CITY OF SEATTLE

2018 NPDES PHASE I MUNICIPAL STORMWATER PERMIT STORMWATER MANAGEMENT PROGRAM

March 2018

Seattle Public Utilities

On the Cover,

The Venema Natural Drainage

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CITY OF SEATTLE NPDES STORMWATER MANAGEMENT PROGRAM

Prepared in compliance with the 2013 Phase I Municipal Stormwater National Pollutant Discharge Elimination System and State Discharge General Permit for discharges from Large and Medium Municipal Separate Storm Sewer Systems (as modified effective January 16, 2015 and August 19, 2016)

WAR04-4503

City of Seattle

Seattle Public Utilities

Seattle, Washington

Date: March, 2018

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I. INTRODUCTION

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I.1 Introduction

This document comprises the compilation of the Stormwater Management Program (SWMP) for the City of Seattle (City) under the 2013 National Pollution Discharge Elimination System (NPDES) Phase I Municipal Stormwater Permit (Permit) (Ecology 2012b; second modification effective August 19, 2016, Ecology 2012c). This SWMP applies to the municipal separate storm sewers owned or operated by the City within the geographical boundaries established by the Permit. Existing City programs relevant to the SWMP are outlined with minimum performance requirements, principal responsibilities, information links and summaries of current status and upcoming work. This compilation of the SWMP constitutes the "SWMP Plan" required by Special Condition S5.A.1 and addresses the City's plan for activities that the Permit requires (Ecology 2012c) to be completed in 2018 (January 1, to December 31, 2018). Seattle has retained the name "SWMP" for this document for consistency with similar documents produced in the past. This SWMP will be reviewed and updated annually according to the Permit requirement. The SWMP may also be updated based on public comments received, in which case an updated SWMP will be posted on the webpage. This version of the SWMP has been updated to incorporate modifications, or additional sets of actions, that are to be implemented to comply with the required components listed in S5 of the permit.

Permit Condition S5 outlines the ten components of the SWMP that have required programs and activities, which include reporting and minimum performance measures. Section II of this document is organized to follow these Permit requirements in a parallel structure and describes the set of actions that the City is or will be implementing to comply with S5 of the permit. Many of these components involve existing programs conducted by the City's various departments and organizational structure. This SWMP compiles this information in a single document that will not only meet Permit requirements but will also aid the City's implementation of its NPDES stormwater management program. The acronyms and terms used in this document are defined in Section IV.

There are six City departments primarily responsible for implementing the SWMP components and associated activities and projects. Seattle Public Utilities (SPU) has the designated lead role for managing stormwater, conducting water quality programs, and managing drainage-related capital projects. Other departments with major Permit-related responsibilities include the Seattle Department of Construction and Inspections (DCI) (formerly the Department of Planning and Development (DPD)), Seattle Parks and Recreation (Parks), Seattle Department of Finance and Administrative Services (FAS), Seattle City Light (SCL), and Seattle Department of Transportation (SDOT). These departments and SPU have been implementing many of the Permit-required programs for many years and in some cases well before the first NPDES municipal separate storm sewer system (MS4) permit was issued in 1995.

I.1.1 Background

The NPDES program is a key element of the Federal Clean Water Act[1] aimed at controlling and reducing waterborne pollutants discharged from point sources such as wastewater and stormwater. The Washington State Department of Ecology (Ecology) has jurisdiction for implementing the federal NPDES program in the

[1] Note: The "Clean Water Act" as a term refers to the body of law that includes: Federal Water Pollution Control Act (1972), Clean Water Act (1977), and the Water Quality Act (1987), as may be amended from time to time.

State of Washington. In implementing this program, Ecology issues NPDES permits to cover individual facilities or groups of multiple entities with common activities under a general NPDES permit. These permits must meet federal minimum requirements. For regulated municipal stormwater discharges, the NPDES program requires permits for large, medium and small MS4s as defined in federal regulations. The Phase I regulations of the MS4 program went into effect in 1990 and apply to MS4s in municipalities with populations of more than 100,000 (medium and large MS4s).

The first Phase I MS4 permit was issued by Ecology in July 1995 to the cities of Seattle and Tacoma and counties of Clark, King, Pierce and Snohomish. The MS4s owned or operated by the Washington State Department of Transportation (WSDOT) located in these cities and counties were also regulated under the 1995 permits. To meet the requirements of the 1995 Permit, the City prepared and managed stormwater under a SWMP that was approved by Ecology in 1997. The City provided updates on stormwater management activities to Ecology in annual reports that were submitted from 1996 to 2005. The new format for SWMPs and Annual Reports pursuant to the 2007 and 2013 Permits replaces the City's 1997 SWMP.

On January 17, 2007, Ecology re-issued the Phase I MS4 permit. The Permit became effective on February 16, 2007, was modified on June 17, 2009 and September 1, 2010 and bore an expiration date of February 15, 2012. (The Phase II MS4 permit was issued concurrently and applied to approximately 90 small cities and counties in Western Washington and approximately 30 cities and counties in Eastern Washington).

On August 1, 2012, Ecology re-issued, with limited changes, the Phase I MS4 permit, effective September 1, 2012, and having an expiration date of July 31, 2013 (Ecology, 2012a). Ecology also reissued the updated 2013-2018 Phase I MS4 permit on August 1, 2012, to become effective on August 1, 2013 (Ecology 2012b). The 2013 permit was appealed to the Washington State Pollution Control Hearing Board. Appeal hearings were held in October 2013, and the Findings of Fact, Conclusions of Law, and Order was issued on March 21, 2014. Ecology modified the Phase I and Phase II permits effective January 16, 2015, in response to the PCHB rulings. The Pollution Control Hearing Board's ruling on vesting was appealed to the courts, and a final Supreme Court ruling was issued on December 29, 2016, upholding the land-use provision of the Phase I MS4 permit. A second Phase I modification, effective August 19, 2016, incorporated Ecology's determination of equivalent programs for runoff controls for new and redevelopment and construction sites into Appendix 10 and added adaptive management requirements as Appendix 13.

I.1.2 City of Seattle Drainage

Drainage infrastructure in the City's system was developed with the primary purpose of conveying stormwater runoff to protect people and property. Prior to 1890, Seattle relied on an assortment of sewers and cesspools that, at best, drained into surrounding lakes and salt water. Faced with recurring threats of waterborne diseases including typhoid and cholera, Seattle's first centralized combined sewage system was planned in 1891. This plan sought to remove as much city sewage as possible into the salt water of Elliott Bay and the Puget Sound with more limited drainage into the fresh water of Lake Washington. Although originally untreated, the City undertook a succession of steps starting in the late 1910s to remove solids, begin primary sewage treatment, and eventually separate storm water from raw sewage. Metropolitan King County took over the City's wastewater treatment responsibilities in the 1960s, but Seattle continues to manage its network of municipal combined and separated storm sewers.

The City's current drainage infrastructure includes three different types (Figure I.1-1): the separate storm sewer system (in purple), the partially separated system (in green), and the combined sewer system (in yellow) each serving approximately one third of the geographical area of Seattle. A graphical representation of the combined, separated and partially separated systems can be seen in Figure I.1-2.

In the separate system, storm drainage is directed to a separate storm drain system, while wastewater goes to a sanitary sewer and on to the wastewater treatment plant before discharge. While parts of the City's separated drainage system are formal and piped, some parts of the separate stormwater runoff are managed primarily through an informal system of ditches and culverts, most of which drain to creeks or larger receiving waters. The area north of NE 85th Street, which the City annexed in 1954, is an example of an area still served primarily by ditch and culvert drainage systems.

In partially separated sewer areas of the City, all drainage once flowed in the combined system. During the 1960s, storm drain separation projects were built that diverted street runoff in pipes to the separate storm drainage system and receiving waters. Rooftop and other private property drainage continue to be directed to wastewater treatment plants.

The combined sewer system is a formal piped system that continues to carry both sanitary wastewater and stormwater runoff from some parts of the City to one of the area's wastewater treatment plants. Combined sewers and areas of the City that drain to combined sewers are outside the NPDES municipal stormwater permit structure. The City's SWMP is implemented for discharges from, and property draining to, the City's separate storm sewer system and partially separated system (MS4 for short). Because of the scope of the MS4 permit, the City's SWMP is not implemented for discharges to or from the combined sewer system or for areas that drain to the combined sewer system.

Figure I.1-1 Map of City Drainage Systems

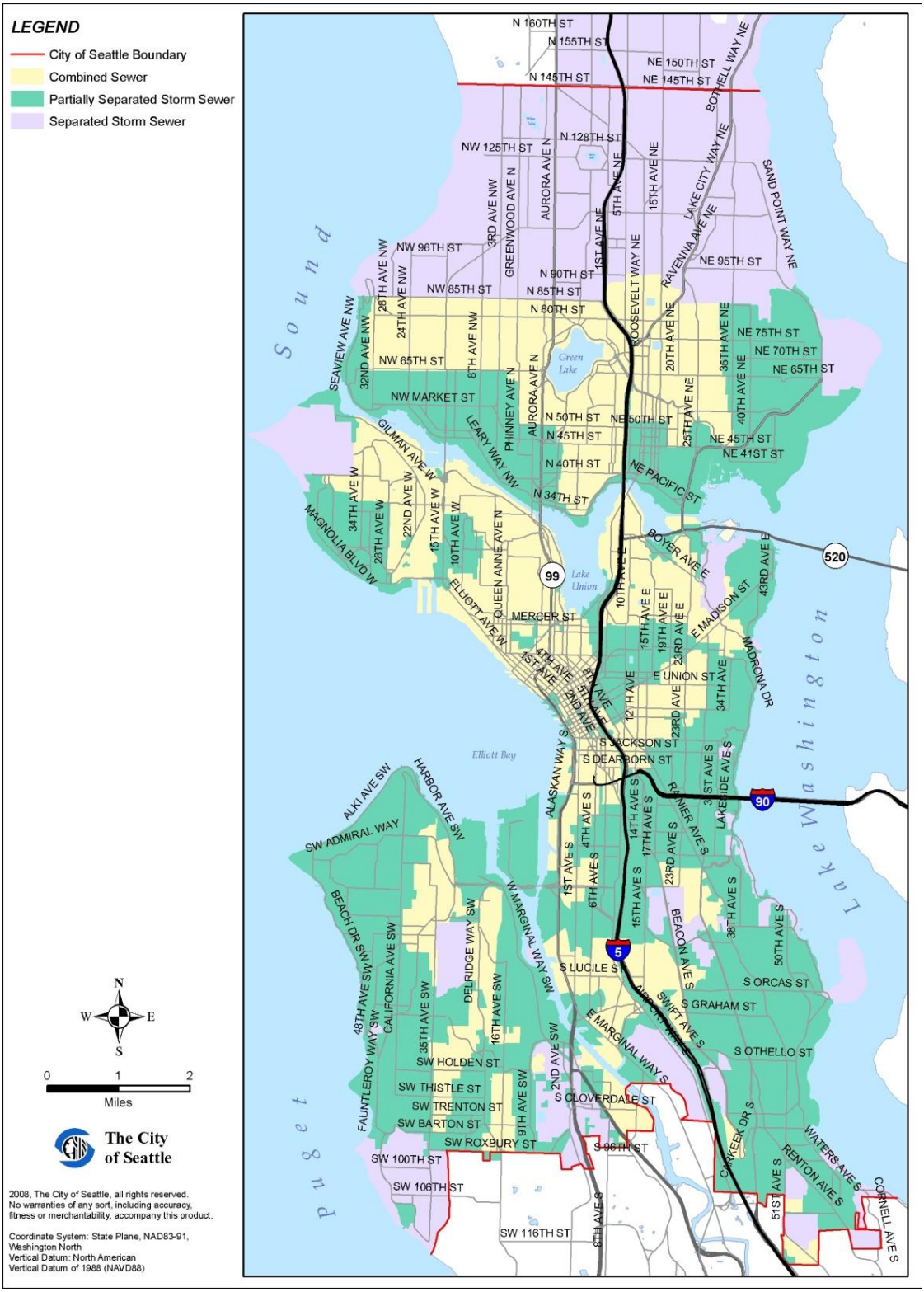
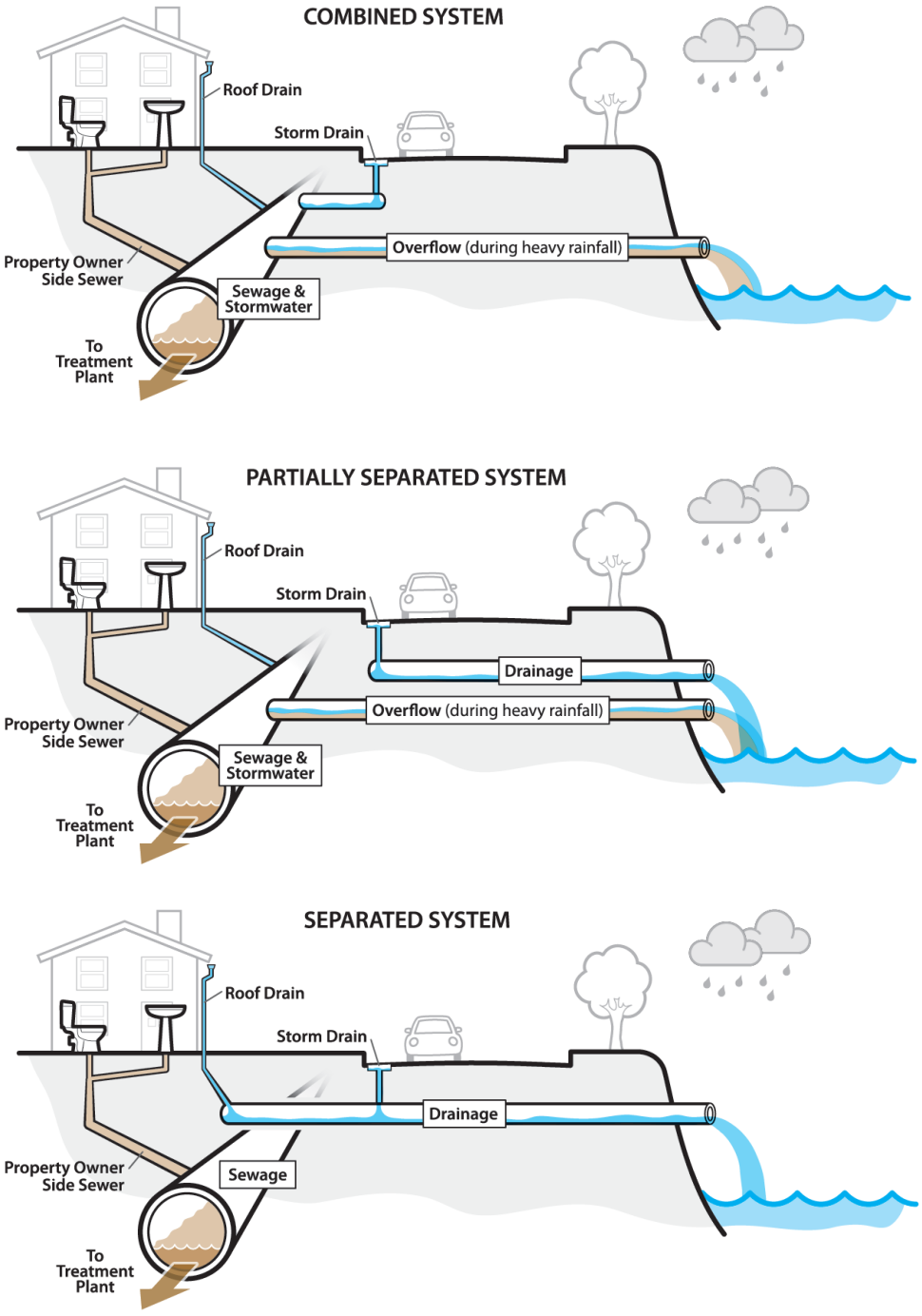


Figure I.1-2 Diagrams of Combined, Partially Separated and Separated Sewer Systems



II. NPDES STORMWATER MANAGEMENT PROGRAM

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II.1 Legal Authority-S5.C.1

II.1.1 Requirements

The Permit (Section S5.C.1) requires the SWMP to demonstrate certain legal authorities for controlling stormwater discharges to the City's MS4. Section S5.C.1 of the Permit outlines these areas, but does not require specific products, submittals, reports or a schedule for completing required activities because this requirement has been in effect since the 1995 NPDES permit. Many of these legal authorities are expressed in the requirements of the other SWMP components, some of which have Permit-required products and completion schedules, including the authorities needed for controlling stormwater related to:

- Industrial activity
- Illicit discharges, spills and dumping
- Inter-jurisdictional agreements
- Development and redevelopment
- Construction inspections

II.1.2 Program description

Legal authority enabling the City to control discharges to and from the MS4 is primarily established by Seattle Municipal Code (SMC), Stormwater Code (SMC 22.800 – 22.808) effective on January 1, 2016, including revisions, achieving equivalency with the Department of Ecology's 2014 Stormwater Management Manual for Western Washington. The Directors of SPU and SDCI share responsibility for issuance of notices of violation, stop work orders, and corrective actions for violation of the Stormwater Code. The Stormwater Code is designed to control, through regulation and ordinance, the contribution of pollutants to the MS4. It prohibits illicit discharges, spills and illegal dumping, and authorizes inspections, surveillance and monitoring to determine compliance and meet the ongoing Permit requirements.

The Side Sewer Code (SMC 21.16) regulates side sewers and, for example, prohibits discharge of certain materials; requires maintenance of detention facilities; provides a right of entry for inspection; requires repair of inoperative or inadequate sewers, drains, or natural watercourses; and regulates the construction, alteration, repair, and connection of side sewers and service drains. The Side Sewer Code was last substantially amended in 2010, signed by the Mayor on December 20, 2010, and effective on January 5, 2011.

II.1.3 Responsible City Departments

The City Attorney's Office provides legal advice to the City about implementation of legal authority for SMC and Directors' Rule, further discussed in II.1.4, related to the management of stormwater.

II.1.4 Completed Activities

In September of 2015 Mayor Edward Murray signed into law two new ordinances relating to stormwater. Among other changes, the revised Stormwater Code requires the use of On-site Stormwater Management. Examples of On-site stormwater BMPs include dispersion, permeable pavement, bioretention facilities, and vegetated roofs. Changes to the Code and its associated Directors Rule were effective on January 1, 2016. The permit was modified on August 19, 2016 to revise Appendix 10 to include Ecology's determination that Seattle's codes and rule are functionally equivalent to Appendix 1 of the Permit and the required portions of Ecology's 2012 Stormwater Management Manual for Western Washington (as amended in December 2014).

The purpose of this revised Stormwater Code and its associated Directors' Rule is to protect life, property, public health, and the environment from the adverse impacts of urban stormwater runoff. These adverse impacts can include flooding, pollution, landslides, and erosion. The revisions were drafted to the Stormwater Code and Directors' Rule in order to account for advances in urban stormwater runoff management practices since the Stormwater Code had last been comprehensively updated in 2009 and to reflect the requirements of the Permit.

Table II.1-I Components of the Stormwater Code and Directors' Rule

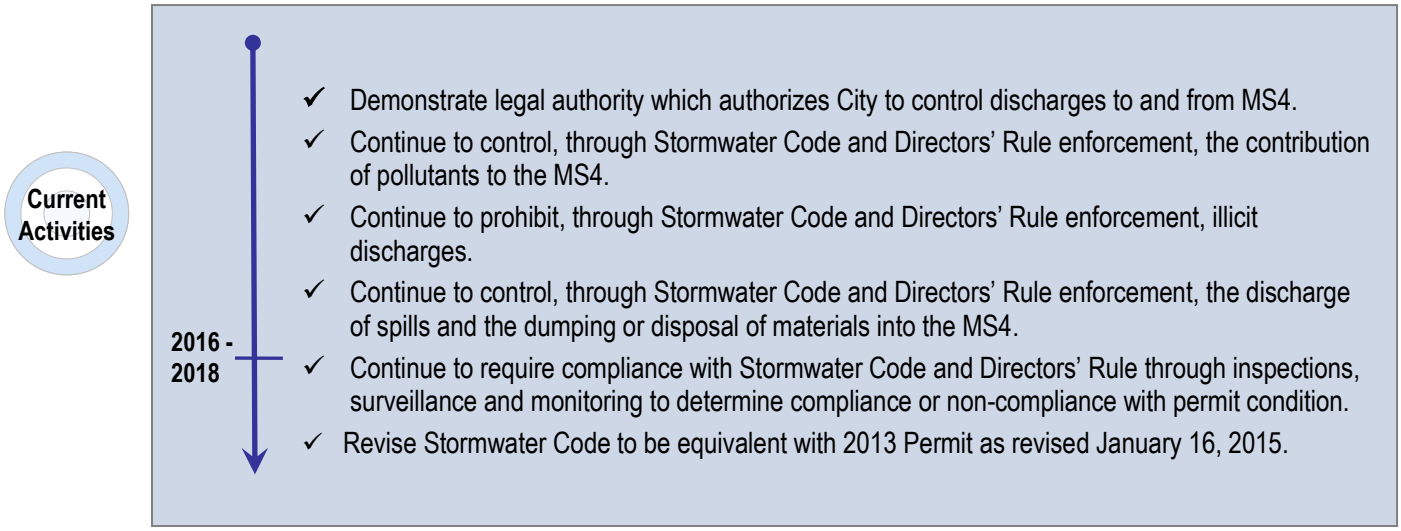
Seattle Municipal Code	Effective Date	Directors' Rule		Effective Date	Title
		DPD	SPU		
22.800 – 22.808	1/1/2016	21-2015	DWW-200	1/1/2016	Volume 1: Project Minimum Requirements Volume 2: Construction Stormwater Control Volume 3: Project Stormwater Control Volume 4: Source Control Volume 5: Enforcement

II.1.5 Current and Planned Activities

Ecology has determined that the Stormwater Code and Directors' Rules are equivalent to Appendix 1 of the Permit, Minimum Technical Requirements for New Development and Redevelopment. The determination of equivalency by Ecology indicates that the revised Stormwater Code is appropriate for implementation of the minimum requirements in Appendix 1, and will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy the state requirement under chapter 90.48 RCW to apply all known, available, and reasonable methods of prevention, control and treatment (AKART).

