City of Milwaukie, Oregon

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

2014–2015 Annual Report

Prepared for the

Oregon Department of Environmental Quality

November 1, 2015

CITY OF MILWAUKIE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

MUNICIPAL STORMWATER SYSTEM ANNUAL REPORT

JULY 1, 2014 – JUNE 30, 2015

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.

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Title: Engineering Director
City of Milwaukie

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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, 2014 to June 30, 2015 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.

Table 1: Summary of the MS4 NPDES Annual Report Requirements

	Annual reporting requirement	Location in document
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
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
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
h)	A summary describing the number and nature of enforcement actions, inspections, and public education programs.[a]	Section 6 and 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
j)	A summary related to MS4 discharges describing concept planning or other activities in preparation of UGB expansions or land annexations.	Section 5.0 and Appendix A
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 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 with their effective SWMP and BMPs. More significant modifications to SWMP activities occur every five years, in conjunction with their permit renewal application and updated permit requirements.

The City's adaptive management approach (submitted November 1, 2012) maintains consistency with the City's historical approach for implementing adaptive management principals.

Annually, as the City completes their NPDES MS4 annual report, the City reviews SWMP implementation through BMP-specific measureable goals and tracking measures. The City collects data and feedback from staff responsible for implementing and reporting on each BMP to gage whether implementation was deemed to be effective or whether there are suggested improvements to be made. Suggested adjustments to BMP implementation will include consideration of resource availability, budget/funding, and overall need.

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, such as:

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

Additionally, at the end of the permit term, technical investigations and studies are required in conjunction with compliance dates outlined in the permit. Such studies include (but are not limited to) a water quality trends analysis, pollutant load reduction evaluation, hydromodification assessment, and a retrofit assessment. All studies will help target and identify specific issues that need to be addressed to maintain waterbody health and help formulate BMP activities (measureable goals and tracking measures) that can be used to support improvements.

2.2 SWMP Updates for the 2014-2015 Reporting Year

The 2014-2015 reporting year is the second full permit year in which the City's effective SWMP (dated 2012) has been implemented. The City's 2012 SWMP reflects the addition of multiple BMPs that were not included in the previous permit's SWMP 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

For the 2014-2015 permit year, no major updates were made to the 2012 SWMP or BMP measureable goals and tracking measures beyond those submitted to DEQ in May 2012. Review of BMP implementation during the preparation of this annual report did not reveal the need for adaptive management changes sufficient enough to modify the City's SWMP.

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 $13.05 monthly, which was established in August 2013. In conjunction with approval of the City's Stormwater Master Plan (in August 2013), City Council approved an additional rate increase effective for the next 10 years. 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.)

Forecasted (non-audited) expenditures for 2014–2015 and 2015–2016 are listed below.

Table 2: Forecasted (Non-Audited) Expenditures for 2013–2014 and 2014–2015

2014-2015	
Personnel Services / 5. FTEs	660,000
Materials and Services	411,000
Capital Outlay	1,718,000
Transfers	905,000
Total	**$3,694,000**

2015-2016	
Personnel Services / 6.25 FTEs	*715,000
Materials and Services	*441,000
Capital Outlay	*2,829,000
Transfers	*965,000
Total	**$4,950,000**

* 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, 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 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.

In conjunction with requirements of the 2012 reissued MS4 NPDES 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, macroinvertebrate (biologic) monitoring, and geomorphic monitoring were added to the CCCSMP. Detailed information related to use of the time-composite sampling technique was added as an appendix. Additional information such as quality assurance procedures were also added in conjunction with Schedule B.2 of the 2012 Permit.

The updated (2012) CCCSMP was submitted to DEQ in September 2012. Comments from DEQ were received in October 2012, and final revisions to the 2012 CCCSMP were submitted to DEQ June 30, 2013. For this reporting year (2014–2015), the 2012 CCCSMP was the effective, implemented monitoring plan for the City of Milwaukie. The 2012 CCCSMP was implemented starting October 2012.

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 2014-2015 Reporting Year

New requirements related to stormwater monitoring were outlined in the City's reissued MS4 NPDES permit (dated March 16, 2012). As mentioned in Section 4.1, 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 based on requirements in the 2012 Permit and experience implementing the CCCSMP since 2006.

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 were not being collected in accordance with requirements of the 2012 MS4 NPDES permit. The City applied to DEQ 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 was submitted June 21, 2013. The letter was received by DEQ on 6/24/2013 and was approved.

No other updates or modifications were made to the permit or SWMP in permit year 2014/2015.

4.3 Summary of Monitoring Data

In accordance with the 2012 CCCSMP, Milwaukie conducted instream and outfall monitoring. Continuous instream monitoring of Johnson Creek was also 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 over the wet weather season). Single grab samples are also required during two additional monitoring events (during the dry weather season) at the instream monitoring location. Time composite grab samples are required at the outfall monitoring location three times during the monitoring year.

In addition to the required instream and outfall monitoring, the City was required to conduct mercury monitoring at one location (Roswell Street outfall) during the 2012-2013 water year (October 1, 2012 to September 30, 2013). Two samples, one during the wet weather season and one during the dry weather season, were required.

The City's reissued MS4 NPDES permit (effective date: March 16, 2012) prescribed new monitoring requirements that were to take effect October 1, 2012.

During the 2012-2013 monitoring year, the City collected their wet weather season mercury sample on 3/20/2013. The City also collected a dry weather season mercury sample on 5/29/2013.

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

The City of Milwaukie completed the two Mercury monitoring events in 2013 as required by permit conditions and petitioned DEQ to request eliminating further Mercury monitoring in a letter sent to DEQ via email on 1/30/2015. The City of Milwaukie received confirmation of permission to eliminate Mercury monitoring from its environmental monitoring requirements in an email from Lisa Cox, Municipal Stormwater Coordinator at DEQ on 4/16/2015.

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 updated their Citywide Stormwater Master Plan during the 2012-2013 reporting year. The updated Master Plan includes an evaluation of flooding and capacity deficiencies and capital improvement project development and prioritization for water quality and water quantity control. As part of the master plan, an evaluation of UIC's requiring retrofit or decommissioning was also conducted. The updated Master Plan addresses requirements of the City's water quality retrofit assessment, due July 1, 2015. The Master Plan was approved by City Council in August 2013.

During the 2014–2015 reporting year, the City received one application pertaining to a zone change that was ultimately denied.

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 7 properties within fiscal year 2014–2015. The City also had no new connections within the same time period.

A routine audit of sanitary sewer connections was performed in 2011. No properties exist from those surveys that are not connected.

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 2014–2015, sixteen private redevelopment projects submitted development applications. For all private redevelopment activities, total of 1850 square feet of new/ redeveloped impervious area is associated. Public projects were primarily associated with water and wastewater utility mainline replacement and did not have any impervious surface additions.

