

**City of Portland, Oregon**

**National Pollutant Discharge Elimination System (NPDES)  
Municipal Separate Storm Sewer System (MS4) Discharge Permit**

**Permit Number: 101314**

## **STORMWATER MANAGEMENT PLAN**

**Submitted to:  
Oregon Department of Environmental Quality**

**April 1, 2011**



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## **ABBREVIATIONS USED**

**ACWA:** Oregon Association of Clean Water Agencies  
**BPS:** Bureau of Planning and Sustainability  
**BDS:** Bureau of Development Services (City of Portland)  
**BES:** Bureau of Environmental Services (City of Portland)  
**BMP:** Best Management Practice  
**CFR:** Code of Federal Regulations  
**CIP:** Capital Improvement Program  
**CSO:** Combined Sewer Overflow  
**DEQ:** Department of Environmental Quality (State of Oregon)  
**EPA:** Environmental Protection Agency (U.S.)  
**ESA:** Endangered Species Act (U.S.)  
**IDEP:** Illicit Discharge Elimination Program  
**IER:** Interim Evaluation Report  
**ILL:** Illicit Discharges Controls  
**IND:** Industrial/Commercial Controls  
**MEP:** Maximum Extent Practicable  
**MIP:** Maintenance Inspection Program  
**MOA:** Memorandum of Agreement  
**MON:** Environmental and Program Monitoring  
**MS4:** Municipal Separate Storm Sewer System  
**ND:** New Development Standards  
**NMFS:** National Marine Fisheries Service (NMFS)  
**NOAA:** National Oceanic and Atmospheric Administration  
**NPDES:** National Pollutant Discharge Elimination System  
**NS:** Natural Systems  
**ODOT:** Oregon Department of Transportation  
**OM/O&M:** Operations and Maintenance  
**PBOT:** Portland Bureau of Transportation

**PBOT-MO:** Portland Bureau of Transportation Maintenance and Operations

**PFP:** Public Facilities Plan

**PI:** Public Involvement

**PM:** Program Management

**PWMP:** Portland Watershed Management Plan

**SARA:** Superfund Amendments and Reauthorization Act (U.S.)

**SIC:** Standard Industrial Classification

**SOM:** Stormwater Operations & Maintenance (section of BES)

**STR:** Structural Controls

**SWMM:** Stormwater Management Manual

**SWMP:** Stormwater Management Plan

**TMDL:** Total Maximum Daily Load

**UIC:** Underground Injection Control

## INTRODUCTION

### Overview of Stormwater Management Plan

The City of Portland has prepared this *Stormwater Management Plan* (SWMP) in compliance with requirements of the City of Portland's municipal stormwater permit.<sup>1</sup> The SWMP describes best management practices (BMPs) the City will implement throughout the third permit term (January 31, 2011 through January 30, 2016) to reduce the discharge of pollutants from the municipal separate storm sewer system (MS4) into waters of the state, protect water quality, and satisfy the applicable requirements of the Clean Water Act. By reducing impacts from the MS4 to receiving waters, the BMPs will help achieve and maintain the beneficial uses (such as recreation, cold water fisheries, municipal and industrial water supply, and navigation ) the Oregon Department of Environmental Quality (DEQ) has established for Oregon water bodies.

The NPDES stormwater regulations do not prescribe specific limits; rather, they allow permittees to implement BMPs to improve water quality to the "maximum extent practicable" (MEP), based on local conditions, resources, and priorities.

### Permit Area

The City of Portland's NPDES MS4 stormwater management area includes those areas within Portland's urban services boundary that drain to the MS4. Portland's MS4 area is approximately 15,627 acres. The City's MS4 permit does not cover:

- Stormwater that flows to sumps
- Stormwater that flows to the combined sewer area
- Natural stream systems
- Direct stormwater discharges from private property to natural stream systems (without entering the MS4)
- Areas with no public stormwater infrastructure
- Areas with individual, general, or industrial stormwater permits

## Stormwater Management Program Organization and Coordination

### PROGRAM AUTHORIZATION

The Portland City Council passed a resolution supporting the NPDES MS4 permit application in June 1995. In that resolution, the Council designated the Bureau of Environmental Services (BES) as the lead for the City's implementation of the stormwater program.

### LEGAL AUTHORITY

The City of Portland maintains legal authority to implement the programs outlined in the SWMP, as initially demonstrated in Part 1 of the City's original NPDES MS4 permit application.

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<sup>1</sup> The full name of the permit is the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit. It is referred to as the municipal stormwater permit, NPDES permit, or MS4 permit.

## **CITY MANAGEMENT AND COORDINATION**

BES's Stormwater Program Manager is responsible for overall program management, compliance reporting, policy development, and coordination within the City of Portland, as well as for coordination with Portland's co-permittee, the Port of Portland.<sup>2</sup> BES staff serve as leads for the BMPs contained in the SWMP. Because the permit is citywide, many City staff outside BES are also involved with stormwater program development, implementation, and reporting.

## **CO-PERMITTEE COORDINATION**

City staff coordinates with the Port of Portland to share information about program implementation and coordination, BMP effectiveness, monitoring, and other issues related to the permit. This coordination avoids duplication and helps ensure the cost-effective use of resources.

## **COORDINATION WITH OTHER JURISDICTIONS**

The City and the Port of Portland coordinate with other regional jurisdictions (e.g., the Regional Coalition for Clean Rivers and Streams) to cooperatively address water quality issues. The City coordinates and addresses stormwater issues with other jurisdictions in the state through the Oregon Association of Clean Water Agencies (ACWA).

## **SWMP Components**

The SWMP includes the following main components, which are further described below:

- Best management practices (BMPs)
- Measurable goals

## **BEST MANAGEMENT PRACTICES (BMPs)**

BMPs are stormwater pollution control measures that include 1) approaches that prevent pollution (e.g., education programs, erosion control, protection and restoration of natural areas and vegetation, street sweeping, materials storage and handling ) and 2) treatment facilities that remove pollutants from stormwater (e.g., grassy swales, wetland detention systems, and mechanical devices such as oil/water separators).

Table 1 shows Portland's eight BMP categories and the individual BMPs under each category. More detailed information, including specific tasks for each BMP, is included in the BMP sections that follow this Introduction.

Table 2 shows the permit requirements that the BMPs address.

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<sup>2</sup> Portland and the Port of Portland are responsible for separate stormwater conveyance systems they operate within Portland's urban services boundary.



**Table 1: Summary of Best Management Practices**

BMP CATEGORY AND PURPOSE	CITY OF PORTLAND BMPs
<p><b>Public Involvement (PI)</b> To inform and educate the public about the causes of stormwater pollution, the effects on local streams and rivers, and the need for stormwater management. To encourage active participation in pollution reduction.</p>	<p><b>PI-1:</b> Implement public information, education, involvement, and stewardship activities that will raise awareness, foster community stewardship, and promote pollution prevention and stormwater management.</p>
<p><b>Operations and Maintenance (OM)</b> To implement operations and maintenance practices for public streets, sewers, and other facilities to reduce pollutants in discharges from the municipal separate storm sewer system.</p>	<p><b>OM-1:</b> Operate and maintain components of the municipal separate storm sewer system (MS4) to remove and prevent pollutants in discharges from the MS4.</p> <p><b>OM-2:</b> Operate and maintain components of public rights-of-way, including streets, to remove and prevent pollutants in discharges from the municipal separate storm sewer system.</p> <p><b>OM-3:</b> Operate and maintain other City facilities and infrastructure (not included in OM-1 or OM-2) to remove and prevent pollutants in discharges from the municipal separate storm sewer system.</p>
<p><b>Industrial/Commercial Controls (IND)</b> To reduce and control the discharge of pollutants from industrial and commercial facilities to the municipal separate storm sewer system.</p>	<p><b>IND-1:</b> Implement the Industrial Stormwater Management Program to control the discharge of pollutants from industrial and commercial facilities to the municipal separate storm sewer system.</p> <p><b>IND-2:</b> Provide education and technical assistance to reduce industrial and commercial pollutant discharges to the municipal separate storm sewer system.</p>

**Table 1 (continued)**

BMP CATEGORY AND PURPOSE	CITY OF PORTLAND BMPs
<p><b>Illicit Discharges Controls (ILL)</b> To identify, investigate, and, if appropriate, control/eliminate illicit discharges and non-stormwater discharges to the municipal separate storm sewer system.</p>	<p><b>ILL-1:</b> Identify, investigate, control, and/or eliminate illicit discharges (illicit connections, illegal dumping, and spills) to the municipal separate storm sewer system. Evaluate and, if appropriate, control non-stormwater discharges to the municipal separate storm sewer system.</p>
<p><b>New Development Standards (ND)</b> To prevent and mitigate pollutant discharges and other water quality impacts associated with new development and redevelopment during and after construction.</p>	<p><b>ND-1:</b> Control erosion, sediment, and pollutant discharges from active construction sites.</p> <p><b>ND-2:</b> Implement and refine stormwater management requirements for new development and redevelopment projects to minimize pollutant discharges and erosive stormwater flows.</p>
<p><b>Structural Controls (STR)</b> To implement structural modifications (constructed facilities) to existing systems/development to reduce pollutants in discharges from the municipal separate storm sewer system.</p>	<p><b>STR-1:</b> Structurally modify components of the storm drainage system to reduce pollutant discharges. Implement structural retrofits/improvements to existing development to reduce pollutants in discharges from the municipal separate storm sewer system.</p>
<p><b>Natural Systems (NS)</b> To help preserve and restore the natural resources and functions that prevent pollutants from entering into and discharging from the municipal separate storm sewer system.</p>	<p><b>NS-1:</b> Protect and restore natural areas and vegetation to reduce pollutants in discharges from the municipal separate storm sewer system.</p>
<p><b>Program Management (PM)</b> To ensure effective program management, coordination, and reporting.</p>	<p><b>PM-1:</b> Conduct program management, coordination, and reporting.</p>

**Table 2: Permit Requirements the BMPs Address**

<b>PERMIT SECTION/REQUIREMENTS</b>	<b>BMP(S) WHERE ADDRESSED</b>
<b>A.1</b> (Prohibit Non-stormwater Discharges)	ILL-1
<b>A.4.a</b> (Illicit Discharge Detection and Elimination): i-xiii	ILL-1
<b>A.4.b</b> (Industrial and Commercial Facilities): i-iii	IND-1
<b>A.4.c</b> (Construction Site Runoff Control): i-vi	ND-1
<b>A.4.d</b> (Education and Outreach): i, ii, iii, vi iv v vii viii	PI-1 ND-2 ND-1 OM-1, OM-2, OM-3 ILL-1
<b>A.4.e</b> (Public Involvement and Education)	PI-1
<b>A.4.f</b> Post-Construction Site Runoff: i-v	ND-2
<b>A.4.g</b> (Pollution Prevention for Municipal Operations): i ii iii iv v vi	OM-2 OM-3 IND-1 ILL-1 OM-3 STR-1
<b>A.4.h</b> (Structural Stormwater Controls Operation and Maintenance Activities) i, ii (1) i, ii (2)	OM-1 ND-2
<b>A.6</b> (Stormwater Retrofit Strategy Development)	PI-1
<b>B.5</b> (Annual Reporting Requirement)	PM-1
<b>D.6</b> a b c d e f g h i j k	PI-1 OM-1 OM-1 OM-1 OM-2 OM-3 OM-3 IND-1 IND-2 IND-2 ND-1

## **MEASURABLE GOALS**

Measurable goals are identified for each BMP. They define target levels of implementation for the BMP and are quantifiable where possible. Examples include:

- Provide outreach to approximately 15,500 K-12 students annually.
- Conduct dry weather sampling at all major City-owned outfalls at least once annually.
- Maintain the spill response hotline 24 hours a day.
- Construct public facilities to provide treatment for stormwater runoff from approximately 336 acres.

