# City of Portland, Oregon

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

Permit Number: 101314

# ANNUAL COMPLIANCE REPORT NO. 12

Fiscal Year 2006-2007 (July 1, 2006 – June 30, 2007)

Prepared for:

**Oregon Department of Environmental Quality** 

**November 1, 2007** 

Submitted by:

City of Portland Multnomah County Port of Portland

## City of Portland National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System Discharge Permit Permit Number: 101314

## ANNUAL COMPLIANCE REPORT Fiscal Year 2006-07 (July 1, 2006 - June 30, 2007)

We, the undersigned, hereby submit this annual compliance report for the Municipal Separate Storm Sewer System Discharge Permit No. 101314, in accordance with Schedule B, Section 2-a of that permit. We certify, as required by 40 CFR Section 122.22, under penalty of law, that this document was prepared under our direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on our inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of our knowledge and belief, true, accurate, and complete. We are aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Director, Bureau of Environmental Services

City of Portland

Cecilia Johnson

Director, Department of Community Services

Multnomah County

Bill Wyatt

Executive Director

Port of Portland

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# **EXECUTIVE SUMMARY**

#### **EXECUTIVE SUMMARY**

#### INTRODUCTION

This twelfth Annual Compliance Report is submitted to the Oregon Department of Environmental Quality (DEQ) to fulfill reporting requirements for the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (hereinafter referred to as the stormwater permit or permit) issued to the City of Portland, Multnomah County, and Port of Portland (the co-permittees). The report provides information about activities that have been accomplished in accordance with the co-permittees' Stormwater Management Plans (SWMPs) during the twelfth fiscal year (July 1, 2006 through June 30, 2007) of the permit program. The Annual Compliance Report includes individual reports prepared by each co-permittee.

#### **BACKGROUND**

DEQ issued the first stormwater permit for the MS4 within the Portland urban services boundary on September 7, 1995. By federal law, the initial term of the permit is 5 years, and is administratively extended until renewed. The City of Portland, Port of Portland, and Multnomah County submitted a renewal application as required (180 days before the date of the original permit expiration) in February 2000. DEQ issued the permit renewal in March 2004, beginning a second 5-year permit term that expires on February 28, 2009. DEQ subsequently reconsidered the second-term permit and reissued the revised permit in July 2005.

In permit year 11, the co-permittees completed revisions to their existing SWMPs to address new conditions of the renewed permit. The revised SWMPs were submitted to DEQ in an Interim Evaluation Report on May 1, 2006, as required by the permit. DEQ accepted the IER and SWMPs in July 2006.

In managing and implementing the permit program, the co-permittees work in a cooperative effort with DEQ, Metro, the Oregon Association of Clean Water Agencies (ACWA), other agencies, and the public.

#### CITY OF PORTLAND

The City continued to implement the SWMP that was accepted by DEQ in July 2006. The City also continues to coordinate MS4 program activities with other City actions and programs, including the Portland Watershed Management Plan, CSO Program, Endangered Species Act Program, Underground Injection Control (UIC) Program, Total Maximum Daily Load (TMDL) Program, Portland Harbor Superfund Site, and Office of Sustainable Development.

Key activities and accomplishments for permit year 12 are summarized below and described more fully in Section II of this annual report.

Executive Summary 1

- Continued to implement the City's 2004 Stormwater Management Manual (SWMM). Continued to work on revisions to be incorporated into the 2007 SWMM.
- Continued to work with the City's Stormwater Advisory Committee (SAC) on stormwater-related issues. During FY06/07, the SAC provided input on the Green Streets policy language in the Transportation Systems Plan, Green Streets Cross-Bureau Team Phase II report, and stormwater-related components of the Portland Watershed Management Plan. The SAC also continued review and comment on revisions for the 2007 SWMM.
- Completed Phase II of the Green Streets Cross- Bureau Team's work, which focused on developing a programmatic approach to implementing green streets. Received City Council approval for a Green Streets policy and resolution.
- Continued public involvement/education activities as a significant element of the Stormwater Program. Key activities included conducting stormwater education activities and stewardship grant programs, participating in the Regional Coalition for Clean Rivers and Streams, and developing/distributing educational publications and materials.
- The Portland Office of Transportation continues to follow the best management practices outlined in ODOT's *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices* as guidance for transportation-related maintenance activities.
- Continued to provide oversight, education, and technical assistance to ensure that commercial and industrial facilities comply with retrofit requirements under the Columbia South Shore Well Field Wellhead Protection Program. Conducted 145 inspections of regulated businesses under the program.
- Collected approximately 4,892 cubic yards of debris and 231 cubic yards of leaf debris from streets that drain to the MS4 or directly to surface waters.
- Inspected, sampled, and administered the permits for 145 industries (and associated tenants) with stormwater discharge to the MS4.
- Conducted 8,382 erosion control-related inspections of private construction sites. Inspected 300 active public construction projects with erosion control components.
- Continued to implement the Stormwater Management Facility Maintenance Inspection Program (MIP) for private stormwater management facilities.
- In accordance with Stormwater Management Manual requirements, initiated 473 source control measures at sites with high-risk characteristics or activities.
- Converted a total of 410 linear feet of roadside ditches to swales (the "porous shoulder" design).

Executive Summary 2

- Continued implementation of projects under the Innovative Wet Weather Program, funded by a \$2.6 million EPA grant for innovative stormwater projects. Completed five projects in permit year 12.
- Continued to provide technical assistance and grant funding for projects that incorporate green building principles, including stormwater pollution prevention and management.
- Launched Clean River Rewards to promote private stormwater managements. Registrations within the fiscal year totaled 27,443 single family residential ratepayers (accounting for a total of 61,381,983 square feet of impervious area managed for stormwater) and 995 multifamily, commercial, and industrial ratepayers (accounting for a total of 22,282,642 square feet of impervious area managed for stormwater).
- Under the Natural Resources Inventory Update Project (required as part of the City's response to state land use planning laws), continued to update City inventories of significant riparian corridors and wildlife habitat.
- As part of the River Plan project, the City made progress toward developing a comprehensive, multi-objective plan for the land along the Willamette River in the North Reach.
- Continued regulatory improvement and code maintenance work, including changes that support watershed health and onsite stormwater management.
- Under the Watershed Revegetation Program, initiated 222.4 acres of new projects to be planted in future years. The program currently manages 1,222.9 project acres on both public and private property.
- Acquired approximately 1.6 acres of flood-prone property under the Johnson Creek Willing Seller Program; acquired a 0.35-acre property along East Bridgeton Slough (Columbia Slough Watershed); and acquired a 0.1-acre parcel in the Forest Park area (Willamette Watershed).

#### **MULTNOMAH COUNTY**

Multnomah County continued implementation of its comprehensive stormwater management program countywide in permit year 12. Although County activities within the permit area are limited, the stormwater program is implemented throughout the County, including areas outside the permit area consistent with County environmental and resource conservation policies.

Section III of the annual report contains descriptions of the County's stormwater management efforts, focusing primarily on activities within the Permit area. Brief summaries below highlight key accomplishments.

• **Transportation Planning:** Planning staff continued participation on the Sellwood Bridge concept plan. The Sellwood Bridge is one of the County's Willamette River Bridges and is

being considered for either rehabilitation or replacement. Concept considerations include water quality treatment in the drainage system

- Capital Maintenance Projects: The Transportation Bridge Section completed additional retrofits to the Burnside Bridge that incorporate water quality treatment facilities prior to stormwater discharge into the storm sewer system and Willamette River.
- **Public Education and Outreach:** The County continued its partnership with the Regional Coalition for Clean Rivers and Streams. The coalition's efforts this past year focused on evaluating past public information/education marketing campaigns.

#### PORT OF PORTLAND

The Port of Portland continued to implement the revised Stormwater Management Plan (SWMP) that was approved by DEQ on July 31, 2006.

The Port's annual report for permit year 12 summarizes requirements per Section B(2)(a) of the Port's MS4 permit. Section 7.0 of the annual report describes the Port's specific stormwater management efforts during this permit year in accordance with implementation tasks and performance measures as outlined in the Port's SWMP. Key accomplishments are summarized below.

- The Port of Portland coordinates with the Portland co-permittees, particularly the City of Portland, with regards to monitoring and overall MS4 coordination.
- The Port conducts annual maintenance of the various storm sewer system components on specific, Port-managed properties.
- Port staff continued to implement the Illicit Discharge Detection and Elimination Program.
   The program involves dry season field monitoring of priority outfalls and investigation of potential illicit discharges.
- Port staff implemented the Industrial Facility Inspection Program, focusing efforts on priority facilities.
- Port staff received training on spill response, HAZWOPER, pesticide application, and stormwater awareness, and various Port staff attended a variety of conferences and seminars for stormwater education.

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Executive Summary

# Section I GENERAL INTRODUCTION

## Section I GENERAL INTRODUCTION

This twelfth Annual Compliance Report is submitted to the Oregon Department of Environmental Quality (DEQ) to fulfill reporting requirements for the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (hereinafter referred to as the stormwater permit or permit) issued to the City of Portland, Multnomah County, and Port of Portland (the co-permittees). The report provides information about activities that have been accomplished in accordance with the co-permittees' Stormwater Management Plans (SWMPs) during the twelfth fiscal year (July 1, 2006 through June 30, 2007) of the permit program.

#### PERMIT AREAS

The NPDES stormwater permit areas for the three co-permittees are described below.

- **City of Portland:** Approximately 20,000 acres<sup>1</sup> within the City of Portland's urban services boundary drain to the City's municipal separate storm sewer system. Portland'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
- **Port of Portland:** The Port owns approximately 5,560 acres within the City of Portland's urban services boundary. Some of this property drains to the Port's municipal separate storm sewer system and is regulated by the MS4 permit. This acreage includes Portland International Airport (PDX), four marine terminals, several industrial parks occupied by commercial tenants, mitigation sites, and undeveloped land.
- Multnomah County: Since the issuance of the first Portland-area MS4 permit in 1995, Multnomah County's jurisdiction and level of activity have been greatly reduced. Most significantly, the County no longer has land use planning authority within the few remaining unincorporated urban pockets within the permit area. Additionally, the City of Portland now has operation and maintenance responsibilities of all 18.76 miles of County dedicated roads and drainages within the permit area through an intergovernmental agreement. Multnomah

**Section I: General Introduction** 

<sup>&</sup>lt;sup>1</sup> Since submitting the Interim Evaluation Report to DEQ in May 2006, the City has continued to delineate the MS4 drainage area. The delineation work to date indicates that the City's MS4 area is approximately 20,000 acres. Continued refinement of the delineation may result in relatively minor modifications to the area over time.

County's primary activity within the permit area continues to be the operation and maintenance of five Willamette River bridges. The County Transportation Division also retains authority to review stormwater management plans, granting a handful of permits every year to access County right-of-way for limited stormwater discharge within the unincorporated pockets.

#### PERMIT BACKGROUND

Seven co-applicants submitted a permit application to DEQ in 1991 (Part 1) and 1993 (Part 2) to achieve compliance with the federal and state-delegated NPDES regulations. DEQ issued a permit to the seven co-permittees on September 7, 1995. By federal law, the initial term of the permit is five years, and is administratively extended until renewed. The City of Portland, Port of Portland, and Multnomah County submitted a renewal application as required (180 days before the date of the original permit expiration) in February 2000. DEQ issued the permit renewal in March 2004, beginning a second five-year permit term that expires on February 28, 2009. DEQ subsequently reconsidered the second-term permit and reissued the revised permit in July 2005.

#### STORMWATER MANAGEMENT PLANS

The co-permittees submitted revised SWMPs to DEQ on May 1, 2006, as part of their Interim Evaluation Report, as required by the permit. The SWMPs describe the measures the co-permittees will implement throughout the second permit term (March 8, 2004 – February 28, 2009) to reduce the discharge of pollutants in stormwater to the maximum extent practicable in compliance with the applicable requirements of the Clean Water Act.

#### PROGRAM COORDINATION

The three co-permittees meet regularly (generally monthly) to share information about program implementation and coordination, BMP effectiveness, monitoring, public involvement through the Regional Coalition for Clean Rivers and Streams, and other issues related to the permit. This coordination avoids duplication and helps ensure the cost-effective use of resources.

The co-permittees rely on regional cooperative efforts to successfully fulfill some of the permit requirements. The co-permittees work closely with Metro (the regional government) to support programs that have a positive water quality benefit. Examples include the household hazardous waste disposal program, the GreenStreets program, and Titles 3 and 13 of Metro's Urban Growth Management Functional Plan.

<sup>&</sup>lt;sup>2</sup> The seven original co-applicants/co-permittees, which all operate separate stormwater conveyance systems within Portland's urban services boundary, were the City of Portland, Port of Portland, Multnomah County, Oregon Department of Transportation (ODOT), Multnomah County Drainage District No. 1, Peninsula Drainage District No. 1, and Peninsula Drainage District No. 2. In 2000, ODOT obtained a statewide NPDES permit and was removed as a Portland co-permittee. The three drainage districts established memoranda of agreement to fulfill their stormwater management responsibilities and were removed as Portland co-permittees in 2003.

The co-permittees coordinate and address stormwater permit implementation issues with other jurisdictions in the state through the Oregon Association of Clean Water Agencies (ACWA). Co-permittee representatives actively participate in ACWA's water quality, stormwater, and groundwater committees.

#### REPORT ORGANIZATION

This twelfth annual report covers the period from July 1, 2006 through June 30, 2007. It includes implementation actions and accomplishments that occurred during that period alone (i.e., it is not cumulative) unless otherwise noted.

The report is organized as follows:

- Executive Summary: A summary of significant program activities and program status for all of the co-permittees.
- **Section I: General Introduction:** An overview of the permit area, permit background, and SWMPs; program coordination; and report organization. This information is relevant to all three co-permittees.
- Sections II, III, and IV: The individual compliance reports of the co-permittees (City of Portland, Multnomah County, and Port of Portland, respectively), describing implementation actions taken and any initiated or proposed program changes.

The report's goal is to convey clear, succinct program information that complies with the annual reporting requirements of the NPDES permit. The report will also provide other interested parties with a status overview of the co-permittees' stormwater programs. Detailed supporting information, such as inspection reports, logs, and individual correspondence, are archived at each permitted agency and are available to DEQ upon request.

# Section II CITY OF PORTLAND

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#### INTRODUCTION

This Annual Compliance Report for the City of Portland's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit (referred to as the municipal stormwater permit, NPDES permit, or MS4 permit) program identifies activities that occurred during the twelfth fiscal year (July 1, 2006 through June 30, 2007) of the program and summarizes the status of the program.

This Introduction contains the following sections:

- Key Accomplishments
- Program Organization and Coordination
- Changes to Best Management Practices
- Urban Growth Boundary Expansion Areas
- Stormwater Outfalls
- Relationship to Other Water Quality Programs
- City Budget and Funding

Following the Introduction are individual activity reports for each best management practice (BMP).

#### **KEY ACCOMPLISHMENTS**

- Continued to implement the City's 2004 Stormwater Management Manual (SWMM). Continued to work on revisions to be incorporated into the 2007 SWMM.
- Continued to work with the City's Stormwater Advisory Committee (SAC) on stormwater-related issues. During FY06/07, the SAC provided input on the Green Streets policy language in the Transportation Systems Plan, Green Streets Cross-Bureau Team Phase II report, and stormwater-related components of the Portland Watershed Management Plan. The SAC also continued review and comment on revisions for the 2007 SWMM.
- Completed Phase II of the Green Streets Cross- Bureau Team's work, which focused on developing a programmatic approach to implementing green streets. Received City Council approval for a Green Streets policy and resolution.
- Continued public involvement/education activities as a significant element of the Stormwater Program. Key activities included conducting stormwater education activities and stewardship grant programs, participating in the Regional Coalition for Clean Rivers and Streams, and developing/distributing educational publications and materials.
- The Portland Office of Transportation continues to follow the best management practices outlined in ODOT's *Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices* as guidance for transportation-related maintenance activities.

- Continued to provide oversight, education, and technical assistance to ensure that
  commercial and industrial facilities comply with retrofit requirements under the Columbia
  South Shore Well Field Wellhead Protection Program. Conducted 145 inspections of
  regulated businesses under the program.
- Collected approximately 4,892 cubic yards of debris and 231 cubic yards of leaf debris from streets that drain to the MS4 or directly to surface waters.
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- Continued implementation of projects under the Innovative Wet Weather Program, funded by a \$2.6 million EPA grant for innovative stormwater projects. Completed five projects in permit year 12.
- Continued to provide technical assistance and grant funding for projects that incorporate green building principles, including stormwater pollution prevention and management.
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- Under the Natural Resources Inventory Update Project (required as part of the City's response to state land use planning laws), continued to update City inventories of significant riparian corridors and wildlife habitat.
- As part of the River Plan project, the City made progress toward developing a comprehensive, multi-objective plan for the land along the Willamette River in the North Reach.

- Continued regulatory improvement and code maintenance work, including changes that support watershed health and onsite stormwater management.
- Under the Watershed Revegetation Program, initiated 222.4 acres of new projects to be planted in future years. The program currently manages 1,222.9 project acres on both public and private property.
- Acquired approximately 1.6 acres of flood-prone property under the Johnson Creek Willing Seller Program; acquired a 0.35-acre property along East Bridgeton Slough (Columbia Slough Watershed); and acquired a 0.1-acre parcel in the Forest Park area (Willamette Watershed).

#### PROGRAM ORGANIZATION AND COORDINATION

#### **Program Authorization**

The Portland City Council passed a resolution supporting the final National Pollutant Discharge Elimination System (NPDES) stormwater 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. In accordance with Section 402(p) of the Clean Water Act, the Oregon Department of Environmental Quality (DEQ) issued the first-term permit on September 7, 1995. The City of Portland and its co-permittees submitted a renewal application as required (180 days before the date of the original permit expiration) in February 2000. DEQ issued the permit renewal in March 2004, beginning a second five-year permit term that expires on February 28, 2009. DEQ subsequently reconsidered the second-term permit and reissued the permit in July 2005.

#### **Legal Authority**

The City of Portland continues to maintain legal authority to implement the programs outlined in the Stormwater Management Plan (SWMP) as initially demonstrated in Part 1 of the original NPDES Municipal Storm Water Permit Application [No(s). 101315 & 101314].

#### **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 other Portland co-permittees. In accordance with Portland's watershed approach, BES project planning and implementation generally is organized by watershed to enhance project coordination. BES staff members serve as leads for the various BMPs contained in the SWMP. Because the permit is citywide, many City staff members outside BES are also involved with stormwater program development, implementation, and reporting. The BMP staff leads coordinate stormwater program activities through BMP-specific teams that include representatives from appropriate bureaus.

#### CHANGES TO BEST MANAGEMENT PRACTICES

The City of Portland submitted its Interim Evaluation Report (IER) to DEQ on May 1, 2006. The IER included the City's proposed revised Stormwater Management Plan (SWMP). DEQ

accepted the IER and SWMP in July 2006. The BMPs reported in this annual report are consistent with those included in the 2006 SWMP, and no subsequent changes have been made to the BMPs since submittal of the IER.

#### URBAN GROWTH BOUNDARY EXPANSION AREAS

There were no expansions to Portland's urban services boundary in permit year 12, and no expansions are expected in permit year 13.

#### STORMWATER OUTFALLS

#### **Separated Sewer Outfalls**

In permit year 12, the following eight outfalls that were previously CSO outfalls permitted under the Columbia Boulevard permit were sealed off and are now stormwater-only outfalls:

- OF1B SW Miles Place in the California Basin
- OF4 SW Seymour Street in the Carolina Basin
- OF5 SW Lowell Street in the Lowell Basin
- OF6 SW Woods Street in the Woods Basin
- OF11 NW Tanner Creek in the Tanner Basin
- OF12A NW 14th Ave in the Fremont Basin
- OF13 NW 15<sup>th</sup> Avenue in the Fremont Basin
- OF50 N Salem Avenue in the St Johns B Basin

#### **Map Correction**

In the Interim Evaluation Report (Map 1 of Set D), outfall OF61A on the Columbia Slough was identified as being owned by the City of Portland. This was an error; this outfall is in fact owned by the Oregon Department of Transportation.

#### RELATIONSHIP TO OTHER WATER QUALITY PROGRAMS

BES works cooperatively with many other City bureaus on watershed issues. Although not all of the following activities are specifically required as part of the NPDES MS4 permit, they are closely associated with the stormwater program, are related to stormwater quality, and are a part of restoring watershed health. These programs and projects are coordinated with the Portland Watershed Management Plan for greatest watershed health benefits.

#### **Portland Watershed Management Plan**

In 2005, the Portland Watershed Management Plan (PWMP) was developed to guide the City's commitment to improve watershed health and protect and enhance its natural resources. The PWMP is based on the "watershed approach." The watershed approach can be described as an overall context that defines how the City does its ongoing work in developing and maintaining its infrastructure, property redevelopment, and open space maintenance. (City infrastructure includes storm and sanitary sewer systems, roads, water supply system, etc.) Doing the work of the City using the watershed approach means that activities—such as construction of new infrastructure and repair and upgrading of existing features, redevelopment of areas such as the

South Waterfront, and construction of new parks—are done in a manner that protects and enhances watershed health wherever feasible. Rather than focusing separately on single issues or meeting specific regulatory requirements such as protection of water quality or cleanup of contaminated sediments, the PWMP collectively considers all activities that affect watershed conditions.

The watershed approach reflects and implements core City values. In addition to protecting and improving the quality of the watershed, these values include improved public safety, economic vitality, and community stewardship. This approach relies on integrating the activities of multiple City bureaus and maximizes the use of limited resources by looking for solutions that meet multiple objectives.

*Watershed Investment Fund (WIF):* Funding was increased from \$500,000 to \$1,500,000 for the 2007-2008 fiscal year. Fourteen projects have been selected for funding, and additional projects will be funded to support community partners such as Willamette Riverkeeper, Portland Audubon Society, SOLV, and Friends of Trees.

*Implementation Plan*: Implementation of the PWMP will rely on a management system to collect and evaluate the performance of PWMP projects. Priority projects for existing funds will be selected using the information available, including effectiveness monitoring data and performance measures. As future watershed project funding becomes available, the intention of the PWMP is to evaluate and select projects using a greater quantity and quality of information to improve the certainty of project success. Over time, the goal of this approach will be to move implementation toward a series of defined indicators, targets, and benchmarks to better link actions to improvements in watershed conditions.

#### **BES System Plan**

The BES System Plan update began in late 2005; a draft document is due in summer 2008. This project is the update of the 1999 BES Public Facilities Plan. The BES System Plan is a comprehensive facilities planning document that guides the bureau's expenditures by identifying and recommending projects that maintain, improve, or expand the wastewater/stormwater infrastructure system. Projects are developed using both natural and engineered solutions to satisfy regulatory requirements and are implemented in a manner protective of public health, water quality, and the environment. The System Plan's infrastructure focus is complementary to the watershed approach of the PWMP.

The System Plan is being developed with an asset management context that considers life-cycle costs, risk, and the environmental and social benefits in the project's ranking. This new ranking methodology will enable the ranking of projects across different asset classes (e.g., a stormwater project ranked against a sanitary sewer project).

Elements of the BES System Plan include a sewer rehabilitation plan, an updated combined sewer plan, and an updated sanitary sewer plan. Work on the stormwater facilities element of the System Plan will begin in fall 2007 and will be completed in 2009.

#### **Combined Sewer Overflow Reduction**

Construction was completed on the third of four major phases of a program to control combined sewer overflows (CSOs) to the Willamette River and Columbia Slough. The activities included a combination of stormwater inflow reductions (roof drain disconnections, sump installation, local stream separation) and large structural solutions (including the West Side and East Side Willamette River CSO tunnels), as well as treatment plant and pump station upgrades. As a result, 16 more CSO outfalls on the Willamette River are now controlled in accordance with the Amended Stipulated and Final Order (ASFO). Since 1990, Portland has reduced CSOs from 6.0 billion gallons per year to about 2.0 billion gallons per year on an average basis. CSO discharges to the Columbia Slough have been reduced by over 99 percent, while discharges to the Willamette River have been reduced by over 40 percent to date. Over 2 billion gallons of local stream and stormwater runoff have been removed from the combined sewer system through the use of sumps, downspout disconnections, and stream separations. Of the original 55 CSO outfalls that existed in 1990, 36 outfalls are now controlled in accordance with the ASFO.

#### **Pretreatment Programs and Publicly Owned Treatment Works (POTWs)**

Many of the City's more traditional operations and infrastructure support water quality goals. Sanitary sewage is collected for treatment at the Columbia Boulevard and Tryon Creek publicly owned treatment works (POTWs). Existing pretreatment programs protect the sanitary system infrastructure, reduce pollutant releases to surface waters during combined sewer overflows, and prevent discharges that could cause treatment upsets or result in pollutant pass-through to surface waters.

BES's Industrial Source Control Division (ISCD) has administered a state and federally approved industrial pretreatment program since 1983. The program was implemented as a federal mandate to control the discharge of toxic pollutants from industrial sources that interfere with the operation of Portland's wastewater treatment plants, collection systems, and biosolids uses.

#### **Underground Injection Control (UIC) Program**

DEQ defines underground injection control (UIC) as any system, structure, or activity that discharges fluid below the ground or into the subsurface, including sumps, drywells, and French drains. UICs can pollute groundwater and surface water if not properly designed, sited, and operated. DEQ regulates all underground injection activities in Oregon. On June 1, 2005, DEQ issued the City of Portland a Water Pollution Control Facility (WPCF) Permit for City-owned or operated UICs (approximately 9,000). The WPCF permit establishes the construction, operation, and maintenance requirements the City must implement to protect groundwater in accordance with Oregon Administrative Rules 340-040. The WPCF Permit required the City to develop and implement a UIC Management Plan (UICMP), including BMPs, a monitoring plan, a spill response plan, and an operations and maintenance plan. These plans were submitted to DEQ on December 1, 2006, along with the first UICMP Annual Report.

Activities specifically related to public UICs that were formerly reported in the NPDES MS4 Annual Compliance Report are reported in the UICMP Annual Report. Examples of these activities include number of sumps and sedimentation manholes cleaned and repaired.

Some components of the UICMP are similar to BMPs in the SWMP—for example, public education, pollution control, and operations and maintenance activities such as street sweeping. Reporting on these elements may therefore be common to both annual reports.

#### **Total Maximum Daily Load (TMDL) Program**

Under Section 303 of the Clean Water Act, states are required to develop "303(d)" lists of impaired waters that do not meet water quality standards set by the state for certain pollutants. In Oregon, DEQ has this responsibility. After a water body is placed on the 303(d) list, DEQ is required to develop total maximum daily loads (TMDLs) for the listed pollutant(s). A TMDL is the maximum amount of a pollutant a water body can assimilate (load capacity) without violating a water quality standard. The aim of the TMDL program is to manage water resources so pollutants do not exceed water quality standards and so "beneficial uses" (e.g., water contact recreation, cold water fisheries, municipal and industrial water supply and navigation) are protected.

A TMDL divides the allowed load (load capacity) of any pollutant for each water body or reach among those entities authorized to discharge that pollutant. The amount of a given pollutant that a source with an NPDES permit (such as an industry or municipality) is allowed to discharge to the water body is called a wasteload allocation. Non-point sources (e.g., agriculture and forestry) receive a load allocation where appropriate.

In Portland, TMDLs and wasteload allocations have been established for pollutants in the Columbia Slough, the Tualatin River (Fanno and Rock Creek), Johnson Creek, the Willamette River and its tributaries. The most recent TMDLs for the Willamette River, Johnson Creek, and the Columbia Slough were approved by EPA on September 29, 2006. Portland has 18 months from that date to prepare TMDL implementation plans that describe how to manage pollutant loads entering the listed water bodies. These plans will include a variety of best management practices emphasizing stormwater pollutant prevention and management, as well as erosion controls. Examples of activities already underway include instream flow control, riparian tree planting, culvert replacement, streambank restoration, education programs, and stormwater management facilities. For those pollutants related to stormwater within the MS4 area, TMDLs are addressed as part of the MS4 permit implementation.

#### Science, Fish and Wildlife Section—Endangered Species Act (ESA) Program

Portland's Endangered Species Act Program was created in March 1998, shortly after the National Oceanographic and Atmospheric Association (NOAA) listed steelhead trout in the lower Columbia River system as a threatened species under the federal Endangered Species Act (ESA). Chinook salmon were subsequently listed as a threatened species in March 1999 and coho salmon in June 2005. On August 12, 2005, the National Marine Fisheries Service (NMFS) announced designations of critical habitat areas in Portland for salmon and steelhead listed under the ESA. The designated areas in Portland include Johnson Creek (including Kelley Creek and Crystal Springs), Tryon Creek, the north part of the Columbia Slough (and Smith and Bybee Lakes), and the mainstem Willamette River.

The ESA program takes an integrated, citywide approach to salmon recovery, recognizing that the most important step the City can take to restore healthy salmon populations is to restore healthy watersheds. This comprehensive approach ensures that salmon recovery goals are compatible with other City goals and that restoration actions address multiple environmental objectives. Stormwater program activities closely relate to ESA goals; implementation of BMPs will mitigate stormwater quantity impacts and improve water quality. Stormwater program staff coordinate with City ESA staff on program activities related to fish impacts.

In 2006, the Science, Fish, and Wildlife Section within BES's Watershed Group (which includes responsibility for the City's compliance with ESA requirements and program implementation) embarked on development of a Terrestrial Ecology Enhancement Strategy to complement the work that has focused on restoration of aquatic communities, including salmon populations. The Portland Watershed Management Plan identifies the development of a terrestrial strategy as a high priority. The strategy will identify actions for improving upland and riparian watershed conditions.

#### **Portland Harbor Superfund Site**

The current Portland Harbor Superfund Study area covers a 9-mile stretch of the Lower Willamette from the Fremont Bridge to Sauvie Island. It is designated as a Superfund site because of sediment contamination. Portland Harbor has a long history of shipping, industrial, and commercial activity because of its key location on the Willamette River. The operational and waste disposal practices common to these industries many years ago polluted the river. Discharges from sewer outfalls, stormwater, and agricultural runoff may also contribute to the contamination. The City of Portland is a member of the Lower Willamette Group, a coalition of businesses and the Port of Portland. The group has voluntarily stepped forward to fund and participate in the site investigation. This work includes characterizing the extent of contamination in fish, wildlife, and sediments in the harbor and assessing risks to humans, fish and wildlife, and the environment from contaminated sediments.

#### CITY BUDGET AND FUNDING

The City of Portland has invested more than \$505.6 million in stormwater management services and facilities during permit years 1 through 12. The revenue requirements for permit year 12 totaled approximately \$64.4 million, allocated as follows:

Major Program Category	Requirements	Percentage Share		
Enforcement and Development Review	\$ 9.2 million	14%		
Watershed Program & Habitat Restoration	9.8 million	15%		
Facilities Operations and Maintenance	16.1 million	25%		
Capital Improvements*	29.3 million	45%		
Total Revenue Requirements \$ 64.4 million				
* Includes debt service, facilities planning and engineering, construction engineering, and				

Ninety percent of these revenue requirements are financed through direct monthly user fees. The remaining revenue sources include direct charges for new private development (system development charges), service charges, permit fees, and regulatory charges and penalties. More details on City revenues are provided below.

In year 13, the City plans to invest \$72.8 million in stormwater management services and facilities. Direct monthly user fees will pay for 82 percent of these investments.

#### **Stormwater Management Charges**

City Council approves revised stormwater monthly user fees and stormwater system development charges (SDCs) at the start of each fiscal year. Monthly user fees are adjusted to reflect operating, maintenance, and capital costs of the City's sanitary sewer and drainage system. The rate adjustments are based upon cost of service principles, ensuring equity by charging ratepayers according to the amount of sewer and drainage service they use.

The following table reports the monthly single-family stormwater management charge and the monthly stormwater rate per 1,000 square feet of impervious area for the last five permit years:

	2002- 2003	2003- 2004	2004- 2005	2005- 2006	2006- 2007
Single-Family Residential Charge	\$11.42	\$12.07	\$13.30	\$14.26	\$16.82
Residential rate per 1,000 square feet of impervious area	\$4.76	\$5.03	\$5.54	\$5.94	\$7.01
Non-residential rate per 1,000 square feet of impervious area	\$5.17	\$5.54	\$6.06	\$6.45	\$7.56

At the close of FY 2006-2007, City Council increased the monthly stormwater management charge for single-family residences from \$16.82 to \$17.33. The residential rate increased from \$7.01 to \$7.22 per 1,000 square feet of impervious surface per month, and the commercial rate increased from \$7.56 to \$7.91 per 1,000 square feet of impervious area per month.

On October 30, 2006, the City launched Clean River Rewards to promote private stormwater management efforts. Ratepayers earn discounts worth as much as 35 percent of their monthly stormwater user fee, based on the extent and effectiveness of private onsite stormwater facilities. BES developed program criteria that will set the highest financial incentive for facilities that manage stormwater to the strictest water quality, volume, and flow control standards, particularly for commercial, industrial, and institutional ratepayers. As of June 30, 2007, the City processed more than 27,000 registrations. Average discount awards ranged from 33 percent of the monthly stormwater user fee for residential ratepayers to 23 percent for non-residential ratepayers. In addition to granting discounts for current and future stormwater user fees, the City awarded nearly \$2.4 million in retroactive credits to eligible ratepayers.

#### **Stormwater System Development Charges**

Formerly based on impervious area, the methodology for assessing system development charges (SDCs) for new development and significant redevelopment was revised in permit year three to include two components. One component represents the charge for stormwater facilities that handle runoff from individual properties. For permit year 12, this onsite portion was assessed based on \$121.00 per 1,000 square feet of impervious area. Riparian properties that drain directly to the Columbia Slough, Columbia River, or Willamette River are exempt from this portion of the SDC. The other portion represents the cost of stormwater facilities that handle runoff from public rights-of-way. This portion was assessed based on the use of the

transportation system, using road frontage and vehicle trips to allocate the costs. For permit 12, the rates were \$3.87 per linear foot and \$2.01 per vehicle trip. At the end of permit year 12, City Council increased the rates for stormwater system development charges to \$127.00 per 1,000 square feet of impervious area, \$4.07 per linear foot of frontage, and \$2.10 per daily vehicle trip.

Discounts may be granted only for the "onsite" part of the charge for facilities constructed as part of new development. Discounts range from 80 percent for retention of the 100-year event to no discount for control of the 10-year storm.

#### **ACTIVITY REPORTS**

The following pages summarize the status of the City of Portland BMPs. The following information is provided for each BMP:

- The BMP identifier (e.g., PI-1) and description
- Key accomplishments for permit year 12
- Performance measures
- Projected major accomplishments for permit year 13 (FY 06-07)
- Proposed BMP revisions

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

#### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

#### **Clean Rivers Education Programs**

• Reached 7,524 students (grades K-12) with classroom programs that provide hands-on, interactive science education about stormwater and other environmental issues. Student participation by watershed:

Columbia Slough:	1,545
Fanno/Tryon Creek:	999
Johnson Creek:	1,616
Willamette River:	3,315
Special workshops (all)	49
Total:	7.524

• Involved 5,222 students (K-12) in education field programs that offer watershed investigations and assessment technique training, such as how to measure water quality and conduct macroinvertebrate sampling as indicators of water quality health. This also includes stormwater tours, boat tours, and restoration experiences along streams and wetlands. Student participation by watershed:

Total:	5,222
Willamette River:	1,882
Johnson Creek:	1,505
Fanno/Tryon Creek:	513
Columbia Slough:	1,622

Of the above total 5,222, 2,776 of the students combined education with being stewards of the land by doing restoration. Student participation by watershed:

Columbia Slough (Whitaker Ponds, Johnson Lake)	797
Fanno Creek (Gabriel Park, Pendleton Creek)	453
Johnson Creek (Veterans Creek, Tideman Johnson, Errol Heights)	962
Willamette River (Oaks Bottom & Stephens Creek)	564
Total:	2,776

• Co-sponsored the development and delivery of a new assembly program: *Living Streams*, *Stories for Healthy Watersheds*. The assembly was presented to a combination of 12,055 elementary students, teachers and family audiences at special events within the City of Portland. The assembly focuses on stormwater pollution, what students can do to protect rivers and streams, and the relationship of stormwater pollution to wildlife health. Put the assembly curriculum on the web with addition resources for teachers to download and utilize.

