrial NPDES permit once during the permit term.		Milwaukie's consultant has coordinated with DEQ related to the methodology and process for identifying "potential" 1200-Z permittees. DEQ will be providing additional guidance to help jurisdictions identify potential permittees based on SIC code and other public information.	

2012 Best Management Practice or Activity	Addresses?	Addresses?	Responsible Department?	Annual Performance Measures (2006 SWMP)	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2011-2012	Additional Detail Related to Activities Conducted	Additional Activities to Address Requirements of the 2006 SWMP	Element #3 Construction Site Runoff Control
Conduct Industrial and Commercial Inspections			City of Milwaukee Public Works Department	<p>(1) Track the number of permitted (1200-Z) industrial facilities within the City.</p> <p>(2) Track the number of industrial and commercial food service facilities required to install grease traps or grease interceptors in accordance with the City's FOG program at a minimum of semi-annually during the permit term.</p> <p>(3) Note any water quality concerns identified during the review of 1200-Z industrial facilities within the City.</p> <p>(2) Note any water quality concerns identified during the review of 1200-Z monitoring data.</p> <p>(3) Track the number of industrial inspections conducted.</p> <p>(4) Report status and abatement measures for any industry found to be inappropriately discharging to the municipal stormwater system.</p> <p>(4) Report status and abatement measures for any industry found to be inappropriately discharging to the municipal stormwater system.</p> <p>• Develop an SOP for high priority facility inspections and implementation of strategies by July 1, 2013.</p> <p>• Develop an SOP for the FOG inspection program by July 1, 2013.</p>	<p>(1) Track the number of permitted (1200-Z) industrial facilities within the City.</p> <p>(2) Track the number of industrial and commercial food service facilities required to install grease traps or grease interceptors in accordance with the City's FOG program at a minimum of semi-annually during the permit term.</p> <p>(3) Note any water quality concerns identified during inspections.</p> <p>(4) Report status and abatement measures required for any industry or food service facility found to be inappropriately discharging to the municipal stormwater system.</p>	<p>(1) The City of Milwaukee queried the active 1200-Z permits within the city limits from DEC's website. There are currently 6 active 1200-Z permit holders within the City's boundaries discharging to the City's MS4.</p> <p>(2) and (3) The City inspected the 1200-Z permit holders' facilities and found no visual evidence of water quality concerns during the inspections. This City also completed 352 Fats, Oils and Grease trap or interceptor on site inspections.</p> <p>(4) No abatement measures were required based on inspection results.</p>	<p>Review of 1200Z monitoring data was performed at time of City inspections. PCC Structurals and Harder Mechanical have obtained monitoring waivers; all other 1200Z permit holders had monitoring results under permit benchmarks.</p> <p>PC Structurals, Inc and McLoughlin Mechanical, 8/16/2011 OECO Corp., Blount Inc., 8/18/2011 Harder inspected by City staff on: 8/22/2011-1200Z permit holder's facilities were conducted</p>	<p>Additional Activities to Address Requirements of the 2006 SWMP</p>	<p>Element #3 Construction Site Runoff Control</p>	
Industrial and Commercial Inspections			City of Milwaukee Public Works Department	<p>(1) Track the number of permitted (1200-Z) industrial facilities within the City.</p> <p>(2) Track the number of industrial and commercial food service facilities required to install grease traps or grease interceptors in accordance with the City's FOG program at a minimum of semi-annually during the permit term.</p> <p>(3) Note any water quality concerns identified during the review of 1200-Z monitoring data.</p> <p>(3) Track the number of industrial inspections conducted.</p> <p>(4) Report status and abatement measures for any industry found to be inappropriately discharging to the municipal stormwater system.</p> <p>• Develop an SOP for high priority facility inspections and implementation of strategies by July 1, 2013.</p> <p>• Develop an SOP for the FOG inspection program by July 1, 2013.</p>	<p>(1) Track the number of permitted (1200-Z) industrial facilities within the City.</p> <p>(2) Track the number of industrial and commercial food service facilities required to be inappropriately discharging to the municipal stormwater system.