Measurable goals are targets, not fixed requirements, and as such have some flexibility (e.g., they may change as a result of adaptive management).

## **Relationship of the SWMP to Annual Compliance Reports**

The SWMP is a comprehensive plan that expresses the overall intent and breadth of the City's stormwater management program for the MS4. It includes implementation tasks and, where possible, schedules. In many cases, however, it is difficult to determine implementation details years in advance because so many variables are involved. For that reason, a greater level of detail is included in the annual compliance reports the City (together with the Port of Portland) submits to DEQ by November 1 of each year. The annual compliance reports provide information about BMP activities that have been implemented in the previous fiscal year (July 1 to June 30). They include reporting on the measurable goals identified under each BMP, as well as other activities that are essential elements of the stormwater management program. The annual compliance reports also identify activities planned for implementation in the coming fiscal year. [Annual Compliance Reports](#) are available online.

## **For More Information**

Comments, questions, or information requests can be directed to:

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## **Category: PUBLIC INVOLVEMENT (PI)**

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**Purpose:** To inform and educate the public about the causes of stormwater pollution, the effects on local streams and rivers, and the need for stormwater management. To encourage active participation in pollution reduction.

### **Overview:**

Public involvement is an integral part of Portland's stormwater program. The public must be involved, informed, and educated about stormwater issues and solutions if the program is to be effective. The Public Involvement category has one best management practice (BMP):

- **PI-1: Implement public information, education, involvement, and stewardship activities that will raise awareness, foster community stewardship, and promote pollution prevention and stormwater management.**

This BMP focuses primarily on the general public. Other education and technical assistance targets specific audiences, such as business and industry. Those activities are conducted as part of other BMPs and included under those BMPs. (See "Other BMP Activities Related to PI-1" below.)

PI-1 is discussed in detail on the following pages.

### **Pollutants Addressed:**

The pollutants addressed by PI-1 depend on the target audience. Much of the outreach and education does not target specific pollutants, but instead promotes environmental stewardship, pollution prevention, and sustainable stormwater management.

**PI-1:** Implement public information, education, involvement, and stewardship activities that will raise awareness, foster community stewardship, and promote pollution prevention and stormwater management.

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## INTRODUCTION

**PI-1** includes the following components:

- **Information:** Messages and materials distributed to the public and media. Public awareness is crucial to effectively fostering public stewardship.
- **Education:** Activities designed to increase understanding about stormwater/water quality and motivate the public to make behavioral changes.
- **Involvement:** Involving the public in identifying issues and developing solutions; encouraging and empowering Portland citizens to take an active role in the decision-making process.
- **Stewardship:** Enabling citizens to have an active, hands-on role in protecting water quality.

## STRATEGY

The City has the following strategies in place.

### Clean Rivers Education Programs

BES provides free water quality classroom and field science education programs for grades K through 12 within the City of Portland. These hands-on programs teach students about the causes and effects of water pollution and what individuals can do to protect rivers and streams. The programs also provide community service projects (e.g., marking storm drain inlets with “Dump No Waste” messages), teacher workshops, and curriculum resources.

BES leads an Education Advisory Committee that provides feedback and guidance on BES’s education programs and activities. The committee includes educators from the Portland region who are concerned with watershed and water quality issues.

### Community Stewardship Grants Program

The Community Stewardship Grants Program, in place since 1995, provides up to \$10,000 per project to citizens and organizations to encourage watershed protection. Projects must be within the City of Portland, promote citizen involvement in watershed stewardship, and benefit the public. From 1995 through June 2011, the program allocated over \$948,000 to 198 projects.

## **Regional Coalition for Clean Rivers and Streams**

The Regional Coalition for Clean Rivers and Streams is a group of agencies and municipalities in the Portland/Vancouver metro area dedicated to educating the public about the impacts of stormwater runoff. The coalition develops an annual regionwide public awareness campaign that can reach more than 1.4 million people living in the four-county area. The coalition includes the City of Portland/BES, Clackamas County Service District No. 1 and Surface Water Agency of Clackamas County, Clark County (Washington), Clean Water Services, City of Gresham, City of Vancouver (Washington), Metro, Oregon Department of Environmental Quality (DEQ), Port of Portland, and Multnomah County.

## **Watershed Education and Stewardship**

BES plans and implements watershed programs in the Columbia Slough, Johnson Creek, Fanno Creek, Tryon Creek, and Willamette River watersheds. The watershed-based approach stresses comprehensive, multi-objective watershed management through inter-jurisdictional coordination within each watershed. Each program includes public education and stewardship focused on the specific needs of the watershed, including coordination and partnerships with watershed councils and other community groups.

## **Publications and Signage**

BES distributes educational and informational materials related to stormwater. Examples include water bill inserts, plant posters with stormwater pollution prevention messages, ecoroof question and answer fact sheets, landscape swale posters, a “Stormwater Cycling” brochure and map for a self-guided tour of demonstration projects, erosion control information for street tree plantings, and educational materials for community meetings and events. BES also develops informational signage for specific projects, such as ecoroof installations, swales, and stormwater demonstration projects.

## **Coordination among City Programs**

MS4 Program staff integrate stormwater-related public information into other BES and City projects and programs (e.g., Endangered Species Act Program, Bureau of Parks and Recreation programs/projects).

## ACTIVITIES FOR 2011-2016

(Not in any order of priority)

**Task 1:** Continue Clean Rivers Education programs for grades K-12.

Assignment: Bureau of Environmental Services

**Task 2:** Continue the Community Stewardship Grants program.

Assignment: Bureau of Environmental Services

**Task 3:** Continue to participate in the Regional Coalition for Clean Rivers and Streams.

Assignment: Bureau of Environmental Services

**Task 4:** Continue to conduct watershed-specific education and stewardship activities.

Assignment: Bureau of Environmental Services

**Task 5:** Continue to develop and disseminate stormwater-related information; develop signage for stormwater projects; and provide stormwater information online.

Assignment: Bureau of Environmental Services

**Task 6:** Continue coordination among City programs to integrate stormwater-related public information.

Assignment: Bureau of Environmental Services

**Task 7:** Conduct citywide focus groups to solicit information about BES's programs and messages. Review results, and adjust programs and messaging as needed.

Assignment: Bureau of Environmental Services

**Task 8:** By January 1, 2012, reconvene the Stormwater Advisory Committee to advise general stormwater management policy and implementation issues, or effectively replace it with another stormwater-related advisory committee that may be more narrowly focused.

Assignment: Bureau of Environmental Services

### Other BMP Activities Related to PI-1:

- Education and involvement activities targeted at specific audiences, such as business and industry, are conducted as part of other BMPs and are identified under those BMPs (IND-2, ILL-1, ND-1, ND-2).



## **MEASURABLE GOALS**

- Provide outreach to approximately 15,500 K-12 students annually (classroom programs, education field programs).
- Award at least \$50,000 in community stewardship grants annually.
- Involve approximately 10,000 participants in community events, workshops, stewardship projects, and restoration events annually.
- By May 2011, develop and distribute a public education bill insert to over 200,000 water and sewer customers.

## Category: OPERATIONS AND MAINTENANCE (OM)

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**Purpose:** To implement operations and maintenance practices for public streets, sewers, and other facilities to reduce pollutants in discharges from the municipal separate storm sewer system.

### Overview:

Operations and maintenance BMPs for City facilities are important in order to remove pollutants (e.g., from storm sewer system components) and prevent pollutant discharges (e.g., from storage areas). In addition, some maintenance activities (e.g., saw-cutting) may have the potential to contribute pollutants to stormwater runoff if not properly managed. This category includes the following three BMPs that apply to public facilities:

- **OM-1: Operate and maintain components of the municipal separate storm sewer system (MS4) to remove and prevent pollutants in discharges from the MS4.**
- **OM-2: Operate and maintain components of public rights-of-way, including streets, to remove and prevent pollutants in discharges from the municipal separate storm sewer system.**
- **OM-3: Operate and maintain other City facilities and infrastructure (not included in OM-1 or OM-2) to remove and prevent pollutants in discharges from the municipal separate storm sewer system.**

Note: This BMP category addresses operations and maintenance for public facilities. Operations and maintenance related to private facilities are addressed by BMP categories IND (Industrial/Commercial Controls) and ND (New Development Standards).

OM-1, OM-2, and OM-3 are discussed in detail on the following pages.

### Pollutants Addressed:

The main pollutants addressed by OM-1, OM-2, and OM-3 are total suspended solids (TSS) and pollutants that bind to TSS, horticultural chemicals, metals, nutrients (phosphorus and nitrogen), petroleum hydrocarbons, oil and grease, and floatables (debris and litter). In addition, OM-3 addresses chlorine from water system flushing.

**OM-1:** Operate and maintain components of the municipal separate storm sewer system (MS4) to remove and prevent pollutants in discharges from the MS4.