- Reached a new audience of residents of the recently constructed New Columbia neighborhood in North Portland. Rosa Parks Elementary School, which serves the neighborhood, was built according to the latest technology in green building design and stormwater management, providing a perfect classroom for the diverse student body to learn about stormwater issues. Educators were able to tie classroom and field activities to neighborhood resources, including bioswales and natural areas, as well as to festivals and camps dedicated to educating the larger community.
- Provided jet boat and amphibious bus tours of the Willamette River to 491students in the Johnson Creek, Fanno, and southern Willamette Watersheds. There were Columbia Slough canoe trips offered for 182 students in the northern Willamette and Columbia Slough Watersheds. All students did special classroom studies and completed a stewardship project to be eligible. The focus of the tours was on river and slough history, how land usage impacts waterways, combined sewer overflow history, stormwater pollution, and how personal actions can help prevent stormwater pollution.
- Checked out stormwater and watershed curriculum kits to 36 Portland elementary and middle school teachers for them to work independently with students in the classroom and at special school events.
- Provided teacher and community training workshops, involving 98 participants. Worked in partnership with Oregon Trout, Lewis & Clark College, PSU, PCC, and the Columbia Slough Watershed Council.
- Presented Stormwater Soak it Up, a 75-minute classroom program for grades 4-12, and special interest groups totaling 1,274 students and teachers. The students learned to identify pollutants, distinguish between pervious and impervious surfaces, calculate runoff, and design greener cities within given budget constraints. Student reached in each watershed:

Columbia Slough: 258
Fanno/Tryon Creek: 163
Johnson Creek: 170
Willamette River: 547
Teacher/College Workshops 134
Total 1.274

• Presented Watershed Awareness to 1,204students, grades 3-6. This program focuses on common non-point sources of stormwater pollution typically found in a watershed and how to prevent them. Students reached in each watershed:

Columbia Slough: 431
Fanno/Tryon Creek: 55
Johnson Creek: 123
Willamette River: 541
Events 54
Total: 1,204

- Continued the permanent storm drain curb marker program. The program is a community and school stewardship activity to increase awareness of stormwater pollution and help prevent the public from disposing of household or lawn chemicals into the storm drain. Volunteers also distribute doorhangers containing stormwater pollution prevention messages and clean river tips to nearby residences. Number of participants: 67 (in Columbia Slough Watershed).
- Clean River Educators did a large amount of outreach to Kelly Elementary and Mt. Tabor
  Middle School to ensure the health of their landscapes, including organizing several bioswale
  maintenance days. Intensive water quality education continued at Llewellyan Elementary
  School to complement their site. Sunnyside and Alice Ott schools got involved in field trip
  education.
- Clean River Educators: Participated in 8 community events, with a total of 798 participants. These included the River Rally, Lents Resource Fair, Muddy Boots Festival, City of Portland Assembly Brown Bag, 3 Bridges Springwater Trail Celebration, International School Earth Day, Explorando El Columbia Slough, and the Naturehood Festival. All events included stormwater pollution prevention messages. BES was also a major sponsor of the Salmonpeople Theatrical Performance located at Arlene Schnitzer Hall for the general public and teacher audiences. Additionally, BES's contract performer, Will Hornyak, performed portions of the storytelling assembly, "Living Streams," at the following special events: Naturehood Festival (75 audience members), Nature Around Us (160 audience members), Explorando El Columbia Slough (400 audience members), Children's Clean Water Festival, and Metro's Salmon Festival.

#### **Education Advisory Committee**

 Continued bimonthly Education Advisory Committee meetings to review and advise on public education approaches and activities.

#### **Stewardship Activities and Community Events**

#### Columbia Slough Watershed

- Co-sponsored and participated in numerous community events, including Slough 101, Wetlands 101, Groundwater 101, Explorando El Columbia Slough, Canoe the Slough, Columbia Slough Small Craft Regatta, Adventure in the Well Field, Corps of Rediscovery, three Soup on the Slough events, two watershed cycling events, four Great Blue Heron week events, two Wild in the City events, and five neighborhood association picnics and gatherings in which stormwater was a topic of instruction. The total attendance was approximately 1,885 persons.
- Participated in training 15 "Eyes on the Slough" volunteer monitors. Monitors paddle each reach of the Columbia Slough monthly and report on water quality and landscape conditions.
- Provided canoe tours of the Columbia Slough to 210 students who had studied about the Columbia Slough Watershed and had completed a stewardship project.

 Participated in developing projects for the Columbia Slough Watershed Council Action Plan, which identifies numerous stormwater watershed restoration projects and activities for the Council and its partners.

#### Willamette Watershed

- Willamette Watershed: Participated in the OHSU/Veterans Hospital Earth Day event, with a total of 75 participants. The focus was on stormwater management and pollution prevention. Paul Ketcham (BES)
- Johnson Creek Watershed: Participated in 3 community events, with a total of 325 participants: the Lents Resource Fair, Lents Community Housing Fair, 3-Bridges Opening Springwater Celebration.
- Continued working with the Johnson Creek Watershed Council and streamside property owners to encourage watershed stewardship.
- Co-sponsored the eighth annual Johnson Creek Watershed-Wide Restoration Event, where over 340 volunteers helped plant trees, remove invasive species, and pick up trash.
- Gave presentations at the Lents Urban Renewal Advisory Committee and the East Portland Neighborhood Office; attended neighborhood association meetings in Woodstock, Lents, and Pleasant Valley to inform them about the Johnson Creek watershed restoration program and its projects.
- Conducted three public involvement events, with 25 people attending, for the Springwater Wetlands Restoration Project, East Lents Floodplain Restoration Project, and the Brownwood phase of the East Powell Butte Floodplain Restoration Project.
- Supported environmentally friendly farming education programs at Zenger Farm, which is the site of a renovated farmhouse with a zero-net energy design and sustainable stormwater features. Over 2,500 student visits were made.

#### Fanno and Tryon Creek Watersheds

- Hosted two Fanno and Tryon Creek Pre-design Open Houses on Monday October 2, 2006 and Monday June 11, 2007. Attended by 83 citizens who provided 49 comments on projects.
- As part of the Fanno and Tryon Creek watershed program outreach, provided tours and site visits for citizens on high-profile projects such as the SW 19<sup>th</sup> Avenue Green Street, conversion of ditches to swales, stream daylighting, and land acquisition.
- Partnered with the Friends of Tryon Creek State Park and Tryon Creek Watershed Council to create displays to educate visitors about in-stream habitat enhancement projects, such as the Highway 43 culvert retrofit and stream enhancement, tributary brush dam project, and Iron

Mountain sewer protection and stream enhancement project. Each year, 10,000 visitors interact with the educational displays.

- Hosted citizens at the SW Watershed Resource Center, located in the SW Community Center at Gabriel Park. Provided technical assistance and project support to neighborhood and Friends groups in the Fanno and Tryon Creek watersheds, including:
  - Hosted 1,293 visitors at the resource center
  - Supported various friends groups, with support at 49 meetings and site tours for 307 participants.
  - Provided education programs for 310 children and 151 adults at Family Fun Night and by hosting school groups.
  - Attended 10 community events, reaching 628 participants.
  - Loaned tools to eight watershed stewardship groups for 22 work parties and cleanups.
- With Friends of Trees and 30 neighbors, planted the upland portion of the SW 17<sup>th</sup> and Taylors Ferry Raingarden site with native trees, shrubs, and groundcover.

#### Other

- Partnered with AmeriCorps' Northwest Service Academy to sponsor an Americorps member as BES's Stormwater Stewardship Coordinator. Accomplishments included:
  - Helped plan and staff an open house at the Hawthorne Youth Hostel open house, which approximately 70 people attended.
  - Represented BES at the Cascade Rise Summit (a symposium working towards the integration of regional colleges and universities with workplaces focused on environmental sustainability efforts). Discussed BES initiatives and other opportunities with approximately 40 people.
  - Showed the "Art of Stormwater Landscapes for Rain" art exhibit, highlighting innovative stormwater landscapes, at a variety of venues, including Clackamas County Water Services, the Metro Garden tour, the BES website, Capitol Hill Elementary School, and the Bureau of Development Services. The exhibit reached approximately 1,000 people.
  - Coordinated development and installation of educational stormwater signage for the Innovative Wet Weather Program (IWWP) project at Alice Ott Middle School and for general BES outreach at Epler Hall, Portland State University. Over 400 people have seen these signs.
  - Presented information about sustainable stormwater design in Portland's skateboard parks to 75 people.
  - Worked with over 60 students from Kelly Elementary School on bioswale maintenance.
  - Made a presentation to 15 people about stormwater retrofit for Capitol Hill Elementary School.
  - Led over 15 summer campers and counselors on a tour of stormwater management facilities on the Portland State University campus.
  - Shared information about BES projects with 15 staff members from Metro.
  - Represented BES with various outreach materials at "A Greener Future for Affordable Housing" workshop series, Multnomah Days, Mississippi Street Festival, and Concordia Neighborhood Night Out.

- Partnered with the East Multnomah Soil and Water Conservation District, Metro, and many
  community hosts to offer the Naturescaping for Clean Rivers Program. The program offers
  four-hour workshops to teach participants to manage their property to use native plants, stop
  erosion, and reduce chemical and water use. The programs are offered throughout Portland
  and nearby suburbs. Participants can attend any workshop, regardless of location. For
  2006/2007, the program accomplishments are:
  - Offered 15 Naturescaping Basics workshops attended by 510 people.
  - Offered 7 Site Planning I intensive workshops attended by 172 participants.
  - Offered 4 Site Planning II plan review workshops attended by 18 participants.
  - Offered 1 Yard Tour with 364 participants.
  - Attended 31 events to reach out to 4,456 attendees.
- Partnered with Friends of Trees to support natural area crew leader training and volunteer
  plantings. The 69 crew leaders led 19 street tree planting events throughout the region. The
  volunteer plantings engaged 1,080 participants who contributed 5,084 volunteer hours. In
  addition to planting street trees, volunteers visit each planted tree twice during the summer to
  make sure homeowners are properly caring for their trees and the trees are thriving.
- Partnered with SOLV, project Team Up, to provide volunteer stream restoration projects (erosion reduction, invasive plant control, and native plantings) on private property at 13 sites in Portland. The project engaged 418 volunteers from scout groups, schools, volunteer organizations, and businesses and 100 paid crew members. Participation by watershed was:
  - Willamette River Watershed: 45 volunteers
  - Johnson Creek Watershed: 18 volunteers
  - Fanno Creek Watershed: 86 volunteers
  - Columbia Slough Watershed: 154 volunteers
  - Tryon Creek Watershed: 182 volunteers
- BES partnered with Portland Parks and Recreation to provide community involvement and stewardship at Portland parks with Fanno Creek tributaries and active volunteer groups. Gabriel Park (Vermont Creek), Woods Park (Woods Creek), and Dickinson Park (South Ash Creek) each hosted work parties to realign trails to reduce erosion, remove invasive plants, and replant wetland, riparian, and upland habitats with native plant assemblages. Additionally, the partners, along with a Nature in the Neighborhood grant from Metro, hosted a "doggie loo" at the off-leash dog area in Gabriel Park to reduce the impact of pet waste on Vermont Creek. The program also offers a broader educational outreach effort called "Dogs for the Environment," which features a dog bandana for pets whose owners take a pledge. Specific accomplishments included:
  - Gabriel Park: 11 work parties, 272 volunteers, and 1,031 volunteer hours
  - Woods Park 15 work parties, 208 volunteers, and 820 volunteer hours
  - Dickinson Park 15 work parties, 90 volunteers, and 440 volunteer hours
- Coordinated with stakeholders to implement Innovative Wet Weather Program projects:
  - 30 community volunteers worked with Friends of Trees to Plant the 17<sup>th</sup> and Taylors Ferry bioswale in fall 2006.

 15 construction CAM students designed and constructed the David Douglas High School Parking Lot Retrofit Project.

#### **Community Stewardship Grants Program**

• BES's Community Watershed Stewardship Program awarded 12 stewardship grants totaling \$53,000 in fiscal year 2006-2007, as described below. (Information from all grantees has not been received as of the writing of this report; not all grantees fully spent available grant dollars.)

Grant Project	Grant Amount	People Involved	Volunteer Hours
Columbia Slough Wa	tershed		
Verde/Hacienda CDC: Installed bioswales and native plant gardens during environmental job training for low-income individuals.	\$5,000	33	176
Reynolds After School Environmentalists: Educate and involve at risk students.	\$5,000	147	5,243
Other Portland: Art & Ecology in the 5 <sup>th</sup> Quadrant: Art exhibit focused on watershed health issues.	\$3,500	50	1,278
Fanno/Tryon Creek W	atershed		
BCS Watershed Education: Continued restoration and community education at Albert Kelly Park.	\$2,000	200	717.5
Portland Community College – Far SW: Continued restoration of natural area adjacent college.	\$5,000	168	2,000
Vermont Creek: Streamside private property owner education and outreach.	\$5,000	17	175
Johnson Creek Wat	ershed		
Lents Springwater Habitat Restoration: Continued community plantings, upland restoration and youth education.	\$5,000	382	2,413
Zenger Farm Urban Agriculture: Planned site replanting with native plants.	\$5,000	15	50
Willamette Watershed			
<i>MLC Bioswale</i> : Planned parking lot bioswale at public k-12 school.	\$5,000	8	No data
Stephens Creek Pass: Trail improvements along Stephens Creek.	\$5,000	27	241
Berry Botanic Garden Ecoroof: Constructed ecoroof for plant and soil research and education of visitors.	\$2,500	12	390
90 <sup>th</sup> & Burnside: Planned community green street project.	\$5,000	12	No data

The Community Watershed Stewardship Program also awarded 20 mini grants totaling \$4,600 in fiscal year 2006-2007. Mini grants provided a variety of community groups and private property owners with native plant gift certificates to assist with riparian and upland restoration and revegetation projects in all Portland watersheds.

In partnership with Portland State University (PSU), BES offers a graduate research assistant (GRA) position to manage the Community Stewardship Grants Program. The GRA assists grantees and also provides outreach to the community via the BES website and at events. The goal is to educate participants about stormwater issues and restoration opportunities, such as the grants program, for citizens to participate. Accomplishments include:

- Received 6,584 hits on the grants web page.
- Attended 10 community events, such as the Mississippi Street Fair, Muddy Boots Festival, and the Build it Green Tour, reaching 1,510 people.
- Sent postcards describing the grants program to 500 interested citizens.
- Conducted three grant information workshops in the community, describing the grants program and how to apply, reaching 26 participants.
- Worked with PSU students during Community Watersheds Capstone classes.
   Educated 18 students and reached 40 community attendees July through August 2006; educated 14 PSU students May through June 2007.
- Conducted two Stormwater Solutions presentations to the PSU Urban Environmental Issues class (November 2006 and May 2007), reaching 140 students.
- Created two internship positions for undergraduate PSU students. Interns worked
  with the grants coordinator on programmatic development and Capstone classes, as
  well as in the field with grant recipients.

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

- Continued participation in the Regional Coalition for Clean Rivers and Streams, with the following activities:
  - Contracted with a local firm to conduct four focus groups designed to assess the awareness of and interest of homeowners in the Portland metro area in sustainable stormwater management practices.
  - Conduct an RFP process to hire an advertising agency to assist the coalition in developing and implementing a public awareness campaign. Activities included reviewing and approving creative concepts and messaging for a television advertisement.
  - Maintained budget of \$72,000 per year for four years to educate the public about the impact stormwater runoff pollution has on the health of rivers and streams for people, fish, and wildlife.

#### **Publications and Signage**

- Maintained the Living Streams Education website.
- Distributed public flyers entitled "For a Safe and Successful Restoration Event" and "Urban Stream and Natural Area Visitor Guidelines."
- Installed interpretive signs at three Innovative Wet Weather Program (IWWP) sites.
  - East Holladay Park
  - Alice Ott Middle School
  - Mississippi Commons

- The Sustainable Stormwater Program fulfilled six requests for public viewing of the traveling exhibit "Landscapes for Rain; Art of Stormwater."
- Posted fact sheets, brochures, and educational materials on the BES Sustainable Stormwater Management website. The materials included information about native plants, removing invasive plants, green streets and other sustainable stormwater approaches. The website received over 13,000 views during FY06-07 (up almost 10,000 from the previous fiscal year).
- Produced and distributed surveys and informational material to neighbors living near a green street.
- Distributed a variety of educational materials at community meetings and events.
- Developed and installed interpretive sign for the Whitaker Ponds Pollution Reduction Facility, a, spill containment and constructed wetlands stormwater pollution reduction facility. This facility is located at Whitaker Ponds Nature Park and is seen by virtually every school and tour group that visits the site (approximately 5,000+ visitors).
- Developed and installed a rain Garden and interpretive sign at the newly installed residential rain garden at Whitaker Ponds. This facility is a publicly accessible and highly visible residential scaled rain garden. Interpretation is provided in Spanish and English.
- Posted temporary informational signs on the Springwater Corridor Trail regarding construction of the Brownwood phase of the East Powell Butte Floodplain Restoration Project, which includes water quality elements.
- Produced four fact sheets, with a total printing of 100 copies, for Willamette Watershed projects: Hawthorne Hostel, Woods Outfall, Burlingame Sewer Repair, and Texas Green Street.

#### **Stormwater Advisory Committee**

• Met regularly (generally monthly) with the Stormwater Advisory Committee (SAC), a group of external stakeholders that reviews and makes recommendations on stormwater management issues and policies. During FY06/07, the SAC provided input on the Green Streets policy language in the Transportation Systems Plan, Green Streets Cross-Bureau Team Phase II report, and stormwater-related components of the Portland Watershed Management Plan. The SAC also continued review and comment on revisions for the Stormwater Management Manual (see ND-2).

#### **Coordination among City Programs**

 Coordinated with other City projects and programs (e.g., Endangered Species Act Program, Willamette Stormwater Control Program, watershed programs) to integrate stormwater activities and messages.

- Participated in the Johnson Creek Interjurisdictional Committee to collaborate with staff from other Johnson Creek jurisdictions on water quality monitoring and grant and restoration opportunities.
- Partnered with Portland Parks and Recreation's City Nature to sponsor an Americorps member. This person supported a variety of community groups and public school programs throughout Portland to help address streambank erosion, revegetation, public awareness about important restoration projects, and environmental education. The volunteer groups included the Central Planning Team for the South Portland Riverbanks Projects, Winterhaven Middle School, Llewellyn Elementary School, Grout Elementary School, Park Rose High School, Reynolds Middle School, the Columbia Slough Watershed Council (CSWC), Fred Meyers Corp., Native American Youth Association, Portland Urban League, REI, and Portland Parks Horticultural Services.

### PERFORMANCE MEASURES<sup>3</sup>

#### > Type of outreach and estimated number of people reached:

Type of Activity	Number of Participants
School programs	30,352
Community events; workshops	9,804
Community Stewardship Grants Program	1,071
Other stewardship projects, restoration	3,417
events	
Naturescaping workshops, tours, outreach	5,520
events	
Website visits	Community Stewardship Grants Program:
	6,584
	Sustainable Stormwater Management
	Program: 13,000

#### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

The PI-1 activities that have proved successful will continue in FY 07/08, including stormwater education activities, community stewardship grants, participation in the Regional Coalition for Clean Rivers and Streams, watershed-specific education and stewardship activities, publications and signage, work with the Stormwater Advisory Committee, and coordination with other BES and City programs. Specific projected activities include:

<sup>&</sup>lt;sup>3</sup> Performance measures are used to estimate the effectiveness of BMP implementation. They are identified for each BMP in the Stormwater Management Plan. The Annual Compliance Report includes other reporting elements in addition to the performance measures in order to describe the full extent of BMP implementation activities.

#### **Education**

- Provide education outreach on the science of stormwater management to schools
  participating in the EPA Innovative Wet Weather Program stormwater demonstration and
  other bureau-sponsored projects.
- Continue the major outreach to community youth to increase their awareness of urban
  watershed and water quality issues, increase their connection to greenspaces and streams so
  they desire to protect and appreciate them, and educate them about how they can protect their
  watersheds.

#### Regional Coalition for Clean Rivers and Streams Awareness Campaign

- Implement the public awareness messages that will be used by coalition members over the next four years.
- Update the coalition's website to reflect the new campaign messaging.

#### **Committees**

- Continue bimonthly Education Advisory Committee meetings to review and advise on public participation approaches and activities.
- Continue Stormwater Advisory Committee meetings to provide review/comment and policy guidance on stormwater issues.

#### **Publications and Signage**

- Continue to produce publications, website materials, and signage to support program areas.
- Establish a web page dedicated to Green Streets.

#### **Coordination with Other Programs**

• Continue to coordinate with watershed councils, friends groups, and other City bureaus.

#### PROPOSED BMP REVISIONS

None.

PI-2: Obtain public review and comment on revisions to the Stormwater Management Plan (SWMP).

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY06-07)**

 No activities occurred under this BMP because no revisions were made to the SWMP in FY06-07. (A public review and comment process occurred in FY05-06 for the revised SWMP that was submitted to DEQ in May 2006 as part of the Interim Evaluation Report.)

#### PERFORMANCE MEASURES

> Summary of SWMP public review process, including description of outreach efforts to interested parties list and number of comments received during public review process.

Not applicable for FY06-07.

# PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

• A public review and comment process will be conducted for the revised SWMP to be submitted to DEQ in September 2008 with the permit renewal application.

#### PROPOSED BMP REVISIONS

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

#### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

# Municipal Separate Storm Sewer System Assessment, Cleaning, and Maintenance

- BES made 4,121 inspection/maintenance visits to various locations citywide (multiple visits to some locations after major rain events). Accomplishments by watershed are provided under Performance Measures, below.
- BES cleaned approximately 7,941 inlets (citywide). Accomplishments by watershed are provided under Performance Measures, below.
- BES cleaned approximately 55,472 linear feet of ditch and 3,417 linear feet of culvert. Accomplishments by watershed are provided under Performance Measures, below.
- BES inspected all 180 public stormwater management facilities (SMFs) twice to document the condition of each facility and identify needed cleaning and repairs. Cleaned/repaired 41 SMFs. Inspections and cleaning/repairs by watershed are provided under Performance Measures, below.
- BES repaired or constructed 225 inlets, 4,070 linear feet of inlet lead, and 1,674 linear feet of culvert. Repairs/construction by watershed are provided under Performance Measures, below.
- BES finished the sediment accumulation study at four sites: two ponds in Johnson Creek (SE), one swale in the Tualatin Basin (NW), and one pond in the Columbia Slough (NE). The data will be reviewed next fiscal year.
- The Bureau of Maintenance (BOM) prioritizes ditch maintenance work to occur during the dry season and continues to use methods to minimize erosion and slow flows during and after maintenance, including:
  - Skip ditching: clearing vegetation from no more than 500 feet of contiguous stormwater ditch at one time.
  - Armoring steep stormwater ditches with rock to prevent erosion and slow flows, while allowing infiltration.
  - Installing stable shoulder materials adjacent to stormwater ditches in sensitive watersheds to prevent transport of non-cohesive fines.
  - Using removed vegetation, bio bags, and other filtration media to slow and filter flows from newly maintained ditches.

- BOM staff continue to look at piloting new materials and applications directed toward enhancing water quality. Pilot actions include:
  - Alternatives to galvanized metal. The BOM Stormwater Group switched from using galvanized metal to stainless and case-hardened steel to screen beavers from pipes.
  - New equipment and materials. BOM began using eco-stakes for easier installation of bio bags. BOM also began installing downpipes and splash pads for stormwater outfalls on slopes where erosion is a concern.
  - Erosion control. Crews have devised work-specific practices, such as temporary awnings over work sites and temporary bins for holding spoils during hand excavations on steep slopes
  - Ditch reconfiguration. BOM conducted trials to retrofit steep ditches to stair-stepped mini-basins where possible.
  - Demonstration "green ditches" project. The stormwater crew designed four "soft" demonstration treatments to alleviate, minimize, and control erosion on steep (8 percent to 12 percent of slope) ditches on SW Alice St. in the Tryon Creek headwaters. Treatments included combinations of leaf mulch and seed and various check structures and seed. The four ditch treatments were monitored over fall, winter, and spring. Findings resulted in recommendations to armor ditches with large rock or convert the ditches to permeable shoulder and install detention facilities downline to meter flow releases.

# **Training**

- BOM staff continues to attend quarterly meetings of the Association of Clean Water Agencies (ACWA) and the annual day-long Stormwater Summit. This provides an opportunity to contribute to policy development and to gather information.
- The 11-member BOM stormwater crew received training in how to install, monitor, and maintain erosion control media in ditches.
- The BOM stormwater group completed a pollution prevention and water quality protection BMP sourcebook for crew leaders to use during sewer repair operations.

#### **Stormwater Facilities Maintenance Plan**

- Completed a stormwater O&M plan summary that includes facility descriptions, summary sheets for basic maintenance elements that make up the MS4 conveyance system, a UIC maintenance plan, and cost by facility type.
- Completed cost and scheduling documents for the vegetative maintenance component of Stormwater Facility Maintenance Plan work. These costs were used to support the addition of Green Street projects to City maintenance responsibilities.

# PERFORMANCE MEASURES

> Location (watershed), type, and number (and percentage of total) of facilities cleaned; frequency of cleaning by type; amount of materials removed

Inlets Inspected/Maintained and Cleaned							
Columbia Fanno Johnson Tryon Willamette Rock							
	Slough	Creek	Creek	Creek	River	Creek	TOTAL
Inspected/Maintained	nspected/Maintained 57 1,008 161 333 2,392 170 4,121						4,121
Cleaned (Hansen data only)*	357	19	92	1	604	3	1,076

<sup>\*</sup> Information on inlets cleaned was pulled from both Maximo (7,941 inlets) and Hansen (1,076 inlets). Only the information from Hansen can be separated out by watershed.

	Ditches and Culverts Cleaned							
	Columbia Fanno Johnson Tryon Willamette							
	Slough	Creek	Creek	Creek	River	TOTAL		
Feet of Ditch Cleaned								
(linear feet)	194	8,384	11,892	4,253	30,749	55,472		
Feet of Culvert								
Cleaned								
(linear feet)	589	994	110	345	1,379	3,417		

Public Stormwater Management Facility Inspections								
	Columbia Fanno/Rock Johnson Tryon Willamette							
	Slough	Creek	Creek	Creek	River	TOTAL		
Number Inspected	43	41	53	13	30	180		
Note: Each facility was	inspected tw	vice.				•		

Public Stormwater Management Facilities Cleaned/Repaired							
Type of Facility	Columbia	Fanno	Rock	Johnson	Tryon	Willamette	
Cleaned/Repaired	Slough	Creek	Creek	Creek	Creek	River	TOTAL
Dry extended detention							
pond	0/0	0/1	0/0	3/1	0/0	0/0	3/2
Forebay	6/1	0/0	0/0	0/0	1/0	0/0	7/1
Greenstreet planters	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Swale	0/1	0/0	0/0	0/0	0/0	1/0	1/1
Sedimentation structure	4/1	1/0	0/0	(9/0	0/0	0/0	14/1
Wet extended detention							
pond	0/2	0/0	0/1	0/1	0/0	0/0	0/4
Const. Treat. Wetland	0/0	1/1	0/0	0/0	0/0	0/0	1/1
Sed. Box	0/0	1/0	0/0	1/0	0/0	0/0	2/0
Greenstreet Swale	0/0	0/0	0/0	0/3	0/0	0/0	0/3
Totals Cleaned/Repaired	10/5	3/2	0/1	13/5	1/0	1/0	28/13
Percent of all public Stori	nwater Mar	nagement	Facilities (	Cleaned			15.5%

Repair or Construction of Inlets, Inlet Leads, and Culverts							
Columbia Fanno Johnson Tryon Willamette Rock							
	Slough	Creek	Creek	Creek	River	Creek	TOTAL
Inlets	21	16	17	4	163	4	225
Inlet Leads (number of/linear	nlet Leads (number of/linear						
eet) 16/766 12/910 11/266 4/27 78/2,078 2/23 123/4,070							
Culverts (number of/linear feet)	0/0	10/523	1/20	9/602	11/529	0/0	31/1,674

Material Removed During Maintenance <sup>a</sup>					
Watershed	Amount Removed (Tons)				
Columbia Slough	29				
Fanno Creek	347				
Johnson Creek	445				
Tryon Creek	170				
Willamette River	1190				
Total 2,181					
<sup>a</sup> Material primarily from conveyance system cleaning (ditches, culverts)					

# > Number and type of training/educational sessions and number of participants

- BOM participation in ACWA and Stormwater Summit
- BOM stormwater crew training on erosion control: 11 participants
- Preparation of BMP sourcebook for use by BOM crew leaders BOM

<u>Note</u>: Training related to other operations and maintenance activities is identified under OM-2 and OM-3.

## PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue work on the Stormwater Facilities Maintenance Plan, including a schedule and
  work plan for evaluating potential improvements to existing practices, including monitoring
  needs. Begin identification of watershed-specific weighting criteria for facility operations
  and maintenance plans. Complete basic maintenance practices information forms. Enhance
  the expectations listed in the scope of work with the Bureau of Maintenance for the MS4
  system.
- Establish priority preventative maintenance areas for various watershed and regulatory programs. Priority areas will be based on a variety of factors, including pollutant load, presence of sensitive fisheries, presence of treatment facilities in the catchment, and proximity to streams. These areas will be delineated on the City mapping system.

## PROPOSED BMP REVISIONS

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.

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- The Bureau of Maintenance (BOM) continued to implement BMPs within the right-of-way to protect water quality, including the following:
  - 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 PDOT's transportation-related maintenance activities.
  - Track and remove abandoned erosion control devices. If not properly maintained, these bio-bags and catch basin inserts can break open and contribute to stormwater pollution.
     City inspectors follow protocol to identify and require utilities and contractors to remove these devices upon job completion.
  - Use the trenchless liner repair system. This technique reduces environmental impacts by minimizing pavement cuts, excavation, material removal, and trench replacement material.
  - Use bio-pillows for sediment control on impervious surfaces and hydrocarbon-absorbing booms to trap sediment, oil, and grease while cleaning the grinding machine. These bio-pillows are placed on the immediate downhill side of the cleaning process and away from the catch basins to contain any contamination on the job site. Catch basin protection at the job site is also provided when grinding and/or paving equipment is left onsite overnight.
  - Use low-disturbance sign installation methods to avoid or minimize digging. Activities include swap-out of older posts with break-away posts, where possible, to avoid digging. Where posts are set in the ground, quick-setting concrete, mixed in the hole, is used to avoid the need to rinse in the field
  - Use mild cleaners, with no solvents, to clean signs. Signal faces are cleaned with glass cleaner and a rag, and painted parts are cleaned in the sand blasting booth in the shop.
  - Phase out older parking meters. Phasing out single-space mechanical meters and converting to electronic mechanisms and pay stations provides the following environmental benefits:
    - Eliminates the need to clean older parts with solvents or treat exteriors with rust removers in the field.

- Minimizes the number of galvanized steel posts required for the single parking meter system (zinc is a concern) and the amount of concrete drilling, breakout, and replacements associated with that system (concrete dust is a concern).
- Further minimizes the need to use harsh cleaners. Meter housings made of stainless steel or cast aluminum and treated with anti-graffiti coating are used.
- Control asphalt. Staff monitor weather conditions during asphalt grinding, hand-apply asphalt to prevent these materials from entering the storm drain system, and require rinse water to be filtered through bio pillows and oil-absorbent booms before entering storm drains. Water-based asphalt emulsions and biodegradable asphalt release agents are used to prevent stormwater pollution by diesel and volatile organic compounds.
- BOM staff developed a set of pollution prevention BMPs for wet-weather shoulder work. These include assigning a sweeper to this work; retaining vegetation in adjacent ditch; using a cohesive, well-graded shoulder aggregate with fractured stone faces and proper moisture content; and compacting the aggregate after placement.
- BOM tested the use of a 30-gallon roll-away slurry vacuum for managing concrete slurry. It does not appear to be as reliable as a shop vacuum and is far more expensive. BOM also developed a set of BMPs for protecting stormwater inlets from rinse water from cleaning the portable cement mixer in the field. These include collecting rinse water, disposing of rinse water in earth spoils bins, and placing filtration at stormwater inlets down-gradient of the work area.
- BOM and BES coordinated to identify and eradicate invasive plants in the right-of-way, using activities that emphasize effective timing and control methods (especially mowing). Procedures include properly clean mowing equipment after use to avoid spreading undesirable plants.
- BOM and BES partnered on brushing, mowing, and pesticide-spraying activities for a pilot project to control garlic mustard. The BOM work group developed a written document describing its pesticide management program.
- BOM tested a new shoulder material on Rocky Butte and in various locations in the West Hills and Forest Park (Germantown Road). Results showed material to be very stable and erosion-resistant and appropriate for use in sensitive watersheds, stream corridors, and wetlands.

#### **Street Sweeping**

• Approximately 2,051 miles of streets were swept within the City of Portland in FY06-07. Of this citywide total, approximately 366 miles of the swept streets drain to the MS4 or to surface water. A breakdown of miles swept by watershed is provided under Performance Measures, below.

- BOM collected approximately 4,892 cubic yards of debris and 231 cubic yards of leaf debris from streets that drain to the MS4 or directly to surface waters. Estimated amounts collected in each watershed are included under Performance Measures, below.
- In the summer of 2006 BOM and its partners conducted a second pilot project to determine the feasibility of recycling street sweepings. The first project, conducted in 2005, determined that a sweeping reuse product with low pollutant levels can be made using processing methods currently available at the Sunderland Recycling Facility. For the 2006 project, four right-of-way test sites will be used to monitor the beneficial use of this material and any potential environmental impact. The goal of these projects is to remove this wastestream from landfills by converting it into a beneficial product.

# **Training**

- Five members of the BOM pesticide spray crew attended two days of training by the Oregon Department of Agriculture on managing pesticides in the public right-of-way.
- The BOM mowing and brushing group (15 employees) reviewed equipment cleaning operations to avoid spreading invasive plants in the right-of-way.

#### PERFORMANCE MEASURES

- > Number and type of training/educational sessions and number of participants
  - Pesticides management: 5 BOM employees
  - Equipment cleaning operations: 15 BOM employees

<u>Note</u>: Training related to other operations and maintenance activities is identified under OM-1 and OM-3.

- > Location (by watershed), miles (and percentage of total), and type of streets cleaned; frequency of cleaning by type
- Approximately 2,051 miles of streets were swept within the City of Portland. This represents 69 percent of the 2,985 total street miles in the City. As shown in the following table, 366 miles of streets that drain to the MS4 or to surface waters were swept. This represents 52 percent of the 707 total miles within the MS4 area. (Note: Mileage refers to street miles and does not reflect frequency of sweeping.)

***	G. A.T.	Sweeping
Watershed	Street Type	Miles
Columbia Slough	Regional Trafficway	0.00
	Regional Trafficway and Major City Traffic Street	8.6
	Major City Traffic Street	12.65
	District Collector Street	7.23
	Neighborhood Collector Street	19.59
	Traffic Access Street	0.00
	Local Service Traffic Street	61.41
	N/A or Unknown	5.21
	Watershed Subtotal	114.79
Johnson Creek	Regional Trafficway	0.00
	Regional Trafficway and Major City Traffic Street	0.14
	Major City Traffic Street	0.98
	District Collector Street	0.40
	Neighborhood Collector Street	3.75
	Traffic Access Street	0.00
	Local Service Traffic Street	20.32
	N/A or Unknown	0.00
	Watershed Subtotal	25.59
Fanno Creek	Regional Trafficway	0.14
	Regional Trafficway and Major City Traffic Street	0.00
	Major City Traffic Street	10.02
	District Collector Street	5.49
	Neighborhood Collector Street	3.00
	Traffic Access Street	0.00
	Local Service Traffic Street	44.41
	N/A or Unknown	0.00
	Watershed Subtotal	63.12
Tryon Creek	Regional Trafficway	0.00
	Regional Trafficway and Major City Traffic Street	0.00
	Major City Traffic Street	2.92
	District Collector Street	4.24
	Neighborhood Collector Street	2.70
	Traffic Access Street	0.00
	Local Service Traffic Street	19.39

	N/A or Unknown	0.00
	Watershed Subtotal	29.25
Willamette River	Regional Trafficway	2.25
	Regional Trafficway and Major City Traffic Street	6.79
	Major City Traffic Street	13.31
	District Collector Street	6.78
	Neighborhood Collector Street	18.34
	Traffic Access Street	18.03
	Local Service Traffic Street	50.88
	N/A or Unknown	0.68
	Watershed Subtotal	117.06
Rock Creek	Regional Trafficway	0.00
	Regional Trafficway and Major City Traffic Street	0.00
	Major City Traffic Street	0.46
	District Collector Street	0.00
	Neighborhood Collector Street	3.51
	Traffic Access Street	0.00
	Local Service Traffic Street	12.13
	N/A or Unknown	0.00
	Watershed Subtotal	16.10
Watershed Totals		366.00

- Arterials are swept 12 times a year and residential streets are swept 7 times a year.
- Approximately 4,892 cubic yards of debris and 231 cubic yards of leaf debris were collected from streets that drain to the MS4 or directly to surface waters. The following table shows estimated amounts collected in each watershed.

Summary of Street Sweeping/Leaf Collection by Watershed <sup>a</sup>							
Location	Miles Swept <sup>b, c</sup>	Material Collected (cubic yards)	Leaf Collection Miles	Leaf Collection (cubic yards)			
Columbia Slough	114.78	1,535	0	0			
Johnson Creek	25.59	342	0	0			
Fanno Creek	63.12	844	2.05	137			
Tryon Creek	29.24	391	0	0			
Willamette River	117.06	1,565	1.42	95			
Rock Creek	16.10	215	0	0			
Totals	365.89	4,892	3.47	231			

<sup>&</sup>lt;sup>a</sup> Information is for streets that drain to the MS4 or to surface water.

b Includes leaf collection miles.