Of the private development projects, one project was associated with commercial buildings and fifteen projects were associated with residential. One new residential permit required frontage improvements which required stormwater planter construction to treat the street runoff. The total area of treatment was 90 square feet. All of the other private development permits did not trigger the stormwater treatment requirement.

No specific stormwater CIPs were completed during the 2014–2015 reporting year.

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.

<u>Implement the Illicit Discharge Elimination Program</u>

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

10/28/2014 Milwaukie storm crews witnessed a citizen dumping unknown substance into storm catch basin. Material was sticky and slimy, smelling of glue or an adhesive. City crews cleaned material from catch basin while Code Compliance Officer cited the property owner for an illicit discharge. City owned catch basin was clearly marked with a medallion and was stenciled. Property owner was found guilty in municipal court and paid a fine.

11/3/2014 City crews noticed a white substance on a storm catch basin grate. The crews approached the property owner nearest the catch basin and encouraged him to clean the material from the basin or face enforcement actions. The property owner complied and cleaned the tile slurry from the basin. City crews checked downstream infrastructure and found no evidence of the slurry.

2/4/2015 City staff discovered material that resembled grease trap waste in storm catch basin behind restaurant. When questioned by City staff about the catch basin, the restaurant manager stated that the owner of the facility had cleaned the grease trap himself that very morning because the pumper company hadn't performed the cleaning yet. The owner was given a timeframe for cleaning the material but did not do so. City crews were dispatched to perform the cleaning. The owner of the restaurant was issued a citation from the Code Compliance Officer and a bill for cleanup costs.

2/19/2015 City staff witnessed dumping of bucket contents into storm drain near a food cart. When questioned about the contents of the bucket, the cart employee stated that the liquid was "potato water" (wastewater) from peeling and washing potatoes. The food cart is not plumbed to sewer and was reportedly carrying the wastewater in buckets to the gas station next door and dumping the contents into the toilet. The employee was instructed to clean the storm drain of the wastewater and issued a citation by the Code Compliance Officer.

4/20/2015 Demo work at warehouse resulted in a large amount of rainwater carrying contents of debris dumpster out into street. The contractor performing the work was instructed to perform cleanup of the curb line and street. The material was removed and cleaned by the next day.

<u>Conduct Annual Dry Weather Field Screening</u>

Dry Weather Outfall Inspection Investigation Summary - 2014

Outfall #25225 8/7/2014 Two outfalls at this location. Corrugated steel on left facing west and concrete pipe to the right. Both pipes have constant clear flow with no visible sheen or solids. No detectable odors. All readings under action levels. CCTV inspection in 2013 revealed no definitive source of the flows because of root and debris deposition obstructed and limited camera travel within pipe. Flow is still considered groundwater.

Outfall #25273 8/7/2014 Trace of flow present- not enough to collect sample. Previous inspections have determined flow is piped under OLCC warehouse, presumed to be groundwater. CCTV inspection in 2013 revealed a 12 o'clock tap at 197.6' with no signs of discharge. Wet deposits were observed at a number of joints in pipe. At 358.5' a buried manhole was discovered, ending TV inspection.

Outfall #45010 8/11/2014 Tan colored slime in wetted perimeter of pipe. Slime traced to grated-top manhole at 3705 SE Licyntra, slime evident from connection to north and in other portion of upgradient system. Bacti & Nutrient suite sample taken on 8/11/14 at 10:02. Sample readings were below action levels, but conductivity was 323us/cm. Conducted upgradient investigation and traced tan slime to between manholes 41053 and 41047. Storm crews will perform CCTV inspection of this section of line.

Outfall #65003 8/12/2014 Outfall fully submerged- upgradient manhole is backwatered by wetland. It did not measure stagnant water. Checked all basins within Marketplace with no signs of illicit discharges. Basin near grocery trash compactor shows evidence of compactor leakage; will follow up with Albertson's for replacement or repair of trash compactor. Took sample of affected basin for laboratory analysis of BOD content of water in basin sump- results are pending.

Outfall #65023 8/12/2014 Outfall has 4" of debris/sediment in bottom of pipe, debris is damp. A small trickle of flow evident in upgradient manhole; not enough to sample. No flow evident upgradient at manhole 61059 and at untagged manhole at SE Beckman and SE Foxfire St. Same findings as last year. CCTV inspection in 2013 revealed no illegal taps, I and I at pipe joints and orange/tan slime present at pipe joints. Flow is presumed groundwater.

Outfall #65029 8/13/2014 Small amount of flow from pipe with foam appearing in receiving stream; water appears to have a yellowish tinge and an earthy scent. Temperature reading was over action level at 20.5°C. Recent high temperatures (99°F) had occurred prior to monitoring. All other parameters were under action levels. CCTV inspection performed in 2013 revealed no illegal taps to storm line.

Outfall #65031 8/13/14 <1gpm constant flow, foam and tan slime present at outfall. Conductivity =556 us/cm above action levels. Water otherwise clear with no sheen, solids, or odors. Discharge from outfall has had historically high conductivity reading with last two years being over 500us/cm. Samples collected on 8/9/2013 yielded high e-coli results (>2420 MPN/100mL), but low nutrient results. Bacti sample collected on 10/7/2013 had 11MPN/100mL. Samples collected on 8/23/2012 yielded very low nutrient results and e-coli of 11 MPN/100mL. CCTV inspection in 2013 revealed no illegal taps to storm system. Dye test at 12400 SE Freeman resulted in dye present in sanitary sewer, but no dye evident in the storm system. Suspect high bacti counts are from wildlife, flows appear to be groundwater influenced.

Implement the Spill Response Program

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

City of Milwaukie Spill Response Summary 2014/2015

10/7/2014 Hydraulic fluids spill of 1-2 gallons at City of Milwaukie Public Works yard from leaking hydraulic hose on City owned street sweeper. Spill did not reach storm sewers and was not reported to OERS. City staff applied granular absorbent to spill and cleaned affected area. Spent absorbent was disposed of in trash.

10/22/2014 Diesel spill of approximately 1 quart onto City of Milwaukie Public Works yard was the result from City staff leaving fuel cap off VacCon vehicle after fueling. Spill did not reach storm sewers and was not reported to OERS. City staff applied granular absorbent to spill and cleaned affected area. Spent absorbent was disposed of in trash.

10/30/2014 Paint spill from private vehicle after paint bucket tipped over in bed of pick-up truck. Approximately 2.5 gallons were not accounted for in the paint bucket and were presumed spilled onto publically owned streets and the Safeway parking lot (4360 SE King Rd). Vehicle driver and City crews worked to clean most of the paint from paved surfaces, but a small amount of rain-diluted paint had entered catch basins flowing to public and privately-owned UICs. The driver of the vehicle was cited by the Milwaukie Police Department.