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## INTRODUCTION

The MS4 system components managed under this BMP are:

- Separate storm sewer pipes
- Drainage ditches
- Green streets
- Catch basins
- Inlets
- Public stormwater management facilities
- Flow control facilities
- Culverts

This BMP does not include:

- Private onsite stormwater management facilities (which are addressed under BMP ND-2).
- Public sumps (which are addressed by a separate *UIC Management Plan*).
- Waters of the state (streams, rivers, etc.), which are not part of the MS4 and are the responsibility of the state of Oregon.

## STRATEGY

During the first permit cycle, the City completed an in-depth facility inventory and condition assessment of the MS4 facilities within the City's urban services boundary. The City also did an in-depth review of existing maintenance practices, including crew and equipment needs and maintenance schedules. The City maintains and updates the MS4 facility inventory and maintenance database and continues to evaluate and implement improved maintenance practices to protect water quality.

The City has the following strategies in place for operations and maintenance of the MS4.

### **Routine Assessment of System Condition**

The Stormwater Operations & Maintenance (SOM) section of BES includes designated staff who evaluate system components. Following evaluation, they write work orders to identify needed maintenance activities and priorities in a given area. The Portland Bureau of Transportation Maintenance and Operations (PBOT-MO) then schedules the applicable maintenance work.

SOM currently inspects:

- 769 public vegetated surface stormwater management facilities (e.g., green streets, swales). Inspection includes measuring sediment accumulation; assessing the condition of pipes, headwalls, and structures; assessing the vegetation at the site; identifying if any invasive plants are present; and identifying any sign of erosion or soil instability. Some facilities require more frequent inspection than others because of susceptibility to weather impacts and the potential for increased site disturbance (e.g., beavers building dams, trees falling, and vandalism, dumping, or theft).
- 464,740 lineal feet of roadside ditches and 98,716 lineal feet of culvert pipe. Inspection includes amount of sediment accumulation, bank stability, and condition of frontage culverts.

### **Maintenance and Cleaning of System Components**

Most routine maintenance is driven by inspection and condition assessment and based on maintenance action triggers, as described below. The 2008 BES [Stormwater Operations and Maintenance Manual](#) describes stormwater management facility operations and maintenance.

- Stormwater management facility maintenance includes sediment removal (with a maintenance trigger of one-third of full capacity for most facilities); structural repairs; protection from beavers; and vegetation management.
- The trigger for cleaning ditches is when sediment is obscuring more than half the culvert that is downstream of the ditch. To reduce post-maintenance erosion, sediment removal from ditches is accompanied by hydroseeding of exposed soil. Cleaning is generally delayed until dry weather.

The remaining facility types are cleaned either in conjunction with the facilities described above (e.g., a catch basin in front of a surface stormwater management facility), based on maintenance schedules, or in response to public complaint.

### **Review and Incorporation of Newly Constructed Public System Components**

All development and construction plans that include surface stormwater management facilities that will revert to public ownership (those that manage stormwater from public rights-of-way) undergo review by stormwater operations and maintenance (O&M) staff, as well as overall plan review by the Bureau of Development Services. After construction, the facilities are turned over to the City for maintenance after a 2-year warranty period and are incorporated into the City's inspection and maintenance schedules.

### **Research and Pilot Testing of New O&M Practices**

Stormwater facility O&M technologies continue to evolve. BES and PBOT-MO staff research and pilot test O&M practices that could improve effectiveness and reduce pollutant discharges. To date, pilot testing has focused on spill control, erosion control, limitation of water use, and product substitution (use of least-hazardous products).

## **Staff Training on O&M-related Stormwater Issues and Practices**

Stormwater O&M staff receive training on topics that include:

- Biological hazards
- Monitoring and maintenance of constructed wetlands, waterways, and associated uplands
- Native plant restoration
- Sustainable infrastructure
- West Nile virus
- Wetland plant identification
- Habitat usage and species protection
- Materials management

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to conduct routine assessment of MS4 condition. Develop a protocol for prioritizing major public facilities for annual inspection. Inspect all public stormwater management facilities (pollution reduction facilities) once annually.

Assignment: Bureau of Environmental Services

**Task 2:** Continue maintenance and cleaning of system components based on complaints and on inspections/maintenance action triggers.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 3:** Continue to review and incorporate newly constructed system components into the City's inspection and maintenance database and inspection schedules. Enter all newly constructed public stormwater system components into an inspection and maintenance database within six months after construction is completed.

Assignment: Bureau of Environmental Services

**Task 4:** Continue to research and pilot test O&M practices that could reduce pollutant discharges, including changes to existing O&M practices to improve efficiency and effectiveness.

Assignment: Bureau of Environmental Services and Bureau of Transportation Maintenance and Operations

**Task 5:** Continue to train staff on O&M-related stormwater issues and practices.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 6:** Combine best practices requirements of City and ODOT plans into a training handbook for PBOT-MO staff. The handbook will include guidance for maintenance procedural steps, preferred seasonality of work, and materials management. Complete and implement the materials management section of the handbook by January 1, 2012. Complete and implement the remainder of the handbook by January 1, 2015.

Assignment: Bureau of Transportation Maintenance and Operations

**Other BMP Activities Related to OM-1:**

- **OM-2** addresses O&M for public rights-of-way.
- **OM-3** addresses O&M for other City facilities and infrastructure.
- **ND-2** addresses O&M for private facilities.
- While OM-1 includes assessment of system conditions, any resulting structural retrofits that are implemented are included under **STR-1**.

**MEASURABLE GOALS**

- Develop a training handbook for PBOT-MO staff during the permit term.
- Provide the following maintenance actions over the five-year permit cycle:
  - Clean 31,000 lineal feet of culverts.
  - Repair 10,000 lineal feet of culverts.
  - Clean 250,000 lineal feet of ditches.
  - Clean 38,000 inlets and catch basins.
  - Repair 1,500 inlets and inlet leads.
  - Clean 135 stormwater management facilities/pollution reduction facilities.
  - Repair 40 pollution reduction facilities.

**OM-2:** Operate and maintain components of public rights-of-way, including streets, to remove and prevent pollutants in discharges from the municipal separate storm sewer system.

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## INTRODUCTION

The system components managed under this BMP are:

- Paved streets
- Substandard streets (streets not fully improved to City standards)
- Bridges
- Sidewalks
- Utility corridors
- Tree planting strips
- Other right-of-way components

This BMP does not include:

- Private streets
- Components of the storm drainage system (e.g., stormwater management facilities, catch basins, pipes, etc., which are covered under OM-1)
- Facilities owned and operated by other jurisdictions (e.g., county, Oregon Department of Transportation)

## STRATEGY

During the first permit cycle, the City completed an in-depth review and evaluation of operations and maintenance activities in public rights-of-ways. The City continues to conduct research and pilot tests to identify potential improvements and incorporate effective approaches into O&M procedures.

City operations and maintenance within the public rights-of-way includes:

- Street cleaning (sweeping, flushing, leaf collection)
- Paving (grinding, saw-cutting, patching, overlay, crack filling)
- Concrete work (curbs, sidewalks, bridges, stairways, retaining walls)
- Pavement markings and street signage (which involve chemicals, paints, adhesives, etc.)
- Snow and ice control and other emergency responses (e.g., flood response)
- Cleanup of illegal dumping/other wastes
- Vegetation management (e.g., horticultural chemical application, mowing)
- Road shoulder maintenance (e.g., re-gravelling, shallow excavation)

As part of these activities, work procedures are implemented to limit pollutant discharges to the MS4, including:

- Spill control and prevention
- Erosion prevention and sediment control
- Control of other pollutants—e.g., waste generated by grinding or saw cutting
- Pilot testing of new procedures—e.g., for spill control and prevention, erosion control
- Staff training on O&M-related stormwater issues and practices
- Outreach to other City bureaus and local agencies to limit pollutant discharges from O&M practices in public rights-of-way

In permit year 9 (July 1, 2003 through June 30, 2004), NOAA Fisheries Service approved the Limit 10 application [under the Endangered Species Act (ESA) section 4(d) rule] the Portland Bureau of Transportation Maintenance and Operations (PBOT-MO) submitted for routine roadside maintenance. As part of that approval, PBOT-MO committed to follow, with modifications, the best management practices outlined in ODOT's *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices* as guidance for PBOT-MO's transportation-related maintenance.

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** During operations and maintenance activities in public rights-of-way, continue to implement work procedures that limit pollutant discharges to the MS4 (e.g., spill control and prevention; erosion prevention and sediment control; control of other pollutants). Continue to use the modified ODOT *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices* as guidance for maintenance.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 2:** Continue to pilot test alternative methods, products, and practices to reduce pollutant discharges to the MS4. Incorporate effective approaches into O&M procedures.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 3:** Continue to conduct staff training on O&M-related stormwater issues and practices.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 4:** Continue outreach to other City bureaus and local agencies to limit pollutant discharges.

Assignment: Bureau of Transportation Maintenance and Operations

**Task 5:** Combine best practices requirements of City and ODOT plans into a training handbook for PBOT-MO staff. The handbook will include guidance for maintenance procedural steps, preferred seasonality of work, and proper materials management.

Assignment: Bureau of Transportation Maintenance and Operations



**Task 6:** Implement a Street Leaf Removal Program in designated leaf removal districts. Residential streets may be swept from three to six times per year in these areas as an alternative to implementing the Leaf Removal Program.

Assignment: Bureau of Transportation Maintenance and Operations

**Other BMP Activities Related to OM-2:**

- **OM-1** addresses O&M for the municipal separate storm sewer system.
- **OM-3** addresses O&M for other City facilities and infrastructure.

**MEASURABLE GOALS**

- Sweep arterials six times per year.
- Develop a training handbook for PBOT-MO staff during the permit term.

**OM-3:** Operate and maintain other City facilities and infrastructure (not included in OM-1 or OM-2) to remove and prevent pollutants in discharges from the municipal separate storm sewer system.

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## INTRODUCTION

This BMP addresses operations and maintenance related to:

- City buildings (office buildings, parking structures)
- City properties (e.g., parks, field operations sites)
- Other City infrastructure (e.g., wells, access roads, water reservoirs and tanks, pump stations, marinas, boat docks)

It includes activities such as fleet vehicle washing, storage and use of toxic materials, and general maintenance.

It does not address:

- Private facilities and infrastructure.
- Elements of the municipal separate storm sewer system (included in OM-1).
- Components of public rights-of-way (included in OM-2).