<sup>&</sup>lt;sup>c</sup> Miles swept are route miles and do not account for frequency of sweeping.

## PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to evaluate new materials and processes, pilot test tools and techniques, and monitor developments in related fields. Continue to invite guest speakers and host vendor demonstrations to keep apprised of new materials and practices.
- Continue ongoing crew-level skill training for Endangered Species Act (ESA) and BOM
  routine maintenance practices and water quality guidelines. Educational opportunities
  include outside speakers, in-house training, tail-gate and jobsite demonstrations and
  discussions, consultations with the bureau's Environmental Program Specialist, and
  attendance at various workshops and conferences.
- Continue crew participation in an onsite evaluation of erosion control techniques at certain locations within Southwest Portland. Field employees are evaluating durable materials to reduce ditch erosion during times of high velocity.
- Continue to work with BES to assess the efficiency of pervious concrete in infiltrating stormwater. Monitor and evaluate two test sites to assess their maintainability.
- Continue development of a manual that includes best management practices for all BOM maintenance activities, not just those addressed in ODOT's roadside maintenance manual.

  This draft manual includes best management practices for such activities as traffic maintenance, environmental systems, pest control, traffic electrical work, recycling, sidewalk maintenance, and other activities performed by BOM. Field crew employees are assisting with the development and evaluation of the BMPs and will be involved in updating and refining them.
- Continue to test prototype machinery that contains sediments from the pavement markings grinder, which is used to remove and capture plastic pavement markings from the street. This includes efforts to retrofit the grinder with a vacuum system to collect the grindings in an efficient manner for proper disposal.
- Continue the current street sweepings pilot project.

PROPOSEI	) BMP F	REVISIONS
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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.

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

#### **Bureau of Maintenance (BOM)**

- Pollution Prevention (P2) teams at the Bureau of Maintenance (BOM) continued to meet twice a month to evaluate and track maintenance procedures, pilot test new products and techniques, evaluate work processes, and monitor developments in related fields. Topics relevant to stormwater quality protection included:
  - Water quality protection needs associated with vehicle and equipment washing.
  - Labeling secondary containers.
  - Management of vehicle and equipment leaks in maintenance yards and parking lots.
  - Water saws and managing saw slurry.
  - The BOM Best Management Practices for Pollution Prevention and Water Quality Protection.
  - The regulatory context for stormwater management in maintenance yards and parking lots.
  - Evaluation of alternatives to treated wood.
  - Parks' Integrated Pest Management Program, including activities being applied at city golf courses.
  - GreenStreets bioswales and other facilities.
- P2 team field members organized the annual bureau-wide Earth Day event. Information from Metro (composting, household hazardous waste disposal, recycling), the Water Bureau (water conservation, water distribution map), and PDOT (bicycle maps, walking maps) was provided. PDOT's Options Mobile was on display, and native plant and plant seeds were given away.
- P2 team field meetings included vendor presentations on equipment cleaning, erosion control media, and geotextile products available and most effective methods for usage.
- BOM continued to use Portland Parks and Recreation's Integrated Pest Management (IPM) plan as a guidance document. The IPM, approved by NOAA Fisheries under the ESA 4(d) rule to protect salmonids, requires certification of pesticide applicators. This approach is designed to minimize the need for fertilizers, pesticides, and irrigation while developing and maintaining viable landscapes.
- A majority of the rock and backfill material stored at the Albina Yard is stored under cover to reduce pollutant load in stormwater runoff. A subgrade sediment vault removes sediment

from runoff from the entire loose material storage area before it enters the stormwater sewer system. This system is maintained annually.

- BOM cleaned all stormwater and water quality facilities in maintenance yards and lots and continues to implement Phase I stormwater controls. Phase I encompasses installation, inspection, and maintenance of filtration and absorbent media at selected stormwater inlets. Specific activities included:
  - Maintain the stormwater filtration system under waste drop boxes, equipment parking areas, and other selected inlets vulnerable to leaks and spills.
  - Store most collection bins for recycled materials indoors under cover.
  - Clean out subsurface vaults below the sweeper debris pile approximately two times per year.
  - Clean out debris from sweeper wash facility vaults once each month or two.
  - Clean debris vaults at the truck bed washout facility as needed every few months.
- Many BOM groups continue to maintain dry shops that use no solvents or toxic materials.
- BOM modified practices at its facilities, including:
  - Use of bio pillows and oil booms to divert runoff to appropriate areas and filter sediment from it.
  - Spill protection. Storm inlet covers were ordered for the two mobile fueling trucks and for particularly vulnerable inlets in the maintenance yard. In addition, spill kits were added to the pre-trip check forms in all equipment and vehicles.
- BOM's Maintenance Group's environmental program specialist is developing a stormwater management plan to prevent and reduce pollution from maintenance lots and yards (13 acres). FY06-07 work included:
  - Investigated, mapped, and inventoried all stormwater facilities.
  - Developed a preliminary inspection schedule and preliminary maintenance actions and frequencies.
  - Identified preliminary priorities for stormwater facility improvements, and coordinated removal of surface debris in selected locations in the yards and lots before the onset of the rainy season.
- BOM continues to research alternative products and vendors to meet environmental protection needs. As a result, the bureau now stocks "clean" bio bags and bone bags (three-sided bio bags that stay in place in high-traffic areas). Storekeepers maintain lists of vendors for additional erosion control media and have sources for secondary containment labels.
- The bureau continues to encourage employees to recycle and reuse products used in the course of business. Recycling stations throughout the Stanton and Albina Yards enable the bureau to reduce the amount of waste sent to the landfill.
- Prior to BOM's semi-annual yard cleanups, a member of the Environmental Team meets with employees to review stormwater cleanup needs and sediment control and inlet protection methods.

- BOM continued the practice of rinsing street sweepers after every shift. The rinsate is treated before discharge the sanitary storm sewer. The treatment process consists of routine solids removal, scooping out the debris with a bobcat, and vactor cleaning of the collection system.
- BOM continued water quality-related training, including the following:
  - StormWatch. All Maintenance Group crews and new employees (approximately 400 employees) watched and discussed a 20-minute video on spill prevention and response.
  - Managing rinse water from steam cleaning operations. Four tool room employees received training on acceptable cleaning products and means to filter rinsate for steamcleaning operations that do not drain to water quality treatment facilities.
  - Housekeeping in maintenance yards and parking lots. The Pollution Prevention
    Managers team (seven people) held several meetings that focused on needs for
    housekeeping and planning to prevent stormwater pollution from various activities and
    materials in the maintenance lots and yards.
  - Social marketing. An Environmental Group employee participated in a two-hour on-line training about education and outreach to target groups on pollution prevention behavioral changes.
  - Washing facilities. An Environmental Group employee observed operations at permitted, private-sector concrete truck washout and equipment wash facilities, as well as at those operated by ODOT and the Portland Water Bureau, and shared this information with the seven Pollution Prevention managers.
  - Sweeping truck rails, sides, aprons. Approximately 200 Street Systems and Environmental Systems crew members received a refresher training about keeping truck rails, aprons, and sides clean before transporting loads in the street.
  - Lining truck beds. The 11-member MS4 maintenance crew received a refresher training on lining truck beds to keep wet loads from dripping during transport.
  - Managing saw slurry. BOM staff cross-trained approximately 100 crew members on managing saw slurry with a range of different equipment.
  - NW Environmental Professionals' annual conference. Two staff members attended training workshops on facility stormwater audit, stormwater management planning, and HazMat management.
  - Orientation for new employees. The orientation includes a one-hour overview of the bureau's environmental program, highlighting the commitment to water quality, pollution prevention, alternative energy, and environmental awareness in the workplace. This overview also includes a training video on municipal best management practices and

stormwater pollution prevention. Twelve new BOM employees were oriented during the past fiscal year.

- Site improvements at the Sunderland Recycling Facility included the installation of truck scales and improvements to the traffic plan within the facility. These improvements will improve the efficiency of the operation and the material tracking processes, resulting in an increased volume of material recycled at the facility.
- BOM promotes its recycling activities to ensure that the program is understood and supported by stakeholders throughout the City. Outreach and marketing efforts during FY06-07 included numerous presentations (e.g., to national and regional American Public Works Association [APWA] conferences and the University of Oregon's Sustainability Training Program); articles; conference participation; outreach at expositions; development of an informational brochure; and development of a short film shown on the community access channel. The Sunderland Recycling Facility received the *Julian Prize for Sustainability* from the Oregon chapter of the American Public Works Association (APWA) and the *Focus Award for Government* at the first annual Oregon Sustainability Awards.

#### Water Bureau

- Continued to implement a program that requires the Water Bureau to submit requests to the Bureau of Environmental Services (BES) for discharges of potable water from flow tests of hydrants and tank and reservoir drains. Discharges are approved on a case-by-case basis with a letter of authorization. The authorization requires BMPs to reduce the impacts of flow rate, volume, and suspended solids from these activities, in addition to the state guidelines for chlorinated discharges. A report is required for each discharge in order to track volume and respond to any complaints.
- Continued to inventory discharges at various facilities, in conjunction with sump registration and NPDES permit application work for direct discharges.

## **Bureau of Parks and Recreation**

- Continued to empty (monthly) the sump at Mt. Tabor Yard that captures the grass and dirt of Parks mowers when they clean off at the end of shift, to help prevent that material from entering the storm drain system.
- In conjunction with Multnomah County Drainage District, continued monitoring and maintenance on a bank cutback and terracing project at the Portland International Raceway (PIR) to prevent the sloughing off/collapse of the bank. Two new culverts were installed under the west entry road connecting the Northern Slough to the Western Slough.
- Continued to maintain the new drip irrigation system in Mt. Tabor Nursery, as well as turf strips to prevent erosion from watering and harvesting equipment.

- Continued program with vendors to provide pesticides at individual golf course sites on an as-needed basis. This approach reduces storage needs for pesticides and also shifts any transportation risks to the vendor, who has more appropriate equipment and training.
- Continued testing nutrient levels and the presence of pesticides in surface waters for all City golf courses on a twice-annual basis. Results from testing continue to show that pest management and fertilization activities are not presenting a negative impact to aquatic habitat and ESA-listed species.
- Expanded surface water quality testing sampling program to evaluate any impacts from herbicide use in revegetation/ invasive plant removal activities took place in 2006-2007. Data will be interpreted and there will be a formal report issued by the end of 2007.
- Continued the use of a specially formulated slow-release fertilizer on park turf, which possesses an ideal formulation of components that reduces leaching and wasted elements in runoff. Water quality testing results confirm the efficacy of this formulation.
- At two golf courses, continued pilot testing the use of special equipment for precise application amounts, timing, and distribution of fertilizer on golf course fairways and greens as part of an ongoing program. Added a third golf course to this program. Initial results indicate a reduction in materials use.
- Continued the three-year Integrated Pest Management (IPM) enhancement program to formally assess and document alternative pest management techniques, materials, and methods in trials at various locations in City parks, community gardens, golf courses, and natural areas. The program will assess efficacy, economies, impacts, and suitability for park use. The long-term goal is to seek potential environmental, economic, and safety improvements within the IPM approach and provide usable data for BMP improvements.
- Continued to examine maintenance activities as part of annual compliance requirements for continued Salmon Safe certification. This included the IPM enhancement project, studying alternatives to pesticides, and trials of pesticide-free parks. Also completed an inventory of stream channel and riparian conditions in parks.
- Continued work at Westmoreland Park to adapt the casting pond and irrigation system. This will enable the casting pond to be used as a reservoir, and water drained from the pond will be used for irrigation rather than releasing it to Crystal Springs.
- Continued a public/private partnership to fund new practices at key park sites to renovate athletic fields. These practices include aeration and overseeding to reduce fertilizer use and increase water infiltration.
- Continued to perform aeration, topdress, and overseed activities on 23 highly used sports fields at 10 different sites work to achieve structural soil changes that improve plant health and optimize use of water and fertilizers.

- Continued work to achieve structural soil changes that improve plant health and optimize use of water and fertilizers, primarily in sports fields, but also in other areas.
- Continued to use the machine shop at Mt. Tabor Yard as one of the bureau's recycling collection points. Used oil is collected and stored onsite, in a locked safety "tank within a tank," then sent to a waste oil recycler. Used antifreeze is also collected and sent to a recycler. All cleaning done in the machine shop uses only a non-butyl degreaser, and the solvent tank uses a solvent reclaimer cleaning unit so no waste solvent is produced. Cleaning of brake parts and spot cleaning use bulk solvent and a mister can that uses compressed air for the propellant, eliminating aerosol cans and their propellant.

## Other

- BES, the Fire Bureau, and General Services continued working together on the City's fire station seismic upgrade to incorporate environmental issues. Specifically, all upgrades include washing areas that discharge to the sanitary system, with appropriate pretreatment. This eliminates discharges of wash water to City storm or ground disposal systems. To date, 24 remodeled stations and 5 new stations have been completed with indoor vehicle wash areas and oil/water separators. Three additional stations will have vehicle wash areas with an oil/water separator when built or remodeled. BES continues to review new stations and remodeled stations' plans as they proceed through the building permit process. All stations are designed to incorporate many environmental components to achieve and exceed stormwater quality goals.
- Convened the Toxics Reduction Strategy Steering Committee, comprising key City and County staff with relevant expertise and responsibilities, as well as external community partners. Developed and formalized the implementation process for the Toxics Reduction Strategy. Drafted work group charters for three Toxics Reduction Strategy actions, including:
  - Developing low-mercury fluorescent light tubes procurement specifications and recycling/disposal procedures.
  - Outlining the scope and resource needs to conduct a citywide (and countywide) chemical and toxics inventory.
  - Developing a comprehensive mercury reduction strategy and work plan (for city and county operations).
- The City's Sustainable Procurement Strategy has been in effect since 2002. Under this strategy, City bureaus employ green purchasing practices in order to spend public funds on goods and services that minimize negative environmental impacts, are fair and socially just, and make economic sense, both now and in the long term.

#### PERFORMANCE MEASURES

# > Number and type of training/educational sessions and number of participants

- BOM Pollution Prevention Team training on:
  - Water quality protection needs for vehicle and equipment washing
  - Labeling secondary containers
  - Management of vehicle and equipment leaks
  - Water saws and managing saw slurry
  - BMPs
  - Regulatory context for stormwater management
  - Evaluation of alternatives to treated wood.
  - Integrated Pest Management Program
  - GreenStreets bioswales and other facilities.
- BOM water quality-related training for approximately 733 employees
- BOM orientation training for 12 new employees

<u>Note</u>: Training related to other operations and maintenance activities is identified under OM-2and OM-3.

# > Location (watershed), type, and number of O&M changes made to City facilities and properties.

- Modified practices at BOM facilities, including 1) use of bio pillows and oil booms, and 2) spill protection. (Citywide)
- Coordinated the removal of surface debris in selected locations in BOM yards and lots before the onset of the rainy season. (Citywide)
- Made site improvements at the Sunderland Recycling Facility to improve efficiency and increase the volume of material recycled. (Columbia Slough Watershed)
- To date, 24 remodeled fire stations and 5 new stations have been completed with indoor vehicle wash areas and oil/water separators. (Citywide)

## PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

#### **Bureau of Maintenance**

- Stormwater management in maintenance lots and yards:
  - Continue to develop a schedule and budget for maintenance of stormwater facilities in maintenance lots and yards. This is Phase I of a larger effort that includes the upgrade of

selected stormwater facilities (Phase II) and the acquisition of capital funds for larger stormwater investments (Phase III). Develop a strategy, scope and budget for Phase II.

- Incorporate stormwater considerations in parking plan revisions.
- Install an emergency inlet cover near the storm inlet in the Tar Pot Lot.
- Develop a bureau-wide campaign to educate the workforce about stormwater pollution prevention controls, particularly for equipment drips and leaks in the yards.
- Institute new procedures for collecting spent absorbents. Train workforce in new spill response procedures.
- Vehicle and equipment washing:
  - Reconfigure the facility where street sweepers are rinsed to accommodate new sweepers
    and improve treatment of rinse water. Move other wash activities to the truck wash rack
    in Albina Yard where there is an effective system of wash water treatment. Encourage
    the use of commercial wash facilities for vehicles.
  - Perform concrete truck wash out at an approved facility, or develop an agreement to wash out at a permitted facility.
- Outdoor storage of materials: Move treated wood products and galvanized materials indoors
  under cover, or provide outdoor cover, such as tarps, to keep leachate from these materials
  from entering the storm drain system. Research the cost of design and construction of
  additional pole roofs to cover granular materials in outdoor storage. Research the cost of
  providing cover for uncovered outdoor garbage drop boxes. Review containment needs for
  fluids stored out of doors.
- Training: Train representatives from each working section to be trainers for their sections.
- Increase the volume of leaves recycled by accepting feedstock from other transportation agencies.
- Continue the outreach and promotion of BOM's recycling program.

#### **Water Bureau**

- Continue to inventory discharges from Water Bureau activities.
- Continue to refine the process of requesting and approving discharges to the storm sewer system for other Water Bureau discharges as they are identified.

#### **Bureau of Parks and Recreation**

- Continue to examine maintenance activities as part of annual compliance requirements for continued Salmon Safe certification.
- Evaluate the hazardous material spill response policy and training process and develop a plan for a new training schedule.
- In Irving Park, evaluate the effectiveness of transitioning some thin turf areas to other plant types that perform better in shade and provide erosion protection, to reduce the sediment load in stormwater moving across the park.
- Continue work at Westmoreland Park to adapt the casting pond and irrigation system.
- Continue the ongoing program to test nutrient levels and the presence of pesticides in surface waters for all City golf courses on a twice-yearly basis.
- Complete the three-year Integrated Pest Management (IPM) enhancement program. Compile and interpret data and issue a formal report.

#### Other

- Continue to install vehicle wash areas with oil/water separators as fire stations are built or remodeled.
- Implement the three identified Toxics Reduction Strategy actions; determine additional actions to be implemented.

#### PROPOSED BMP REVISIONS

IND-1: Implement the Industrial Stormwater Management Program to control the discharge of pollutants from industrial and commercial facilities (both existing and those undergoing changes in operations) to the municipal separate storm sewer system.

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

The Industrial Source Control Division (ISCD) in BES conducts most of the activities related to this BMP.

- Inspected, sampled, and administered the permits for 145 industries (and associated tenants) with stormwater discharge to the MS4. Four of these permits were terminated midway through the fiscal year. Continued to perform annual compliance inspections and additional inspections, if warranted, to provide technical assistance or assess BMP implementation. More detailed information about these permits is included under Performance Measures, below.
- Under a memorandum of agreement with DEQ, administered 92 additional permits for facilities not located in the MS4. Most are permits for direct dischargers, although some discharge to the Port of Portland's system or the Multnomah County Drainage District.
- Continued to perform inspections and evaluate the need for stormwater permits for nonpermitted industries in the MS4 and outside the MS4. Performed 73 inspections during
  permit year 12. Identified BMPs at these industries to minimize or remove exposure of
  industrial activities to stormwater. Required three facilities to apply for a stormwater permit.
- Collected and analyzed five samples from five permitted industries that discharge to the MS4. Also collected and analyzed samples from three non-permitted industries for investigative purposes. Continued to monitor a selected outfall basin to evaluate the longterm effectiveness of the Industrial Stormwater Program as part of the MS4 land use monitoring program. (See MON-1.)
- Continued to locate and map non-City outfalls to receiving streams from all industries and businesses located in the riparian area and to identify the sources that drain to these outfalls. This included heavy efforts in the Columbia Slough and Willamette River Watersheds for the identification of direct discharges. Significant improvements were made to the Willamette River dataset.
- Continued to re-inspect industries that were previously identified as having no exposure and were not required to apply for a permit. The inspections are conducted on a five-year cycle. Industries are now being issued a no exposure certification (NEC) in lieu of a permit. The program will allow the City to effectively track these facilities. It also requires facilities to notify the City and/or DEQ if site conditions change, resulting in exposure of industrial activities to rainfall and stormwater runoff. The facilities would then be required to apply for a permit. Of the 38 industries that had a NEC expiring in FY 06-07, 13 were either no longer

in business or had moved. The City reissued the NEC to 25 facilities and issued new NECs to another 9 facilities. Two of the newly issued NECs were for NPDES permitted sites that had removed onsite exposure to the extent that they qualified for the certification.

• Continued to implement activities in the following categories of industrial controls: wastewater discharge permits, accidental spill prevention plans, Pollution Complaint Program, Buildings Plan Review Section, and Fire Bureau's SARA Title III facility review.

#### PERFORMANCE MEASURES

> Location (by watershed), number, and type of existing permits managed by the Industrial Stormwater Management Program.

Table IND-A provides information about existing permits.

Table IND-A Location (By Watershed), Number, and Type of Existing Permits with Discharges to the MS4 Managed by the Industrial Stormwater Management Program in FY 06/07							
	Permit Typ	oe /Number of Permi	ts Managed				
Location	cation 1200Z 1200COLS 1300J						
Willamette River	64	0	3	67			
Columbia Slough	0	72	0	72			
Johnson Creek	3	0	0	3			
Fanno Creek	0	0	0	0			
Tryon Creek	0	0	0	0			
Other (Columbia R.)	3	0	0	3			
TOTALS	70	72	3	145			

> Location (by watershed), number (and percentage of total), and frequency of inspections of permitted facilities.

Table IND-B summarizes the location (by watershed) and number (permitted and non-permitted) of inspections for facilities that discharge to the MS4. Table IND-C shows similar information for facilities that discharge to other than the City's MS4.

Table IND-B Number of Industrial Stormwater Inspections for Facilities that Discharge to the City's MS4						
INSPECTION TYPE: Permitted Non-Permitted TOTALS						
Willamette River	48	14	62			
Columbia Slough	66	19	85			
Johnson Creek	2	1	3			
Fanno Creek	0	0	0			
Tryon Creek	0	0	0			
Other (Columbia R.) 1 0 1						
TOTALS	117	34	151			

Table IND-C Number of Industrial Stormwater Inspections for Facilities that Do Not Discharge to the City's MS4				
INSPECTION TYPE:	Permitted	Non-Permitted	<b>TOTALS</b>	
Willamette River	22	13	35	
Columbia Slough	49	22	71	
Johnson Creek	1	3	4	
Fanno Creek	0	0	0	
Tryon Creek	0	0	0	
Other (Columbia R.)	1	1	2	
TOTALS	73	39	112	

Table IND-D shows the frequency of inspections of permitted facilities that discharge to the MS4. In general, permitted industries are inspected once per year. However, because of reduced staff resources and staffing changes throughout FY 06/07, not all inspections were accomplished.

Location	Number Facilities Not Inspected	Number Facilities Inspected*	Number Facilities Inspected More than Once	Percent of Total Number of Permitted Facilities Inspected
Willamette River	16	48	3	75
Columbia Slough	6	66	4	92
Johnson Creek	1	2	0	66
Fanno Creek	No permitted facilities		NA	
Tryon Creek		No permitted fac	ilities	NA
Other (Columbia R.)	2	1	0	33
TOTALS	25	117	7	

# PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to inspect all permitted industries in the City once per year, and conduct sampling as needed.
- Continue to inspect non-permitted industries discharging to the MS4 to evaluate the need for permits.
- Continue to locate and map non-City outfalls in the Columbia Slough and Willamette River Watersheds and identify the sources to these outfalls.
- Continue to work with permitted industries to remove exposure to the extent that they can qualify for no exposure certification.
- Continue to work with sites to contain their stormwater discharge onsite, where applicable.

## PROPOSED BMP REVISIONS

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

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

#### **Eco-logical Business Program**

- Continued to work with the Regional Pollution Prevention Outreach Team and Automotive Eco-Logical Advisory Subcommittee for the Portland metropolitan region to certify automotive repair and service shops. By the end of permit year 12, 27 shops were certified in the City of Portland, including 7 City-owned garages. Of the total, 21 are in the Willamette River Watershed, 3 are in the Columbia Slough Watershed, and three are in the Johnson Creek Watershed.
- Updated the automotive checklist and Keep Your Shop in Tune handbook to help with ease of use and incorporate issues applicable to other areas of the state.
- Continued a promotional campaign to raise awareness and communicate the importance of supporting auto shops that operate environmentally responsible business practices. The campaign used newspapers, the Redirect Guide, the Chinook Book, and local news advertising to promote the Eco-logical Business message.
- Continued implementing the Eco-logical Business Program for the landscape services sector.
   Certified one landscape designer in the City of Portland and two full-service firms that do work in Portland.
- Continued participation in local environmental and neighborhood events, including the annual sustainability fair and the home and garden show, to promote use of certified shops.

## **BEST Program**

The BEST program assists industries with green practices that save water and energy and
deal with stormwater and solid waste. In 2007, 10 BEST awards were given to Portland
metropolitan area businesses for business practices that helped reduce the amount of toxics
used to manufacture products and the amount of resources used to run businesses and operate
buildings.

## Columbia South Shore Well Field Wellhead Protection Program

 Completed the fourth year of providing education and outreach to affected residents and businesses and one-on-one technical assistance to businesses to help them comply with requirements of the Columbia South Shore Well Field Wellhead Protection Program.
 Program requirements include structural and operational BMPs to reduce the occurrence of spills and minimize spill impacts. Portland's program is administered by the Portland Water Bureau, with inspections conducted bi-annually by Portland Fire inspectors. Public outreach by the Portland Water Bureau and Columbia Slough Watershed Council during permit year 12 included:

- Attended three neighborhood meetings to explain the protection program and what residents can do to protect groundwater.
- Staffed a booth at Explorando in June; gave away water bottles and groundwater brochures and had an activity related to groundwater. Explorando attracted 270 visitors.
- Held the forth annual Aquifer Adventure in September a family event that attracted over 300 people.
- Held Cycle the Well Field in June, with 20 riders.
- Conducted Groundwater 201, a four-hour class on hydrogeology, Portland's groundwater system, and protection program. Twenty-six people attended. Groundwater 201 provided more technical information than the traditional Groundwater 101 class. Included information on groundwater modeling and a field trip.
- Sponsored a "Soup on the Slough" event that focused on groundwater protection program. Sixteen people attended.
- Participated with Metro at its Hazardous Materials Round-Up at the Parkrose K-Mart (in the wellhead protection area). Handed out brochures and talked to people dropping off their material. Over 600 people properly disposed of household hazardous materials.
- Through the Columbia Slough Watershed Council's Slough School, provided groundwater education and curriculum to students and teachers.
- Attended the Clean Water Festival and gave three classroom presentations on groundwater and groundwater protection to 125 students.

In partnership with the Columbia Corridor Association (CCA), provided outreach to regulated businesses:

- Held one workshop on how to comply with regulations, with 26 businesses attending.
- Made two presentations at Columbia Corridor Association (CCA) breakfast forums about the groundwater protection program, with 85 attendees.
- Published 11 articles in the CCA newsletter.
- Maintained the CCA and PortlandOnline webpage on the protection program and requirements.
- Provided 26 businesses with free technical assistance on how to comply with program requirements and fielded dozens of calls on program.
- Gave away free spill response signs (required under the program), 30 spill kits, one secondary containment pallet, and three drain covers.

Held two coordination meetings with program stakeholders, including program staff and fire inspectors from the cities of Portland, Gresham, Fairview, the Columbia Slough Watershed Council, and CCA, to improve coordination and information sharing among program participants.

Developed the "Drop of Prevention Program" designed to help businesses identify ways to reduce amount of hazardous materials used and find less toxic alternatives. The program is in a pilot stage.

#### PERFORMANCE MEASURE

# > Type of outreach and estimated number of people reached

Type Of Outreach and Estimated Number of People Reached		
Type of Activity	Number of Participants	
Businesses certified under Eco- Logical Business Program (within City of Portland)	<ul> <li>Total to date since program implemented:</li> <li>Automotive repair and service shops: 27</li> <li>Willamette River Watershed: 21</li> <li>Columbia Slough Watershed: 3</li> <li>Johnson Creek Watershed: 3</li> <li>Landscape services: <ul> <li>1 in Portland (Fanno Creek Watershed)</li> <li>2 that do work in Portland</li> </ul> </li> </ul>	
Promotional campaign to promote the Eco-logical Business message.	Unknown	
Community events	11 events, with over 1,350 participants	
Business workshops, presentations	3 events, with 111 participants; technical assistance to 26 businesses; telephone assistance	
Business technical assistance	28 businesses	
BEST awards	10 businesses	

# PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue certifications in the Eco-Logical Business Program with the Pollution Prevention Outreach Team and Automotive and Landscape Advisory Groups. The goal for permit year13 is to have three more auto shops certified and five more landscape services certified in the City of Portland.
- Continue technical assistance to regulated businesses and general outreach to the public under the Columbia South Shore Well Field Wellhead Protection Program.
- Launch the "Prevention Program" by soliciting businesses to participate in a year-long cohort program, with the goal of reducing or eliminating use of hazardous materials and/or finding non-hazardous alternatives.
- Continue participation in the BEST Program.

#### PROPOSED BMP REVISIONS

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

#### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

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

- The Illicit Discharges Elimination Program (IDEP) is conducted by the Spill Protection and Citizen Response Section within BES's Environmental Compliance Division (ECD) and the Industrial Source Control Division (ISCD). Accomplishments in FY 06-07 included:
  - Conducted 237 outfall inspections.
  - Continued revising the priority outfall list; currently track 128 outfalls.
  - Identified and eliminated four illicit discharges.
  - Identified and eliminated one illicit connection.
  - Continued dry-weather monitoring at all major outfalls during the summer sampling period; inspected/sampled all priority and Portland Harbor outfalls at least twice.
- The Industrial Stormwater Program continued to address illicit discharges and connections
  as they are identified during stormwater inspections and as referred. During FY 06/07, eight
  illicit discharges were identified; all discharges have been corrected. The program continues
  to address wash water discharges and other non-stormwater discharges to the storm sewer
  system. Policies and appropriate control measures, if needed, are developed and
  implemented.
- The Pollution Prevention Group's Industrial Projects Section (IPJS) continues to implement discharge authorization permits to mobile washers. A total of 11 mobile washers are now operating under the discharge authorization program. These washers collect their wash water and discharge it to the sanitary sewer under BES's authority. IPJS is also working to conduct additional outreach to mobile washers that operate in the Portland metropolitan area. This effort further reduces the potential to impact the storm sewer system.

#### **Spill Response**

• Eight BES staff serve as duty officers for the BES Spill Response Hotline, which is staffed 24 hours a day. Staff are employees from Industrial Source Control, Field Operations, and Spill Protection & Citizen Response programs. Activities in FY 06-07 included:

- The hotline received a total of 1,300 daytime calls (citywide) regarding pollution complaints, spills, sanitary sewer overflows, dye tests, and seepage discharges. All calls are responded to with at least a return telephone call; 80 to 90 percent receive a site visit.
- The hotline received 438 after-hours complaint calls (citywide). The duty officer responded on-scene to 78 of these after-hours events.
- The hotline received approximately 2,200 daytime additional information-only calls (citywide) and responded by providing agency referrals, industrial information, technical assistance, and regulatory information.
- The BES Spill Protection and Citizen Response section issued 17 warnings concerning possible violations of City Code 17.39.
- BES and the Water Bureau implemented Columbia South Shore Well Field (CSSW) Protection Area signage. The signs list the BES spill response hotline number and read: "TO REPORT SPILLS CALL (503) 823-7180."
- The BES Spill Section continued a communication protocol with the Portland Fire Bureau that automatically pages the BES duty officer for a two-alarm event. Upon receiving the page, the duty officer contacts the Fire Bureau to identify if the duty officer is needed by the fire responders. Many events do not require the duty officer to respond to the site. In FY06-07, 11 fire results resulted in pages to the duty officer.
- The BES Spill Section began a communication protocol with the towing companies on the
  City of Portland towing contract. This notification ensures that BES will be contacted for
  auto fluid clean-up actions and for events that threaten to impact a stormwater facility (catch
  basin and downstream stormwater system). The duty officer may respond to events,
  depending on the reported information. Many events do not require the duty officer to
  respond.
- The BES Spill Section presented a Storm Watch video to 200 Bureau of Maintenance staff and managers to increase awareness and show how to prevent stormwater contamination.
- The Regional Spill Committee continued its coordination meetings, holding four quarterly meetings during permit year 12. Representatives from the Environmental Protection Agency Criminal Investigations (EPA CID), United States Coast Guard (USCG), Oregon Department of Environmental Quality (DEQ), Oregon State Police (OSP-DEQ), Oregon Department of Transportation (ODOT), Clean Water Services (CWS), Water Environment Services (WES), Port of Portland, Portland Fire Bureau (PFB), PFB Hazmat, City of Gresham, City of Milwaukie, City of Portland Water Bureau, and BES are invited to these meetings. BES chairs and attends all of the meetings.
- Continued activities related to the Spill Response Program, Accidental Spill Prevention Program, tank farm policy, Hazardous Materials Response Team, hazardous substances, and Buildings Plan Review Section.

- Conducted training for new duty officer staff on the BES spill response hotline and staff response duties.
- The BES Spill Section acquired new dye test signage for placement in areas that are visible for green dye usage.

# **Illegal Dumping**

• Continued to implement solid waste and recycling programs (curbside recycling, yard debris collection, and neighborhood bulky waste collection events) to prevent illegal dumping.

# **Regional Programs**

• Continued to coordinate with other regional programs (e.g., Metro, Multnomah County Animal Control, Multnomah County health inspections) to minimize pollutant discharges to the stormwater system.

# **Non-Stormwater Discharges**

 Continued to implement measures to limit impacts from non-stormwater discharges related to City operations.

#### Other

• Drafted an implementation and procedures manual for the newly passed stormwater enforcement code and administrative rules. New efforts will include staff training materials, sampling of materials releases, and cost recovery and penalties on some releases.

#### PERFORMANCE MEASURES

- > Results of non-stormwater discharge evaluations; related changes in policies or practices
  - BES completed and submitted the non-stormwater discharge evaluation report as part of the IER submittal to DEQ in May 2006. That report closes out the City's targeted evaluation of the non-stormwater discharges listed in the MS4 permit. Only problematic discharges are likely to undergo further evaluation. A number of new policy and procedure changes have been implemented over the past 9 years in response to the evaluation findings.

## > Type of outreach and estimated number of people reached

- The BES Spill Response Hotline received and responded to:
  - 1,300 daytime calls
  - 438 additional daytime information-only calls
  - 2,200 after-hours complaint calls

*Note:* These numbers are citywide, not for just the MS4.

- 200 staff members viewed the Storm Watch video.
- New duty officer staff members were trained on BES spill response hotline and staff response duties.
- > Number of illicit connections discovered; number of illicit connections corrected; amount of materials collected/removed (where appropriate)
  - Twelve illicit discharges were identified; all have been corrected.

## PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to remove illicit discharges and connections to the storm sewer system as they are identified during IDEP, spill response, pretreatment, or stormwater permit inspections.
- Continue to conduct training to City staff on the BES spill response hotline and staff response duties. Continue duty officer training sessions.
- Continue Regional Spill Committee quarterly meetings.
- Continue to implement enforcement procedures for violations of City Code 17.34, 17.38, and 17.39.
- Continue scope and research on outfall ownership/source identification in Portland Harbor.
- Work with DEQ on four types of state-related non-stormwater discharges to incorporate policies and procedures into DEQ's permitting and approval processes.
- Fully implement the cost recovery procedures for the City's new enforcement rules. Track and report on the type, number, and review of enforcement cases.
- Develop typical training and enforcement scenarios for staff who implement the City's enforcement provisions.

#### PROPOSED BMP REVISIONS

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

# **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- There were 5,737 active private construction permits subject to erosion control inspection (citywide). (See Performance Measures, below, for more detail.)
- The Bureau of Development Services (BDS) conducted 8,382 erosion control-related inspections of private construction sites (citywide). This number includes only approved inspections. (See Performance Measures, below, for more detail.)
- There were 300 active public construction projects (citywide) with erosion control components. (See Performance Measures, below, for more detail.)
- Erosion control complaints (received through the erosion control hotline or staff referrals) were tracked through the City's building permit tracking program, TRACS. A total of 380 cases were responded to (citywide).
- The pre-permit-issuance site meeting program was continued, where the applicant's team meets onsite to discuss erosion control and other sensitive site issues. Selected new single-family permit applications triggered a total of 148 potential pre-issuance site visits. Of these 148, 125 were not required and 23 were completed, with two of those requiring a second visit.
- The sixth Regional Erosion Prevention Awards were presented on June 8, 2007, to reward outstanding erosion control efforts by builders and contractors. This year's participation included 24 local jurisdictions and nine sponsors, such as the Association of General Contractors (AGC). Local inspection professionals in each jurisdiction selected the top contractors. The City of Portland presented awards to the top builder in the single-family category and the top contractor in the large-development category.
- Text revisions to the City's Erosion Control Manual were completed.