</p>	<p>(1) The City of Milwaukee queried the active 1200-Z permits within the city limits from DEC's website. There are currently 6 active 1200-Z permit holders within the City's boundaries discharging to the City's MS4.</p> <p>(2) and (3) The City inspected the 1200-Z permit holders' facilities and found no visual evidence of water quality concerns during the inspections. This City also completed 352 Fats, Oils and Grease trap or interceptor on site inspections.</p> <p>(4) No abatement measures were required based on inspection results.</p>	<p>Review of 1200Z monitoring data was performed at time of City inspections. PCC Structurals and Harder Mechanical have obtained monitoring waivers; all other 1200Z permit holders had monitoring results under permit benchmarks.</p> <p>PC Structurals, Inc and McLoughlin Mechanical, 8/16/2011 OECO Corp., Blount Inc., 8/18/2011 Harder inspected by City staff on: 8/22/2011-1200Z permit holder's facilities were conducted</p>	<p>Additional Activities to Address Requirements of the 2006 SWMP</p>	<p>Element #3 Construction Site Runoff Control</p>	
Implement Erosion Control for New and Redevelopment			City of Milwaukee Public Works and Engineering Departments	<p>(1) Report any updates or modifications to the "Erosion Prevention and Sediment Control Planning and Design Manual (2008)".</p> <p>(2) Record the number of erosion control plan reviews completed and approved.</p> <p>(3) Coordinate with other jurisdictions to provide Erosion Control Certification programs at the Clackamas Community College.</p> <p>(4) Give discounts on erosion control permit fees to contractors participating in the Erosion Control Certification Program.</p>	<p>(1) Report any updates or modifications to the "Erosion Prevention and Sediment Control Planning and Design Manual (2008)".</p> <p>(2) Record the number of erosion control plan reviews completed and approved.</p>	<p>(1) There have been no updates to the 2008 "Erosion Prevention and Sediment Control Planning and Design Manual" during permit year 17.</p> <p>(2) During the 2011-2012 reporting year, there were 15 erosion control plan reviews completed.</p>	<p>The Portland/Milwaukee Light Rail project took considerable stormwater staff time to review construction and erosion control plans. A substantial amount of time was spent on site visits, reviewing plans and providing comments at the 30%, 60% and 90% levels. As construction has started, this project continues to consume tremendous staff input and effort.</p>	<p>2006 SWMP implementation activities are consistent with requirements of the 2012 SWMP.</p>	<p>Element #3 Construction Site Runoff Control</p>	
Provide Information to Educational Site Operators			City of Milwaukee Public Works Department	<p>(1) Track the number of contractors receiving a discount on erosion control permit fees.</p> <p>(2) Track number of program sessions and refresher courses offered each year.</p>	<p>(1) Track the number of contractors receiving a discount on erosion control permit fees.</p> <p>(2) Track number of program sessions and refresher courses offered each year.</p>	<p>(1) During the 2011-2012 reporting year, no contractors applied for this discount.</p> <p>(2) Due to the lack of participation in the program, program sessions and refresher courses were not scheduled.</p>	<p>Due to the downturn in the region's economy and housing sector, no classes were scheduled.</p> <p>Reporting on the number of program sessions or refresher courses is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).</p>	<p>Element #3 Construction Site Runoff Control</p>		
Conduct Erosion Control Inspections			City of Milwaukee Public Works Department	<p>(1) Record the number of erosion control inspections conducted annually.</p> <p>(2) Report the number of notices of non-compliance issued during inspections and the number of stop work orders issued annually.</p> <p>(3) Issue stop work orders or fines if erosion control violations are observed.</p> <p>(4) Issue erosion control violations when ineffective erosion control is observed.</p>	<p>(1) Record the number of erosion control inspections conducted annually.</p> <p>(2) Report the number of written notices of non-compliance issued during stop work orders issued annually.</p>	<p>(1) There were a total of 94 erosion control inspections conducted during the 2011-2012 reporting year. The larger sites with greater likelihood to have issues (i.e., Milwaukee Light Rail) were inspected more frequently than twice.</p> <p>(2) There were 14 non-compliance notices issued and 3 stop work orders during the 2011-2012 reporting year. The timelines given for compliance were 24, 48 or 72 hours.</p>	<p>Element #3 Construction Site Runoff Control</p>			

