CITY OF MILWAUKIE'S STORMWATER MANAGEMENT PLAN (2011)

SWMP Overview

In accordance with the City of Milwaukie's Municipal Separate Storm Sewer (MS4) National Pollutant Discharge Elimination System (NPDES) Permit, Permit number 101348 and effective date March 15, 2011, the City of Milwaukie implements the following Stormwater Management Plan (SWMP). This SWMP (dated 2011) was developed based on an iterative review process with the Oregon Department of Environmental Quality (DEQ). This SWMP was originally submitted to DEQ in accordance with the City's MS4 NPDES Permit Renewal Application (September 2008), and has since been updated to correspond with permit language reflected in the City's issued MS4 NPDES permit.

City of Milwaukie SWMP (2011)

The SWMP is organized into the eight major stormwater program elements listed below. The eight major elements correspond to those outlined in the MS4 NPDES permit (i.e., Schedule A(4)(a-h).

Element #1:	Illicit Discharge Detection and Elimination
Element #2:	Industrial and Commercial Facilities
Element #3:	Construction Site Runoff Control
Element #4:	Education and Outreach
Element #5:	Public Involvement and Participation
Element #6:	Post-Construction Site Runoff
Element #7:	Pollution Prevention for Municipal Operations
Element #8:	Stormwater Management Facilities Operation and Maintenance Activities

SWMP Element #1
Illicit Discharge Detection and Elimination

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.a of the City's MS4 NPDES Permit. **See Table 1** for the City of Milwaukie's BMPs that address the permit requirements that are listed below.

SWMP Element #1: Illicit Discharge Detection and Elimination				
	Applicable BMPs			
Schedule A.4.a Permit Requirement	Implement the Illicit Discharges Elimination Program	Conduct Annual Dry Weather Field Screening	Implement the Spill Response Program	Minimize Water Quality Impacts from Water Line Flushing
i. Prohibit, through ordinance or other regulatory mechanism, illicit discharges into the co-permittee's MS4.	■			
ii. Describe enforcement response procedures by November 1, 2011.	■			
iii. Develop or identify pollutant parameter action levels that will be used as part of the field screening to identify the source of an illicit discharge or other type of discharge….by November 1, 2011.		■		
iv. Conduct annual dry-weather inspection activities during the term of the permit. The dry-weather field screening activities must be documented and include: 1) General observation; 2) Field Screening; and 3) Laboratory Analysis.		■		

SWMP Element #1: Illicit Discharge Detection and Elimination				
	Applicable BMPs			
Schedule A.4.a Permit Requirement	Implement the Illicit Discharges Elimination Program	Conduct Annual Dry Weather Field Screening	Implement the Spill Response Program	Minimize Water Quality Impacts from Water Line Flushing
v. Identify response procedures to investigate portions of the MS4 that, based on the results of general observations, field screening, laboratory analysis….indicates the likely presence of an illicit discharge.		■		
vi. Maintain a system for documenting illicit discharge complaints or referrals and suspected illicit discharge investigation activities.	■			
vii. Take appropriate action to remove illicit discharges from the MS4 within 5 working days of detection…. If elimination will take more than 15 days…the co-permittee must develop and implement an action plan in an expeditious manner. The action plan must be completed within 20 working days of determining the source of an illicit discharge. The action plan, response procedures, response plan or similar document must include a timeframe for elimination as soon as practicable.	■			
viii. Describe and implement procedures to prevent, contain, respond to and mitigate spills that may discharge into the MS4….			■	
ix. In the case of a known illicit discharge that originates within the co-permittee's MS4 regulated area and that discharges directly to a storm sewer system or property under the jurisdiction of another municipality, the co-permittee must notify the affected municipality as soon as practicable, and at least within one working day of becoming aware of the discharge.	■			
x. In the case of a known illicit discharge that is identified within the co-permittees MS4 regulated area, but is determined to originate from a contributing storm sewer system or property under the jurisdiction of another municipality, the City must notify the contributing municipality or municipality with jurisdiction as soon as practicable, and at least within one working day of identifying the illicit discharge.	■			

SWMP Element #1: Illicit Discharge Detection and Elimination				
	Applicable BMPs			
Schedule A.4.a Permit Requirement	Implement the Illicit Discharges Elimination Program	Conduct Annual Dry Weather Field Screening	Implement the Spill Response Program	Minimize Water Quality Impacts from Water Line Flushing
xi. Maintain maps identifying known co-permittee owned MS4 outfalls discharging to waters of the State. The dry-weather screening priority locations must be identified on maps by July 1, 2012.		■		
xii. Unless identified as a significant source of pollutants to waters of the State by a co-permittee or the Department, the following non-stormwater discharges are not considered illicit discharges: (see Schedule A.4.a.xi for list of discharges). If a non-stormwater discharge is identified as a significant source of pollutants, the co-permittees must develop and require implementation of appropriate BMPs to reduce the discharge of pollutants associated with the source.				■

TABLE 1 – Illicit Discharge Detection and Elimination BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) Prohibit, through ordinance or other regulatory mechanism, illicit discharges into the co-permittee's MS4.*		
NPDES Permit Requirement – *(ii) Include documentation in an enforcement response plan or similar document by November 1, 2011 describing the enforcement response procedures the co-permittee will implement when an illicit discharge investigation identifies a responsible party.*		
NPDES Permit Requirement – *(vi) Maintain a system for documenting illicit discharge complaints or referrals, and suspected illicit discharge investigation activities.*		
NPDES Permit Requirement – *(vii) Once the source of an illicit discharge is determined, the co-permittee must take appropriate action to eliminate the illicit discharges, including an initial evaluation of the feasibility to eliminate the discharge, within 5 working days. If the co-permittee determines that the elimination of the illicit discharge will take more than 15 working days due to technical, logistical or other reasonable issues, the co-permittee must develop and implement an action plan to eliminate the illicit discharge in an expeditious manner. The action plan must be completed within 20 working days of determining the source of an illicit discharge. In lieu of developing and implementing an individual action plan for common types of illicit discharges, the co-permittee may document and implement response procedures, a response plan or similar document. The action plan, response procedures, response plan or similar document must include a timeframe for elimination of the illicit discharge as soon as practicable.*		
NPDES Permit Requirement – *(ix) In the case of a known illicit discharge that originates within the co-permittee's MS4 regulated area and that discharges directly to a storm sewer system or property under the jurisdiction of another municipality, the co-permittee must notify the affected municipality as soon as practicable, and at least within one working day of becoming aware of the discharge.*		
NPDES Permit Requirement – *(x) In the case of a known illicit discharge that is identified within the co-permittee's MS4 regulated area, but is determined to originate from a contributing storm sewer system or property under the jurisdiction of another municipality, the co-permittee must notify the contributing municipality or municipality with jurisdiction as soon as practicable, and at least within one working day of identifying the illicit discharge.*		

