# CITY OF OREGON CITY STORMWATER MANAGEMENT PLAN (2012)

## SWMP Overview

In accordance with the City of Oregon City's Municipal Separate Storm Sewer (MS4) National Pollutant Discharge Elimination System (NPDES) Permit, Permit number 101348 and effective date of March 16, 2012, the City of Oregon City implements the following Stormwater Management Plan (SWMP). This SWMP (dated 2012) 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 Oregon City SWMP (2012)

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).

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| 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 Operations and Maintenance Activities |

# SWMP Element #1
# Illicit Discharge Detection and Elimination

NPDES permit requirements are listed below, followed by Oregon City's relevant BMPs that address the permit requirement. Applicable provisions are outlined under Schedule A.4.a of the City's MS4 NPDES Permit. **See Table 1** for the City of Oregon City's BMP fact sheets 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 |
| *i. Prohibit, through ordinance or other regulatory mechanism, illicit discharges into the co-permittee's MS4.* | ■ | | |
| *ii. Describe enforcement response procedures by November 1, 2012.* | ■ | | |
| *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, 2012.* | | ■ | |
| *iv. Conduct annual dry-weather inspection activities during the term of the permit. The dry-weather inspection activities must be documented and include: 1) General observations; 2) Field Screening; and 3) Laboratory Analysis.* | | ■ | |
| *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.* | ■ | | |

| 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 |
| *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-permittees 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-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 City must notify the contributing municipality or municipality with jurisdiction as soon as practicable, and at least within one working day of identifying the discharge.* | ■ | | |
| *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 November 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.xii for list of discharges). If any of these non-stormwater discharges under the co-permittee's jurisdiction is 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.* | ■ | | |

# BMP 1-1
# Implement the Illicit Discharge Elimination Program

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** The City of Oregon City prohibits illicit discharges to their MS4 system in conjunction with the stormwater management chapter of their City code (Section 13.12). The City has the authority to conduct appropriate response procedures and enforce against responsible parties per Section 13.12.150 of City code.<br>If an illicit discharge is discovered, the City will conduct appropriate actions to remove the illicit discharge in accordance with the City's Illicit Discharge Detection and Elimination Standard Operating Procedures (IDDE SOP). These standard operating procedures will be documented, updated and implemented in accordance with MS4 NPDES permit requirements for illicit discharges by November 1, 2012.<br>Illicit discharges suspected and/or identified by City staff (either independently or in conjunction with public reporting) are currently recorded in paper files to track results for annual reporting. | • Document and implement updated Standard Operating Procedures for the IDDE program by November 1, 2012.<br>• For identified illicit discharges, conduct appropriate actions to remove the discharge in conjunction with time frames outlined in the City's MS4 NPDES Permit.<br>• Track and record all identified illicit discharges and how such discharges were removed. | • Track the status of documenting and updating the IDDE standard operating procedures.<br>• Track the number, location, type of discharge, resolution and enforcement activities related to any illicit discharge investigation conducted. |

# BMP 1-2
# Conduct Annual Dry Weather Field Screening

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** Oregon City conducts illicit discharge inspections (i.e., dry weather field screening) at least once annually during dry-weather conditions (typically between July and September) at major and select minor outfalls previously approved by DEQ. Trained personnel complete data inspection forms while inspecting each of the outfalls. Dry weather flows are inspected for a variety of visual characteristics, and sources of flows are characterized as either permissible (listed in Schedule A3 of the MS4 NPDES permit), non-permissible or unknown.<br>If non-permissible or unknown discharges are observed, sampling, analysis, and investigation are conducted according to the following procedures:<br>1. General field observations are documented including the visual presence of flow, turbidity, oil sheen, etc that indicates the presence of illicit discharges.<br>2. A water sample is collected and analyzed for general field parameters based on the known information regarding the discharge such as source, color, odor, etc.<br>3. If the source of the illicit discharge can not be verified at the time of the initial investigation, laboratory analysis will be conducted for the suspected contaminant group.<br>4. Using a drainage map and other source identification data, an attempt is made to locate the potential sources upstream of the discharge location.<br>Additional source investigations may be conducted using one or more of the following techniques: onsite inspections, dye-testing, smoke testing, and/or TV inspection of lines. The Public Works Operations Manager | • Conduct dry-weather field screening once per year, at a minimum, at major outfalls (approximately 14) using data inspection forms.<br>• Characterize dry weather flows as permissible, non-permissible or unknown.<br>• Conduct sampling, analysis, and investigations for non-permissible and unknown dry-weather discharges.<br>• Maintain maps of major outfalls and dry weather field screening locations on an annual basis.<br>• Notify the Public Works Operations Manager of all positive identifications of illicit discharges and take necessary steps to eliminate them.<br>• Update procedures for dry weather field screening in accordance with MS4 NPDES permit requirements by November 1, 2012. | • Track the number and location of outfalls inspected annually.<br>• Summarize inspection results and track the number and location of outfalls requiring monitoring (sampling) and/or investigations.<br>• Report the outcome and resolution of any investigation activities conducted.<br>• Report the outcome and resolution of any code enforcement actions.<br>• Track the status of updating standard procedures. |

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| will be notified of all positive identifications of illicit discharges and will take all necessary steps to eliminate them. Typically, code enforcement is sent to the site and the site owner is given a notice of violation and a time frame with which to correct the problem. A follow-up inspection will occur to ensure the illicit discharge has been removed, and if the illicit discharge still exists, the site owner will face further enforcement action.<br><br>These dry weather field screening procedures will be updated by November 1, 2012. Updates are expected to include: a list of priority outfalls, pollutant parameter action levels, notification procedures and response timelines in accordance with MS4 NPDES permit requirements. | | |