## STRATEGY

The City has the following strategies in place for operations and maintenance of City facilities and infrastructure:

- Integrated Pest Management (IPM) Program: The IPM program is designed to minimize the need for fertilizers, pesticides, and irrigation and is used by multiple City bureaus.
- Salmon-Safe certification: The Bureau of Parks and Recreation was certified in 2004 by Salmon Safe, an independent certification organization, as employing land management practices that minimize harmful impacts on water quality and fish habitat. The bureau examines its maintenance activities as part of annual compliance requirements for continued Salmon Safe certification.
- Pesticide-Free Park Program: The Bureau of Parks and Recreation began this program in 2004 to evaluate and implement pesticide-free management approaches at City parks.
- Multiple City bureaus stipulate contracting provisions (e.g., for maintenance) to minimize stormwater pollutant discharges.
- Potable Water Discharge Program: This program assesses the flow rates and pollutant control measures needed to control discharges from tanks, reservoirs, and hydrants.

- Toxics reduction measures (use, storage, transport, and disposal) used by all bureaus.
- The City's green purchasing program (e.g., use of non-chlorinated paper, hybrid vehicles).
- Cosmetic cleaning (building, equipment, and vehicle washing; graffiti removal), with discharges directed to the sanitary system where appropriate.
- Management of discharges from fire response and non-emergency training (currently discharges to the sanitary system).
- Good housekeeping and reuse/recycling practices at City sites and properties

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to implement the existing elements of the strategy identified above:

- Integrated Pest Management Program
- Salmon Safe certification
- Pesticide-Free Park Program
- Contracting provisions
- Potable Water Discharge Program
- Toxics reduction measures
- Green purchasing program
- Cosmetic cleaning that is appropriately managed
- Management of discharges from fire response and non-emergency training
- Good housekeeping, cleanup, and reuse/recycling practices

Assignment: Relevant City bureaus

**Task 2:** Evaluate current facilities, structures, and activities for potential stormwater impacts. By January 1, 2013, identify, evaluate, and prioritize stormwater pollution prevention opportunities and improvements (e.g., improved materials management) to reduce potential impacts at properties owned or operated by the City of Portland.

Assignment: All City bureaus

**Task 3:** Educate/train bureau staff about stormwater impacts associated with O&M activities and how to minimize these impacts.

Assignment: All City bureaus

**Task 4:** Continue to implement the Integrated Pest Management Program in all parks, and implement pesticide-free parks management and other alternative methods of pest control as resources allow. Annually conduct a minimum of one formal education and outreach activity with each volunteer group that assists with maintaining pesticide-free parks. Maintain pesticide-free parks management at a minimum of three parks.

Assignment: Bureau of Parks and Recreation

**Task 5:** Evaluate the use of alternative equipment, materials, and fuels and of modified practices.

Assignment: Bureau of General Services, Bureau of Transportation Maintenance and Operations

**Other BMP Activities Related to OM-3:**

- **OM-1** addresses O&M for the municipal separate storm sewer system.
- **OM-2** addresses O&M for public rights-of-way.
- While OM-3 includes assessment of facility conditions, any resulting structural retrofits that are implemented are included under **STR-1**.

**MEASURABLE GOALS**

- Inspect, and maintain as necessary, all stormwater and stormwater containment and pollution prevention facilities in City maintenance yards annually.

## **Category: INDUSTRIAL/COMMERCIAL CONTROLS (IND)**

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**Purpose:** To reduce and control the discharge of pollutants from industrial and commercial facilities to the municipal separate storm sewer system.

### **Overview:**

Some industrial and commercial uses have high potential to contribute pollutants to the storm sewer system. The Industrial/Commercial Controls category includes the following two best management practices (BMPs) that focus on reducing the discharge of pollutants in stormwater runoff from certain commercial and industrial sites through permitting, inspection, and enforcement (IND-1), as well as through outreach and technical assistance (IND-2):

- **IND-1: Implement the Industrial Stormwater Management Program to control the discharge of pollutants from industrial and commercial facilities to the municipal separate storm sewer system.**

This BMP focuses on regulatory approaches through permitting, inspection, and enforcement. Under IND-1, the City administers industrial stormwater NPDES permits for specific industrial and commercial facilities. The City also issues City discharge authorizations to manage and control discharges from sites that do not require an NPDES permit, but may have discharges detrimental to the storm sewer system or receiving waters.

- **IND-2: Provide education and technical assistance to reduce industrial and commercial pollutant discharges to the municipal separate storm sewer system.**

This BMP focuses on non-regulatory approaches to discharge control. It addresses permitted industries and those not under a permit.

IND-1 and IND-2 are described in detail on the following pages.

### **Pollutants Addressed:**

A wide range of pollutants are associated with commercial and industrial activities. The most common of these are metals (zinc, copper, lead, iron, manganese), biochemical oxygen demand (BOD), volatile pollutants, total suspended solids (TSS), toxics that bind to TSS, and oil and grease.

**IND-1:** Implement the Industrial Stormwater Management Program to control the discharge of pollutants from industrial and commercial facilities to the municipal separate storm sewer system.

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## INTRODUCTION

In 1994, the City of Portland entered into a memorandum of agreement (MOA) with the Oregon Department of Environmental Quality (DEQ) to administer the NPDES industrial stormwater program for facilities required by federal law to obtain permits for discharges to the City's MS4. In 1999, the MOA was revised to give the City administrative authority over all industrial NPDES discharges within the City's urban services boundary (including direct discharges to water bodies and discharges to other jurisdictions' systems). The MOA was updated in 2010 to include new City responsibilities to work with applicants applying for their first NPDES permit. The City administers site permits and inspects sites for compliance with permit conditions, but DEQ maintains responsibility for enforcing permit conditions and collecting fees.

City Code section 17.39 (Stormwater Discharges) gives the City legal authority to control discharges to the storm sewer system. The code was most recently updated in 2008 to reflect changes in the City's enforcement rules.

The Industrial Stormwater Management Program controls discharges from:

- Commercial/industrial facilities with standard industrial codes (SICs) that are listed in the Federal Register [CFR 122.26(b)(14)(I-ix, xi)] as requiring an industrial 1200Z NPDES stormwater permit.
- Commercial/industrial facilities in the Columbia Slough Watershed that require a 1200COLS permit because facilities may contribute pollutants of concern to the storm drainage system.
- Landfills. (There are 21 closed landfills, mostly for construction waste, within Portland.)
- Industrial facilities subject to Title III of the Superfund Amendments and Reauthorization Act (SARA).
- Any other industrial or commercial facility that poses a risk to the MS4 or receiving waters from stormwater discharges and/or spills and requires a City discharge authorization.

## STRATEGY

### Industrial Stormwater Management Program

The Industrial Stormwater Management Program identifies industrial and commercial facilities that may need permits, using referrals from City staff, field reconnaissance, and review of building permit applications (which identify SIC codes subject to permits). It then conducts site inspections to assess exposure risk. If stormwater exposure exists, the facility must either remove the exposure or obtain a permit that specifies operational and structural requirements, including monitoring, to control discharges.<sup>3</sup> If a facility has a federally or state-listed SIC category, but has no exposure of products to stormwater runoff, no permit is required; the City certifies that no exposure exists, and DEQ issues a no-exposure certification.

City inspection and monitoring activities include:

- Compliance inspections of permitted facilities.
- Review of each permitted facility's monitoring results and annual report.
- Review and technical assistance for development of stormwater management plans at permitted facilities.
- "Sweeps" (inspections of identified facilities) in specific regions, watersheds, or by industry types to identify facilities that may need permits and/or may need to implement source control measures.
- Periodic inspections of other non-permitted commercial/industrial facilities (e.g. facilities with no-exposure certifications).
- Response to complaints and referrals.
- Technical assistance for retrofitting private stormwater drainage systems to maximize infiltration and treatment and minimize the discharge of pollutants at commercial/industrial sites.
- Coordination with the State of Oregon on additional strategies to control pollutants in stormwater runoff from industrial and commercial facilities in drainages with watershed-specific or basin-specific TMDLs (total maximum daily loads) or facilities that have specific Superfund program requirements.

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<sup>3</sup> The number of permitted facilities fluctuates as industrial tenants and activities change. The NPDES MS4 annual compliance reports provide numbers for each permit year.

## ACTIVITIES FOR 2011-2016

(Not in any order of priority)

**Task 1:** Continue to administer NPDES industrial stormwater permits within Portland's urban services boundary.

Assignment: Bureau of Environmental Services

**Task 2:** Identify industries, operating and closed landfills, TSDs, and SARA Title III facilities that may need permits because of new or changed operations that create potential stormwater exposure.

Assignment: Bureau of Environmental Services

**Task 3:** Revise City Code Title 17.39 to increase the City's ability to enter private properties, require controls of sediment discharges, and require controls to limit the threat of pollutant discharges to the MS4.

Assignment: Bureau of Environmental Services

**Task 4:** Conduct "sweeps" of identified priority areas to determine the need for additional permits. Beginning January 1, 2013, annually conduct an industrial facilities inspection sweep in at least one targeted area.

Assignment: Bureau of Environmental Services

### Other BMP Activities Related to IND-1:

- **IND-2** addresses education and technical assistance aimed at reducing industrial and commercial pollutant discharges.
- New development and redevelopment are subject to the stormwater management requirements of the City's *Stormwater Management Manual* and are addressed under **ND-2**. The manual also includes pollution control requirements for industrial and commercial facilities with site characteristics or uses that may generate high pollutant concentrations or specific pollutants of concern.



## **MEASURABLE GOALS**

- Inspect all permitted (1200Z, 1200COLS) facilities once per year.
- Review each permitted facility's monitoring and annual report each year.
- Survey 100 percent of newly identified facilities to determine the need for NPDES permits.
- Every 5 years, inspect industries (individual sites) previously identified as having no exposure and not required to obtain a permit.
- Complete revision of City Code Title 17.39 by 2012.

**IND-2:** Provide education and technical assistance to reduce industrial and commercial pollutant discharges to the municipal separate storm sewer system.

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## **INTRODUCTION**

Since the early 1990s (when the City's Industrial Pretreatment Program and Industrial Stormwater Management Program began), the City has actively promoted pollution control at the source. This includes education and technical assistance to commercial and industrial businesses to help them implement best management practices and pollution prevention measures. These activities are aimed at permitted industries and those not under a permit.

## **STRATEGY**

The City has its own pollution prevention programs and also partners with other organizations, as described below.