Figure II.1-1 describes the progress made in implementation of permit requirements and the planned next steps for meeting permit requirements.

Figure II.1-1 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- City of Seattle Attorney web site: http://www.seattle.gov/law/
- Stormwater Code: http://www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm
- City Clerk web site for Seattle Municipal Code and other information: http://www.seattle.gov/leg/clerk/clerk.htm
- Seattle Public Utilities Green Stormwater Infrastructure information: http://www.seattle.gov/util/EnvironmentConservation/Projects/GreenStormwaterInfrastructure/index.htm
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

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II.2 Mapping-S5.C.2

II.2.1 Requirements

The Permit (Section S5.C.2) requires the City to have an ongoing program to:

- Map all known municipal separate storm sewer outfalls and discharge points, receiving waters other than ground water, and stormwater treatment and flow control Best Management Practices (BMPs)/facilities owned or operated by the City.
- Map geographic areas served by the City's MS4 that do not discharge stormwater to surface water.
- Map the following attributes for all storm sewer outfalls with a 24-inch nominal diameter or larger or equivalent cross-section for non-pipe systems: land use, tributary conveyance (indicating type, material, and size where known), and associated drainage area.
- Map connections between the MS4 owned or operated by the City and other municipalities or other public entities.
- Develop and maintain a map of all connections to the MS4 authorized or allowed by the City after February 16, 2007.
- Map existing, known connections over 8 inches to tributary conveyances to all storm sewer outfalls and discharge points with a 24-inch nominal diameter or larger or equivalent cross-section for non-pipe systems.
- Make available to Ecology, federally recognized Indian Tribes, municipalities, and other Permittees maps depicting the Permit-required information, upon request.
- Map existing, known connections equal to 8 inches in nominal diameter to tributary conveyances mapped in accordance with S5.C.2.a.
- Map connections between stormwater treatment and flow control BMPs/facilities and tributary conveyances mapped in accordance with S5.C2, and all associated emergency overflows.

II.2.2 Ongoing Mapping Program

The City's mapping program provides the ongoing means to document and maintain the City-owned or operated municipal separate storm drainage system including connections, outfalls, drainage infrastructure, drainage areas, land uses, receiving waters, treatment and flow control BMPs and other elements. The City's drainage systems are described in Section I.1.2.

Seattle's Geographic Information System (GIS) evolved from a small installation in the former Seattle Engineering Department to GIS capabilities that are now firmly integrated in the daily business functions of multiple City departments.

The City's GIS was originally built primarily to improve the way the City manages and operates its utility infrastructure. The City's GIS system has matured and can now support complex business functions in most

of the City's departments. For example, GIS data and capabilities are used today at the City to inform decision makers and planners, help deliver services to the public, dispatch Police and Fire personnel, and manage City real property. The City's GIS system and data are and will continue to be an important tool for stormwater management.

II.2.3 Responsible City Departments

GIS support for stormwater management is provided by SPU's GIS Section currently residing in the Information Technology Division (GIS Section). It will continue to develop and maintain a map of all connections to the MS4 and is responsible for updating the drainage-related GIS layers with information obtained from City-led capital improvement projects and side sewer as-built drawings. Side sewer as-builts are obtained from documentation supporting development permit applications submitted to Seattle Department of Construction and Inspections (SDCI). All work that is conducted under permits issued by SDCI is mapped by the Permittee by hand or other methods and is reviewed and approved by an SDCI inspector. The as-builts, along with other supporting side sewer permit documentation, are scanned by SDCI, and then transmitted to the GIS Section. The side sewer infrastructure information captured on the as-built is digitized by SPU GIS Section staff, undergoes a rigid quality control review and is then uploaded to the master GIS directory for use by GIS users within the City.

II.2.4 Current and Planned Mapping Activities

II.2.4.1 Mapping of known storm sewer outfalls and discharge points, receiving waters and structural stormwater treatment and flow control BMPs.

The City has a project in place to map all known municipal separate storm sewer outfalls, discharge points, and structural stormwater treatment and flow control BMPs owned, operated or maintained by the City. This mapping continues as new outfalls and discharge points are found and new BMPs are constructed that fit this description. As developed, these data are being incorporated into existing data sets and are being made available for use by GIS users within the City. For example, the illicit discharge, detection and elimination (IDDE) program can utilize data when planning the screening program for compliance with the permit requirements in S5.C.8.

II.2.4.2 Develop a program to map connections between the City's MS4 and those owned and operated by other municipalities or other public entities

The City has a project in place to map connections between the City's MS4 and those owned and operated by other municipalities or other public entities. Any new connections of this type must be permitted and will follow the methods outlined in III.2.4.3 below. When the SPU GIS team discovers unknown connections between the City's MS4 and others, the City works with the other municipalities or other public entities to share data and update the City's GIS data set.

II.2.4.3 Map Attributes for all storm sewer outfalls and discharge points with a 24 inch or larger diameter

The permit requires the City to map attributes of the MS4 that have 24-inch or greater nominal diameter, or equivalent cross-sectional area for non-pipe systems. The City's GIS System contains data and attributes for the mapped MS4 on the conveyance type, pipe material and diameter of the pipe. Most of the City's MS4 outfall and discharge point drainage basins have been delineated to identify which portions of the City are served by the system. Information on the land use is mapped and contained in the land use data set (part of

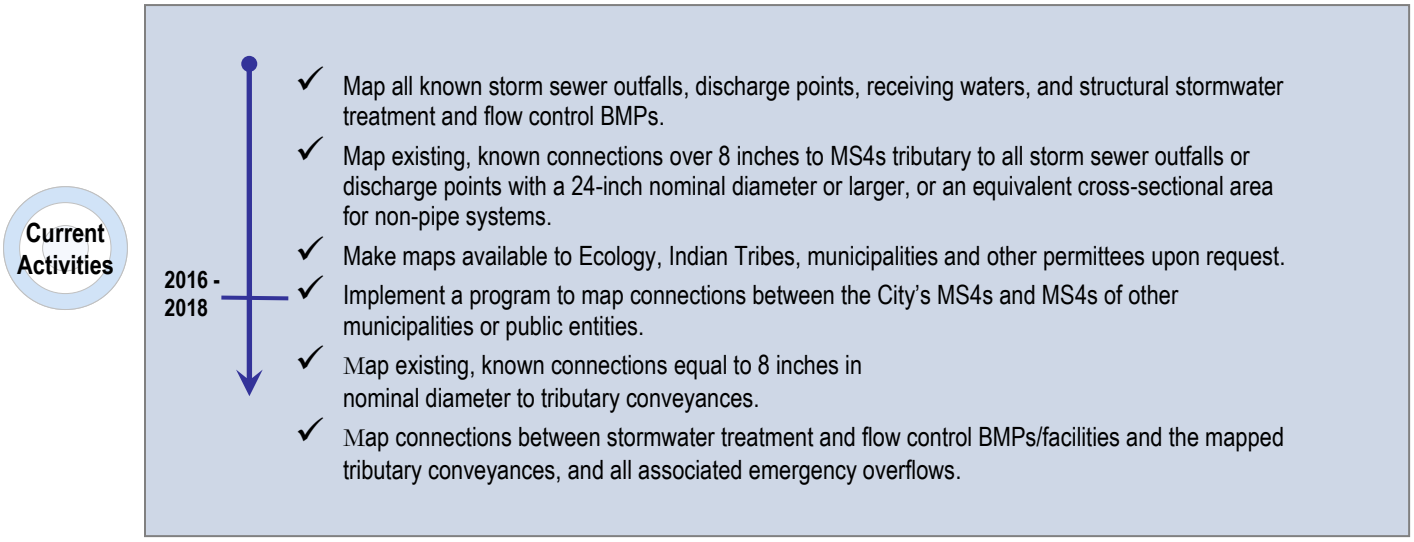
the parcel data maintained by King County) and made available to City employees and the public in the City's GIS data set.

II.2.4.4 Map all known connections greater than 8 inches to [storm sewer outfalls or discharge points] greater than 24 inches and map connections after Permit effective date

Existing, known connections greater than 8 inches to storm sewer outfalls or discharge points greater than 24 inches are currently mapped in SPU's GIS system. The City also has a program to map all connections to the City MS4 authorized or allowed by the City after the effective date of the permit. SCDI issues a side sewer permit for connections to the City's MS4 before work begins on a side sewer, including new installations, alterations, repairs, capping, relocations, removals, and conditional and temporary dewatering work. Applicants are required to submit a site plan during the planning stage and, later, an as-built plan which is reviewed and approved by the site inspector. A permit cannot be finalized without as-built approval. Approved as-built plans for side sewers are then circulated from SDCI staff to SPU GIS staff for processing into the City's GIS system.

Figure II.2-1 describes the progress made in implementation of permit requirements and the planned next steps for meeting permit requirements.

Figure II.2-1 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- The Public may request map information in person at the Map Counter in the Public Resource Center, Seattle Municipal Tower 20th floor, or by phone at 206.684.0965 or via email at gismap@seattle.gov.
- The public can view standard GIS maps and find out more information at the web site: http://www.seattle.gov/util/MyServices/GIS/ .
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

II.3 Coordination-S5.C.3

II.3.1 Requirements

The Permit (Section S5.C.3) requires internal coordination of municipal stormwater activities among City departments and external coordination between the City and outside agencies. Minimum performance measures include:

- Implementing a written internal coordination agreement or Executive Directive to facilitate compliance with the terms of the Permit.
- Establishing and implementing coordination mechanisms between physically interconnected municipal separate storm sewers (MS4s) of the City and any other Permittee covered by a municipal stormwater permit.
- Coordinating stormwater management activities for shared water bodies among other MS4 Permittees and Secondary Permittees, as necessary to avoid conflicting plans, policies and regulations.
- Documenting the coordination efforts.

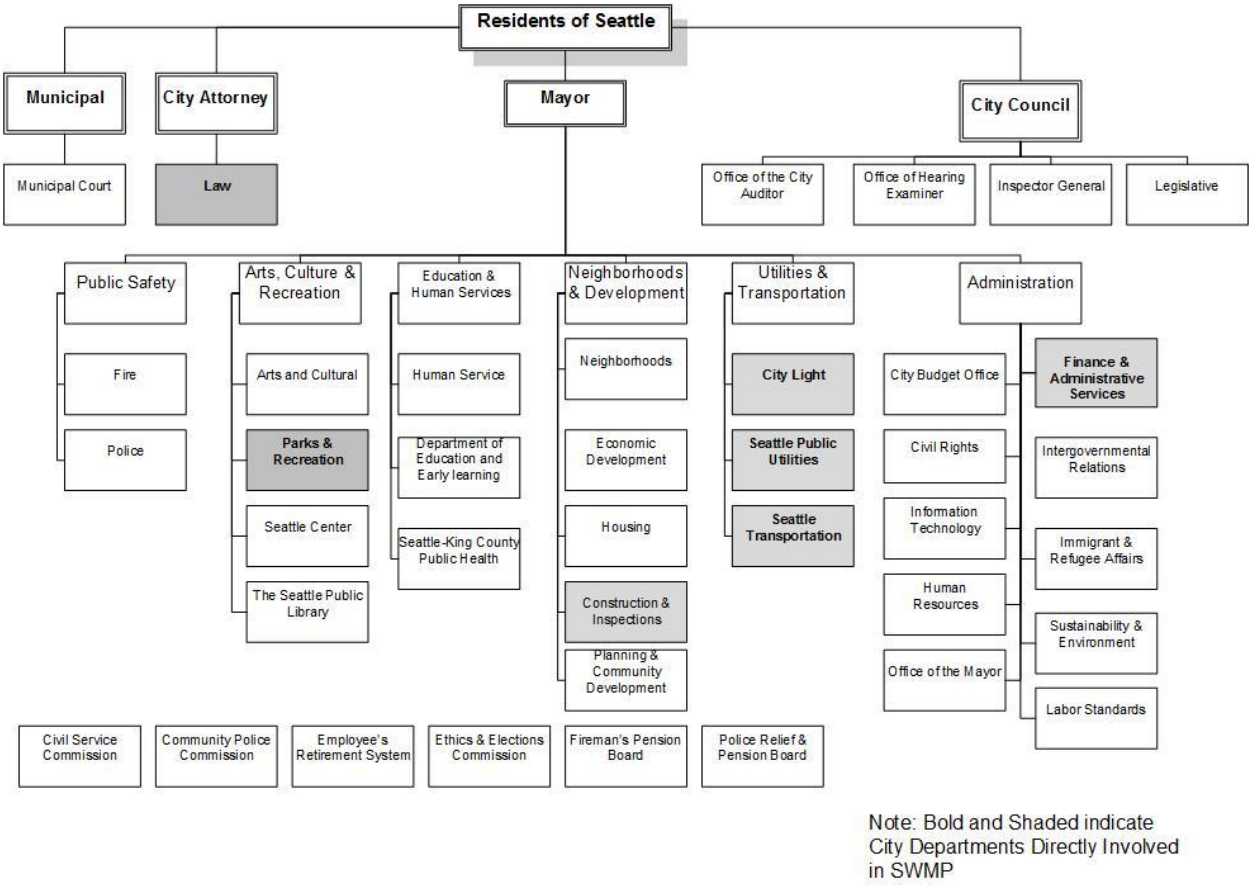
II.3.2 Coordination Program

SPU is the lead department for coordinating Permit and municipal stormwater related activities among City departments, as designated by a mayoral Executive Order dated January 29, 2008 (Appendix 1). External coordination mechanisms and coordinating municipal stormwater activities are required. SPU has established external coordination mechanisms with King County, Port of Seattle, University of Washington and Seattle Public Schools (see Section II.3.4.3) and is coordinating with other Permittees and Secondary Permittees for shared waterbodies.

II.3.3 Responsible City Departments

SPU is the lead City department for implementing Permit coordination requirements in the SWMP. Among the many City departments serving the residents of Seattle, there are six departments (highlighted on Figure II.3-1) primarily responsible for implementation of programs and projects for stormwater management within the City's MS4. These are SPU, SDCI, Parks, FAS, SCL, and SDOT.

Figure II.3-1 City Organizational Chart



II.3.3.1 Seattle Public Utilities

SPU is the City-designated lead department for managing municipal stormwater, including meeting Phase I Permit requirements, conducting water quality programs, and managing drainage-related capital projects. SPU conducts inspections, maintenance and repair of stormwater facilities in the right-of-way.

II.3.3.2 Seattle Department of Construction and Inspections

SDCI is the City department responsible for developing, administering, and enforcing development standards. SDCI issues development permits as required under the Stormwater Code and other ordinances and inspects sites prior to and during construction. SPU and SDCI share complaint response and enforcement (i.e., inspection and response) responsibilities. Both SPU and SDCI have authority to issue notices of violation and initiate enforcement for drainage related issues. SDCI manages customer complaints and inquiries related to current construction activities. SPU manages customer complaints and inquiries unrelated to development permits.

II.3.3.3 Seattle Parks and Recreation

Parks is responsible for several hundred parks and park facilities and plays a key role in environmental stewardship. Parks trains its staff in comprehensive BMPs for various maintenance activities, works in partnership with SPU on creek improvement projects, and is involved in programs designed to reduce pesticide use, remove invasive plants, and replant native species on property managed by Parks.

II.3.3.4 Seattle Department of Finance and Administrative Services (FAS)

FAS manages most of the City's non-utility real estate portfolio, oversees the design, construction and occupancy of City facilities, maintains City buildings, and purchases, maintains and repairs the City's fleet of vehicles. FAS trains its staff in BMPs related to its business activities and works to reduce impacts on stormwater. FAS is responsible for implementation of the Stormwater Code at facilities under its management.

II.3.3.5 Seattle City Light

Created by the citizens of Seattle in 1902, SCL provides customers with electricity and related services. SCL is dedicated to managing all of its activities in an environmentally responsible manner. SCL trains its staff in BMPs related to its business activities and works to reduce adverse impacts on stormwater. SCL is responsible for implementation of the Stormwater Code at facilities under its management.

II.3.3.6 Seattle Department of Transportation

SDOT is responsible for the City's streets, bridges, sidewalks, bike paths, street trees, and traffic operations. SDOT performs such roadway maintenance activities as street sweeping and snow and ice control. The Capital Projects Division of SDOT oversees all aspects of Transportation Capital Improvement Programs (CIPs) and coordinates development and implementation of large-scale City projects. SPU works with SDOT during implementation of projects to design stormwater facilities in the right-of-way. At project completion, SPU takes over operation and maintenance of municipal stormwater facilities in the right-of-way.

II.3.4 Current and Planned Coordination Activities

II.3.4.1 Internal Coordination

SPU leads inter-departmental meetings to coordinate the City's stormwater management and Permit reporting efforts. These meetings are typically held quarterly and have enabled the different departments to better coordinate stormwater-related policies, programs and projects.

II.3.4.1.1 Executive Directive

The Permit requires the City to "implement intra-governmental (internal) coordination agreement(s) or Executive Directive(s) to facilitate compliance with the terms of this permit." Executive Order # 01-08 (Appendix 1) (City of Seattle, 2008) was issued on January 29, 2008, by the Mayor of Seattle to meet this Permit requirement. The Executive Order prescribes the following responsibilities and orders all departments to coordinate all stormwater-related policies, programs, and projects:

- Each department director will be responsible for meeting the Permit requirements that apply to his or her respective department.
- SPU will serve as the lead department for overseeing City compliance with the Permit.
- SPU will provide each department with information, technical support, and a forum for inter-departmental coordination.

- All City departments must provide SPU with all necessary reporting elements and supporting material necessary to comply with the reporting requirements and associated deadlines of the Permit.

SPU will continue to coordinate with the various departments to facilitate the stormwater management program for the City.

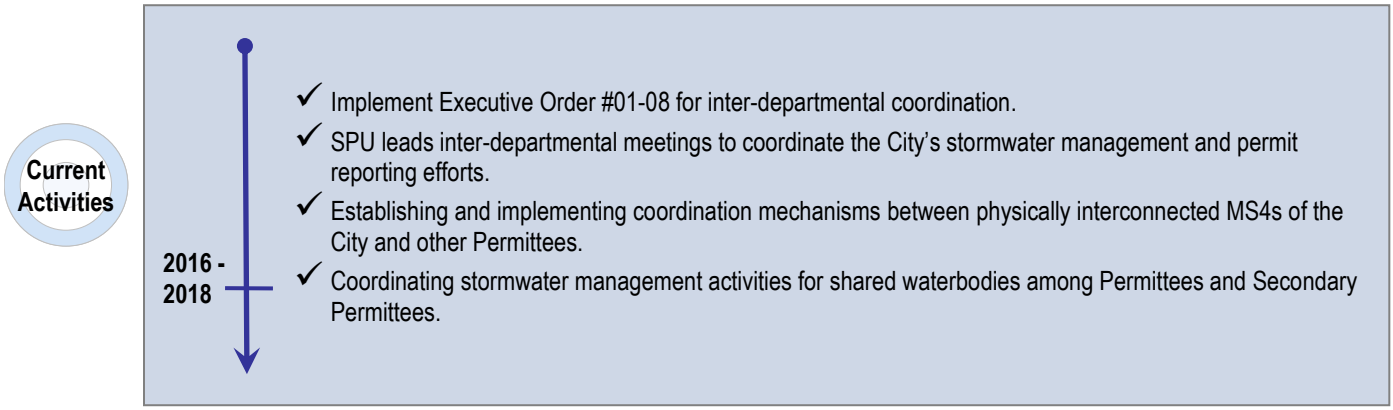
II.3.4.2 Coordination between Secondary Permittees with physically interconnected MS4s

The Port of Seattle, University of Washington, and Seattle Public Schools are currently the entities in Seattle that have submitted notice of intent for coverage as a secondary Permittee under the 2013 NPDES Phase I Municipal Stormwater Permit. The City communicates with these entities about the control of pollutants, coordination of stormwater management activities for shared waterbodies and provides technical assistance when requested. The City communicates with other Phase I and Phase II municipalities where there are interconnected MS4s, shared waterbodies, or both as needed to address issues or coordinate activities.

II.3.4.3 External Coordination

SPU represents the City at the Regional Permit Coordinators' Group, which meets to coordinate and discuss implementation of the Permit and coordination of stormwater management activities for shared waterbodies. In addition, the group discusses stormwater related issues; shares permit implementation information; and identifies solutions and potential future issues.