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Implement the Illicit Discharges Elimination Program	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie prohibits illicit discharges to their MS4 system in conjunction with their Milwaukie Municipal Code (MMC) 13.14.025, MMC 13.14.100, and MMC 13.14.105. The City has the authority to conduct appropriate response procedures and enforce against responsible parties per MMC 13.14.115. The Public Works director will be notified of all positive identifications of illicit connections and the City will conduct appropriate action to remove the illicit discharge in accordance with the City's Illicit Discharge Detection and Elimination Standard Operating Procedures (IDDE SOP) manual to be developed by November 1, 2011. The manual will be developed and implemented to address the City's MS4 NPDES permit requirements for illicit discharges. Currently, illicit discharges suspected and/or identified by City staff (either independently or in conjunction with public reporting) are recorded in a tracking database. Procedures for recording such discharges and appropriate follow up activities will be outlined in the IDDE SOP. **Measurable Goals:** • Document and implement the details of the City's IDDE program in a Standard Operating Procedures manual by November 1, 2011. • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(iii) Develop or identify pollutant parameter action levels that will be used as part of the field screening. The action levels will identify concentrations for identified pollutants that, if exceeded, will require further investigation, including laboratory sample analyses, to identify the source of the illicit discharge. The pollutant parameter action levels and rationale for using the action levels must be documented in an enforcement response plan or similar document, and reported to the Department by November 1, 2011.* **NPDES Permit Requirement** – *(iv) Conduct annual dry-weather inspection activities during the term of the permit. By July 1, 2012, the dry-weather inspection activities must include annual field screening of identified priority locations documented by the co-permittee. Priority locations must, where possible, be located at an accessible location downstream of any source of suspected illegal or illicit activity or other location as identified by the co-permittee. Priority locations must be based on an equitable consideration of hydrological conditions, total drainage area of the location, population density of the location, traffic density, age of the structures or buildings in the area, history of the area, land use types, personnel safety, accessibility, historical complaints or other appropriate factors as identified by the co-permittee. The dry-weather field screening activities must occur after an antecedent dry period of at least 72-hours. The dry-weather field screening activities must be documented and include 1) General observations, 2) Field Screening, and 3) Laboratory Analysis.* **NPDES Permit Requirement** – *(v) Identify response procedures to investigate portions of the MS4 that, based on the results of general observations, field screening, laboratory analysis or other relevant information, such as a complaint or referral, indicates the likely presence of an illicit discharge. The response procedures must reflect the goal to eliminate the illicit discharge in an expeditious manner.* **NPDES Permit Requirement** – *(xi) Maintain maps identifying known co-permittee-owned MS4 outfalls discharging to waters of the State. The dry-weather screening priority locations must be specifically identified on maps by July 1, 2012. If the co-permittee identifies the need to modify these maps, the maps must be updated in digital or hard-copy within six months of identification.*		
Conduct Annual Dry Weather Field Screening	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie conducts illicit discharge inspections, monitoring, and investigations annually during dry-weather conditions (typically between July and September) at all priority outfall locations. Priority outfall locations are determined according to the size of the outfall's drainage area and the relative land uses in the drainage area. Trained personnel complete data inspection forms, which are kept on file at the City. Dry weather flows are inspected for a variety of visual characteristics, and sources of flows are characterized as either permissible (listed in Schedule A4.a.xii of the MS4 NPDES permit) or non-permissible. If non-permissible discharges are suspected, sampling, analysis, and investigation are conducted according to the following procedures: 1. Using a drainage map and other source identification data, an attempt is made to locate the potential sources upstream of the discharge location. 1. Potential sources are investigated using one or more of the following techniques: onsite inspections, dye testing, and/or TV inspection of lines. 2. In some cases, where deemed necessary, a water sample is taken and analyzed for the suspected contaminant group. The City will improve upon this process by developing pollutant parameter action levels to assist in the identification of non-permissible discharges by November 1, 2011.	(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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
	As described in the BMP: Implement the Illicit Discharges Elimination Program, these activities and procedures will be documented in an IDDE SOP by November 1, 2011. **Measurable Goals:** • 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, 2011. • Annually maintain a map of dry weather screening priority locations (i.e., priority outfalls).	

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(viii) Describe and implement procedures to prevent, contain, respond to and mitigate spills that may discharge into the MS4. Spills, or other similar illicit discharges, that may endanger human health or the environment must be reported in accordance with all applicable federal and state laws, including proper notification to the Oregon Emergency Response System.*		
Implement the Spill Response Program	**BMP Owner:** City of Milwaukie Public Works Department and Clackamas County Fire District No. 1 Hazardous Materials Team **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie Public Works Department responds to non-hazardous spills within the City. For non-hazardous materials (oil and grease, paint, sewage), spills are generally reported by citizens or observed by Public Works staff. Spill response associated with non-hazardous materials generally involves application of absorbent pads and booms to prevent discharges from entering the stormwater conveyance system and to dispose of all contained materials. All Public Works vehicles are currently being equipped with containment materials so that in the event a spill is discovered, the vehicles can respond promptly. In addition, a Spill and Illicit Discharge Investigation Form is also in each Public Works vehicle, which outlines the procedures for collecting information pertaining to a spill. If necessary, the Public Works Department will report the incident to the Oregon Emergency Response System (OERS). Clackamas County Fire District No. 1 Hazardous Materials Team responds to chemical and hazardous waste spills within the City. Generally, all emergency calls reporting a spill are forwarded to the Fire Department. Procedures for response are outlined in the City's "Emergency Operations Plan". The City of Milwaukie also belongs to the NPDES Stormwater Spill Committee, which includes a number of local jurisdictions including Water Environment Services, ODOT, City of Gresham, Portland BES, and the Port of Portland. The committee meets periodically to discuss different spill reporting and response techniques. **Measurable Goals:** • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(xii) Unless the following non-stormwater discharges are identified in a particular case as a significant source of pollutants to waters of the State by the permittee or the Department, they are not considered illicit discharges and are authorized by this permit: water line flushing; landscape irrigation; diverted stream flows; rising ground waters; uncontaminated groundwater infiltration; uncontaminated pumped ground water; discharges from potable water sources; start up flushing of groundwater wells; potable groundwater monitoring wells; draining and flushing of municipal potable water storage reservoirs; foundation drains; air conditioning condensate; irrigation water; springs; water from crawl space pumps; footing drains; lawn watering; individual residential car washing; charity car washing; flows from riparian habitats and wetlands; dechlorinated swimming pool discharges; street wash waters; discharges of treated water from investigation, removal and remedial actions selected or approved by the Department pursuant to Oregon Revised Statute (ORS) Chapter 465; and, discharges or flows from emergency fire fighting activities. If any of these non-stormwater discharges under the co-permittee's jurisdiction is a significant source of pollutants, the permittee must develop and require implementation of appropriate BMPs to reduce the discharge of pollutants associated with the source.*		
Minimize Water Quality Impacts Related to Water Line Flushing	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie conducts periodic water line flushing throughout the City to ensure the quality of the water system. Depending on the size of the discharge, the capacity of the receiving stream, and the level of chlorination required, discharges from water line flushing could potentially have an impact on streams with respect to concentrations of chlorine. The City of Milwaukie requires all chlorinated water associated with the flushing of new and existing waterlines to be dechlorinated to a maximum allowable residual chlorine concentration of 0.1 mg/L or less, in accordance with DEQ's requirements for discharge. Chlorine residual is constantly monitored at all entry points to the City's distribution system and always monitored during water line flushing. Dechlorinated water is land disposed when practicable. If land disposal is not feasible, the City of Milwaukie discharges dechlorinated waters to the storm sewer. Prior to discharge in the receiving waters, the City of Milwaukie ensures that adequate travel distance (1000' per DEQ guidance) is achieved, even after dechlorination, to minimize any additional impacts associated with surface disposal of water from water line flushing. The chlorination/dechlorination requirements are covered in pre-construction meetings and called out in contract documents. Engineering, stormwater, and drinking water staff have the ability to monitor chlorine residual. Microbial sampling logs and daily logs document the water system chlorine levels and the telemetry SCADA system documents the chlorine residual at all entry points at all times. **Measurable Goals:** • 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/dechlorination 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.