11/19/2014 Cooking oil spill behind grocery/deli at 2036 SE Monroe St. Waste oil barrel was tipped over/struck by vehicle and 20-25 gallons of waste cooking oil spilled into grocery parking lot, sidewalk, and street curb line entering a storm catch basin. City crews and property owner both applied granular absorbent to spill. City crews removed oiled contents of catch basin and cleaned sump. Absorbent was worked into spill area and picked up after oil was removed and disposed in trash.

12/27/2014 A rainbow sheen appearing on SE Stanley St. was reported to on-call City staff by the Milwaukie Police Department. City crews responded to spill by using street sweeper and absorbent booms to remove unknown petroleum product from street. Spill material and volume was unknown but estimated to be less than a gallon.

1/7/2015 Semi- truck fire and diesel spill at 2400 SE Mailwell St. Two tractor trailer trucks parked closely together caught fire in the early morning of 1/7/15. Milwaukie PW on-call staff were dispatched to scene at 3:30am by LOCOM via CCFD #1. The fire was intense enough to melt the tops of the filled 300 gallon fuel tanks of both trucks exposing fuel to fire-fighting foam and water. CCFD#1 had deployed booms and absorbent pillows around the trucks and storm catch basins in area. CCFD#1 had used approximately 250 gallons of 22% Class A foam in fighting the fire. NRC had been dispatched by the property owner for cleanup of the site. NRC was contracted to clean the loading dock area and its associated storm drains, lines and manholes. On 1/8/2015 the burnt trucks were removed after the investigation was complete. City staff discovered a storm manhole on the far end of the property that had diesel fuel on top of standing water and a contaminated storm line leading to a detention pond along Hwy 99E. NRC also dispatched resources to clean the affected storm manhole, line and pond. NRC monitored the site afterward to ensure that all fuel was cleaned and removed. OERS case #2015-0044.

4/24/2015 Wastewater spill from City of Milwaukie sewer cleaning truck. Back gate of holding tank was not properly latched causing approximately 40 gallons of wastewater to spill onto street surface. Two storm catch basins were affected by the spill. The wastewater was cleaned up by City crews running the truck after latching the rear gate. The catch basins were vacuumed out and pressure washed along with the street surface.

5/19/2015 Seven dump trucks caught fire at 2325 SE Clatsop St. causing diesel fuel to be released into adjacent Johnson Creek. City crews were called out by LOCOM dispatch after CCFD#1 had extinguished the fire. Fire battalion chief stated that 50-100 gallons of diesel fuel had entered the creek. Fire and City crews deployed booms to the affected area and across the creek. DEQ was working with property owner and contracted cleanup company for remediation of stream bank and removal of contaminated soils. No fuel entered City owned storm infrastructure. OERS case #2015-1020.

6/4/2015 City sewer crews had failure of Root-X applicator to sewer lines which resulted in Root-X chemical being released onto Lake Rd. surface. Crews began immediately vacuuming and pressure washing chemical from street surface. Chemical did not get near any stormwater catch basins.

Appendix A

Milwaukie SWMP
Implementation Status

Appendix A. Status of Implementing Components of Milwaukie's 2012 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	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Element #1 Illicit Discharge Detection and Elimination							
Implement the Illicit Discharge Elimination Program	●	●	City of Milwaukie Public Works Department	• 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. This SOP was revised and updated on July 17, 2013, in preparation of an anticipated EPA audit. (2) Five illicit discharges were reported and responded to by Milwaukie Public Works during the reporting year. A description of the illicit connections and enforcement resolutions is described in Section 6.0.	See Section 6.0 for additional detail.
Conduct Annual Dry Weather Field Screening	○	○	City of Milwaukie Public Works Department	• 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) 26 outfalls were inspected as part of the annual dry weather field screening activities (conducted August 7, 2014, through August 13, 2014). (2) and (3) Potential illicit discharges were identified at a total of seven outfalls. Three outfalls had samples collected for field and laboratory analysis. Six outfalls had flows of unknown origin and were investigated. Results of the dry weather field screening for outfalls with unknown flows are documented in Section 6.0	See Section 6.0 for additional detail.
Implement the Spill Response Program	○	○	Clackamas Fire District #1 (Hazardous Materials Team) and Milwaukie Public Works Department	• 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 of Milwaukie Public works department received calls for 9 spills during reporting year 2014-2015. (2) The City of Milwaukie responded to 11 spills during reporting year 2014-2015. (3) Five spills Milwaukie Public Works responded to were the result of motor vehicle fluid releases of diesel fuel, oil, hydraulic fluid, or gasoline via accidents or mechanical failures. Other spills were the result of residents improperly handling and storing paints causing paint to be carried into the street. Other spills consisted of a sewer herbicide, wastewater, and cooking oil.	See Section 6.0 for additional detail.
Minimize Water Quality Impacts Related to Water Line Flushing			City of Milwaukie Public Works Department	• 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 did complete water line flushing programs during the last reporting year. The City Water department conducted water system line flushing in the area of the Ardenwald neighborhood to 47th and Logus Rd. From Johnson Creek Blvd to King Rd. and all the way west to the tracks at Roswell St. The chlorinated water was tested throughout the project and did not discharge any water into the storm system over the maximum concentration of 0.10 PPM or more.	All water line flushing procedures have been completed by May of 2015. Chlorine test data and supporting documents are kept on file at the City of Milwaukie Public Works Johnson Creek facility.
Element #2 Industrial and Commercial Facilities							
Screen Existing and New Industrial Facilities	○	○	City of Milwaukie Public Works Department	• 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.	The City of Milwaukie Public Works Department continues to screen new Business Tax Receipts received from businesses locating within the City to assess for the possibility of discharging pollutants or to be subject to a NPDES Stormwater Permit. Per the City's measurable goals, review of the existing business tax receipt inventory will be conducted once over the permit term to determine whether any existing or new facilities would be subject to an industrial stormwater NPDES permit.	The new Business Tax Receipts reviewed during the 2014-2015 reporting year were for either small businesses, home based businesses, and/or not subject to an industrial stormwater permit. DEQ provided additional guidance on industrial facility screening in June 2013. The City of Milwaukie will refer to this guidance when it reviews the business tax receipt inventory.