### **Good Housekeeping BMP Fact Sheets**

The City distributes good housekeeping BMP fact sheets to industrial and commercial facilities that may or may not be required to obtain a permit under the Industrial Stormwater Management Program (see IND-1).

### **Regional Pollution Prevention Outreach (P2O) Team**

The City participates in the Regional Pollution Prevention Outreach (P2O) Team, a multi-agency group of air, water, wastewater, energy, hazardous waste, and solid waste professionals that promotes and implements comprehensive pollution prevention programs. The P2O Team sponsors the Eco-Logical Business Program, which certifies businesses that use environmentally responsible business practices. As of 2010, 40 automotive repair and service shops within the City of Portland have been certified under the program, as well as 15 landscape services firms that work in Portland.

### **BEST Program**

The Bureau of Planning and Sustainability's BEST (Businesses for an Environmentally Sustainable Tomorrow) Program assists industries with green practices that conserve resources and address stormwater and solid waste. Significant projects and practices are recognized through annual BEST awards. Between 1993 and 2010, 134 area businesses have won awards.

### **Education and Technical Assistance**

The City provides education and technical assistance to businesses in the Columbia South Shore Well Field Wellhead Protection Area to help them implement best management practices and pollution prevention measures.

### **Partnerships**

The City works in partnership with trade groups to implement pollution prevention.

## ACTIVITIES FOR 2011-2016

(Not in any order or priority)

**Task 1:** Continue to develop and distribute good housekeeping BMP fact sheets and other educational materials to facilities permitted under the Industrial Stormwater Management Program (IND-1) and facilities not covered under the program.

Assignment: Bureau of Environmental Services

**Task 2:** Continue participation in the P2O Team and Eco-Logical Business Program.

Assignment: Bureau of Environmental Services

**Task 3:** Continue the BEST assistance and awards program.

Assignment: Bureau of Planning and Sustainability

**Task 4:** Continue education and technical assistance to regulated businesses in the Columbia South Shore Well Field Wellhead Protection Area.

Assignment: Water Bureau, Portland Fire & Rescue

**Task 5:** Continue partnerships with trade groups to implement pollution prevention.

Assignment: Bureau of Environmental Services

**Task 6:** Evaluate new business sectors for targeted outreach, technical assistance, trade group partnerships, and/or implementation of the Eco-Logical Business Program. Conduct a minimum of one targeted stormwater education and outreach activity with each of the following groups: Portland Community College, Association of Car Washers, International Society of Arborists (ISA local chapter), and Oregon Association of Nurseryman (OAN).

Assignment: Bureau of Environmental Services

**Task 7:** Evaluate one new business sector for implementation of the Eco-Logical Business Program by January 1, 2013.

Assignment: Bureau of Environmental Services

### Other BMP Activities Related to IND-2:

The following BMPs also include tasks related to industrial and commercial facilities:

- **IND-1** includes implementation of the Industrial Stormwater Management Program to control the discharge of pollutants from industrial and commercial facilities.
- **PI-1** addresses general public outreach and education associated with the NPDES stormwater program.

## **MEASURABLE GOALS**

- Under the Eco-Logical Business Program, certify 10 additional auto shops and 20 additional landscape firms that provide services within the City Portland by 2015.
- Evaluate one new business sector for the Eco-Logical Business Program.

## **Category: ILLICIT DISCHARGES CONTROLS (ILL)**

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**Purpose:** To identify, investigate, and, if appropriate, control/eliminate illicit discharges and non-stormwater discharges to the municipal separate storm sewer system.

### **Overview:**

The City of Portland's activities in this category are included under one best management practice:

- **ILL-1: Identify, investigate, control, and/or eliminate illicit discharges (illicit connections, illegal dumping, and spills) to the municipal separate storm sewer system.**

**Evaluate and, if appropriate, control non-stormwater discharges to the municipal separate storm sewer system.**

ILL-1 is described in detail on the following pages.

### **Pollutants Addressed:**

The City's activities under ILL-1 address most pollutants commonly found in urban runoff. The type and amount of pollutants addressed depend on the pollutant source(s). For example, eliminating an illicit wash water discharge would address detergents (surfactants, phosphorous and nitrogen), solids, and oil and grease. Pollutants addressed by controlling non-stormwater discharges (such as discharges from flushing of water systems, pumped groundwater, or air conditioner condensate) include chlorine, phosphorus, and metals.

**ILL-1:** Identify, investigate, control, and/or eliminate **illicit discharges** (illicit connections, illegal dumping, and spills) to the municipal separate storm sewer system. Evaluate and, if appropriate, control **non-stormwater discharges** to the municipal separate storm sewer system.

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## INTRODUCTION

**Illicit discharges** include the following:

- Illicit connections. These are piped connections that allow sanitary or other non-stormwater discharges to flow into the stormwater system. An example is a toilet plumbed into the stormwater system instead of the sanitary system.
- Illegal dumping. This includes solid and liquid wastes. Examples include dumping garbage or used motor oil into storm drains.
- Spills. These include accidental or unplanned discharges into the storm drain system. Examples include fluids released from vehicle accidents or leaking storage containers.

**Non-stormwater discharges** comprise 23 types of discharges that can be grouped under four categories, as follows<sup>4</sup>:

Agency Process Waters (discharges from city, state, or other jurisdictions)

- Water line flushing
- Discharges from potable water sources
- Street wash waters
- Discharges or flows from emergency fire-fighting
- *Start-up flushing of groundwater wells*
- *Potable groundwater monitoring wells*
- *Draining and flushing of municipal potable water storage reservoirs*
- *Discharges of treated water from investigation, removal and remedial actions selected or approved by DEQ pursuant to ORS Chapter 465, the state's environmental cleanup law*

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<sup>4</sup> The City's 1995 permit included 19 types of non-stormwater discharges. Beginning with the 2004 permit, four more types (shown in italics) were added, for a total of 23. With the exception of draining and flushing of municipal potable water storage reservoirs, the added discharges are under State regulatory authority and permitted by DEQ or the State Water Resources Department.

#### Single Site Behaviors (property owner discharges)

- Landscape irrigation
- Irrigation water
- Lawn watering
- Individual residential car washing
- Dechlorinated swimming pool discharges

#### Building Discharges

- Foundation drains
- Air conditioning condensate
- Water from crawl space pumps
- Footing drains

#### Natural Waters

- Diverted stream flows
- Uncontaminated pumped groundwater
- Rising groundwaters
- Uncontaminated groundwater infiltration
- Springs
- Flows from riparian habitats and wetlands

## **STRATEGY**

The City has the following strategies in place to address illicit discharges and non-stormwater discharges.

### **Illicit Discharge Elimination Program (IDEP)**

The City's Illicit Discharge Elimination Program (IDEP), initiated in 1994, includes the following elements:

- Identifying and eliminating illicit cross-connections to the system.
- Monitoring the storm drainage system during dry weather to identify and eliminate illicit or non-stormwater discharges of concern.
- Tracking stormwater outfalls added or removed from the system.

### **Industrial Stormwater Management Program**

Under the Industrial Stormwater Management Program (as described in BMP IND-1), illicit discharges and connections from commercial/industrial facilities may be identified through inspections or by referrals. The program addresses prohibited discharges and other non-stormwater discharges to the storm sewer system through policies, control measures, and/or enforcement actions, as appropriate.

## Spill Response

The City's **Spill Response Program** was developed in 1994 to provide immediate response to emergency spills (liquid and solid) and investigate pollution complaints. Staff investigate reports of stormwater pollution and problems in the sewage and drainage collection system, and monitor sewage cleanups. Staff monitor the program's spill response hotline 24 hours a day, 365 days a year and respond to reported spills, slicks, and other unknown discharges. The program also refers problems to other enforcement agencies as appropriate.

The **Regional Spill Response Committee** is a multi-agency committee established in 1995 to consult and debrief on spill response. It also provides staff training and coordination. The committee meets quarterly and is chaired by Portland's Bureau of Environmental Services (BES). Member agencies include:

- City of Portland – Bureaus of Environmental Services, Fire, Transportation (Maintenance), and Water
- Oregon Department of Transportation (ODOT)
- State Police
- Oregon Department of Fish and Wildlife
- National Marine Fisheries Service (NOAA Fisheries)
- Clean Water Services
- Clackamas County
- Multnomah County
- Port of Portland

## Illegal Dumping

The Bureau of Planning and Sustainability (BPS) manages residential and commercial **solid waste and recycling programs** to prevent illegal dumping of solid and liquid wastes. These programs include curbside recycling, yard debris collection, and bulky waste collection. BPS offers education and outreach programs, such as the Master Recycler Program, to reduce waste and encourage recycling. These programs coordinate with waste collection programs conducted by neighborhood, non-profit, and regional agencies. .

The **Spill Response Program** (described above) includes responding to illegal dumping of solid materials (e.g., soil, garbage).

## Non-Stormwater Discharges

The City began non-stormwater sampling in 1994. A non-stormwater discharges evaluation report was completed and submitted to DEQ as part of the City's Interim Evaluation Report (IER) in May 2006. The City identified sampling locations or surrogate sampling locations for each type of non-stormwater discharge and analyzed the samples across a suite of common stormwater pollutants. The results were compared to instream and/or groundwater water quality standards to determine if the discharges had the potential to negatively impact beneficial uses of waters of the state. If potential impacts were identified, the City evaluated whether mitigation was practicable for the amount, type, and duration of the applicable discharge. In some cases, City policies or procedures were changed to mitigate or limit discharges or to require certain discharges to be routed to the



sanitary sewer. Examples include dechlorinating superchlorinated Water Bureau discharges; requiring all new swimming pools to be plumbed to the sanitary system; pretreating pumped groundwater; and managing air conditioning condensate, either by new sanitary connection or pretreatment. The City also educates dischargers about alternative non-stormwater management actions that have less water quality impact.

The 2006 report evaluated the 19 non-stormwater discharge categories identified in the City's 1995 permit. Four additional categories included in the 2004 and 2011 permits have a limited presence within the City's jurisdiction, and the City has limited scope in regulating these state-regulated activities. For that reason, those categories were assessed on a policy basis only and were not fully evaluated with sampling. The City has implemented new policies that address two of these categories (draining/flushing of reservoirs and discharges from environmental cleanup sites).

### **Illicit Discharge Response and Enforcement**

In 2006, the City completed a two-year update of City Code and administrative rules for the City's enforcement program for illicit discharges to stormwater and sanitary systems.