## PERFORMANCE MEASURES

# > Number and location (by watershed) of active public and private construction sites

Number of Active Private Construction Permits (Citywide) Subject to Erosion Control Inspection, by Watershed (as of 7/31/06)		
Location	Number of Permits	
Columbia River	26	
Columbia Slough	1,207	
Fanno Creek	396	
Johnson Creek	1,279	
Multnomah Channel	7	
Tryon Creek	264	
Tualatin River	153	
Willamette River	2,401	
Unknown	4	
Total	5,737	

Number of Active Public Construction Projects with Erosion Control Components (Citywide), by Watershed		
Location	Number of Permits	
Columbia Slough	20	
Fanno Creek	6	
Johnson Creek	41	
Tryon Creek	6	
Willamette River	45	
Total	118	
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*Note*: There were an additional 182 public construction projects for which no breakdown by watershed is available, for a total of 300 projects citywide.

# > Number of inspections of active public and private construction sites, estimated by watershed

- In general, public sites are inspected daily during construction.
- Private inspections conducted during permit year 12 are summarized below. This
  number includes only approved inspections. Private sites are also subject to spot
  inspections.

Number of Approved Erosion Control Related Inspections – Private Sites (Citywide)	
Location	Number of Inspections
Columbia River	10
Columbia	2,217
Slough	
Fanno Creek	539
Johnson Creek	2,245
Multnomah	8
Channel	
Tryon Creek	330
Tualatin River	179
Willamette River	2,854
Totals	8,382

## Notes:

- The number of inspections reflects only those for permits approved by the City of Portland; inspections conducted by other jurisdictions (e.g. DEQ) are not included.
- The number of inspections includes only inspections related to an approval signoff for the building permit, not interim inspections.

# PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to operate the erosion control hotline.
- Continue educating new employees about erosion control and pollution prevention.
- Complete and formally adopt the updated Erosion Control Manual.
- Continue to modify permitting, contracting, and inspection processes for more effective erosion control enforcement, especially for pollutant control measures.
- Conduct a seventh annual regional awards program to reward outstanding erosion control efforts by builders and contractors.
- Continue to evaluate the need for continuing education for contractors and City staff, and modify or develop curricula as needed.

## PROPOSED BMP REVISIONS

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

## **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- Continued to track and implement the SAC's June 2002 report recommendations for new development and redevelopment.
- Continued implementation of the 2004 Stormwater Management Manual (SWMM). Permitted approximately 2,600 private building permits and 81 public works permits. Also responded to over 900 land use cases and early assistance requests, including technical assistance to City staff and the public.
- In coordination with the SAC's Water Quality Subcommittee and with endorsement from the SAC, launched a prioritized workplan for the 2007 SWMM revision. Completed tasks include:
  - Developed and launched a comprehensive Stakeholder Involvement Plan.
  - Clarified the application of the stormwater disposal hierarchy.
  - Developed a scope of work to review the City's flow control and water quality standards for the 2010 Manual revision.
  - Developed a soil specification for the stormwater facility growing medium.
  - Developed typical details and specifications for vegetated facilities in the public right of way.

Note: Table C-1 of the MS4 permit requires the City to update its Stormwater Management Manual by December 2008. The work described here is part of that update.

• The Maintenance Inspection Program (MIP) ensures that operation and maintenance (O&M) plans are followed, provides technical assistance on operation and maintenance of facilities, and assesses the effectiveness of flow control and sediment capture through field observations. The City's current database tracks a total of 4,418 private O&M plans, which encompass 6,936 private stormwater management facilities. Approximately 28 percent of the O&M plans are for industrial, commercial, multi-family, governmental, and educational properties, and 72 percent are single-family residential properties.

#### MIP activities in FY 06-07 included:

- Received copies of 346 new O&M agreements that included plans to construct approximately 698 facilities.
- Inspected 137 properties (no single-family properties), which included a total of 336 stormwater management facilities. The 336 facility inspections represent 4.8 percent of the total facilities (6,936) in the MIP program. Sites were assessed for high-risk stormwater issues (e.g., waste storage practices and wash activities).

- Inputted all information pertinent to private stormwater management triggered by the Stormwater Management Manual. Proposed major revisions to existing database or new design for permanent database.
- Mapped MIP data, including MIP properties, facilities, and inspections.
- Drafted and established business practices for data management, inspections, and coordination with City counterparts.
- Revised educational outreach materials on facility-specific operation and maintenance.

(See breakdown pf MIP information by watershed under Performance Measures, below.)

• In accordance with Stormwater Management Manual requirements, signed off on permits for a total of 473 source control measures at sites with high-risk characteristics or activities. (See Performance Measures for a breakdown by watershed.)

### PERFORMANCE MEASURES

> Location (by watershed), number, and type of stormwater management facilities constructed

Watershed  Number of Taxlots <sup>2</sup> (Associated with Number of Facilities  Facilities)							
Willamette River	336	118					
Columbia Slough	67	23					
Johnson Creek	166	90					
Fanno Creek	48	36					
Tryon Creek	63	39					
Other	18	7					
TOTALS	698	307 <sup>3</sup>					

### Notes:

<sup>1.</sup> The installation date is unknown and is difficult to consistently derive from notes in TRACs and plumbing records. For the purposes of this report, construction dates were derived using a combination of the year of the permit listed on the O&M form and the date the information on the O&M form was entered in the MIP database. These numbers are estimates only.

<sup>2.</sup> Six properties lie in multiple watersheds and are double counted.

<sup>3.</sup> The number of tax lots does not match the number of O&M plans because some tax lots have multiple O&M plans and some O&Ms have multiple tax lots. Further, tax lots may change when land is subdivided for development.

Total Private Stormwater Management Facilities Constructed in FY 06-07 by Type and Watershed <sup>1</sup>

			Water	shed			
Type of Facility	Willamette River	Columbia Slough	Johnson Creek		Tryon Creek	Other	Total
Contained Planter Box							0
Flow Through Planter Box	111	4	40	36	35	14	240
Infiltration Planter Box	12	5	9		1	2	29
Vegetated Filter							0
Infiltration Trench	1						1
Soakage Trench	1	2	7	1			11
Oil/Water Separator							0
HazMat Control Structure							0
Porous Pavement	8	4	5	1			18
Stormwater Reuse System					2		2
Drywell	58	11	37				106
Ecoroof	8			1	2		11
Unknown							0
Tree	4	2	1		2	1	10
In-Line Detention Facilities	7						7
Sedimentation Manhole	9	6	1				16
Sand Filter	23	1	15	4	14		57
Manufactured Facility	22	7	11	2	3	1	46
Detention Pond - Wet		1	1				2
Detention Pond - Dry							0
Swale	67	13	29	3	3		115
Infiltration Basin	5	11	6		1		23
Constructed Treatment Wetland							0
Spill Control Manhole							0
Silt Basin			4				4
Tota	1 336	67	166	48	63	18	698
1. See note 1 in previous table.							

> Location (by watershed) and number (and percentage of total constructed) of inspections, including overall compliance rate (number and percentage in compliance and number and percentage corrected), by type of stormwater management facility

A total of 336 inspections were conducted, representing 4.8 percent of the total facilities (6,936) in the MIP program, as shown on the following two tables.

Inspections by Watershed						
Watershed	No. of Facilities Inspected	No. of Properties Inspected				
Willamette River	214	97				
Columbia Slough	8	3				
Johnson Creek	114	37				
Fanno Creek	0	0				
Tryon Creek	0	0				
TOTALS	336	137				

Inspection Results by Facility Type							
Facility Type	OK / Minor issues	Deficiencies Addressed	Deficiencies*	Total Inspections	% Inspected (of Total Type of Facility Built)		
Contained Planter Box	1			1	3		
Flow Through Planter Box	3		7	10	1		
Infiltration Planter Box	2		1	3	4		
Vegetated Filter	5			5	19		
Infiltration Trench	1			1	1		
Soakage Trench	23		9	32	2		
Oil/Water Separator	1		1	2	3		
HazMat Control Structure				0	0		
Porous Pavement	7		1	8	8		
Stormwater Reuse System	3			3	15		
Drywell	81		20	101	9		
Ecoroof	2	1		3	8		
Unknown				0			
Tree	4		2	6	1		
In-Line Detention Facilities	3	1	3	7	12		
Sedimentation Manhole	24	13	41	78	17		
Sand Filter	3		1	4	1		
Manufactured Facility	12		12	24	6		
Detention Pond - Wet			1	1	5		
Detention Pond - Dry	2			2	25		
Swale	2	1	17	20	4		
Infiltration Basin	6		15	21	19		
Spill Control Manhole	2		2	4	33		
Totals	187	16	133	336	-		
Percent of total inspections	55.7%	4.7%	39.6%	-	23%		
*Deficiencies include facilities	es installed incorr	ectly, facilities ne	eding minor repair	r, or facilities nee	ding cleaning.		

# > Location (by watershed), number, and type of source control measures required by the Stormwater Management Manual

			Wa	tershed		
Source Control Type	Johnson Creek	Willamette	Tryon Creek	Fanno Creek	Columbia Slough	Total
Exterior Bulk Storage	2	8	0	0	8	18
Fueling	3	10	0	0	5	18
Liquid Storage	2	11	0	0	8	21
Material Transfer Areas/						
Loading Docks	3	16	0	0	14	33
Site Dewatering	2	8	0	0	1	11
Trash	19	202	0	3	73	297
Vehicle Washing	2	9	3	0	1	15
Grease Management	4	39	0	1	16	60
Totals	37	303	3	4	126	473

Note: Table compiled based on information in the City's permit request system: some counted facilities may not have been constructed.

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Complete the 2007 revision of the SWMM. Launch a comprehensive review of current flow control and water quality requirements and policies for the 2010 revision process.
- Continue to provide and expand training and technical assistance on the SWMM to City staff and the development community.
- Continue to work with the SAC to develop and refine stormwater management policies and on revisions to the SWMM.
- Continue the Maintenance Inspection Program for private facilities, including:
  - Inspect approximately 400 MIP properties, including reinspection of deficient facilities.
  - Develop a permanent database.
  - Create GIS layers to display type of deficiency and refine reinspection/mailer procedures to increase percent deficiencies addressed.
  - Revise the inspection form to quantify deficiencies.
  - Coordinate educational outreach efforts with Clean River Rewards and Sustainable Stormwater.
  - Influence BES plan review and BDS permit inspection practices to improve accuracy of documentation and installation of stormwater facilities.
  - Make revisions to the Stormwater Management Manual to clarify guidance to private owners/managers at the time of inspection.
  - Post an MIP webpage.

### PROPOSED BMP REVISIONS

None.

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

### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- Continued to assess opportunities for water quality facilities in the City's watershed planning process. Identified various locations across watersheds where structural facilities are viable alternatives for watershed health.
- Developed an initial scope of work for the Stormwater System Plan, which will be a multiyear effort to fully define and plan for the stormwater system needs across Portland's watersheds.
- Performed design work on combined sewer stormwater conveyance projects, which includes
  evaluating pollutant loading and water quality treatment options and opportunities within the
  individual combined sewer basins.
- In April 2007, the Portland City Council approved a Green street resolution, report, and policy to promote and incorporate the use of Green Street facilities in public and private development. The council recognized that a comprehensive Green Street approach is an important development strategy to reduce polluted stormwater entering Portland's rivers and streams.
- Continued to implement retrofits to the existing storm drainage system, as identified during routine operations and maintenance activities. Completed conversion of a total of 410 linear feet from ditches to swales (porous shoulder). (See Performance Measures, below, for more detail.)
- Began construction of the Brownwood phase of the East Powell Butte Floodplain Restoration Project. The project will feature the following water-quality features: a realigned Johnson Creek that will slow flows, an additional 70-acre feet of flood storage to allow sediment to settle into the floodplain, and extensive native vegetation to shade, store and filter creek and flood waters.
- Began pre-design of the first phase of the East Lents Floodplain Restoration Project, which will reduce nuisance flooding, while improving water quality.
- Coordinated with the Army Corps of Engineers in their design process for the Springwater Wetlands Restoration Project, which will include water quality elements as part of a habitat restoration project.
- Completed design and permitting for the Errol Heights Wetland Restoration Project to increase wetlands habitat and remove culverts.

- Developed a design concept for the Errol Creek Confluence Project, which will add wetlands, remove culverts and improve fish access to the cool, consistent flow of Errol Creek.
- Continued design of the NE 92<sup>nd</sup> Avenue water quality facility, which will treat stormwater from 53 acres of mixed-use drainage (commercial, industrial, and residential development and Columbia Boulevard, a high-volume road). Construction will begin in late fall 2007.
- Completed pre-design for the Hawthorne Hostel, a stormwater demonstration project that will collect rainwater from the roof to re-use in the hostel's toilets, irrigation, and other non-potable water uses.
- Continued Taggart pre-design, which will incorporate stormwater management solutions to eliminate high-risk basement flooding conditions under the 25-year design storm, replace or repair failing sewer infrastructure, improve surface and ground water hydrology, and reduce combined sewer volume and peak discharges from the basin.
- Began pre-design for Oaks Bottom, a habitat enhancement project that will improve the
  hydrologic connection between Oaks Bottom and the Willamette River. This multi-phased
  project will replace an existing culvert with a larger box culvert set at a lower elevation to
  improve year round water exchange with the Willamette River, increase off-channel salmon
  habitat, and enhance and restore 15 acres of wetland habitat through grading and
  revegetation.
- Completed pre-design and began the design phase for the Stephens Creek stream restoration
  project at the confluence of Stephens Creek and the Willamette River, which will improve instream, riparian and floodplain wetland habitat for the benefit of native fish and wildlife
  species.
- Completed Phase I construction of the Texas Green Street project, a stormwater project that manages runoff from a 17-acre basin. Phase I involved the construction of a .62 acre wetland detention facility.
- Completed construction of a passive stormwater treatment facility in the Tryon Creek Watershed at SW Taylor's Ferry and 17<sup>th</sup> Avenue. This project is now fully operational, treating stormwater from a 9-acre residential area.
- Reached nearly 80 percent completion of the Tryon Headwaters project, which includes stream daylighting, wetland enhancement, street curb extensions, stormwater management, and replacement of culverts to facilitate fish movement. BES is partnering with a private developer, PDC, PDOT, and Portland Parks and Recreation and has received OWEB grant funding. Began the design stage of a stormwater treatment project on SW Marigold St., which will include stormwater conveyance and treatment in a system of sedimentation manhole(s) and swale, connecting to the newly daylighted stream.

- Continued pre-design for Fanno/Tryon water quality projects, focusing on stormwater and stream conveyance system modifications and retrofits to improve hydrologic and hydraulic conditions, stormwater management and operations, and system maintenance. The firstpriority recommended alternatives are now proposed for funding through the design and construction phases. Fourteen project request forms have been submitted, most focusing on stormwater and water quality improvement as a major element/objective.
- Completed construction of Phase 3 (the final element) of the Tanner Basin projects. This system separates clean and treated stormwater from downtown Portland along Highway 26 up to the Oregon Zoo interchange and delivers it to the Willamette River. Phase 3 construction involved the area just below the PGE Park/Canyon Road off-ramp from Highway 26 to the zoo interchange. The completed Tanner Creek project (all phases) removes approximately 165 million gallons of stormwater annually from the combined sewer system.
- Completed construction of the 16,000-square-foot ecoroof on the Portland Building.
- Continued implementation of the Innovative Wet Weather Program (IWWP). IWWP projects are funded by a \$2.6 million EPA grant to demonstrate innovative stormwater projects. IWWP categories include water quality friendly streets and parking lots, downspout disconnection to bioswales and planters, and ecoroofs. There are 25 IWWP projects to date. Projects completed during FY 06/07 are listed below. (Additional information about these projects is included under Performance Measures, below.)

# Water quality friendly streets and parking lots:

- David Douglas High School
- RiverEast Center

# **Downspout disconnections/bioswales/planters:**

- Taylors Ferry Swales
- Alice Ott Middle School
- Astor Elementary School
- RiverEast Center
- Continued to provide oversight to ensure that commercial and industrial facilities comply with retrofit requirements under the Columbia South Shore Well Field Wellhead Protection Program. Conducted 145 inspections of regulated businesses under the program. Six violations were identified, most related to reporting requirements.
- The Sustainable Stormwater Management Program and Engineering Services completed construction of the Mt. Tabor Middle School Phase 1 retrofit project. The project will help protect residents from basement sewer backup issues identified in the Sullivan, Stark, and Holladay basins pre-design. A rain garden manages 28,500 square feet of roof and playground runoff, while a curb extension manages 6,000 square feet of street runoff directly in front of the school. Design of phase 2 of the project was completed, with construction to occur in FY07-08.

- PDOT and the Sustainable Stormwater Management Program constructed the People's Co-Op Green Street Project (SE 21st and Tibbetts), which manages 5,500 square feet of street runoff using a curb extension and two sidewalk planters.
- PDOT and the Sustainable Stormwater Management Program completed construction of five stormwater facilities along the western end of NE Sandy Boulevard. Infiltration basins manage over 46,000 square feet of street.
- The Sustainable Stormwater Management Program fielded over 150 public requests for information and technical assistance, and provided technical assistance to a variety of projects:
  - Received over 30 requests for tours and speaking engagements. Conducted tours for professional planners, designers, developers, politicians, and staff from national jurisdictions.
  - Received over 25 requests for technical assistance.
  - Received approximately 12 requests for a green street.
  - Received more than 80 requests for assistance from non-profit groups, students, and other jurisdictions in the form of design review and information sharing.
  - Presented information at over 15 conferences.
- The Sustainable Stormwater Management Program completed a Stormwater Solutions Handbook to serve as guidance for low-impact development, and produced outreach and educational fact sheets and reports.
- BES and the Office of Sustainable Development (OSD) continued to provide technical assistance and grant funding through the Green Investment Fund (GIF) for projects that incorporate green building principles, including stormwater pollution prevention and management. Activities included:
  - Sponsored the Build it Green! Tour of Homes, attended by about 1,200 people (plus those reached through media coverage). The tour demonstrated green building techniques, including ecoroofs, bioswales, pervious paving, and other sustainable stormwater management strategies in new development, redevelopment, and remodeling projects.
  - Conducted the ReThink training series on green building. ReThink included five classes
    with approximately 90 people attending each class. OSD also presented to realtor groups;
    minority, women, and emerging small businesses (MWESB); and a variety of other
    building-related organizations. Audience numbers ranged from 20 to 70 people per
    event.
  - OSD continued to coordinate and offer Fix-It Fairs, a free neighborhood-oriented event that offers workshops and exhibits on home and garden topics, with a focus on health and resource efficiency. Over 90 workshops and exhibits provide residents with self-help information and resources on everything from organic gardening, Naturescaping, and composting to water conservation, lead poisoning prevention, and lowering energy bills. During permit year 12, 1,550 people attended three fairs.
  - Awarded six grants to commercial, residential and industrial projects featuring innovative stormwater management practices.

- Conducted Clean River Rewards activities to provide information about stormwater management and eligibility for reductions in customers' monthly utility bills for managing stormwater onsite. Activities included:
  - Provided direct notification to ratepayers about the stormwater discount program through the quarterly city utility bill, promotional banners, paid advertisements in local and community newspapers, media events, direct mail letters and registration forms to ratepayers, and e-mail notifications,
  - Partnered with the Water Bureau Utility Customer Service and Low Income Assistance Program to provide customer service to ratepayers. Activities included specialized training for approximately 10 Utility Customer Service technicians; inclusion of the general program brochure in each "move in" packet sent to new utility account ratepayers; and Utility Customer Service staff response to approximately 12,000 phone calls to the program hotline number.
  - Provided educational and outreach opportunities regarding stormwater retrofits and registration information, including:
    - 11 stormwater management workshops on retrofits of existing development for commercial, industrial and multifamily properties, attended by 112 ratepayers
    - 19 stormwater management workshops on retrofits of existing development for single-family and duplex residential properties, attended by 309 ratepayers.
    - Re-broadcast of videos of retrofit workshops shot in the previous fiscal year.
    - Attendance at 32 public events and speaking opportunities, making contact with approximately 6,250 people.
    - Management of the Clean River Rewards website to provide information and technical assistance. The website registered approximately 283,000 external hits during the FY 06/07 fiscal year.
    - Provision of stormwater retrofit and registration assistance to 268 technical assistance cases
    - Technical assistance to school district staff to determine discount qualifications and provide stormwater retrofit assistance (104 sites).
    - In partnership with the Columbia Slough Watershed Council, a pilot stormwater retrofit at Whitaker Ponds to demonstrate residential-scale stormwater retrofit options at a highly visited education center.

A total of 28,438 ratepayers registered within the fiscal year:

- 27,443 single family residential ratepayers registered, accounting for a total of 61,381,983 square feet of impervious area managed for stormwater.
- 995 multifamily, commercial, and industrial ratepayers registered, accounting for a total of 22,282,642 square feet of impervious area managed for stormwater.

# PERFORMANCE MEASURES

- > Location (watershed), number, and type of projects implemented <sup>4</sup>
- > Type and amount of area managed by structural facilities

Ditches to swales retrofits: See table below.

Ditches to Swales (Porous Shoulder) Retrofits					
Watershed Location Linear Feet					
Tryon Creek	9140 SW 35 <sup>th</sup> Ave	70			
	10005 SW Lancaster Rd	240			
Willamette River	4500 SW Humphrey Blvd	100			
Total		410			

Innovative Wet Weather Program grant projects: See table below.

Innovative \	Innovative Wet Weather Program Grant Projects Completed in FY06/07							
PROJECT NAME	Stormwater Technology	Area Managed (sq. ft.)	Watershed	Date completed				
RiverEast Center	Parking Lot Swales Green Street Down Spout Disconnect	111,750	Willamette	4/30/07				
Alice Ott Middle School	Down Spout Disconnect	4,000	Johnson Creek	9/1/06				
David Douglas High School	Parking Lot Swales	21,230	Johnson Creek	7/1/07				
Astor Elementary	Down Spout Disconnect	23,000	Willamette	3/1/07				
Taylors Ferry Swale	Large swale	395,000	Tryon Creek	10/21/06				

- Texas Green Street project, Phase I: .62-acre wetland detention facility (Willamette Watershed)
- SW Taylor's Ferry and 17<sup>th</sup> Avenue passive stormwater treatment facility: Treatment of stormwater from a 9-acre residential area (Tryon Creek Watershed)
- 16,000-square-foot Portland Building ecoroof (Willamette Watershed)

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<sup>&</sup>lt;sup>4</sup> Performance measures for public involvement aspects of activities are under PI-1.

- Mt. Tabor Middle School Phase 1 retrofit project: Rain garden that manages 28,500 square feet of roof and playground runoff; curb extension that manages 6,000 square feet of street runoff (Willamette Watershed)
- People's Co-Op Green Street Project: Curb extension and two sidewalk planters that manage 5,500 square feet of street runoff (Willamette Watershed)
- NE Sandy Boulevard: Five infiltration basins that manage over 46,000 square feet of street runoff (Willamette Watershed)
- Clean Rivers Rewards registrations (citywide):
  - 27,443 single family residential ratepayers; 61,381,983 square feet of impervious area managed
  - 995 multifamily, commercial, and industrial ratepayers; 22,282,642 square feet of impervious area managed

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue ditch-to-swale conversions.
- Develop a Green Streets master plan for the Gateway area to provide certainty and guidance for designers, developers, planners, and City staff in planning and implementing Green Street elements in the right-of-way.
- Develop an ecoroof policy.
- Coordinate implementation of projects funded by the Watershed Investment Fund, including an ecoroof on City hall, multi-block Green Street plan for the PSU area, and sustainable stormwater techniques for the PCC satellite campus in the Eastside industrial area.
- Develop and install a pollution reduction facility at Johnson Lake, a portion of which is publicly owned.

Susan Barthel (BES)

- Begin the data collection and verification process for developing hydrologic and hydraulic stormwater models for the Stormwater System Plan.
- Design and construct a Watershed Investment Fund project to treat stormwater on SW 19<sup>th</sup> Ave. (an unimproved road).
- Construct the Foley/Balmer stream enhancement and slope stabilization project in coordination with Portland Parks & Recreation.
- Complete the Fanno/Tryon Water Quality and TMDL Pre-design project and secure funding for first-phase recommendations.

- Complete Phase II (the final element) of the Texas Green Street project. Phase II involves the construction of water quality swales to treat stormwater from a 17-acre basin.
- Construct the Hawthorne Hostel stormwater demonstration project.
- Construct streetside planters on SW Gaines Street in the South Waterfront development as a water quality friendly street pilot project.
- Begin design for stormwater facilities at NE 148<sup>th</sup> Avenue in the Columbia Slough Watershed, which will treat 294 acres of mixed land use (primarily residential).
- Design Lents III local improvement district infiltration swales, with construction to occur in FY08.
- Complete construction of the Brownwood phase of the East Powell Butte Floodplain Restoration Project.
- Complete construction of the Errol Heights Wetland Restoration Project.
- Complete design and permitting, and begin construction of the Errol Creek Confluence Project.
- Complete 60 percent design for the East Lents Floodplain Restoration Project.
- Coordinate with the Army Corps of Engineers as they complete design of the Springwater Wetlands Restoration Project.
- Develop an implementation plan for the SW Clay Green Street.
- Continue to implement EPA grant-funded IWWP projects. IWWP projects in design and construction include:

### Willamette River Watershed

- Cathedral Park parking lot project
- Owens Corning Downspout Disconnection
- Owens Corning Green Street
- SW Texas Green Street
- Rejuvenation Hardware
- Bridger Elementary (nearly complete, pending downspout disconnection)
- Green Block Project
- Guilds Lake Ecoroof

### Johnson Creek Watershed

- Zenger Farm

New IWWP projects are:

- Identify, design, and implement a new "simple" green street project.
- Identify an additional project in the Central Eastside or Northwest Industrial District.
- Complete construction of an infiltration basin on Holly Farms Park along SW Capitol Hwy. (Portland Parks and the Sustainable Stormwater Management Program).
- Complete construction of three combined pedestrian safety and stormwater management projects: 1) SE 42<sup>nd</sup> & Belmont; 2) SE 55<sup>th</sup> & Belmont; and 3) NW 16<sup>th</sup> & Everett (PDOT and the Sustainable Stormwater Management Program).
- For the Sustainable Stormwater Management Program, continue to make informational presentations and provide technical and design assistance to developers and design/construction professionals; continue to conduct tours and distribute educational material.
- Continue to provide oversight to ensure compliance with Columbia South Shore Well Field Wellhead Protection Program requirements.
- Continue to implement Clean River Rewards activities.
- Identify future CIP and grant-funded retrofit projects through the watershed and sustainable stormwater programs.
- Continue to offer Fix-It Fairs and other environmental programs to the public through the Office of Sustainable Development. Continue to partner in the Green Investment Fund program.
- Complete Taggart pre-design.
- Complete design and permitting and begin construction of the Stephens Creek Confluence stream restoration project.
- Continue Oaks Bottom Phase I restoration pre-design.

### PROPOSED BMP REVISIONS

None.

NS-1: Protect and enhance natural areas and vegetation that help prevent pollutants from entering into the municipal separate storm sewer system.

# **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- The City continued developing new inventories of significant riparian corridors and wildlife habitat in Portland Activities focused on continued improvements to the City's GIS vegetation data, refining Metro's regional inventory models and Habitats of Concern, and completing a technical review process to obtain feedback on the proposed methodology. The riparian inventory modeling is based on mapping key landscape features that contribute significantly to functions affecting bank stabilization and control of sediments, nutrients and pollutants; streamflow moderation and water storage; large wood and channel dynamics; microclimate and shade; organic inputs and food web; and riparian wildlife habitat. The wildlife habitat model maps vegetated areas, and provides a relative ranking based on habitat patch size, interior habitat area, and connectivity/ proximity to other patches and to water. The City also developed a draft update of the City's 20 year old habitat inventory for the Willamette Corridor. This phase of the update focuses on the North Reach of the Willamette, and the updated inventory information is being used to inform City planning projects and updates to the existing Willamette Greenway program, and strategies to comply with Metro's Nature in Neighborhoods program. The inventory can also be used to set priorities for land acquisition, mitigation and restoration efforts, technical assistance, and community education and stewardship activities.
- The Portland Watershed Management Plan (PWMP) identifies development of a Terrestrial Ecology Enhancement Strategy (TEES) as a priority action. During FY 06-07, work on developing the TEES began. Major activities included:
  - Developing a workplan.
  - Assembling, and meeting with, an advisory group.
  - Compiling lists of habitat types, wildlife and plant species in the City and identifying "special status" habitat types and species.
  - Identifying key limiting factors.
  - Identifying key management issues and potential strategies and actions to address them.
  - Reviewing all technical information with the advisory group.
- As part of the River Plan project, the City made progress toward developing a comprehensive, multi-objective plan for the land along the Willamette River in the North Reach (the area from the Broadway and Fremont Bridges north to the confluence with the Columbia River). Initial recommendations have been developed for:
  - Watershed Health: Examined watershed health protection and restoration issues, priorities and potential actions, and opportunities to successfully integrate watershed health priorities with other North Reach priorities.

- Contaminated Sites: Developed recommendations for the City's priorities regarding contaminated site cleanup and examined concepts for a set of standards for cleanup of sites along the river.
- Mitigation/Conservation Bank: Recommended developing an off-site mitigation option as a component of any natural resource management plan for the North Reach and examined components of a successful program.

Proposals are under development for riverbank design, interjurisdictional permitting processes, and balanced cut and fill issues. Other accomplishments include:

- Staff conducted site design workshops for several sites along the North Reach of the Willamette River. Workshops explored innovative development practices and designs that optimize industrial development, habitat protection, stormwater management, and access to the river.
- Staff began work integrating natural resource protection and restoration options with industrial development in the North Reach. Staff has developed several natural resource program alternatives and is convening a task group to discuss the alternatives and provide feedback.
- Regulatory improvement and code maintenance work continued to progress. In the last year, the City adopted the second and developed the third code change packages (RICAP #2 and #3) under the new Regulatory Improvement Code Amendment process. The City also began work on identifying the workplan for the RICAP #4 package for consideration in fall 2007. This package focuses on looking at revisions to the City's land division code, including a variety of issues related to stormwater facility space.

RICAP #2 package, passed by City Council in November 2006, included the following changes that support watershed health and onsite stormwater management:

- Added language to ensure erosion control is still required for exempted e-zone activities.
- Clarified the definition of what designates an industrial activity and therefore what zoning limitations apply to that use.
- Amended regulations to allow more flexibility in setback requirements.
- Under BES's Watershed Revegetation Program, many businesses and other private landowners participated in and helped fund revegetation projects on their properties and neighboring properties. The Watershed Revegetation Program initiated 222.4 acres of new projects to be planted in future years and is currently managing 1,222.9 project acres on both public and private property.

The following actions were taken under the Watershed Revegetation Program:

### Willamette River

- Planted 20,942 plants on 35,520 linear feet of riverbank and 25.1 acres. This included 4,252 deciduous trees, 2,204 coniferous trees, and 14,486 shrubs.

### Columbia Slough

- Planted 26,820 plants on 93,129 linear feet of streambank and 36.5 acres. This included 16,857 deciduous trees, 3,025 coniferous trees, and 6,938 shrubs.

### Johnson Creek

- Planted 9,698 plants on 6,179 linear feet of streambank and 12.5 acres. This included 1,792 deciduous trees, 1,079 coniferous trees, and 6,827 shrubs.

### Tryon Creek

- Planted 657 plants on 3,156 linear feet of streambank and 1.3 acres. This included 32 deciduous trees, 200 coniferous trees, and 425 shrubs.

# **Stormwater Management Facilities**

- Planted 8,829 plants on 5.85 acres. This included 615 deciduous trees, 323 coniferous trees, and 7,891 shrubs.
- Partnered with SOLV, project Team Up, to provide volunteer stream restoration projects (erosion reduction, invasive plant control, and native plantings) on private property at 13 sites in Portland. Volunteers and paid crew members planted a total of 1,973 trees, shrubs, and cuttings; removed 20 pounds of trash; and removed 51,540 pounds of invasive plants:

# Willamette River Watershed

 Planted 210 native plants; removed 900 pounds of invasive vegetation; monitored and maintained vegetation

### Johnson Creek Watershed

- Planted 220 native plants; removed 900 pounds of invasive vegetation

### Fanno Creek Watershed

- Planted 488 native plants; removed 15,420 pounds of invasive vegetation

### Columbia Slough Watershed

 Planted 346 native plants; removed 8,075 pounds of invasive vegetation; removed 85 pounds of trash

### Tryon Creek Watershed

- Planted 905 native plants; removed 26,920 pounds of invasive vegetation; removed litter; monitored and maintained vegetation
- 2,776 students (K-12) participated in adopt-a-site restoration/education projects that involved invasive plant removal and native plant planting. Adopted sites were Oaks Bottom Wetlands, Gabriel Park, Veterans Creek, Pendleton Creek, Tideman-Johnson Park, Whitaker Ponds, Johnson Lake, and various other sites along the Columbia Slough and Johnson Creek. These activities were either in partnership with Portland Parks and Recreation, the Columbia Slough Watershed Council, or the Johnson Creek Watershed Council.
- Under BES's Community Stewardship Grants Program, awarded stewardship grants for projects that included planting native vegetation. (See PI-1 for project descriptions.)
   <u>Willamette Watershed</u>: Four projects; 50 plants on one project; no data on three projects.
   <u>Columbia Slough Watershed</u>: Three projects; 1,166 native plants
   <u>Johnson Creek Watershed</u>: Two projects; approximately 4,100 native plants
   Fanno/Tryon Creek Watershed: Three projects; approximately 2,400 native plants

The grants program also awarded 20 mini-grants totaling \$4,600 in fiscal year 2006-2007. Mini-grants provided a variety of community groups and private property owners with native plant gift certificates to assist with riparian and upland restoration and revegetation projects in all Portland watersheds.

- Partnered with Portland Parks & Recreation's City Nature to sponsor an Americorps member who supported natural areas projects and activities. These included planting native vegetation, removing non-native invasive vegetation, and restoring trail in the Willamette Watershed.
- In the City Nature South Zone (natural resources), Portland Parks & Recreation conducted extensive weed removal and native plantings, with 8,000 volunteers contributing 32,700 hours. Areas covered included Johnson Creek Park, the Springwater Corridor trail, Bundy Park, Powell Butte, Big 4 Corners, Oaks Bottom Wildlife Refuge, Whitaker Ponds, Tideman Johnson Park, and the Tenino property.
- BES partnered with Portland Parks and Recreation to provide community involvement and stewardship at Gabriel Park, Woods Park, and Dickinson Park. Activities included:
  - Gabriel Park: Planted 613 native plants; removed invasive vegetation; maintained vegetation; removed trash
  - Woods Park: Planted 778 native plants; closed 400 feet of trail and built 650 feet of new trail; removed invasive species; installed erosion control materials on 300 feet of riverbank
  - Dickinson Park: Planted 3,007 native plants; removed invasive species; installed fence; maintained vegetation
- In coordination with the Johnson Creek Watershed Council, co-sponsored the Johnson Creek Watershed-Wide Restoration Event, where volunteers planted 3,500 plants, removed 153 cubic yards of invasives, and hauled away 7 cubic yards or trash.
- The Johnson Creek Willing Seller Program acquired approximately 1.6 acres of floodplain property.
- The Columbia Slough Watershed Team acquired a 0.35-acre property along East Bridgeton Slough from the Multnomah County Green Screen Program (for tax-foreclosed properties). The property includes riparian forest and slough habitat and will be revegetated to shade the slough.
- The Willamette Watershed Team acquired a 0.1-acre parcel in the Forest Park area from the Multnomah County Green Screen Program (for tax-foreclosed properties). The property is located off NW Roseway and includes 100+ feet of perennial stream habitat and adjacent riparian area.
- The Invasive Species Removal Program began developing a strategy for the management of invasive species that includes public outreach and education, interbureau and interagency

coordination, restoration, a control and restoration program, policy changes, assessment and monitoring, and identification of funding. In FY, the program partnered with the Bureau of Maintenance to remove 10 acres of garlic mustard.

• Partnered with Friends of Trees to support 19 volunteer street tree planting events throughout the region. The plantings included:

Willamette River Watershed: 710 trees
Columbia Slough Watershed: 500 trees
Johnson Creek Watershed: 158 trees

- The Bureau of Parks & Recreation developed the Urban Forest Action Plan to facilitate implementation of the 2004 Urban Forestry Management Plan. Prioritized actions will be those that can be implemented by City of Portland bureaus, although achieving all of the plan's total goals will require participation from private organizations, individuals, and other public agencies. City Council accepted the action plan on March 14, 2007. An interbureau implementation group will meet quarterly to facility implementation of the action plan, and a task force will be established to develop standard performance measures for the urban forest. The Urban Forestry Commission will report annual accomplishments to City Council.
- City Nature Urban Forestry continued implementing the neighborhood Tree Liaison Program. Over 312 volunteers have been trained in the last 11 years. In permit year 12, 28 volunteers were trained, and tree liaisons contributed over 4,200 hours of their time to promote proper tree care throughout the city. Some of the many successful projects include neighborhood pruning workshops, school ground cleanups, school arboretum plantings, and tree care presentations to neighborhood associations.
- City Nature Urban Forestry partnered with Portland Public Schools to provide hands-on planting and urban forestry curriculum for kindergarten to 12<sup>th</sup> grade students. During the 2006-2007 school year, 136 trees were planted on school grounds, 33 high school students volunteered 165 hours, and 900 elementary students participated in planting trees at Jefferson, Vernon, Lent, and Whitman elementary schools.
- City Nature Urban Forestry collected data describing the urban forest, with an emphasis on the structure and function of the City's street and park tree resources and the value of the ecosystem services and aesthetic benefits they provide. Findings will be published next year.
- City Nature Urban Forestry conducted youth tree liaison programs with high school and middle school science classes. The students learned about urban forestry issues and created neighborhood street tree inventories around their schools.
- The Parks Bureau worked with other bureaus to review and revise the City's approved street tree list to include more native trees, implemented demonstration projects that incorporate these trees, and evaluated survivability and stormwater benefits.
- City Nature Urban Forestry developed a website to help homeowners select street trees.