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Conduct Industrial and Commercial Inspections	○	○	City of Milwaukie Public Works Department	• Inspect all facilities with 1200-Z permits two times per permit term. Inspect all commercial and industrial 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. • Inspect any other high priority facilities if identified as potentially contributing a significant pollutant load. • Keep an inventory of all 1200-Z permitted industrial facilities within permit area and update it annually. • Require abatement measures for any industry found to be inappropriately discharging to the municipal stormwater system. • Develop an SOP for high priority facility inspections and implementation of strategies by July 1, 2013. • Develop an SOP for the FOG inspection program by July 1, 2013.	(1) Track the number of permitted (1200-Z) industrial facilities within the City. (2) Track the number of industrial and FOG inspections conducted. (3) Note any water quality concerns identified during inspections. (4) Report status and abatement measures required for any industry or food service facility found to be inappropriately discharging to the municipal stormwater system.	(1) The City of Milwaukie queried the active 1200-Z permits within the city limits from DEQ's website on 3/17/2015. There are currently 3 active 1200-Z permit holders within the City's boundaries discharging to the City's MS4. (2) and (3) Per the City's measurable goals, the City of Milwaukie will inspect facilities with current 1200-Z Industrial Stormwater permits two times during the permit term. The City inspected the three 1200-Z permitted facilities in permit year 13/14 and will inspect these facilities again before the permit term ends. The City completed 257 Fats, Oils and Grease (FOG) work orders for grease trap or interceptor inspections for restaurants located in the City. (4) Minor abatement measures were required based on inspection results.	(1) One of the1200-Z permit holders, Beaver Heat Treating, has been displaced because of light rail construction and now resides in Tualatin. This brings the number of permit holders in Milwaukie down to three. (2) The three active 1200-Z permit holders were inspected during the months of April and May 2014, using the updated inspection form and SOP that was developed for inspections of high priority facilities by the City of Milwaukie on June 13, 2013, and for FOG inspections on June 11, 2013. (3) During the inspections, deficiencies were noted at two of the 1200-Z permitted facilities. These businesses were notified of corrections to be implemented at the facility by certified mail. At Harder Mechanical Inc., barrel storage, and storage of waste oil and fuel cans were identified as needing improvement. Blount Inc. also was notified of improvements needed for their barrel storage and management of punch press scrap. (4) Harder Mechanical constructed a roofed and contained structure for their storage of waste oil and fuel cans. They also changed their practice of barrel storage. At Blount Inc. they also revisited their barrel storage practices, and placed absorbent booms around the punch press scrap area.
Element #3 Construction Site Runoff Control							
Implement Erosion Control for New and Redevelopment	●	○	City of Milwaukie Public Works and Engineering Departments	• Require structural and non-structural erosion and sediment control BMPs for all construction sites disturbing an area greater than 500 ft2. • Require sites disturbing over 500 ft2 to acquire an erosion control permit prior to issuing them a plumbing and electrical permit. • Conduct site plan reviews for applicable new and re-development to ensure compliance with the City's erosion control standards.	(1) Report any updates or modifications to the "Erosion Prevention and Sediment Control Planning and Design Manual (2008)". (2) Record the number of erosion control plan reviews completed and approved.	(1) There have been no updates to the 2008 "Erosion Prevention and Sediment Control Planning and Design Manual" during this permit year. (2) During the 2014-2015 reporting year, there were 19 erosion control plan reviews completed and approved.	
Provide Educational Information to Construction Site Operators	○	○	City of Milwaukie Public Works Department	• Coordinate with other jurisdictions to provide Erosion Control Certification programs at the Clackamas Community College. • Give discounts on erosion control permit fees to contractors participating in the Erosion Control Certification Program.	(1) Track the number of contractors receiving a discount on erosion control permit fees. (2) Track number of program sessions and refresher courses offered each year.	(1) During the 2014-2015 reporting year, no contractors applied for this discount. (2) Due to the lack of participation in the program, program sessions and refresher courses were not scheduled.	With an improving economy, there may be renewed interest by contractors to seek the discounts provided by enrolling in education programs.
Conduct Erosion Control Inspections	●	○	City of Milwaukie Public Works Department	• Inspect all sites disturbing over 500 ft2 at least twice during construction activities. • Issue erosion control violations when ineffective erosion control is observed. • Issue stop work orders or fines if erosion control violations are not resolved. Timelines for corrections at construction sites are indicated on the inspection report given to the permit holder. Depending on the infraction, the timeline for correction could be 24, 48, 72 hrs. or other.	(1) Record the number of erosion control inspections conducted annually. (2) Report the number of written notices of non-compliance issued during inspections and the number of stop work orders issued annually.	(1) There were a total of 228 erosion control inspections conducted during the 2014-2015 reporting year. The larger sites with greater likelihood to have issues (i.e., Milwaukie Light Rail) were inspected more frequently. (2) There were 27 non-compliance notices issued and 4 stop work orders during the 2014-2015 reporting year. The timelines given for compliance were 24, 48 or 72 hours.	

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Element #4 Education and Outreach							
Provide Public Education and Outreach Materials Regarding Stormwater Management	O	O	City of Milwaukie Public Works Department	• 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." The City is working with the ACWA Groundwater Committee to create an Underground Injection Control flyer to be placed in all utility bills as an insert. The flyers are still being developed. They are intended to be sent out in the 2015-2016 Fiscal Year. The City also participated in the "Earth Day" Downtown Clean-up" on April 18th, 2015. This consisted of organizing a group of volunteers and businesses to assist with removing trash and debris from downtown area. (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. (4)The City of Milwaukie conducted its 11th annual "Leaf Drop Program." The Leaf Drop program allows residents to dispose of their leaves 5 Saturdays each year, in the months of November and December, during heavy leaf season, at no charge to the residents. We have also added one more location parking lot. (5)The Public Works department conducted a demonstration during Public Works Week in May of 2015 for school age children in grades 1-6 during the last permit year. (6)During the fiscal year 2014-2015, the Stormwater Division assigned rain garden maintenance to our New Landscape Maintenance worker. He has been maintaining 46 of them, and has started a plan for rehabbing rain gardens. (7)During the fiscal year 2014-2015, temporary summer workers installed medallions and painted stencils for our Public education. During the 2014-2015 reporting year, the storm crew did not place any "Dump No Waste, Drains to Streams" lids on our conveyance system manholes. (8)The City created a new design logo to use on stickers and magnets highlighting the connection between street runoff, and local streams and fish. These were handed out at all presentations. (9)The City purchased an Enviroscape Non-Point Source Pollution/Ground Water Pollution tabletop demonstration model. This model was used in presentations for all Elementary and Middle School children to demonstrate how non-point source pollution happens, and methods to mitigate it. (10)The City's stormwater outreach person visited Milwaukie High School and Rowe Middle School classes to talk and give video/PowerPoint presentations about stormwater, non-point source pollution, and the benefits of rain gardens and bioswales. Classes included 109 high school students and 228 middle school students (11)The City's Landscape Maintenance worker participated in a streamside planting for 62 students at Rowe Middle School, and led 109 students from Milwaukie High School in maintenance and planting of infiltration planters on the school grounds. (12)The City participated in Clackamas County Water Environment Team's Celebrating Water event, utilizing our Enviroscape model to demonstrate how non-point source pollution happens and how to mitigate it. 540 fourth and fifth grade students attended this event.	(1) The City of Milwaukie's public awareness programs are promoted on the City website and in the "Pilot" which is mailed to all City customers and residents. Programs promote healthy streams by keeping leaves out of the drains, and garbage from being dumped illegally.