The administrative rules identify the enforcement tools that can be used for violations. These include written warnings, written citations, cease and desist work orders, administrative reviews, voluntary compliance agreements, penalties, termination of permit, and summary abatement by BES.

### **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to implement the existing elements of the Illicit Discharge Elimination Program.

Assignment: Bureau of Environmental Services

**Task 2:** Continue to identify illicit discharges and connections from commercial/industrial facilities through the Industrial Stormwater Management Program.

Assignment: Bureau of Environmental Services

**Task 3:** Revise monitoring protocols for sampling related to illicit discharges and spill response.

Assignment: Bureau of Environmental Services

**Task 4:** Continue coordination with the Regional Spill Response Committee.

Assignment: Bureau of Environmental Services

**Task 5:** Continue the City's Spill Response Program, including the spill response hotline. Continue to train City field staff to identify and refer spills and potential illicit discharges to the hotline and on their roles and responsibilities in preventing discharges.

Assignment: Bureau of Environmental Services

**Task 6:** Continue to implement solid waste programs (curbside recycling, yard debris collection, and bulky waste collection) to prevent illegal dumping.

Assignment: Bureau of Planning and Sustainability

**Task 7:** Continue to limit impacts from non-stormwater discharges to the MS4.

Assignment: Bureau of Environmental Services

#### **Other BMP Activities Related to ILL-1:**

The following BMPs also include tasks related to preventing or addressing illicit discharges:

- **PI-1** includes volunteer education and outreach activities, such as marking storm drain inlets with “No Dumping, Drains to Stream.”
- Illicit discharges associated with City facilities or rights-of-way are addressed by standard maintenance practices of the City (see **OM-1, OM-2, and OM-3**).

### **MEASURABLE GOALS**

- Conduct dry weather sampling at all major City-owned outfalls at least once annually.
- Inspect the priority outfalls a minimum of three times a year.
- Expand the IDEP program to include the CSO system below diversion structures, where the outfalls discharge stormwater only and should have no dry-weather flows. Currently, the program addresses all of the westside outfalls and 25 percent of the eastside outfalls. Expand the program to all eastside outfalls by December 2013.
- Maintain the spill response hotline 24 hours a day.

## Category: NEW DEVELOPMENT STANDARDS (ND)

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**Purpose:** To prevent and mitigate pollutant discharges and other water quality impacts associated with new development and redevelopment during and after construction.

### Overview:

The design and construction of new development and redevelopment can have significant impacts on water quality. If not properly managed, ground-disturbing construction can result in erosion and the discharge of sediment and other pollutants. Without appropriate stormwater management, impervious surfaces created by new development can increase the volume and peak rate of stormwater runoff, which can cause erosion and flooding. Oils and grease, metals, and other pollutants from parking lots, roadways, rooftops, and other impervious surfaces may be transported to streams and rivers by stormwater runoff.

The New Development Standards category includes the following two best management practices (BMPs):

- **ND-1: Control erosion, sediment, and pollutant discharges from active construction sites.** This BMP addresses erosion, sediment, and pollution control requirements for private property and public works builders/contractors during any ground-disturbing construction.
- **ND-2: Implement and refine stormwater management requirements for new development and redevelopment projects to minimize pollutant discharges and erosive stormwater flows.**

This BMP addresses stormwater management requirements that developers/builders must incorporate into new development and redevelopment to mitigate stormwater impacts after project completion (for the life of the project). These requirements are primarily implemented through the *Stormwater Management Manual* (SWMM).

ND-1 and ND-2 focus on design and construction standards for new development and redevelopment—specifically, erosion control and stormwater management. Land use and zoning requirements also help prevent/reduce impacts of new development and redevelopment on natural resources; these are included under BMP NS-1 (Natural Systems).

ND-1 and ND-2 are discussed in detail on the following pages.

### Pollutants Addressed:

The main pollutants addressed by ND-1 are total suspended solids (TSS) and pollutants (such as metals) that bind to TSS. Construction site controls also reduce the discharge of floatable litter and debris, concrete washwater, bacteria, slurry, and paints.

- ND-2 addresses most pollutants commonly found in urban runoff.

**ND-1:** Control erosion, sediment, and pollutant discharges from active construction sites.

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## INTRODUCTION

Five City bureaus manage erosion, sediment, and pollutant control on construction sites:

- The Bureau of Development Services (BDS) administers and enforces City requirements pertaining to erosion, sediment, and pollutant control for private development.
- The public works bureaus (Water, Environmental Services, Transportation, and Parks and Recreation) manage erosion, sediment, and pollutant control for their own public works permit projects.

## STRATEGY

The City has the following strategies in place to address erosion, sediment, and pollutant control.

### **Title 10 and Erosion Control Manual**

Title 10 of City Code and the City's [\*Erosion and Sediment Control Manual\*](#) (updated March 2008) are the basis of the City's comprehensive, citywide erosion and construction site pollutant control program. The Title 10 regulations and the manual cover site planning and use of best management practices (BMPs) for any ground-disturbing activity, as well as inspection and enforcement measures.

Title 10 specifies the following applicability and requirements:

- Applies to any ground-disturbing activity, regardless of site size.
- Allows no visible or measurable offsite discharge at any time during construction.
- Requires compliance with the *Erosion and Sediment Control Manual*.
- Requires the same standards for private construction sites and public works permit projects.

The City's public works bureaus review and revise their contract specifications and permit conditions as needed to comply with Title 10 requirements and the most recent *Erosion and Sediment Control Manual*.

### **Training and Assistance**

The City provides training and assistance on erosion, sediment, and pollutant control requirements to City staff and contractors/permit applicants. Publications, information, and advice are also available to the public online and through BDS's Development Services Center.

## **Enforcement Hotline**

BDS operates a hotline and website for receiving erosion, sediment, and other complaints. After receiving an erosion-related complaint, BDS and the Bureau of Environmental Services (BES) identify and implement an appropriate response, which may include education, technical assistance, or enforcement. The response process applies to permitted and non-permitted construction activities.

## **Construction-Related NPDES Permits**

The City's public works bureaus obtain construction-related NPDES permits (1200C) for each project site over 1 acre in size from the Oregon Department of Environmental Quality (DEQ). In lieu of individual 1200C site permits, the Portland Bureau of Transportation and Bureau of Parks and Recreation hold agency program permits (1200CA permits, which are currently under administrative extension) that cover all development-related activities. Private developers are required to obtain 1200C permits directly from DEQ if the project site is over 1 acre in size.

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to implement the requirements of Title 10 and the *Erosion and Sediment Control Manual*. Track and analyze enforcement actions to evaluate program effectiveness.

Assignment: Bureaus of Development Services, Water, Environmental Services, Transportation, and Parks and Recreation

**Task 2:** Review the *Erosion and Sediment Control Manual* and update as needed. Research other manuals, including the DEQ manual, and incorporate relevant/appropriate revisions.

Assignment: Bureau of Development Services

**Task 3:** Continue to provide erosion, sediment, and pollutant control training and assistance to City staff and contractors/permit applicants.

Assignment: Bureaus of Development Services, Water, Environmental Services, Transportation, Maintenance, and Parks and Recreation

**Task 4:** Continue to review and revise construction and contract specifications for erosion, sediment, and pollutant control requirements, as needed.

Assignment: Bureaus of Water, Environmental Services, Transportation, and Parks and Recreation

**Task 5:** Document site plan review procedures that ensure that stormwater BMPs are appropriate and address the construction activities being proposed.

Assignment: Bureau of Development Services

**Task 6:** Continue to operate a hotline to receive complaints and respond to erosion, sediment, and pollutant problems.

Assignment: Bureau of Development Services

**Task 7:** Conduct and document erosion control checks during each routine building permit inspection for land-disturbing activities at construction sites requiring a City of Portland permit (e.g., grading and clearing, electrical, mechanical, plumbing).

Assignment: Bureau of Development Services

<b>Other BMP Activities Related to ND-1:</b>
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None
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## MEASURABLE GOALS

- Evaluate the *Erosion and Sediment Control Manual* and update as needed (at least once during the 2011-2016 permit cycle); conduct public involvement on updates.
- Inspect public sites with erosion control permits daily during construction.
- Inspect 100 percent of active private development construction sites subject to erosion control requirements. At a minimum, inspections will occur (1) after initial temporary erosion control measures are installed, and (2) near completion of development after permanent erosion control measures are in place. Conduct interim checks as part of routine building permit inspections.

**ND-2:** Implement and refine stormwater management requirements for new development and redevelopment projects to minimize pollutant discharges and erosive stormwater flows.

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## INTRODUCTION

The City has legal responsibility (Portland City Charter Title 3.13) to provide stormwater service (implemented through City Code Chapter 17.38) to all new development and redevelopment sites. To accomplish this, the Bureau of Environmental Services (BES) reviews development proposals and the availability/adequacy of storm sewer service.

The City requires new development and redevelopment projects to mitigate stormwater impacts by managing stormwater onsite. The planning and permitting processes for development approval provide the opportunity to incorporate design features that will provide post-construction stormwater management and treatment.

## STRATEGY

The City has the following strategies in place to address stormwater management for new development and redevelopment.

### **Stormwater Management Manual**

Portland City Code chapter 17.38 gives the City legal authority to limit stormwater runoff flow (volume and rate) and pollution discharges from new development and redevelopment. The City's [\*Stormwater Management Manual\*](#) (SWMM) identifies stormwater management principles and techniques that help preserve or mimic the natural hydrologic cycle and achieve water quality goals.

The SWMM was adopted by City Council in July 1999, with updates in September 2000, September 2002, September 2004, and August 2008. Public review and comment are solicited during SWMM revision cycles.

The SWMM identifies the following requirements<sup>5</sup> that apply to all projects within the City, whether public or private.<sup>6</sup>

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<sup>5</sup> These summarized requirements are based on the August 2008 edition of the *Stormwater Management Manual* and could change in subsequent editions.

<sup>6</sup> Federal projects are exempt, but often comply.

- Projects that develop or redevelop any amount of impervious surface are required to comply with stormwater infiltration and discharge requirements. Properties with existing development that propose new offsite discharges or new connections to the public system must also meet these requirements. Stormwater must be infiltrated onsite to the maximum extent practicable, based on a stormwater hierarchy described in the SWMM.
- New development or redevelopment projects that meet the SWMM impervious surface square footage trigger are required to comply with pollution reduction and flow control requirements. Properties with existing development that propose new offsite discharges or new connections to the public system must also meet these requirements.
- All projects must comply with operations and maintenance (O&M) requirements identified in the manual.
- Projects with certain site characteristics or uses (e.g. material transfer areas/loading docks, above-ground storage of liquids) must comply with additional structural source control requirements.