# BMP 1-3
# Implement the Spill Response Program

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Clackamas Fire District #1 (Hazardous Materials Team), and Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** Clackamas Fire District #1, Hazardous Materials Team initially responds to all phone calls and reports regarding chemical and hazardous waste spills within the City limits. Procedures for spill response are outlined in the Fire Department's "Emergency Operations Plan". The Fire Department reports the spill to DEQ, and if necessary may rely on DEQ for technical assistance on clean-up, sampling, restoration, disposal, enforcement and coordination of state agency resources.<br>For non-hazardous material spills (oil and grease, paint, sewage), the Public Works Department responds to reports by citizens or as observed by Public Works staff. Public Works staff follows the City of Oregon City Spill Response Plan, which references DEQ's spill response procedures. When Public Works responds to spills, they stop the source, and then use absorbent pads and booms to prevent any contaminated runoff from entering the stormwater conveyance system. Following initial site clean up, the catch basins are cleaned to remove any residual pollutants that may have discharged into the system. Spill reports are completed and faxed to DEQ and are maintained on file at the Public Works office. Appropriate City staff is trained annually on spill response. This is covered in more detail in the BMP titled, "Conduct Staff Training in Spill Response" in Element #4. | • Respond to reports of spills of non-hazardous materials and follow the Oregon City Spill Response Plan.<br>• Report all hazardous and non-hazardous spills to DEQ as necessary. | • Indicate the number of spills reported to Public Works and to DEQ.<br>• Track responses to reported spills.<br>• Indicate sources, causes, and types of discharges resulting from spill activities.<br>• Track any changes made to the Oregon City Spill Response Plan. |

# SWMP Element #2
# Industrial and Commercial Facilities

NPDES permit requirements are listed below, followed by Oregon City's relevant BMPs that address the permit requirement. Applicable provisions are outlined under Schedule A.4.b. **See Table 2** for the City of Oregon City's BMPs that address the requirements that are listed above.

| SWMP Element #2: Industrial and Commercial Facilities | | |
|---|---|---|
| | Applicable BMP | |
| Schedule A.4.b Permit Requirement | Screen Existing and New Industrial Facilities | Implement an Industrial/ Commercial Inspection Program for High Priority Facilities |
| *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 July 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.* | | ■ |

# BMP 2-1
# Screen Existing and New Industrial Facilities

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** City of Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** The City's Business License inventory includes SIC codes for licensed industrial facilities. Once during the permit term, by July 1, 2013, the City of Oregon City will review their existing business license inventory 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 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.<br>During the review of the existing business license inventory, by July 1, 2013, the City will also consider whether any facilities (industrial or commercial) have been identified that have the potential to contribute a significant pollutant load to the MS4. These facilities will be considered for potential inclusion in the industrial/commercial inspection program (see BMP 2-2). | • Review the business license inventory for 1200Z industries once during the permit term.<br>• Notify DEQ of any existing or new industrial facilities within the City of Oregon City jurisdiction that may potentially be subject to an industrial stormwater NPDES permit. | • Track the number of existing or new facilities subject to a stormwater industrial NPDES permit during the permit term. |

# BMP 2-2
# Implement an Industrial/Commercial Inspection Program for High Priority Facilities

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:**<br>The City relies on DEQ to conduct inspections of 1200-Z permitted facilities as these are under DEQ's jurisdiction. Oregon City Public Works will query the business license inventory once during the permit term, by July 1, 2013, to identify other industrial and commercial facilities located in the City that have the potential to contribute significant pollutant loads to the MS4. By July 1, 2013, the City will develop standard operating procedures for conducting industrial/commercial facility inspections over the permit term. There are approximately 40 manufacturing businesses in Oregon City. The City's goal is to inspect 25% of these facilities by the end of the permit term.<br>If, during an inspection, a site is discovered to be contributing excess pollutants to the stormwater system, the City of Oregon City will either work with the site owner to remove the discharge or refer the site to code enforcement and DEQ who may either require sampling and monitoring or removal of a specific source of discharge. | • Pursue approval to hire staff to implement a business inspection program.<br>• Develop a priority list of industrial/commercial facilities for inspection.<br>• Investigate 25% of the City's manufacturing businesses once during the permit term.<br>• Develop industrial/commercial inspection procedures by July 1, 2013. | • Track the number of inspections conducted.<br>• Report on inspection results and follow-up actions.<br>• Report on status of documenting and updating inspection procedures. |

# SWMP Element #3
# Construction Site Runoff Control

NPDES permit requirements are listed below, followed by Oregon City's relevant BMPs that address the permit requirement. Applicable provisions are outlined under Schedule A.4.c. **See Table 3** for the City of Oregon City's BMPs that address the requirements that are listed above.

| SWMP Element #3: Construction Site Runoff Control | | | |
|---|---|---|---|
| | Applicable BMPs | | |
| Schedule A.4.c Permit Requirement | Implement the Erosion Control Ordinance | Provide Educational Information to Construction Site Operators | Conduct Erosion Control Inspections and Enforcement |
| *i. Include ordinances or other enforceable regulatory mechanism that requires 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 November 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.* | ■ | ■ | |

| SWMP Element #3: Construction Site Runoff Control | | | |
|---|---|---|---|
| | Applicable BMPs | | |
| Schedule A.4.c Permit Requirement | Implement the Erosion Control Ordinance | Provide Educational Information to Construction Site Operators | Conduct Erosion Control Inspections and Enforcement |
| *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.* | ■ | ■ | |
| *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.* | | | ■ |