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Annual Performance Measures (2006 SWMP)	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2011-2012	Additional Detail Related to Activities Conducted	Additional Activities to Address Requirements of the 2006 SWMP
Element #4									
Education and Outreach									
Provide Public Education and Outreach Materials Regarding Stormwater Management	○	○	City of Milwaukie Public Works Department	(1) Track the number, types, and topics of public educational materials dispersed to the public. (continued on next page) (2) Indicate any large-scale public educational campaigns. (3) Track coordinated public outreach activities with local co-permittees. (4) Record the number of catch basins stenciled in a given year. (5) Record the number of storm manhole lids that have been retrofitted annually.	<ul style="list-style-type: none"> Promote public awareness of water quality issues through newsletters, brochures, and/or bill inserts. A minimum of one distribution of educational materials will be conducted annually. Send an annual stormwater brochure to City residents. Conduct annual catch basin stenciling. 	(1) Track the number, types, and topics of public educational materials dispersed to the public annually. (2) Indicate any large-scale public educational campaigns initiated during a given year. (3) Track coordinated public outreach activities with local co-permittees. (4) Record the number of catch basins stenciled in a given year. (5) Record the number of storm manhole lids that have been retrofitted annually.	(1) Public awareness programs that are currently in place are: "Leaf Drop Program" and "Milwaukie Clean-Up Days." These programs promote healthy streams by keeping leaves out of the drains and garbage from being dumped illegally. The City is still working with the ACWA group to create an Underground Injection Control flyer to be placed in all utility bills as an insert. (2) and (3) The City of Milwaukie is actively partnered with a number of other jurisdictions in the Regional Coalition for Clean Rivers and Streams. The City of Milwaukie conducted its 8th annual "Leaf Drop Program." The Leaf Drop program allows residents to dispose of their leaves 5 Saturdays each year, in the months of October, November and December, during heavy leaf season, at no charge to the residents. (4) During the fiscal year 2011-2012 the City employees placed stencils on 326 non curbed catch basins. They stenciled "Dump no waste, drains to stream" or "Protect our groundwater" with a bright blue background with white lettering. The City placed 561 storm medallions on curbed catch basins that say "Dump no Waste Drains to Stream" and "Protect Our Groundwater". (5) During the 2011-2012 reporting year, 1 storm lid was retrofitted with "Dump no Waste, Drains to Streams" lids on our conveyance system manholes.		
Participate in a Public Education Effectiveness Evaluation	○	○	City of Milwaukie Public Works Department	New BMP per 2012 SWMP.	<ul style="list-style-type: none"> Coordinate with other local, Phase 1 jurisdictions in providing/compiling information regarding a public education effectiveness evaluation by July 1, 2015. During permit year one, interested Phase 1 jurisdictions will meet to develop an initial coordinated strategy. Depending on the developed strategy, implementation of the strategy will occur during subsequent years of the permit term. Results of the effectiveness evaluation will be documented during the final year of the permit term. 	(1) Report on activities conducted annually.	(1) No specific activities to date.	The ACWA Stormwater Committee is currently working to compile results from existing, recent public surveys to inform the content and scope of the new effectiveness survey.	
Conduct Annual Staff Training	○	○	City of Milwaukie Public Works and Engineering Departments	Former BMP Name: Conduct Staff Training in Spill Response (1) Indicate the number of spill response training opportunities offered annually.	<ul style="list-style-type: none"> Provide City Storm crews with approximately 40 hours of stormwater related training per year. Continue to train all operations and maintenance staff involved with stormwater activities. Conduct regular stormwater staff meetings one to four times per year. 	(1) Track the hours of stormwater related training provided to City Storm crews each year. (2) Track number and responsibilities of staff participating in training each year. (3) Track regular stormwater staff meetings.	(1) During fiscal year 2011-2012, the stormwater crew attended the Clackamas Community College Short School. This consisted of a minimum of 8 hours of training for 3 days, totaling 24 hours of training for each employee. During permit year 17 the City had four employees attend the Clackamas Community College Short School, which consisted of a minimum of 24 hours of training for each employee. (2) The Storm department employs a total of 5.25 FTE. Three Utility Worker I, one Utility Worker II, half time Utility Specialist, and half time Supervisor. The duties include; infrastructure maintenance, inspections, spill response, street sweeping, responding to floods, vehicle maintenance, training and education, administrative time completing work orders and document what they do, assist Engineering Department, leaf control, hauling spoils and safety training. (3) The Storm and Wastewater crews meet each morning for a minimum of 15 minutes to discuss outline and equipment needs for the day. They also discuss stormwater issues with the public and updates to any NPDES SWMP changes or needs. The City of Milwaukie Public Works and Administrative staff is required to attend or review the SOP for spill response and reporting protocol each year. This totals 30 employees for a minimum of one hour each employee.	Reporting on general staff training and tracking stormwater staff meetings is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012). Per the 2006 SWMP, spill response training opportunities are required to be tracked. During the 2011-2012 reporting year, two spill response trainings were offered.	
Element #5									
Public Involvement and Participation									
Provide for Public Participation with Submittals			City of Milwaukie Public Works Department	New BMP per 2012 SWMP.	<ul style="list-style-type: none"> Provide a minimum 30-day public comment period for the updated SWMP elements and pollutant load reduction benchmarks prior to the permit renewal application deadline. Provide a public comment period for the updated monitoring plan and annual reports prior to submittal to DEQ. 	N/A	N/A		