- City Nature Urban Forestry distributed 400 native tree seedlings to low-income neighborhoods through community events.
- The City continued to evaluate the eligibility of each Measure 37 claim. The evaluation includes date of property ownership, continuity of property ownership, zoning code provisions the claim was filed against (e.g. scenic overlay, base zone, e-zone), and public health and safety exemptions. As of July 16, 2007, there were 92 total claims, with 7 approved by City Council; 14 denied by City Council; 9 withdrawn by the claimant; 33 on hold by request of the claimant; and 29 incomplete, awaiting information, or under review.

### PERFORMANCE MEASURES

> Number of trees and shrubs planted and location (by watershed).<sup>5</sup>

Number of Trees and Shrubs Planted by Watershed FY06/07						
	Trees	Shrubs	Not specified	TOTALS		
Willamette River	7,166	14,486	260	21,912		
Columbia Slough	20,382	6,938	1,512	28,832		
Johnson Creek	3,029	6,827	7,820	17,676		
Fanno Creek/Tryon Creek	232	425	8,191	8,848		
Not specified – stormwater management facilities & schools	1.074	7.901		9.045		
facilities & schools TOTALS	1,074 <b>31,883</b>	7,891 <b>36,567</b>	17,783	8,965 86,233		

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Revise the draft Willamette River Natural Resource Inventory to reflect consideration of public comments.
- Develop an environmental planning work plan to guide how the City's existing inventories will be updated in other parts of the City (outside the Willamette Corridor), and to address the City's obligations for compliance with Metro Title 13.
- Issue an RFP for a review of environmental zoning regulations within the Columbia Corridor.
- Continue to implement the River Renaissance Strategy through the River Plan and integration into bureau budgets and workplans.

<sup>&</sup>lt;sup>5</sup> Performance measures for public involvement aspects of activities are under PI-1.

- Continue work on the Terrestrial Ecology Enhancement Strategy. Projected major accomplishments for FY 07-08 include:
  - Recommended watershed-specific objectives for terrestrial ecosystems.
  - Recommended strategies and actions.
  - Guidance to City bureaus to restore terrestrial ecosystems.
- Advance work on the River Plan/North Reach by continuing meetings of the Willamette Technical Advisory Committee, the Industrial Development and Natural Resource Integration Task Group, and the River Plan Advisory Committee.
- Develop a River Plan for the North Reach of the river that will guide, inspire, and facilitate implementation tools and actions, including a revised Greenway overlay zone, design guidelines, investments, and public-private partnerships.
- Continue technical review of zoning, special district, urban renewal area, and other City
  codes to identify opportunities to improve water quality through the RICAP process.
   Complete the RICAP #3 package and develop a draft #4 package of code changes. Continue
  to coordinate interbureau efforts on removing barriers to implementation of stormwater
  management projects.
- Continue to work with riparian and floodplain property owners within the Johnson Creek Watershed.
- Continue to purchase land for stormwater management and natural resource protection, and work with property owners to protect existing natural areas.
- Implement the East Side Willamette River Invasive Species Management project. This Watershed Investment Fund project enhances and restores 100 acres in the Oaks Bottom and South Escarpment area.
- Invasive Species Removal Program: Continue the development of a strategy for the management of invasive species.
- Continue watershed program plantings and purchases.
- Develop an online permit system to allow for planting, pruning, and removal permits to be issued online as well as through the mail/phone.
- Update the neighborhood tree liaison training manual.
- Work with neighborhood tree volunteers to plant native evergreen trees at school grounds near freeways.

- Continue working with the Parks Bureau to review and revise the City's approved street tree list to include more native trees. Implement demonstration projects that incorporate these trees were implemented, and evaluate survivability and stormwater benefits.
- Continue to inventory street trees, using volunteer, online, and community efforts.
- Continue to implement the Urban Forestry Action Plan, including development of an interbureau implementation strategy. The implementation strategy will identify actions, key elements, timelines, priorities, and lead bureaus.

### PROPOSED BMP REVISIONS

None.

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

### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- Coordinated with numerous other City bureaus and jurisdictions to continue implementation of the Stormwater Management Plan (as reported under the individual BMPs).
- Met regularly (generally monthly) with co-permittees to coordinate permit activities.
- Coordinated with other jurisdictions statewide through the Oregon Association of Clean Water Agencies (ACWA); participated on water quality, stormwater, and groundwater committees.
- Developed a work plan for the September 2008 permit renewal submittal.

### PERFORMANCE MEASURES

Not applicable.

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to work with co-permittees, City bureaus, and other jurisdictions and organizations to implement BMPs.
- Begin to develop the permit renewal application for submittal in September 2008.

### PROPOSED BMP REVISIONS

None.

MON-1: Conduct environmental monitoring to assess the chemical, biological, and physical effects of stormwater discharges on receiving surface waters.

### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- Reviewed and revised the stormwater monitoring program to identify and focus on the monitoring elements that will best support second-term permit conditions.
- Implemented the six tasks of the stormwater monitoring program (as defined in the Stormwater Management Plan).
- Prepared the annual Monitoring Compliance Report. (The monitoring report follows BMP MON-2, below.)
- Conducted water quantity studies (infiltration, volume reduction, peak flow reduction) at infiltration facilities throughout the city.
- Conducted water quality monitoring (facility effluent) at infiltration facilities throughout the City.
- Finished development of an exhaustive database of the effectiveness of structural and non-structural BMPs, specific to the City of Portland.
- Continued development of BMP-specific summaries, including statistical analyses of monitoring results from demonstration projects.
- Continued O&M monitoring, including sediment accumulation, accumulated sediment quality, and ditch-to-swale conversion.
- Continued an update of trend analyses of ambient water quality data.

<u>Note:</u> Tables B-1 and B-2 of the MS4 permit summarize required monitoring types, locations, and analytical parameters. The required monitoring information is included under Tasks 4 and 5 of the Monitoring Compliance Report.

### PERFORMANCE MEASURES

Not applicable.

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to implement the stormwater monitoring program.
- Continue development of BMP-specific summaries of monitoring results from demonstration projects.
- Continue with the update of trend analyses of ambient water quality data. Focus on Fanno Creek and the Columbia Slough.
- Conduct a statistical analysis of previously collected Portland MS4 monitoring data to evaluate trends.
- Test the validity of the effectiveness information of structural and non-structural BMPs by modeling pollutant load from a small subbasin in Fanno Creek. Update the database where necessary and when new information becomes available.
- Continue to work with co-permittees, ACWA members, and other jurisdictions to coordinate and share stormwater monitoring data and, where possible, establish joint monitoring efforts. Specifically, work with the ACWA stormwater committee to identify types of BMPs (structural and non-structural) that should be monitored. Identify TMDL and 303(d) parameters that have not been analyzed in the past in BMP effectiveness studies.

### PROPOSED BMP REVISIONS

None.

MON-2: Conduct program monitoring to evaluate the effectiveness of implementing the best management practices (BMPs) in the Stormwater Management Plan.

### **KEY BMP ACCOMPLISHMENTS, PERMIT YEAR 12 (FY 06-07)**

- Continued to report on performance measures for each BMP. This Annual Compliance Report is the second year that the performance measures have been reported on.
- In preparation for developing the permit renewal application in September 2008, began planning efforts for assessing progress toward meeting pollutant load reductions (benchmarks).
- Began process to develop benchmarks for stormwater TMDL waste load allocations (WLAs) approved by EPA in September 2006. EPA approved TMDL WLAs for Johnson Creek and the Willamette River and its tributaries.

### PERFORMANCE MEASURES

This BMP does not in itself have any performance measures. The performance measures for other BMPs are reported under each individual BMP.

### PROJECTED MAJOR ACCOMPLISHMENTS FOR PERMIT YEAR 13 (FY 07-08)

- Continue to track and report on performance measures for each BMP.
- Continue to use the adaptive management process to assess the effectiveness of existing BMPs and assess new opportunities/options for improving stormwater management.
- In preparation for developing the permit renewal application in September 2008, continue efforts to assess progress toward meeting pollutant load reductions (benchmarks).
- Continue to develop benchmarks for stormwater TMDL waste load allocations approved by EPA in September 2006.

### PROPOSED BMP REVISIONS

None.

# MONITORING COMPLIANCE REPORT (BMP MON-1)

<u>Note:</u> Tables B-1 and B-2 of the MS4 permit summarize required monitoring types, locations, and analytical parameters. The required monitoring information is included under Tasks 4 and 5 of this Monitoring Compliance Report.

### INTRODUCTION

The purpose of this monitoring report is to comply with Schedule B of Portland's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. The report summarizes stormwater quality monitoring activities conducted by the City of Portland and its co-permittees (hereinafter referred to as Portland) during permit year 12 (fiscal year 2006-07) and briefly discusses the results. The complete set of monitoring data is available on CD-ROM upon request.

### **BACKGROUND**

Portland developed a stormwater quality monitoring program as part of its original NPDES permit application in 1991 and began to implement the program that year, before receiving the permit. That initial monitoring program focused on characterizing pollutant concentrations in urban runoff from various land uses.

In 1997, the Oregon Association of Clean Water Agencies (ACWA), a consortium of cities and agencies, prepared a report called *Analysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1991 to 1996*, which was a compilation and statistical analysis of available land use-based stormwater monitoring data for the state. The findings of that report indicate that stormwater quality for different land uses is reasonably well characterized by the existing data set and that additional monitoring is not likely to significantly improve current knowledge in that area.

Based on these findings, and in an effort to answer new questions and increase the cost-effectiveness of monitoring efforts, ACWA petitioned DEQ to allow modifications to permit-required monitoring programs. In 1996, Portland developed and proposed to DEQ a revised monitoring program that built upon previous monitoring efforts. The revised program de-emphasized land use-based monitoring and directed resources toward BMP effectiveness monitoring in order to acquire new information and improve stormwater management activities. Portland began to implement the revised monitoring program in permit year two, and DEQ approved the revised program in April 1998.

DEQ issued a permit renewal to Portland in 2004, with a revised permit reissued in July 2005. Portland reviewed and revised its stormwater monitoring program to identify and focus on the monitoring elements that will best support the second-term permit conditions. The minimum

monitoring requirements can be found in Tables B-1 and B-2 of the permit and Tables MON-1, MON-2, and MON-3 of Portland's 2006 Stormwater Management Plan (SWMP).

### **PROGRAM COMPONENTS**

The purpose of the monitoring program is to assess the chemical, biological, and physical effects of stormwater discharges on receiving surface waters. The program comprises the following six tasks:

- 1: Program Planning/Annual Report/ Review of Existing Water Quality Data
- 2: BMP-Specific Monitoring (related to BMPs IND-1, ILL-1, OM-1, and ND-1)
- 3: Stormwater Management Facility Monitoring
- **4:** Comprehensive Ambient Monitoring to Assess Stormwater Impacts
- 5: Stormwater Monitoring at Land Use Stations or MS4 Outfalls
- 6: Collaboration with Oregon DEQ, ACWA, and other jurisdictions

The following sections list the respective tasks and their objectives and summarize the monitoring activities of the past year and previous years in a table for each task.

# TASK 1: PROGRAM PLANNING/ANNUAL REPORT/REVIEW OF EXISTING WATER QUALITY DATA

### **Objectives**

Task 1 has several objectives. The first objective is to compile and interpret stormwater data collected as part of watershed and other monitoring efforts. The second objective is to prepare reports to evaluate data results with respect to stormwater management. The third objective is to review the monitoring program annually and prepare the annual monitoring compliance report.

# **Accomplishments**

To address the first objective described above, Tasks 2 to 5 of this report summarize the monitoring activities Portland completed during FY 06/07. To address the second objective, monitoring-related technical reports, summary reports, or brochures have been developed to evaluate how effectively various BMPs reduce pollutants in stormwater discharges. Development of these documents depends on the availability of sufficient data to allow for a rigorous statistical analysis. Preparation of this annual monitoring compliance report addresses the third objective.

### **Results**

To date, some of the monitoring of some stormwater management facilities (SMFs) has been sufficient to prepare separate monitoring reports with or without a thorough statistical evaluation of the data. These reports are available upon request. Monitoring of other SMFs or MS4 outfalls has not been compiled in reports, even though preliminary statistical analyses have been conducted. The ambient monitoring data for some streams are also being reviewed and analyzed. An update of the reports prepared in 2000 and 2001 will be continued within this permit cycle. The City will consider all of these analyses and reports when updating or changing the monitoring program in future SWMP revisions.

### TASK 2: BMP-SPECIFIC MONITORING

# INDUSTRIAL STORMWATER PROGRAM MONITORING

### **Objective**

The objective of the Industrial Stormwater Program monitoring is to evaluate the long-term water quality trends, which will highlight the overall effectiveness of the Industrial Stormwater Program.

### **Accomplishments**

The City has used monitoring for over 10 years to evaluate the impact of the City's education, technical assistance, and permitting efforts for the Industrial Stormwater Program (described in IND-1). Program monitoring started in 1991, with monitoring of two outfalls (one in the Northwest industrial area and one on Swan Island) that drained basins with predominantly commercial and industrial land uses. Early monitoring demonstrated that there were significant amounts of pollutants discharging from these sites. In 1996, the City reduced its monitoring efforts because of successful implementation of the Industrial Stormwater Management Program in these basins.

The current sampling program started in 1999 with the collection of flow-composite water quality samples at Outfall (OF) 19 in the northwest industrial core area. Typically, three storm events are sampled annually and analyzed for common pollutants and seven metals. (The minimum list of analytes is shown in Table MON-3 of the Stormwater Management Plan.) Starting last permit year (FY 2005-2006), semi-volatile organic compounds and PCBs were added to the analyte list.

The Portland Harbor Program initiated an outfall monitoring program in 2007 that will continue through 2008. Although some of the samples were analyzed, the data have not been validated and therefore are not available for discussion in this report.

### Results

Three storm events, which occurred in November 2006 and February 2007, were sampled, as shown on the following table.

OF 19 – Data Summary

Date	72-h Antecedent Rainfall (inches)	24-h Antecedent Rainfall (inches)	6-h Antecedent Rainfall (inches)	Total Event Rainfall (inches)	Sample Collection Time Rainfall (inches)
11/2/2006	0.08	0.08	0.08	1.31	0.86
11/19/2006	0.02	0.01	0.01	0.49	0.47
2/14/2007	0.05	0.00	0.00	0.61	0.50

As was the case last year, most metal concentrations were below the long-term mean and median concentrations for this outfall, even though the total suspended solids concentrations and storm event rainfall were above average. Some of the metals and other parameters (such as total copper, total cadmium, and total phosphorus) recorded new lows during this permit year. There appears to be a downward trend in the concentration of many parameters but no statistical analysis has been done to evaluate whether this trend is significant. Despite these improvements, total recoverable copper, lead, and zinc concentrations are still above the respective chronic criteria.

### ILLICIT DISCHARGES MONITORING

### **Objective**

The objective of the Illicit Discharge Elimination Program (IDEP) is to identify illicit discharges to the MS4 system, investigate citizen complaints, and evaluate the potential impact of permitted non-stormwater discharges to the MS4 system.

### **Accomplishments**

The City's Illicit Discharge Elimination Program (described in ILL-1) has been conducting the following monitoring activities since 1995 to identify and eliminate illicit discharges.

- **Dry-Weather Monitoring.** The City monitors the City's major outfalls (117) every summer to locate illicit discharges such as cross-connections, washing, or illegal dumping operations. Monitoring consists of field observations and testing with meters, kits, and grab samples. During the 3- to 5-month dry period each year, all of the major outfalls are monitored at least once, and the priority outfalls are monitored up to three times per month. Historically, approximately four hits have been detected each month, ranging from illicit discharges (e.g., equipment cleaning, cooling water, commercial fleet vehicle washing) to allowed non-stormwater discharges (e.g., residential car washing, landscape irrigation).
- **Spill Response**. Over 1,700 complaint calls were made to the City's spill hotline during this permit year. Staff members conduct visual observation and some monitoring to identify and track reported spills or other illicit discharges. The vast majority of identified materials are sediment, washwater, or discharges related to dye tests.
- Non-Stormwater Monitoring. During the first permit cycle, the City undertook a sampling program to evaluate all of the original 19 non-stormwater discharges. The analysis consisted of a few samples for each type of discharge. Some discharges carry varying types and amounts of pollutants, depending on soil type, season, or other factors, and therefore were sampled at various locations across the region and/or during different seasons. In some cases, it has proven extremely difficult to identify safe and accessible sampling locations. Because of the difficulty in obtaining some samples, certain surrogates were also used. Some activities, such as infiltration and inflow into piped systems, are not routinely discovered in the City and are therefore difficult to locate and evaluate. Because of these factors, the evaluation has to date been a gross-level analysis to determine the extent and types of pollutants that require additional controls. As a result of the initial sampling, a number of new discharge policies and procedures have been developed to help lessen impacts. For

example, the City developed an air conditioning condensate policy that requires all new development to plumb these discharges to the sanitary sewer.

Five new categories of non-stormwater discharges were added to the evaluation list in this second permit term. These five discharges are uncommon within the City limits and are state-regulated activities. The City's role and responsibility in these activities is not yet clear.

# **Results**

Illicit Discharge Monitoring – Summary of Activities

	ı	Summary of Activities
Sampling	Sampling	Follow-up Investigations
<b>Date</b>	Locations	
July 2006	70 – Total;	40 had discharges; 6 follow-up upstream investigations.
	32 – Columbia	OF 7 (Willamette River):
	Slough;	Flow tested positive for chlorine and was traced to a the leak from the
	37 – Willamette	service line that feeds the site's fire suppression system. No flow was
	River;	observed during a follow-up visit.
	1 – Johnson	OF 88A (Columbia Slough):
	Creek	Flow was opaque and had an odor of garbage and was traced to washing of
		a pavement sweeping truck. Company changed procedure.
		OF 7A: (Willamette River):
		Flow tested positive for chlorine and was traced to a leak from the
		Riverplace Square Condominiums. Water Bureau was called to fix
		problem.
		OF 8 (Willamette River):
		Flow tested positive for E. coli, but follow-up investigation resulted in no
		hits for E.coli.
		OF 110A (Columbia Slough):
		Flow tested positive for chlorine and was traced upstream between two
		manholes. No above-ground flow was observed. A follow-up TV
		inspection was conducted.
		OF13 (Willamette River):
		Flow had strong small of sewage and food grease and was tracked to a
		restaurant where an old incorrectly connected sanitary sewer line was
		discovered and corrected.

	T	
August 2006	70 – Total;	39 had discharges; 3 follow-up upstream investigations.
	32 – Columbia	OF 104B (Columbia Slough):
	Slough;	Flow tested positive for chlorine and was traced to a pool being drained at
	37 – Willamette	an apartment complex.
	River;	OF 4 (Willamette River):
	1 – Johnson	Flow was grayish/brown and was traced to washing of coils of a
	Creek	heating/cooling system on the roof of a building.
		OF 8 (Willamette River):
		Flow tested positive for E. coli.
September	70 – Total;	32 had discharges; 5 follow-up upstream investigations.
2006	32 – Columbia	OF 53F (Columbia Slough):
	Slough;	Truck washing water entered storm drains due to inadequate mats.
	37 – Willamette	Problem was fixed by company.
	River;	OF 60C (Columbia Slough):
	1 – Johnson	Truck washing water entered storm drains due to missing mats. Problem
	Creek	was fixed by company.
		OF 15 (Willamette River):
		High E. coli levels were observed, but no source was identified. No flow
		was observed during a follow-up visit.
		OF 44 (Willamette River):
		Flow tested positive for chlorine and was traced to a trailer from which
		shower water discharged to a storm drain via a garden hose.
		OF 11 (Willamette River):
		Flow contained sewage (visual and odor evidence). Blockage at diversion
		of this CSO that created sewer bypass was removed.
October	70 – Total;	32 had discharges; 1 follow-up upstream investigations.
2006	32 – Columbia	OF 104B (Columbia Slough):
	Slough;	Flow tested positive for chlorine and was traced to a potable water leak
	37 – Willamette	that was resolved.
	River;	
	1 – Johnson	
	Creek	

The majority of the discharges are from groundwater infiltrating into stormwater pipes and are not of concern. Most of the discharges of potential concern are related to unauthorized discharges of washwater or draining of swimming pools and unintentional discharges of drinking water (e.g., garden hoses, leak in water pipe). A few are related to sewage spills and incorrect connections of sewer pipes to the stormwater system.

### **OPERATIONS AND MAINTENANCE MONITORING**

### **Objectives**

Evaluate the effectiveness of maintenance practices, identify the need for improvements, propose better designs for facilities and activities, and monitor the effectiveness of these improved designs.

### **Accomplishments**

Throughout the first permit period, the City used monitoring to help evaluate the effectiveness or need for enhancement of maintenance practices (described in BMP OM-1 in the Stormwater

Management Plan). The City has sampled the effectiveness of old and new facility designs (sedimentation manhole and infiltration shoulder swale designs) and conducted some monitoring of discharges from City facilities (the Albina Maintenance Yard) and City activities (street sweeping). Data from these monitoring activities have helped prioritize the types of source control measures to implement and provided guidance on the value or undesirable impacts of some system designs.

O&M monitoring in the second permit term has included the continuation of a sediment quality study started in 2001, a sediment accumulation study started in FY 2004-05, and monitoring of two test ditch-to-swale conversions to evaluate the effects of maintenance activities.

# **Results**

The sediment accumulation study attempted to quantify the rate of sediment accumulation at various stormwater management facilities (SMFs), which was intended to help with preparing accurate maintenance and cleaning schedules for these facilities. Three ponds and one swale were included in this study. A variety of difficulties were encountered, including vandalism of the monitoring equipment, high standing water in the ponds, channel erosion, yard debris dumping, and excessive vegetation growth that acted as a sediment barrier. While the actual sediment accumulation rates are questionable for all but one facility, the collected grain size and sediment quality data are useful and will be analyzed in the near future.

The sediment quality study was concluded this year (June 2007). While some of the analytical results are available, the majority of the analyses done by a contract laboratory has not been completed and will be discussed in next year's annual compliance report.

The grain size analyses continue to show clear differences among the facility types. As expected, the facility with the longest stormwater residence time contains the finest sediment and typically has the highest concentrations of metals and pesticides. This study is discussed in more detail under Task 3.

To date, four storm events have been monitored at the test ditch-to-swale conversions. While both swales increase the hardness, total dissolved solids (TDS), phosphorus, and dissolved copper concentrations, they also reduce the total suspended solids (TSS), total metal, and some dissolved metal concentrations. Overall, the all-compost swale seems to perform better than the sand/compost swale by removing more TSS and total metals and increasing the phosphorus and TDS concentrations to a lesser extent. Additional study may focus on how to eliminate the increased phosphorus and TDS concentrations.

### **EROSION CONTROL MONITORING**

### **Objectives**

The City's erosion control strategy (described in BMP ND-1 in the Stormwater Management Plan) includes erosion and sediment control monitoring. The objective is to evaluate the effectiveness of the City's erosion control code.

# **Accomplishments**

In the first permit cycle, the City monitored three separate developments, from approximately the time that public utilities were installed all the way through housing construction. Two of the sites were in southeast Portland (an apartment complex and a large subdivision), and the third site (another subdivision) was in northwest Portland. Each site was monitored across four storm events in 1997. In general, the monitoring showed that a large amount of sediment was being released from construction sites. The northwest site released more than three times the amount of TSS in one storm event than the reference site sampling station located in northwest Portland released in one year.

Extensive monitoring of a subdivision under construction in southeast Portland was conducted from April 2000 to April 2003. Collected water quality data indicate that 1) the runoff concentrations of all major pollutants decreased over time, and 2) the erosion control measures in place were very effective in reducing the pollutant load in the runoff.

In March 2000, the City implemented a new City Code and Erosion Control Manual to help reduce the amount of pollution being released from construction sites. The City subsequently began sampling at a new southeast subdivision site to try to determine the effect of the new regulations on pollution reduction. That site proved to have significant construction and related issues that resulted in delays and made sampling impossible.

Because of the substantial variety in erosion control measures that can potentially be applied on a given site, results from one site are most likely not transferable to another site. The City has therefore decided that erosion control monitoring will not be continued for the time being.

### **Results**

None

### TASK 3: STORMWATER MANAGEMENT FACILITY (SMF) MONITORING

### STORMWATER QUALITY AND SEDIMENT MONITORING

### **Objective**

The objective of Task 3 is to conduct monitoring to evaluate the effectiveness of existing and new stormwater management facilities (SMFs) to reduce pollutants in discharges and better manage stormwater.

### **Accomplishments**

In the past, little information on the effectiveness of structural stormwater management facilities was available. In 1995, the City began to monitor various types of structural BMPs that were installed as public and private facilities within the City boundaries (as reported in the annual compliance reports). Since then, many types of structural BMPs have been well characterized by various other jurisdictions and organizations nationwide. The City will continue to work with ACWA and other Phase I communities to identify and fill data gaps for mostly newer types of structural BMPs (such as planter boxes and curb extensions) for which little or no effectiveness information is available. For example, the City is currently monitoring the effectiveness of stormwater curb extensions and street planters for retention and detention of various sizes of storm events, as well as collecting data from stormwater flow-through planters for various storm events. The following tables summarize the permit year 12 monitoring activities under this task.

Summary of Stormwater Management Facility Monitoring

BMP Sampled	Number of Sampling Locations	Permit Year (PY) 1-11 Number of Events Monitored	PY 12 Number of Events	PY 12 Sampling Dates	PY 12 Type of Samples Collected
			Monitored		
Buffalo Slough SMF	1 sediment location	13 storm events; 5 sediment	1	6/26/2007	Composite sediment
NE 138 <sup>th</sup> Ave. SMF	1 sediment location	11 storm events 5 sediment	1	6/25/2007	Composite sediment
Whitaker Ponds SMF	2 sediment locations (vault and first of three wetland ponds)	11 storm events; 5 sediment	1	6/26/2007 6/27/2007	Composite sediment

### Reculte

Since the majority of the analytical results are not yet available because of a backlog at the contract laboratory, this report provides only a limited discussion of this year's results and the overall results.

### Buffalo Slough Stormwater Management Facility (SMF)

All metals and hydrocarbon concentrations are within the range observed in previous years. Even though the particle size distribution indicates that the sediment collected in 2006 and 2007

is a little finer that in previous years, only about 30 percent of the sediment is smaller than 100  $\mu m$ . The sediment has the lowest median concentrations of all metals as compared to the other two facilities, even though the percent of transportation and industrial land use in the catchment is high.

# NE 138<sup>th</sup> Ave. SMF

Sediment monitoring with composite samples collected in the forebay of this wet pond was continued in this permit year. Grain size distribution and metals concentrations are similar to previous years. Over 75 percent of the sediment is finer than 100 µm. This fineness seems to be reflected in the highest median copper and zinc concentrations among the three facilities. Other metals concentrations are in the middle.

### Whitaker Ponds SMF

Sediment sampling at this facility was continued during this permit year. Composite samples were collected from the sediment vault and the first of the three wetland ponds. The grain size distribution in both the vault and the wetland pond is similar to last year. In the vault, the percent of sediment finer than  $100~\mu m$  is about 60 percent, while the sediment in the wetland pond had a fines content of over 90 percent.

Sediment quality is comparable to samples collected in previous years. All metals concentrations are higher in the wetland pond sediment than in the vault sediment. Although the wetland pond has the highest fines content of any facility, the metals concentrations are typically lower than those found in the forebay of the wetland pond.

# STORMWATER QUANTITY AND SOIL MONITORING

The following table summarizes all low-impact development (LID) facilities that have been monitored to date. Facilities that were monitored during this permit year are discussed below.

Summary - Facilities Monitored through June 2007

			Monitoring Type				
	<b>Facility</b>	Age	Infiltration	Flow	Flow	Soil	WQ
Facility	Type	(years)	Testing	Testing	Monitoring	Sampling	Monitoring
Hamilton		7			<b>✓</b>		✓
Apartments	Ecoroof	,			•		
Portland Building		1			<b>✓</b>		✓
Multnomah		3			1		
County Bldg.		3			,		
NE Siskiyou	Curb Extension	3	✓	✓	✓	✓	
Green Street							
SE Ankeny Green		3	✓	✓			
Street							
NE Fremont/131st		1	✓	✓			
SW 12 <sup>th</sup> Green	Street	2	-/	<b>√</b>		✓	
Street	Planter	<i>L</i>	<b>V</b>				

New Seasons		3				✓	
Glencoe Rain		3	<b>√</b>	<b>√</b>	✓	✓	
Garden				Ý	<u> </u>		
Glencoe Parking		4				✓	
Lot Swale		+					
OMSI Parking Lot	Vegetated	14	✓			✓	
ONRC	Infiltration	4	✓				
Oregon Zoo	Basins	1					✓
Parking Lot	and	1					
Page 19	Swales	4	✓				
SW Community		0				✓	
Center		8					
Walnut Park		10				✓	
Police Precinct		12					
George Middle		2			✓		
School	Flow-	2			•		
BES Water	through	2		1			
Pollution Ctrl Lab	Planters	2		*			
ReBuilding Center		1		✓			✓
SE Alder & 41 <sup>st</sup>	Elam	3		<b>√</b>	✓		
NE Hancock & 28 <sup>th</sup>	Flow Restrictors	3	Not t	formally tes	sted because of	clogging pro	oblem

#### **Ecoroofs**

Ecoroofs are vegetated facilities that replace a standard roof, mostly on buildings with a low roof pitch. They consist of soil media and vegetation atop a waterproof membrane. They are designed to reduce peak flows and total runoff volume.

Ecoroof Effluent Water Quality - Summary

	Portland Building	Hamilton West Roof		Hamilton East Roof	
	6/9/2007	11/7/2006	Mean of	11/7/2006	Mean of
Parameter			13 events (μg/L)		13 events
Dissolved Copper	34.7	11.7	14.1	6.59	7.8
Dissolved Lead	0.29	< 0.10	0.11	1.95	0.39
Dissolved Zinc	39.7	16.2	14.9	58.9	35.7
Nitrate	3200	330	233	120	180
Ammonia	120	39	38	33	26
Total Phosphorus	460	470	566	300	308
Ortho Phosphate	380	410	466	180	248

The ecoroof on the Portland Building was installed in 2006, and effluent was sampled for the first time in 2007. As expected for a disturbed soil, dissolved nitrogen concentrations are very

high, but total and dissolved phosphorus concentrations are both similar to the Hamilton ecoroof. It is unclear why dissolved copper is substantially higher than what has been observed on the Hamilton ecoroof.

With the exception of dissolved lead and possibly dissolved zinc from the Hamilton east roof, all other analytes reviewed were within the range previously observed. Over the past three sampling events, dissolved zinc has been above its long-term average. Potential reasons include zinc coming off a galvanized railing prevalent on the east roof. Dissolved lead spiked during this event to a concentration triple the previous maximum concentration. No explanation is currently available.

In general, nutrient levels are still higher in the effluent from the west roof. This is expected because the west-side soil had a much higher nutrient content by weight at the time of installation and has much more vegetative cover that can decay and release nutrients.

#### Vegetated Infiltration Basins

Vegetated infiltration basins are landscaped depressions designed to hold and infiltrate water. They are similar to green street facilities that manage street runoff (such as curb extensions), but tend to be deeper and often drain private property roofs and parking lots. Performance depends upon the site conditions (soil), drainage area characteristics (volume of runoff, sediment loads), and facility design (surface area for infiltration, vegetation).

Vegetated Infiltration Basins – Performance Summary

Facility	Location	Monitoring Period	Drainage Area (ft²)	25-Yr Peak Flow Reduction	Annual Runoff Retention	CSO Flow Volume Retention
Glencoe Rain Garden	SE	Jan 2004 – June 2007	34,800	80%	88%	80% +

The average peak flow reduction is about 80 percent, while the CSO flow volume retention is over 80 percent.

No overflow is expected from this facility during the water quality design storm, so no water quality testing of the effluent has been conducted.

#### **Stormwater Planters**

Stormwater planters are vegetated facilities with vertical structural walls. Infiltration planters have no bottom and allow runoff to move into the surrounding soil, while flow-through planters have a bottom and an underdrain system.

Rebuilding Center Flow-through Planter - Performance Summary

Parameter	Units	Planter Outlet 6/5/2007	Typical Commercial Land Use Concentrations
Dissolved Copper	μg/L	3.64	9.4
Dissolved Lead	μg/L	<0.1	4.0
Dissolved Zinc	μg/L	8.23	78
Total Copper	μg/L	6.47	25.4
Total Lead	μg/L	2.66	38.7
Total Zinc	μg/L	19.8	157
Total Suspended Solids	mg/L	26	82
Nitrate	mg/L	0.88	0.33
Ammonia	mg/L	0.049	0.35
Total Phosphorus	mg/L	0.087	0.30
Ortho Phosphate	mg/L	0.039	0.102

With the exception of nitrate, all water quality parameters in the planter effluent were substantially below the typical commercial land use concentrations. Elevated nitrate levels in the effluent are typically observed when soil has been recently disturbed. The effluent data seem to indicate that the flow-through planter is improving water quality.

#### TASK 4: COMPREHENSIVE AMBIENT MONITORING

#### **Objective**

The objective of Task 4 is to conduct comprehensive in-stream stormwater monitoring to evaluate stormwater impacts associated with the chemical, biological, and physical characteristics of receiving waters.

#### **Accomplishments**

The City has conducted a comprehensive ambient monitoring program since the early- to mid-1990s. The data collected have been used to help DEQ establish TMDLs in the Columbia Slough, Johnson Creek, Willamette River, Fanno Creek, and Tryon Creek. These sites are monitored under both dry-weather and wet-weather conditions. The City is committed to continuing this program and may modify it from time to time to better answer new questions as they arise. At a minimum, the locations and frequencies summarized in Table MON-1 of the SWMP will be maintained. The minimum analytical parameters for ambient monitoring are shown in Table MON-3 of the SWMP and Table B-2 of the permit.

Routine Ambient Sampling - Summary

		Monitoring	Water Body-Specific
<b>Surface Water Body</b>	No. of Locations <sup>1</sup>	Frequency <sup>1</sup>	Analytes <sup>2</sup>
Balch Creek <sup>3</sup>	2	Monthly	Chlorophyll a, ammonia, ortho-P
Columbia Slough <sup>4</sup>	9	Monthly	Chlorophyll a, ammonia, ortho-P
Fanno Creek	8	weekly to monthly	Chromium, ortho-P
Johnson Creek <sup>4</sup>	8	Monthly	Heavy metals, ammonia, ortho-P,
Tryon Creek	3	Monthly	Ammonia, ortho-P, oil & grease
Willamette River	4 transects; 3 locations per transect for field parameters; 1 composite for all others	Monthly	Heavy metals (Ar, Cd, Cr, Fe, Hg, Mo, Ni, Se)

<sup>&</sup>lt;sup>1</sup> Number of sampling locations and monitoring frequency are greater than indicated in Table MON-1 of the SWMP, but are not necessarily reflective of future efforts.

<sup>&</sup>lt;sup>2</sup> Analytes common to all surface water bodies are shown in Table MON-3 of the SWMP and Table B-2 of the permit.

<sup>&</sup>lt;sup>3</sup> Balch Creek is not a required ambient monitoring location, as shown in Table MON-1 of the SWMP and Table B-1 of the permit.

<sup>&</sup>lt;sup>4</sup> Some sampling locations are outside the City of Portland.

#### **Results**

Attainment of Selected Important Water Quality Standards/Criteria

	Attain	Attainment of Water Quality Standards/Guidance Values <sup>1</sup>						
		. 2	Dissolved	mag4	Total			
	Bact	eria <sup>2</sup>	Copper <sup>3</sup>	TSS <sup>4</sup>	Phosphorus <sup>5</sup>			
Surface Water	406	126						
Body	MPN/100 mL	MPN/100 mL	5 μg/L					
Columbia Slough	98/108	9/9	108/108	80/108	9/9			
Fanno Creek	86/120	0/8	9/9		6/8			
Johnson Creek	63/96	0/8	96/96	91/96				
Tryon Creek	21/24	1/2	12/12					
Willamette River	136/144	12/12	48/48					

Number of samples that attain standard/number of samples collected.

Most streams meet most of the criteria or guidance values most of the time. The greatest concern is the bacteria concentrations in the tributaries, with the single sample standard exceeded up to about 30 percent of the time. The mainstem Willamette River and the Columbia Slough meet the single sample bacteria standard most of the time and the geometric mean standard all the time despite the fact that the CSO control in the Willamette River has not been implemented.

All streams meet the dissolved copper guidance provided by NMFS and thought to be protective of salmonid species.