# BMP 3-1
# Implement the Erosion Control Ordinance

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City's erosion control ordinance (Ordinance 99-1013) requires all land development applications to obtain an erosion control permit, issued based on City approval of erosion and sediment control plans submitted for the project. This requirement is consistent with Metro's Urban Growth Management Plan Title 3. Incentive practices allow the City to reduce fees associated with the erosion control permit if the applicant (contractor) has received formal training in erosion or sediment control per the contractor certification program.<br>Erosion control plans must be submitted and approved prior to issuance of the City's erosion control permit and must show permanent and non-permanent control structures for all developments greater than 1,000 square feet (including those sites greater than 5 acres that are also required to obtain a DEQ 1200-C NPDES permit). The City requires compliance with the adopted *City of Oregon City Public Works Standards for Erosion and Sediment Control* in preparing the erosion control plans and implementing erosion and sediment control BMPs. The document includes suggestions for structural and non-structural erosion control BMPs.<br>During the plan review process, new and redevelopment projects are reviewed for compliance with the erosion control standards. Plans not in compliance are not approved and are required to implement appropriate erosion control techniques prior to approval.<br>Within the first two years of the permit term, by November 1, 2014, the City will either adopt the Clackamas County erosion control manual (*Erosion Prevention and Sediment Control Planning and Design Manual, 2008)* or develop updates to the Oregon City manual. Specific changes of interest include documentation of the City's threshold, and provisions for managing non-stormwater wastes other than sediments. | • Require and review erosion control plans with both permanent and non-permanent BMPs for all developments greater than 1,000 sf. The plans must comply with the City of Oregon City Public Works Standards for Erosion and Sediment Control until a new or revised manual is adopted.<br>• Require erosion and sediment control plans not in compliance with standards to be amended and approved prior to construction.<br>• By November 1, 2014, adopt the Clackamas County erosion control manual or revise the City's manual in accordance with MS4 NPDES permit requirements. | • Record the number of erosion control plan reviews completed and approved.<br>• Track the number of erosion and control permits issued annually.<br>• Report on the status of adopting the Clackamas County manual or revising the City's manual. |

# BMP 3-2
# Provide Educational Information to Construction Site Operators

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** The City's erosion control manual is available for download from the City of Oregon City website.<br>The City of Oregon City continues to partner with Clackamas County Water Environment Services (WES), the City of Milwaukie, and the Homebuilders Association of Portland to provide the Erosion Control Certification program, which includes a four-hour course in erosion control fundamentals for contractors. The course is offered through Clackamas Community College. Contractors that participate receive discounts on erosion control permit fees. | • Continue to provide the City's most current erosion control manual on the City website.<br>• Continue to offer discounts on erosion control permits to contractors completing the Erosion Control Certification Program. | • Track the number of contractors receiving a discount on erosion control permit fees. |

# BMP 3-3
# Conduct Erosion Control Inspections and Enforcement

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City's erosion control ordinance requires erosion control permits for construction activities. Prior to receipt of a footing inspection, appropriate erosion control measures must be in place and inspected.<br>A minimum of three inspections are required at all applicable sites: an initial inspection, an unscheduled inspection during construction activity, and a final inspection. However, at the beginning of construction, inspections for residential and commercial development sites generally occur two to three times weekly. Public Works projects are generally inspected weekly for erosion control measures.<br>Erosion and sediment control enforcement procedures are outlined in the *City of Oregon City Public Works Standards for Erosion and Sediment Control*. For sites with an erosion control violation or where ineffective erosion control is observed, a Notice of Non-Compliance is issued, and contractors are required to install effective control measures within a specified timeframe (typically 24 hours). A Stop Work Order is in effect until all appropriate measures are in place. If not resolved within the required time frame, a Code Violation Citation may be issued. | • Conduct a minimum of three erosion control inspections at each permitted site.<br>• Conduct appropriate enforcement activities for erosion control violations. | • Record the number of erosion control inspections conducted annually.<br>• Report the number of notices of non-compliance issued during inspections. |

# SWMP Element #4
# Education and Outreach

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

| 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 Staff Training for Pest Management | Conduct Staff Training in Spill Response | Ensure Municipal Staff Training in Stormwater Pollution Prevention |
| *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.* | ■ | | | | |

| 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 Staff Training for Pest Management | Conduct Staff Training in Spill Response | Ensure Municipal Staff Training in Stormwater Pollution Prevention |
| *iii. Provide public education on the proper use and disposal of pesticides, herbicides, fertilizers and other household chemicals.* | ■ | | | | |
| *iv. Provide public education on the proper operation and maintenance of privately-owned or operated stormwater quality management facilities.* | See Element #8: Stormwater Management Facilities Operation and Maintenance Activities<br>BMP: Private Structural Control Facility Cleaning and Maintenance (BMP 8-4) | | | | |
| *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<br>BMP: Provide Educational Information to Construction Site Operators (BMP 3-2) | | | | |
| *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 and reported to the Department no later than July 1, 2015.* | | ■ | | | |

| 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 Staff Training for Pest Management | Conduct Staff Training in Spill Response | Ensure Municipal Staff Training in Stormwater Pollution Prevention |
| *vii. Include training for co-permittee 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.* | See Element #7: Pollution Prevention for Municipal Operations<br>BMP: Coordinate with the Local Fire Department Related to Pollutant Discharge from Fire Fighting Training Activities (BMP 7-5) | | | | |
| | | | ■ | ■ | ■ |
| *viii. Promote, publicize and facilitate public reporting of illicit discharges through the use of newspapers, newsletters, utility bills, door hangers, radio public service announcements, videos, televised council meetings, brochures, signs, posters or other effective methods.* | ■ | | | | |