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Participate in a Public Education Effectiveness Evaluation	O	O	City of Milwaukie Public Works Department	• Coordinate with other local, Phase 1 jurisdictions in providing/compiling information regarding a public education effectiveness evaluation by July 1, 2015.	(1) Report on activities conducted annually.	(1) 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. A proposal was received from DHM Consulting. ACWA coordinated with DEQ to ensure that the study would meet DEQ's intended requirements. ACWA developed a cost share breakdown among interested Phase I and Phase II communities, and Milwaukie has agreed to participate in the effort. The City of Milwaukie completed the Public Education Effectiveness Evaluation permit requirement and submitted this report to DEQ via e mail 6/29/2015, following with mailing a paper copy to the Municipal Stormwater Coordinator. The Coordinator acknowledged receipt of this report on 7/2/2015.	
Conduct Annual Staff Training	O	O	City of Milwaukie Public Works and Engineering Departments	• 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 2014-2015, the stormwater crew members attended Owen Equipment Training (for trouble shooting, operating and maintenance of the Vactor), and APWA Hydro Excavating classes. This consisted of a minimum of 8 hours of training for 3 days, totaling 24 hours of training for each employee. (2) The Storm department employs a total of 6.00 FTE. Three full-time Utility Worker I, one full time Utility Worker II, one full time Landscape Maintenance worker, a half time Environmental Services Coordinator, and half Supervisor. The duties include; infrastructure maintenance, inspections, spill response, street sweeping, responding to flooding/ citizen complaints, vehicle maintenance, training and education, administration and record keeping, assistance to the Engineering department, and leaf pick up, rain garden maintenance. (3) The Storm and Streets crews meet each morning for a minimum of 15 minutes to discuss stormwater issues, erosion issues, local projects and issues related and equipment needs for the day. They also discuss stormwater issues with the public, and updates to any NPDES SWMP changes or needs. (4) The Storm department has paid for the training and materials for the Landscape Maintenance worker to become a Certified Arborist by the International Society of Arboriculture. This worker can authoritatively inform and address city staff and the public about the benefits of street trees intercepting stormwater and reducing runoff; and to choose plants and maintain street trees for these benefits. (5) The Storm department sent the Landscape Maintenance worker to the Urban Forestry Summit in Tualatin, and the Oregon Department of Forestry's "Cost of not caring for your city's trees" seminar. These totaled 9.5 hours, and addressed issues of planning and maintenance of street trees, and their benefits to stormwater.	
Element #5 Public Involvement and Participation							
Provide for Public Participation with Submittals			City of Milwaukie Public Works Department	• 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	
Participate in Intergovernmental Coordination Efforts	O	O	City of Milwaukie Public Works and Engineering Department	• 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 Milwaukie 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. • Water Environment Federation. • ACWA Water Pollution Control Facility Permit Committee.	

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Element #6 Post-Construction Site Runoff							
Implement Municipal Development Codes	●	●	City of Milwaukie Engineering Department	• Until completion of the City's review and 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. • By November 1, 2014, review and revise if necessary, the City's design storm and inspection and enforcement response procedures to be in accordance with permit requirements.	(1) Track the number of development applications reviewed and approved for compliance with the stormwater regulations. (2) Track status of the design storm reviews. 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 stormwater regulations. The following applications were reviewed and approved during the 2014-2015 reporting year: • Commercial (New) = 1 • Commercial (Additions) = 0 • Residential (New) = 8 • Residential (Additions) = 7	Residential improvements do not trigger a Water Quality Facility Agreement. Any residential improvements will place water quality facilities in the right-of-way for the City to maintain. Commercial additions would require Water Quality Facility Agreement if the addition increases or changes more than 500 square feet of impervious surface. The additions that were approved last year were either internal or less than 500 square feet.
Element #7							
Conduct Street Sweeping and Roadway Repair Activities	●	●	City of Milwaukie Public Works Department	• 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.	(1) and (2) During fiscal year 2014-2015 our Streets maintenance department swept 1,057.30 miles of curbed streets and removed 1,465.39 cubic yards of debris.	
Minimize Water Quality Impacts Associated with Landscape Management Practices	○	○	City of Milwaukie Public Works Department and Clackamas County Parks Department	• 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) Track any policy and/or procedural changes associated with pest management activities within the City. (2) Track current number of staff licensed and certified for chemical application.	(1) During the reporting year 2013-2014, the Stormwater Department changed practice to only allow contractors and staff to apply minimal amounts of pesticides to vegetation growing between the street surface and the curb line, prior to installation of a crack seal and slurry seal. (2) Currently the City of Milwaukie does not have certified or licensed staff for large chemical applications. If the need arises, City staff would hire a licensed and certified contractor.	For many years the Stormwater staff has conducted manual removal of vegetation at all detention ponds and rain gardens and will continue to do so. Chemical application is a last resort only if the potential of the chemical entering the stormwater system is removed.
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	○	○	City of Milwaukie Public Works and Engineering Department	• 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 construction of the Decant facility in July of 2012 and is continually working to enhance the facility operations for more sediment removal. The SOP for the facility was completed and the public works crews have been trained on the proper operation of the facility.	Public Works crews thoroughly understand the procedure for dumping and storing the sweeper and vactor materials. All material dumped in the facility is recorded daily. Hard copies of the records are on file in the City of Milwaukie Public Works office.
Control Infiltration and Cross Connections to the Stormwater Conveyance System	●		City of Milwaukie Public Works and Engineering Department	• 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.	
Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvement	●	●	City of Milwaukie Public Works and Engineering Department	• 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 first CIP project was started in accordance with the approved plan and will be completed later this year, improving water quality within System 1. (2) As CIPs are constructed, the City's Asset Manager Technician incorporates as-builts into the Hansen system and City's GIS database for future mapping needs. No CIPs construction was completed 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 $1,718,000. (4) The City completed their Stormwater Master Plan in August 2013, which included an updated CIP list.	(3) $1,245,300 was allocated to the current project under construction.