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Annual Performance Measures (2006 SWMP)	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2011-2012	Additional Detail Related to Activities Conducted	Additional Activities to Address Requirements of the 2006 SWMP
Participate in Intergovernmental Efforts			City of Milwaukee and Public Works Department	(1) Indicate groups, committees, and organizations with which the City is currently participating.	• Annually coordinate with other Clackamas County co-permittees regarding regional water quality efforts. • Annually participate with local agencies involved in water quality issues.	(1) Indicate groups, committees, and organizations with which the City is currently participating. (1) The City of Milwaukee is currently involved with the following groups and organizations: • Clackamas County NPDES MS4 Co-permittees • Johnson Creek Watershed Council • Oregon Association of Clean Water Agencies • American Public Works Association • ACWA Storm Water Spill Committee • Regional Erosion Prevention Awards • Water Environment Federation • ACWA Water Pollution Control Facility Permit Committee.			
Implement Municipal Development Codes			City of Milwaukee Engineering Department	(1) Track the number of development applications reviewed and approved for possible update of their applicable code and development standards to meet provisions of the City's NPDES permit, continue to review all new and re-development plans for conformance with the City's Development Standards including design standards for water quality facilities. (2) Track any code modifications by ordinance.	(1) Track the number of development applications reviewed and approved for compliance with the stormwater regulations. (2) Track status of the design storm rewrites. Note: The number and type of water quality facilities constructed/implemented to address these requirements will be tracked and mapped under Element 8: BMP Private Water Quality Facility Maintenance Program.	(1) Development applications including drainage reports are routinely reviewed for proper compliance with storm water regulations. The following applications were reviewed and approved during the 2011-2012 reporting year: • Commercial (New) = 0 • Commercial (Additions) = 1 • Residential (New) = 0 • Residential (Additions) = 3 (2) The City of Milwaukee currently references the City of Portland Storm Water Manual. Revisions to standards will be made as necessary by November 1, 2014 for compliance with permit design storms, inspection and enforcement procedures.			
Element #6 Post-Construction Site Runoff									
Implement Municipal Development Codes			City of Milwaukee Engineering Department	(1) Track the number of development applications reviewed and approved for possible update of their applicable code and development standards to meet provisions of the City's NPDES permit, continue to review all new and re-development plans for conformance with the City's Development Standards including design standards for water quality facilities. (2) Track any code modifications by ordinance.	(1) Track the number of development applications reviewed and approved for compliance with the stormwater regulations. (2) Track status of the design storm rewrites. Note: The number and type of water quality facilities constructed/implemented to address these requirements will be tracked and mapped under Element 8: BMP Private Water Quality Facility Maintenance Program.	(1) Development applications including drainage reports are routinely reviewed for proper compliance with storm water regulations. The following applications were reviewed and approved during the 2011-2012 reporting year: • Commercial (New) = 0 • Commercial (Additions) = 1 • Residential (New) = 0 • Residential (Additions) = 3 (2) The City of Milwaukee currently references the City of Portland Storm Water Manual. Revisions to standards will be made as necessary by November 1, 2014 for compliance with permit design storms, inspection and enforcement procedures.			
Element #7 Pollution Prevention for Municipal Operations									
Conduct Street Sweeping and Roadway Repair Activities			City of Milwaukee Public Works Department	(1) Track the number of sweeps per year. (2) Track the number of miles swept per year. (3) Track the volume of debris removed during sweeping activities.	• Sweep curbed streets once per month. • Sweep roads promptly after icy conditions recede to remove fine gravel used for de-icing. • Schedule and conduct routine road repair and maintenance as needed, during the dry-weather conditions if possible.	(1) Track the number of miles swept per year. (2) Track the volume of debris removed during sweeping activities.	Monthly street sweeping is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).		
Minimize Water Quality Impacts Associated with Landscape Management Practices			City of Milwaukee Public Works Department and Clackamas County Parks Department	(1) Track any policy and/or procedural changes associated with pest management activities within the City. (1) Track all chemical applicators (both City employees and City contractors) to be licensed and certified. • Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within public right-of-ways, and around water quality facilities.	• Require all chemical applicators (both City employees and City contractors) to be licensed and certified. • Use the Portland Integrated Pest Management (IPM) Program as a guide for appropriate pesticide and fertilizer application procedures along roadways, within public right-of-ways, and around water quality facilities.	(1) There has not been any policy or procedural changes regarding pest management activities during the 2011-2012 reporting year. (2) Currently the City of Milwaukee does not have certified staff licensed for chemical application. It is not a standard practice of the city and if needed would contract the work out.	Tracking staff licensed and certified for chemical application is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).		
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities			City of Milwaukee Public Works Department and Engineering Department	New BMP per 2012 SWMP. • Develop procedures for storage and disposal of street wastes in conjunction with operation of the covered, on-site Decant Facility. Such procedures shall be finalized by the beginning of the Decant Facility operation and implemented within 6 months thereafter.	• Develop procedures for storage and disposal of street wastes in conjunction with operation of the covered, on-site Decant Facility. Such procedures shall be finalized by the beginning of the Decant Facility operation and implemented within 6 months thereafter.	N/A	The City completed the Decant project in July of 2012 and is continually working to enhance the facility for more sediment removal. The SOP for the facility has been completed and the public works crews have been trained on the proper operation of the facility.		
Control Infiltration and Cross Connections to the Stormwater System			City of Milwaukee Public Works Department and Engineering Department	(1) Indicate whether any cross-connections were discovered during illicit discharge investigations, and describe follow-up activities.	• Investigate sanitary lines for damage every five to six years. • Inspect for cross-connections during annual dry weather outfall inspections and remove any discovered cross connections. • Review all new and re-development plans associated with new building permits for possible cross-connections; eliminate them upon discovery.	(1) Indicate whether any cross-connections were discovered during illicit discharge investigations, and describe follow-up activities.	(1) Per results of the illicit discharge inspections, no cross connections were observed.		