# BMP 4-1. Provide Public Education and Outreach Materials Regarding Stormwater Management

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City continues to employ a public education strategy aimed at reducing the discharge of pollutants associated with a variety of activities including but not limited to:<br>1. The application of pesticides, herbicides and fertilizers by citizens.<br>2. Illicit discharges and dumping of waste materials into the storm drainage system.<br>3. Disposal of waste oil and toxic materials.<br>The City utilizes newsletter publications, brochures, posters, bill inserts, and various Clackamas County mailings to promote public awareness of water quality issues related to the above-mentioned practices. The City newsletter is distributed to citizens three times per year, and includes a water quality related article. The City of Oregon City participates in the Regional Coalition of Clean Rivers and Streams, which implements public educational campaigns on a more regionalized basis. The City also seeks out opportunities to partner in educational programs with organizations such as Clackamas County Water Environment Services, Clackamas River Water Providers, Clackamas Community College Environmental Learning Center, the Lower Columbia River Estuary Program, and Oregon State University to educate and promote topics including watershed health and low-impact development.<br>The City also installs signs surrounding local water quality facilities (detention ponds), reminding residents that they are for stormwater quantity and quality control and should not be used for garbage or debris disposal. Periodically, general educational signs are also installed on public vehicles promoting water quality.<br>To aid in public education related to proper disposal of waste materials, the City of Oregon City also sponsors a citywide catch basin stenciling program. Upon the request of volunteers, Public Works staff assist the volunteers with stenciling efforts by providing materials and directions for catch basin stenciling. On a selective basis, staff stencils catch basins after certain catch basins have been cleaned. | • Include a water quality related article in each City newsletter, distributed to citizens three times per year.<br>• Participate in the Regional Coalition of Clean Rivers and Streams.<br>• Seek out opportunities to partner with Clackamas County Water Environment Services, Clackamas River Water Providers, Clackamas County Community College, Lower Columbia River Estuary Program, and Oregon State University to educate and promote watershed health and low impact development.<br>• Periodically install signs near water quality structures and around the City promoting water quality.<br>• Sponsor the volunteer catch basin stenciling program.<br>• Distribute an annual water quality report to Oregon City residents including stormwater educational information. | • Track the number, types, and topics of public educational materials distributed to the public annually.<br>• Report any large-scale public educational campaigns initiated during a given year.<br>• Track coordinated public outreach activities with other permittees. |

# BMP 4-2
# Participate in a Public Education Effectiveness Evaluation

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** City of Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** By July 1, 2015, the City of Oregon City will coordinate with other local, Phase 1 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. | • Coordinate with other local, Phase 1 jurisdictions in providing/ compiling information regarding a public education effectiveness evaluation by July 1, 2015. | • Report on activities conducted annually. |

# BMP 4-3
# Conduct Staff Training for Pest Management

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department and Parks Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City requires crews from Public Works and the Parks Department that are conducting pest management activities to be certified and licensed for spraying activities in accordance with OSHA requirements. Licensed staff attend annual refresher courses.<br>During Public Works safety meetings, staff discuss appropriate application measures, techniques, and disposal activities for vegetative and pest management, not specific to spraying activities. | • Ensure Public Works and Parks Department Staff conducting pest management activities are certified for spraying activities according to OSHA requirements.<br>• Ensure licensed staff attend annual refresher courses. | • Track the number of employees licensed for spraying activities.<br>• Report number of employees that attended initial or refresher training for safe pest management application. |

# BMP 4-4
# Conduct Staff Training in Spill Response

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City coordinates with the Clackamas County Office of Emergency Management and the Oregon City Police Department for training related to non-hazardous spill response procedures. At least once annually, the City's Public Works Department will utilize its monthly safety meeting format to provide training related to non-hazardous spill response procedures. Oregon City Public Works coordinates training opportunities for staff that initially respond to spills using Occupational Safety and Health Administration (OSHA) hazardous materials educational resources and services. | • Provide non-hazardous spill response training annually through the monthly safety meetings.<br>• Coordinate annual training and refresher courses for staff initially responding to spills using OSHA hazardous materials educational resources. | • Track spill related training and education. |

# BMP 4-5
# Ensure Municipal Staff Training in Stormwater Pollution Prevention

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** A variety of training is provided to City staff associated with stormwater management in the City. Training and advisory committee opportunities are typically made available through state, and local agencies and groups involved with a broad range of water quality issues including stormwater. Such training is conducted annually or every other year, depending on the number of employees to train.<br>Oregon City Public Works staff also coordinates with other Clackamas County co-permittees regarding regional water quality efforts through ACWA and APWA on stormwater committees, permit renewal committees, and other local agency work groups interested in water quality improvements. Areas for coordination include monitoring, public education, and BMP effectiveness studies.<br>In addition, the City will conduct regular staff meetings one to two 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. | • Conduct municipal training for employees associated with stormwater management in the City.<br>• Coordinate with other Clackamas County co-permittees regarding regional water quality efforts.<br>• Participate in training and advisory committee opportunities available through state, and local agencies and groups associated with water quality.<br>• Conduct regular stormwater staff meetings one to two times per year. | • Track the number of employees receiving training in stormwater management annually.<br>• Track Oregon City staff participation in groups, committees, and organizations relevant to stormwater quality management.<br>• Track regular stormwater staff meetings and staff attendance at those meetings. |

# SWMP Element #5
# Public Involvement and Participation

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

| SWMP Element #5: Public Involvement and Participation | |
|---|---|
| Schedule A.4.e Permit Requirement | Applicable BMP<br>Provide for Public Participation with Submittal Efforts |
| *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 September 1, 2012, annual reports, SWMP revisions, and the TMDL pollutant load reduction benchmark development.* | ■ |