The Columbia Slough and Fanno Creek meet their respective phosphorus TMDL concentrations at most locations and are very close to meeting them at the remaining locations.

Johnson Creek and the Columbia Slough meet their respective TSS guidance values, established to meet the toxics TMDLs, most of the time.

<sup>&</sup>lt;sup>2</sup> 406 MPN/100mL is the single sample standard; 126 MPN/100mL is the 30-day geometric mean of  $\geq$  5 samples. (For this summary, the geomean of weekly or monthly data collected throughout the year was calculated.)

<sup>&</sup>lt;sup>3</sup>Compared to NMFS guidance value for salmonids of 5 µg/L.

<sup>&</sup>lt;sup>4</sup> Compared to guidance value: Columbia Slough – 25 mg/L; Johnson Creek – 20 mg/L.

<sup>&</sup>lt;sup>5</sup> Spring to fall average compared to Columbia Slough TMDL of 0.155 mg/L; spring to fall median compared to Fanno Creek TMDL of 0.13 mg/L.

# TASK 5: STORMWATER MONITORING AT LAND USE STATIONS OR MS4 OUTFALLS<sup>6</sup>

#### **Objective**

Monitoring at land use stations and outfalls allows the City to evaluate the physical, chemical, and biological characteristics of stormwater and its potential impact on ambient water quality.

#### **Accomplishments**

The City monitors public outfalls that drain mixed land uses but include a substantial portion of industrial/commercial land uses. Even though previous monitoring has indicated that stormwater quality is influenced mainly by land use and not by watershed (ACWA 1997), the City will monitor three outfalls in the three major watersheds within the City: the Willamette River, Columbia Slough, and Johnson Creek. The Willamette River outfall in northwest Portland (OF 19) has a high percentage of industrial land use, while the other two outfalls drain a mix of residential, commercial, and industrial land uses. (This northwest Portland outfall is the one described above in Task 2: BMP-Specific Monitoring, under Industrial Stormwater Program Monitoring) These outfalls will be monitored only during rainfall events that generate sufficient runoff. Rigorous statistical analyses are being updated for the two outfalls with long-term records, and results will be available during this permit term.

#### **Results**

Outfall – Data Summary

Sampling Locations	Date	Antecedent Dry Period (hours)	72-h Antecedent Rainfall (inches)	24-h Antecedent Rainfall (inches)	Total Event Rainfall (inches)	Sample Collection Time Rainfall (inches)
M1	11/2/2006	>72	0.00	0.00	0.87	0.87
Columbia	1/9/2007	54	0.31	0.00	0.13	0.13
Slough	2/14/2007	>72	0.05	0.00	0.61	0.61
S45U	1/9/2007	29	0.32	0.00	0.18	0.12
Johnson	2/14/2007	>72	0.08	0.00	0.78	0.70
Creek	3/7/2007	6	0.15	0.15	0.26	0.11
OF 19	11/2/2006	>72	0.08	0.08	1.31	0.86
Willamette	11/19/2006	>72	0.02	0.01	0.49	0.47
River	2/14/2007	>72	0.05	0.00	0.61	0.50

<sup>&</sup>lt;sup>6</sup> As part of the City's administration of 1200 Z and 1200 COLS industrial permits under a memorandum of agreement with DEQ (see BMP IND-1), the City also submits site-specific monitoring data for permitted facilities to DEQ on a routine basis, in compliance with the agreement.

Comparison to Selected Important Water Quality Standards/Criteria <sup>1</sup>

	Compa	Comparison to Water Quality Standards/Guidance Values <sup>2</sup>							
	Bact	eria <sup>3</sup>	Dissolved Copper <sup>4</sup>	TSS <sup>5</sup>	Total Phosphorus <sup>6</sup>				
Outfall Name /	406	126	1.						
Location	MPN/100 mL	MPN/100 mL	5 μg/L						
M1 – Columbia	0/2	0/1	3/3	0/3	0/3				
Slough									
S45U – Johnson	1/2	0/1	3/3	0/3					
Creek									
OF 19 –	0/2	0/1	3/3						
Willamette River									

Water quality standards or criteria do not apply to stormwater discharges and are listed here on as a reference.

#### <u>M1</u>

Concentrations of all analytes were within the range previously observed. However, results from the sampling event on January 9, 2007 showed the highest concentration of total zinc observed since 1992. Neither TSS nor any of the other metals were above their normal range, and the sample event rainfall was small. The dissolved zinc concentration for this event was below the mean over the last 10 years of monitoring. The subsequent sampling event on February 14, 2007 showed normal total zinc concentration.

#### <u>S45U</u>

This outfall was sampled for the first time as part of the permit-required outfall monitoring. Therefore, a comparison to previous years' monitoring cannot be conducted. However, TSS and all metals and nutrient concentrations were within the range of the other two outfalls (M1 and OF19), but possibly a little higher than some metal concentrations at M1.

#### <u>OF 19</u>

As was the case last year, most metal concentrations were below the long-term mean and median concentrations for this outfall, even though the TSS concentrations and storm event rainfall were above average. Some of the metals and other parameters (such as total copper, total cadmium, and total phosphorus) recorded new lows during this permit year. There appears to be a downward trend in the concentration of many parameters, but no statistical analysis has been done to evaluate whether this trend is significant. Despite these improvements, total recoverable copper, lead, and zinc concentrations are still above the respective chronic criteria.

<sup>&</sup>lt;sup>2</sup> Number of samples that are below standard/number of samples collected.

<sup>&</sup>lt;sup>3</sup> 406 MPN/100mL is the single sample standard; 126 MPN/100mL is the 30-day geometric mean of  $\geq$  5 samples. (For this summary, the geomean of all data collected throughout the year was calculated.)

<sup>&</sup>lt;sup>4</sup>Compared to NMFS guidance value for salmonids of 5 μg/L.

<sup>&</sup>lt;sup>5</sup> Compared to guidance value: Columbia Slough – 50 mg/L; Johnson Creek – 20 mg/L.

<sup>&</sup>lt;sup>6</sup> Spring to fall average compared to Columbia Slough TMDL of 0.155 mg/L.

#### TASK 6: COLLABORATION WITH OREGON DEQ AND ACWA

#### **Objective**

The collaboration with other agencies and jurisdictions, including Oregon DEQ, Oregon ACWA, USGS, the City of Gresham, and Clean Water Services, allows the City to provide the most cost-effective services to its customers, as well as share knowledge and information to further the common goal of improving storm and surface water quality.

#### **Accomplishments**

The City continues to collaborate with DEQ and ACWA to share information and minimize duplication of efforts. Collaboration with ACWA includes participating in monthly stormwater and water quality subcommittee meetings and participating in joint efforts and projects (e.g., preparation of a mercury monitoring plan and a Request for Proposals for a mercury reduction manual).

The City also participates in regular meetings with the Johnson Creek Interjurisdictional Committee (IJC). This committee deals with a variety of issues related to Johnson Creek and has been instrumental in assisting DEQ with preparing a scientifically sound draft TMDL and furthering the understanding of water quality concerns.

#### **Results**

The City participated in a Clean Water Act Section 319 grant-funded project to evaluate the correlation between turbidity and banned organo-chlorine pesticides in Johnson Creek. Final reports and outreach materials were prepared, which indicate that total DDT is highly correlated to TSS and turbidity. Dieldrin, on the other hand, is correlated with TSS and turbidity at lower concentrations, but appears independent of these parameters at higher concentrations. It therefore appears conceivable that turbidity monitoring could be a surrogate for DDT monitoring, but may not be useful as a surrogate for dieldrin, at least not at higher concentrations. While the pesticide analyses have been discontinued, the turbidity monitoring is ongoing in the hope that it will indicate changes in the management of Johnson Creek.

# Section III MULTNOMAH COUNTY

# Multnomah County Municipal NPDES Annual Report for Permit Year 12 City of Portland and Co-Permittees Permit #101314 November 1, 2007

#### MULTNOMAH COUNTY STORMWATER MANAGEMENT PROGRAM

#### **Summary**

Multnomah County implements a comprehensive stormwater management program countywide. The goal of the program is to reduce pollutants in stormwater runoff to the maximum extent practicable. The program is maintained and prioritized in response to federal Clean Water Act requirements and the County's responsibility to protect the health and welfare of its citizens.

Multnomah County continues to implement an active Stormwater Management Program throughout its jurisdiction, including those areas outside of NPDES permit areas. The BMPs reported here however, apply only to the few remaining activities the County continues to engage in within the Portland permit area.

#### **Description of the County's Permit Area**

Within Portland's NPDES permit area, Multnomah County is only responsible for five of the Willamette River bridges and a few small unincorporated pocket areas within the Portland Urban Services boundary.

#### **Coordination with the City of Portland**

Multnomah County's activities and associated BMP implementation within the Portland Permit area has significantly diminished over the years. In 1984, the County transferred road and drainage facility maintenance to the City for roads in the unincorporated pocket areas within the Portland Urban Services Boundary through an Intergovernmental Agreement known as the Westside Pocket Area Maintenance Agreement. Of note is the requirement that road and drainage facility maintenance provided by the City is to be provided in a manner consistent with applicable operations and maintenances best management practices as set forth in the City of Portland's Stormwater Management Plan under their MS4 NPDES Permit.

As a result of the Metro Urban Growth Management Functional Plan the City of Portland and Multnomah County entered into an Urban Planning Area Agreement (UPAA) dated March 5, 1998. The UPAA provided for the coordination and orderly conversion of unincorporated urbanizable land in the County to urban uses and authorized the City to prepare applicable comprehensive plan and implementing ordinances for the County's urban areas. The County adopted the City's applicable land use regulations, comprehensive plan and zoning through

County Ordinance 967, which went into effect January 1, 2002. Under the UPAA, the County agreed to transfer to the City responsibility for implementing and administering comprehensive plan and zoning regulations for all County unincorporated areas within the City's Urban Services Boundary.

An important aspect of the UPAA is the expressed responsibility of the City to address, through their comprehensive plan and zoning regulations, erosion control, floodplain review, grading, and stormwater disposal. Further, land use planning review shall be provided by the City in a manner consistent with applicable best management practices as set forth in the City of Portland National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit. The level of review shall be provided at the same level provided by the City to other areas within the City limits.

The County's primary stormwater management activity now remaining in the City of Portland's MS4 NPDES permit area is associated with five of the Willamette River bridges. Secondarily, the County retains jurisdiction to review development connection to the right-of-way, in a few unincorporated pockets, on roads that the City maintains and operates.

This Compliance Report for PY 12 (Annual Report) documents the implementation activities of Multnomah County's Stormwater Management Program in the City of Portland NPDES permit area. The PY 12 Annual Report covers activities from July 1, 2006 through June 30, 2007. The Program consists of management tasks submitted by the County and approved by the DEQ. Most of the County's roles and responsibilities for complying with the permit term falls under implementation of the Stormwater Management Plan (SWMP) as Best Management Practices (BMPs) rather than duties toward monitoring, education, or industrial discharges. Please see, NPDES Annual Compliance Report Permit Year 12, submitted by the City of Portland for a full discussion of monitoring completed for this permit.

#### Program Activities: Best Management Practices (BMPs)

The Multnomah County municipal NPDES stormwater permit program within the Portland permit area utilizes Best Management Practices (BMPs) to meet regulations and implement the program, as described below.

BMPs are source or treatment controls designed to reduce pollution in stormwater. Source controls are practices or devices which keep pollutants out of stormwater runoff in the first place, such as routine inspection and maintenance practices or covers for outdoor storage areas. Treatment controls are typically structural devices designed to temporarily store or treat stormwater runoff to remove pollutants that have already entered the stormwater. Examples include detention basins and grassed bio-filtration swales. EPA requires that the County's stormwater program include structural and non-structural controls.

The County's stormwater management plan is made up of 35 BMPs grouped into seven categories as shown below:

#### GENERAL BEST MANAGEMENT CATEGORIES

#### **Second Permit Term BMP Categories Used in Permit Year 12:**

- (1) Public Involvement and Education (PI);
- (2) Operations and Maintenance (OM);
- (3) Illicit Discharges Control (ILL);
- (4) New Development Standards (ND);
- (5) Structural Controls (STR);
- (6) Natural Systems (NS); and
- (7) Program Monitoring (PM).

#### Public Involvement and Education (PI)

The Public Involvement and Education BMPs are designed 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, and to encourage active participation in pollution reduction efforts.

As a result of increased public involvement and education efforts since the first permit term, the BMPs were separated by actual practice area into seven different descriptions to better respond to reporting requirements.

#### Operations and Maintenance (OM)

These BMPs are designed for the implementation of operations and maintenance practices for public streets, bridges, storm sewers, and other facilities to reduce pollutants in discharges into the municipal separate storm sewer system.

Several activities are conducted by the County to address stormwater quality impacts from routine operations and maintenance activities both inside and outside the permit area. The County's Road Maintenance and Operation Manual describes the various maintenance activities performed by the County related to roadways and associated storm drainage facilities. The manual includes procedures for routine inspection and maintenance of facilities with the dual purpose of providing flood control and protecting water quality. A series of field logs are used along with the manual for use in tracking progress of the maintenance program and evaluating effectiveness over time. The County provides continued training to staff regarding record keeping and reporting requirements. County staff assesses the effectiveness of maintenance and adjusts methods and/or frequencies as needed to improve stormwater quality.

#### Illicit Discharges Control (ILL)

To prevent, identify, investigate, and if appropriate, control/eliminate any non-stormwater discharges into the municipal separate storm sewer system.

Illicit Discharges Control BMPs are designed to reduce the frequency and impact of accidental non-stormwater discharges to the stormwater system, and to control illicit

connections to the MS4. Noticeable illicit discharges are reported to the appropriate agency for follow up action. Examples of this are private truck hauling practices, excessive littering, illicit connections, illegal dumping, and other leaks, spills or release of contaminants.

#### New Development Standards (ND)

New Development Standards (ND) BMPs are designed to mitigate pollutant discharges and other water quality impacts associated with new development and redevelopment during and after construction.

Note: Much of Multnomah County's jurisdiction in the original permit area has been annexed by the City of Portland or transferred to the Cities of Gresham and Troutdale since the first permit term.

Note: There is no unincorporated area within the permit area containing industrial or commercial facilities.

Note: There are no major parks in the County's portion of the permit area.

#### Structural Controls (STR)

These BMPs are designed to implement structural modifications (constructed facilities) to existing systems/development to reduce pollutants in discharges from the municipal separate storm sewer system.

#### Natural System (NS)

These BMPs are designed to help preserve and restore the natural environment/functions to reduce pollutants in discharges from the municipal separate storm sewer system.

Multnomah County has implemented a vegetation management Functional Group within both Road and Bridge Maintenance, partly in response to Stormwater Implementation Team recommendations, since the first permit term began.

#### Program Management (PM)

Program Management BMPs ensure effective program management, coordination, and reporting. The County implements several other activities required by the NPDES regulations and additional activities in order to ensure the proper management and success of the program. The following briefly describes these additional activities:

- Overseeing modifications to the stormwater management plan and NPDES permit conditions on behalf of the County
- Compiling and reviewing internal reports
- Writing and submitting the annual report
- Coordinating and communicating with the co-permittees
- Liaison with DEQ

#### **Functional Groups**

Managers and staff in the Multnomah County Department of Community Services, Land Use and Transportation Division, implement the Stormwater Management Program. The Team includes Transportation Division Managers, Supervisors, the County Engineer, the Planning Director, and other County staff. To ensure efficient implementation, each team member belongs to a 'functional group' responsible for specific BMPs, as described below.

Functional Group assignments were given to the Implementation Team to ensure active participation by the necessary staff. Assignments were made by matching appropriate staff to the BMPs directly relating to their duties. For example, the staff Engineer responsible for reviewing stormwater facility design is in the DESIGN functional group, while the staff Engineer responsible for overseeing bridge road building contracts is in the CONSTRUCTION functional group. The nine functional groups are:

•	Education	Emergency Response
•	Bridge Engineering	<ul> <li>Right-of Way Permits</li> </ul>
•	Bridge Maintenance	Road Maintenance
•	Land Use and Transportation	<ul> <li>Road Engineering</li> </ul>
	Planning	
•	Compliance	Public Affairs

#### Functional Group Accomplishments: Permit Year 12

#### Road Maintenance

# General NPDES Roles and Responsibilities for Permit Year 12

The Road Maintenance section of the County Transportation Division will utilize established road maintenance procedures specifically relating to stormwater quality management. Staff will document maintenance procedures through the Stormwater Maintenance Manual and field logs and ensure that problems found in the field relating to stormwater quality and stormwater facilities are addressed.

#### Bridge Engineering & Maintenance

# General NPDES Roles and Responsibilities for Permit Year 12

The Bridge section of the County
Transportation Division utilizes bridge
maintenance procedures to protect water
quality and address stormwater management.
The group ensures through design of new
projects and review of contractors' plans that
stormwater and Best Management Practice
(BMP) structural controls are considered and
properly designed for Capital Improvement
Program projects.

#### Road Engineering Construction General NPDES Roles and Responsibilities for Permit Year 12

County Road Engineering/Construction

#### Key Accomplishments for Permit Year 12

The County contracts with the City of Portland for operation and maintenance of County owned roadways and associated storm drainage facilities in the unincorporated pockets of land within the Portland urban services area. Computerized inventories of drainage and road appurtenances are maintained by both organizations. The County remains responsible for emergency flooding and landslide road repairs.

#### Key Accomplishments for Permit Year 12

The Burnside Bridge Main Span Rehabilitation Project included four new stormwater catch basins to the bridge. Two filtered catch basins were installed in each of Piers 2 and 3 to catch and filter storm water runoff from the newly rebuilt decks of the bascule leaves. The catch basins replace scuppers that dispersed storm water directly to the river below. The Burnside Bridge and the approaches to the bridge now incorporate 18 water quality treatment devices prior to discharge into the Willamette or City of Portland storm sewer system.

#### Key Accomplishments for Permit Year 12

The Road Construction functional

Group ensures through plan checking, education of contractors, specification interpretation, pre-construction meetings, and rigorous inspection and monitoring, that stormwater controls are properly considered, installed, and maintained as part of all public Capital Improvement Projects. Stormwater controls include structural and non-structural techniques and practices, which will result in reduced pollution.

group does not routinely have any activity within the permit area. The City of Portland by agreement maintains and operates County owned roadways within the permit area.

#### Road Engineering Design

# General NPDES Roles and Responsibilities for Permit Year 12

County Road Engineering/Design Group ensures through design of new projects and review of contractors' plans that stormwater and Best Management Practice (BMP) structural controls are considered and properly designed for Capital Improvement Program projects. They will promote a balance of stormwater quality and quantity (flood control) to the Maximum Extent Practicable in considering stormwater facility design.

## Key Accomplishments for Permit Year 12

 Engineering Design in conjunction with Right-of-Way continued to review a handful of development requests in the unincorporated pockets that had the potential to impact drainage facilities in the County rightof-way.

#### Education

# General NPDES Roles and Responsibilities for Permit Year 12

Multnomah County's responsibility for stormwater quality education is two-fold. Public education roles are important but are primarily the City of Portland's NPDES responsibilities for incorporated areas. This change occurred due to the accelerated annexation of SE Portland in 1995. Moreover, the County lost additional jurisdictional responsibility with completion of the Multnomah County-Portland Compliance Project. Personnel training within the County Transportation and Land Use Divisions is still important, and is more extensive. Training includes initiating

### Key Accomplishments for Permit Year 12

The County's participation in public involvement and education activities is limited due to the limited type of activity the County is involved in within the Portland NPDES permit area. The County is represented through its copermittee status by the City of Portland's efforts with the "Regional Coalition for Clean Rivers and Streams." The residents in the permit area are informed of impacts to the storm drainage system through the Coalition's educational efforts via mass media (radio, movie ads,

activities to educate and inform County staff about the sources and solutions to stormwater program issues.

- news paper) and direct mailing. County staff attend and participate in stormwater workshops and meetings sponsored by the City and other local agencies.
- Distributed water quality related brochures to public at County offices.

# Emergency Response General NPDES Roles and Responsibilities for Permit Year 12:

County Emergency response personnel will ensure water quality concerns are addressed during emergency procedures. In particular, staff consider how to prevent materials from reaching the Municipal Separate Storm Sewer System (MS4). Staff will continue to raise awareness of emergency response personnel (in road maintenance group) to ensure general water quality concerns are addressed. Participate in regional Committees addressing these concerns to assure necessary coordination between agencies.

#### Key Accomplishments for Permit Year 12

- Sampled and tested road waste materials to ensure proper disposal and avoid surface and ground water pollution.
- Reviewed training procedures for County road maintenance staff and administrative staff in quick response to emergency calls regarding spills in right-of-way including proper use of absorbent pads and booms and recorded individual response activities.

## Land Use Planning and Transportation Planning

General NPDES Roles and Responsibilities for Permit Year 12:

County Planning staff will ensure stormwater quality management and maintenance practices are considered in land use zoning and permit requirements and applications. In particular, they will enforce land use zoning and permit requirements that may impact stormwater quality. Staff will determine whether land use planning procedures are in place to encourage sound environmental principles relating to water quality Significant Environmental Concern zones.

#### Key Accomplishments for Permit Year 12

- The County completed transfer of zoning and land use planning authority in the Portland Permit Area, January 1, 2002. (PY 7)
- Transportation Planning staff continued participation with the Sellwood Bridge Concept Planning effort.

The County relinquished zoning and land use planning jurisdictional responsibility with completion of the Multnomah County-Portland Compliance Project pursuant to the Metro Urban Framework Functional Plan.

# Right-Of-Way Permits

General NPDES Roles and Responsibilities for Permit Year 12:

County Right-of-Way Permits Section will ensure stormwater pollution controls are considered and incorporated into permits for private and public construction projects that attach to and are in the County right-of-way. Staff will specify erosion control requirements through contractor bonding for public right-of-way projects. Staff will ensure that maintenance is conducted for life of project and immediate future.

#### Compliance

General NPDES Roles and Responsibilities for Permit Year 12:

The Compliance Group is responsible for

#### Key Accomplishments for Permit Year 11

- Required utility companies and private contractors operating in the public right-of-way to implement pollutant and erosion control measures such as weep-drains, culvert/ditch inlets, silt socks, biobags, or hay bales.
- Continued to provide information and clarification of truck hauling practices to avoid stormwater pollution.
- A cash deposit was required for any temporary construction access connection to a County right-of-way to ensure that water quality was protected and that concerns were addressed.
- Ensured plan specifications for contractors included measures to address erosion and sediment control during construction activities.
- Right-of-way inspector continued to monitor activities within the right-ofway and to report concerns to the appropriate maintenance or enforcement section.

#### Key Accomplishments for Permit Year 12

 As part of the County's Toxic Reduction Strategy it initiated a requirement that all

overall Program Development and Management, Program Assessment and Evaluation, and Program Compliance Reporting.

- County Dental Clinics install mercury amalgam separators a pretreatment to the local sanitary system.
- Conducted program management, including program coordination with County Staff.
- Coordinated reporting activities with City of Portland, as lead permittee.
- Evaluated BMP effectiveness and conducted program assessment throughout the year, resulting in Annual Report to DEQ.

# Best Management Practices (BMPs) and Other Activities (OAs): Accomplishments

Annual Compliance Reports for the Municipal NPDES Stormwater Permit are required to include information relating to each BMP task and schedule. The following matrices provide this information, in summary form, for each BMP. More detail is available upon request through documentation in the Multnomah County Transportation Division of the Department of Community Services. In general, all BMP tasks are on schedule without modification. Modifications occurring due to the Multnomah County –Portland Compliance Project and/or road transfers are noted and explained. The following matrix provides the following information:

- √ A short description of the Best Management Practice, with BMP Number.
- $\sqrt{\phantom{a}}$  The overall intent, goals and objectives of the Best Management Practice.
- √ The Multnomah County 'Functional Group(s)' designated as responsible for BMP Implementation.
- $\sqrt{}$  Key accomplishments for Permit Year 12.
- $\sqrt{}$  Assessment of Controls.
- $\sqrt{}$  Any proposed modifications or changes to the schedule or activities.

# Best Management Practices (BMPs) Matrix for Permit Year 12

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
educate	Involvement and Education (PI). These active the public about the causes of stormwaters and rivers, and the need for stormwater aparticipation in pollution reduction efforts	er pollution, the effects on local management and to encourage				
PI1.	Participate in Regional Public Education Efforts. Continue support and direct participation for public involvement and public education campaigns.	Participate with regional entities and cities in coordinating new and existing efforts to educate and inform the public about stormwater pollution problems, and to involve the public in developing stormwater pollution prevention programs. The County will provide support for the various public involvement and education activities provided by the Regional Coalition of Clean Rivers and Streams. The County will make staff and materials available as requested and practicable, and will grant volunteers and other clean-up groups access to the County right-of-way whenever feasible.	Public Affairs Office	The Regional Coalition for Clean Rivers & Streams focused this year's efforts to evaluate past public information/education marketing campaigns and develop new creative campaigns and test them on focus groups.	Notes of meetings and annual report.     Participation in the coalition and evaluation of campaigns.	On schedule. No modifications.
PI2.	Participate in Public Meetings. Present information to public regarding Multnomah County programs and regulation, particularly water quality program.	Educate the public about the County's role in protecting stormwater quality and the opportunities for public participation in pollution prevention as well as public involvement and education on stormwater pollution problems by attending public meetings.	Compliance	County staff attended Johnson Creek watershed council meetings.      The County sits on the Johnson Creek Interjurisdictional Committee and the Lower Willamette Agricultural Water Quality Management Area Local Advisory Committee which developed water quality rules for agricultural practices under the authority of Senate Bill 1010.	Notes and records of meeting attendance.	On Schedule.  No modification.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
PI3.	Promote public education and involvement in stormwater pollution prevention efforts through distribution of brochures and educational materials at County offices and public water quality meetings and maintenance of County Environmental Compliance Program website.	Provide information to educate and inform the public about stormwater pollution problems and to encourage public involvement in stormwater pollution prevention programs.	Compliance Land Use and Transportation Planning Sustainability	Salmon Festival 2006 where County staff presented water quality and fish passage challenges associated with the Transportation infrastructure and efforts to address. We unveiled a working watershed model which was well received and provoked many questions and discussions. The festival drew over 7,000 people.  Provided various water quality BMP fact sheets in County offices.	Estimate number of brochures and educational materials.     Consider most effective venues for distribution of materials.	On schedule.  No modifications.
PI4.	Training and education for County personnel about impacts of on-the-job activities to the MS4, and how to minimize impacts to receiving streams. Include erosion control seminars, stormwater maintenance activities, inspection practices, construction BMPs, and other activities for in-house and field personnel. Include training and education relating to water quality learned in conferences. In addition, educate County staff about the public's role in protecting water quality on a watershed-wide basis.	Through training of County staff, minimize/eliminate the impact of on-the-job activities to the MS4 and stormwater quality.	All Functional Groups	County Personnel participated in extensive educational activities throughout the permit year. Some of those events include:  • Land use and Transportation staff attended an ODOT sponsored Erosion Control Inspectors Training. Program included design, implementation, inspection, maintenance, and enforcement of erosion and sediment controls for construction activities in the right-of-way.  • Chemical Applicator Training including ESA and water quality awareness and liability. Two licensed applicators earned continued education units as required by the Oregon Department of Agriculture  • New staff orientation on stormwater management program and BMP reporting.  • Knotweed Working group semi annual meeting discussed potential treatments for Japanese Knotweed and other invasive species in the right-of-way and within riparian areas.  • Operations Level Spill Response Training – provided training for employees who respond to chemical spills. Involves the protection of people, environment and property  • Land Use Planners attended Flood Map Modernization Training.	Track attendance at water quality conferences, trainings, etc. Track educational material disseminated to staff. Keep records of trainings provided.	On schedule. No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
PI4.	(BMP PI4 report continued)  Training and education for County personnel about impacts of on-the-job activities to the MS4, and how to minimize impacts to receiving streams. Include erosion control seminars, stormwater maintenance activities, inspection practices, construction BMPs, and other activities for in-house and field personnel. Include training and education relating to water quality learned in conferences.	Through training of County staff, minimize/eliminate the impact of on-the-job activities to the MS4 and stormwater quality.	All Functional Groups	Toxics Reduction Strategy for government operations. Formed public advisory workgroup and hosted 9 meetings from May 2005 – January 2006. Staff cooperated with this workgroup to develop a work plan for toxics reduction in government operations beyond compliance.  Long-term goal developed. By using the Precautionary Principle as a framework, replace toxic substances, materials, or products of concern with viable least toxic alternatives by 2020. This "Toxics Reduction Strategy" was formally adopted by the Multnomah County Board - of Commissioners on May 11th, 2006 in Resolution 06-073.	Track attendance at water quality conferences/trainings, etc. Track educational material disseminated to staff. Keep records of trainings provided.	
PI5.	Implement the Multnomah County Adopt-A-Road program to promote public awareness of litter control and impacts to roads and waterways. Increase use of volunteers and track work by volunteers, including County inmate work crews.	Educate the public regarding the storm water pollution that results from littering. Work with citizen action programs to facilitate efforts to reduce littering.	Road Maintenance	BMP not implemented in the Portland permit area. However, many Adopt-A-Road events held in other areas of the County during the permit year to pick up trash, reduce access of solids to the stormwater system, and educate the public on the connection between clean stormwater and litter.     County roads operated and maintained by IGA with Portland.	• N/A	On schedule.  No modification
PI6.	Implement <u>Signage Programs</u> to Protect Stormwater Quality to promote public awareness of the importance of keeping pollutants out of storm drains as opportunities arise.	Reduce/eliminate the illicit discharges into street storm drains to protect water quality by reducing illicit discharges and impact by the public. Educate the public about drainage ways, impacts to streams from storm sewer systems, and watershed awareness.	Road Maintenance	BMP not implemented in the Portland permit area. County roads operated and maintained by IGA with Portland	• N/A	On Schedule.  No Modification.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
PI7.	Maintain Public Involvement during the CIP Process. Ensure public involvement during two-year update process for Capital Improvement Plan and Program that addresses stormwater quality impacts and issues. Identify NPDES drainage issues and remedies on Capital Improvement Plan project scope sheets. Include in project atlas during public review process	Improve public awareness of properly designed stormwater facilities' ability to remove pollutants and protect water quality.	Transportation Planning	A key component of the CIP was the identification of capital improvements in the urban unincorporated areas that include all modes of transportation and associated facilities, including stormwater treatment. The County participates in public meetings for the Regional Transportation Plan to discuss the County's projects including those that incorporate stormwater components.	Record involvement in public meetings through regular CIP process.	On schedule.  No modifications.
PI8.	Facilitate Public Reporting of Illicit Discharges including illegal dumping of pollutants, trash, or illegal fill (dirt/soil).	Control illicit discharges from illegal dumping to protect water quality.	Emergency Response Road Maintenance Bridge Maintenance Right-of-Way Permits	Emergency Response Coordinator responded to reports from local governments, Road Maintenance and Right-of-Way Inspector of illegal dumping within the right-of-way and at County facilities. Staff properly disposed of materials through RMCAT Environmental Services, Inc.  No reports of illegal dumping on Willamette River Bridges.	Keep records of how problems are being corrected.	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
Implem storm se	ions and Maintenance (OM). These activitions and maintenance praewers and other facilities to reduce pollutance storm sewer system.	actices for public streets, bridges,				
OM1.	Inspect and maintain the Storm Drainage System including inlets, catch basins, water quality facilities and stormwater conveyance system on a regular basis	Ensure that inlets, catch basins, sumps and stormwater conveyance system are maintained in a manner that reduces pollutants to the maximum extent practicable. Continue to review and revise operations and maintenance procedures as appropriate.	Road Maintenance	Catch basin storm filters inspected, maintained and replaced on Broadway and Burnside Bridges. The used filter cartridges are returned to the manufacturer for recycling.     Approximately 6 yards of road waste material was removed from Burnside Bridge and Broadway storm filtered catch basins.     Routine gutter cleaning and debris removal on Morrison Bridge     Routine cleaning of pits on Morrison and Burnside bridges.     Routine bridge maintenance includes clearing debris and flushing drains every three months to ensure drains are not plugged and possible overflow.	Review Field Logs to check that RMOM schedule and procedures have been followed.     Review the records on a semiannual basis to evaluate the effectiveness of current practices and to help locate priority areas that may require more attention. Identify these areas on maps for use in planning future operations.	On schedule.  No modifications.
OM2.	Conduct street sweeping to include scheduled sweeping, equipment review, and training on a regular basis. Revise and update schedule, equipment, and training as necessary.	The objective of the street sweeping program for county roads is to reduce materials on the roadway and impacts to the stormwater system. The County will continue to review and revise the program and schedule and make improvements as appropriate.	Road Maintenance	BMP not implemented in the Portland permit area. County roads operated and maintained by agreement with City of Portland.	Not Applicable	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
OM3.	Properly dispose of road waste material. Record amounts and location of material disposed. Test for disposal using an independent lab and record/file test results. Review different disposal procedures for street sweeping vs. Vactor pad materials. Continue to investigate feasibility of decant facility for County waste materials. Work cooperatively among County divisions to reduce water quality impacts of site handling, storage, and disposal areas for material collected during road maintenance activities. The County has adopted DEQ/ODOT Road Waste Management Practices.	The objective of the road waste disposal operations for county roads is to reduce materials on the roadway and impacts to the stormwater system. The goal is to identify and implement practices for disposal of road waste materials that protect water quality. Monitor if current outdoor storage activities are contributing sediments to stormwater runoff. Recommend practices to control discharges as needed.	Road Maintenance Emergency Response	County roads operated and maintained by agreement with Portland. Portland responsible for proper disposal of road waste materials on County roads.  Road waste materials removed from bridge catch basins were recorded and properly disposed of.	Review records and study results, implement recommendations as practicable.	On schedule.  No modifications.
OM4.	Evaluate anti-icing operations. Investigate the potential to reduce the use of sanding materials for seasonal anti-icing operations. Continue testing of alternative anti-icing methods and materials (e.g., CMA). Prohibit the use of salt or glycol on the roadways. Collect sanding material distributed during storm events as soon as feasible. Continue collection and recycling of sand throughout the County's portion of the permit area.	Reduce harmful effects of roadwa anti-icing activities and materials water quality by proper sand collection methods and by prohib the use of glycol and salt.		BMP not implemented in the Portland permit area. County roads operated and maintained by IGA with Portland.	Not applicable.	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
OM5.	Regulate truck hauling practices to minimize pollutant discharges. Review practices with field crews annually. Recommend revisions (if necessary) to limit occurrence of leaks, spills, or other releases. Continue to test and evaluate asphalt release agents for truck and tool cleanup, which use "environmentally-friendly" products.	Control discharges from truck hauling activities to the extent that they are impacting County right-of-way and/or the municipal separate storm sewer system.	Road Maintenance	Bridge and Road Crews are regularly briefed on proper hauling procedures.	Monitor number of problems, and response time to address observed problems.      Determine if occurrences of releases are occurring frequently or infrequently. Determine if problems are due to equipment, or due to personnel. Is more training needed?      Determine the potential water quality impacts of new products considered for use.	On schedule.  No modifications.
OM6.	Perform culvert maintenance by inspecting and maintaining culverts in ways that minimize impacts to water quality. Consider opportunities to retrofit culverts to provide better water quality treatment. Continue to maintain culvert inventories. Make distinction as to whether culverts are fish passage culverts and adhere to appropriate maintenance procedure.	Determine if the frequency of current operation and maintenance practices allows for reduction of pollutants to the maximum extent practicable. Improve and retrofit as needed.	Road Maintenance	BMP not implemented in the Portland permit area. County roads operated and maintained by agreement with Portland.	Not applicable.	On schedule.  No modifications.
OM7.	Conduct right-of-way and road shoulders maintenance in ways that avoid and prevent future adverse water quality impacts Continue review of current maintenance practices.	The purpose of this BMP is to control and reduce the amount of sediments discharged to the receiving waters via the right-of-way. Sediments attract and adhere to other pollutants (heavy metals, oil/grease) and increased turbidity/sedimentation on channel bottoms impairs water quality and fish habitat.	Road Maintenance	BMP not implemented in the Portland permit area. County roads operated and maintained by agreement with Portland.	Not applicable.	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
OM8.	Conduct ditch maintenance. Review frequency and timing of ditch cleaning in areas where sediment and/or debris tend to accumulate. Determine if the frequency and timing of current ditch maintenance practices allows for reduction of pollutants and minimizes the impact on ditch surface. (If not, recommend and implement improved frequencies, timing, and/or type of equipment to minimize damage to ditch bottom.) Using records, determine where improvements are needed to reduce discharges to ditches.	Control/reduce amount of sediments and pollutants discharged to the receiving waters. Sediments attract and adhere to other pollutants (heavy metals, oil/grease) and increased turbidity/sedimentation on channel bottoms impairs water quality and fish habitat.	Road Maintenance	BMP not implemented in the Portland permit area. County roads operated and maintained by IGA with Portland.	Not applicable.	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities			
investig	icit Discharges Control (ILL). These activities are designed to prevent, identify, vestigate, and if appropriate, control/eliminate any non-stormwater discharges into e municipal separate storm sewer system.								
ILL1.	Interagency coordination on spill response. Continue to work with regional HAZMAT teams on policy matters concerning water quality impacts. Continue cooperative agreements with other agencies to ensure spills are responded to and cleaned quickly. If necessary, clarify and/or improve procedures to ensure effective interagency coordination and rapid response.	Improve procedures to ensure effective interagency coordination and communication, and rapid response.	Emergency Response	<ul> <li>County coordinates with local jurisdictions on spill response when necessary.</li> <li>Aside from diesel spills, the County contracts with RMCAT to ensure that spills are responded to and cleaned quickly and safely.</li> <li>No hazardous spills were reported in the county's area of responsibility in the Permit area.</li> </ul>	Is representative participating? Copy notes of meetings for file.	Need to re-address – waiting on new County Emergency Response Director position to be filled. Person participating in this role is no longer with the County.			
ILL2.	Implement Spill response in County areas. Continue to manage the spill prevention and response program that reduces the frequency and impact of accidental non-stormwater discharges to the MS4. Revise County Road Maintenance Operation Manual (RMOM), if necessary, to include clear instructions for field personnel in the event of a spill. Improve use of absorbent materials for quick response to minor spills of oil or fluid. Keep records of incidents and response. Continue to coordinate response to appropriate incidents with cities.	Prevent spills to the maximum extent practicable. Respond to accidental non-stormwater discharges promptly to reduce the frequency and overall impact of spills to the stormwater system.	Emergency Response	<ul> <li>Field logs are used for recording spill events.</li> <li>Road and Bridge Maintenance Supervisors and lead staff carry spill response and containment materials onboard their vehicles.</li> <li>County Facilities equipped with Spill Response Kits.</li> <li>Annual Operations level Spill Response training was provided to Transportation staff.</li> <li>Crews responded to a minor vehicle accident on the Morrison Bridge. Absorbent booms and dams were placed to prevent antifreeze and oil from reaching scuppers.</li> </ul>	Review logs on an annual basis.     Review the RMOM as necessary to ensure revisions were made. Note evaluation in BMP file.	On schedule.  No modifications.			