SWMP Element #2
Industrial and Commercial Facilities

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.b. **See Table 2** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #2: Industrial and Commercial Facilities		
	Applicable BMP	
Schedule A.4.b Permit Requirement	Screen Existing and New Industrial Facilities	Conduct Industrial and Commercial Inspections
i. Screen existing and new industrial facilities to assess whether they have the potential to be subject to an industrial stormwater NPDES permit or have the potential to contribute a significant pollutant load to the MS4.	■	
ii. Within 30 days after the facility is identified, notify the industrial facility and the Department that an industrial facility is potentially subject to an industrial stormwater NPDES permit.	■	
iii. Implement an updated strategy to reduce pollutants in stormwater discharges to the MS4 from industrial and commercial facilities…The strategy must include a description of the rationale for identifying commercial and industrial facilities as a significant contributor, and establish the priorities and procedures for inspection of and implementation of stormwater control measures. The strategy must be implemented by January 1, 2013, and applied within one calendar year from the date a new source contributing a significant pollutant load to the MS4 has been identified.		■

TABLE 2 – Industrial and Commercial Facility BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) Screen existing and new industrial facilities to assess whether they have the potential to be subject to an industrial stormwater NPDES permit or have the potential to contribute a significant pollutant load to the MS4.* **NPDES Permit Requirement** – *(ii) Within 30 days after the facility is identified, notify the industrial facility and the Department that an industrial facility is potentially subject to an industrial stormwater NPDES permit.*		
Screen Existing and New Industrial Facilities	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** Once during the permit term, the City of Milwaukie will review their existing business license inventory and new industrial development that reside within the City limits, applications to determine whether any existing or new facilities would be subject to an industrial stormwater NPDES permit. This determination will occur based on a review of the facilities proposed activities and the applicable SIC or NAICS codes related to the 1200-series NPDES permit. If a facility is identified that would be subject to an industrial stormwater NPDES permit, the facility and DEQ will be notified within 30 days. **Measurable Goals:** • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(iii) Implement an updated strategy to reduce pollutants in stormwater discharges to the MS4 from industrial and commercial facilities where site-specific information has identified a discharge as a source that contributes a significant pollutant load to the MS4. The strategy must include a description of the rationale for identifying commercial and industrial facilities as a significant contributor, and establish the priorities and procedures for inspection of and implementation of stormwater control measures. This strategy must be implemented by January 1, 2013, and applied within one calendar year from the date a new source contributing a significant pollutant load to the MS4 has been identified.*		

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Conduct Industrial and Commercial Inspections	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** On an annual basis, the City of Milwaukie will update and maintain an inventory of all industrial facilities in the permit area that are covered by a 1200-Z permit. Onsite industrial inspections will occur at 1200-Z permitted facilities that discharge to the City's MS4. The City will also conduct on-site inspections of commercial and industrial food service facilities required to install grease traps or grease interceptors per the City's Fat, Oil and Grease (FOG) Program (MMC 13.12.063). During these inspections the City visually inspects the outdoor storage areas for possible impacts to the MS4. The City will develop a standard operating procedure for FOG inspections before January 1, 2013. The City may potentially conduct periodic inspections of other high priority facilities not previously inspected under the above-mentioned program if specific concerns arise or are reported through citizen complaints or if the facility has been identified as having the potential to contribute a significant pollutant load to the MS4. Inspection forms will be filled out, documenting the results of each inspection. A standard operating procedures document (SOP) will be developed to document the inspections and implementation of strategies by January 1, 2013. **Measurable Goals:** • 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 January 1, 2013. • Develop an SOP for the FOG inspection program by January 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.

SWMP Element #3
Construction Site Runoff Control

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.c. **See Table 3** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #3: Construction Site Runoff Control			
	Applicable BMPs		
Schedule A.4.c Permit Requirement	Implement Erosion Control For New and Redevelopment	Provide Educational Information to Construction Site Operators	Conduct Erosion Control Inspections
i. Include ordinances or other enforceable regulatory mechanism that require erosion and sediment controls to be designed, implemented, and maintained to prevent adverse impacts to water quality and minimize the transport of contaminants to waters of the State. By January 1, 2014, the construction site runoff control program ordinances or other enforceable regulatory mechanism must apply to construction activities that result in land disturbance of 1,000 square feet or greater.	■	■	
ii. Require construction site operators to develop site plans, and to implement and to maintain effective erosion and sediment control best management practices.	■	■	
iii. Require construction site operators to prevent or control non-stormwater waste that may cause adverse impacts to water quality, such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste.	■	■	
iv. Describe site plan review procedures to ensure stormwater BMPs are appropriate and address the construction activities being proposed. At a minimum, construction site erosion and sediment control plans for sites disturbing one acre or greater must be consistent with the substantive requirements of the State of Oregon's 1200-C permit site erosion prevention and sediment control plans.	■	■	

SWMP Element #3: Construction Site Runoff Control			
	Applicable BMPs		
Schedule A.4.c Permit Requirement	Implement Erosion Control For New and Redevelopment	Provide Educational Information to Construction Site Operators	Conduct Erosion Control Inspections
v. Co-permittees must perform on-site inspections in accordance with documented procedures and criteria to ensure the approved erosion and sediment control plan is properly implemented…. Inspections must be documented, including photographs and monitoring results as appropriate.			■
vi. Describe in an enforcement response plan or similar document the enforcement response procedures the co-permittee will implement. The enforcement response procedures must use all means necessary to ensure construction activities are in compliance with the ordinances or other regulatory mechanisms.			■