Figure II.3-2 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- City of Seattle: http://www.seattle.gov/
- Seattle Public Utilities: http://www.seattle.gov/util/index.htm
- Seattle Department of Construction and Inspections: http://www.seattle.gov/dpd/
- Seattle Parks and Recreation: http://www.seattle.gov/parks/
- Finance and Administrative Services: http://www.seattle.gov/fleetsfacilities/
- Seattle City Light: http://www.seattle.gov/light/
- Seattle Department of Transportation: http://www.seattle.gov/transportation/
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

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II.4 Public Participation During SWMP Development – S5.C.4

II.4.1 Requirements

The Permit (Section S5.C.4) requires the City to provide ongoing opportunities for public involvement in the SWMP and input on implementation priorities. The minimum performance measures include:

- Creating opportunities for the public to participate in the decision-making process involving development, implementation and update of the SWMP.
- Making this SWMP and the required annual report available to the public on the City's web site. All other Permit-required submittals shall be available to the public upon request.

II.4.2 Public Participation Program

The City provides a variety of opportunities for public involvement in the stormwater management program. Public comments on budget, Stormwater Codes and this SWMP also help to refine ongoing development of stormwater management activities.

II.4.3 Responsible City Departments

SPU is the lead City department responsible for implementing the public involvement and participation program for the SWMP and Permit-related activities. The City Council provides opportunities for public participation in public hearings.

II.4.4 Current and Planned Public Participation Activities

The public has several means of participating in the SWMP development process and associated activities, as described below.

II.4.4.1 City Budget Process

The City budget process provides opportunities for public input on how monies are allocated for implementation of NPDES-related stormwater management. Adoption of the City Budget - one of the most important products of the work of City Council - always requires public hearings to be scheduled on two or more days. All meetings are held in Council Chambers unless otherwise noted. The public is encouraged to attend Council meetings, hear the debate, and offer public comment on issues. The City Council meeting schedule and methods for providing comments are listed on the City Council's web site: http://www.seattle.gov/council/default.htm.

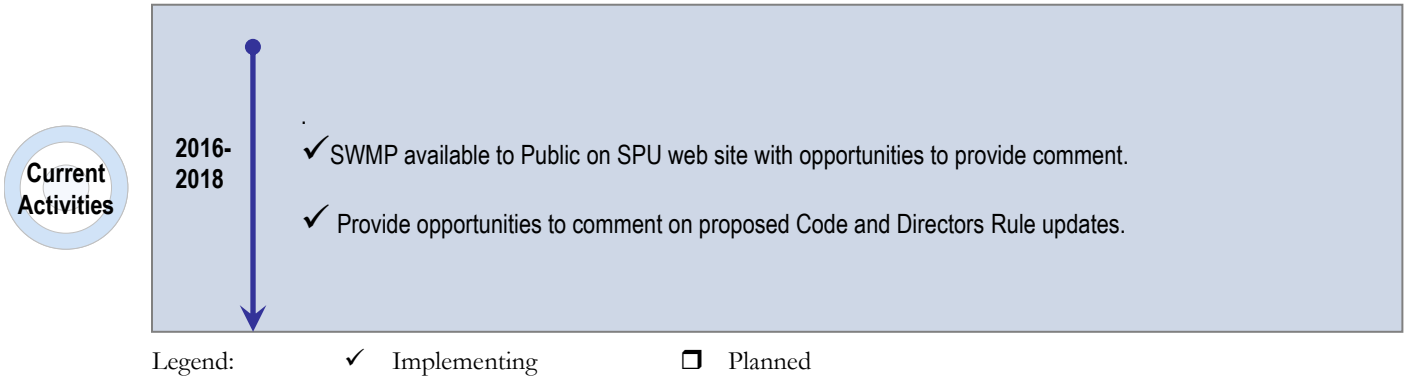
II.4.4.2 Public Participation during SWMP Development

SPU facilitates several citizen advisory groups that provide an on-going opportunity for citizens to participate in planning and development of policies and programs and to advise SPU and other pertinent City entities of its findings and recommendations. SPU will continue to engage citizen advisory groups to provide a diversity of viewpoints on implementation of stormwater management activities. Information about the Creeks,

Drainage and Wastewater Advisory Committee can be found on the SPU webpage: http://www.seattle.gov/util/AboutUs/SPUandtheCommunity/CommunityAdvisoryCommitees/CreekDrainageWastewater/index.htm.

To provide for additional public input beyond that provided by the stakeholder groups, SPU has created a stormwater management web site to host an electronic version of the SWMP and other related stormwater management information and documents (see link in the "For More Information" box below). In addition, the web site provides contact information (swmp@seattle.gov) for citizens to provide comments and ask questions. Comments provided will be evaluated and considered. The SWMP may be updated based on comments provided, and an updated SWMP will be posted on the webpage.

Figure II.4-1 Timeline Showing Progress and Next Steps



For More Information

- City Council : http://www.seattle.gov/council/councilcontact.htm , or via email at: budget@seattle.gov , or call Council reception at (206) 684-8888
- Stormwater Code information on SDCI web site: http://www.seattle.gov/dpd/codesrules/codes/stormwater/
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit: http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

II.5 Controlling Runoff from New Development, Redevelopment and Construction Sites-S5.C.5

II.5.1 Requirements

The Permit (Section S5.C.5) requires the City to develop, implement, and enforce a program to prevent and control the impacts of stormwater runoff from new development, redevelopment and construction site activities. The minimum performance measures include the following main areas, with more detailed requirements included in the Permit text:

- Adopt and make effective a local program with ordinances or other enforceable documents (codes, standards, or both) to meet or exceed requirements in Appendix 1 of the Permit, or equivalent as determined by Ecology. The local manual and ordinances must be reviewed and approved by Ecology.
- Review, revise and make effective local enforcement documents to incorporate and require Low Impact Development (LID) Principles and LID Best Management Practices (BMPs).
- Include legal authority to inspect private stormwater facilities and enforce maintenance standards for all new development and redevelopment approved by the local program.
- Include a process of permits, site plan review, inspections, enforcement capability and record keeping to meet permit conditions during and post construction for public and private new development and redevelopment.
- Make Ecology's Notice of Intent (NOI) documents for construction and industrial activities available, as applicable, to project proponents.
- Ensure training of staff whose primary job duties are implementing the program to control runoff from new development, redevelopment and construction sites, and document the training.

II.5.2 Development Standards Program

SMC Chapters 22.800 through 22.808 contains the City's Stormwater Code, which is the City's primary means of implementing stormwater standards required by the Permit. The Stormwater Code is listed in Appendix 10 of the Permit as an equivalent program for runoff controls for new and redevelopment and Construction Sites as it was adopted with accompanying Grading Code and Directors' Rule below. The purpose of the Stormwater Code is to protect, to the greatest extent practicable, life, property, and the environment from loss, injury, and damage by pollution, erosion, flooding, landslides, and other adverse impacts from urban stormwater runoff. Seattle's Stormwater Code includes the following requirements: (1) to practice stormwater pollution prevention during construction; (2) to reduce the introduction of pollutants into stormwater runoff as close to the source as possible; and (3) to install flow control, stormwater treatment facilities, or both depending on the size and nature of a project. The Stormwater Code is implemented through the Directors' Rule, promulgated jointly by the Director of SPU and the Director of SDCI (formally known as DPD). This Directors' Rule provides specifications, guidelines, and additional information needed for meeting the requirements of the Stormwater Code. The Directors' Rule currently in place includes the following:

- Volume 1: Project Minimum Requirements
- Volume 2: Construction Stormwater Control
- Volume 3: Project Stormwater Control
- Volume 4: Source Control
- Volume 5: Enforcement

The City's Side Sewer Code (Ch. 21.16 SMC), Grading Code (Ch. 22.170 SMC), Land Use Code (Ch. 23 SMC), Street and Sidewalk Use (Ch. 15 SMC) and Regulations for Environmentally Critical Areas (Ch. 25.09 SMC) also provide protections and standards relevant to municipal stormwater.

II.5.3 Responsible City Departments

SDCI is the City department primarily responsible for developing, administering, and enforcing development standards. SDOT issues Street Use permits to parties conducting ground disturbing activities in the City right-of-way. SDCI and SDOT issue development permits as required under the Stormwater Code and other ordinances and inspects sites prior to and during construction. SPU, SDCI and SDOT conduct complaint response and enforcement (inspection and response) activities. Both SPU and SDCI have authority to issue notices of violation and initiate enforcement for drainage related issues. SDCI manages customer complaints and inquiries related to current construction activities. SPU manages customer complaints and inquiries unrelated to development permits. SDOT manages customer complaints and inquiries related to projects in the right-of-way. All complaints and inquiries related to existing public owned or operated stormwater facilities are directed to SPU Customer Service.

II.5.4 Current and Planned Activities

The following sections outline completed or planned activities needed to meet the key Permit requirements.

II.5.4.1 Stormwater Code

Ecology determined that the City of Seattle's Stormwater Code and supporting documents are equivalent to the minimum requirements in Appendix 1 of the 2013 Permit, and will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy the state requirement under chapter 90.48 RCW to apply all known, available, and reasonable methods of prevention, control and treatment (AKART).

SPU, in close collaboration with SDCI, other City departments, and external stakeholders, updated Seattle's Stormwater Code and Manual to incorporate updated Washington State Department of Ecology (Ecology) requirements, incorporate policy changes, and improve usability. The Stormwater Code (SMC 22.800-22.808) was adopted by the City Council on September 21, 2015, and signed by the Mayor on September 29, 2015, with an effective date of January 1, 2016, the alternative date established in accordance with S5.C.5.a.iii.

II.5.4.2 Authority to Inspect Private Facilities

Legal authority for inspection of private facilities for new development and redevelopment is established by SMC 22.807.090.B, which states:

> "The Director of SPU may establish inspection programs to evaluate and, when required, enforce compliance with the requirements of this subtitle and accomplishment of its purposes. Inspection programs may be established on any reasonable basis, including but not limited to: routine inspections; random inspections; inspections based upon complaints or other notice of possible

violations; inspection of drainage basins or areas identified as higher than typical sources of sediment or other contaminants or pollutants; inspections of businesses or industries of a type associated with higher than usual discharges of contaminants or pollutants or with discharges of a type more likely than the typical discharge to cause violations of state or federal water or sediment quality standards or the City's NPDES stormwater permit; and joint inspections with other agencies inspecting under environmental or safety laws. Inspections may include, but are not limited to: reviewing maintenance and repair records; sampling discharges, surface water, groundwater, and material or water in drainage control facilities; and evaluating the condition of drainage control facilities and other best management practices."

Entry onto properties is subject to the requirements and limitations of local, state and federal law.

II.5.4.3 Permitting Program

SDCI is the City department primarily responsible for issuance of permits for new development and redevelopment for projects located on private property. SDCI's routine permitting procedures are outlined below:

II.5.4.3.1 SDCI Permit Application Process

Step 1. The permitting process begins with an optional but recommended step of applicant coaching. In this step, either a SDCI land use planner, or permit leader, meets with the potential applicant to identify unique or particular issues of the proposed project. Coaching helps to determine what is allowed on a piece of property, what development standards apply, what types of permits the project will require, and what the permit process will entail. If the project is a multifamily or commercial building and there are special circumstances or issues unresolved during coaching, the proponent can request a pre-submittal conference for clarification on what standards will apply to the proposed project.

Step 2. The next step for an applicant is to research and prepare a preliminary site plan. The site plan depicts where the structure(s) and BMPs will be located, the amount of new & replaced impervious surfaces that will result, the general topography of the site, and the existing level of street and alley improvements in the rights-of-way abutting the site.

For those projects that involve ground disturbance, SDCI requires a Pre-Application Site Visit (PASV). This is performed by a SDCI site inspector prior to permit application intake. The PASV confirms existing site conditions, including steep slopes, sensitive areas, and erosion control issues that can be anticipated with the project due to site conditions. A PASV report is generated for the applicant and plan reviewer's use. Second, after a permit is issued for projects with ground disturbance, but prior to any ground disturbance occurring, the applicant is required to schedule a first ground disturbance (FGD) inspection with a SDCI Site Inspector. The FGD inspection requirement is codified in the Seattle Building Code (SMC 22.100 – 22.204). The purpose of the FGD inspection is for the applicant and inspector to identify potential erosion control issues that may be encountered during construction and map out BMPs that are acceptable to prevent sediment from leaving the site.

Step 3. Prior to permit issuance on projects that have ground disturbance and a high likelihood of erosion control issues due to steep slopes, the applicant nominates a geotechnical special inspector. The geotechnical special inspector is charged with determining that adequate temporary and permanent erosion control measures are in place throughout the construction of the project.

Step 4. The applicant submits an application, including plans, to the SDCI Applicant Services Center on the 20th Floor of the Seattle Municipal Tower. These are reviewed for compliance with applicable adopted codes, and the building permit is issued when the plans comply with these codes and the permit fees are paid.

Step 5. After the building permit is issued for projects with ground disturbance, but prior to any ground disturbance occurring, the applicant is required to schedule a first ground disturbance (FGD) inspection with a SDCI Site Inspector. The FGD inspection requirement is codified in the Seattle Building Code (SMC 22.100 – 22.204). The purpose of the FGD inspection is for the applicant and inspector to identify potential erosion control issues that may be encountered during construction and map out BMPs that are acceptable to prevent sediment from leaving the site.

Step 6. Once the building permit has been issued, the applicant, or more typically the contractor, applies for the Side Sewer Permit. This permit contains the drainage plan that was approved during the building permit review, and also includes the Memorandum of Drainage Control, which lists the BMP's to be constructed, and is the mechanism to allow future inspections of these facilities by City staff.

II.5.4.3.2 SDOT Street Use Permitting Process

Any private development that triggers permanent improvements in the City's public right of way requires a Street Improvement Permit issued by the Street Use Division of SDOT in addition to the permits required by SDCI. Examples of these kinds of improvements are street drainage facilities, curbs and sidewalks, trees and street or alley paving.

SDOT Street Use section issues street use permits for private and public activities in the City's public right of way under SMC Title 15. SDOT tracks permits, inspections and enforcement actions of permitted projects. Each permit type requires a specific number of inspections during the construction process. Most permit types require an initial and final inspection to determine compliance with the permit. The construction and source control BMPs listed in the Stormwater Code (SMC 22.800-22.808) apply, and failure to implement these BMPs constitutes a violation of the street use permit.

SDOT's Street Use & Urban Forestry Division inspects and approves permanent erosion controls, including tree and plant installations within the right of way, prior to the DPD issuance of the certificate of occupancy.

II.5.4.3.3 Inspections of Permitted Parcel Based Projects

After all required Pre-Application Site Visits (PASVs) are completed and a building permit is issued, a SDCI inspector checks to make sure that work is done according to code. Customers with permits are responsible for arranging inspections.

There are six types of site inspections that can occur after a permit is issued.

1. First ground disturbance (FGD) inspection - SDCI Site Inspectors conduct a site visit prior to ground disturbance to determine erosion potential and review and tailor construction stormwater erosion and sediment control (CSESC) measures to the site. The FGD inspection requirement is codified in the Seattle Building Code (SMC 22.100 – 22.204). The purpose of the FGD inspection is for the applicant and inspector to identify potential erosion control issues that may be encountered during construction and map out BMPs that are acceptable to prevent sediment from leaving the site.

2. Pre-construction inspection – This inspection typically includes the Contractor, building inspector, Site Inspector, and if applicable, geo-technical special inspector. Inspection of the installed CSESC measures and BMP's identified as necessary in the FGD inspection occurs at this time.

3. Side sewer inspection - During this inspection, SDCI and the contractor verify that the proper connection is made between the building's side sewer and the City's mainlines. Permanent stormwater treatment, flow control facilities, and GSI BMPs are inspected during this inspection.

4. Special inspection - This type of inspection is both applied to structural work and for geotechnical for special grading, excavation and filling involved with ground disturbance.

5. Site Final inspection – Permanent erosion control and stormwater facilities, including Green Stormwater Infrastructure are inspected during this inspection.

6. Final inspection - After successful completion of all inspections, the permittee is granted approval to occupy or Certificate of Occupancy.

II.5.4.3.4 Enforcement

SDCI's Code Compliance staff enforces the Stormwater Code and Directors' Rule that governs construction, land use, and environmental protection. Enforcement can take the form of notices, fines and legal action.

SDOT Street Use Inspectors use written warnings, citations, and stop work orders, or revoke the permit if compliance is not achieved. This process is documented in SMC Title 15.

II.5.4.4 Ecology Notice of Intent

SDCI has made and will continue to make available copies of the "Notice of Intent for Construction Activity" (Ecology, 2015), "Notice of Intent for Industrial Activity" (Ecology, 2015), or both to City permit applicants in the Applicant Services Center.

II.5.4.5 Training

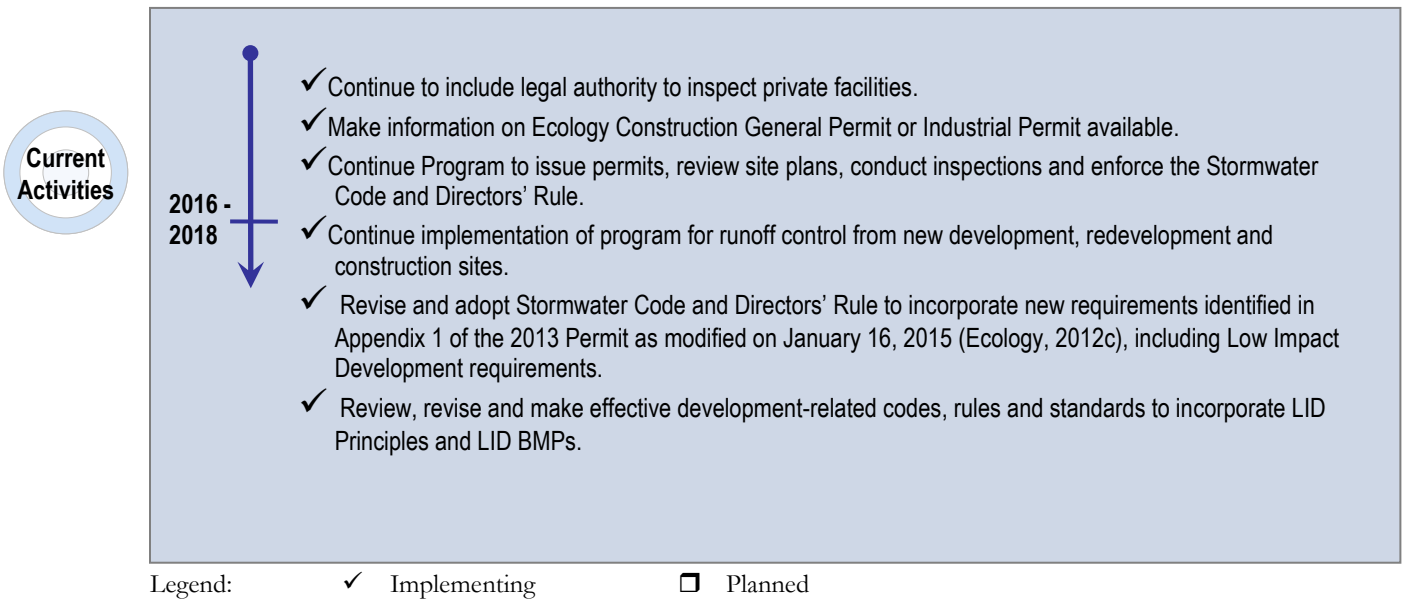
SDCI and SDOT have temporary erosion and sediment control (TESC) training that is provided to City staff involved in ground disturbing activities to reflect the current Stormwater Code. This training, called stormwater construction controls (SWCC), is offered to City staff as needed. SDCI conducts on the job and classroom training for all staff whose primary job duties relate to implementing the City's program to Control Stormwater Runoff from New Development, Redevelopment, and Construction Sites, which helps confirm that those individuals are properly trained. Training topics include permitting, plan review, construction site inspections, and enforcement procedures.

SDOT conducts training for all Street Use Inspectors on the required BMPs, inspection procedures and enforcement for Street Use Permits. The City has and will continue to provide training to City staff on the Stormwater Code and its associated Directors' Rule on an as needed basis.

II.5.4.6 Low-impact development code-related requirements

The City reviewed and revised development-related codes, rules, standards, and other enforceable documents to incorporate and require Low Impact Development (LID) Principles and LID Best Management Practices (BMPs). The intent of required revisions was to make LID the preferred and commonly-used approach to site development. Each department responsible for a development-related document which requires analysis has identified ways to minimize impervious surface, native vegetation loss, and stormwater runoff. The code-related review was conducted in 2015. The revised documents were effective by January 15, 2016, the alternative date established in accordance with S5.C.5.a.iii., and are now being implemented.