2012 Best Management Practice or Activity	Addresses Bacteria?	Addresses Mercury?	Responsible Department	Measurable Goals (2012 SWMP)	Tracking Measures (2012)	Annual Report Information: Tracking Measure Status, Permit Year 2014-2015	Additional Detail Related to Activities Conducted
Element #8 Stormwater Management Facilities Operation and Maintenance							
Conduct Stormwater Conveyance System Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	• 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 Division video inspected 2.6% of storm mains. 52% of the catch basins and 100% of the sedimentation manholes were cleaned and inspected during FY 2014-2015. (2) The following volumes of debris were removed during conveyance cleaning activities: • 1600 linear feet of storm line were cleaned. Any and all debris were removed during the cleaning process. • 5,363.63 linear feet of storm lines were video inspected. • A total of 126 sediment manholes were cleaned for a total debris amount of 5.48 cubic yards of debris removed. • 25.68 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 2014-2015: • 5 Storm catch basins were repaired. • 6 Rain garden planting/replanting.	
Conduct Catch Basin Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	• 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 2014-2015 reporting year, 860 catch basins were cleaned which translates to 52% of the total public catch basins. (2) The following volume of debris was removed during catch basin cleaning activities: • Catch basins = 100.5 cubic yards.	
Private Water Quality Facility Maintenance Program	●	●	City of Milwaukie Public Works Department	• 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. In 2013-2014, the City did not receive any development applications or new private facility maintenance agreements.	
Public Structural Control Facility Cleaning and Maintenance	●	●	City of Milwaukie Public Works Department	• 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 2014-2015 reporting year, all public water quality facilities were inspected and/or maintained. • 590.16 hours of rain garden maintenance was completed. An estimated 15 cubic yards of debris were removed during maintenance. • 40.25 hours of detention pond maintenance was completed. No total of measurable amounts of debris to be obtained. The City's new Landscape Maintenance worker performed 481.16 hours of rain garden maintenance. Activities included weeding, debris removal, watering, pruning, tilling, and planting/transplanting.	

Appendix B

Milwaukie Monitoring Data

Instream and Outfall Monitoring

The instream monitoring location at Minthorn Spring Creek concentrations are similar with last year's (storm) data, and most parameters remaining stable or slightly increased in concentration. Contributing drainage areas to both monitoring locations had minor changes in land use or redevelopment during the permit year 2014–2015.

Table B-1 Environmental Monitoring Results—Instream
Minthorn Springs Creek at Harmony Road

ML_65015_C & ML_65015_G

Sample Date	7/30/2014 (dry)	10/22/2014 (storm)	2/5/2015 (storm)	5/12/2015 (dry)	2013/14 Mean	2014/15 Mean
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Colilert*	980	>2420	579	>2420	1298.8	1599**
Hardness	97	24	50	57	46	57
Nitrate-Nitrite	0.184	<0.18	0.221	9.3	0.487	2.47**
Orthophosphate	0.09	0.0563	<0.04	0.07	0.045	0.064**
Total Phosphate	0.20	0.06	0.09	0.11	0.1625	0.115
Copper	0.0006	0.0057	0.0043	0.0033	0.00617	0.00347
Lead	0.00062	0.00149	0.00128	0.00063	0.00343	0.00100
Zinc	0.00009	0.0016	0.027	0.022	0.03875	0.01267
TSS	11	17	21	9.0	41.75	14.5
Ammonia	<0.05	0.050	<0.05	<0.05	0.075	0.050**
BOD	<1.1	4.0	1.8	<4.0	3.05	2.725
Field Test						
Temperature (C)	21.1	15.0	10.6	13.7	12.4	15.1
pH	7.6	7.1	7.1	7.2	6.95	7.2
DO-mg/l	6.50	7.7	9.0	7.2	9.35	7.6
Conductivity	223.0	60.2	61.7	119.1	117.2	115.9
Rainfall in.	NA	0.67	0.20	NA		0.435

*= MPN/100ml

**= estimated mean calculated with a > or < value

The Minthorn site displayed a number of inconsistencies for monitoring year '14/15. TSS, BOD, and Ammonia results were fairly consistent, while Bacti, metals, and nutrients varied much more. The Nitrate-Nitrite sample taken during the 5/12/15 routine event was far over the other samples collected during the year and much higher than the mean of the '13/14 monitoring year. The lab was contacted about this result and questioned about the high result. The lab stated the QC passed for the analysis and it may just be an anomaly. The other Nitrate/Nitrite results are very consistent. Metals and TSS results exhibit a reduction in pollutants, while bacti, hardness, Nitrate-Nitrite results were mixed. BOD results are extremely low and in the third year of collection.

The flows in Minthorn Spring Creek feature a robust, resident, growing avian and wildlife population in the wetland area upstream from the point of compliance and may play a role in the sample result variances.

Table B-2 Environmental Monitoring Results—Outfall Roswell Outfall to Johnson Creek							
ML_23003_C							
Sample Date	10/22/2014	2/5/2015	5/12/2015	Min	Max	2013/14 Mean	2014/2015 Mean
	mg/l	mg/l	mg/L	mg/L	mg/L	mg/L	mg/L
Colilert*	>2420	488	120	120	>2420	1272**	1009**
Hardness	14	21	17	14	21	22.33	17.3
Nitrate-Nitrite	<0.18	<0.18	11.1	<0.18	11.1	0.391	3.82**
Orthophosphate	0.0772	<0.04	0.06	<0.04	0.0772	0.1167**	0.059**
Total Phosphate	0.11	0.10	0.07	0.07	0.11	0.1367**	0.093
Copper	0.0065	0.0061	0.0067	0.0061	0.0067	0.00486	0.00643
Lead	0.00147	0.00281	0.00062	0.00147	0.0062	0.00219	0.001633
Zinc	0.030	0.048	0.036	0.030	0.048	0.0413	0.0038
TSS	12	30	5.0	5.0	30	24	15.67
Ammonia	<0.05	<0.05	0.072	<0.05	0.072	0.0833**	0.057**
BOD	3.5	3.1	<4.0	<4.0	3.5	4.4	3.53**
Field Test							
Temperature (C)	16.2	10.2	14.1	10.2	16.2	10.83	13.5
pH	7.5	7.1	7.1	7.1	7.5	6.83	7.23
DO-mg/l	8.7	10.3	9.4	8.7	10.3	11.43	9.46
Conductivity	48.6	29.3	36.7	29.3	48.6	92.7	38.2
Rainfall in.	0.67	0.20	0.12	0.12	0.67	0.747	0.33

*= MPN/100ml

**= estimated mean calculated with a < or > value

Stormwater monitoring at Roswell Outfall showed improvements in water quality over last year's data. The arithmetic mean of storm results is lower than last year's data for most constituents. Bacti counts were increased with higher flows which are expected for urban stormwater. BOD results are extremely low and are in the third year of collection. Total metal results show a very consistent level for the drainage area represented independent of flows. 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.

Mercury Monitoring

Table B-2 Environmental Monitoring Results—Outfall Roswell Outfall to Johnson Creek						
ML_23003_C						
Sample Date	(Wet)	(Dry)			2011/12 Mean	2012/13 Mean
	ng/l	ng/l			mg/L	ng/L
Total Hg					Na	3.425
Dissolved Hg					Na	1.855
Total MeHg					Na	0.071
Dissolved MeHg					Na	0.0335
TSS					Na	12.2***
Field Test						
Temperature (C)						
pH						
DO-mg/l						
Conductivity						
Rainfall in.						