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
ILL3.	Address spills from private truck haulers. Review reporting of and action for noticeable private truck hauling practices causing discharges to County roads and the stormwater conveyance system. Work with County inspection officers for immediate response.	Control discharges from private hauling activities to the extent that they are impacting the County right-of-way.	Road and Bridge Engineering  Right-of-Way Permits	<ul> <li>Right-of-way and engineering inspectors monitor and enforce spills and tracking of dirt on the right-of-way.</li> <li>The County provides information, open discussion and clarification of truck hauling practice issues in pre-construction conferences held for each construction project. Discussion of practices is encouraged throughout any active project.</li> <li>Contractors are required to self-monitor erosion discharge via the Oregon Department of Transportation (ODOT) Erosion Control Monitoring form turned in to the project manager weekly.</li> <li>Reviewed and approved erosion control plans are required from the contractor at contract start up. Project-specific concerns are addressed in the contract erosion control plan.</li> <li>County Engineering and Right-of-Way Inspector monitor implementation of Erosion Control Plan to ensure proper maintenance of BMPs.</li> </ul>	Construction inspectors monitor construction activities on a daily basis, with an emphasis on discharge control.     Review agency response to reports by county staff. Work with agency to improve reporting and response procedures.	On schedule.  No modifications.

Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
ILL4. Erosion control for County contractors. Implement requirements to control discharges from construction sites to ensure that construction practices do not release sediment and contaminants onto roadways or open space where they may be washed into storm drains or waterways. Continue to require erosion control measures in contract specifications. Continue to require cash deposits, performance-payment bonds, final inspections and other mechanisms to ensure compliance with permit requirements. Review erosion control permit requirements with contractors during projects. Inspect and review Erosion and Sediment Control Plans to ensure control of discharges. Continue pre- construction meetings to disseminate information about requirements to prevent damages during construction projects.	Assure that the design standards in place adequately address water quality issues throughout the permit area.	Road and Bridge Engineering Right-of-Way Permits	<ul> <li>Construction activities within the Permit area this year were limited to bridge surfaces.</li> <li>Erosion control is a standard bid item on construction projects.</li> <li>Contractors are required to self-monitor erosion discharge via the Oregon Department of Transportation (ODOT) Erosion Control Monitoring form turned in to the project manager weekly.</li> <li>Reviewed and approved erosion control plans are required from the contractor at contract start up. Project-specific concerns are addressed in the contract erosion control plan.</li> <li>County Inspectors monitor implementation of Erosion Control Plans to ensure proper maintenance.</li> <li>Right-of-Way continues to require a cash deposit to ensure ROW is not negatively impacted.</li> </ul>	Records kept of Erosion and Sediment Control Plan (ESCP) inspection activities.     Review contractor ESCP to ensure compliance.	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
ILL5.	Pollution control for County and contractors. Implement a program to reduce, eliminate or recycle discharges of all other pollutants (other than sediment) from road and bridge construction and related sites including county facilities (paints, solvents, metals, etc.). Establish or improve regulations or policy as necessary. Continue inspection as part of daily routine. Continue record-keeping system for reporting any incidents of pollutants or debris. Provide training program to staff to monitor for pollution control.	Eliminate/reduce discharge of all pollutants from construction sites which adversely impact stormwater and receiving water quality.	Transportation Program Sustainability	<ul> <li>Old waste paint from transportation projects was sorted and stored for proper disposal. If the material is still liquid it is sent for recycling as alternative fuel stock.</li> <li>Bridge maintenance staff regularly inspects, and replace if necessary, grease tarps on the Morrison Bridge. Grease tarps prevent grease and oil from entering the waterway. New grease tarps replace soiled grease tarps which are then recycled.</li> <li>Bascule span gutters are routinely cleaned of debris. Sediment control is used during cleaning procedure to keep fine sediment from discharging to river.</li> <li>Routine inspection and maintenance on the bridges includes hydraulic systems and gate gear boxes.</li> <li>Three cubic yards of debris was removed from the Morrison Bridge pits.</li> <li>Since 2001, the Multnomah County Sustainability Program has led County efforts to adopt sustainable internal government business operations that support a thriving environment, economy, and community. Major project areas include sustainable purchasing, green building, global warming, toxics reduction, commute options, and food policy. The program also coordinates the recycling program at county government facilities in partnership with the Multnomah County Facilities and Property Management Division.</li> <li>As part of the County's Toxic Reduction Strategy it initiated a requirement that all County Dental Clinics install mercury amalgam separators a pretreatment to the local sanitary system.</li> </ul>	Review annually, records kept by staff for the inspection and monitoring of construction sites.	On schedule. No modifications.
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	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
ILL6.	Identify and investigate Illicit discharges. Continue to implement a program to identify and investigate illicit discharges (illegal dumping of pollutants including trash, fill, oil, or toxic materials) to the storm sewer system. Report and follow up on reports by County staff when illicit discharges are discovered during the course of job duties.	Eliminate/reduce discharge of all pollutants from construction sites which adversely impact stormwater and receiving water quality.	Emergency Response Right-of-Way Permits Compliance Road Maintenance Bridge Maintenance	Illicit discharge inspections conducted during routine maintenance practices.     Stairways on all the Willamette River bridges are regularly cleaned to prevent trash and debris from entering the storm sewer system or waterway below.	Track follow up and inspection activities.	On schedule.  No modifications.
ILL7.	Identify and investigate sanitary discharges to the storm sewer. Continue to implement a program to identify and investigate sanitary discharges to the storm sewer system. Continue a reporting and follow up procedure for County staff to follow when a cross-connection or illicit connection is discovered during the course of job duties.	Identify and investigate any possible sanitary discharges in the storm system.	Right of Way Permits Bridge Maintenance Road Maintenance Compliance	Bridge Maintenance regularly inspects and maintains sanitary facilities on all Willamette River Bridge structures for proper operation.      County roads operated and maintained by IGA with Portland. Portland inspects for illicit connections during road maintenance activities.	Track inspections of the operation of the sewage holding facility for prohibited discharge.	On schedule.  No modifications.
discharg	evelopment Standards (ND). These activities ges and other water quality impacts associate opment during and after construction.					
ND1.	Coordinate transfer of land use planning authority from the County to the cities, which ensures continuous application of NPDES roles and responsibilities prior to transfer.	Much of the urban area is outside County jurisdiction as it has been annexed to Portland, Troutdale or Gresham. As this area is transfer the County will continue to coordinate to ensure continuous la use planning services including NPDES roles and responsibilities		No activity within the Portland Permit area during this permit year.	Track plans reviewed within the permit area where appropriate.	On schedule.  No modifications.
ND2.	Issue grading permits and hillside development permits per County zoning code.	Control/reduce amount of erosion and sediments discharged to the receiving waters. Negative charged clay particles attract and attaches to pollutants (heavy metals, oil/grease). Increased turbidity/sedimentation on channel bottoms impairs water quality and fish habitat.	Land Use Planning	Not Applicable in Permit Area	<ul> <li>Track permits issued in permit area.</li> <li>Track inspections and follow up of compliance.</li> </ul>	On schedule.  No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities		
ND3.	Enforce stream setback requirements and mitigation requirements for designated significant streams and identified waterways through Significant Environmental Concern and Willamette River Greenway permit reviews. Note this standard is for unincorporated areas of the County.	Preserve significant vegetated areas adjacent to identified water bodies to reduce stormwater runoff and the pollutants carried with it	Land Use Planning Compliance	Not Applicable in Permit Area.	Review compliance with conditions of permit.     Review annual number of complaints against enforcement actions, including voluntary compliance.	On schedule.  No modifications.		
ND4.	Regulate storm water quality and quantity. Review stormwater regulations, design standards, and criteria, as issued by the City of Portland and other jurisdictions, and consider for use as guidance to regulate both stormwater quality and quantity associated with new and redevelopment activities. Specifically in the Interlachen area, review new development permit applications for appropriate stormwater quality and quantity controls. Implement appropriate stormwater controls (e.g., pollution plates on inlets, storage facilities, filtration inlets) throughout the County area. Apply County flood development standards for all new public and private new and redevelopment.	Implement localized design standards to adequately address stormwater quality and quantity issues throughout the permit area. Promote safe and sustainable development within the regulatory floodplains and floodways as defined by the 100-year flood boundaries.	Land Use Planning Right-of-Way Permits Road Engineering Bridge Engineering	Transportation Right-of-Way Permits and Road Engineering continues to review driveway connection and associated drainage to the right-of-way. Where on site detention is not possible only that pre-development volume is permitted to discharge to the right-of-way.  Bridge Engineering retro fits, when possible, stormwater drainage facilities with water quality treatment during bridge rehabilitation projects. This year two additional treatment facilities were installed on the Burnside Bridge.	Record evaluation of new standards.      Track the percentage for permit applications reviewed by County engineering staff to indicate if the design standards are met.      Conduct plan checks to ensure drainage standards are used.	On schedule. No modifications.		
modific pollutan	Structural Controls (STR). These activities are designed to implement structural modifications (constructed facilities) to existing systems/development to reduce pollutants in discharges from the municipal separate storm sewer system.							
STR1.	Address water quality with new capital or roadway improvement projects. Ensure that any capital improvement or road construction project considers long-term water quality protection, where feasible. Review the plans, design, and	Ensure that water quality facilities, built as part of a drainage/flood control capital improvement project or road construction project apply appropriate design standards to reduce the discharge of	Road Engineering Bridge Engineering	Bridge Engineering initiated a significant Capital Improvement Project on the 80 year old Burnside Bridge this year. The project will replace the deck on the lift span as well as parts of the structure responsible for raising the deck for river traffic.	Track the number of stormwater treatment facilities installed as part of capital or road way improvement projects.  Keep records of	On Schedule No modifications		

	<b>Best Management Practice</b>	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities
	purpose of such stormwater quality treatment facilities.	pollutants from sites to the maximum extent practicable. Apply consistent practices in addressing water quality impacts.			design/permit reviews.	
STR2.	Retrofit existing facilities for water quality benefit. When major repair is needed, develop and implement retrofit of existing public drainage and flood control facilities (sumps, retention basins, drainage channels, bioswales, trash racks, sediment trap devices, etc.) where practicable to improve water quality. Install new systems according to current standards.	Continue sump replacement and retrofit of flood control facilities to improve pollutant reduction aspects of existing drainage and flood control facilities.	Road Engineering Bridge Engineering	Bridge Engineering installed additional water quality treatment catch basins on the Burnside Bridge.	Record retrofit progress.	On Schedule. No modifications.
STR3.	Inventory and map the County storm sewer system. Improve knowledge of the County system to facilitate identification of problem areas and implementation of control programs in strategic locations. Allocate staff resources to ensure continued map updates.	Ensure County storm sewer mapping is accurate. This BMP supports the MS4 by providing valuable information allowing the County to effectively accomplish other elements of the NPDES permit requirements.	Road Engineering Bridge Engineering Road Maintenance	No activity within the Permit area during this permit year.	Keep records of map updates.	On schedule No modifications.

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities				
Natural System (NS). These activities are designed to help preserve and restore the natural environment/functions to reduce pollutants in discharges from the municipal separate storm sewer system.										
NS1.	Conduct vegetative management activities. Continue to implement vegetation management procedures as in the Road Maintenance and Operations Manual (RMOM) to assure that water quality impacts are addressed. Include annual Oregon Department of Agriculture and EPA certification for pesticide applicators. Selectively use pesticides wherever applicable. Continue to improve application practices and train personnel to reduce pollutants to the maximum extent practicable.	Implement existing/improved practices to ensure that pollutants discharged from and into County rights-of-way (roads, ditches) are reduced to the maximum extent practicable.	Road Maintenance Bridge Maintenance	Bridge section continues to maintain vegetation appurtenant to bridge abutments when necessary.	Review activities annually and determine if activities are conducted in accordance with the Road Maintenance Operations Manual. Review activities annually and determine the success of integrated vegetation management techniques. Keep records of employees who are certified pesticide applicators including continuing education units completed.	On schedule.  No modifications.				
NS2.	Encourage the use of native vegetation. Promote the use of native vegetation on public and private projects. Utilize existing native plant lists for development review. Encourage use of self–sustaining native vegetation as well as Green Street Design practices which reduces the need for pesticides, fertilizers and water.	Reduce pesticide use and encourage use of self-sustaining vegetation as means of improving water quality.	Land Use & Transportation Planning Bridge Engineering & Maintenance Road Engineering & Maintenance	<ul> <li>Limited applicability in Permit area only in bridge right-of-way. The County no longer has planning or zoning authority within the permit area.</li> <li>No activity of this BMP in the permit area.</li> </ul>	Implementation monitoring and compliance with vegetation plan.      Track number of permitted projects.	On schedule. No modifications.				

	Best Management Practice	Overall Intent, Goals and Objectives	Functional Group(s) for BMP Implementation	Key Accomplishments for Permit Year 12	Assessment of Controls	Proposed Modifications to Schedule or Activities				
Program Management (PM) These activities are designed to ensure effective program management, coordination and reporting.										
PM1.	Stormwater program management. Develop and manage the Stormwater Program to ensure compliance with the NPDES permit. Implement cost- effective, practical BMPs and activities that are designed to reduce stormwater pollution to "the maximum extent practicable," given the County's unique jurisdiction.	Develop and manage the County's stormwater program to ensure compliance with the NPDES permit. Develop and implement cost-effective, practical BMPs and activities that are designed to reduce stormwater pollution to the "maximum extent practicable."	Compliance	Utilized e-mail to provide program updates to functional group members. Messages incorporated regulatory updates of Clean Water Act; TMDL and NPDES programs, and Underground Injection Control as well as a reminder to report on their assigned BMPs. by using the County's electronic tracking system.      Attended co-permittee meetings to discuss implementation of County NPDES programs.	Keep records of water meetings attended.     Evaluate sufficiency of BMP program reporting by functional groups.	On schedule.  No modifications.				
PM2.	Assess and evaluate the stormwater BMP program. on a continuous basis assess and evaluate the BMP program to ensure use available resources, and make recommendations for improvements in program implementation tasks. Designate County staff to compile/summarize records for each BMP. Utilize BMP record-keeping system for evaluation of progress at regular work sessions with Stormwater Implementation Team.	Assess and evaluate program to ensure the best use of available resources and make recommendations for continuous improvement.	Compliance	<ul> <li>Managed record keeping system for use by the County staff to track work done in the field, meetings attended, etc.</li> <li>Compliant with Oregon Department of Agriculture pesticide/herbicide application protocols.</li> </ul>	Keep records of work sessions, including training, evaluation process and results.	On Schedule. No modifications.				
PM3.	Maintain field records. Continue to keep field records of maintenance activities Review annually and update as needed the Road Maintenance Operations Manual (RMOM), including procedures regarding water quality impacts to receiving streams based on the records of maintenance activities.	Use record keeping to track performance of BMPs overtime and to determine level of water quality protection provided. Adjust Stormwater Program and associated guidance manuals through adaptive management based on results reported in annual reports.	Bridge Maintenance Road Maintenance	Completed activity logs are compiled and entered into the Road Information Systems database. Additionally, more narrative is provided on Report of Event forms and entered in the Environmental Management database	Staff review of field logs.	On schedule.  No modifications.				

### **Multnomah County**

#### **Stormwater Management Program Budget**

Program activity within the Portland Permit area for Permit year twelve is primarily associated with the Department of Community Services – Land Use and Transportation Program

Bridge Maintenance expenditures and anticipated budget allocations within the Portland Permit area incorporate items including, drainage maintenance, right-of-way, surface management, vegetation management, general administration, emergency road hazard response and training.

Bridge Engineering expenditures and anticipated budget allocations within the Portland Permit area incorporate drainage studies and reviews, environmental compliance review, as-built plan drafting and inventory, GIS database entry, and training.

Multnomah County Road Maintenance, through an Intergovernmental Agreement, contracts with the City of Portland to maintain and operate County owned roads consistent with applicable operations and maintenance best management practices as set forth in the City of Portland Stormwater Management Plan of the 1993 City of Portland National Pollution Discharge Elimination System Municipal Stormwater permit.

Road Engineering continues to retain authority to review access and impacts to the right-of-way including stormwater discharge when such discharges cannot be retained on site. Discharge from the undeveloped parcel is calculated and only that volume is permitted for access to County road drainages. There were only a handful of reviews conducted during permit year twelve.

Transportation Planning within the Portland Permit area includes development review in the unincorporated pockets where such development has the potential to access or impact the county right-of-way.

Funding sources for stormwater program expenditures are derived from the County general fund for the Land Use Planning program. The Transportation Division receives funding from the State Highway Trust Fund: revenue from this source include the State gasoline tax, weight/mile tax on trucks, and vehicle registration fees, which are constitutionally dedicated to road related issues.

The table below outlines program expenditures for PY 12 (Fiscal Year 2006-2007).and provides the anticipated budget for PY 13 (Fiscal Year 2007-2008).

Portland Permit Area Budget

Program Area	PY 12 Expenditures	PY 13 Anticipated Budget
Environmental Compliance	\$61,130	\$53,254
Bridge Maintenance/Operations	\$2,182,257	\$2,679,075
Bridge Engineering	\$18,959,649	\$24,264,382
Road Maintenance IGA	\$172,657	\$158,000
Road Engineering	\$45,584	\$52,955
Transportation Planning	\$2,992	\$2,244

### **Multnomah County**

### **Monitoring Summary**

The City of Portland performs this component of the Stormwater Management Plan within the Permit Area. Please refer to the City of Portland annual report for a summary of data including monitoring data accumulated throughout the reporting year, and identification of water quality improvements of degradation.

### **Overview of Land Use Changes**

The Permit under Schedule B(2)(a)(viii) of Permit No. 101315 provides; "An overview, as related to MS4 discharges, of concept planning, land use changes and new development activities that occurred within UGB expansion areas during the previous year, those forecast for the following year, and an evaluation for consistency with the requirements of Schedule D(2)(c)(i)(2)." The county has not had any land use changes that apply to the Portland Permit Area during this Permit Year.

Multnomah County Attorney's Office 501 S.E. Hawthorne Blvd., Suite 500 Portland, Oregon 97214

PHONE: 503.988.3138 FAX 503.988.3377



### **MEMORANDUM**

To: File

FR: Sandra Duffy, Assistant County Attorney

DA: September 6, 2007

RE: Demonstration of Continued Legal Authority to Implement the Programs Outlined in the County

Stormwater Management Plan

I have been asked by the Environmental Compliance Division to review the county's legal authority to implement the programs outlined in the stormwater management plan. My review included Chapters 11, 15, and 27 as those provisions pertain to stormwater issues.

I have reviewed these code provisions and have determined that Multnomah County has adequate legal authority as required by 40 CFR 122.26(d)(2)(i). Attached is a table that summarizes these requirement and the applicable Multnomah County Code provisions.

**Multnomah County** 

Multnoman County				
Adequate Legal Authority				
Requirement	Code Authority			
Control through ordinance, permit contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.	The County does not have industrial zoning within the permit area. However, MCC 27.764; MCC 27.768 provide general discharge regulations and limitations. MCC 11.15 (erosion control) provides the ability to require discharger to implement source controls. MCC 15.225- MCC 15.235 prohibits dumping and nuisances generally. MCC 37.0945 provides authority to enforce the prohibition of discharge of pollutants into waters of the state that violate water quality standards.			
Prohibit through ordinance, order or similar means, <i>illicit discharges</i> to the municipal separate storm sewer.	MCC 27.773 provides for the prevention or termination of an illicit discharge to the storm sewer system. MCC 27.781 requires separation of the sanitary sewer system from the storm sewer system. MCC 15.225- MCC 15.235 prohibits dumping and nuisances generally.			
Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of <i>spills</i> , <i>dumping or disposal of materials other than storm water</i> .	MCC 15.235 prohibits dumping and nuisances generally. MCC 27.772 and MCC 15.225 prohibit spills or dumping of any material other than stormwater to the municipal separate storm sewer.			
Control through interagency agreements among the co-permittees the contribution of pollutants form one portion of the municipal system to another portion of the municipal system.	A cooperative monitoring and stormwater management program exits between Multnomah County and the City of Gresham formalized in June 2004. Intergovernmental Agreements related to County roads and associated drainage exist between the County and the cities of Fairview and Gresham.			
Require compliance with conditions in ordinances, permits, contracts or orders.	MCC 37.0910, 18.450, 27.773 and MCC 15.230 provide for the enforcement of permits, ordinances or orders.			
Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.	MCC 37.0910, 18.450, and MCC 15.230 provide for the investigation and enforcement of permits, ordinances or orders.			

### Section IV PORT OF PORTLAND



# National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System Permit Permit Number 101314

ANNUAL REPORT NO. TWELVE Fiscal Year 2006-2007 (July 1, 2006 – June 30, 2007)

Prepared for: **Oregon Department of Environmental Quality** 

October 31, 2007

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### **APPENDICES**

Appendix A Summary of Pesticides and Fertilizers Purchased 2006-2007

#### 1.0 INTRODUCTION

The Oregon Department of Environmental Quality (DEQ) regulates stormwater runoff from Port of Portland (Port) property through the Municipal Separate Storm Sewer System Discharge Permit No. 101314 (MS4 Permit) and other National Pollutant Discharge Elimination System (NPDES) stormwater permits, including the 1200-Z, 1200-COLS and 1200-CA permits. This annual report describes activities specifically related to implementation of the Port's MS4 Permit.

The Port and Multnomah County are co-permittees on the City of Portland's MS4 Permit. As required under Schedule B(2)(a) of the MS4 Permit, each co-permittee must submit an annual report, summarizing accomplishments and implementation of the Municipal Stormwater Management Plan (SWMP).

This annual report (number 12) documents activity from July 1, 2006 to June 30, 2007 related to the Port's stormwater management efforts under the MS4 Permit and SWMP. Each section of the report, with the exception of Sections 2.0 and 3.0, corresponds to the specific permit requirements in Schedule B(2)(a). The report emphasizes efforts and activities associated with individual Best Management Practices (BMPs) from the Port's SWMP (summarized in Section 7.0).

# 2.0 DESCRIPTION OF PORT OF PORTLAND PERMIT AREA AND RESPONSIBILITIES

The Port of Portland owns approximately 5,560 acres within the City of Portland (City) Urban Services Boundary. Port property is divided into three primary operating areas: Portland International Airport (PDX), Marine terminals (Terminals 2, 4, 5 and 6); and the following industrial parks: Swan Island, Rivergate, Mocks Landing, Port Center and Portland International Center. The Marine and Industrial Development (MID) Department manage both marine terminals and the industrial parks.

The Port also owns a number of undeveloped properties including wetland mitigation sites and part of West Hayden Island. The Marine terminals and industrial parks are partially occupied by tenants, and the Port manages those tenant properties through lease agreements. Approximately 21% of Port property within the USB is leased to tenants. A more detailed description of the Port operating areas is included in Section 2.1.

Property owned by the Port is primarily zoned for commercial and industrial use. Many of these areas have regulated industrial activities that require DEQ-issued NPDES general industrial stormwater permits. Some of the industrial permit requirements overlap with the MS4 Permit requirements. PDX and portions of Terminal 2 and 6 operate under DEQ-issued general industrial stormwater discharge permits (1200-Z and 1200-COLS permits). In addition, some tenants occupying portions of Terminals 2, 4, 5, and 6, and the industrial parks also operate under DEQ-issued general industrial stormwater discharge permits. For the areas operating under general industrial stormwater permits, several of the MS4 Permit requirements would be

addressed through implementation of the industrial stormwater permits Stormwater Pollution Control Plans (SWPCPs). Section 2.2 details the Port's MS4 Permit responsibility.

#### 2.1 Summary of Port of Portland Permit Area

#### 2.1.1 Portland International Airport

PDX comprises an area of approximately 2,865 acres and is located in northeast Portland between the Columbia River and the Columbia Slough. The facility is owned and operated by the Port, and numerous aviation-related tenants also conduct operations at the facility.

Stormwater runoff from the PDX property discharges into the Columbia Slough through a series of 11 major outfalls authorized under the NPDES 1200-COLS General Industrial Stormwater Discharge Permit, issued and administered by DEQ. The 1200-COLS Permit is structured to specifically address Columbia Slough Total Maximum Daily Load (TMDL) parameters, including dissolved oxygen (DO), pH, nutrients, bacteria, and toxics. With the exception of the Oregon Air National Guard, which has its own 1200-COLS Permit, PDX tenants whose operations require stormwater permits have the option of being co-permittees with the Port under the Port's (PDX) 1200-COLS Permit. In addition to the 1200-COLS permit, PDX also holds an NPDES Construction Dewatering Waste Discharge Permit, a City of Portland Pretreatment Permit, a Water Pollution Control Facility (WPCF) 1700-B Wastewater Permit, and an NPDES Anticing/Deicing Waste Discharge Permit. These additional permits and associated BMPs are not discussed in this report.

#### 2.1.2 Marine Terminals

The Port has four active shipping terminals that are managed by the Port's MID Department. The terminals collectively occupy approximately 941 acres along the Willamette (Terminals 2, 4, and 5) and Columbia (Terminal 6) rivers. These areas handle the shipping, receiving, and temporary storage of finished goods, agricultural products, and raw materials.

Because Terminal 6 discharges into two water bodies, the Columbia River and the Columbia Slough, the Port holds both a 1200-Z (Columbia River) and 1200-COLS (Columbia Slough) general industrial stormwater discharge permit for Terminal 6. The Port also holds a 1200-Z Permit for a portion of Terminal 2. A number of properties located at Terminals 2, 4, 5 and 6 are leased to tenants. Some of these tenants also hold industrial permits issued by DEQ and administered by the City. Unlike PDX, tenants and the Port are not co-permittees.

#### 2.1.3 Industrial Parks

The Port's MID Department manages the Port-owned industrial parks, including those at Swan Island, Port Center, Mocks Landing, Rivergate, Willbridge Terminal and Portland International Center (PIC), totaling approximately 1,623 acres. One industrial park tenant holds a 1200-Z Permit issued by DEQ and administered by the City.

#### 2.1.4 Undeveloped Properties

The Port's MID Department manages approximately 816 acres of undeveloped property within the City's Urban Services Boundary. Stormwater management for the undeveloped properties that discharge into the Port's municipal separate storm sewer system is conducted under the Port's MS4 Permit.

#### 2.2 Summary of Port of Portland MS4 Permit Responsibility

Many of the requirements of the general industrial stormwater discharge permits overlap with requirements of the MS4 Permit. A large proportion of the area included in the Port's MS4 permit boundary is also regulated by these industrial stormwater permits, which have been issued to either the Port of Portland or to tenants.

The City of Portland is the lead permitee on the MS4 permit. The City regulates stormwater on a city-wide basis with some implementation overlapping with the Port's MS4 service area. The Port and City coordinate permit management activities through an intergovernmental agreement.

Because of this complex relationship between the Port's management of stormwater through the Port's MS4 Permit, the City's overlapping stormwater management activities, and DEQ's regulation of stormwater on some Port property through industrial or construction stormwater permits, the Table of Permit Responsibilities (Table 2-1) was developed as part of the Port's SWMP to show how MS4 Permit requirements align with the City's activities and industrial stormwater permit requirements and stormwater management activities conducted by the Port or Port tenants. The table from the 2006 SWMP is included in the annual report for convenience.

The Table of Permit Responsibilities lists the permit and SWMP requirements along the left hand column. Responsibility descriptions for each MS4 permit requirement are split into two categories: (1) Port MS4 permit service areas that do not have industrial stormwater permits (1200-Z or 1200-COLS permits), and (2) Port MS4 permit service areas where the Port or its tenant has a general industrial stormwater permit (1200-Z or 1200-COLS permits). The two responsibility categories are further split between tenants and Port operations. For some tenants and Port operating areas (Terminals 2 and 6 and PDX) with an industrial stormwater permit, some of the MS4 permit requirements related to specific activities are addressed through implementation of the industrial stormwater permits. MS4 permit requirements that are addressed through implementation of the industrial stormwater permit requirements are shown shaded gray on Table 2-1. In addition, some permit requirements do not apply to the Port as they are covered within the Port's jurisdiction by the City's activities. These requirements are also shaded in gray on Table 2-1. Areas left unshaded on Table 2-1 are addressed by BMPs in the Port's 2006 SWMP. The unshaded areas list the specific BMPs that meet the permit requirements.

Section 7.0 of this annual report outlines the BMPs listed in the Port's 2006 SWMP and specifies those parties responsible for implementation of tasks required to meet the goal of the BMP. In addition, Section 7.0 describes the various activities that the Port has conducted during the permit year to address the specific tasks under each BMP.

TABLE 2-1. Port of Portland MS4 permit Requirements and Responsibilities

TABLE 2-1. Port of Portland MS4 permit Requirements and Responsibilities				
MS4 permit	MS4 Service Areas Not Covered Under		MS4 Service Areas With Industrial	
<b>SWMP Requirements</b>	Industrial Stormwater Permits		<b>Stormwater Permits</b>	
	Tenants Port Operations		Tenants	Port Operations
		(Terminals and		(Airport, Terminals
		<b>Industrial Parks</b> )		(T2 and T6))
Schedule B(1)(a-d) Monitoring Component F	Requirements			
The Port must assist with monitoring efforts			City of Portland have a jo	
in conjunction with requirements as stated	conducted by	y the City to meet the rec	quirements specified under	Schedule B.
in Tables B-1 and B-2, Schedule B(1)(b)(i-				
vi), Schedule B(1)(c)(i-ii), and Schedule				
B(1)(d).				
Schedule D(2)(c)(i) Implement structural and	source control measures f	or existing and new resid	dential and commercial are	eas.
1. Maintenance activities and maintenance	BMP: Implement a Stor		Covered under 1200-Z	Covered under 1200-Z
schedule for structural controls.	Cleaning and Maintenan	ce Program.	and COLS permits <sup>1</sup> -	and COLS permits -
			Schedule A.2.b.iii	Schedule A.2.b.iii
			(1200-Z) and Schedule	(1200-Z) and Schedule
			A.2.c.iii (1200-COLS)	A.2.c.iii (1200-COLS)
2. Planning procedures to control pollutant	The City of Portland is responsible for implementing development standards for water quality			
discharges from areas of new and		structura	al controls.	
redevelopment.				
3. Practices for operating and maintaining	The City of Portland is responsible for operation and maintenance of the public right-of-way.			
streets.				_
	BMP: Implement a Stre	et and Vehicle Maneuve	ring Area Cleaning and Ma	aintenance Program.
	TI CI AD 1			
4. Retrofitting flood control facilities.	The City of Portland manages water quality improvements on a master planning level.			
5. Monitor landfills.	The Port does not have any operating or closed landfills within its jurisdiction.			
6. Program to reduce	BMP: Limit Landscape Maintenance Activities Impact on Stormwater.			
pesticides/herbicides/fertilizers.	BMP: Require Appropriate Training and Licensing for Pest Management Activities.			
	BMP: Implement a Tenant BMP Program.			
Schedule D(2)(c)(ii) Detect and remove illicit	r			
1. Program, including inspections to	BMP: Implement the Illicit Discharge Detection and Elimination Program.			
eliminate illicit discharges.				
2. On-going field screening program.	BMP: Implement the Illicit Discharge Detection and Elimination Program.			

MS4 permit MS4 Service Areas Not Covered Under MS4 Service Areas With Industrial **SWMP Requirements Industrial Stormwater Permits Stormwater Permits** Part Operations

	Tenants	Port Operations	Tenants	Port Operations	
		(Terminals and		(Airport, Terminals	
		Industrial Parks)		(T2 and T6))	
3. Field screening follow-up investigations.	Field screening follow-up investigations. BMP: Impleme1nt the Illicit Discharge Detection and Elimination Program.				
4. Spill prevention and response.	BMP: Implement a Spil	·		Covered under 1200-Z and COLS permits –	
	Port Operated Property.		Schedule A.2.b.ii (1200-Z) and Schedule A.2.c.ii		
	BMP: Implement a Spil	1 Response Training	(1200-COLS)		
	Program.				
5. Promote public reporting of illicit	BMP: Implement Public	c Education and Public	Spill response activities address employee		
discharges.	Reporting Measures to F	Protect Stormwater	reporting and are covere	d under 1200-Z and	
	Quality.		COLS permits – see abo		
6. Public education re: proper disposal of	BMP: Implement Public		Covered under 1200-Z and COLS permits –		
toxic materials.	Reporting Measures to F	Protect Stormwater	Schedule A.2.b.i [3] (1200-Z) and Schedule		
	Quality.		A.2.c.i [3] (1200-COLS)		
	BMP: Implement a Tenant BMP Program.				
	7. Control infiltration from sanitary sewers. The City of Portland is responsible for sanitary sewers City-wide.				
Schedule D(2)(c)(iii) Monitor pollutants from	landfills and industrial fa	cilities.			
1. Industrial inspection program.	1. Industrial inspection program. BMP: Implement an Industrial Inspection Program.				
2. Industrial monitoring program.	The IGA between the Ci	ity of Portland and Port co	ontains some industrial	Covered under 1200- Z	
	monitoring elements. T	he City of Portland curren	ntly collects and	and COLS permits –	
		elect permitted industries		Schedule B.1 and B.2	
	storm events at a select i	industrial outfall to evaluate	ate industrial program		
	effectiveness.				
	Additionally, the Port uses accumulated monitoring information from the City of Portland to				
	conduct individual, site-specific investigations. The Port also monitors industries suspected of				
	<u> </u>	ult of illicit discharge inv	estigations.		
Schedule D(2)(c)(iv) Develop a program to implement and maintain construction site BMPs.					
1. Procedures for site planning to address	If not covered by a	Covered under the	If not covered by a	Covered under the	
water quality.	1200-C Permit, then	Port's 1200-CA	1200-C Permit, then	Port's 1200-CA Permit	

1. Procedures for site planning to address	If not covered by a	Covered under the	If not covered by a	Covered under the
water quality.	1200-C Permit, then	Port's 1200-CA	1200-C Permit, then	Port's 1200-CA Permit
2. Requirements for construction site	covered under the City	Permit	covered under the City	
BMPs.	of Portland's erosion		of Portland's erosion	
3. Procedures for inspection and	control ordinance.		control ordinance.	
enforcement.				

MS4 permit	MS4 Service Areas Not Covered Under		MS4 Service Areas With Industrial	
SWMP Requirements	Industrial Stormwater Permits		<b>Stormwater Permits</b>	
	Tenants	Port Operations	Tenants	Port Operations
		(Terminals and		(Airport, Terminals
		<b>Industrial Parks</b> )		(T2 and T6))
4. Education/training for construction site	BMP: Provide Erosion Prevention and Sediment Control Training for Construction Inspectors			
operators.				

#### Notes:

Areas shaded in gray are MS4 Permit requirements that are not specific Port responsibilities under the MS4 Permit because the requirements are either covered by the City of Portland, or are covered under an industrial stormwater permit.

Areas unshaded are the responsibility of the Port and covered by the Port's SWMP BMPs.

<sup>&</sup>lt;sup>1</sup> Maintenance may be conducted by the Port as agreed upon in tenant leases.