Figure II.5-1 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- The Stormwater Code and Directors' Rule are available on the SCDI web site at: http://www.seattle.gov/dpd/codesrules/codes/stormwater/default.htm
- Information on the permitting process for new and redevelopment is available on the SDCI web site at:

  http://www.seattle.gov/dpd/permits/
- Information on Green Stormwater Infrastructure from SPU is available at:

  http://www.seattle.gov/util/EnvironmentConservation/Projects/GreenStormwaterInfrastructure/index.htm
- Information from SDOT on Street Use Permits is available at:

  http://www.seattle.gov/transportation/stuse_permits.htm
- Information from SDOT on the Seattle Right-of-Way Improvements Manual is available at:

  http://www.seattle.gov/transportation/rowmanual/
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

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II.6 Structural SW Controls-S5C.6

II.6.1 Requirements

The Permit (Section S5.C.6) requires the City to:

- Implement a Structural Stormwater Control Program (SSCP) that is designed to control stormwater impacts that are not adequately controlled by other required actions of the SWMP.
- Describe the SSCP in the SWMP document, including goals, planning process, budgets, public involvement, and the prioritization process, procedures and criteria used to select the projects.
- Provide a list of planned SSCP projects scheduled to be implemented during the term of the Permit; including the information and formatting specified in Appendix 11 of the Permit.
- Include an updated list each annual report.

II.6.2 Structural Stormwater Control Program

The key elements of the City's SSCP are described below under Current and Planned Activities. The SSCP includes water quality and flow control projects.

II.6.3 Responsible City Departments

SPU is the lead City department for development and implementation of the SSCP.

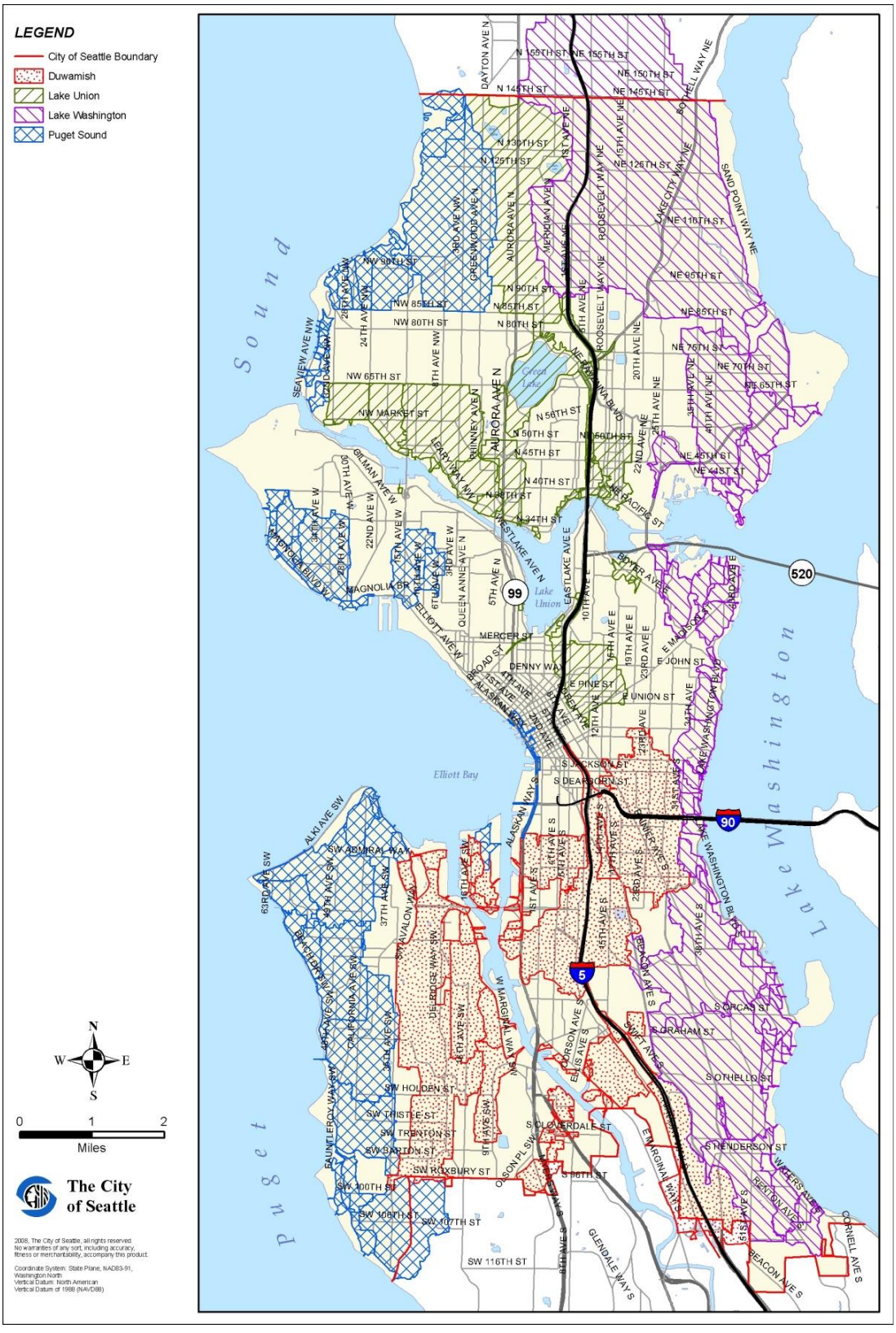
II.6.4 Current and Planned Activities

The following sections outline the goals of the City's SSCP, which is to implement projects that protect, and/or improve the beneficial uses of certain receiving water bodies, reflect asset management principles and are not otherwise required actions in the SWMP.

II.6.4.1 Planning Process and Considerations

A comprehensive planning process is in place to support the SSCP. The geographic scale of the program is the area served by the City's MS4 and the MS4-related receiving water bodies. This area is evaluated based on the watersheds of the four major receiving water bodies; Puget Sound, Lake Washington, Duwamish River, and the Ship Canal/Lake Union (Figure II.6-1). Regulations and issues considered during the SSCP development process included: 303 (d) listed and other impaired water bodies, TMDLs, Stormwater Code requirements, Superfund and MTCA sites, as well as opportunity, feasibility, and available funding.

Figure II.6-1 Major Receiving Water Bodies



The SSCP program develops and prioritizes projects by using asset management principles. The type of treatment facilities evaluated for a project is based on project goals, site conditions, and consideration of AKART and MEP principles as they apply in a fully developed urban area. Projects are prioritized by SPU staff based on an assessment of receiving water body conditions, anticipated benefits of the project, regulatory compliance needs, opportunity, and application of asset management principles that have been adopted by SPU under the guidance of the Asset Management Committee (AMC). Projects must pass through several AMC evaluation screens and funding allocation phases before they are formally approved by SPU management for implementation. Asset management is the process by which projects are evaluated for their whole-life cycle cost benefit including social, economic, and environmental factors (the triple bottom line). This rigorous process assures that the City's SSCP needs are being addressed with the most effective use of ratepayer dollars by the time a project breaks ground. Additionally, project implementation is dependent upon City Council budget approval.

The public involvement process related to SSCP development includes (as appropriate): Seattle City Council budget process, involvement of the Creeks, Drainage Water and Wastewater Advisory Committee (CDWWAC), State Environmental Policy Act (SEPA) review, and Joint Aquatic Resources Permit Application (JARPA) review.

The City of Seattle conducted a structural stormwater control planning project called the Integrated Plan. The Integrated Plan was approved by Ecology and EPA in August of 2015 as satisfying the requirements in the City's Consent Decree for NPDES Combined Sewer Overflow (CSO) control. The Integrated Plan is designed to plan structural stormwater control projects that will provide significant benefits toward improving water quality in the receiving water bodies in and around Seattle sooner and beyond those that would be achieved by the implementation of the approved CSO projects alone. The structural stormwater control projects will be built or implemented between 2015 and 2025, and construction of some CSO projects will be deferred past 2025. The projects that are in the approved Integrated Plan meet the Structural Stormwater Control program requirements contained in S5.C.6. The Integrated Plan project evaluated LID BMPs, retrofitting existing treatment or flow control facilities, constructing new water quality facilities, and high-efficiency street sweeping. All projects considered AKART and MEP principles during the design process.

II.6.4.2 Structural Project List

SSCP projects are summarized in Table II.6-1. The projects are grouped by status. SSCP projects currently in construction have a high probability of being constructed on the anticipated schedule. For those projects currently in preliminary engineering (PE) or design, there is greater uncertainty associated with technical issues, schedule, available funding, and other unforeseen items that may result in changes to the project.

For projects that are primarily intended to provide stormwater treatment, the estimated pollutant load reduction (total suspended solids [TSS] kg/year) is shown in Table II.6-1. The concentration of TSS is used to represent estimated pollutant load because it is the target pollutant for "basic" stormwater treatment (Ecology, 2014) and is often related to other particle-bound pollutants such as total metals, total phosphorus, and certain organic chemicals. For projects that are primarily intended to provide flow control, the expected outcome of the project is shown in Table II.6-1. Other expected environmental benefits and anticipated construction dates are also shown in Table II.6-1. A brief summary of each project included in the SSCP is provided below.

Table II.6-I Structural Stormwater Control Project List

Project Name	Type	Water Quality Benefit (TSS reduction lbs/yr)	Hydro Benefit (Est. Avg. % flow reduction)	Start / End Year	Status	Cost Estimate	Receiving Water Body
Capitol Hill Water Quality Project	New treatment facility	97,600	N/A	2006 / 2019	Phase 1 & 4 (Diversion, Pretreatment, Conveyance & Utility Relocation) - Complete Phase 2 & 3 (Block 10 Swale) - Completed Phase 5 & 6 (Block 11 Swale) – Design and Permitting; Construction to begin in 2018.	12.7 M	Lake Union
Venema Natural Drainage System (NDS) Project	New treatment facility	12,000	92%	2005 / 2016	Monitoring	7.65 M	Piper's Creek
South Park Water Quality Project	New treatment facility	54,500	N/A	2005 / 2025	Design and Permitting	30 M	Duwamish Waterway
Street Sweeping for Water Quality	Other actions to address stormwater runoff	3,191,000 lbs TS/yr	N/A	2011 / ongoing	Maintenance	2.0 M /yr	Lake Washington, Lake Union, Ship Canal/Salmon Bay, Puget Sound, Duwamish Waterway, Longfellow Creek, Piper's Creek, Thornton Creek

TSS = Total Suspended Solids

TS = Total Solids

Capitol Hill Water Quality Project

The Capitol Hill Water Quality Project (aka Swale on Yale) is an innovative, regional-scale stormwater facility consisting of four blocks of biofiltration swales with an infiltration and underdrain component that treats stormwater draining to Lake Union from a 439-acre high density commercial and residential basin (Figures II.6-4 and II.6-5). SPU teamed with private development during the redevelopment of this highly urbanized area to incorporate a regional stormwater treatment facility while increasing green space in the right of way. This is a multi-phase project; phases 1 & 4 were completed in 2013 and 2014; phases 2 & 3 were completed in 2014; and phases 5 & 6 are currently in design (Table II.6-1). Construction of phases 5 & 6 is expected to begin in 2018. The Capitol Hill Water Quality Project received $1,000,000 in grant funding for construction of the first phase of the project from the Ecology FY 2011 Stormwater Retrofit and LID Competitive Grant Program. In addition, the Capitol Hill Water Quality Project received a $1,857,000 loan for the first phase of the project from the Ecology FY 2012 State Revolving Fund Program. Project details can be viewed: http://www.seattle.gov/util/EnvironmentConservation/Projects/SwaleonYale/index.htm.

Figure II.6-2 Artist depiction of Capitol Hill Water Quality Project

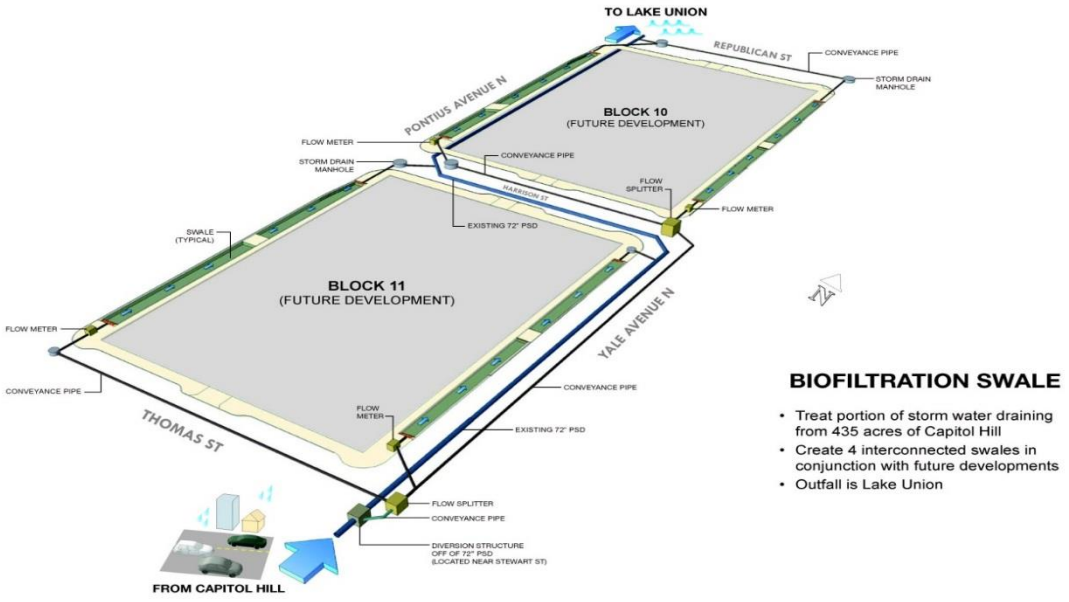


Figure II.6-3 Street Views of Capitol Hill Water Quality Project

Venema Natural Drainage System

The Venema Natural Drainage System project reconstructed five blocks of roadway in the Broadview neighborhood to include natural drainage systems and planting improvements. Venema Creek is a tributary of Piper's Creek and collects stormwater from over 80 acres in the Venema Basin. This system improves the existing flow, character, and pattern of infiltration of stormwater. This will restore the natural hydrological cycle, improve salmon habitat, and reduce the negative impacts of urbanization on Piper's Creek – and ultimately the Puget Sound.

The new bioretention systems and infiltration wells are expected to reduce the average annual volume of stormwater runoff into Venema Creek. They will also significantly slow the flow of stormwater while improving the water quality.

Construction was completed in 2015. The Venema NDS Project received a $1,000,000 in grant funding for design and construction from the Ecology FY 2011 Stormwater Retrofit and LID Competitive Grant Program.

Project details can be viewed at:
http://www.seattle.gov/util/EnvironmentConservation/Projects/VenemaCreek/index.htm.

Figure II.6-4 Street View of Venema Natural Drainage System Project

South Park Water Quality Project

The South Park Water Quality Project will be a regional water quality treatment facility located at the downstream end of the existing 7th Avenue South drainage basin (~238 acres) which drains to the Duwamish Waterway. SPU plans to install an active treatment system, such as a chitosan-enhanced sand filtration (CESF), prior to discharge into the Lower Duwamish Waterway. The treatment facility would be co-located with a new stormwater pump station that SPU plans to build to reduce flooding in the 7th Avenue S drainage system. The proposed project would take advantage of the opportunity to integrate water quality treatment with flood control. SPU tested water quality treatment technologies for this facility. Pilot testing began in 2016 with technology selection in 2018. The design and construction schedule will be developed once a technology is selected. This project is a component of the City's Integrated Plan which was submitted to Ecology in 2015. Construction is currently planned to begin in 2023, with completion anticipated by 2025.

Project details can be viewed at:
http://www.seattle.gov/util/EnvironmentConservation/Projects/SouthParkWaterQuality/index.htm .

Street Sweeping for Water Quality Program

In 2009, SPU completed a pilot-scale study showing the potential for regenerative air sweepers to capture stormwater pollutants cost-effectively. Additional life-cycle cost analysis found street sweeping to be a cost-effective means to remove pollutants in Seattle's highly urbanized, road dense environment compared to conventional structural stormwater controls. As Seattle's arterials cover four percent of the city surface area draining to waterways but contribute an estimated 16 percent of the pollutant load, it was understood that street sweeping may provide substantial benefits to nearby waterways. Based on these findings, in 2011, Seattle launched its city-wide Street Sweeping for Water Quality (SS4WQ) Program to remove pollutants from Seattle's roadways prior to entering the MS4.

In 2013, SPU proposed expanding the program to provide significant stormwater benefits and by 2016 SPU implemented this expansion; increasing annual broom-miles swept from 10,300 in 2013 to 16,300 in 2017 to capture 70% more pollutants.

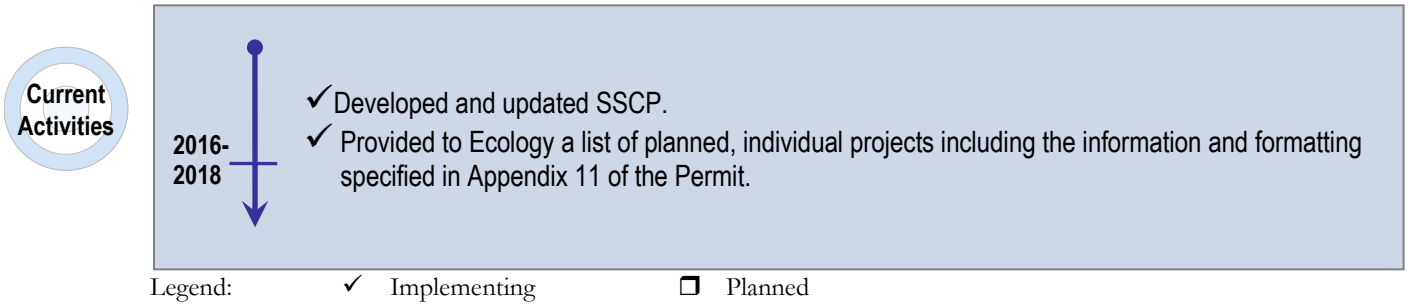
The Program is a partnership between Seattle Public Utilities and Seattle Department of Transportation. The joint effort provides multiple, city-wide benefits including:

- Clean Waterways: Sweeping removes pollutants that build up on streets and wash into local waterways when it rains.
    - 680 lane miles (90% of arterials draining to waterways)
    - 15,000 broom-miles annually
    - 150 tons of pollutants, measured as TSS equivalent, captured annually
- Healthy, vibrant urban core and neighborhood centers: Sweeping removes trash and city grit, keeping Seattle the best place to live.
    - 158 lane miles Central Business District (twice a week)
    - Ballard, Columbia City, U-District
    - 4,000 tons trash and city grit annually
- Moving Seattle safely: Sweeping improves car and bike lane safety, and reduces flooding.
    - 1,200 lane miles (90% of all arterials)
    - 94 lane miles of bike routes
    - 23,000 broom-miles annually

Project details can be viewed at:
https://www.seattle.gov/util/EnvironmentConservation/Projects/SewageOverflowPrevention/StreetSweeping/index.htm

Figure II.6-5 Street Sweeper

Figure II.6-6 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm
- For more information on about the Integrated Plan: http://www.seattle.gov/util/environmentconservation/projects/sewageoverflowprevention/ https://www.seattle.gov/util/cs/groups/public/@spu/@drainsew/documents/webcontent/01_030099.pdf

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II.7 Source Control Program for Existing Development-S5C.7

II.7.1 Requirements

The Permit (Section S5.C.7) requires the City to implement an ongoing program to reduce pollutants in runoff from areas that drain to MS4s owned or operated by the City. The minimum performance measures include these areas, with more detailed requirements included in the Permit text:

- Enforce ordinances, or other enforceable documents, requiring the application of source control BMPs for pollutant generating sources associated with existing land uses and activities. Update and make effective by February 2018.
- Identify commercial and industrial sites, based on Appendix 8 of the Permit, which are potentially pollutant generating and other sites identified by complaint response, including mobile and home based businesses, and update the inventory or list at least once every 5 years.
- Implement an inspection program for the identified sites and provide information about activities that may generate pollutants and the source control requirements applicable to those activities. The program shall annually complete inspections equal to 20% of the identified sites, and may count follow up compliance inspections to determine BMP effectiveness and compliance with source control requirements. Inspect all sites identified by legitimate complaints.
- Implement a progressive enforcement policy to require sites to come into compliance with stormwater requirements within a reasonable time period.
- Train staff who are responsible for implementing the source control program to conduct these activities. The ongoing training shall cover legal authority, source control BMPs and their proper application, inspection protocols, and enforcement procedures. Follow-up training and documentation are required.

II.7.2 Source Control Program

Source control is regulated by the Stormwater Code and the associated Directors' Rule. The Stormwater Code regulates pollution generating activities and defines the operational and structural BMPs required for those activities.

Ecology determined that the Stormwater Code and Directors' Rule dated January 2016, are equivalent to Appendix 1 of the 2013 Permit, as modified on January 16, 2015, Minimum Technical Requirements for New Development and Redevelopment. The determination of equivalency by Ecology indicates that the Stormwater Code is appropriate for implementation of the minimum requirements in Appendix 1, and will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy the state requirement under chapter 90.48 RCW to apply all known, available, and reasonable methods of

prevention, control and treatment (AKART). The Stormwater Code and Directors' Rule became effective on January 1, 2016.

In addition to the activities outlined above, the City conducts education and outreach activities to the public on issues related to stormwater. Examples of education and outreach activities related to source control include the publicly-listed Water Quality Hotline (206-684-7587), the SPU Green Business Program, an SPU funded resource conservation program, and the Spill Kit Incentive Program, which provides free spill kits and technical assistance to Seattle businesses.

II.7.3 Responsible City Departments

SPU is the lead department for development and implementation of the City's Source Control Program.

II.7.4 Current and Planned Activities

The following sections outline completed or planned activities needed to meet the key Permit requirements.