BES conducts plan reviews and onsite inspections to ensure that facilities comply with the SWMM and O&M plans.

BES staff continually track, evaluate, and develop new technologies and stormwater management approaches and incorporate them into the SWMM as appropriate. BES also provides training and technical assistance to familiarize City staff and the public with the SWMM's requirements, procedures, and techniques.

### **Maintenance Inspection Program**

The Maintenance Inspection Program (MIP), established in 2003, verifies that facilities required by the SWMM are properly installed, operated and maintained. The program provides technical assistance, with the authority to enforce provisions of City Code, specifically Chapter 17.38. During inspections, MIP staff provide facility-specific O&M guidance to site owners/operators. The program also distributes educational information. An MIP database tracks all O&M plans for private stormwater management facilities required by the SWMM and documents all stormwater management facility inspections.



## ACTIVITIES FOR 2011-2016

(Not in any order of priority)

**Task 1:** Continue to implement requirements of the *Stormwater Management Manual*.

Assignment: Bureau of Environmental Services

**Task 2:** Review and revise the *Stormwater Management Manual*.

Assignment: Bureau of Environmental Services

**Task 3:** Continue to track, evaluate, and develop new technologies and stormwater management approaches.

Assignment: Bureau of Environmental Services

**Task 4:** Continue to provide training and technical assistance to City staff and the public.

Assignment: Bureau of Environmental Services

**Task 5:** Continue to inspect newly constructed facilities to ensure they comply with the SWMM, plumbing-related disposal requirements, and approved plans.

Assignment: Bureau of Environmental Services

**Task 6:** Continue to implement the Maintenance Inspection Program to ensure that facilities required under the SWMM are properly operated and maintained after construction.

Assignment: Bureau of Environmental Services

### Other BMP Activities Related to ND-2:

- **OM-1** addresses operations and maintenance for public facilities.
- **STR-1** addresses best management practices for existing development.

## MEASURABLE GOALS

- Inspect 1,500 private stormwater facilities or 450 properties annually. Use education and enforcement tools to ensure that stormwater management operations and maintenance plans are followed.
- Revise the SWMM during the 2011-2016 permit term.
- Track the number, type, size, drainage area<sup>7</sup> and location of private facilities constructed annually.

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<sup>7</sup> Drainage area will be tracked for all private stormwater management facilities subject to the SWMM (under an O&M plan).

## Category: STRUCTURAL CONTROLS (STR)

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**Purpose:** To implement structural modifications (constructed facilities)<sup>8</sup> to existing systems/development to reduce pollutants in discharges from the municipal separate storm sewer system.

### Overview:

While the City's *Stormwater Management Manual* (see ND-2) addresses new development and redevelopment, there is also the need to mitigate impacts from existing development. Measures that are implemented through STR-1 to address existing development are critical to the success of the City's overall stormwater management program.

The City of Portland's activities in this category are included under one best management practice:

- **STR-1: Structurally modify components of the storm drainage system to reduce pollutant discharges. Implement structural retrofits/improvements to existing development to reduce pollutants in discharges from the municipal separate storm sewer system.**

This BMP is implemented by public and private entities to reduce pollutant discharges from public and private properties.

STR-1 is described in detail on the following pages.

### Pollutants Addressed:

The City's activities under this BMP address most pollutants commonly found in urban runoff.

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<sup>8</sup> Structural modifications include constructed facilities such as swales, wetlands, ponds, piped systems, filter strips, landscaped stormwater planters, infiltration basins, manufactured unit-type facilities, porous pavement, detention basins, disconnected downspouts, ecoroofs, and removal of impervious surfaces. Even if these facilities are vegetated, they are considered structural if they involve any construction activity. (**NS-1** addresses activities that involve only natural areas and vegetation, without any construction.)

**STR-1:** Structurally modify components of the storm drainage system to reduce pollutant discharges. Implement structural retrofits/improvements to existing development to reduce pollutants in discharges from the municipal separate storm sewer system.

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## INTRODUCTION

STR-1 addresses structural modifications/improvements to:

- Storm sewer system components such as pipes, inlets, ditches, and stormwater management facilities (SMFs)
- Existing rights-of-way and roads
- Other existing public and private development

## STRATEGY

The City has the following strategies in place.

### **Retrofits of Existing Storm Drainage System**

During routine operations and maintenance (see BMP OM-1), City bureaus (including Environmental Services, Parks and Recreation, Water, and Transportation) identify opportunities and needs to retrofit the existing storm drainage system to improve stormwater management. Examples include ditch-to-swale retrofits and the addition of water quality management to flow control facilities.

### **Portland Watershed Management Plan**

The 2005 *Portland Watershed Management Plan* (PWMP) is a citywide strategy to identify opportunities and actions to improve the conditions of Portland's urban watersheds. It encompasses the five watersheds within Portland's jurisdiction:

- Willamette River
- Johnson Creek
- Tryon Creek
- Fanno Creek
- Columbia Slough

Implementation of the PWMP will identify and prioritize watershed projects, including site-specific stormwater system retrofits (e.g., construction of stormwater management facilities; effective impervious area reduction).

## **BES System Plan**

During the first permit cycle, the City updated its *Public Facilities Plan* (PFP), which identifies major public infrastructure needs for the City, including deficiencies in the stormwater system. The City has retrofitted a number of drainage basins with stormwater management facilities that control flow and reduce pollutant discharges. The PFP also addresses stormwater improvements associated with the implementation of the City's combined sewer overflow (CSO) program, basement flooding program, and infiltration and inflow (I&I) program. The PFP, along with other bureau plans, identify and prioritize projects for potential funding through the capital improvement program (CIP).

During the second permit cycle, BES began updating the PFP, which has been renamed the *BES System Plan*. The *BES System Plan* will be a comprehensive facilities planning document that comprises four elements: combined system, sanitary system, stormwater system, and wastewater treatment system. The *Stormwater System Plan* element will look at capacity, condition, service needs, water quality, and stream impacts.

## **Green Streets**

In April 2007, City Council passed a resolution to promote and incorporate the use of Green Streets to manage stormwater, benefit neighborhood livability, improve the function of the right-of-way, provide habitat corridors, and promote connectivity between Portland neighborhoods. The resolution directs City bureaus to cooperatively plan and implement Green Streets as an integral part of the City's maintenance, installation, and improvement of infrastructure located in the public right-of-way.

## **Technical Assistance, Incentives, and Grants Programs**

The City has technical assistance, incentives, and grants programs that result in onsite retrofits or improvements to existing development. These can vary as funding and priorities evolve. Current programs include:

- Community Stewardship Grants Programs (see BMP PI-1 for description)
- Environmental Protection Agency (EPA) grants
- Sustainable Stormwater Management Program
- Clean River Rewards program to promote private stormwater management

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to implement retrofits to the existing storm drainage system, as identified during routine operations and maintenance.

Assignment: Bureaus of Environmental Services, Parks, Water, and Transportation

**Task 2:** Continue to develop the *Stormwater System Plan* element of the *BES System Plan*.

Assignment: Bureau of Environmental Services

**Task 3:** As part of the *Portland Watershed Management Plan* strategy, continue to identify and assess watershed projects that reduce pollutants in discharges from the storm drainage system.

Assignment: Bureau of Environmental Services

**Task 4:** Continue the use of Green Street approaches.

Assignment: Bureaus of Environmental Services, Transportation

**Task 5:** Continue technical assistance, incentives, and grants programs that result in onsite retrofits/improvements.

Assignment: Bureaus of Environmental Services, Water, Transportation, Planning and Sustainability

#### **Other BMP Activities Related to STR-1:**

- **ND-1** and **ND-2** address best management practices for new development and redevelopment during and after construction.
- **OM-1** and **OM-3** address the initial assessment of system and facility conditions through routine operations and maintenance, which may result in retrofits addressed under this BMP.
- This BMP addresses activities that involve constructed facilities, while **NS-1** addresses activities that involve only natural areas and vegetation (without any constructed structure) to reduce pollutant discharges.

## **MEASURABLE GOALS**

- Construct the following public facilities to provide treatment for stormwater runoff from approximately 336 acres:
  - Construct the NE 148<sup>th</sup> Avenue stormwater management facility by FY 2014-15.
  - Construct stormwater management facilities in the NE 122<sup>nd</sup> Ave subbasin by December 2012 (Columbia Slough Watershed).
  - Convert 5,000 linear feet of roadside ditches to swales or porous shoulder (Tryon Creek and Fanno Creek watersheds) during the permit term.
  - Construct stormwater management facilities along SW Beaverton-Hillsdale Highway and SW Barbur Blvd. and in commercial and multi-family residential areas (Tryon Creek and Fanno Creek watersheds) during the permit term.

Track the number, type, drainage area, and location of public facilities constructed annually.

## Category: NATURAL SYSTEMS (NS)

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**Purpose:** To help preserve and restore the natural resources and functions<sup>9</sup> that prevent pollutants from entering into and discharging from the municipal separate storm sewer system.

### Overview:

Impervious surfaces (such as roads, parking lots, roofs, and sidewalks) constitute approximately 30 percent of the City's total area. The loss of riparian and upland vegetation in urban areas diminishes natural stormwater management provided by vegetation, such as slowing flow, filtering pollutants, and providing shade. Preserving and restoring vegetation, streamside buffers, and pervious areas can help restore these critical functions.

The City of Portland's activities in this category are included in one best management practice:

- **NS-1: Protect and restore natural areas and vegetation to reduce pollutant discharges from the municipal separate storm sewer system.**

This BMP is implemented by public and private entities, often in partnership.

NS-1 is described in detail on the following pages.

### Pollutants Addressed:

The main pollutants addressed by NS-1 are nutrients (phosphorus and nitrogen), total suspended solids (TSS) and pollutants that bind to TSS, herbicides and pesticides.

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<sup>9</sup> This BMP addresses activities that protect, conserve, and restore natural resources areas and vegetation. Activities that involve constructed facilities, such as swales, wetlands, and planter strips, are under STR-1. As used here, natural systems can include non-native vegetation such as ornamental trees, shrubs, and lawns. While the preference is to preserve, restore, and, if needed, mitigate for the loss of relatively undisturbed areas of native vegetation, these other types of vegetation can also provide important stormwater management functions, such as flow reduction and filtration and reduction of pollutants.