#### 3.0 PORT OF PORTLAND ORGANIZATIONAL STRUCTURE

The Port's Environmental Affairs Department is responsible for administering the MS4 Permit and the SWMP. The Environmental Affairs Program Manager serves as the MS4 Permit Manager. Staff from the Marine and Industrial Development (MID) Department and the Aviation Department are responsible for implementing Port environmental programs to ensure permit compliance. As a means of coordinating Port-wide programs and policies, Environmental Program Managers regularly meet with Port operating area staff.

The MID Department was reorganized in 2006-07 and consolidated the Marine and Properties Development departments under one department and director. Marine Facilities Maintenance (MFM) staff and Properties Maintenance staff are part of the MID Department. One means of coordination between Environmental Affairs and the operating areas is the Water Resources Coordination Group (WRCG). The WRCG includes environmental staff from Environmental Affairs, Legal, Aviation, Marine, MID and Engineering. This group meets monthly and is responsible for coordination on Port-wide stormwater policy issues, permit matters, training, and communication. The Environmental Affairs Program Manager serves as the lead for the WRCG.

Operating areas with general industrial stormwater discharge permits are required to prepare, update and implement the SWPCPs for their facilities. PDX Environmental staff prepares, updates, and implements the PDX SWPCP in conjunction with the co-permittees, and Marine Environmental staff prepares, updates, and implements the SWPCP for Terminals 2 and 6. Tenants with industrial stormwater discharge permits are also required to prepare, maintain and implement SWPCPs. The City (DEQ's agent) coordinates directly with Port tenant permit holders.

#### 4.0 STORMWATER EXPENDITURES

The Port has two primary sources of income: (1) Portland International Airport (PDX); and (2) Marine/Other. PDX resources are derived primarily from charges to passengers and cargo airline customers, airport parking, rental car revenue, passenger facility charges, Federal grants and tenant fees. PDX resources are restricted by bond ordinances and Federal Aviation Administration regulations for exclusive use at PDX.

Resources for Marine/Other are primarily derived from fees, charges and leases with Marine customers, leases with tenants of the Port's industrial parks, sales of property at the industrial parks, revenues from the U.S. Army Corps of Engineers (USACE) for dredging services, and property taxes.

Port stormwater expenditures are distributed among six departments: MID, Aviation, Engineering, Information Technology (IT), Legal and Environmental Affairs. Expenditures include Port staff salary (including benefit costs), contractor and consultant fees, stormwater infrastructure costs, City of Portland stormwater fees, stormwater training activities, and stormwater outreach materials.

The MID Department spent approximately \$878,967 in fiscal year 2006-07 on stormwater expenditures and estimates that expenditures for 2007-08 will be approximately \$896,150. The Port's Aviation Department (PDX) spent approximately \$2,506,998 on stormwater related expenses in fiscal year 2006-07, and plans to spend approximately \$2,589,480 for fiscal year 2007-08. Stormwater expenditures for the Port's Engineering Department totaled approximately \$611,040 for fiscal year 2006-07, and plans to spend approximately \$871,040 for 2007-08. The Environmental Affairs Department spent approximately \$140,108 for stormwater related expenses in 2006-07, and projects that it will spend approximately \$274,667 in 2007-08. The total estimated 2006-07 stormwater expenditures by the Port were \$4,154,667 and the estimated total for 2007-08 is \$4,649,977.

Table 4-1. Summary of Port of Portland Stormwater Expenditures

Department	Estimated 2006-07 Stormwater Expenditures	Estimated 2007-08 Stormwater Expenditures
Marine and Industrial Development	\$878,967	\$896,150
Aviation	\$2,506,998	\$2,589,480
Engineering	\$611,040	\$841,040
IT	\$8,320	\$8,320
Legal	\$9,234	\$10,320
Environmental Affairs	\$140,108	\$274,667
Total	\$4,154,667	\$4,649,977

# 5.0 DEMONSTRATION OF CONTINUED LEGAL AUTHORITY TO IMPLEMENT THE PROGRAMS OUTLINED IN THE SWMP

The Port has authority to implement programs outlined in the SWMP through ordinance, permits, and contracts.

The Port has statutory authority to enact ordinances to regulate stormwater sewers that it owns, operates, maintains, or controls. On March 11, 1992, the Port Commission adopted Ordinance No. 361, which provides the Port with legal authority over persons in possession of land owned by the Port. Ordinance No. 361 prohibits such persons from making, causing, or allowing an illicit discharge into a storm sewer owned or operated by the Port. Section 4 of the Ordinance requires written permission from the Port before connection to a Port storm sewer. Section 5 of the Ordinance authorizes the Port to inspect the land and storm sewers for violations of the Ordinance or applicable law that governs the conveyance or disposal of stormwater. In addition, the Ordinance provides the Port with authority to control the contribution of pollutants to storm sewers owned or operated by the Port; the quality of stormwater discharged from the sites of industrial activity on land owned by the Port; and the discharge to storm sewers owned or operated by the Port of pollutants from spills, dumping, or the disposal of materials other than stormwater.

In addition to the Ordinance, the Port has legal authority to control contribution of pollutants to the municipal storm sewer through contracts with its tenants. The lease agreements require the lessees to comply with the Port's MS4 Permit. Where appropriate and necessary, the Port has also entered into stormwater agreements to help control the contribution of pollutants to Port storm sewers. Some properties also have separate stormwater permits, with the Port and tenants as co-permittees. Through these regulatory and contractual mechanisms, the Port is working with tenants and users of Port facilities to implement and evaluate best management practices that will control the contribution of pollutants to Port storm sewers.

#### 6.0 STORMWATER MONITORING

The monitoring requirements of the Port's MS4 Permit have been divided into two components: program monitoring and environmental monitoring. Program and environmental monitoring activities are established in order to meet the following requirements from the MS4 Permit:

- i) Determine the status of implementing the components of the SWMP;
- ii) Evaluate the effectiveness of BMPs for specific source controls;
- iii) Evaluate the source of specific pollutants;
- iv) Assess the chemical, biological, and physical effects of MS4 runoff on receiving waters;
- v) Characterize MS4 runoff discharges; and
- vi) Evaluate long-term trends in receiving water quality associated with storm water discharges.

A description of each monitoring effort is provided below.

#### 6.1 Program Monitoring

The Port's program monitoring activities are described as performance measures in their most recent SWMP, dated May 1, 2006 and approved by DEQ on July 31, 2006. The performance measures are specific indicator metrics that help assess the relative effectiveness of BMPs. The performance measures associated with various Port BMPs are provided in the SWMP, Tables 7-1 through 7-5.

#### **6.2** Environmental Monitoring

The Port conducts environmental monitoring activities for their MS4 Permit through an intergovernmental agreement (IGA) with the City. The Port's Environmental Stormwater Monitoring Program, originally submitted to DEQ in 1998, defines the Port's approach to meeting the MS4 Permit monitoring requirements. The IGA, established in 1998, and amended in 1999, articulates how the Port shares costs with the City for a variety of monitoring efforts including land use based monitoring, non-stormwater discharge monitoring, and BMP effectiveness monitoring.

#### 6.3 Additional Stormwater Monitoring Activities

The Port collects and submits additional stormwater monitoring data to DEQ as required by the Port's various NPDES permits. Data collected for these permits is not included in the MS4 Permit annual report, but is available through DEQ upon request.

Stormwater sampling at PDX and Terminals 2 and 6 is required for general industrial stormwater permit compliance (1200-Z and 1200-COLS permits). Monitoring related to these industrial permits is not conducted to address a specific MS4 Permit requirement and thus is not submitted for compliance with the Port's MS4 Permit. However, the monitoring provides useful data about Port industrial properties. Data resulting from the stormwater sampling has been and may continue to be useful for understanding water quality impacts from these different types of industrial land uses.

The Port submitted stormwater monitoring data to DEQ for the following industrial stormwater discharge permits:

- NPDES 1200-COLS Industrial Stormwater Discharge Permits, DEQ File Nos. 107220 and 111492 (PDX and Terminal 6, respectively)
- NPDES 1200-Z Industrial Stormwater Discharge Permit, DEQ File No. 103594 (Terminal 6)
- NPDES 1200-Z Industrial Stormwater Discharge Permit, DEQ File No. 114024 (Terminal 2)

#### 7.0 ACCOMPLISHMENTS FOR PERMIT YEAR TWELVE (2006-07)

#### 7.1 Introduction

The Port's 2006-07 MS4 Permit annual report content and format is based on the SWMP submitted to DEQ in May 2006 as part of the Interim Evaluation Report, required by Section B(2)(b) of the Permit. The SWMP is structured into five major components. The first four components match the four major components of the MS4 Permit (Schedule D(2)(c)(I through iv). Because public education and training activities meet a variety of permit requirements, BMPs addressing public education and training under the first four components have been grouped into a fifth component. The SWMP component and associated BMPs are listed below:

# Component #1: Structural and Source Control BMPs to Reduce Pollutants from Commercial and Residential Areas:

- Implement a Stormwater System Cleaning and Maintenance Program.
- Implement a Street and Vehicle Maneuvering Area Cleaning and Maintenance Program.
- Limit Landscape Maintenance Activities Impact on Stormwater.

# Component #2: BMPs to Detect and Remove Illicit Discharges and Improper Disposal into the Storm Sewer System:

- Implement a Water Line Flushing Procedure.
- Implement the Illicit Discharge Detection and Elimination Program.
- Implement a Spill Response Program for Port Operated Property.

#### **Component #3: BMPs to Monitor and Control Pollutants from Industrial Facilities:**

• Implement an Industrial Facility Inspection Program.

## Component #4: BMPs to Reduce Pollutants in Stormwater Discharges from Construction Sites:

• The BMPs for this component have been grouped into the education BMPs under Component #5: Provide Erosion Prevention and Sediment Control Training for Construction Inspectors.

#### **Component #5: Education, Coordination, and Public Involvement BMPs:**

- Require Training and Licensing for Pest Management Activities.
- Implement a Spill Response Training Program.
- Implement Education and Reporting Measures to Protect Stormwater Quality.
- Implement a Tenant Stormwater BMP Program.
- Provide Erosion Prevention and Sediment Control Training for Construction Inspectors.
- Coordinate with Other Governmental Organizations.

#### **7.2 SWMP Implementation**

The remainder of this annual report describes the Port's SWMP implementation during the 2006-07 fiscal year categorized according to each of the BMPs. Each Permit component is listed below along with the associated BMPs. For each BMP, the implementation tasks and accomplishments are listed. BMP activities conducted by the Port during 2006-07 are listed under the appropriate implementation task when applicable. In some cases, the Port conducted activities that were applicable to the BMP, but did not necessarily fit with a specific implementation task. Those activities are listed separately. Performance measures outlined in the SWMP are also described under the relevant BMP.

# 7.2.1 Component #1: Structural and Source Control BMPs to Reduce Pollutants from Commercial and Residential Areas

#### BMP: Implement a Stormwater Feature Cleaning and Maintenance Program

#### BMP Implementation Tasks and Associated Activities

- Prioritize areas for inspection and develop an inspection and maintenance schedule. Update inspection priorities annually. (Responsibility: Marine Environmental, Properties Maintenance, MFM)
  - Environmental Affairs and Marine Environmental staff began development of a detailed matrix outlining marine terminal stormwater structures, inspection schedules and maintenance responsibilities. This matrix will be completed in the 2007-08 fiscal year.

- MFM staff continued to document stormwater maintenance activities and forward documentation to Marine Environmental staff.
- Properties Maintenance staff continued to implement the stormwater maintenance schedule for non-marine properties.
- 2) Develop and implement inspection, cleaning and maintenance documentation system. (Responsibility: Marine Environmental, Properties Maintenance, MFM)
  - MFM staff followed a specific work instruction as part of the Port's Environmental Management System (EMS) to more effectively collect and document all marine stormwater maintenance, cleaning and sweeping records.
- 3) Inspect and maintain (remove debris) stormwater conveyance system components (pipes, catch basins) annually or more frequently as needed. (Responsibility: Marine Environmental, Properties Maintenance, MFM)
  - Marine environmental and MFM continued to implement a stormwater BMP waste disposal program for the collection and disposal of wastes generated during stormwater system and pavement cleaning at the marine terminals. The sweeping and storm sewer maintenance debris is stored in a covered, watertight dumpster in order to provide sediment and solid settling. As the volume reaches capacity and the solids have settled, the water is drained and disposed of via sanitary sewer disposal permit. The solids remaining in the dumpster are transferred to an adjacent dumpster for storage. More than 98.5 tons of the remaining solids and sediment were collected by a contractor and taken to an offsite landfill.
  - MFM staff conducted annual catch basin cleaning at Terminals 2, 4 and 6. Catch basin filters are replaced annually or as needed in select basins.
  - MID staff contracted catch basin cleaning and filter replacement annually at the following sites:
    - o Ship repair facility parking lot
    - o Navigation facility
    - o Terminal 5 Entry Road
    - o McCarthy Park at Swan Island Industrial Park
    - o Properties Maintenance Shop
    - o Corporate office
- 4) Identify catch basins on Port property that may not be included in the current maintenance program and incorporate these systems into the Port's program. (Responsibility: Properties Maintenance)
  - Properties Maintenance did not identify any stormwater system components that are not yet on the maintenance program at its industrial properties.

- 5) Inspect, maintain and repair (if necessary) structural stormwater controls (i.e., sedimentation manholes, hydrodynamic devices, filters, ponds, vegetated swales and oil/water separators) annually or more frequently, as needed. (Responsibility: Marine Environmental, MFM, Properties Maintenance)
  - Properties Maintenance staff conducted inspections at 39 industrial park sites to verify catch basin filter inserts were installed and maintained. These activities are part of the Port-initiated catch basin filter to increase the number of tenants installing and maintaining catch basin filters.
  - MFM inspected stormwater structures at the marine terminals on a monthly basis.
  - MFM staff installed twelve new catch basin filters at Terminal 6; four new filters at Terminal 2 and six new filters at Terminal 4.
- 6) Conduct litter pickup and vegetation management activities to ensure adequate access to all natural stormwater system features (swales, ponds) as needed. Properly dispose of all debris. (Responsibility: Marine Environmental, MFM, Properties Maintenance)
  - Properties Maintenance staff maintained landscaped areas within the industrial parks and
    marine terminals to provide stormwater quality improvements. Crews removed and
    disposed of vegetative debris, scrap metal, and miscellaneous garbage. Staff composted
    and chipped vegetative debris to create mulch and disposed of or recycled metal and
    miscellaneous garbage at appropriate facilities.
  - Properties Maintenance staff cleared vegetation around stormwater outfalls and culverts on industrial park properties to provide better access for inspections and illicit discharge monitoring.
- 7) Remove sediment build-up near pond inlet structures. (Responsibility: Marine Environmental, MFM, Properties Maintenance)
  - No activities were required to be conducted during the 2006-07 fiscal year.
- 8) Continue to update the map of stormwater system features. (Responsibility: Environmental Affairs)
  - Environmental Affairs and maintenance staff coordinated with Engineering and IT staff to update the Port-wide stormwater maps as changes were identified; for example, when new water quality features are installed or when properties are purchased or sold.
  - A Port-wide team was organized to develop a more structured process to capture and maintain GIS data related to stormwater infrastructure. Enhancements are being planned to the GIS system which will lead to a more enhanced database.

#### **BMP** Performance Measures

- 1) Record volumes and/or weight of material removed during catch basin cleaning and structural stormwater control maintenance.
  - A total of 98.54 tons of catch basin cleaning and street sweeping solids were collected and removed at the marine terminals.
  - A total of 80.92 tons of material was collected and removed during catch basin cleaning at PDX.

# **BMP:** Implement a Street and Vehicle Maneuvering Area Cleaning and Maintenance **Program**

#### BMP Implementation Tasks and Associated Activities

- 1) Employ contract services to sweep the Port Center (Swan Island) parking lots annually. (Responsibility: Property and Development Services)
  - Property and Development staff continued to implement the contracts for parking lot sweeping every other week for two lots at Port Center at the Swan Island Industrial Park.
- 2) Sweep marine terminals annually. If additional sweeping is needed, coordination will occur between the appropriate parties. (Responsibility: Marine Environmental, MFM)
  - MFM staff conducted pavement sweeping at Terminal 2, select non-leased areas at Terminal 4 and at Terminal 6 annually. Maintenance crews and contractors placed sediment and debris from swept materials in covered, watertight storage bins to prevent contact with stormwater runoff. The Port tracked and disposed of this material.
  - Marine Environmental staff implemented additional pavement sweeping as necessary in areas identified as higher risk to the storm system based on operational activities on both tenant and Port-managed areas of Terminals 2 and 6.
- 3) Sweep Airport Way, Frontage Road and PDX employee parking lots twice per week. (Responsibility: PDX Maintenance)
  - PDX maintenance staff conducted the following sweeping activities: on the airfield one to two times per week; Frontage Road at PDX two times per week; Airport Way on two times per week; and PDX parking lots two times per week.
- 4) Maintain and repair roadway and vehicle maneuvering areas to minimize pollutant impacts to stormwater as needed. (Responsibility: MFM, PDX Maintenance)

- PDX maintenance staff removes runway rubber annually using a machine that contains and recycles the water used in the cleaning of the runway surface, eliminating surface water runoff generated during the process.
- PDX maintenance staff maintains indoor storage areas, equipment wash-bays, debris
  unloading areas, and toluene recovery systems associated with its pavement maintenance
  operations.
- 5) Track deicing activities in areas not applicable to the PDX Anti-icing/Deicing Permit. (Responsibility: MFM, Marine Environmental, Properties Maintenance)
  - Marine Facilities Maintenance applied 15,000 pounds of deicing materials on main roads and common use sidewalk areas at the marine terminals in 2006-07.
  - Properties Maintenance staff did not apply any deicing chemical during the 2006-07 fiscal year.

#### **BMP** Performance Measures

- 1) Record volumes and/or weight of material removed due to sweeping activities.
  - A total of 98.54 tons of catch basin cleaning and street sweeping solids were collected at the marine terminals.
  - A total of 357,280 pounds of debris was collected by street sweepers at PDX.

#### **BMP:** Limit Landscape Maintenance Activities Impact on Stormwater

- 1) Apply pesticides and fertilizers, as needed, using an Integrated Pest Management (IPM) approach to minimize impacts to stormwater (Responsibility: Property and Development Services, Properties Maintenance, PDX Maintenance. MFM)
  - Properties Maintenance staff continued to implement the Integrated Pest Management and Work Schedules Program (IPMWS) for Port-owned mitigation sites. The IPMWS identifies problem plant species at each site, provides a profile for each species, recommends control methods, and outlines monitoring protocol schedules.
  - Properties Maintenance staff continued to be responsible for the landscaping and maintenance of the Port's industrial parks, marine terminals, and mitigation sites.
  - Properties Maintenance staff implemented the *Vegetation Management Plan* for Port staff and Port-contracted workers that utilize herbicides on Port mitigation and natural areas. The plan provides information on the appropriate herbicides and use of those herbicides

to control particular invasive plant species and identifies the location where specific herbicides are applied.

- Properties Maintenance staff utilized opportunities to plant native plants that require less irrigation and pesticides than non-native vegetation.
- MFM conducts weed control activities at marine parking areas, rail yards and specific vegetated areas at T6 on an as-needed basis.
- PDX Maintenance staff, responsible for landscaping at PDX facilities, continued to implement BMPs aimed at improving stormwater quality at the airport, including the following:
  - o Maintaining the integrity and function of bioswales by keeping them full with healthy, mature vegetation;
  - Limiting the amount of turf and shrub fertilizer that falls on hard surfaces (e.g., sidewalks, roads, parking lots) by using small fertilizer spreaders, and blowing unintentional applications to these areas back onto the target areas; and
  - o Using slow-release nitrogen fertilizers to limit leaching into groundwater and runoff into surface waters.
  - o Replacing non-native grass with native grass to reduce water needs.
- 2) Update the *Program Description for Pesticide and Fertilizer Use on Port Property*, as needed (Responsibility: Environmental Affairs)
  - This document did not require an update during the 2006-07 fiscal year.
- 3) Update the *Technical Guidance Document for Pesticides*, as needed (Responsibility: Environmental Affairs)
  - This document did not require an update during the 2006-07 fiscal year.
- 4) Maintain a list of pesticides and fertilizers used on Port property (Responsibility: Environmental Affairs)
  - Environmental Affairs staff updated the list of pesticides used on Port property.

#### **BMP** Performance Measures

- 1) Track the quantity of pesticides and fertilizers purchased annually.
  - See Appendix A for a summary of pesticide and fertilizer purchased.
- 7.2.2 Component #2: BMPs to Detect and Remove Illicit Discharges and Improper Disposal into the Storm Sewer System

#### **BMP: Implement a Water Line Flushing Procedure**

#### BMP Implementation Tasks and Associated Activities

- 1) Implement a water line flushing procedure in accordance with appropriate management practices for the disposal of chlorinated water. (Responsibility: PDX Environmental, Marine Environmental, Environmental Affairs, MFM)
  - Environmental Affairs created an EMS work instruction for the proper disposal of chlorinated water during water line flushing following DEQ guidance. The work instruction was distributed to Marine and Aviation Environmental staff for implementation in the operating areas.

#### BMP: Implement the Illicit Discharge Detection and Elimination Program

#### BMP Implementation Tasks and Associated Activities

- 1) Implement the Illicit Discharge Detection and Elimination Program in accordance with the *Illicit Discharge Detection and Elimination Procedure Manual*. Follow outlined procedures for outfall inspections, sampling, investigation and documentation. (Responsibility: PDX Environmental, Marine Environmental, Environmental Affairs)
  - Port environmental staff continued to implement the Illicit Discharge Detection and Elimination Program. The program outlines the following activities:
    - Enforcement of Port Ordinance 361, authorizing Port staff to inspect tenant facilities, restrict connections to the MS4, and impose penalties to known violators;
    - Dry season illicit discharge inspections of Port-owned outfalls; and
    - Investigation of potential illicit discharges.
  - For property managed by the MID Department, Marine Environmental and
    Environmental Affairs staff conducted illicit discharge inspections at 53 Port-owned
    outfalls during the summer dry season. Twelve City-owned outfalls were also inspected.
    Staff investigated three discharge sources and found one illicit discharge. Corrective
    actions were implemented on the property to eliminate the illicit discharge. Staff also
    coordinated with the City Illicit Discharge Inspector to report the inspection results for
    the City-owned outfalls.
  - In addition to the annual dry season inspection, corporate environmental staff contacted the City Illicit Discharge Inspector to report a discharge from a City-owned outfall on two occasions.
  - BES informed the Port of an illicit discharge on a Port leasehold. BES investigated and corrected the illicit discharge and scheduled a follow-up investigation.

 PDX Environmental staff conducted illicit discharge inspections at 12 Port-owned outfalls at PDX and PIC during the annual dry season inspection. Four outfalls were observed with discharge, however, only one was determined to be a potential illicit discharge and an investigation was conducted and samples were collected. Follow up actions were conducted to eliminate the source.

#### **Additional Activities**

 Properties staff implemented agreements and contract provisions to control pollutant discharges to the Port's stormwater system. These include, but are not limited to tenant leases, construction dewatering agreements, storage tank use agreements, environmental specifications for construction projects, right-of-entry permits, operating permits, and mobile fueling permits.

#### **BMP** Performance Measures

- 1) Document the number and types of illicit discharges discovered.
  - Marine Environmental staff inspected 53 outfalls as part of the annual dry season illicit discharge inspections at Terminals 2, 4, 5 and 6 and at Rivergate and Swan Island Industrial parks. Staff investigated three discharge sources and found one illicit discharge. Corrective actions were implemented on the property to eliminate the illicit discharge.
  - PDX Environmental staff observed four outfalls discharging when conducting illicit discharge inspections. Staff investigated one potential illicit discharge.

#### BMP: Implement a Spill Response Program for Port Operated Property

- 1) Update, formalize and implement the Spill Response Procedure for Marine and Properties. (Responsibility: Marine Environmental)
  - MID staff continued to implement the spill response procedure for Port-owned non-aviation properties. Emergencies and spills are reported to the Marine Security Office who contacts the Spill Response Coordinator in Marine. Procedures are posted throughout the marine terminals.
  - Marine Environmental staff maintains a database to track spills on non-aviation, Portowned property.
  - Marine Environmental staff conducted monthly inventories of all spill kits at Terminals 2 and 6.

- Marine Environmental staff conducted annual spill response training for spill response staff.
- 2) Participate in the City's Regional Spill Committee.
  - The Marine Environmental Project Manager continued to be an active member of the City of Portland's Regional Spill Committee.
- 3) Participate in the Clean Rivers Cooperative.
  - Marine staff continued to participate in spill response programs through the Maritime Fire and Safety Association and the Clean Rivers Co-op.

#### Additional Activities:

• Engineering continued to incorporate the construction specifications, *Environmental Practices for Construction*, into Port contracts. The specifications include measures for spill prevention and response.

#### **BMP** Performance Measures

- 1) Document the number of spills in which a spill response was conducted.
  - Marine staff conducted 38 spill responses during the 2006-07 fiscal year.

#### 7.2.3 Component #3: BMPs to Monitor and Control Pollutants from Industrial Facilities

#### **BMP: Implement an Industrial Facility Inspection Program**

- 1) Update the inventory of facilities subject to the Superfund Amendment and Reauthorization Act (SARA) and priority industrial facilities annually. (Responsibility: Environmental Affairs)
  - Environmental Affairs staff identified facilities subject to SARA on Port-owned property.
  - Environmental Affairs staff coordinated with the Water Resources Coordination Group to identify priority facilities to be included in the 2007-08 Industrial Facility Inspection Program. Five facilities were identified for inspections in 2007-08.
- Conduct annual inspections of SARA facilities, with the exception of the Oregon Air National Guard facility as the Port is not authorized to inspect this federal location. (Responsibility: Marine Environmental, PDX Environmental, Environmental Affairs)

- Marine and Environmental Affairs staff conducted an Industrial Facility Inspection at the two SARA facilities on Port MID property.
- 3) Conduct inspections of priority industrial facilities annually, or more frequently if needed. Inspections may occur in conjunction with the illicit discharge investigations, if warranted. Priority facilities are those identified and described under the BMP description. (Responsibility: Marine Environmental, PDX Environmental, Environmental Affairs)
  - Environmental Affairs and Marine Environmental staff conducted industrial facility inspections at the four priority facilities under management of the Marine and Industrial Development Department in the 2006-07 fiscal year. Properties staff followed up one inspection with a request that additional BMPs be implemented to minimize pollutants to the MS4 system.
  - PDX Environmental staff conducted industrial facility inspections at 10 facilities in the 2006-07 fiscal year.
- 4) Coordinate with tenant or Port property manager to identify appropriate control measures to minimize pollutant loading from priority industrial facilities. (Responsibility: Marine Environmental, PDX Environmental, Environmental Affairs, Property and Development Services)
  - Formal written communication was sent by the MID Properties Manager to a tenant notifying them that additional stormwater BMPs were needed as a result of the Industrial Facility Inspection.

#### **BMP** Performance Measures

- 1) Document the number of SARA and priority industrial facility inspections conducted annually.
  - Marine and Environmental Affairs and PDX Environmental staff conducted Industrial Facility Inspections at two SARA facilities, four priority MID facilities and ten priority aviation facilities.

#### 7.2.4 Component #5: Education, Coordination and Public Involvement BMPs

#### BMP: Require Training and Licensing for Staff Conducting Pest Management Activities

#### BMP Implementation Tasks and Associated Activities

1) Require all chemical applicators (contractors and Port employees) to obtain and maintain licenses issued by the Oregon Department of Agriculture. (Responsibility: Property and Development Services, PDX Maintenance, MFM, Properties Maintenance)

- Six Properties Maintenance staff hold the Oregon Department of Agriculture pesticide applicator's license. Contractors hired by Properties and Development are required to hold the license. Annual training is required to maintain the license.
- Four PDX general maintenance staff and four PDX landscape maintenance staff hold the Oregon Department of Agriculture pesticide applicator's license. Contractors hired by PDX are required to hold the license. Continued training is required to maintain the license.

#### **BMP: Implement a Spill Response Training Program**

#### BMP Implementation Tasks and Associated Activities

- 1) Require annual HAZWOPER training for designated operating area staff responsible for spill response and hazardous waste management (Responsibility: Marine Environmental).
  - Five Marine Environmental staff participated in HAZWOPER training during the 2006-07 fiscal year.
- 2) Distribute updated emergency contact information and spill response procedures to employees responsible for responding to spills (Responsibility: Marine Environmental).
  - Emergency contact information and spill response procedures are posted throughout the marine terminals and staff offices.
- 3) Conduct general spill training annually for designated employees (Responsibility: Marine Environmental).
  - Marine environmental staff conducted annual spill awareness training for staff at the following departments: Properties Maintenance; Marine Security and MFM.

#### BMP: Implement Education and Reporting Measures to Protect Stormwater Quality

- 1) Identify catch basins in public areas that do not have "Drains to Stream" decals and apply decals (Property and Development Services, PDX Environmental, Marine Environmental).
  - Marine Environmental Staff applied fifteen new decals to catch basins and sluice gates throughout the marine terminals.
- 2) Implement a public reporting program for potential illicit discharges by installing signs with notification information throughout Port property (Responsibility: Environmental Affairs, Property and Development Services, Marine Environmental, PDX Environmental).
  - This task was previously completed in the 2005-06 fiscal year.

#### Additional Activities (Membership, Sponsorships, and Committee Participation)

- The Port is a financial supporter of the Regional Coalition for Clean Rivers and Streams. The Coalition is a group of agencies and municipalities in the Portland/Vancouver metro area dedicated to educating the public about the impact stormwater runoff pollution has on the health of our rivers and streams for people, fish and wildlife
- As a member of the Columbia Slough Watershed Council (CSWC), the Port continued to participate in the Action Plan Implementation Committee and implement the Columbia Slough Watershed Action Plan, which includes enhancement and restoration projects, water quality improvement projects, ecosystem educational programs, and public recreation opportunities. The Port was a financial sponsor for the Columbia Slough Watershed Council's Annual Awards Banquet in January 2007. Sponsorship is funded by the Port's Environmental Partnership Grants Program. The banquet highlights the accomplishments of the Council and its partners in restoring the watershed and educating the public.
- The Port was a financial co-sponsor for the 2007 Oregon Environmental Council's Forum for Business and the Environment speaker series. The Forum is the most highly attended statewide series, and has featured over 80 events and reached more than 5,000 of Oregon's business and community leaders.
- The Port was a financial co-sponsor for the Annual Columbia Slough Regatta, a family-oriented canoeing and kayaking event that provides educational information about the Columbia Slough and watershed restoration efforts. Port staff volunteered at the event, organized by the Columbia Slough Watershed Council, of which the Port is a member.

#### Additional Activities (Publications)

- The Port continued to publish *Port Currents*, a quarterly publication dedicated to informing the public about how Port projects, policies and news intersect with community and environmental issues.
- The Port continued to publish *Portside*, a publication issued three times per year featuring news and information about airports, marine terminals, industrial parks, and environmental programs.

#### Additional Activities (Staff Training and Education)

• Environmental Affairs, Marine, and Aviation staff attended the Environmental Law Education Center Oregon Water Quality Conference. Sessions focused on TMDLs, water quality standards, and stormwater regulations.

- Environmental Affairs, Marine and Aviation staff attended the Environmental Law Education Center Stormwater Management Conference. Sessions focused on stormwater BMPs, legal issues, monitoring and technology.
- Aviation environmental staff attended the StormCon conference which is dedicated to discussions on stormwater issues.
- Environmental Affairs staff presented construction stormwater training to Marine Environmental Staff. PDX Environmental staff presented construction stormwater training to engineering construction inspectors.
- PDX Environmental staff presented annual stormwater training for PDX general maintenance, PDX landscape maintenance, general aviation maintenance and Fire Department staff. Training covered stormwater regulations and BMPs.

#### **BMP** Performance Measures

- 1) Document all public education efforts.
  - Public education efforts are documented under each implementation task above.

#### **BMP: Implement a Tenant Stormwater BMP Program**

- 1) Maintain an inventory of all tenants (Responsibility: Environmental Affairs).
  - Environmental Affairs staff maintained a current inventory of Port tenants including those with NPDES permits issues by DEQ.
- 2) Implement a tenant BMP program and provide guidance documentation to the tenants (Responsibility: Marine Environmental, Property & Development Services, PDX Environmental).
  - PDX environmental staff continued to implement the PDX Tenant BMP Program. Port staff and representatives from the airlines, meets three times per year to discuss the implementation of environmental BMPs.
  - Marine Environmental staff worked with a marine tenant to improve stormwater BMPs such as creating well-marked designated mobile fueling area for a tenant at Terminal 6.
     Staff also assisted tenant with improving their housekeeping, stormwater training and installation of catch basin filters, spill kit and catch basin cover.
  - Marine Environmental staff provided two tenants with detailed environmental guidance regarding new tenant operations and site-specific environmental management plans.

- Marine Environmental and MFM staff worked with a Terminal 6 tenant to design a new oil/water separator and storm basin collection area to be completed in 2007-08.
- 3) Coordinate stormwater BMP lease language between Marine, Aviation (PDX), and Properties and Development Services (Marine Environmental, PDX Environmental, Environmental Affairs).
  - Marine Environmental, PDX Environmental and Environmental Affairs staff continued to be actively involved in the development of environmental language for tenant leases.
  - Marine and Industrial Development staff began drafting environmental template lease language.
- 4) Maintain an active property management role by conducting inspections of property vacated by tenants to ensure proper disposal of waste materials. Coordinate with the City of Portland to isolate, characterize and dispose of the waste if deemed toxic (Responsibility: Marine Environmental, PDX Environmental, Property and Development Services, Environmental Affairs).
  - Marine Environmental staff participated in six tenant environmental inspections at the marine terminals and industrial park properties. Corrective actions were taken to remedy housekeeping issues.
  - In addition to the industrial inspection program, PDX Environmental staff participated in 10 tenant entry or exit inspections at PDX. Corrective actions were taken to remedy housekeeping issues.

# **BMP:** Provide Erosion Prevention and Sediment Control Training for Construction Inspectors

#### BMP Implementation Tasks and Associated Activities

- 1) Provide annual erosion prevention and sediment control training for all Port construction inspectors (PDX Environmental).
  - PDX Environmental staff conducted annual erosion prevention and sediment control training for the Port's Engineering Department construction inspectors. Training addresses BMPs for Port-wide construction projects.

#### Additional Activities:

• The Engineering Department requires Port contractors to implement the *Required Environment Practices for Construction* specifications in all construction projects. The specifications are designed to protect stormwater from contamination and has language addressing the Port's NPDES 1200-CA Stormwater Discharge Permit, File No. 101018. The Port's contract specifications for construction projects include requirements to

prepare an erosion and sediment control plan (ESCP). The ESCPs are reviewed and approved by Port engineering and environmental staff. The provisions of the approved ESCP are ensured through specific enforcement of Port contracts. Port and City inspectors regularly inspect Port projects for conformance with the ESCP and jurisdictional requirements.

- Environmental Affairs staff conducted construction stormwater permit and erosion prevention and sediment control training for marine environmental staff.
- The MID Department hired an additional part-time staff member to conduct erosion and sediment control inspections for new development at Portland International Center. The inspector works closely with the contractor to implement stormwater BMPs.

#### **BMP: Coordinate with Other Governmental Organizations**

- 1) Participate with agencies and groups on water quality issues (Responsibility: Environmental Affairs).
  - The Port continued to implement the intergovernmental agreement with the Multnomah County Drainage District (MCDD) to maintain stormwater ditches, pipes, and sumps within PIC and portions of PDX.
  - The Port continued to implement the intergovernmental agreement with the City of Portland Bureau of Environmental Services to coordinate responsibilities under the MS4 Permit programs.
  - The Port remained actively involved with the following organizations with projects aimed at improving source and non-point source control practices:
    - o Columbia Slough Watershed Council
    - o Columbia Slough Watershed Council Action Plan Implementation Committee
    - o Columbia Slough Watershed Council Administrative Committee
    - o Columbia Corridor Association Water, Air and Waste Committee
    - o Oregon Association of Clean Water Agencies
    - o Stakeholder Forum on Federal Wetlands Mitigation
    - o Willamette River Restoration Initiative
    - o City of Portland's River Renaissance
    - o City of Portland Watershed Science Advisory Group
    - o City of Portland Stormwater Advisory Committee
    - o City of Portland Regional Spill Committee
    - o Smith and Bybee Lakes Wetlands Management Committee
    - o Clean Rivers Co-op
    - o Lower Columbia River Fish Recovery Stakeholders Team

- The Port continued to coordinate with the following public agencies on stormwater-related projects and programs:
  - o U.S. Army Corps of Engineers
  - o Oregon Department of State Lands
  - o Oregon Department of Environmental Quality
  - o Multnomah County Drainage District
  - o Multnomah County Vector Control
  - o City of Portland Bureau of Environmental Services
  - o City of Portland Water Bureau
  - o Metro
- 2) Review and renew Intergovernmental Agreement (IGA) with the City of Portland to combine efforts related to water quality monitoring and analysis (Responsibility: Environmental Affairs).
  - The Port and the City renewed the MS4 Permit IGA.