II.7.4.1 Business Inspection Program

The Source Control Team (SC) within SPU has been conducting and will continue to conduct business inspections within areas of the City served by the MS4. SC works with businesses and residents to provide education and technical assistance regarding stormwater pollution prevention and enforce the City's Stormwater Code. A progressive enforcement process is in place to address non-compliance and egregious violations.

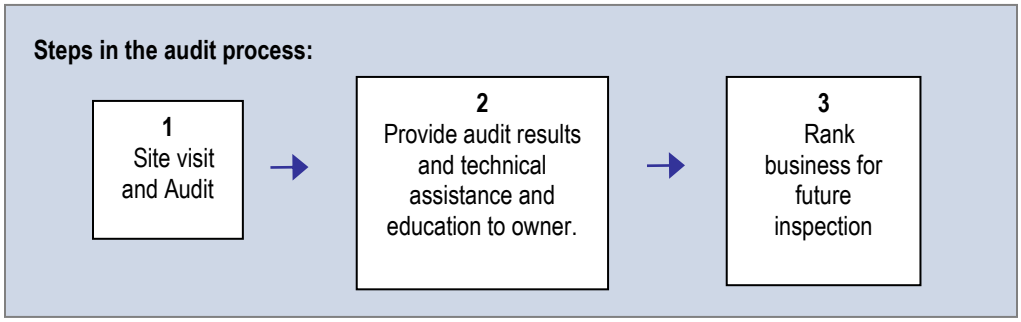
Education and technical assistance provided by SC is delivered in person during site visits, inspections, or complaint investigations and through outreach materials, such as BMP sheets. Enforcement is used when the inspection process has failed to gain compliance voluntarily. The SPU Green Business Program, a free resource conservation program for Seattle businesses that is currently being implemented by Cascadia Consulting under contract with SPU, provides outreach, education and technical assistance to the business community regarding stormwater pollution prevention. The program assists Inspectors in reaching and communicating with ethnically owned businesses. The program is currently under transition to a more regional recognition program. The SPU Green Business Program facilitates the Spill Kit Incentive Program (SKIP), which provides free spill kits and spill plans to Seattle businesses.

To meet the 2013 Permit (as modified on January 16, 2015) requirements in S5.C.7.b, SPU has established a program to identify sites which are potentially pollutant generating and implementation of an inspection program for identified sites that drain to the City's MS4. SPU developed a list of potentially pollution generating businesses, as outlined in Appendix 8 of the Permit, and continuously refines the list through field reconnaissance. The list is generated using a combination of GIS mapping, which analyzes land use and drainage infrastructure, the Seattle business license database, which provides active business license and NAIC Code information, and actual field observations.

SPU uses a suite of inspection types to conduct inspections of business that drain to the City's MS4 areas. The suite of inspection types was developed to address the complexity in achieving permit compliance and utilizing limited resources to achieve maximum water quality benefit. The first type is an "audit" inspection, which is used for new businesses or businesses who have never been inspected before. The SPU Inspector conducts a site inspection and informs the business of their source control requirements and relevant Code requirements. The business is left with a copy of its required corrective actions. Using information gathered during the inspection, (such as the type of activities occurring on site and the best management practices being implemented), the business is ranked as High, Medium or Low priority based on its potential to pollute. The current inspection cycle for businesses is every 2 years for High, 4 years for Medium and 6 years for

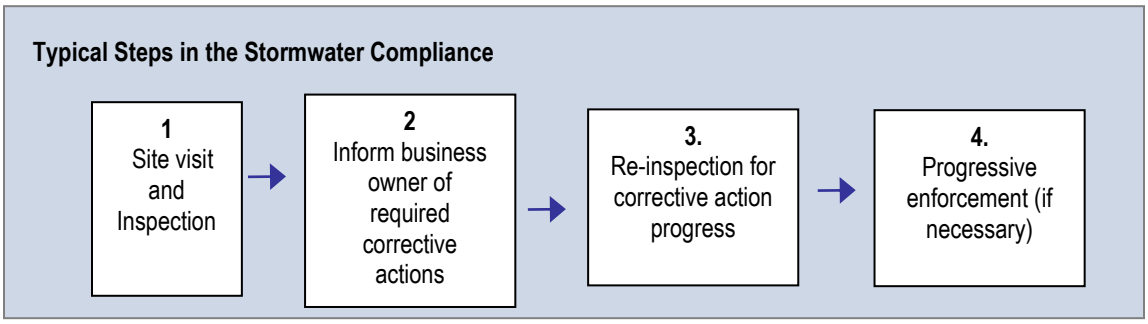
Low. This approach allows SPU to focus more frequent inspections on those businesses with the highest risk of pollution, thus achieving the maximum potential for water quality benefit. Businesses who are involved in a complaint reported to SC, or a spill, or an IDDE event, and businesses in the Superfund areas, will continue to be inspected using the "stormwater compliance inspection" and Superfund business inspections described below.

Figure II.7-1 Audit Process



The second inspection type is a "stormwater compliance inspection," whereby businesses are visited by an SPU Inspector and informed of the corrective actions necessary for their site to come into compliance with the City's Stormwater Code. Inspectors follow up with the business after the compliance deadline to verify that the necessary corrective actions have been implemented and will proceed with progressive enforcement when necessary. The "stormwater compliance inspection" is also used for water quality complaint response at businesses or if an egregious violation is found during an "audit" inspection.

Figure II.7-2 Stormwater Compliance Inspection Process



The third approach to business inspections is directed at businesses that discharge to areas where the City is currently engaged in a comprehensive process for sediment cleanup of the Lower Duwamish Waterway and the East Waterway in partnership with Ecology and the U.S. Environmental Protection Agency (EPA). Business inspections within the Superfund Cleanup areas focus on stormwater pollution prevention, and triage compliance status for hazardous waste management and industrial waste management issues. If hazardous waste or industrial compliance issues are found, they are referred to other agencies for follow up.

Mobile and home-based businesses that drain to the City's MS4 are included in this program in one of two ways. First, inspectors move geographically through watersheds so each business site is evaluated based on pollution generating activities, regardless of whether they are mobile or home based. The second way that these business types are included is if a call is made to the City's Water Quality Hotline (206-684-7587). Inspectors will respond to these calls and treat the mobile and home-based business in the same manner as other businesses.

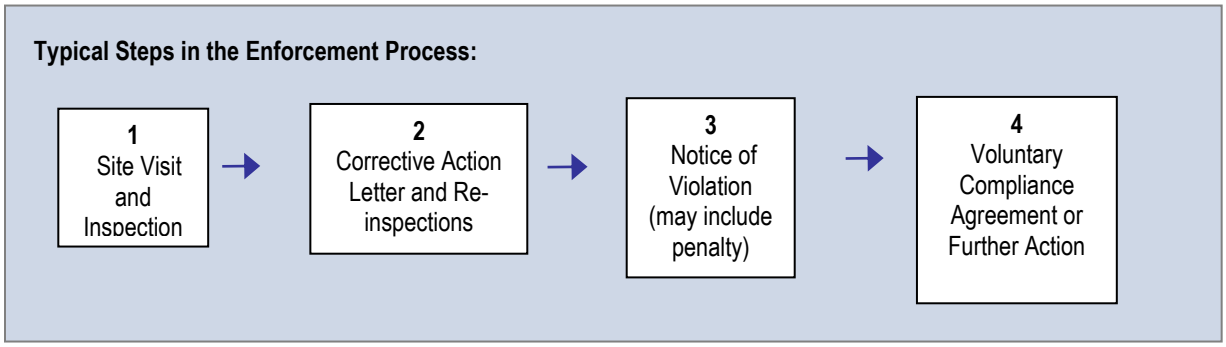
II.7.4.2 Progressive Enforcement Program

SC uses a progressive enforcement program to achieve source control compliance at inspected businesses. The following describes the typical steps in enforcement, though cases may vary based on site specific conditions. SC Inspectors start by issuing a corrective action letter, which provides 30 days for businesses to comply with source control requirements, at which time a re-inspection is conducted to ensure implementation. If the site remains out of compliance, a Notice of Violation is issued. A penalty may also be issued at the same time or may be suspended pending implementation of the requirements by the deadline provided in the Notice of Violation. Egregious violations and illicit discharge violations typically receive a penalty at the issuance of the Notice of Violation.

In 2016, the Source Control Team conducted a "Lean process review" of its inspection process to increase efficiency and customer satisfaction. During this process review, the City eliminated the "Second and Final Letter" step in the process, which has led to businesses coming into compliance in a shorter time period.

The enforcement process is closely linked to the inspection process. Figure II.7-3 summarizes typical steps as reflected in the enforcement process.

Figure II.7-3 Enforcement Process



II.7.4.3 Enforcement Criteria and Procedure

If a serious violation occurs, or if the corrective action process does not result in compliance, a Notice of Violation (NOV) may be issued. An inspector who believes that a NOV is necessary to achieve compliance consults with the program lead to determine the merits of proceeding with enforcement and weighs it against established criteria. In some cases, cost recovery may also be appropriate to pursue where the City has expended resources to terminate the polluting activity.

II.7.4.3.1 Voluntary Compliance Agreement

Either before or after a Notice of Violation is issued, a property owner may choose to enter into a Voluntary Compliance Agreement (VCA) with the City, if the City is willing.

A Voluntary Compliance Agreement may be appropriate in the following situations:

- where a capital investment may be necessary to achieve compliance, or
- where the steps to achieve compliance are difficult or technically complex, or
- where obvious alternatives are not available.

SC will work with the property owner at each of the steps in the agreement to require the business owner or property manager to meet milestones and make progress toward compliance. If the Voluntary Compliance Agreement target dates pass without compliance, further enforcement steps may be taken.

II.7.4.3.2 Records Management

The Source Control Program tracks its inspection and enforcement records through a database and file management system. The inspection database is based in Sequel Server and Microsoft Access and tracks information for both source control inspections and private drainage system maintenance inspections. The database records all site inspection information, generates corrective action letters, tracks compliance deadlines and reports inspections outcomes and other information. The database also has a QA/QC element. In addition, all hard copy inspection records are kept in a filing system by address. In general, the file includes all previous inspection information, correspondence, maps and other relevant site information. Records are managed in accordance with the state record keeping requirements.

II.7.5 Training for Staff Involved in Source Control Program

The SC group will use the following training methods and classes to train staff who are responsible for implementing the Source Control Program regarding the current policies and procedures.

II.7.5.1 Onboard and On the Job Training

Each SC staff member has training as part of their new hire orientation process. This training may involve orientation to City of Seattle Stormwater Code and Manual, Source Control Inspection Procedures Manual and Spill Response Procedures Manual, as well as partnering with Inspectors for on the job training and training on City of Seattle databases and systems (GIS, Maximo, FOMs, etc.).

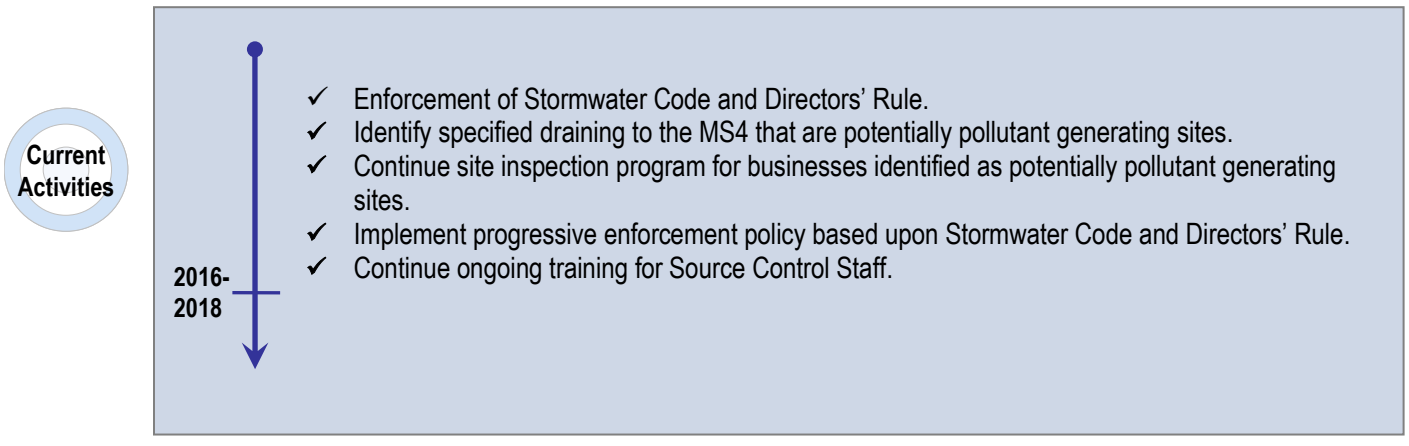
II.7.5.2 Inspector Meetings

SC staff hold bimonthly team meetings to present information and discuss issues with source control implementation. Topics such as source control processes, procedures, implementation and enforcement are routinely discussed.

II.7.5.3 Professional Training

Professional conferences and training related to source control are part of ongoing professional development. Examples of professional training sponsors include NW Environmental Training Center, Ecology, and EPA.

Figure II.7-4 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- **Business Inspection Program:**
  http://www.seattle.gov/util/myservices/drainagesewer/pollutioncontrol/inspections/businessinspections/

- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

II.8 Illicit Connections and Illicit Discharge Detection and Elimination Program-S5C.8

II.8.1 Requirements

The Permit (Section S5.C.8) requires the City to continue implementing an ongoing program designed to detect illicit connections and illicit discharges. The minimum performance measures include these nine main areas, with more detailed requirements included in the Permit text:

- Implementing an ongoing IDDE program designed to address illicit discharges, including spills and illicit connections, into the MS4.
- No later than February 2, 2018, evaluate, and if necessary update, existing ordinances or other regulatory mechanisms to effectively prohibit non-stormwater illegal discharges and/or dumping into the City's MS4
- Train staff who are responsible for identification, investigation, termination, cleanup and reporting of illicit discharges, including spills and illicit connections, to conduct these activities. Provide follow-up training as needed to adjust changes and maintain training records.
- Ongoing, train all municipal field staff, who as part of their normal duties, may come into contact with or otherwise observe an illicit connection or illicit discharge to the storm sewer system, on identification and proper procedures for reporting and responding. Provide follow-up training as needed to address changes and maintain training records.
- Publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges.
- Implement procedures for conducting investigations of the MS4, including field screening and methods for identifying potential sources. Document the methodologies. Prioritize conveyances and outfalls for screening, and screen at least 12 percent of the known conveyance systems each calendar year.
- Immediately respond to all illicit discharges which are determined to constitute a threat to human health or the environment. Investigate within 7 days, on average, any report of a potential illicit discharge. Initiate and investigate within 21 days of any report the discovery of a suspected illicit connection to determine the source of the connection and nature and volume of discharge, and the responsible party. Upon confirmation of an illicit connection, use enforcement authority in a documented effort to eliminate the illicit connection within six months. All known illicit connections to the MS4 shall be eliminated.
- Participate in a regional emergency response program, or develop and implement procedures to respond to spills and improper disposal into the City's MS4.
- Track and maintain records of the activities conducted to meet the requirements of this section.

II.8.2 IDDE Program Elements

The City continues to implement the Illicit Connection and Discharge Detection and Elimination (IDDE) Program initially developed under previous NPDES general permits issued by Ecology beginning in 1995.

SPU's Source Control (SC) team is responsible for the development and implementation of the City's IDDE program. The IDDE program is focused on preventing, identifying and eliminating non-stormwater discharges to the City's MS4 (permissible non-stormwater discharges are described below). The IDDE response consists of three main programs to target illicit connections and illicit discharges:

- Water Quality Investigations – program designed to identify and eliminate illicit discharges referred by the public, as well as other agencies and departments. The City maintains a reporting hotline, as well as a web form.
- Dry Weather Screening – program designed to target illicit connections and illicit discharges to the City's MS4 during base flow conditions.
- Spill Response – program designed to respond to spills 24/7 that are affecting drainage infrastructure or receiving water bodies. Calls are dispatched through the City's Operations Response Center.

Each program is tracked using a database or geodatabase which documents investigation data and enforcement records.

II.8.3 Responsible City Departments

SPU is the lead department for development and implementation of the IDDE Program.

II.8.4 Current and Planned Activities

The following sections outline completed or planned activities needed to meet the key Permit requirements.

II.8.4.1 Field Screening and Source Tracing

SC has developed a dry weather screening program for compliance with S5.C.8.c based upon literature review and in consultation with other jurisdictions to determine appropriate methods for detection of illicit discharges. SC has incorporated and modified the approaches from these various programs to develop procedures that will serve the urban setting.

The SPU program uses the following field screening elements designed to identify and characterize continuous dry-weather flows and identify suspect intermittent and transitory flows: prioritize the conveyance system, perform field characterization which may include water and sediment chemical screening at conveyance system locations, and use trigger values to initiate source tracing efforts. Source tracing investigations will be started when a sample exceeds the trigger level. Follow up source tracing can include additional water or sediment sampling, visual tracing, side sewer research, dye testing, smoke testing, business inspections, stream walks, and closed circuit TV filming of piped systems. These investigations may require the participation of other City inspectors, operations and maintenance staff, and the participation of other agencies.

If and when an IDDE event is identified by field screening and source tracing, SC will continue to use the SC Inspection Procedure Manual and the SPU IDDE QAPP to define procedures for conducting and documenting investigations, gaining rights of entry, conducting source tracing, collecting samples, pursuing enforcement measures and managing data. The manual also contains information and contacts for interagency cooperation. In addition to the inspection procedure manual, SC currently uses decision and sampling guidance developed by the City as part of program implementation.

II.8.4.2 Permissible Non-stormwater Discharges

The Stormwater Code and Directors' Rule prohibit non-stormwater discharges (SMC 22.802.020), and allow the following conditional non-stormwater discharges into the City's MS4 as long as specific conditions are met, as is allowed by the Permit. (SMC 22.802.030).

II.8.4.2.1 Potable Water Sources

Discharges from potable water sources, including flushing of potable water lines, hyperchlorinated water line flushing, fire hydrant system flushing, pipeline hydrostatic test water and washing of potable water storage reservoirs. Planned discharges shall be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the drainage system. (SMC 22.802.030.A.1).

II.8.4.2.2 Swimming Pool Discharges

The Stormwater Code allows discharges from swimming pools, hot tubs, fountains, or similar aquatic recreation facilities and constructed water features, provided the discharges have been dechlorinated to a concentration of 0.1 ppm or less, pH-adjusted and reoxygenated if necessary, and volumetrically and velocity controlled to prevent resuspension of sediments in the drainage control system and thermally controlled to prevent an increase of temperature in the receiving water (SMC 22.802.030.A.2).

II.8.4.2.3 Street and Sidewalk Wash Water, External Building Washing and Dust Suppression

The Stormwater Code allows discharges of runoff from street and sidewalk wash-water when the surfaces are swept prior to washing, detergents are not used and water used is minimized. External building washing is permissible when detergents are not used and water use is minimized. Discharges of water used to control dust are permissible when water use is minimized (SMC 22.802.030.A.3-5).

II.8.4.2.4 Other Non-Stormwater Discharges

The Stormwater Code addresses discharges of runoff from other non-stormwater discharges, and discharges that are in compliance with the requirements of an approved stormwater pollution prevention plan (SWPPP) that addresses such discharges (SMC 22.802.030.A.6). In addition to discharges addressed above, the following types of other non-stormwater discharges are permissible unless the City determines that the type of discharge is causing or contributing to a Permit violation or a water quality problem (SMC 22.802.030.B):

- Discharges from surface waters, including diverted stream flows
- Discharges of uncontaminated groundwater, including uncontaminated groundwater infiltration (as defined at 40 CFR 35.2005(b)(20)), uncontaminated pumped groundwater, and rising ground waters
- Discharges of air conditioning condensation
- Discharges from springs
- Discharges of uncontaminated water from crawl space pumps
- Discharges from lawn watering
- Discharges from irrigation runoff, including irrigation water from agricultural sources that is commingled with stormwater and that does not contain prohibited substances
- Discharges from riparian habitats and wetlands

- Discharges from approved footing drains and other subsurface drains or, where approval is not required, installed in compliance with this subtitle and rules promulgated pursuant to this subtitle
- Discharges from foundation drains
- Non-stormwater discharges that are authorized by another NPDES permit or State Waste Discharge permit
- Discharges that are from emergency fire fighting activities
- Discharges of tracing dye used to establish or verify a drainage or sewer connection.

II.8.4.3 Training for Staff Involved in the IDDE Program

The SC group will use the following training methods and classes to train staff who are responsible for implementing the Source Control Program regarding the current policies and procedures.

II.8.4.3.1 Onboard and On the Job Training

Each SC staff member has training as part of their new hire orientation process. This training may involve: orientation to City of Seattle Stormwater Code and Manual, Source Control Inspection Procedures Manual, and Spill Response Procedures Manual, as well as partnering with Inspectors for on the job training and training on City of Seattle databases and systems (GIS, Maximo, FOMs, etc.).

II.8.4.3.2 Inspector Meetings

SC staff hold bimonthly team meetings to present information and discuss issues with source control implementation. Topics such as source control processes, procedures, implementation and enforcement are routinely discussed.