TABLE 3 – Construction Site Runoff Control BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) Include ordinances or other enforceable regulatory mechanisms that require erosion prevention and sediment controls to be designed, implemented, and maintained to prevent adverse impacts to water quality and minimize the transport of construction-related contaminants to waters of the State. By January 1, 2014, the construction site runoff control program ordinances or other enforceable regulatory mechanism must apply to construction activities that result in a land disturbance of 1,000 square feet or greater.* **NPDES Permit Requirement** – *(ii) Require construction site operators to develop erosion prevention and sediment control site plans, and to implement and to maintain effective erosion prevention and sediment control best management practices.* **NPDES Permit Requirement** – *(iii) Require construction site operators to prevent or control non-stormwater waste that may cause adverse impacts to water quality such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste.* **NPDES Permit Requirement** – *(iv) Describe site plan review procedures to ensure that stormwater BMPs are appropriate and address the construction activities being proposed. At a minimum, construction site erosion prevention and sediment control plans for sites disturbing one acre or greater must be consistent with the substantive requirements of the State of Oregon's 1200-C permit site erosion prevention and sediment control plans.*		
Implement Erosion Control for New and Redevelopment	**BMP Owner:** City of Milwaukie Public Works Department and Engineering Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie reviews all site plans for new and re-development for compliance with the City's Erosion Control Standards, which define requirements for erosion control plans including the implementation of structural and non-structural BMPs for all sites disturbing an area over 500 ft^2. The City has adopted the Clackamas County "*Erosion Prevention and Sediment Control Planning and Design Manual (2008)"* in its Municipal Code, which contains erosion control plan submittal requirements and recommended erosion control measures. The document also includes measures related to good housekeeping and addressing non-stormwater related waste. This document is periodically updated and includes suggested structural and non-structural erosion control BMPs. For sites disturbing one acre or greater, a 1200-C permit is typically also required, as issued by DEQ. Currently, however, under the 1200CN permit, Milwaukie has an IGA with DEQ that covers sites that are between one and five acres. For these sites, 1200-C permits are not required to be obtained from DEQ as it is assumed that erosion control will be adequately addressed through the City's erosion control program. For sites disturbing five acres or greater, in addition to meeting City requirements, a 1200-C permit is still required as issued by DEQ and consistent with the requirements of DEQ's 1200-C Guidance Manual. While the IGA and/or 1200CN permit have the potential to change, and hence the need to obtain 1200-C permits may change, the City's erosion control standards will continue to apply to sites that are 500ft^2 or greater.	(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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
	During the plan review process, new and re-development will be assessed for compliance with the City erosion control standards and provisions outlined in the guidance document. Plans not in compliance with those documents will not be approved and will be required to implement appropriate erosion control techniques prior to approval and issuance of an erosion control permit. Plumbing and electrical permits are not issued until an erosion control permit is issued. **Measurable Goals:** • Require structural and non-structural erosion and sediment control BMPs for all construction sites disturbing an area greater than 500 ft^2. • Require sites disturbing over 500 ft^2 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.	
Provide Educational Information to Construction Site Operators	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie makes available their technical guidance manual, the *Clackamas County Erosion Prevention and Sediment Control Planning and Design Manual* (revised Dec. 2008) to engineers, contractors, and the general public. The City of Milwaukie's website also contains the City's Erosion Control Standards, a digital version of the Technical Guidance Handbook, and the Erosion Control permit application. The City of Milwaukie continues to partner with Clackamas County Water Environment Services (WES), the City of Oregon City, and the Homebuilders Association of Portland to provide the Erosion Control Certification program, which includes a four-hour course in erosion control fundamentals. Contractors that participate receive discounts on erosion control permit fees. **Measurable Goals:** • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(v) Co-permittees must perform on-site inspections in accordance with documented procedures and criteria to ensure that the approved erosion prevention and sediment control plan is properly implemented. Inspections of construction sites must include disturbed areas of the site, material and waste storage areas, stockpile areas, construction site entrances and exits, sensitive areas, discharge locations to the MS4, and, if appropriate, discharge locations to receiving waters. Inspections must be documented, including photographs and monitoring results as appropriate.* **NPDES Permit Requirement** – *(vi) Describe in an enforcement response plan or similar document the enforcement response procedures the co-permittee will implement. The enforcement response procedures must ensure construction activities are in compliance with the ordinances or other regulatory mechanisms.*		
Conduct Erosion Control Inspections	**BMP Owner:** City of Milwaukie Public Works **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie's Stormwater Specialist initially inspects all new and redevelopment sites (of 500 ft^2 or greater) for proper implementation of erosion control measures. Construction sites are inspected on average every two weeks, more frequently during high activity periods or based on the results of the previous inspections. For sites with an erosion control violation or where ineffective erosion control is observed, a Notice of Non-compliance may be issued, and contractors are required to install effective control measures. If not resolved within the required time frame, fines or Stop Work Orders are issued. The City has implemented a standard operating procedure for Erosion Inspections and Enforcement. **Measurable Goals:** • Inspect all sites disturbing over 500 ft^2 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.

SWMP Element #4
Education and Outreach

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.d. **See Table 4** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #4: Education and Outreach			
	Applicable BMPs		
Schedule A.4.d Permit Requirement	Provide Public Education and Outreach Materials Regarding Stormwater Management	Participate in a Public Education Effectiveness Evaluation	Conduct Annual Staff Training
i. Continue to implement a documented public education and outreach strategy that promotes pollutant source control and a reduction of pollutants in stormwater discharges….The public education and outreach strategy may incorporate cooperative efforts with other MS4 regulated permittees or efforts by other groups or organizations provided a mechanism is developed and implemented to track the public education and outreach efforts within the MS4 regulated area and the results of such efforts are reported annually.	■		
ii. Provide educational materials to the community or conduct equivalent outreach activities describing the impacts of stormwater discharges on water bodies and the steps or actions the public can take to reduce pollutants in stormwater runoff.	■		
iii. Provide public education on the proper use and disposal of pesticides, herbicides, fertilizers and other household chemicals.	■		

SWMP Element #4: Education and Outreach			
	Applicable BMPs		
Schedule A.4.d Permit Requirement	Provide Public Education and Outreach Materials Regarding Stormwater Management	Participate in a Public Education Effectiveness Evaluation	Conduct Annual Staff Training
iv. Provide public education on the proper operation and maintenance of privately-owned or operated stormwater quality management facilities.	See Element #8: BMP: Private Water Quality Facility Maintenance Program		
v. Provide notice to construction site operators concerning where education and training to meet erosion and sediment control requirements can be obtained.	See Element #3: Construction Site Runoff Control BMP: Provide Educational Information to Construction Site Operators		
vi. Conduct or participate in an effectiveness evaluation to measure the success of public education activities during the term of this permit. The effectiveness evaluation must focus on assessing changes in targeted behaviors. The results of the effectiveness evaluation must be used in the adaptive management of the education and outreach program.		■	
vii. Include training for municipal employees involved in MS4-related activities, as appropriate. The training should include stormwater pollution prevention and reduction from municipal operations, including, but not limited to, parks and open space maintenance, fleet and building maintenance, new municipal facility construction and related land disturbances, design and construction of street and storm drain systems, discharges from non-emergency fire fighting-related training activities, and stormwater system maintenance.			■
viii. Promote, publicize and facilitate public reporting of illicit discharges through the use of newspapers, newsletters, utility bills, door hangars, radio public service announcements, videos, televised council meetings, brochures, signs, posters or other effective methods.	■		