# BMP 5-1. Provide for Public Participation with Submittal Efforts

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** City of Oregon City Public Works<br>**Permit Year:** Ongoing<br>**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 September 1, 2012), annual reports, SWMP revisions, and pollutant load reduction benchmark development.<br>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.<br>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 revisions to the 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. | • Provide for public participation with the SWMP and pollutant load reduction benchmarks prior to the permit renewal application deadline.<br>• Provide a public comment period for the updated monitoring plan and annual reports prior to submittal to DEQ. | N/A |

# SWMP Element #6
# Post-Construction Site Runoff

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

| SWMP Element #6: Post-Construction Site Runoff | | |
|---|---|---|
| | Applicable BMPs | |
| Schedule A.4.f Permit Requirement | Implement Municipal Stormwater Construction Standards | Review and Update Code and Development Standards related to Stormwater Quality Control |
| *i. By November 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 stormwater site runoff permit conditions are as follows:*<br>*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;*<br>*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;*<br>*3) Prioritize and include implementation of Low-Impact Development (LID), Green Infrastructure (GI) or equivalent design and construction approaches; and,*<br>*4) Capture and treat 80% of the annual average runoff volume, based on a documented local or regional rainfall frequency and intensity.* | ■ | ■ |

| SWMP Element #6: Post-Construction Site Runoff | | |
|---|---|---|
| | Applicable BMPs | |
| Schedule A.4.f Permit Requirement | Implement Municipal Stormwater Construction Standards | Review and Update Code and Development Standards related to Stormwater Quality Control |
| *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 November 1, 2014. If an ordinance, code or development standard barrier is identified at any time subsequent to November 1, 2014, the applicable ordinance, code or development standard must be modified within three years.* | ■ | ■ |
| *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 November 1, 2014 that, at a minimum, includes the following:*<br>*1) A minimum threshold for triggering the requirement for post-construction stormwater management control and the rationale for the threshold.*<br>*2) A defined design storm or acceptable continuous simulation method to address the capture and treatment of 80% of the annual average runoff volume.*<br>*3) Applicable LID, GI or similar stormwater runoff reduction approaches, including the practical use of these approaches.*<br>*4) Conditions where the implementation of LID, GI or equivalent approaches may be impracticable.*<br>*5) Best Management Practices, including a description of the following:*<br>*a. Site-specific design requirements;*<br>*b. Design requirements that do not inhibit maintenance; and*<br>*c. Conditions where the Best Management Practice applies.*<br>*6) Pollutant removal efficiency performance goals that maximize the reduction in discharge of pollutants.* | ■ | ■ |

| SWMP Element #6: Post-Construction Site Runoff | | |
|---|---|---|
| | Applicable BMPs | |
| Schedule A.4.f Permit Requirement | Implement Municipal Stormwater Construction Standards | Review and Update Code and Development Standards related to Stormwater Quality Control |
| *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, such as construction of a structural stormwater facility within the sub-watershed, 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.* | ■ | ■ |

# BMP 6-1
# Implement Municipal Stormwater Construction Standards

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Community Development Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** Oregon City continues to review new and redevelopment submittals for conformance with the Oregon City Stormwater and Grading Design Standards and associated ordinances that update portions of the Oregon City Municipal Code regarding stormwater drainage and water resources protection for all development. The Oregon City Stormwater and Grading Design Standards contain criteria and design standards for stormwater controls, and the Oregon City Municipal Code mandates development restrictions in Water Quality Resource Areas, Steep Slopes (Geologic Hazards), and Flood Plain Overlay Districts.<br>Stormwater requirements, as outlined in the City's Stormwater and Grading Design Standards, contain guidelines for both treatment and detention. Per the City's Municipal Code (Chapter 13.12), stormwater quality and quantity need to be addressed for most new development. Per the Municipal Code, stormwater quantity control is required for creation of greater than 500 sf of impervious surface or disturbance of greater than 1,000 sf of existing impervious surface within a designated Water Quality Resource Area (WQRA), and for all other areas, activities creating greater than 2,000 sf of impervious surface, or redevelopment of commercial or industrial land that disturbs over 5,000 sf of impervious surface.<br>The City's Municipal Code provides the requirements for stormwater quality control. Per the code, stormwater quality control is required for 1) the construction of four or more single-family residences; 2) the creation of more than 500 sf of impervious surface; or 3) the disturbance of greater than 1,000 sf of existing impervious surface as part of commercial or industrial redevelopment within a WQRA. For new or redevelopment activities, other than single-family residential development, that create more than 8,000 sf of new impervious surface, stormwater quality control is also required.<br>The City is currently working on completion of stormwater low-impact development (LID) design manual that will further supplement the City's existing Stormwater Grading and Design Standards and applicable provisions of the Municipal Code. | • Per the City's Development Code, review all new development and applicable redevelopment for conformance with current City stormwater design standards and ordinances. | • Track the number of development applications reviewed and approved for compliance with the stormwater regulations.<br>• Track the number, type, and drainage area of treatment facilities constructed annually. |