II.8.4.3.3 Professional Training

Professional conferences and training related to source control are part of ongoing professional development. Examples of professional training sponsors include NW Environmental Training Center, Ecology and EPA.

II.8.4.3.4 City Staff Training

All municipal field staff, which as part of their normal job duties may come into contact with or otherwise observe an illicit connection or illicit discharge to the storm sewer system, were trained during a City-wide Federal Permit Training session. The training consisted of classroom and field exercises designed to provide instruction on how to identify illicit discharges and connections and how to properly report and/or respond to them. On-going training on this subject is provided via a DVD of the City-wide Federal Permit Training so that existing employees can refresh their knowledge of procedures or techniques and so new employees can be properly trained.

II.8.4.4 Water Quality Hotline

The City provides a publicly listed Water Quality Hotline and web form (http://www.seattle.gov/util/EnvironmentConservation/OurCity/ReportPollution/index.htm) for the public to report potential stormwater, illicit discharge and other water quality related violations. This is part of the City's procedure to prioritize complaints to respond to illicit connections and to investigate and respond to spills and improper disposal into the City's MS4. SPU maintains the hotline and responds to calls, which are left on a message system and set off a messaging system to alert responders. SC also receives

complaints directly from other City departments and agencies. SC has a staff of Environmental Compliance Inspectors who respond to water quality complaints within Seattle City limits. The inspectors attempt to locate the source of the water quality problem and the responsible party, and then provide technical assistance on best management practices for pollution prevention and information on the Stormwater Code and Directors' Rule, and provide clean up assistance when necessary. The progressive enforcement process is used for violations and/or a NOV may be issued immediately. If a spill is reported, the caller is directed by staff at the Water Quality Hotline to call the Operation Response Center (ORC) at 206-386-1800 to report the spill so that a Spill Coordinator can be dispatched immediately.

All of the water quality complaints, regardless of the suspected cause, are responded to within three business days. The person reporting the potential violation is notified of investigation results if they leave contact information.

Water Quality Investigation data is kept in an Access database and is stored in GIS.

II.8.4.5 On-going Illicit Discharge and Illicit Connection Screening

The City has designed its dry weather screening program to meet the Permit requirement to screen 12% of the MS4 annually in the Permit period (2013 – 2018 Permit) and to employ a systematic approach to finding illicit discharges and illicit connections using dry weather field screening and source tracing at key locations in the MS4. Field screening is designed to identify and characterize dry-weather flows and attempt to identify pollutants which may indicate illicit discharges or connections. The dry weather field screening element attempts to find illicit discharges/connections by:

1. Prioritizing drainage basins for field screening using existing data and basin characteristics to evaluate the potential for illicit discharges and illicit connections.
2. Identifying screening parameters to use as indicators of discharges
3. Performing field screening which consists of characterization and chemical screening at key locations within selected basins
4. Conducting data review to compare screening results to trigger levels
5. Source tracing where the comparison suggests that illicit discharges may exist
6. Identifying and removing sources of illicit discharges and connections when found

II.8.4.5.1 Prioritization of Drainage Basins

Drainage basins are prioritized for field screening using existing data to weight the potential for illicit discharges and illicit connections. Factors considered during prioritization include: basins where past cross connections/illicit discharges were found, percentage of impervious area, areas of the MS4 that discharge to 303(d) listed water bodies and lineal footage of drainage infrastructure in each respective basin. These screening factors are tabulated and weighted by drainage basin to generate a priority list for IDDE screening.

II.8.4.5.2 Parameters of Concern

The field screening consists of visual observations, field measurements, and laboratory analysis of chemical and biological parameters to characterize flowing discharges. When flow is not present, the field screening element relies on visual observations, such as damage or staining of the MS4 infrastructure as an indication of the presence of intermittent or transitory discharges. Table II.8.1 details the parameters typically used to identify and characterize flow types and to determine if an illicit discharge or illicit connection is suspected at each sample location. Literature has indicated that these screening parameters have been useful for identifying and characterizing residential, commercial, and industrial discharges (Brown, Caraco & Pitt, 2004).

Table II.8-I IDDE Screening Parameters

Screening Parameter	Parameter Type	Trigger Parameter
Color	Field observation	Yes
Odor	Field observation	Yes
Floatables	Field observation	Yes
Turbidity	Field observation	Yes
Conductivity	Field analysis	Yes
pH	Field analysis	Yes
Temperature	Field analysis	Yes
Estimated flow	Field analysis	No
Fluoride	Laboratory analysis – SPU Water Quality Lab	Yes
Surfactants	Field analysis	Yes
Ammonia	Field analysis	Yes
Potassium	Laboratory analysis – SPU Water Quality Lab	Yes
Fecal Coliform	Laboratory analysis - SPU Water Quality Lab	Yes

II.8.5 Field Screening

The general approach to field screening is to begin at an accessible location at or near the discharge point of a drainage basin, such as an outfall, maintenance hole, ditch, or other MS4 structure. Field screening is performed at multiple key locations in most drainage basins instead of relying on one observation at the MS4 outfall. The size of the drainage basin is used to determine the number of locations screened. In large MS4 basins, key upstream maintenance holes representing major branches of the MS4 are screened to help detect discharges that may be diluted, and therefore, masked by blended flows at downstream locations.

IDDE staff are responsible for field sampling and collection of samples for laboratory analyses. Sample collection consists of grab samples of flowing water. Field screening is mainly conducted during the summer months during dry weather conditions.

For the purposes of the IDDE program, dry weather means no more than 0.04 inches of rainfall in the preceding six-hour period, with no more than 0.02 inches of rainfall in any one hour period. If runoff can be observed entering the drainage system, samples cannot be collected, regardless of rainfall measured.

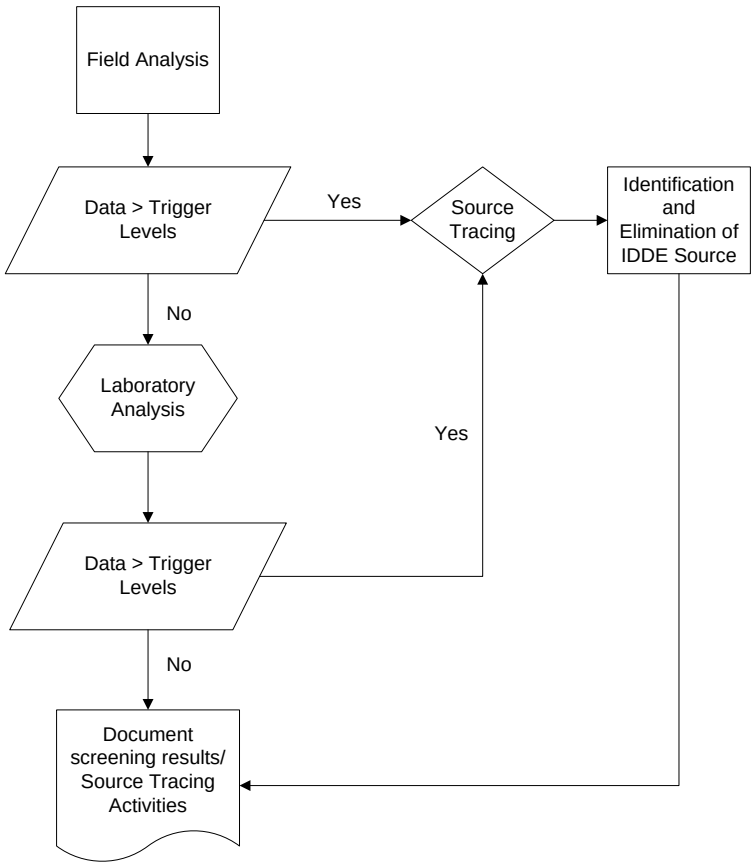
The sampling schedule must also account for tidal intrusion in areas of the City influenced by tidal flows.

The principal components of SPU's field screening element are:

- Field observations of the physical and environmental conditions at each site
- Field analyses by chemical screening
- Source tracing if illicit discharges or illicit connections are suspected based on the field observations or field analyses
- Laboratory analysis of the collected samples for the remaining chemical parameters
- Additional source tracing based on laboratory analyses

Typical field screening and source tracing procedures are shown in Figure II.8-1.

Figure II.8-1 IDDE Field Screening Flow Chart



II.8.5.1 Field Survey of Physical and Environmental Conditions

At each screening location, the procedure is to document the date, the time the sample was taken, a City specific unique asset identifier, initials of staff taking samples, sample number (which is also written on the sample bottles), field observations of the physical and environmental conditions of each field screening location (estimated flow, color, odor, turbidity, and floatables), and field parameter values and other general information regarding screening. This information is captured and stored in a geodatabase in ArcMap using field laptops.

II.8.5.2 Chemical Screening by Field Analyses

SC staff conducts the following field analyses if flow is present: temperature, pH, conductivity, surfactants, and ammonia. This information is captured and stored in a geodatabase in ArcMap using field laptops.

II.8.5.3 Laboratory Analysis of Collected Samples

The data review process involves comparing the screening parameters from field observations and field analyses to the trigger levels to verify that source tracing has been initiated for all results over the trigger levels. In some instances, source tracing may be recommended after the data review process when the screening results are not over the trigger levels but the data suggest the potential for an illicit discharge or connection.

II.8.6 Source Tracing

Source tracing in response to a field observation or analysis is initiated when one or more of the trigger levels for parameters listed in Table II.8.1 have been reached. Many of the MS4 maintenance holes in the City of Seattle have several inlets; therefore, several samples may be taken at each location which can result in detection of multiple triggers. Source tracing is prioritized based on public health and safety. For instance, flows with elevated fecal coliform values are prioritized over flows with elevated fluoride values as fecal coliform is an indicator of sewage which has the potential to be a public health risk. Additional source tracing based upon laboratory analysis of samples follows the same process as detailed in the field analysis section. However, rather than beginning immediately, source tracing will generally occur within 3 days after receiving and reviewing laboratory results.

Occasionally, source tracing a specific trigger, such as conductivity, does not lead to an obvious pollution source, and SC field staff have reason to believe the trigger source is a natural occurrence. In these instances, the surrounding area will be investigated visually for any potential pollution source(s), and field and lab data will be carefully reviewed to identify the most likely cause of the trigger to be natural. In some cases there may be outstanding triggers as the IDDE dry field season ends. In these instances, field staff will review the field and laboratory data to assess each individual trigger in relation to public health and safety. Triggers suspected to be a potential severe threat to human health or the environment will be investigated further into the wet season following 'dry weather' conditions: maximum of 0.04 inches of rainfall in the preceding six-hour period, with no more than 0.02 inches of rainfall in any one hour period. Techniques such as closed circuit television (CCTV), smoke testing, and basic source tracing (i.e. visual observations, odor etc.) may be used to trace and locate sources.

The City's progressive enforcement policy is used to eliminate illicit connections and illicit discharges once identified.

II.8.6.1 Response to Illicit Connections

Illicit connections are considered a top priority complaint and are most often responded to the same business day or within 24 hours. It is a SC policy and requirement to notify Ecology within 24 hours of a discovery of an illicit connection, regardless of the threat potential. Ecology is contacted immediately if an illicit connection presents a severe threat to human health or the environment. The contact date, time and Environmental Response Tracking System (ERTS) number assigned are recorded on the SPU Complaint Inspection form and tracked in the SC database. SC uses progressive enforcement tools to eliminate all illicit connections within 6 months.

II.8.6.2 Spill Response

Spill response at the City is handled by a variety of departments dependent on the source and type of spill. This is part of the City's procedure to investigate and respond to spills, improper disposal and illegal dumping into MS4s owned or operated by the City. SPU is responsible for response to spills that have the potential to enter, or have entered, the City's MS4. In cases where a City Department other than SPU responds and

cleans up a spill, the Department's procedures direct them to notify SPU of all spills that enter or have the potential to enter the MS4.

The SPU Spill Response Program is staffed by a Senior Spill Coordinator and a network of on-call Spill Coordinators. Spill Coordinators work in shifts and are available 24 hrs/ 7 days week. The Spill Coordinator is responsible for responding to the spill, coordinating cleanup and filing a report form to the Senior Spill Coordinator.

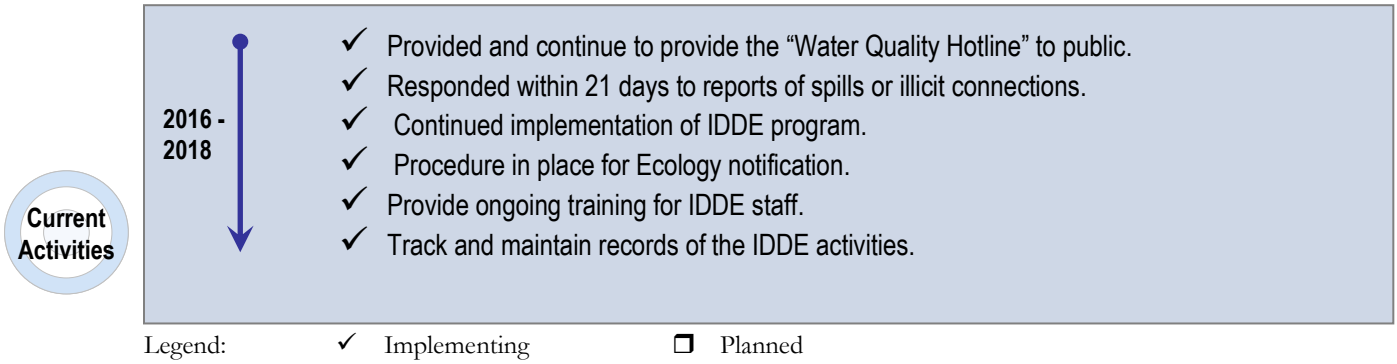
Spill response calls are dispatched through the SPU Operations Response Center (ORC) and are received via a publicly available phone number (206-386-1800). Once a spill call is received, the Dispatcher contacts the SPU on-call Spill Coordinator and advises them of the situation.

Spill Coordinators follow written procedures for investigation, clean up and reporting to appropriate agencies. Spill Response Guidelines were established by SPU in 2000, revised in 2012 (and are updated on an as needed basis), and cover spill classifications, training requirements, safety procedures, documentation, disposal, interagency cooperation and regulatory notification.

II.8.6.3 Record Tracking

Enforcement actions are tracked both in the SC database and electronically in a separate folder on the City network. All enforcement documentation, inspection reports, warning letters, notices of violations, and other enforcement records are kept on file. SPU utilizes its progressive enforcement procedures in situations where a spill has occurred.

Figure II.8-2 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- Water Quality Hotline: 206-684-7587
- Report a Spill - SPU Operations Control Center: 206-386-1800
- Water Quality Hotline information and online form: http://www.seattle.gov/util/myservices/drainagesewer/pollutioncontrol/surfacewaterqualityinvestigations/
- For information on the IDDE: http://www.seattle.gov/util/myservices/drainagesewer/pollutioncontrol/dryweatherscreening/
- For information on the Spill Response Program: http://www.seattle.gov/util/myservices/drainagesewer/pollutioncontrol/spillresponse/
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

II.9 Operation and Maintenance-S5C.9

II.9.1 Requirements

The Permit (Section S5.C.9) requires the City to implement a program to regulate maintenance activities and to conduct maintenance activities to prevent or reduce stormwater impacts. The minimum performance measures include the following areas, with more detailed requirements included in the Permit text:

- Implement maintenance standards for facilities that are as protective, or more protective, of facility function than those specified by Ecology. Unless there are uncontrollable circumstances, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed within 1 year for typical maintenance of facilities (except catch basins), within 6 months for catch basins, and within 2 years for maintenance that requires capital construction of less than $25,000.
- Evaluate and, if necessary, update existing ordinances or other enforceable documents requiring maintenance of permanent stormwater facilities regulated by the City. Implement an ongoing inspection program for stormwater facilities and catch basins regulated by the City to enforce compliance with adopted maintenance standards as needed based on the inspection.
- Manage maintenance activities to inspect all new permanent stormwater treatment and flow control facilities, including catch basins, in new residential development every 6 months until 90% of the lots are constructed, to identify maintenance needs and enforce compliance.
- Require cleaning of catch basins regulated by the City if found to be out of compliance during source control or IDDE program activities or if part of treatment or flow control system inspected under this program.
- Implement a program to annually inspect permanent stormwater treatment and flow control facilities owned or operated by the City. Conduct spot checks of potentially damaged stormwater facilities after storm events. Conduct repairs or maintenance actions in compliance with maintenance standards.
- Implement a program to annually inspect catch basins and inlets owned or operated by the City.
- Implement practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the City, and road maintenance activities under the functional control of the City.
- Implement an ongoing training program for employees who have primary construction, operations or maintenance job functions that may impact stormwater quality. Track and maintain training records.
- Develop and implement SWPPPs for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the City in areas subject to the Permit that are not covered by another Ecology-issued stormwater discharge permit.
- Maintain records of inspection and maintenance or repair activities.

II.9.2 O&M Program

The City's municipal stormwater permit-related O&M program is composed of the activities outlined below.

II.9.3 Responsible City Departments

SPU is responsible for operation and maintenance of stormwater facilities owned, operated or maintained by the City and located in the right of way and for conducting inspections of private stormwater facilities to determine that those stormwater facilities meet operation and maintenance standards. Other City Departments, SDOT, FAS, Parks, and SCL are responsible for operation and maintenance of stormwater facilities and implementation of operation and maintenance policies and procedures specific to the properties they manage.

II.9.4 Current and Planned Activities

The following sections outline completed or planned activities needed to meet the key Permit requirements.

II.9.4.1 Maintenance Standards

The City has a program based on maintenance standards in place to reduce stormwater impacts associated with runoff from impervious surfaces and operation and maintenance of stormwater facilities that discharge to the City's MS4. This program follows the current Stormwater Code (2016), and the current Directors' Rules (SDCI 17-2017/SPU DWW 200), City of Seattle Stormwater Manual, Appendix G, Stormwater Control Operations and Maintenance Requirements outlines inspection, maintenance, and record keeping requirements for stormwater management facilities, both public and private, in the City. In some cases, the City owns or operates facilities with site-specific maintenance requirements that require facility-specific maintenance standards. For these situations, the City has developed facility specific standard operating procedures that incorporate the inspection and maintenance requirements of Appendix G as well as detailed information such as the location and access restrictions of facilities, necessary equipment, safety procedures and maintenance procedures.

II.9.4.2 Maintenance Standards for Private Stormwater Facilities Regulated by the City

The Source Control (SC) group at SPU is responsible for inspecting private facilities regulated by the City, based on maintenance standards established by the City in the Stormwater Code and Directors' Rules SDCI 17-2017/SPU DWW 200. During a facility inspection, all aspects of the system are inspected (e.g., flow control devices, catch basins). When any part of that system (including catch basins) is found to be out of compliance with Stormwater Code requirements for maintenance, a corrective action letter is sent to the facility owner, and the owner must certify that the work has been completed to correct the noncompliance.

Maintenance standards for private stormwater facilities regulated by the City Stormwater Code are defined and described in Appendix G of the 2017 City of Seattle Stormwater Manual. Appendix G provides a summary of the inspection and maintenance requirements. The inspection and maintenance requirements include information about what features to inspect at each facility, when and how often these private systems should be inspected, and how to identify specific defects that warrant corrective action. The City uses a progressive enforcement process to achieve site compliance. Maintenance standards and requirements will be evaluated and, if necessary, updated as required by the Permit.

The permit requires that the City implements an ongoing inspection schedule to annually inspect all stormwater treatment and flow control facilities (other than catch basins) regulated by the City in areas that drain to the City's MS4s. Starting on January 1, 2016, SPU changed the inspection frequency for all private

stormwater facilities that discharge to the City of Seattle's MS4 to once every three years for residential facilities and once every two years for all other facilities under condition S5.C.9.b.ii of the Permit. However, if SPU receives a complaint about a private stormwater facility via its Water Quality Hotline or SPU determines during a Source Control Inspection that a site's stormwater facility is out of compliance, SPU will use progressive enforcement to bring the private stormwater facility into compliance with the City ordinances and rules.

The changes in inspection frequency were initiated based on statistical analysis. In 2015, SPU conducted an analysis of SPU's inspection records to evaluate effective inspection frequencies. The analysis included all private stormwater facility sites inspected for permit compliance from 2009 through 2014. The goal is to inspect at a frequency when most sites are still in compliance, but may be out of compliance shortly. Based on this analysis of SPU inspection records, 80 percent of all sites are estimated to remain in compliance for at least two years. However, sites on commercial and other land use types have a higher potential for pollution-generating activities onsite; therefore, SPU plans to continue inspecting those sites every two years, a schedule which coincides with the frequency of SPU's source control business inspections for high-priority business sites. SPU coordinates the timing of facility and business inspections to benefit both businesses and SPU. The analysis was submitted with the 2016 Annual Report, and is available upon request.

II.9.4.3 Maintenance of Catch Basins Owned or Operated by the Permittee

SPU has continued its catch basin maintenance and inspection program that focuses on maintaining catch basins for public health, safety and property and by nature includes water quality benefits. Staff implemented a catch basin inspection and maintenance program to meet Permit requirements. FAS, SCL and Parks each continue to implement programs for catch basin inspection and maintenance for catch basins on City owned properties that the department manages or operates.