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Annual Performance Measures (2006 SWMP)	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2011-2012	Additional Detail Related to Activities Conducted	Additional Activities to Address Requirements of the 2006 SWMP
Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvement	●	●	City of Milwaukie Public Works and Engineering Department	Former BMP Name: Conduct Master Planning for Stormwater Quality Improvement (1) Track master planning activity (new plans or revisions to older plans). (2) Track the number of CIP projects implemented each year and discuss the added benefit (flood control, water quality, habitat restoration, etc.) of each. (3) Map the location and drainage area of CIPs.	<ul style="list-style-type: none"> Annually contribute to the reserve fund for future CIP design and construction. Review the CIP list and update as necessary each year. 	(1) Track the number of CIP projects implemented each year and discuss the added benefit (water quality, habitat restoration, etc.) of each project. (2) Map the location and drainage area of CIPs. (3) Track the amount contributed to the CIP reserve fund each year. (4) Track changes to the CIP list.	(1) The City initiated the process of updating the stormwater master plan. The City did not construct any CIPs this fiscal year because of the master plan update. (2) As CIPs are constructed, the City's asset manager incorporates as-builts into the Hanson system and City's GIS database for future mapping needs. Since the master plan is being updated, no CIPs were constructed in this fiscal year and, therefore, no mapping of CIPs was needed. (3) The amount contributed from the Storm Fund for Capital Outlay projects (CIPs) was \$340,000. (4) The City is currently completing updates to their stormwater master plan and stormwater CIP list. The master plan update is scheduled for completion by March 2013.	The City is currently completing updates to their stormwater master plan and stormwater CIP list. No CIPs were constructed in this fiscal year due to the need to update the list.	Tracking amount contributed to the CIP reserve fund is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).
Element #8 Stormwater Management Facilities Operation and Maintenance									
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	(1) Estimate the volume of debris removed during conveyance system cleaning activities. (2) Track the conveyance system repair efforts conducted.	<ul style="list-style-type: none"> Inspect stormwater conveyance system components (i.e., manholes, culverts and ditches) every two years and perform maintenance based on inspection results. Perform ditch maintenance activities through an IGA between Clackamas County and the City based on inspection results. 	(1) Track percent of conveyance system inspected each year. (2) Estimate the volume of debris removed during conveyance system cleaning activities. (3) Track the conveyance system repair efforts conducted.	(1) The City Stormwater Department cleaned 3 % of main lines, cleaned 50% of catchbasins and 50% of sedimentation manholes during FY 2011-2012. (2) The following volumes of debris were removed during conveyance cleaning activities: <ul style="list-style-type: none"> 7,273.61 linear feet of storm line was cleaned. No total of measurable amounts of debris could be obtained. 17,163.77 linear feet of storm lines were video inspected. A total of 100 sediment manholes were cleaned for a total debris amount of 106.73 cubic yards of debris removed. 1,147. ft. of ditch maintenance was completed. No total of measurable amounts of debris could be obtained. (3) The following maintenance/ repairs were conducted during reporting year 2011-2012: <ul style="list-style-type: none"> 4 storm manholes were repaired. Repaired/replaced 3 storm manhole covers. 		Tracking % of conveyance system inspected is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).
Conduct Catch Basin Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	(1) Track the number of catch basins maintained. (2) Track the volume of debris removed during cleaning activities.	<ul style="list-style-type: none"> Clean 50% of public catch basins each year. Schedule repair or replacement of catch basins based on inspection results. 	(1) Track the percent of total public catch basins cleaned per year.2) Track the volume of debris removed during cleaning activities.	(1) During the 2011-2012 reporting year, 782 catch basins cleaned which translates to 50% of the total public catch basins. (2) The following volume of debris was removed during catch basin cleaning activities: <ul style="list-style-type: none"> Catch basins =15.407 cubic yards. 		Reporting on the % of total public catch basins cleaned is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012). Requirements of the 2006 SWMP require 33% of all public catch basins to be maintained, which is achieved for the 2011-2012 reporting year.
Private Water Quality Facility Maintenance Program	●	●	City of Milwaukie Public Works Department	New BMP per 2012 SWMP.	<ul style="list-style-type: none"> Develop procedures to guide the private facility maintenance program by July 1, 2013. 	(1) Track the number of onsite private stormwater quality facility inspections conducted annually.	(1) The Water Quality Facility Maintenance Agreement Program was completed and implemented FY 2011-2012. There has been one applicant for this project currently (with a stormwater facility located on private property).	The SOP and supporting documents were created, approved by the Planning and Engineering Departments.	Tracking private facility maintenance is a new requirement of the 2012 SWMP. Reporting on such activity is only applicable for actions after the effective date of the 2012 SWMP (March 16, 2012).
Public Structural Control Facility Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	Former BMP Name: Conduct Structural Control Facility Cleaning and Maintenance (1) Track the number of structural facilities inspected and maintained. (2) Track the volume of debris removed during cleaning activities.	<ul style="list-style-type: none"> Inspect and maintain public water quality facilities annually. 	(1) Track the percent of total structural facilities inspected and maintained each year. (2) Track the volume of debris removed during cleaning activities.	(1) and (2) During the 2011-2012 reporting year, the following public facilities were inspected and/or maintained. This inventory translates to 75% of the total number of structural control facilities. <ul style="list-style-type: none"> 260.75 hours of rain garden maintenance was completed. No total of measurable amounts of debris to be obtained. 44 hours of detention pond maintenance was completed. No total of measurable amounts of debris to be obtained. 174 drywells were cleaned and 190.39 cubic yards of debris were removed. 		