***= mg/L

Coordinated Mercury monitoring was conducted two times during permit year 2012/2013. This was completed through the considerable combined efforts of the communities of Lake Oswego, West Linn, Oregon City and the City of Milwaukie. Qualifying storms were evaluated and pursued by participating agencies to collect this data. Milwaukie Hg results are consistent between wet and dry conditions with the exception of dissolved Methyl Hg being higher during the dry monitoring period. As this is a new permit requirement for the City of Milwaukie, there is limited historical data for comparison.

The City of Milwaukie did not monitor stormwater for Mercury in 2014/2015. The City of Milwaukie was granted permission to eliminate Mercury monitoring from its sampling requirements in an email dated 4/16/2015 from Lisa Cox, DEQ Municipal Stormwater Coordinator.

Continuous Monitoring

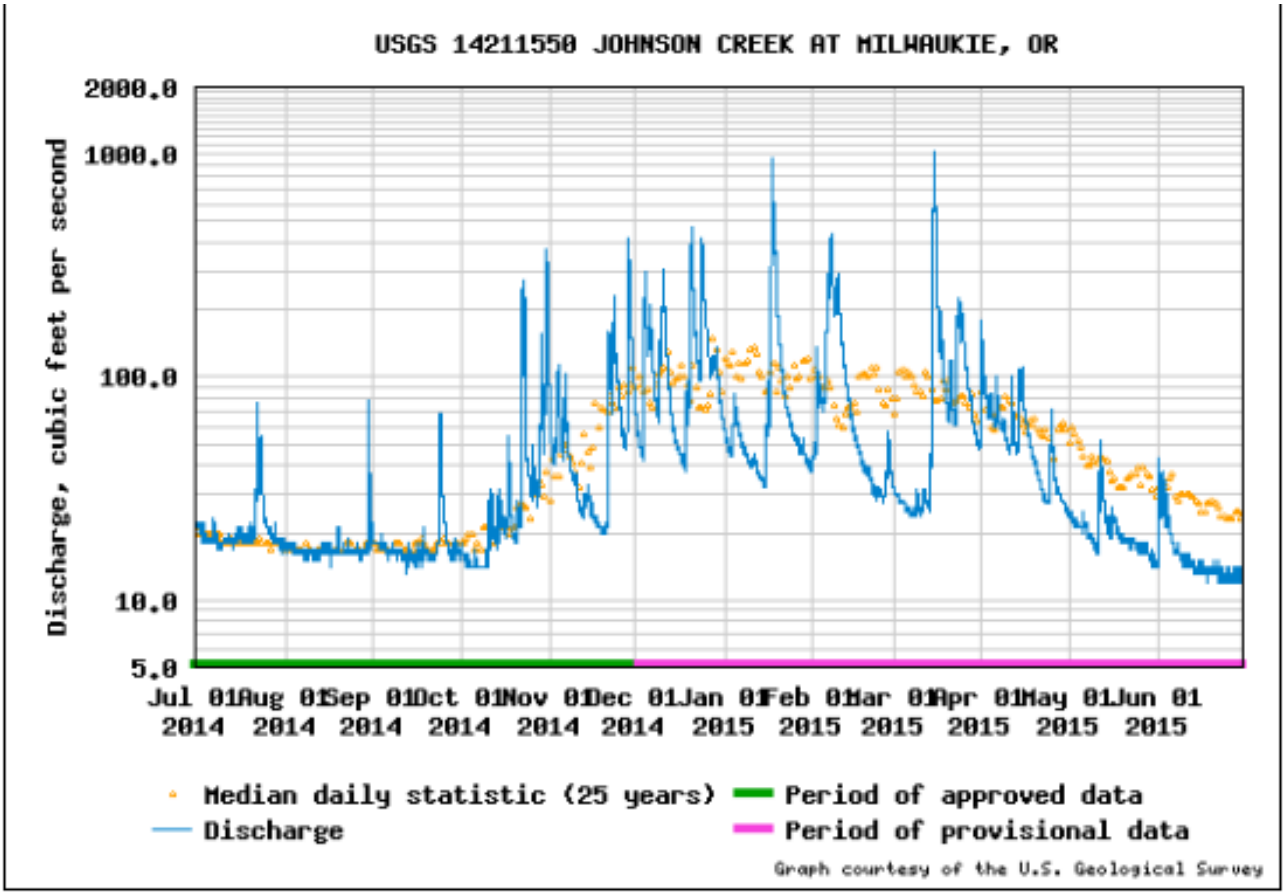
The City of Milwaukie continues to contract with the USGS for continuous hydrological monitoring of the Johnson Creek Basin at a cost of $8,200 per year. Milwaukie is joined in this effort with the Cities of Gresham, Damascus, and Portland, Multnomah and Clackamas Counties, and East Multnomah Soil and 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

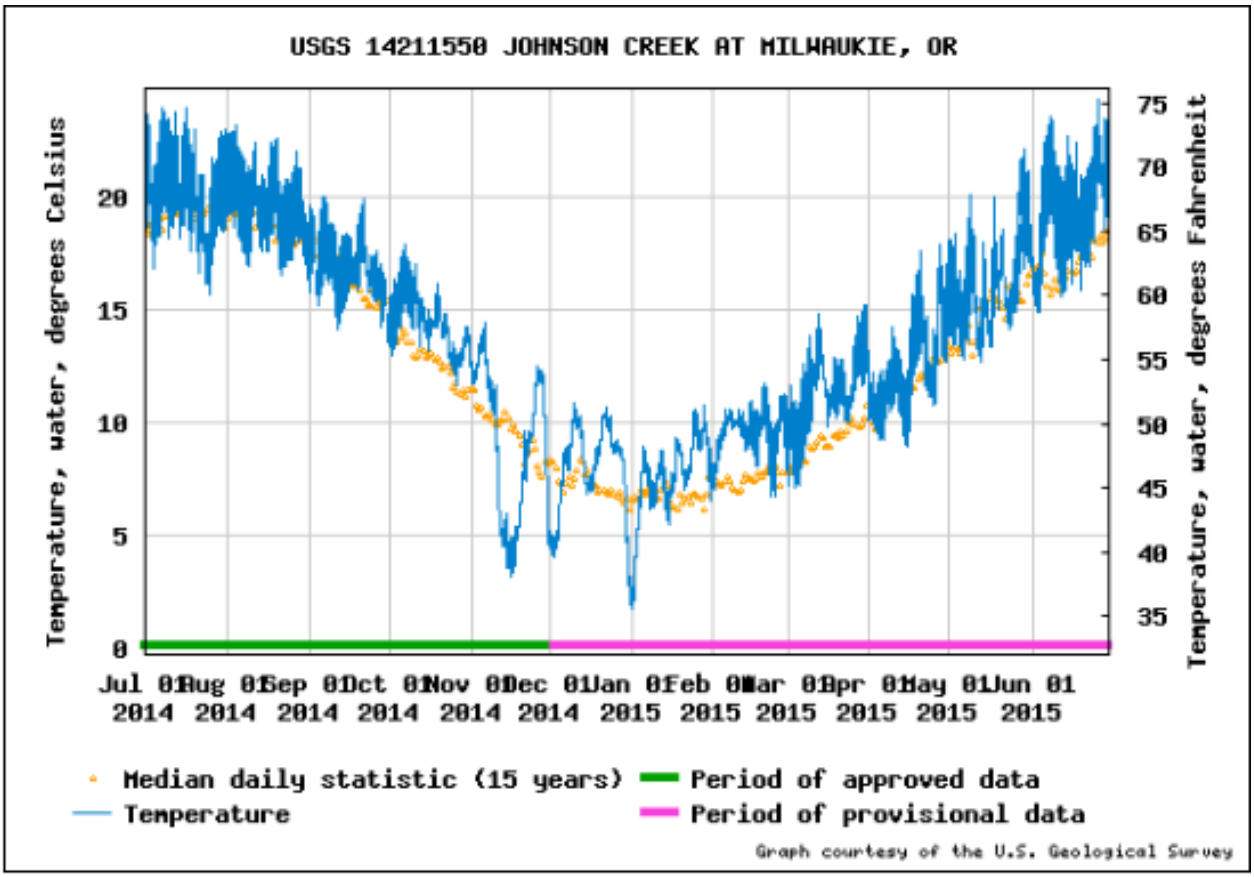
Continuous Monitoring Location information is as follows:

- 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 Milport Rd. Bridge, in the city limits of Milwaukie, at mile 0.7.



UPDATE INFO ABOVE

Continuous flow monitoring data at USGS site #14211550 located on Johnson Creek at SE Milport Road in Milwaukie, Oregon.



UPDATE INFO ABOVE

Continuous temperature monitoring data at USGS site #14211550 located on Johnson Creek at SE Milport Road in Milwaukie, Oregon.

Appendix C

TMDL Implementation Plan

Appendix C: Temperature Management Strategies

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) in June 2014. The 2014–2015 reporting year (July 2014–June 2015) is the first year of implementation of the 2014 TMDL Plan. This progress report provides a summary of the City's efforts during implementation year one.

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 a point source that is addressed under City's MS4 NPDES permit. Management strategies for nonpoint sources of 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 2014–2015 MS4 NPDES Annual Report, submitted to DEQ on November 1, 2015. 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 systems to unincorporated areas northeast of the City.

Status related to these additional activities to address bacteria reduction are described in Section 5.1 of the City's 2014-2015 MS4 NPDES Annual Report.

The City's progress towards implementing strategies to address temperature is summarized in Table C-1 of this technical memorandum. 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 would be expected to improve temperature in receiving waters.

On April 10, 2013, DEQ invited designated management agencies (DMAs) with TMDL obligations to a TMDL implementation workshop. The intent of the workshop was to: 1) provide background information and summarize TMDL implementation strategies conducted by select agencies, and 2) discuss the need for DEQ to conduct a 5-year look back on TMDL implementation this year (2013). At the time, the City of Milwaukie, along with other Clackamas County Phase I co-permittees, had only completed three years of TMDL implementation.

Currently, the City's status with regards to implementing their TMDL Plan is documented in the submitted TMDL annual reports, and this annual report supplements the previously submitted information.

Table C-1. TMDL Implementation Plan Management Strategies for Temperature Reduction				
BMP or Activity	**Commitment/ Implementation Strategy**	**Measurable Goal(s)**	**Implementation Tracking/Performance Measure**	**Lead Department/Division**
Riparian Area Management	Promote preservation, restoration, and enhancement of riparian and instream habitat on public and private lands.	Continue to implement Milwaukie Municipal Code (MMC) Section 19.402 – Natural Resources and Comprehensive Plan Chapter 3 to address Title 3 and Title 13 requirements relative to designated water quality resource areas (including vegetated corridors) and habitat conservation areas (HCA) that may provide effective shade for surface waters.	• Annually track any changes to ordinances applicable to the MMC and Comprehensive Plan related to Title 3/ 13 compliance.	Engineering
		By November 1, 2014, review current development review processes with respect to development in a natural resource area. Refine the process to better track mitigation requirements and responsibilities.	• Annually track changes to development review processes.	Engineering
		By November 1, 2015, initiate a desktop analysis/ GIS analysis to identify and prioritize riparian areas and vegetated stream buffers for vegetation enhancement. This effort may be conducted in conjunction with the hydromodification assessment requirement in the NPDES MS4 permit.	• Annually track efforts to map and prioritize shade opportunity areas. • As applicable, document planting activities on public properties.	Engineering
		During the desktop analysis to identify and prioritize riparian areas for vegetation enhancement, identify potential areas of cold water refugia and incorporate into the prioritization efforts.	N/A	
		Continue working with METRO to establish and implement drainage policies specific for Johnson Creek.	• Annually document coordination efforts with METRO.	Engineering
		Partner with watershed councils (e.g., Johnson Creek Watershed Council)) in support of riparian planting projects. Partnership may include in-kind staff participation on governing boards, technical/ permitting support for sponsored projects within the City, or financial contributions.	• Annually document partnership efforts.	Engineering
		Research incentive options (including a funding source) for riparian habitat restoration efforts on private property.	• As applicable, track efforts to develop incentives to improve riparian habitat on private property.	Engineering
Kellogg Creek Dam Removal	Continue efforts to remove Kellogg Creek Dam, return Kellogg Lake to a stream condition, and revegetate the affected area.	Continue coordinating with partners in pursuit of the Kellogg Creek Dam Removal project	• Annually track progress on the project.	Community Development
Implement Stormwater Design Standards	Continue implementation and refinement of the City's stormwater design standards, which include provisions to prioritize use of infiltration-based stormwater treatment.	By November 1, 2014, review and update stormwater design standards to include additional guidance for stormwater treatment using infiltration practices.	• As applicable, document changes to stormwater design standards.	Engineering
Public Education for Temperature Management	Continue to provide articles regarding temperature related issues and shade preservation efforts in the City newsletter and direct mailings.	Distribute one article annually on temperature issues and management approaches. Promote regional programs targeted at improving habitat on private property. Continually distribute information regarding regional programs in City outlets.	• Annually track the number and content of temperature – related articles, commercials/ advertisements, or notices distributed to City residents.	Public Works
Environmental Monitoring	Monitor temperature in surface waters to document status and evaluate trends with respect to water quality standards.	In conjunction with NPDES MS4 requirements, conduct time-weighted composite and grab sampling for temperature at required instream monitoring locations. To the extent that an intergovernmental agreement is maintained by all parties, continue participation with USGS on continuous monitoring efforts on Johnson Creek.	• As applicable, annually report any modification to existing temperature monitoring activities. • As applicable, annually confirm existing agreements and track new efforts to coordinate with other Clackamas co-permittees, existing cost-share partners, and the USGS to maintain the Johnson Creek USGS stream gauge.	Public Works