TABLE 4 – Education and Outreach BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) Continue to implement a documented public education and outreach strategy that promotes pollutant source control and a reduction of pollutants in stormwater discharges….The public education and outreach strategy may incorporate cooperative efforts with other MS4 regulated permittees or efforts by other groups or organizations provided a mechanism is developed and implemented to track the public education and outreach efforts within the MS4 regulated area and the results of such efforts are reported annually.* **NPDES Permit Requirement** – *(ii) Provide educational materials to the community or conduct equivalent outreach activities describing the impacts of stormwater discharges on water bodies and the steps or actions the public can take to reduce pollutants in stormwater runoff.* **NPDES Permit Requirement** – *(iii) Provide public education on the proper use and disposal of pesticides, herbicides, fertilizers and other household chemicals.* **NPDES Permit Requirement** – *(viii) Promote, publicize and facilitate public reporting of illicit discharges through the use of newspapers, newsletters, utility bills, door hangars, radio public service announcements, videos, televised council meetings, brochures, signs, posters or other effective methods.*		
Provide Public Education and Outreach Materials Regarding Stormwater Management	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie continues to implement a public education program aimed at reducing the discharge of pollutants associated with a variety of activities including but not limited to: 1. The application of pesticides, herbicides and fertilizers by citizens. 2. Illicit discharges and dumping of waste materials into the storm drainage system. 3. Disposal of waste oil and toxic materials. The City utilizes newsletter publications, brochures, bill inserts, a City newsletter, and various Clackamas County mailings to promote public awareness of water quality issues related to the above-mentioned practices. Articles typically include information on proper application, storage, and disposal of pesticides, herbicides, and fertilizers, proper disposal of oil and toxic materials (paints), proper disposal of animal waste, disposal of chlorinated waters, and contact information to report water quality problems. The City has developed a stormwater brochure that will be sent annually to citizens, which provides background on stormwater funding, guidance for managing runoff, and phone numbers for agencies and groups working to improve water quality. The City of Milwaukie also participates in the Regional Coalition of Clean Rivers and Streams, which implements public educational campaigns on a more regionalized basis and sponsors various community education activities targeted at increasing public awareness of water quality problems and promoting proper disposal of household waste materials. The City will utilize the City website to allow citizens to report incidents directly to the Utility Specialist.	(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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
	To aid in public education related to proper disposal of waste materials, the City of Milwaukie conducts citywide catch basin stenciling, placement of catch basin medallions and retrofitting of storm manhole lids. The Public Works staff places medallions and stencils catch basins annually. The City is retrofitting existing storm manhole lids and placing medallions with the message "Dump no Waste – Drains to Stream **Measurable Goals:** • 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.	(5) Record the number of storm manhole lids that have been retrofitted annually.
NPDES Permit Requirement – *(iv) Provide public education on the proper operation and maintenance of privately-owned or operated stormwater quality management facilities.*		
See Element #8: Structural Stormwater Facility Operations and Maintenance **BMP:** Private Water Quality Facility Maintenance Program (Table 8)		
NPDES Permit Requirement – *(v) Provide notice to construction site operators concerning where education and training to meet erosion and sediment control requirements can be obtained.*		
See Element #3: Construction Site Runoff Control **BMP:** Provide Educational Information to Construction Site Operators (Table 3)		

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(vi) Conduct or participate in an effectiveness evaluation to measure the success of public education activities during the term of this permit. The effectiveness evaluation must focus on assessing changes in targeted behaviors. The results of the effectiveness evaluation must be used in the adaptive management of the education and outreach program.*		
Participate in a Public Education Effectiveness Evaluation	**Responsible Department:** City of Milwaukie Public Works Department and Engineering **Permit Year:** Ongoing **BMP Description:** Over the permit term, the City of Milwaukie will coordinate with other local, Phase I jurisdictions to provide information related to an effectiveness evaluation. The effectiveness evaluation information will focus on assessing changes in targeted behaviors and will allow for additional information that can be used in adaptive management of the City's education and outreach strategy. **Measurable Goals:** • Coordinate with other local, Phase 1 jurisdictions in providing/compiling information regarding a public education effectiveness evaluation over the permit term. 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 annually.
NPDES Permit Requirement – *(vii) Include training for municipal employees involved in MS4-related activities, as appropriate. The training should include stormwater pollution prevention and reduction from municipal operations, including, but not limited to, parks and open space maintenance, fleet and building maintenance, new municipal facility construction and related land disturbances, design and construction of street and storm drain systems, discharges from non-emergency fire fighting-related training activities, and stormwater system maintenance*		
Conduct Annual Staff Training	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie provides annual training for the City's Storm crews on a variety of topics associated with stormwater quality. The training sessions are provided to educate crews on appropriate erosion control measures, proper spill response procedures, safe work practices, and record keeping. In addition, the City will conduct regular staff meetings one to four times per year for staff with BMP implementation responsibilities. Meetings will be used to track progress on BMP implementation and to present training type materials related to stormwater quality and the MS4 NPDES permit requirements.	(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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
	Measurable Goals: • 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.	(3) Track regular stormwater staff meetings.

SWMP Element #5
Public Involvement and Participation

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.e. **See Table 5** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #5: Public Involvement and Participation		
	Applicable BMPs	
Schedule A.4.e Permit Requirement	Provide for Public Participation with Submittals	Participate in Intergovernmental Coordination
e. *Co-permittees must adopt a public participation approach that provides opportunities for the public to effectively participate in the development, implementation and modification of the co-permittee's stormwater management program. The process must include provisions for receiving and considering public comments on the monitoring plan due to the Department June 15, 2011, annual reports, SWMP revisions, and the TMDL pollutant load reduction benchmark development.*	■	■

TABLE 5 –Public Involvement and Participation

City of Milwaukie BMP Descriptions	BMP Implementation	Performance Measures
NPDES Permit Requirement - (e) *Co-permittees must implement a public participation approach that provides opportunities for the public to effectively participate in the development, implementation and modification of the co-permittee's stormwater management program. The approach must include provisions for receiving and considering public comments on the monitoring plan due to the Department June 15, 2011, annual reports, SWMP revisions, and the TMDL pollutant load reduction benchmark development.*		
Provide for Public Participation with Submittals	**Responsible Department:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** Schedule A.4.e of the City's MS4 NPDES permit requires the City to provide opportunity for public participation in the development, implementation, and modification of the City's stormwater management program. This includes the updated monitoring plan (due to DEQ June 15, 2011), annual reports, SWMP revisions, and pollutant load reduction benchmark development. The monitoring plan and annual reports will be provided to the public for review and comment on the City's website prior to submission to DEQ. SWMP revisions and pollutant load reduction benchmarks are required for submittal to DEQ at the permit renewal submittal (180-days prior to permit expiration). Prior to submittal of these items, the City will provide the public with an opportunity to comment on the revised draft SWMP and proposed pollutant load reduction benchmarks for a minimum of 30 days. Comments on the documents will be collected and considered and response to comments will be publically provided. **Measurable Goals:** • 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

City of Milwaukie BMP Descriptions	BMP Implementation	Performance Measures
Participate in Intergovernmental Coordination Efforts	**BMP Owner:** City of Milwaukie Public Works Department and Engineering **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie will continue to meet periodically to coordinate with other Clackamas County co-permittees regarding regional water quality efforts. Areas for coordination include monitoring, public education, and BMP effectiveness studies. The City of Milwaukie also participates with a variety of local agencies and groups involved with a broad range of water quality issues including stormwater. Currently, representatives from the Milwaukie Engineering and Public Works Departments are involved in various activities and organizations including the coordinated UIC monitoring program, ACWA, the NPDES Spill Committee, and the Johnson Creek Watershed Council. **Measurable Goals:** • 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.