# BMP 6-2
# Review and Update Code and Development Standards related to Stormwater Quality Control

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** Oregon City Community Development Department<br>**Permit Year:** Three<br>**BMP Description:** The City of Oregon City will review their existing\planned stormwater treatment design standards and applicable code provisions over the first three years of the permit period (by November 1, 2014) to ensure that barriers that could inhibit low impact development practices are minimized and eliminated where practicable. The review will also be conducted to ensure that the standards are: 1) promoting the design and implementation of practices to minimize impervious surfaces and reduce stormwater runoff, 2) optimizing onsite retention practices, and 3) reducing post-construction stormwater runoff volumes and rates. The City will also review, and if necessary, update their impervious area threshold for stormwater pollutant and runoff control and their design storm to ensure that it would result in capture and treatment of 80% of the average annual runoff volume per the MS4 NPDES permit requirements. | • Review the City's current\planned stormwater treatment and detention standards for compliance with new MS4 NPDES permit language.<br>• Review the City's current public works development code provisions to ensure that applicable barriers related to the use of low impact development (LID) or green infrastructure (GI) techniques are minimized and eliminated where practicable.<br>• If necessary, update the City's existing post-construction stormwater design standards and code language by November 1, 2014. | • Track progress related to review of the City's code and development standards per provisions in the MS4 NPDES permit.<br>• Track any code/standards modifications made by ordinance. |

# SWMP Element #7
# Pollution Prevention for Municipal Operations

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

| SWMP Element #7: Pollution Prevention for Municipal Operations | | | | | | |
|---|---|---|---|---|---|---|
| | Applicable BMPs | | | | | |
| Schedule A.4.g Permit Requirement | Conduct Street Sweeping and Roadway Repair Activities | Minimize Pollutant Discharges 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 City's Stormwater Conveyance System | Coordinate with the Local Fire Department related to Pollutant Discharge from Fire fighting Training Activities | Conduct Master Planning and Implement Capital Projects for Stormwater Quality Enhancement |
| *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 July 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 permit, 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 Pollutant Discharges 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 City's Stormwater Conveyance System | Coordinate with the Local Fire Department related to Pollutant Discharge from Fire fighting Training Activities | Conduct Master Planning and Implement Capital Projects for Stormwater Quality Enhancement |
| *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;* | | | | | ■ | |
| *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.* | | | | | | ■ |

# BMP 7-1
# Conduct Street Sweeping and Roadway Repair Activities

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:**<br>Oregon City conducts road maintenance and repair activities throughout the year to prevent erosion and excessive transport of sediment and organics into the stormwater system.<br><br><u>Street Sweeping Activities:</u> The City currently maintains 132 miles of streets. The City currently owns and operates two street sweepers. Streets are swept throughout the year, on average every 3-4 months. High traffic streets within the downtown area and major corridors are swept more frequently. In addition, streets are swept more often seasonally when the leaves are falling. Door hangers are distributed to inform residents not to pile leaf materials in the streets. The City's solid waste provider also collects yard debris from residents on a weekly basis. During the winter, limited sanding and the deicer calcium magnesium acetate (CMA) are applied to address icy roadway conditions. Routine operation of the sweepers includes one full time sweeper with a second sweeper during the leaf pickup season and at times when winter sanding materials need to be removed.<br><br>The City currently keeps track of street sweeping by documenting the full routes completed. However, this estimate is a conservative account because there are several non-routine trips that go unreported because they represent less than a full route.<br><br><u>Road Maintenance Activities:</u> Major road construction work is generally scheduled during the dry season when possible, to minimize polluted discharges from entering the stormwater conveyance system. For road maintenance and repair work, erosion control activities are implemented as needed and in accordance with the City's erosion control ordinances. | • Sweep city streets every 3-4 months on average, more frequently in high-traffic areas and during leaf pick up and following deicing activities. | • Track the average number of citywide sweeps per year.<br>• Estimate the miles of streets swept per year.<br>• Estimate the volume of debris removed during sweeping activities per year. |

# BMP 7-2
# Minimize Pollutant Discharges Associated with Landscape Management Practices

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department and Parks Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** Oregon City implements a number of measures to minimize pollutant impacts associated with landscape maintenance activities. The City conducts landscape maintenance activities on all public open space and park areas using herbicides (i.e. Rodeo, Garlon3A, Aqua Master) sparingly. Insecticides are not used. Herbicides are currently applied to only select locations (generally surrounding fence lines). The City only uses approved and low-risk chemicals and makes significant efforts to reduce the need for chemicals entirely through manual weed removal (when feasible) and application of bark dust to reduce weed growth.<br>All chemical applicators, both contractors and city staff, comply with state law regarding licensing. 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. Spray reports are completed for the application of chemicals.<br>Specific education measures and staff training measures related to landscape maintenance are discussed under Element #4: Public Education BMPs. | • All chemical applicators, both contractors and city staff, must follow state laws related to the use of pesticides<br>• Applicators will complete spray reports for the application of chemicals. | • Track any program changes regarding chemical application practices used by the City. |

# BMP 7-3
# Implement a Program to Reduce the Impact of Stormwater Runoff from Municipal Facilities

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:**<br>The City of Oregon City currently operates various maintenance facilities that have the potential to treat, store, or transport municipal waste. These sites include the temporary storage of wastes collected from line cleaning, street sweeping, tree trimming, and catchbasin cleaning. The sites have been graded to prevent runoff from leaving the sites. By July 1, 2013, the City of Oregon City will inventory these facilities and assess whether any additional strategies would be needed to minimize pollutant discharge from these facilities. | • By July 1, 2013, inventory municipal facilities subject to this permit requirement.<br>• By July 1, 2013, identify whether there is a need for additional strategies to minimize discharges from these facilities. | • Track updates to strategies used to minimize pollutant discharges from municipal waste storage facilities. |