**NS-1:** Protect and restore natural areas and vegetation to reduce pollutant discharges from the municipal separate storm sewer system.

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## **INTRODUCTION**

The City works to protect and restore natural areas and vegetation in numerous ways. These include overall watershed-level planning; regulatory measures; incentives; land acquisition and protection; and partnerships with other agencies, organizations, and private parties.

## **STRATEGY**

The City has the following strategies in place to protect and restore natural areas and vegetation.

### **Land Acquisition and Protection**

The City pursues opportunities for land acquisition and protection through:

- Johnson Creek Willing Seller Program.
- Acquisition and management of natural areas by the Bureau of Parks and Recreation and BES.
- Partnership with Metro to purchase or provide conservation easements for resource areas and properties.

From the beginning of the first permit in 1995 through June 2010, over 3,179 acres of open space within the City of Portland have been acquired, including Metro open space acquisitions.

The City manages a total of over 10,500 acres of open space, resource areas, and park land using Integrated Pest Management (IPM). (See OM-3.)

### **Land Use and Zoning Tools**

The Portland Bureau of Planning and Sustainability has primary responsibility for updating the City's *Comprehensive Plan* (currently being revised and renamed the *Portland Plan*); the Bureau of Development Services has primary responsibility for administering and enforcing it. The following City land use and zoning codes and plans address the natural resource conservation and protection goals of the *Comprehensive Plan*.

### **ENVIRONMENTAL OVERLAY ZONES**

Portland established environmental overlay zones (e-zones) and regulations in 1988 to protect and conserve significant natural resources and the benefits they provide, including water quality and public health and safety. E-zones typically cover streams, wetlands, and other water bodies; upland forests and other significant habitats; and steep slopes. There are two types of e-zones:

The **environmental protection (p) overlay zone** provides stringent protection for the highest-value urban natural resources. Typically, development in the protection zone is allowed only when there is a public need and benefit. Within the Portland city limits, this zone covers about 9,800 acres.

The **environmental conservation(c) overlay zone** conserves important natural resources by limiting tree removal and the amount of land area that can be disturbed by development. Regulations include setback standards for development to maintain specified distances from streams, wetlands, and the p-zone. Within the Portland city limits, this zone covers about 10,000 acres.

## **PORTLAND PLAN**

The *Portland Plan* is an update to the City's 1980 *Comprehensive Plan* and 1988 *Central City Plan*. It will be a citywide guide to the physical, economic, social, cultural, and environmental development of Portland over the next 30 years. The *Portland Plan* is being developed with community input.

## **RIVER PLAN**

The *River Plan* is a multi-objective plan for the land along the Willamette River. It is an update of the *Willamette Greenway Plan* (zoning code and design guidelines that serve as Portland's compliance with State Planning Goal 15 and were last updated in 1987).

## **PLAN DISTRICTS**

Plan district provisions address concerns unique to an area and may supersede base zone or overlay zone requirements. Certain plan districts have unique water quality protection features, such as limiting the amount of impervious area on sites in some areas or establishing specific environmental zoning regulations.

## **CODE ENFORCEMENT**

The City has an active code enforcement program for compliance with land use code and other zoning and building code regulations. Violations are addressed by education, technical assistance, and permit review.

## **Portland Watershed Management Plan**

The 2005 *Portland Watershed Management Plan* (PWMP) is a citywide strategy to identify opportunities and actions to improve the conditions of Portland's urban watersheds. It encompasses the five watersheds within Portland's jurisdiction:

- Willamette River
- Johnson Creek
- Tryon Creek
- Fanno Creek
- Columbia Slough

The PWMP will assess opportunities to protect existing vegetation or plant new areas and will identify priority areas for land acquisition or protection.



## **Watershed Revegetation Program**

The purpose of the Watershed Revegetation Program is to restore and maintain native vegetation. The program works to improve water quality and native habitat by removing non-native invasive plants; reintroducing native vegetation; reducing erosion and pollutants through biofiltration and bioengineering techniques; and restoring and creating wetland habitat. Since its inception in 1996 through June 2010, the program has planted over 3 million native trees and shrubs on public and private property.

## **Tree Planting and Natural Area Restoration**

The City works in partnership with other organizations, such as Friends of Trees, watershed councils, and neighborhood groups, to support and coordinate tree planting and natural area restoration programs for volunteers.

## **Tree Code Revision**

In February 2011, the City completed an update and consolidation of regulations regarding tree protection, tree removal, and tree planting for public and private properties, including rights-of-way. These updated regulations, schedule to become effective in 2013, are intended to improve the quantity and quality of Portland's tree canopy. Guidance information will be developed to educate property owners and building and landscape professionals about City regulations and tree care.

## **Technical Assistance, Incentives, and Grants Programs**

The City has technical assistance, incentives, and grants programs to protect and restore natural areas and vegetation. These can vary as priorities and funding evolve.

## **Urban Forestry Management Plan**

The *Urban Forestry Management Plan* is the City's guide to the care and management of Portland's urban forest. Plan implementation includes identification of tree-deficient areas; tree maintenance, planting, and preservation; community education and stewardship; and technical assistance programs. The plan was last updated in 2004.

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to pursue opportunities for land acquisition and protection.

Assignment: Bureau of Environmental Services and Bureau of Parks & Recreation

**Task 2:** Continue to develop, implement, and enforce land use and zoning tools to protect and conserve natural resources and functions.

Assignment: Bureau of Planning and Sustainability and Bureau of Development Services

**Task 3:** Continue to update the *River Plan* (South Reach and Central Reach) to protect and conserve natural resources along the Willamette River.

Assignment: Bureau of Planning and Sustainability

**Task 4:** Implement the City tree code regulations and develop guidance information for use by the public.

Assignment: Bureau of Planning and Sustainability and Bureau of Development Services

**Task 5:** As part of the watershed planning and implementation process, continue to assess and implement watershed projects that restore, preserve, and protect natural areas and vegetation.

Assignment: Bureau of Environmental Services, Bureau of Parks and Recreation, Bureau of Planning and Sustainability

**Task 6:** Continue to restore and maintain native vegetation through the Watershed Revegetation Program.

Assignment: Bureau of Environmental Services

**Task 7:** Continue to work with other organizations to support and coordinate tree planting and natural area restoration programs for volunteers.

Assignment: Bureau of Environmental Services and Bureau of Parks & Recreation

**Task 8:** Continue technical assistance, incentives, and grants programs that result in protection and restoration of natural areas and vegetation.

Assignment: Bureau of Environmental Services

**Task 9:** Continue to implement the *Urban Forest Management Plan*.

Assignment: Bureau of Parks & Recreation

**Task 10:** Complete the *Portland Plan* (an update of the City's *Comprehensive Plan*), including natural resources/stormwater management approaches.

Assignment: All City Bureaus, led by Planning and Sustainability

#### **Other BMP Activities Related to NS-1:**

- This BMP addresses activities that protect, conserve, and restore natural areas and vegetation. **STR-1** addresses activities that involve constructed facilities (such as swales, constructed wetlands, and planter strips) to reduce pollutant discharges.

## MEASURABLE GOALS

- Plant 20,000 trees, and initiate revegetation work on 70 acres by the end of the permit cycle.
- Acquire 50 acres of land by the end of the permit cycle.
- Update the *Portland Plan* (an update to the City's *Comprehensive Plan*) by December 2013.

## **Category: PROGRAM MANAGEMENT (PM)**

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**Purpose:** To ensure effective program management, coordination, and reporting.

### **Overview:**

The *Stormwater Management Plan* (SWMP) is far-reaching and complex. A key focus of the City is to provide sound program management, coordination, and reporting to ensure effective implementation of the SWMP and compliance with permit conditions. This effort involves multiple City bureaus, the City's co-permittee (the Port of Portland), and other jurisdictions.

The City's activities in this category are included under one best management practice:

- **PM-1: Conduct program management, coordination, and reporting activities.**

PM-1 is discussed in more detail on the following pages.

### **Pollutants Addressed:**

This BMP does not in itself reduce pollutants; rather, it facilitates pollutant reduction by ensuring that the *Stormwater Management Plan* is effectively implemented.

**PM-1:** Conduct program management, coordination, and reporting.

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## **INTRODUCTION**

BES administers and manages the NPDES MS4 permit and SWMP. The Director of BES provides oversight and certifies compliance deliverables on behalf of the City.

## **STRATEGY**

The City has the following strategies in place to ensure effective program management, coordination, and reporting.

### **City Management and Coordination**

BES's Stormwater Program Manager is responsible for overall project management, compliance reporting, policy development, and coordination within the City of Portland, as well as for coordination with the City's co-permittee (the Port of Portland). Because the permit is citywide, staff from many City bureaus outside BES are also involved with stormwater program development, implementation, and reporting.

### **Co-Permittee Coordination**

City staff coordinate with Portland's co-permittee, the Port of Portland, to share information about program implementation and coordination, BMP effectiveness, monitoring, and other issues related to the permit. This coordination avoids duplication and helps ensure the cost-effective use of resources.

### **Coordination with Other Jurisdictions**

The City coordinates and addresses stormwater issues with other jurisdictions in the state through the Oregon Association of Clean Water Agencies (ACWA).

### **Annual Compliance Report**

The City of Portland and its co-permittee, the Port of Portland, submit [Annual Compliance Reports](#) to the Oregon Department of Environmental Quality (DEQ) by November 1 of each year. The purpose of the reports is to convey clear, succinct program information for the previous fiscal year (July 1 - June 30), in compliance with the annual reporting requirements of the permit. The reports also provide other interested parties with an overview of the SWMP's implementation status. In addition, the reports identify activities that are planned for implementation in the coming fiscal year.

## **ACTIVITIES FOR 2011-2016**

(Not in any order of priority)

**Task 1:** Continue to provide overall program management through BES and to work with other City bureaus as necessary to implement the SWMP.

Assignment: Bureau of Environmental Services

**Task 2:** Continue to coordinate with the Port of Portland.

Assignment: Bureau of Environmental Services

**Task 3:** Continue to coordinate with other jurisdictions.

Assignment: Bureau of Environmental Services

**Task 4:** Continue to submit annual compliance reports.

Assignment: Bureau of Environmental Services

### **Other BMP Activities Related to PM-1:**

Project management provides oversight and reporting on all other BMPs.

## **MEASURABLE GOALS**

- Submit annual reports by November 1 of each year.