II.9.4.4 Inspection and Maintenance of Private Stormwater Facilities

The SC group at SPU is responsible for inspections of privately owned stormwater flow control and treatment facilities that drain to the City's MS4. The inspection determines that the system functions as designed and is properly maintained. Inspectors conduct a site inspection and inform the owner of the stormwater facility of the required maintenance. SC uses the progressive enforcement process as detailed in DR 21-2015, DWW-200, Vol. 5: Enforcement. Facility owners may self-certify that the work needed for compliance has been completed by providing a signed copy of the corrective action letter with a copy of the work detail performed. SC performs random re-inspections of self-certified properties for quality control of this process.

SDCI is responsible for conducting inspections of private stormwater facilities in new development and during the period of heaviest construction to identify maintenance needs and enforcing compliance as needed. SDCI is incorporating this requirement into the inspection process described in Section II.5.4.3.1.

II.9.4.5 Inspection and Maintenance of City-Owned Stormwater Facilities

SPU schedules and coordinates inspection and maintenance of conventional and innovative (e.g., Green Stormwater Infrastructure (GSI)) stormwater facilities owned or operated by the City on an annual basis and following 10-year 24-hour storm events. The Field Operations and Maintenance Division (FOM) at SPU is responsible for the inspection and maintenance of stormwater facilities located in the right-of-way and that are owned, operated or maintained by SPU. Stormwater facilities owned by the City, but located outside of the right-of-way, are inspected and maintained by the City Department that manages the property unless there is an agreement between SPU and the City Department.

SPU and the other City Departments have developed and implemented an inspection program to annually inspect all permanent stormwater facilities owned or operated by the City. The program is designed to

determine if maintenance is needed and implement the needed maintenance in accordance to the Directors' Rule or a facility-specific maintenance standard.

II.9.4.6 Records of Inspections, Maintenance, or Repair

II.9.4.6.1 Private Stormwater Facilities

The SC group tracks private facility inspection and enforcement records through a Microsoft Access database and file management system. The database tracks information for both source control inspections and drainage system maintenance inspections. Records are managed in accordance with the State record keeping requirements. Enforcement actions are tracked both in the database and electronically in a separate folder on the City network. Any enforcement paperwork is kept with the file.

II.9.4.6.2 City-Owned Stormwater Facilities

SPU oversees inspection and maintenance of conventional and innovative (e.g., GSI) facilities for which SPU is responsible. Inspection data is tracked, and maintenance is conducted as needed following the applicable maintenance standard.

Inspection and maintenance of stormwater facilities for which SPU is responsible are tracked by the computer program MAXIMO at SPU. This program is used to generate work orders for facility inspections and maintenance and to record the results of these activities. The other City Departments use a variety of methods to record inspections and maintenance results.

II.9.4.7 Stormwater Practices to Reduce Impacts Associated with Parking Lots, Streets, and Roads

The City's Stormwater Code and the Directors' Rule establish practices to reduce the stormwater impacts associated with parking lots, streets and roads owned or operated by the City and that drain to the City's MS4s.

In addition to the Stormwater Code, SDOT has established and has implemented practices to reduce stormwater impacts associated with runoff from City road maintenance activities using Maintenance Management System Performance Sheets that reference BMPs and elements of the Regional Road Maintenance Initiative.

Parks, FAS and SCL follow the Stormwater Code and Directors' Rule in place for management of stormwater from roads and parking lots under their departments' management outside the City rights of way. The departments follow the Stormwater Code and use appropriate BMPs when they conduct construction and maintenance activities on or near streets, parking lots and roads. City-managed capital projects are inspected for Stormwater Code compliance and BMPs by the responsible department. The individual City Departments have implemented and will continue to implement a spill program and provide training on spill and source control.

II.9.4.8 Policies and Procedures to Reduce Pollutants from City-Owned or Maintained Lands

The Stormwater Code and the City of Seattle Stormwater Manual, Volume 4: Source Control (2017) presents approved methods, criteria, details, and general guidance for controlling pollutants at their source and establishes policies and procedures to reduce pollutants in discharges from lands owned or maintained by the City that drain to the City's MS4s.

The following policies and procedures are implemented by the City Departments.

Integrated Pest Management

Policies for addressing application of fertilizer, pesticides and herbicides are addressed under BMP 18: Landscaping and Lawn and Vegetation Management in the City of Seattle Stormwater Manual, , Volume 4 - Source Control, which requires the development of an integrated pest management (IPM) program that, at a minimum, includes the requirements outlined in the City of Seattle Stormwater Manual, Appendix I – Integrated Pest Management.

Environmental Management Program Chemical Use Policy

The purpose of this policy is to establish a chemical use program to provide for consistent evaluation of hazardous materials used by City employees, to phase out products that pose human health or environmental risks, and to promote the use of non-hazardous alternatives by the City that are protective of human health and the environment. Chemical Use policies are identified in Chapter 6 – Chemical Use – of the City of Seattle Environmental Management Program Manual. (http://www.seattle.gov/city-purchasing-and-contracting/city-purchasing/green-purchasing/green-purchasing-policies)

Landscape and Grounds Management Policy

The purpose of this policy is to establish that City landscapes are designed, constructed, and maintained in a manner that protects and enhances our region's natural resources and public health; that City landscapes are models of environmental stewardship in the eyes of the public; that the City establishes a leadership role in developing both aesthetically pleasing and ecologically sensitive landscapes; and that there is a consistent standard of environmental stewardship observed by City departments managing landscapes and other grounds.

Landscape and Grounds Management Guidelines

The guidelines are intended to provide a framework for environmental responsibility in how the City plans, designs, constructs, commissions, manages, and maintains parks, rights of way, and other landscaped areas. The focus of the guidelines is on environmental stewardship of City-owned lands.

The SDOT's Street Use and Urban Forestry Division limits the use of fertilizers, pesticides and herbicides in accordance with City policies and procedures. This division also has policies and procedure in place to address erosion and sediment control, landscape maintenance, and vegetation disposal on lands owned and maintained by SDOT. Urban Forestry uses Resource-efficient Natural Landscaping: Design – Build – Maintain (Seattle, 2007a, https://www.seattle.gov/util/cs/groups/public/@spu/@conservation/documents/webcontent/spu01_003440.pdf), as a BMP reference.

Parks operates under City regulations, and landscaping policies and plans (http://www.seattle.gov/parks/about-us/policies-and-plans) Parks has an active Integrated Pest Management program to control and reduce pesticide use (http://www.seattle.gov/parks/about-us/policies-and-plans/pesticide-reduction).

Trash Management

Policies for addressing trash management are addressed under Citywide BMP 3: Dispose of Fluids and Wastes Properly and Citywide BMP 4: Proper Storage of Solid Wastes in the City of Seattle Stormwaater Manual, Volume 4 - Source Control.

Building Exterior Cleaning and Maintenance

Policies for addressing Building Exterior Cleaning and Maintenance are addressed under BMP 8: Cleaning or Washing in the City of Seattle Stormwater Manual, Volume 4 - Source Control.

II.9.4.9 Training Program

The City has developed and implemented the "Water Rules!" Federal and State permit training, for workers who work on projects that may impact water bodies, which includes employees of the City who have primary construction, operations or maintenance job functions that could impact stormwater quality. This training includes information on BMPs for construction and operation and maintenance projects. A DVD on this training has been developed to provide opportunities for on-going training. SDCI provides training to City Staff on temporary erosion and sediment control (TESC).

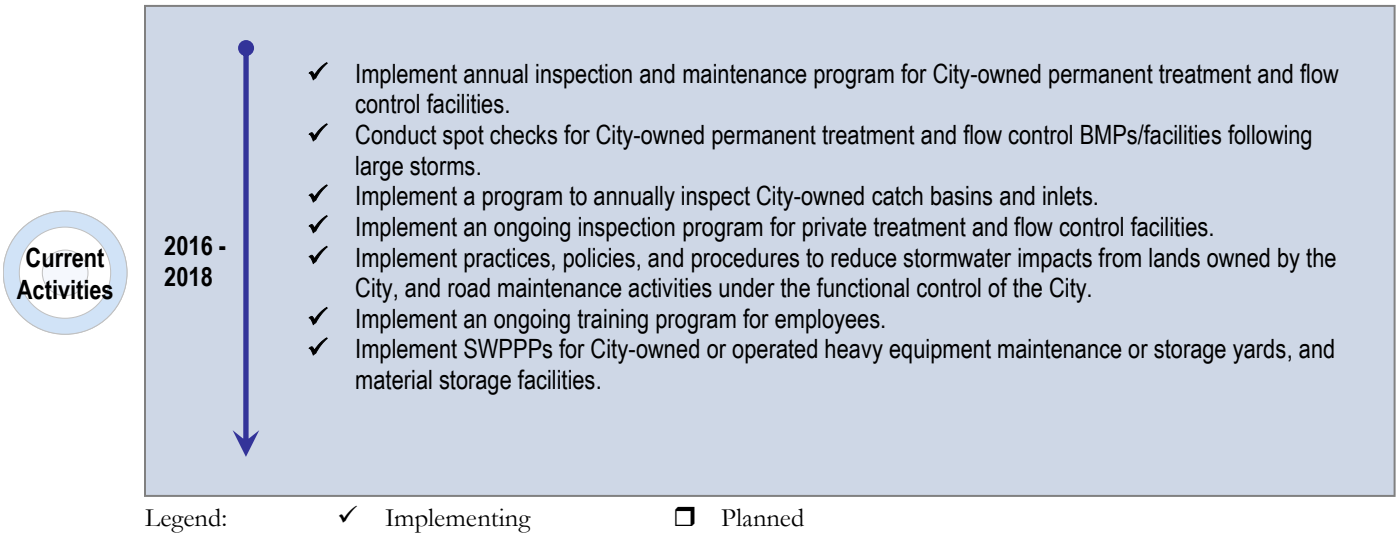
SDOT Street Maintenance employees receive stormwater BMP training for their work and are provided with stormwater BMP reference manuals. Fourteen separate field manuals provide information in the field for implementation of appropriate stormwater BMPs.

SPU, SDOT, Parks, FAS and SCL all have spill prevention training and source control training in place. These departments are evaluating their existing training and updating as needed to comply with the Permit.

II.9.4.10 Stormwater Pollution Prevention Plans

An umbrella SWPPP that includes operational BMPs that meet the Stormwater Code and Directors' Rule has been developed and then customized for facilities, if required, to include site specific requirements and structural BMPs. These customized SWPPPs have been implemented and will be revised as needed.

Figure II.9-1 Timeline Showing Progress and Next Steps



Legend: ✓ Implementing ❒ Planned

For More Information

- **Private Stormwater Facility Inspections:** http://www.seattle.gov/util/MyServices/DrainageSewer/PollutionControl/Inspections/PrivateInspections/index.htm
- **Office of Sustainability and Environment:** http://www.seattle.gov/environment/
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

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II.10 Education and Outreach-S5C.10

II.10.1 Requirements

The Permit (Section S5.C.10) requires the City to perform the following minimum performance measures:

- Implement or participate in an education and outreach program that uses a variety of methods to target audiences. The outreach program shall be designed to educate each target audience about the stormwater problem and provide specific actions they can follow to minimize the problem.
- To build awareness for the general public, target general impacts of stormwater on surface waters, impacts from impervious surfaces, impacts of illicit discharges and how to report them, LID principles and LID BMPs, and opportunities to become involved in stewardship activities.
- To build awareness for engineers, contractors, developers, and land use planners, target technical standards for stormwater site and erosion control plans, LID principles and LID BMPs, and stormwater treatment and flow control BMPs/facilities.
- To effect behavior changes for the general public, target the use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps, and other hazardous materials, equipment maintenance, and prevention of illicit discharges.
- Effect behavior changes for residents, landscapers, and property owners on yard care techniques protective of water quality. Use and storage of pesticides and fertilizers and other household chemicals, carpet cleaning and auto repair and maintenance, vehicle, equipment, and home/building maintenance, pet waste management and disposal, LID principles and LID BMPs, stormwater facility maintenance, and dumpster and trash compactor maintenance.
- Create stewardship opportunities and/or partner with existing organizations to encourage residents to participate in activities such as stream teams, storm drain marking, volunteer monitoring, riparian plantings and education activities.
- Measure the understanding and adoption of the targeted behaviors for at least one targeted audience in at least one subject area. No later than February 2, 2016, use the resulting measurements to direct education and outreach resources and evaluate changes in the adoption of the targeted behaviors.

II.10.2 Education and Outreach Program

The City is using a variety of educational programs (Table II.10-1) to engage the citizens of Seattle in source control and stormwater management. These programs provide educational materials, instruction or designs that citizens can use at their home, business or in the community at large.

The City uses community based social marketing approaches (CBSM) to evaluate the audiences' understanding of how their actions can have negative impacts on stormwater and how they can take an active role in the improvement of stormwater quality. The evaluations are used to direct education and outreach programs most effectively and to evaluate changes in the audiences' adoption of the target behavior. The City has measured the understanding and adoption of a targeted behavior for at least one targeted audience in

at least one subject area. The resulting measurements have been used to direct education and outreach resources most effectively and to evaluate changes in the adopted behavior.

II.10.3 Responsible City Departments

SPU is the lead department for implementation of the education and outreach programs for Permit compliance. Several programs have cooperative elements in other departments.

II.10.4 Current and Planned Activities

The City has conducted and will be conducting the activities outlined in Table II.10-1 and described in the following sections for each target audience. Table II.10-1 identifies the programs that address the targeted subject areas and targeted audience as required in the Permit (Section S5.c.10.a).

Table II.10-I Education and Outreach Activities

To build general awareness, Permittees shall target the following audiences & subject areas:	S5.C10 a.i (1)		S5.C10 a.i (2)
	General Public & School age	Businesses (including Home-based & mobile)	Engineers, contractors, developers, land use planners
General impacts of stormwater on surface waters.	**1**	**10, 14**	**N/A**
Impacts from impervious surfaces.	**1**	**10, 14**	
Impacts of illicit discharges and how to report them.	**1, 8**	**5, 10, 14**	
Opportunities to become involved in stewardship activities.	**4, 1**	**1**	
Technical standards for stormwater site & erosion control plans.	**12**	**12**	
LID principles and LID BMPs.	**4, 11**	**13, 11**	**12**
Stormwater treatment & flow control BMPs/facilities.	**15**	**15**	**13, 11**
To effect behavior change, Permittees shall target the following audiences & BMPs:	S5.C10 a.ii (1)		S5.C10 a.ii (2)
	General public (school age-optional)	Businesses (including home-based & mobile)	Residents, Property managers/ owners & Landscapers
Use and storage of auto chemicals, hazardous cleaning supplies, car wash soaps, and other hazardous materials.	**7, 3, 6, 8**	**10, 5, 14**	**N/A**
Equipment maintenance.	**3, 8**	**10, 5, 14**	
Prevention of illicit discharges.	**11, 12, 2, 8**	**10, 6, 14**	
Yard care techniques protective of water quality.	**9**	**9,10**	
Use and storage of yard and household chemicals.	**9**	**9,10**	**4, 13, 10**
Carpet cleaning and auto repair and maintenance.	**3, 8**	**14**	**10**
Vehicle, equipment, and home/building maintenance.	**3, 6, 8**	**14**	**10**
Pet waste management and disposal.	**2**	**2**	**2**
LID principles and LID BMPs.	**11**	**11**	**11, 13**
Stormwater facility maintenance.	**15**	**14, 15**	**15**
Dumpster and trash compactor maintenance.		**10, 14**	**14, 15**

Program Key				
1	Protect Our Waters (POW) Community and Youth Programs		**9**	Sustainable Yard and Home Program
2	Doo Diligence – Pet Waste Program		**10**	Seattle Green Business Program
3	Auto Maintenance Program (AMP)		**11**	RainWise
4	Trees for Seattle		**12**	Stormwater Construction Control (SWCC) Plans, and On-The-Job (OJT) Training
5	Spill Kits		**13**	Natural Landscaping Professional Development
6	Car Wash Program		**14**	Business Inspection Program (This program is addressed in section I.1 of the SWMP)
7	STORM/ Puget Sound Starts Here		**15**	Stormwater Facility Program (This program is addressed under section I.1 of the SWMP)
8	Water Quality Hotline			

II.10.4.1 Protect Our Waters (POW) Community and Youth Programs

Seattle Public Utilities' Protect Our Waters (POW) youth and public outreach program includes a variety of education and outreach elements targeted at adult and community audiences as well as a robust youth program for K-12 audiences. These programs engage and partner with audiences to educate and foster behavior change in the general public. The programs increase awareness of the impacts of stormwater flows into surface waters and the impacts associated with impervious surfaces; they provide information and tools about actions an individual can take to reduce their contribution to the problem.

The Urban Watershed School Program is a K-12 program conducted via a partnership between SPU, Seattle Parks and Seattle Public Schools and includes teacher training, stormwater lessons and materials, and an urban creek field trip program. The program is linked closely with school science curriculum and includes community service activities and lesson extensions that disseminate stormwater BMPs into the adult community. Outcomes are measured through teacher evaluations. This program reaches a diverse geographic audience in the City and engages the public in hands-on learning.

Community outreach and education programs engage the public in stewardship and educational activities to promote social and environmental values, encourage behavior change, and build capacity around stormwater BMPs and projects. These programs are audience focused and include direct education, social marketing, partnerships, inclusive engagement and personal stewardship BMPs to promote water quality and watershed health. Examples include: fostering the Green Infrastructure Partnership (a collaborative GSI forum) and partnering to produce the annual Green Infrastructure Summit, public tours of creek watersheds and stormwater projects, printed materials, Stormwater Jeopardy, social media and website, stenciling programs, BMP beverage coasters, Salmon Steward programs and public events .

II.10.4.2 Doo Diligence Pet Waste Program

Doo Diligence is a city-wide program that promotes BMP's and educates the general public about the impacts of pet waste on water quality. In 2018, the program will continue to provide tools, educational materials and resources to the general public to encourage the adoption of source control BMP's. The Doo Diligence Program maintains 82 pet waste baggie dispenser locations in targeted areas in Seattle along with a map of pet waste dispenser locations posted on the SPU webpage.

The program will continue to expand community outreach and maintain strong partnerships with Seattle Animal Control, Seattle Parks and Recreation, King County and Citizen's For Off Leash Areas.

II.10.4.3 Auto Maintenance Program (AMP)

The Automotive Maintenance program educates the general public about BMPs addressing proper automotive leaks mitigation and disposal. In 2018, AMP will seek to educate more residents about the impacts of vehicle fluids on stormwater quality through the monthly free auto leaks workshops, leak check events, pedagogical training partnership at South Seattle College, as well as outreach to the general public and through our spill responders. SPU will continue to collaboratively work with our partners in the region – King County, Washington State Department of Ecology, the City of Burien, community-based agencies, and others – on the Don't Drip & Drive campaign, a social media, web, and incentive-based campaign directed at Spanish and English audiences, both professional and public.

II.10.4.4 Trees for Seattle (previously Seattle reLeaf)

The Trees for Seattle program focuses on increasing and maintaining healthy forest cover. Trees for Seattle targets residents with education and outreach on environmental stewardship, and actions and opportunities to implement BMPs related to landscaping and buffers. Trees for Seattle's Trees for Neighborhoods project educates and empowers Seattle residents to plant appropriate trees in yards and along streets. Each fall, residents plant 1,000 free trees. Participants also receive free watering bags, mulch, training in proper planting and care, ongoing watering reminders and tree care support. Trees for Seattle's Tree Ambassador project engages residents in urban forest stewardship. Tree Ambassadors volunteer their time to care for neighborhood trees, primarily through removal of invasive species and

mulching, and host public tours of notable community trees. In 2018, Trees for Seattle will support residents in planting 1,000 trees and engage community members in caring for urban trees in 15-20 sites across the city. Findings from the 2014 planting workshop effectiveness evaluation were incorporated through strengthening 2015 to 2017 workshops and providing direct feedback to participants on their tree care practices during field data collection in the summer.

II.10.4.5 Spill Kits

To supplement inspections and provide outreach to small businesses, SPU funds the Seattle Green Business Program, a resource conservation program for Seattle businesses, currently being implemented by Cascadia Consulting, under contract with SPU. Under this contract, the program provides site specific technical assistance to businesses, develops targeted outreach materials in multiple languages, organizes and implements SPU's Spill Kit Incentive Program, which provides free spill kits and assistance in developing a spill plan to participating businesses. The spill kit program is promoted on the web, during inspections and as part of the Green Business Program site visits.

II.10.4.6 Car Wash Program

The Car Wash Program targets the general public with information and resources to reduce the adverse water quality impacts of car washing activities and provide environmentally safe alternatives. In 2018, SPU will continue to partner with Puget Sound Car Wash Association to offer coupons to individual residents through Vehicle Maintenance Kits, community events, and more, along with a wider variety of coupons offered through the Chinook Book Pledge program. SPU will continue to measure resident car washing behavior via administration of pre-surveys to applicants of SPU's free Auto Leaks Workshops. SPU's dedicated car wash BMP webpage will offer updated alternatives to home and charity car washing.

II.10.4.7 STORM / Puget Sound Starts Here Campaign (PSSH)

The City of Seattle participates in STORM (Stormwater Outreach for Regional Municipalities) and the Puget Sound Starts Here (PSSH) regional campaign focusing on stormwater BMPs for cars, pets, yard care, home cleaning, and more. The campaign includes a website and additional media and events with information to educate the general public about impacts of individual behaviors on stormwater and alternatives. The campaign reaches a substantial audience in Seattle and includes mechanisms to evaluate the impact of the program. Seattle Public Utilities supports STORM as a participating member of the Steering Committee and the local Stormwater Outreach Group. SPU staff also share resources and information with other STORM members individually and through formal presentations at meetings.