Appendix B

Milwaukie Monitoring Data

Instream and Outfall Monitoring

The instream monitoring location at Minthorn Spring Creek showed a bacteria and TSS concentrations improved over last year's (storm) data, and other parameters remained stable or slightly increased in concentration. Contributing drainage area to either monitoring location had appreciable changes in land use or redevelopment during the permit year 2011–2012.

Table B-1 Environmental Monitoring Results—Instream Minthorn Springs Creek at Harmony Road						
ML_65015_C & ML_65015_G						
Sample Date**	11/16/2011 (storm)	3/5/2012 (storm)	Min	Max	2011/12 Mean	2010/11 Mean
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Colilert	870	177	177	870	523.5	1111.5
Hardness	67	53	53	67	60	63
Nitrate-Nitrite	<0.45	0.39	<0.45	0.39	0.3075	0.27
Orthophosphate	0.04	0.02	0.02	0.04	0.03	0.0325
Total Phosphate	0.08	0.25	0.25	0.08	0.165	0.09
Copper	0.0039	0.0088	0.0039	0.0088	0.00635	0.00318
Lead	0.001	0.00494	0.001	0.00494	0.00297	0.0200
Zinc	0.0311	0.0606	0.0311	0.0606	0.04585	0.02233
TSS	13	46	13	46	29.5	77.4
Ammonia	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Field Test						
Temperature (C)	7.6	9.5	7.6	9.5	8.55	10.85
pH	7.0	7.0	7.0	7.0	7.0	7.0
DO-mg/l	9.3	10.2	9.3	10.2	9.75	8.74
Conductivity	109.0	156.9	109.0	156.9	132.95	111.1

The stormwater outfall data shows a mean bacteria count consistent with last year, and metals slightly higher than in 2010–2011 (attributed to a high TSS value on the March 5th event). The Roswell site is monitored at a point prior to flows being introduced to the Roswell Detention Pond facility which offers further water quality treatment before discharging to Johnson Creek.

Table B-2 Environmental Monitoring Results—Outfall Roswell Outfall to Johnson Creek						
ML_23003_C						
Sample Date**	11/16/2011	3/5/2012	Min	Max	2011/12 Mean	2010/11 Mean
	mg/l	mg/l	mg/L	mg/L	mg/L	mg/L
Colllert	3973	90	90	3973	2031.5	2301.7
Hardness	53	21	21	53	37	12
Nitrate-Nitrite	<0.05	0.13	<0.05	0.13	0.0775	0.03225
Orthophosphate	0.09	0.03	0.03	0.09	0.06	0.06
Total Phosphate	0.26	0.59	0.26	0.59	0.425	0.1167
Copper	0.0074	0.0294	0.0074	0.0294	0.0184	0.00506
Lead	0.00326	0.02542	0.00326	0.02542	0.01434	0.0028
Zinc	0.0716	0.1529	0.0716	0.1529	0.11225	0.031
TSS	21	220	21	220	120.5	19.1
Ammonia	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Field Test						
Temperature (C)	7.7	9.0	7.7	9.0	8.35	9.27
pH	6.9	6.7	6.7	6.9	6.8	7.0
DO-mg/l	10.0	10.6	10.0	10.6	10.3	8.87
Conductivity	35.9	25.3	25.3	35.9	30.6	24.8

Continuous Monitoring

The City of Milwaukie contracts with the USGS for continuous hydrological monitoring of the Johnson Creek Basin at a cost of \$7,700 per year. Milwaukie is joined in this effort with the Cities of Gresham, Damascus, and Portland, Multnomah and Clackamas Counties, and East Multnomah Soil and Water Conservation District. Water quantity parameters stream flow and gage height are measured at this station along with stream temperature, turbidity and suspended sediment. The report for this program will be completed in 2014. Further details for the data collected at this site can be found at:

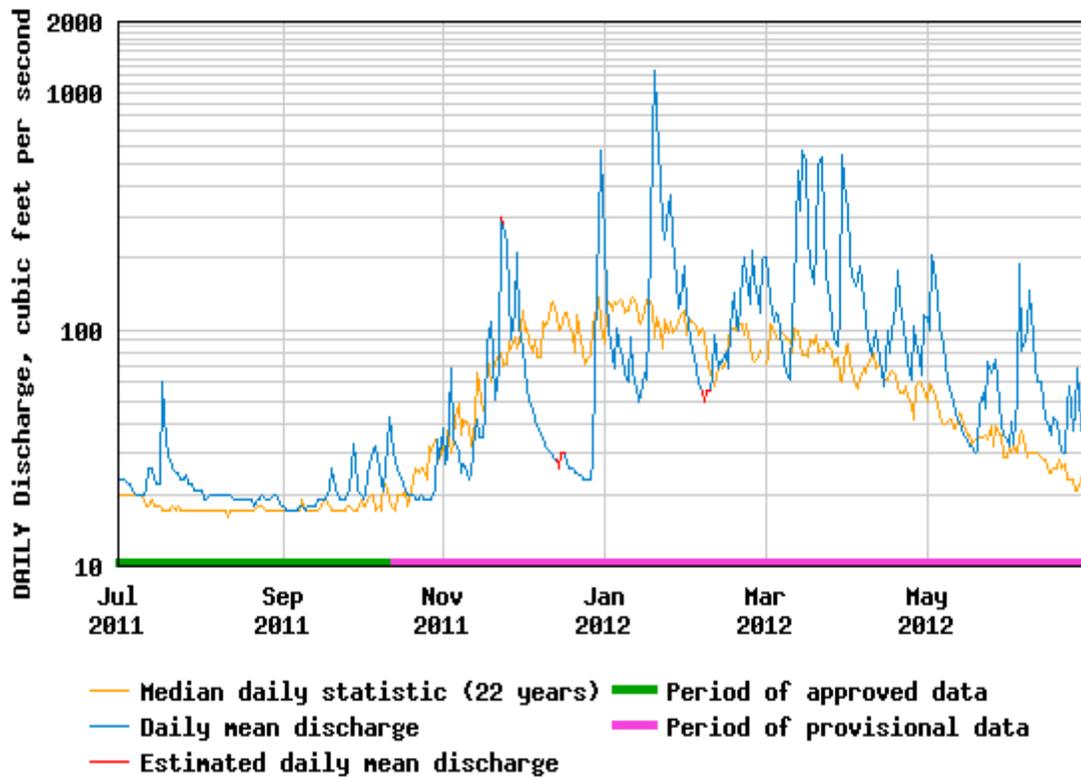
http://waterdata.usgs.gov/or/nwis/dvstat/?format=sites_selection_links&search_site_no=14211550&agency_cd=USGS&referred_module=sw