SWMP Element #6
Post-Construction Site Runoff

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.f. **See Table 6** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #6: Post-Construction Site Runoff		
	Schedule A.4.f Permit Requirement	**Applicable BMPs** **Implement Municipal Development Codes**
i.	*By January 1, 2014, the post-construction stormwater pollutant and runoff control program applicable to new development and redevelopment projects that create or replace impervious surfaces must meet the conditions described in this subsection. The minimum project threshold….is identified in Table A-1. The post construction site runoff permit conditions are as follows :1) Incorporate site-specific management practices that target natural surface or predevelopment hydrologic functions as much as practicable; 2) Minimize site specific post-development stormwater runoff volume, duration, and rates of discharges to the municipal separate storm sewer system (MS4)..; 3) Prioritize and implement Low-Impact Development (LID), Green Infrastructure (GI) or equivalent design and construction approaches; and, 4) Capture and treat 80% of the annual average runoff volume, based on a documented local or regional rainfall frequency and intensity.*	■
ii.	*The co-permittee must identify, and where practicable, minimize or eliminate ordinance, code and development standard barriers within their legal authority that inhibit design and implementation techniques intended to minimize impervious surfaces and reduce stormwater runoff (e.g., Low Impact Development, Green Infrastructure). Such modifications to ordinance, code and development standards are only required to the extent they are permitted under federal and state laws. The co-permittee must review ordinance, code and development standards for modification, minimization or elimination, and appropriately modify ordinance, code or development standard barriers by January 1, 2014. If an ordinance, code or development standard barrier is identified at any time subsequent to January 1, 2014, the applicable ordinance, code or development standard must be modified within three years.*	■

SWMP Element #6: Post-Construction Site Runoff	
Schedule A.4.f Permit Requirement	**Applicable BMPs** **Implement Municipal Development Codes**
iii. To reduce pollutants and mitigate the volume, duration, time of concentration and rate of stormwater runoff, the co-permittee must develop or reference an enforceable post-construction stormwater quality management manual or equivalent document by January 1, 2014 that, at a minimum, includes the following: 1) A minimum threshold for triggering the requirement for post-construction stormwater management control and the rationale for the threshold; 2) A defined design storm or an acceptable continuous simulation method to address the capture and treatment of 80% of the annual average runoff volume; 3) Applicable LID, GI or similar stormwater runoff reduction approaches, including the practical use of these approaches; 4) Conditions where the implementation of LID, GI or equivalent approaches may be impracticable; 5) Best Management Practices; and 6) Pollutant removal efficiency performance goals that maximize the reduction in discharge of pollutants.	■
iv. The co-permittee must review, approve and verify proper implementation of post-construction site plans for new development and redevelopment projects applicable to this section.	■
v. Where a new development or redevelopment is characterized by factors limiting use of on-site stormwater management methods to achieve post-construction site runoff performance standards… the Post-Construction Stormwater Management program must require equivalent pollutant reduction measures, such as off-site stormwater quality management. Off-site stormwater quality management may include off-site mitigation….., a stormwater quality structural facility mitigation bank or a payment-in-lieu program.	■
vi. A description of the inspection and enforcement response procedures the co-permittee will follow when addressing project compliance issues with the enforceable post-construction stormwater management performance standards.	■

TABLE 6 – Post-Construction Site Runoff BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) By January 1, 2014, the post-construction stormwater pollutant and runoff control program applicable to new development and redevelopment projects that create or replace impervious surfaces must meet the conditions described in this subsection. The minimum project threshold applicable to each co-permittee post-construction stormwater pollutant and runoff control program is identified in Table A-1. The post-construction stormwater site runoff permit conditions are as follows:1) Incorporate site-specific management practices that target natural surface or predevelopment hydrologic functions as much as practicable. The site-specific management practices should optimize on-site retention based on the site conditions;2) Reduce site specific post-development stormwater runoff volume, duration and rates of discharges to the municipal separate storm sewer system (MS4) to minimize hydrological and water quality impacts from impervious surfaces; 3) Prioritize and include implementation of Low-Impact Development (LID), Green Infrastructure (GI) or equivalent design and construction approaches; and, 4) Capture and treat 80% of the annual average runoff volume, based on a documented local or regional rainfall frequency and intensity.*		
NPDES Permit Requirement – *(ii) The co-permittee must identify, and where practicable, minimize or eliminate ordinance, code and development standard barriers within their legal authority that inhibit design and implementation techniques intended to minimize impervious surfaces and reduce stormwater runoff (e.g., Low Impact Development, Green Infrastructure). Such modifications to ordinance, code and development standards are only required to the extent they are permitted under federal and state laws. The co-permittee must review ordinance, code and development standards for modification, minimization or elimination, and appropriately modify ordinance, code or development standard barriers by January 1, 2014. If an ordinance, code or development standard barrier is identified at any time subsequent to January 1, 2014, the applicable ordinance, code or development standard must be modified within three years.*		
NPDES Permit Requirement – *(iii) To reduce pollutants and mitigate the volume, duration, time of concentration and rate of stormwater runoff, the co-permittee must develop or reference an enforceable post-construction stormwater quality management manual or equivalent document by January 1, 2014 that, at a minimum, includes the following:1) A minimum threshold for triggering the requirement for post-construction stormwater management control and the rationale for the threshold; 2) A defined design storm or an acceptable continuous simulation method to address the capture and treatment of 80% of the annual average runoff volume; 3) Applicable LID, GI or similar stormwater runoff reduction approaches, including the practical use of these approaches; 4) Conditions where the implementation of LID, GI or equivalent approaches may be impracticable; 5) BMPs, including a description of the following: site-specific design requirements, design requirements that do not inhibit maintenance, and, conditions where the BMP applies; and 6) Pollutant removal efficiency performance goals that maximize the reduction in discharge of pollutants.*		
NPDES Permit Requirement – *(iv) The co-permittee must review, approve and verify proper implementation of post-construction site plans for new development and redevelopment projects applicable to this section.*		
NPDES Permit Requirement – *(v) Where a new development or redevelopment project site is characterized by factors limiting use of on-site stormwater management methods to achieve the post-construction site runoff performance standards, such as high water table, shallow bedrock, poorly-drained or low permeable soils, contaminated soils, steep slopes or other constraints, the Post-Construction Stormwater Management program must require equivalent pollutant reduction measures, such as off-site stormwater quality management. Off-site stormwater quality management may include off-site mitigation, such as using low impact development principles in the construction of a structural stormwater facility within the sub-watershed, a stormwater quality structural facility mitigation bank or a payment-in-lieu program.*		
NPDES Permit Requirement – *(vi) A description of the inspection and enforcement response procedures the co-permittee will follow when addressing project compliance issues with the enforceable post-construction stormwater management performance standards.*		

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Implement Municipal Development Codes	**BMP Owner:** City of Milwaukie Engineering Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie reviews all new and redevelopment plans through the building permit process. Plans are reviewed for conformance with the City's Development Standards, as outlined in the City's Municipal Code. The City has stormwater management water quality requirements for new development. These development standards include engineering design criteria to minimize flood potential and clauses prohibiting pollutant discharge into the stormwater system. Through its Development Code, Milwaukie has adopted the City of Portland's current Stormwater Management Manual for design standards for water quality facilities. Water quality treatment is required for all new and redevelopment projects creating 500 ft^2 or more of impervious surface. The manual requires vegetated facilities and infiltration. By January 1, 2014, the City will review the status of the water quality design storm and inspection and enforcement response procedures to ensure permit requirements are addressed. **Measurable Goals:** • 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 January 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.