II.10.4.8 Water Quality Hotline

The City maintains a Water Quality Hotline to allow the public to report water quality concerns within Seattle. Each case is investigated, and issues are resolved using the City's source control procedures and progressive enforcement policy. This BMP provides a mechanism for the public to take an active role in stormwater pollution prevention and help the City increase awareness of activities that have negative impacts on stormwater. Outreach to the public includes magnets, bill inserts, business cards and creek-watershed newsletters.

Over time, SPU's web form for reporting pollution has become the more popular way to report water quality issues and is located on the home page for SPU. For spills during non-business hours, callers are instructed to call the Operations Response Center to dispatch an on-call Spill Responder.

II.10.4.9 Sustainable Yard and Home Program

The Sustainable Yard and Home program educates homeowners, landscapers and property managers about yard care techniques protective of water quality. This program is targeted at the residential gardening public to increase adoption of natural yard care practices. The SYH Program has two components: the Master Composter Sustainability Steward volunteer training and outreach program, and the Garden Hotline (which answers phone and email requests, and also conducts classes especially for underserved and ESL audiences). Outreach and education includes natural yard care (including pesticide and fertilizer reduction) as well as RainWise techniques for residents, property owners and landscape professionals. In 2018, additional outreach will be focused on ESL, immigrant, and underserved residents King County-wide including hiring community liaisons to work with the Hotline staff in diverse communities. The Hotline is also increasing its information resources for businesses and landscape professionals.

Master Composter Sustainability Steward

the Garden Hotline
Your Garden. Our Expertise.

I.1.4.10 Seattle Green Business Program

To provide outreach to small businesses, SPU funds the Green Business Program, a free resource conservation program for Seattle businesses, currently being implemented by Cascadia Consulting, under contract with SPU. Under this contract, the Green Business Program provides site specific technical assistance to businesses, develops targeted outreach materials in multiple languages and implements SPU's Spill Kit Incentive Program, which provides spill kits and assistance in developing a spill plan to participating businesses. In 2018, the program is now part of the new EnviroStars Regional Green Business Program which offers resources and a campaign to publicly recognize businesses taking actions to cut waste, save water and energy, and reduce pollution. The strategies businesses can take and support businesses receive under this program include how to properly use and store chemicals.

EnviroStars

I.1.4.11 RainWise

The RainWise program provides rebates on voluntary retrofit of green stormwater infrastructure on private property, education to the general public, homeowners, businesses, landscapers and property managers about low impact development techniques, with a focus on the installation of rain gardens and cisterns within City of Seattle MS4 areas. This program provides education and outreach on how to slow, spread, filter and infiltrate stormwater. The program will implement the following educational/technical elements to raise awareness about Green Stormwater Infrastructure (GSI), including stormwater treatment and flow control in 2018:

- SPU posts rain garden designs, plant lists and maintenance guidelines that can be downloaded from the internet. The RainWise program provides information and brochures on various GSI techniques on our website (www.seattle.gov/util/rainwise) as well as in hardcopy.
- 700 Million Gallons (http://www.700milliongallons.org/) is an internet-based education and marketplace outreach tool that helps teach property owners about GSI techniques they can use on

their property to assist with the City's goal to manage 700 million gallons of polluted runoff per year with green stormwater infrastructure (GSI) by 2025.

- SPU will hold two RainWise workshops on building and installing rain gardens and cisterns for contractors. Others will be made available in other languages as need arises.
- School and community demonstration rain gardens and cisterns will be installed at target locations throughout the city.
- As part of the RainWise rebate program, RainWise will host numerous workshops and will table events to explain the benefits of GSI and to promote the installation of RainWise rebate-funded rain gardens and cisterns.
- Conduct 12 workshops on how to qualify for a rebate installing GSI on private property.
- Perform GSI outreach to a minimum of 20 community based events throughout Seattle.

I.1.4.12 Temporary Erosion and Sediment Control / Stormwater Construction Control (SWCC) and On the Job Training

SDCI and SDOT have revised the temporary erosion and sediment control (TESC) training that is provided to City staff to reflect the changes in the Stormwater Code. This training, called stormwater construction controls (SWCC), is offered to City staff on a regular basis or as needed.

All Departments within the City engage in on the job training aimed to keep staff members current on policies, procedures, rules and requirements related to the management of stormwater. This training can take the form of classroom, informal meeting, and tailgate session. In addition, the City encourages employees to attend professional development training related to their business area.

I.1.4.13 Natural Landscaping Professional Development

This program is a series of well-attended professional workshops focused on low impact development (LID) techniques including: sustainable site design, soil BMPs and retention of native vegetation, plant selection and maintenance options that reduce pesticide and fertilizer use, and Natural Drainage/LID strategies for on-site stormwater management, stormwater treatment and flow control. These workshops address the following subjects: technical standards and implementation of stormwater codes, construction site erosion and sediment control plans and methods, long term site BMPs for soil preservation, and restoration specified in Seattle's Stormwater Code and Manual.


Resource-efficient

Natural Landscaping

Design • Build • Maintain

WHY GO NATURAL?

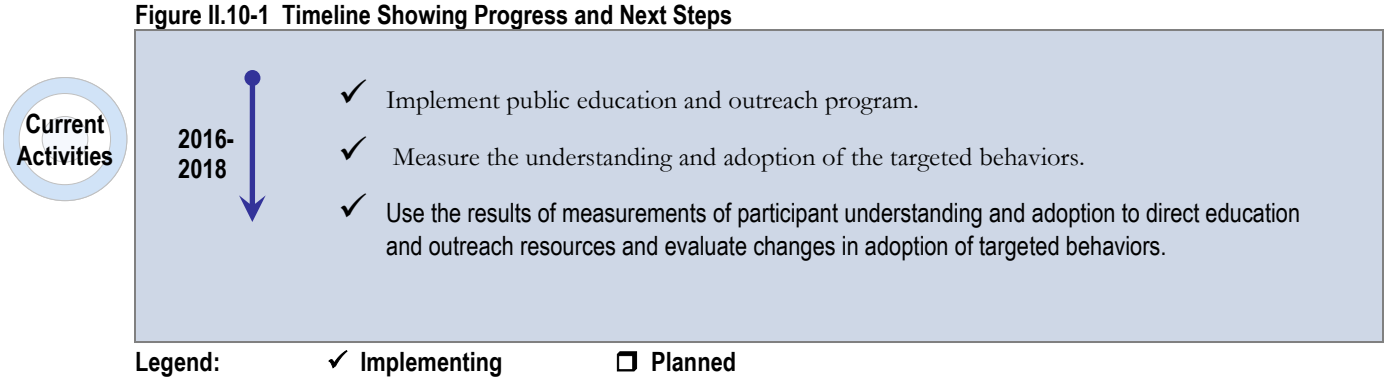
5 Steps to Successful Landscapes

Benefits

Workshops specifically target engineers, design professionals, landscape contractors (including Spanish-speakers), developers, builders, and land use planners. The program is built on extensive barriers and opportunities surveys and focus group work with these professionals and customers. In 2018, trainings will include additional focus on design professionals and implementation of green stormwater infrastructure BMPs as well as the new national Sustainable Sites standards. SPU will also support and promote workshops hosted by other organizations that address Integrated Pest Management and other sustainable landscape maintenance practices.

In 2018, the program manager will continue to work with national Sustainable Sites (www.sustainablesites.org – the site and landscape equivalent of the LEED green building standards) and Washington's ecoPRO Sustainable Landscape Professional (https://ecoprocertified.org) programs. SPU is a founding and technical advisory member of both those programs, which are shaped by concepts, BMPs, and training materials developed here, refer to www.seattle.gov/util/landscapeprofessionals. Work will also continue in making core training available as recorded webinars for remote learning.

Figure II.10-1 Timeline Showing Progress and Next Steps



Legend: ✓ **Implementing** ❒ **Planned**

For More Information

- For more information on Protect Our Waters visit: http://www.seattle.gov/util/EnvironmentConservation/OurWatersheds/ProtectOurWaters/index.htm
- For more information on the Doo Diligence Pest Waste Program visit: http://www.seattle.gov/util/EnvironmentConservation/MyHome/PreventPollution/PetWaste/index.htm
- For more information on the Auto Maintenance Program visit: http://www.seattle.gov/util/EnvironmentConservation/OurWatersheds/ProtectOurWaters/PreventPollution/AutoLeaks/index.htm
- For more information on the Water Quality hotline visit: http://www.seattle.gov/util/myservices/drainagesewer/pollutioncontrol/surfacewaterqualityinvestigations/
- For more information on the Green Gardening program visit: http://www.seattle.gov/util/EnvironmentConservation/MyLawnGarden/index.htm
- For more information on the Sustainable Yard and Home program visit: www.seattle.gov/util/yard and www.GardenHotline.org
- For more information on Trees for Seattle visit: http://www.seattle.gov/trees/
- For more information on RainWise visit: http://www.700milliongallons.org/ or http://www.seattle.gov/util/EnvironmentConservation/Projects/GreenStormwaterInfrastructure/RainWise/index.htm
- For more information on Natural Landscape Professional Development visit: http://www.seattle.gov/util/ForBusinesses/Landscapes/index.htm
- For more information on Green your Business, a free resource conservation program for Seattle businesses, visit http://www.seattle.gov/util/ForBusinesses/GreenYourBusiness/index.htm
- For general questions about this SWMP or more information about this section, email swmp@seattle.gov or visit http://www.seattle.gov/util/Documents/Plans/StormwaterManagementPlan/index.htm

III. REFERENCES

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IV. LIST OF DEFINITIONS AND ACRONYMS

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IV.1 Definitions and Acronyms

All of the definitions listed in the table below are directly from the 2013 NPDES Phase I Permit as modified in 2015, and considering Ecology errata. Acronyms in the Table of Acronyms that are specific to SPU that were added beyond what was listed in the Permit are denoted with an asterisk.

Table IV.1-I Definitions

Term	Definition
40 CFR	Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.
AKART	All Known, Available and Reasonable methods of prevention, control and treatment. See also State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW. "All Known, Available and Reasonable methods of prevention, control and treatment" refers to the State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.
Applicable TMDL	A TMDL which has been approved by EPA on or before the issuance date of this Permit, or prior to the date that Ecology issues coverage under this Permit, whichever is later.
Beneficial Uses	Uses of waters of the state, which include but are not limited to: use for domestic, stock watering, industrial, commercial, agricultural, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.
Best Management Practices	The schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.
Bypass	The diversion of stormwater from any portion of a stormwater treatment facility.
Clean Water Act (CWA)	The federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.)
Component or Program Component	An element of the Stormwater Management Program listed in Special Condition S5 Stormwater Management Program for Permittees or S6 Stormwater Management Program for Secondary Permittees, or S7 Compliance with Total Maximum Daily Load Requirements, or S8 Monitoring and Assessment.
Co-Permittee	An owner or operator of a MS4 which is in a cooperative agreement with at least one other applicant for coverage under this permit. A co-permittee is an owner or operator of a regulated MS4 located within or in proximity to another regulated MS4. A Co-Permittee is only responsible for permit conditions relating to the discharges from the MS4 the Co-Permittee owns or operates. See also 40 CFR 122.26(b)(1).
Director	The Director of the Washington State Department of Ecology, or an authorized representative.
Discharge point	The location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.
Ecology	The Washington State Department of Ecology
Entity	A governmental body or a public or private organization.
General Permit	Permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.
Ground water	Water in a saturated zone or stratum beneath the surface of the land or below a surface water body. Refer to chapter 173-200 WAC.
Heavy equipment maintenance or storage yard	An uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored on a long term basis.

Term	Definition
Hyperchlorinated	Water that contains more than 10 mg/Liter chlorine.
Illicit connection	Any infrastructure connection to the MS4 that is not intended, permitted, or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this permit (S5.C.8, S6.D.3, and S6.E.3). Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the MS4.
Illicit discharge	Any discharge to a MS4 that is not composed entirely of stormwater or of non-stormwater discharges allowed as specified in this Permit (S5.C.8, S6.D.3 and S6.E.3).
Low Impact Development (LID)	A stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.
Material Storage Facilities	An uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.
Maximum Extent Practicable (MEP)	Refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water Act which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.
Municipal Separate Storm Sewer System (MS4)	A conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): • Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the State. • Designed or used for collecting or conveying stormwater. • Which is not a combined sewer. • Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. • Which is defined as "large" or "medium" or "small" or otherwise designated by Ecology pursuant to 40 CFR 122.26
National Pollutant Discharge Elimination System (NPDES)	The national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.
Notice of Intent (NOI)	The application for, or a request for coverage under a General NPDES Permit pursuant to WAC 173-226-200.
Outfall (permit definition)	Point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).
Permittee	Unless otherwise noted, includes city, town, or county Permittee, port Permittee, Co-Permittee, Secondary Permittee, and New Secondary Permittee.
Physically Interconnected	One MS4 is connected to another storm sewer system in such a way that it allows for direct discharges to the second system. For example, the roads with drainage systems and municipal streets of one entity are physically connected directly to a storm sewer system belonging to another entity.
Qualified Personnel	Someone who has had professional training in the aspects of stormwater management for which they are responsible and are under the functional control of the Permittee. Qualified Personnel may be staff members, contractors, or volunteers.
Runoff	Water that travels across the land surface and discharges to water bodies either directly or through a collection and conveyance system. See also "Stormwater."

Term	Definition
Secondary Permittee	An operator of a MS4 which is not a city, town or county. Secondary Permittees include special purpose districts and other public entities that meet the criteria inS1.E.1.
Shared Waterbodies	Waterbodies, including downstream segments, lakes and estuaries, that receive discharges from more than one permittee.
Stormwater	Runoff during and following precipitation and snowmelt events, including surface runoff, drainage, and interflow.
Stormwater Associated with Industrial and Construction Activity	The discharge from any conveyance which is used for collecting and conveying stormwater, which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, or associated with clearing, grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.
Stormwater facilities regulated by the Permittee	Permanent stormwater treatment and flow control BMPs/facilities located in the geographic area covered by the permit and which are not owned by the Permittee, and are known by the permittee to discharge into MS4 owned or operated by the Permittee.
Stormwater Management Manual for Western Washington (SWMMWW)	The Stormwater Management Manual for Western Washington as amended in 2014.
Stormwater Management Program (SWMP)	A set of actions and activities designed to reduce the discharge of pollutants from the MS4 to the MEP and to protect water quality, and comprising the components listed in S5 or S6 of this Permit and any additional actions necessary to meet the requirements of applicable TMDLs pursuant to S7 Compliance with TMDL Requirements, and S8 Monitoring and Assessment.
Total Maximum Daily Load (TMDL)	A water cleanup plan. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.
Urban/higher density rural sub-basins	All areas within or proposed to be within the urban growth area (UGA), or any sub-basin outside the UGA with 50 percent or more area comprised of lots less than 5 acres.
Vehicle Maintenance or Storage Facility	An uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.
Water Quality Standards	Surface Water Quality Standards, Chapter 173-201A WAC, Ground Water Quality Standards, Chapter 173-200 WAC, and Sediment Management Standards, Chapter 173-204 WAC.
Waters of the state	Includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in Chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.

Table IV.1-II Acronyms

Acronym	Definition
AKART	All known, available and reasonable methods of prevention, control and treatment (See definition in definitions table.)
AMC*	Asset Management Committee
BMP	Best Management Practice (See definition in definitions table.)
CDWAC*	Creeks, Drainage Water and Wastewater Authority Committee
CIP*	Capital Improvements Program
DPD*	Department of Planning and Development
Ecology*	Washington State Department of Ecology
EPA*	U.S. Environmental Protection Agency
ERTS*	Environmental Response Tracking System
FAS*	Department of Finance and Administrative Services (Formerly FFD)
FGD*	first ground disturbance
GIS*	Geographic Information System
HAZWOPER*	Hazardous Waste Operations and Emergency Response
IDDE	Illicit Connection and Discharge Detection and Elimination
IFPT*	Integrated Federal Permit Training
JARPA*	Joint Aquatic Resources Permit Application
LID	Low Impact Development (See definition in definitions table.)
MEP	Maximum Extent Practicable (See definition in definitions table.)
MS3	Municipal separate storm sewer (See definition in definitions table.)
MS4	Municipal separate storm sewer system (See definition in definitions table.)
MTCA*	Model Toxics Control Act
NDS*	Natural Drainage System
NOI*	Notice of Intent (See definition in definitions table.)
NOV*	Notice of Violation
NPDES	National Pollutant Discharge Elimination System (See definition in definitions table.)
O&M*	operations and maintenance
ORC*	Operations Response Center
OSE*	Office of Sustainability and Environment
Parks*	Seattle Parks and Recreation
PASV*	Pre-Application Site Visit
PCHB*	Pollution Control Hearings Board
PE*	preliminary engineering
Permit*	NPDES Phase I Municipal Stormwater Permit
QA/QC*	quality assurance/quality control
RCW	Revised Code of Washington State
SCL*	Seattle City of Light
SC*	Source Control
SDCI	Seattle Department of Construction and Inspections
SDOT*	Seattle Department of Transportation
SEPA*	State Environmental Policy Act
SIC*	standard industrial classification
SKIP*	Spill Kit Incentive Program
SMC*	Seattle Municipal Code
SPU*	Seattle Public Utilities

Acronym	Definition
SSCP*	Structural Stormwater Control Program
Stormwater Code*	Seattle Municipal Code, Chapter 22.800 – 22.808, *The Stormwater Code*
SWMP	Stormwater Management Program (See definition in table.)
SWPPP*	Stormwater Pollution Prevention Plan
TESC*	Temporary erosion and sediment control
TMDL	Total Maximum Daily Load (See definition in table.)
TSS*	total suspended solids
USM*	Utility System Management, an organization within SPU
WSDOT*	Washington State Department of Transportation

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APPENDIX 1

Mayor's Executive Order (Clerk file No. 309104)

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Office of the Mayor
City of Seattle
Gregory J. Nickels, Mayor

Executive Order: 01-08
NPDES Municipal Stormwater Permit

An Executive Order directing all City Departments to coordinate together to comply with the requirements of the City's National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit, which has been issued to the City of Seattle by the Washington State Department of Ecology under the provisions of the federal Clean Water Act.

WHEREAS, the City of Seattle has long prided itself on its commitment to the environment;

WHEREAS, the Mayor's Executive Order 03-04 directs City departments with responsibilities for and connections to water quality and aquatic habitat issues to develop a shared, broad-based strategy know as 'Restore our Waters' to better protect and restore water quality and aquatic habitat within the City;

WHEREAS, managing municipal stormwater runoff is a critical component of any strategy to meet the City of Seattle's long-standing objective to protect, improve, and enhance the City's lakes, creeks, bays, rivers, and other surface and ground waters;

WHEREAS, the Washington State Department of Ecology has issued to the City a permit under the National Pollutant Discharge Elimination System (NPDES) of the federal Clean Water Act that contains a suite of conditions and requirements for managing municipal stormwater runoff;

WHEREAS, compliance with the City's NPDES Municipal Stormwater Permit is a responsibility of the entire city and all City departments;

WHEREAS, the City's NPDES Municipal Stormwater Permit contains a specific requirement to establish in writing an Executive Directive requiring internal coordination among all departments affected by the permit;

NOW, THEREFORE, I, GREGORY J. NICKELS, Seattle Mayor, do order all City departments to coordinate all stormwater-related policies, programs, and projects to the maximum extent practicable and I order all City departments to eliminate barriers to compliance with the terms of the permit.

FURTHERMORE, I direct all City departments to review the NPDES Municipal Stormwater Permit that has been issued by Ecology and to identify all requirements for which they are responsible and each Director will be responsible for meeting those requirements and associated deadlines that apply to his or her respective department.

FUTHERMORE, I direct Seattle Public Utilities to serve as the lead department in all matters related to overall City compliance with the permit.

FURTHERMORE, I direct Seattle Public Utilities to provide sufficient information to each department, including technical support, and providing a forum for intra-governmental coordination so the City is able to meet the requirements of the permit.

FURTHERMORE, I direct all City departments to provide to Seattle Public Utilities all necessary reporting elements and supporting material necessary to comply with the reporting requirements and associated deadlines of the permit.

FURTHERMORE, Seattle Public Utilities is directed to compile information received from other departments, and to prepare and submit on my behalf all reports to Ecology under the terms of the permit.

FURTHERMORE, the City of Seattle, is required by the permit to certify that all reports submitted to Ecology are true, accurate and complete. And the City of Seattle can be subject to penalties for submitting false information. Therefore, each department must ensure that documents and all attachments prepared in compliance with this permit are true, accurate, and complete before submitting them to Seattle Public Utilities. Seattle Public Utilities may issue additional direction to departments to ensure compliance with this requirement.

Questions regarding this Executive Order should be directed to Trish Rhay at 206-386-1832 (SPU), Darla Inglis, Ph.D. 206-233-7160 (SPU), and Robert D. Chandler, Ph.D., P.E., 206-386-4576 (SPU).

Dated this 29th day of January, 2008

Gregory J. Nickels
Mayor, City of Seattle