Continuous Monitoring Location information is as follows:

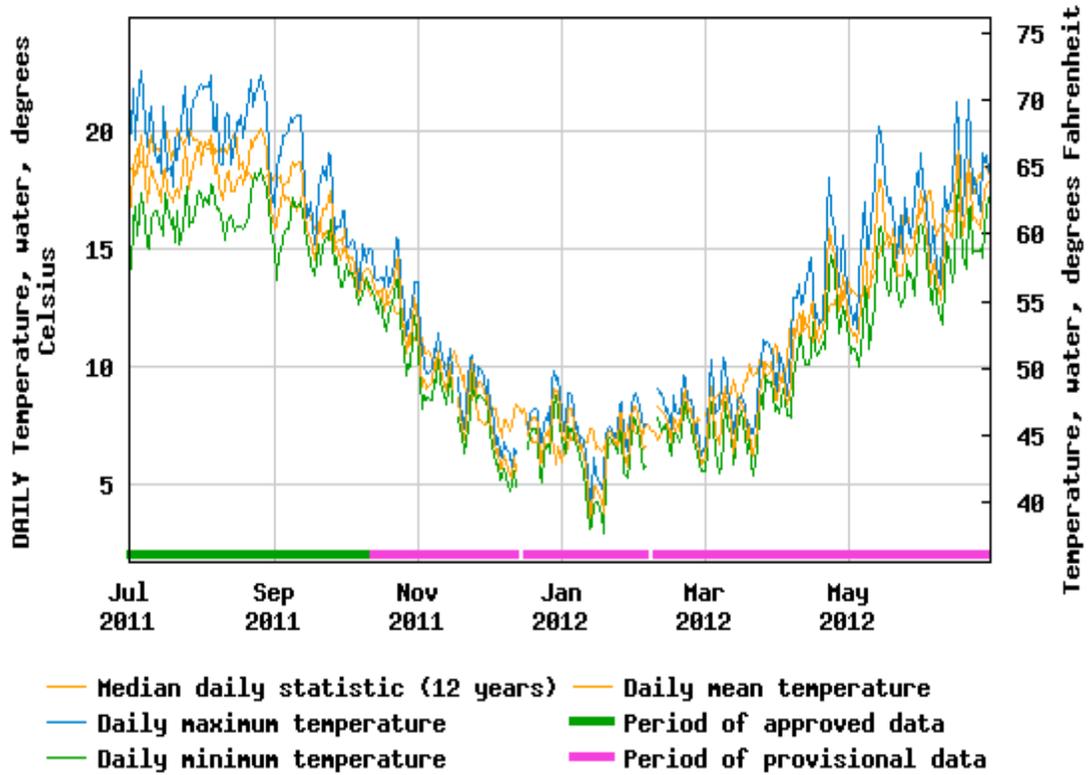
- USGS 14211550 Johnson Creek at Milwaukie, Oregon
- Location: Lat 45 degrees 27'11", Long 122 Degrees 38' 31", in NE ¼ SE ¼ SEC. 26, T. 1 S., R 1 E.
- Clackamas County, Hydrologic Unit 17090012, on the right bank upstream side of the Millport Rd. Bridge, in the city limits of Milwaukie, at mile 0.7



USGS 14211550 JOHNSON CREEK AT MILWAUKIE, OR



USGS 14211550 JOHNSON CREEK AT MILWAUKIE, OR



Appendix C

TMDL Implementation Plan

6500 SW Macadam Avenue, Suite 200
Portland, Oregon 97239
Tel: 503-244-7005
Fax: 503-244-9095

Prepared for: City of Milwaukie
Project Title: Milwaukie TMDL Implementation Plan Annual Report
Project No: 143011