# BMP 7-4
# Control Infiltration and Cross Connections to the City's Stormwater Conveyance System

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**Implementation Activities:** Oregon City implements an Inflow and Infiltration (I&I) abatement program. This program investigates sanitary lines using smoke-testing, T.V. techniques, dye-testing, and flow metering for any cracking or breakage that would possibly result in infiltration from the sanitary to the storm system.<br>The City's Community Development Department reviews new and redevelopment 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. Stormwater and sanitary sewer cleaning and inspection staff are always attentive to the possibility of cross connections. This program runs congruent with other conveyance system maintenance activities. By June 30, 2013, the City will develop a GIS map layer to identify high priority inspection areas for possible cross connections. The map layer will be used to conduct visual inspections during routine catch basin cleaning activities.<br>No new septic systems are permitted in the City. Repairs and enforcement to assure properly functioning septic systems are provided by Clackamas County Water Environment Services. | • Review new and re-development for possible cross-connections.<br>• Eliminate cross connections upon identification.<br>• By June 30, 2013, develop a GIS layer identifying priority inspection areas. Conduct visual inspections for cross connections during routine catch basin cleaning activities using the developed GIS layer. | • Report whether any cross-connections were discovered and describe follow-up activities. |

# BMP 7-5
# Coordinate with the Local Fire Department related to Pollutant Discharge from Fire fighting Training Activities

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **Responsible Department:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** The main "Training Center" is located in Clackamas, but minor training activities are held at each local fire station. Oregon City has several local fire stations, but the type of training activities conducted at the fire stations would not be expected to impact stormwater.<br>By November 1, 2012, the City will contact Clackamas Fire District #1 to determine what activities they conduct to minimize pollutant discharges associated with fire fighting activities. If applicable, the City will provide educational materials to assist Clackamas Fire District #1 in reducing pollutant discharges. | • By November 1, 2012, contact Clackamas Fire District #1 to determine what activities are conducted to minimize pollutant discharges associated with fire fighting training activities.<br>• As applicable, provide educational information to Clackamas Fire District #1 by November 1, 2012. | • Track contacts made with Clackamas County Fire District #1. |

# BMP 7-6
# Conduct Master Planning and Implement Capital Projects for Stormwater Quality Enhancement

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City conducts Master Planning to update the current City drainage system and prioritize future capital improvement projects for flood control and water quality benefits. The City currently has a citywide master plan and has completed a number of smaller basin plans for select subbasins. Oregon City anticipates updating their citywide master plan within the next five years. Master plans include an evaluation and inventory of proposed capital improvement projects (CIPs) for water quality and flood control. As part of the master plan evaluation process, the City will review existing flood control facilities for retrofit opportunities to address water quality. CIPs are generally prioritized and implemented according to the ability of the City to fund by leveraging other funding sources and by the general magnitude of water quality/flood control benefit. The City implements the CIPs as funding is available.<br>The City's mapping system is updated to reflect CIP improvements. | • Citywide Master Plan will be updated by the end of the permit term.<br>• Prioritize CIPs by funding availability and water quality/flood control benefit.<br>• Update maps to include location and drainage area of any new stormwater quality CIPs. | • Track master planning activity (new plans or revisions to older plans).<br>• Track the number and associated cost of major CIP projects (exceeding $100K) implemented each year and describe the added benefit (water quality, habitat restoration, etc.) of each.<br>• Map the location and drainage area of water quality related CIPs. |

# SWMP Element #8
# Stormwater Management Facilities Operation and Maintenance Activities

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

| 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 Structural Control Facility Cleaning and Maintenance |
| *i. By July 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:*<br>*1. Legal authority to inspect and require effective operation and maintenance;*<br>*2. A strategy to inventory and map public and private stormwater management facilities as provided under Schedule A.4.h.ii.; and,*<br>*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.* | ■ | ■ | ■ | ■ |

| 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 Structural Control Facility Cleaning and Maintenance |
| *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:*<br>*1. Co-permittee-owned or operated stormwater management facilities*<br>*a. Inventory and mapping process;*<br>*b. Inspection and maintenance schedule;*<br>*c. Inspection, operation and maintenance criteria and priorities;*<br>*d. Description of inspector type and staff position or title; and,*<br>*e. Inspection and maintenance tracking mechanisms.*<br>*2. Privately-owned or operated stormwater management facilities*<br>*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:*<br>*i. Private stormwater management facilities for new development and redevelopment projects constructed under the permittee's post-construction management manual or equivalent document after January 15, 2012;*<br>*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,*<br>*iii. Any major private stormwater management facility or structural control.*<br>*b. Inspection criteria, rationale, priorities, inspection frequency and procedures for inspecting private stormwater facilities that have been inventoried and mapped;*<br>*c. Required training or qualifications to inspect private stormwater facilities;*<br>*d. Reporting requirements; and,*<br>*e. Inspection and maintenance tracking mechanism.* | ■ | ■ | ■ | ■ |

# BMP 8-1
# Conduct Stormwater Conveyance System Cleaning and Maintenance

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City inspects their stormwater conveyance system including manholes, drainage pipes, culverts, and ditches according to historical records of problem areas and/or public complaints. 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 and pipes) are cleaned when needed, based on inspections. The City manages over 160 miles of public stormwater conveyance systems. The City strives to keep the system clean and free flowing through inspection including catch basin cleaning (see next BMP) emergency response, video inspection and high pressure cleaning. Repair or replacement of public conveyance system components will be scheduled if needed. Public stormwater conveyance systems in need of repair will be repaired as routine maintenance or through the City's capital improvement programs.<br>The City does not regularly inspect private stormwater conveyance systems. However, if the City notices that repair or replacement of private system components (e.g., culverts) is required, Public Works will inform the owner of the need. Significant culvert failures that may result in flooding or damage to the public rights-of-way would be repaired by the City.<br>The City has over 14 miles of roadside ditches within its jurisdiction included in its public conveyance system. Significant ditches (typically those that are 36" in depth or greater, or those ditches along collectors and arterials) are generally cleaned annually and more frequently if needed.<br>A map showing the stormwater conveyance system components and stormwater structural controls is used when conducting maintenance activities. During maintenance, if a mapping discrepancy is discovered, the map is updated accordingly. | • Maintain, repair, and/or replace conveyance system components when needed, based on ongoing inspections.<br>• Update the stormwater system map when discrepancies are found. | • Estimation of the volume of debris removed during public conveyance system cleaning activities is made in conjunction with catch basin cleaning (see BMP "Conduct Catch basin Cleaning and Maintenance"). |