SWMP Element #7
Pollution Prevention for Municipal Operations

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.g. **See Table 7** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #7: Pollution Prevention for Municipal Operations					
	Applicable BMPs				
Schedule A.4.g Permit Requirement	Conduct Street Sweeping and Roadway Repair Activities	Minimize Water Quality Impacts Associated with Landscape Management Practices	Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	Control Infiltration and Cross Connections to the Stormwater Conveyance System	Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvements
i. Operate and maintain public streets, roads and highways in a manner designed to minimize the discharge of stormwater pollutants to the MS4, including pollutants discharged as a result of deicing activities;	■				
ii. Implement a management program to control and minimize the use and application of pesticides, herbicides and fertilizers on co-permittee-owned properties;		■			
iii. By January 1, 2013, inventory, assess, and implement a strategy to reduce the impact of stormwater runoff from municipal facilities that treat, store or transport municipal waste, such as yard waste or other municipal waste not already covered under a 1200 series NPDES permit, a DEQ solid waste, or other permit designed to reduce the discharge of pollutants;			■		

SWMP Element #7: Pollution Prevention for Municipal Operations					
	Applicable BMPs				
Schedule A.4.g Permit Requirement	Conduct Street Sweeping and Roadway Repair Activities	Minimize Water Quality Impacts Associated with Landscape Management Practices	Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	Control Infiltration and Cross Connections to the Stormwater Conveyance System	Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvements
iv. Limit infiltration of seepage from the municipal sanitary sewer system to the MS4;				■	
v. Implement a strategy to control the release of materials related to fire-fighting training activities;	The City of Milwaukie does not have a BMP to address this requirement as fire fighting activities in Milwaukie are conducted by Clackamas County Fire District #1.				
vi. Assess co-permittee flood control projects to identify potential impacts on the water quality of receiving water bodies and determine the feasibility of retrofitting structural flood control devices for additional stormwater pollutant removal. The results of this assessment must be incorporated and considered along with the results of the Stormwater Retrofit Assessment required by this permit;					■

TABLE 7 – Pollution Prevention for Municipal Operations BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) Operate and maintain public streets, roads and highways in a manner designed to minimize the discharge of stormwater pollutants to the MS4, including pollutants discharged as a result of deicing activities;*		
Conduct Street Sweeping and Roadway Repair Activities	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie conducts road maintenance and repair activities continuously throughout the year to prevent erosion and excessive transport of sediment and organics into the stormwater system. The City sweeps 5,000 miles of City owned curbed streets each year. Miscellaneous uncurbed streets (e.g., bikelanes and intersections) are periodically swept as well. The City owns and operates the street sweepers. The City of Milwaukie conducts minimal deicing activities. In the event of icy roadway conditions, the fine gravel is applied to public roadways. A minor amount of salt is used for ease in gravel flowing through the chute of the truck onto the roadway. Following the icy weather conditions, roads are promptly swept to remove the residual fine gravel. Road maintenance and repair work is generally scheduled and conducted during the dry season, when possible, to minimize polluted discharges from entering the stormwater conveyance system. Grading activities meet requirements as stated in the erosion control regulations. Leaf and yard debris pick up occurs weekly within the City limits. Additionally, the City operates a leaf drop program annually so residents can dispose of their leaves during heavy leaf season at no charge. Notification of the Program is sent to residents via the "Pilot" and City web sites. **Measurable Goals:** • Sweep 5,000 curbed miles of City owned streets every year. • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(ii) Implement a management program to control and minimize the use and application of pesticides, herbicides and fertilizers on co-permittee-owned properties;*		
Minimize Water Quality Impacts Associated with Landscape Management Practices	**BMP Owner:** City of Milwaukie Public Works Department and Clackamas County Parks Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie conducts a variety of activities to minimize water quality impacts associated with conducting pest management activities on public properties. The City minimizes the use of pesticides by conducting the manual removal of vegetation at detention facilities and at all outfall locations. The City installs native vegetation whenever possible to avoid use of fertilizers. Herbicides are only applied along fencelines and in areas where access must be maintained. The City maintains copies of all Material Safety Data Sheets (MSDS), to be made available upon request, to public and commercial pesticide and fertilizer applicators. All chemical applicators (both City of Milwaukie employees and City contractors) are licensed and certified. Specific education measures and staff training related to pest management activities are discussed under Element 4: Public Education BMPs. **Measurable Goals:** • Require all chemical applicators (both City employees and City contractors) to be licensed and certified. • Develop and implement Integrated Pest Management guidelines by November 1, 2014.	(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.

NPDES Permit Requirement – *(iii) By January 1, 2013, inventory, assess, and implement a strategy to reduce the impact of stormwater runoff from municipal facilities that treat, store or transport municipal waste, such as yard waste or other municipal waste and are not already covered under a 1200 series NPDES, a DEQ solid waste, or other permit designed to reduce the discharge of pollutants;*		
Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities	**Responsible Department:** City of Milwaukie Public Works Department and Engineering **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie currently operates four municipal facilities. Such facilities include Operations and Maintenance, Public Safety, City Hall and Finance, and the Library. Only the operations and maintenance facility is identified to include treatment, storage, or transport of municipal waste. The City has committed to constructing a covered on-site Decant Facility at this facility. The facility will allow the Public Works department the ability to dewater and dry all collected stormwater related debris from the Vactor, small excavations and street sweeping before hauling out. The facility is expected to be constructed and operational by January 1, 2012. **Measurable Goals:** • 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
NPDES Permit Requirement – *(iv) Limit infiltration of seepage from the municipal sanitary sewer system to the MS4;*		
Control Infiltration and Cross Connections to the Stormwater Conveyance System	**BMP Owner:** City of Milwaukie Public Works Department and Engineering Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie implements an inflow and infiltration (I&I) abatement program for the sanitary sewer system. This program investigates sanitary lines every five to six years, using T.V. techniques, dye testing, and flow metering for any cracking or breakage that would possibly result in exfiltration from the sanitary to the storm system. The City's Engineering Department reviews new and re-development plans for possible cross-connections, and if cross connections are discovered, they are eliminated. The City's illicit discharge program also works to control and prevent any cross-connections during their outfall inspections and dry-weather field screening activities.	(1) Indicate whether any cross-connections were discovered during illicit discharge investigations, and describe follow-up activities.

	Measurable Goals: • 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.	
NPDES Permit Requirement – *(v) Implement a strategy to prevent or control the release of materials related to fire-fighting training activities;*		
The City of Milwaukie does not have a BMP to address this requirement as fire fighting activities in Milwaukie are conducted by Clackamas County Fire District #1.		
NPDES Permit Requirement – *(vi) Assess co-permittee flood control projects to identify potential impacts on the water quality of receiving water bodies and determine the feasibility of retrofitting structural flood control devices for additional stormwater pollutant removal. The results of this assessment must be incorporated and considered along with the results of the Stormwater Retrofit Assessment required by this permit;*		
Implement Master Plan Capital Improvement Projects for Stormwater Quality Improvement	**BMP Owner:** City of Milwaukie Engineering Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie recently conducted Master Planning efforts to identify and prioritize future capital improvement projects for flood control and water quality benefits. The City's current master plan includes 15 CIPs worth approximately $11 million to be implemented over an approximately 25-year period. Six of these CIPs were identified specifically for water quality purposes. In addition, when the flood-focused CIPs move to the design phase, design options that incorporate water quality benefits will be considered. The City plans to implement one project during summer of 2010 and another in 2011, incorporating rain gardens and pervious surfaces for the protection and enhancement of water quality. Since the City has limited funds available for regularly constructing CIPs, it has established a reserve fund for future design and construction of CIPs. The City will contribute each year to the reserve fund. Maps are updated to include the location and drainage area of new CIPs as they are constructed. **Measurable Goals:** • 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.