Technical Memorandum

Subject: Willamette River TMDL Implementation Progress Report, Year 3
Date: October 22, 2012
To: Brad Albert, P.E., Milwaukie Public Works
From: Angela Wieland, P.E., Brown and Caldwell
Copy to: Doug Drake, Lower Willamette Basin Coordinator
Oregon Department of Environmental Quality

Limitations:

This document was prepared solely for City of Milwaukie in accordance with professional standards at the time the services were performed and in accordance with the contract between City of Milwaukie and Brown and Caldwell dated May 29, 2012. This document is governed by the specific scope of work authorized by City of Milwaukie; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by City of Milwaukie and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

Introduction

The City of Milwaukie (City) submitted its Willamette River Total Maximum Daily Load Implementation Plan (TMDL Plan) to the Oregon Department of Environmental Quality (DEQ) on March 31, 2008. Comments from DEQ were received and addressed by the City, and DEQ approved of the City's TMDL Plan in May 2009. The 2011–2012 reporting year (July 2011–June 2012) is the third year of implementation of the TMDL Plan. This progress report provides a summary of the City's efforts during implementation year three.

Background

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

Management strategies for bacteria and mercury are summarized in the City's municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) stormwater permit and associated Stormwater Management Plan (SWMP). DEQ addresses TMDL requirements within the City's MS4 NPDES permit as they pertain to pollutants associated with point sources of stormwater runoff. The MS4 NPDES permit requires best management practices (BMPs) to be applied to address sources of pollution in stormwater runoff. For TMDL pollutant parameters, the MS4 NPDES permit also requires Milwaukie to develop pollutant load reduction benchmarks to show progress towards meeting TMDL wasteload allocations. Additionally, the MS4 NPDES permit requires an adaptive management approach that focuses on refining BMPs over time until wasteload allocations are achieved. The City was reissued their MS4 NPDES permit on March 16, 2012. The City's effective (2012) Stormwater Management Plan (SWMP) outlines BMPs to comply with the reissued permit.

Stormwater runoff in the Willamette Valley is not considered a problem with respect to temperature, and therefore, temperature is not addressed under City's MS4 NPDES permit. Management strategies for temperature were developed and identified in the TMDL Plan. Historically, riparian vegetation removal and channel modifications result in reduced baseflow, reduced stream shade, and increased instream temperatures. As part of the TMDL Plan, strategies to address temperature were identified.

Implementation Status

The City's MS4 NPDES permit serves as the Willamette River TMDL Plan for bacteria and mercury. Progress towards implementing best management strategies (or BMPs) to address bacteria and mercury are summarized in the City's 2011–2012 MS4 NPDES Annual Report, submitted to DEQ on November 1, 2012. Additionally, the City conducts the following activities to specifically address bacteria.

- Onsite Survey (of private sanitary waste systems).
- Require private systems to connect to the public system.
- Extend public collection system to unincorporated areas northeast of the City.

Status related to these additional activities to address bacteria are described in Section 5.1 of the City's 2011-2012 MS4 NPDES Annual Report.

The City's progress towards implementing strategies to address temperature is summarized in Table 1 of this progress report. Such strategies include pursuing removal of the Kellogg Creek Dam and applying for grants to support shade preservation activities. Additionally the City conducts public education and outreach activities and implementation of development standards that promote infiltration, both of which further improve temperature in receiving waters.

**Table 1. TMDL Implementation Plan Progress Report 2011–2012
Summary of Strategies to Address Temperature (as described in the TMDL Plan)**

Best Management Practice or Activity	Commitment/Implementation Strategy	Measureable Goal	Implementation Tracking/Performance Measure	2011–2012 Activities	Responsible Division
Public Education	Include articles regarding temperature-related issues and shade planting projected in the City newsletter and through direct mailings.	Ensure a minimum of one temperature-related piece of educational material during the implementation period .	Record temperature-related educational materials.	The City is a partner with the Johnson Creek Watershed Council (JCWC). The JCWC has educational resources on their website that promote remediation of temperature related issues.	Public Works
Implement Stormwater Design Standards	Implement the City's development code and water quality standards, which includes provisions for use of infiltration- based stormwater treatment systems.	Update design standards to include additional infiltration-based guidelines for stormwater treatment in accordance with provisions of the reissued NS4 NPDES permit.	Track modifications to the City's development standards related to use of LID and BMPs for new and redevelopment.	The City will review and revise as necessary their stormwater quality guidelines to determine modifications necessary to comply with language of the recently reissued MS4 NPDES permit. Finalization is expected in conjunction with compliance deadlines established in the permit.	Public Works
Kellogg Creek Dam Removal	Remove Kellogg Creek Dam, return Kellogg Lake to a creek, and revegetate the affected area	Apply for and receive funding to support Kellogg Creek Dam removal activities	Track any grant funds received. Track any planting activities conducted.	The City applied for and received a small grant. The city received approximately \$20,000 in FY 2011-2012 and is expected to receive the remaining \$20,000 in FY 2012-2013. The City is focused on and awaiting completion of the dam removal project and therefore did not conduct any vegetation enhancement during the 2011-2012 reporting year.	Public Works