# BMP 8-2
# Conduct Catch Basin Cleaning and Maintenance

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City has an annual catch basin inspection and cleaning program. The City strives to inspect 33% of its approximately 3,600 public catch basins each year. Catch basins are generally inspected for accumulated sediment and debris that may cause flooding. Catch basin cleaning activities occur primarily during the dry weather season. Utility crews utilize tracking forms (computer printouts) to document inspection and maintenance activity for the annual reports. Maintenance, repair or replacement of public catch basins will be scheduled, as needed, following inspection.<br>A map showing the stormwater conveyance system components and stormwater structural controls is used when conducting maintenance activities. Maps are updated if a discrepancy is discovered during maintenance.<br>The City is aware of approximately 161 private catch basins located within Oregon City. The City does not inspect these facilities as part of its annual catch basin inspection and cleaning program. However as part of its routine stormwater maintenance program, the City does at times inspect portions of the associated private collection systems. If catch basins are found to be in need of cleaning, the City reports this to the property owner. | • Inspect at least 33% of the public catch basins annually.<br>• Schedule the repair, and replacement of catchbasins as needed based on inspections.<br>• Update the stormwater system map when discrepancies are found. | • Track the percent of total public catch basins inspected and/or maintained annually.<br>• Track the volume of sediment removed during cleaning activities conducted annually (this volume reported also includes sediment removed as a result of line and ditch cleaning).<br>• Track the number of catch basin replacements annually.<br>• Track the number of public catch basins added to the City's catch basin inventory annually. |

# BMP 8-3
# Public Structural Control Facility Cleaning and Maintenance

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** Oregon City inspects and/or maintains a variety of public structural water quality facilities annually. Routine inspections and/or maintenance of these public facilities vary depending on the type of facility. The City keeps a map of such facilities. The map is updated periodically to indicate the drainage areas to public structural controls. The process for conducting inspections and maintenance of these public structural water quality control facilities is provided below.<br>A map showing the stormwater conveyance system components and stormwater 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. The current structural stormwater management facilities within the City's jurisdictional boundaries, along with associated maintenance procedures and frequencies, consists of:<br>• Public detention/water quality ponds (publicly maintained) are inspected monthly. Facilities are inspected for accumulated sediment and debris; indication of illegal dumping in the facility; and any broken or non-functioning structures in need of repair and/ or replacement. Maintenance typically includes mowing and string trimming, shrub and tree care, leaf removal and trash pick-up, sediment removal, and repair to inlet and outlet structures. Repair and/or maintenance is scheduled as needed, based on inspections.<br>• Private detention/water quality ponds for residential areas (publicly maintained) are maintained by the City per the maintenance procedures described above.<br>• Private detention/water quality ponds for commercial/industrial areas (privately maintained). The City does not inspect these facilities as part of its routine public facility maintenance program, however it does report obvious maintenance needs to the property owner.<br>• Public pollution control manholes are inspected once every two years and cleaned as required. | • Inspect and maintain public structural control facilities in accordance with the documented frequencies and procedures.<br>• Update the public structural control facility inventory as needed.<br>• Update the stormwater system map in accordance with new public facility installations and when discrepancies are found. | • Track the number of public structural facilities inspected and maintained.<br>• Track the volume of sediment removed during cleaning activities.<br>• Track changes to the public structural control facility inventory as needed. |

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| • Public detention tanks are inspected during initial construction and periodically thereafter. These facilities typically do not require annual maintenance due to upstream pollution control facilities, but will be maintained if needed based on inspection results.<br>• Public Stormwater Filters (StormFilters) are inspected annually and cleaned in accordance with manufacture's recommendations. | | |

# BMP 8-4
# Private Structural Control Facility Cleaning and Maintenance

| BMP Implementation | Measurable Goals | Tracking Measures |
|---|---|---|
| **BMP Owner:** Oregon City Public Works Department<br>**Permit Year:** Ongoing<br>**BMP Description:** The City is in the process of establishing an inspection and maintenance program for private stormwater quality facilities. Currently, the City requests a maintenance agreement for all new private stormwater water quality and detention facilities.<br>By July 1, 2013, an inventory will be compiled of the private structural water quality control facilities, and the City will work to obtain respective maintenance agreements. In conjunction with the inventory, the respective as-builts for the private facilities will be located and the facilities will be mapped.<br>Additionally, by July 1, 2013, the City will develop inspection and maintenance schedules, inspection and maintenance criteria, and inspection and maintenance tracking mechanisms for private structural water quality facilities in accordance with permit requirements. | • Require new private water quality facilities to submit maintenance agreements to the City.<br>• Compile an inventory of existing private structural water quality facilities and work to collect maintenance agreements for these facilities by July 1, 2013.<br>• Implement inspection strategy for private water quality facilities by July 1, 2013. | • Track number of maintenance agreements submitted to the City each year.<br>• Track progress related to the inventory and mapping of existing private structural control facilities.<br>• Track the status of updating the inventory and map of private water quality facilities.<br>• Track the status of developing procedures in accordance with permit requirements. |