SWMP Element #8
Stormwater Management Facilities Operation and Maintenance Activities

NPDES permit requirements are listed below, followed by Milwaukie's relevant BMPs that address the permit requirement. In some cases, language for the listed permit requirements has been condensed. Applicable provisions are outlined under Schedule A.4.h. **See Table 8** for the City of Milwaukie's BMPs that address the requirements that are listed below.

SWMP Element #8: Stormwater Management Facilities Operation and Maintenance Activities				
	Applicable BMPs			
Schedule A.4.h Permit Requirement	Conduct Stormwater Conveyance System Cleaning and Maintenance	Conduct Catch basin Cleaning and Maintenance	Public Structural Control Facility Cleaning and Maintenance	Private Water quality Facility Maintenance Program
i. By January 1, 2013, the co-permittee must inventory and map stormwater management facilities and controls, and implement a program to verify that stormwater management facilities and controls are inspected, operated and maintained for effective pollutant removal, infiltration and flow control. At a minimum, the program must include the following: 1) Legal authority to inspect and require effective operation and maintenance; 2) A strategy to inventory and map public and private stormwater management facilities as provided under Schedule A.4.h.ii.; and, 3) Public and private stormwater facility inspection and maintenance requirements for stormwater management facilities that have been inventoried and mapped as provided under Schedule A.4.h.ii.	■	■	■	■
ii. As part of the Stormwater Management Facilities Inspection and Maintenance program, the co-permittee must implement a strategy that guides the long-term maintenance and management of all co-permittee-owned and identified privately-owned stormwater structural facilities. At a minimum, the strategy must describe the following: *1. Co-permittee-owned or operated stormwater management facilities inventory and mapping process, inspection and maintenance schedule, inspection, operation and maintenance criteria and priorities, description of inspector type and staff position or title, and, inspection and maintenance tracking mechanisms; and* *2. Privately-owned or operated stormwater management facilities procedures for and types of stormwater facilities that will be inventoried and mapped, inspection criteria, rationale, priorities, inspection frequency and procedures, required training or qualifications to inspect private stormwater facilities, reporting requirements, and, inspection and maintenance tracking mechanism.*			■	■

TABLE 8 – Stormwater Management Facilities Operation and Maintenance BMPs

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
NPDES Permit Requirement – *(i) By January 1, 2013, the co-permittee must inventory and map stormwater management facilities and controls, and implement a program to verify that stormwater management facilities and controls are inspected, operated and maintained for effective pollutant removal, infiltration and flow control. At a minimum, the program must include the following:1) Legal authority to inspect and require effective operation and maintenance; 2) A strategy to inventory and map public and private stormwater management facilities as provided under Schedule A.4.h.ii.; and, 3) Public and private stormwater facility inspection and maintenance requirements for stormwater management facilities that have been inventoried and mapped as provided under Schedule A.4.h.ii.* **NPDES Permit Requirement –** *(ii) As part of the Stormwater Management Facilities Inspection and Maintenance program, the co-permittee must implement a strategy that guides the long-term maintenance and management of all co-permittee-owned and identified privately-owned stormwater structural facilities. At a minimum, the strategy must describe the following:* 1. *Co-permittee-owned or operated stormwater management facilities: a) Inventory and mapping process; b) Inspection and maintenance schedule; c) Inspection, operation and maintenance criteria and priorities; d) Description of inspector type and staff position or title; and, e)Inspection and maintenance tracking mechanisms.* 2. *Privately-owned or operated stormwater management facilities: a)Procedures for and types of stormwater facilities that will be inventoried and mapped. At a minimum, the inventory and mapping must include the following: i) Private stormwater management facilities for new development and redevelopment projects constructed under the co-permittee's post-construction management manual or equivalent document after March 15, 2011.; ii)Private stormwater management facilities identified by the co-permittee and used to estimate the pollutant load reduction as part of the TMDL benchmark evaluation; and, iii) Any major private stormwater management facilities or structural controls; b) Inspection criteria, rationale, priorities, frequency and procedures for inspection of private stormwater facilities that have been inventoried and mapped; c)Required training or qualifications to inspect private stormwater facilities; d)Reporting requirements; and, e) Inspection and maintenance tracking mechanism.*		

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Conduct Stormwater Conveyance System Cleaning and Maintenance	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie inspects their stormwater conveyance system every two years including manholes, culverts, and ditches. Conveyance system components are inspected for accumulated sediment and debris that may prompt flooding and broken system components in need of repair. Conveyance system components (manholes, culverts and ditches) are cleaned as needed, based on the results of inspections and citizen referrals. The City of Milwaukie has an intergovernmental agreement (IGA) with Clackamas County to perform ditch maintenance activities. Repair or replacement of public conveyance system components are scheduled following inspection of the system. If repair or replacement of private system components (e.g., culverts) is required, Public Works informs the owner of the need. A map showing the location of the stormwater conveyance system and structural controls is used for scheduling maintenance activities. If a discrepancy on the map is discovered during maintenance, the map will be updated accordingly. **Measurable Goals:** • 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.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Conduct Catch basin Cleaning and Maintenance	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie cleans all public catch basins once every two years, cleaning approximately 50% of the catch basins each year. Catch basin cleaning activities primarily occur during the dry weather season, but during the fall, certain catch basins may be cleaned more frequently if needed. Utility crews utilize a database to document inspection and maintenance activities for the annual reports. Repair or replacement of public catch basins is scheduled following inspection. **Measurable Goals:** • 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.
Private Water Quality Facility Maintenance Program	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** With respect to private water quality facilities, the City currently maintains an inventory using GPS and the Hansen database. Information is updated as resources allow. Under recently updated code language (April 6, 2010) the City requires privately owned commercial facilities to submit an approved maintenance plan for their stormwater facilities. As these maintenance plans are received, the City will conduct annual onsite inspections at a minimum of 10 facilities. By January 1, 2013 the City will develop and implement a plan to guide the long-term maintenance and management of identified privately-owned stormwater structural facilities and controls to be in accordance with permit requirements. **Measurable Goals:** • Develop procedures to guide the private facility maintenance program by January 1, 2013.	(1) Track the number of onsite private stormwater quality facility inspections conducted annually.

City of Milwaukie BMP Descriptions	BMP Implementation	Tracking Measures
Public Structural Control Facility Cleaning and Maintenance	**BMP Owner:** City of Milwaukie Public Works Department **Permit Year:** Ongoing **BMP Description:** The City of Milwaukie inspects public structural water quality facilities annually. Such public structural facilities include retention ponds, swales, oil/sediment vaults, pollution control manholes and various proprietary systems. Facilities are inspected for accumulated sediment and debris, indication of illegal dumping and disposal in the facility, and any broken or non-functioning structures in need of repair and/ or replacement. Facility maintenance is conducted with the inspection and generally includes the removal of sediment, trash, and debris, the replacement of proprietary system components (e.g., filter cartridges), and replacement and removal of vegetation as necessary. A map showing the location of the stormwater conveyance system and structural controls is used when conducting maintenance activities. If a discrepancy in the map is discovered during maintenance activities, the map will be updated accordingly. **Measurable Goals:** • 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.