# CITY OF SEATTLE
# 2022 NPDES PHASE I MUNICIPAL STORMWATER PERMIT STORMWATER MANAGEMENT PROGRAM PLAN


**March 2022**

Seattle Public Utilities

## On the Cover:

## Storm Drain Stenciling Volunteer Program

# CITY OF SEATTLE
# 2022 NPDES STORMWATER MANAGEMENT PROGRAM

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# CITY OF SEATTLE NPDES STORMWATER MANAGEMENT PROGRAM PLAN

**Prepared in compliance with the 2019 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 (effective August 1, 2019)**

**WAR04-4503**

**City of Seattle**
**Seattle Public Utilities**
**Seattle, Washington**

**Date: March 2022**

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# I. INTRODUCTION

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# I.1 Introduction

## I.1.1 Background

The National Pollution Discharge Elimination System (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 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 municipal separated storm sewer systems (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).

This document comprises the compilation of the Stormwater Management Program Plan (SWMP) for the City of Seattle (City) under the 2019 NPDES Phase I Municipal Stormwater Permit (Permit) (Ecology 2019b) Special Condition S5.A.1. This SWMP describes the City's plan for activities that the Permit requires (Ecology 2019b) to be completed in 2022 (January 1 to December 31, 2022). Seattle has retained the name "SWMP" for this document for consistency with annual documents produced in the past. This SWMP applies to the municipal separate storm sewers owned or operated by the City within the geographical boundaries established by the Permit and has been designed to reduce the discharge of pollutants from the City's Municipal Separate Storm Sewer System (MS4) to the Maximum Extent Practicable (MEP) and meets state requirements to apply all known and reasonable technologies (AKART) so that water quality is protected.

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 SWMP is 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 City webpage at https://www.seattle.gov/utilities/about/plans/drainage-and-sewer/stormwater-management-plan.

Permit Condition S5 outlines the 11 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 abbreviations and terms used in this document are defined in Section IV.

[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.

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# II. NPDES STORMWATER MANAGEMENT PROGRAM

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# II.1 Legal Authority – S5.C.1

## II.1.1 Permit Requirements

Permit Section S5.C.1 requires the SWMP to demonstrate certain legal authorities for controlling stormwater discharges to and from 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. 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 and construction activity
- Illicit discharges, spills, and dumping
- Inter-jurisdictional agreements
- Development and redevelopment

## II.1.2 Current and Planned Activities for 2022

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) as revised effective on July 1, 2021, achieving equivalency with the Department of Ecology's 2019 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.

Information on the Permit requirement to update the City's Ordinance, Stormwater Code (SMC 22.800) and associated Manual can be found in Section II.5 of this SWMP. The Stormwater Code, Manual, and information can be found on the Seattle Department of Construction and Inspections web site: http://www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code.

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.

The City Attorney's Office provides legal advice to the City about implementation of legal authority for SMC and directors' rules. The City will continue to use its Legal Authority to control discharges to and from the MS4 owned and operated by the City.

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# II.2 MS4 Mapping and Documentation – S5.C.2

## II.2.1 Permit Requirements

Permit Section S5.C.2 requires the City to have an ongoing mapping program that includes maintaining mapping of the MS4, including:

- Known MS4 outfalls and known MS4 discharge points.
- Receiving waters, other than groundwater.
- Stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee, including all connections between these BMPs/facilities and tributary conveyances and all associated emergency overflows.
- Geographic area served by the City's MS4 that do not discharge stormwater to surface water.
- Tributary conveyances to all known outfalls and discharge points (24-inch diameter or larger).
- Connections between the MS4 owned or operated by the Permittee and other municipalities or other public entities.
- All connections to the MS4 authorized or allowed by the Permittee after February 16, 2007.[1]
- Existing, known connections equal to 8 inches in nominal diameter to tributary conveyances.

New mapping requirements include:

- Collecting data for size and material for all known MS4 outfalls.
- Mapping all known connections from the MS4 to a privately-owned stormwater system.

## II.2.2 Current and Planned Activities for 2022

In addition to implementing all the required activities listed above and maintaining the permit required data, the City will continue to collect size and material for all known MS4 outfalls during normal course of business (e.g., during field screening, inspection, or maintenance) and update records. These data points have been collected for outfalls and currently reside in the City's GIS system.

The City's GIS data on the MS4 system is available to Ecology, Indian Tribes, municipalities, other permittees, and the public through the SPU GIS webpage: http://www.seattle.gov/utilities/construction-resources/records-vault.

This web page is a landing spot that contains links for:

- Tools for customers to create a map of their property to better understand MS4 infrastructure
- A water and sewer research map web page
- A link to download City GIS data
- Instructions on how to order data sets

[1] Permittees do not need to map the following residential connections: individuals' driveways, sump pumps, or roof downspouts.

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# II.3 MS4 Coordination – S5.C.3

## II.3.1 Permit Requirements

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

- Update, if needed, and implement an intra-governmental (internal) coordination agreement(s) or Executive Directive(s) to facilitate compliance with the terms of this Permit.
- Coordination mechanisms among entities covered under a municipal stormwater NPDES permit to encourage coordinated stormwater-related policies, programs, and projects with adjoining or shared areas, including:
  - Coordination mechanisms clarifying roles and responsibilities for the control of pollutants between physically interconnected MS4s covered by a municipal stormwater permit.
  - Coordinating stormwater management activities for shared water bodies, or watersheds among Permittees to avoid conflicting plans, policies, and regulations.

## II.3.2 Current and Planned Activities for 2022

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 A) (City of Seattle 2008) was issued on January 29, 2008, by the Mayor of Seattle to meet this Permit requirement. The Executive Order was reviewed as part of this SWMP update, and it does not require any updates.

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 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:

- Seattle Public Utilities (SPU) - lead role coordinating Permit compliance and reporting
- 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)
- Seattle Department of Transportation (SDOT)

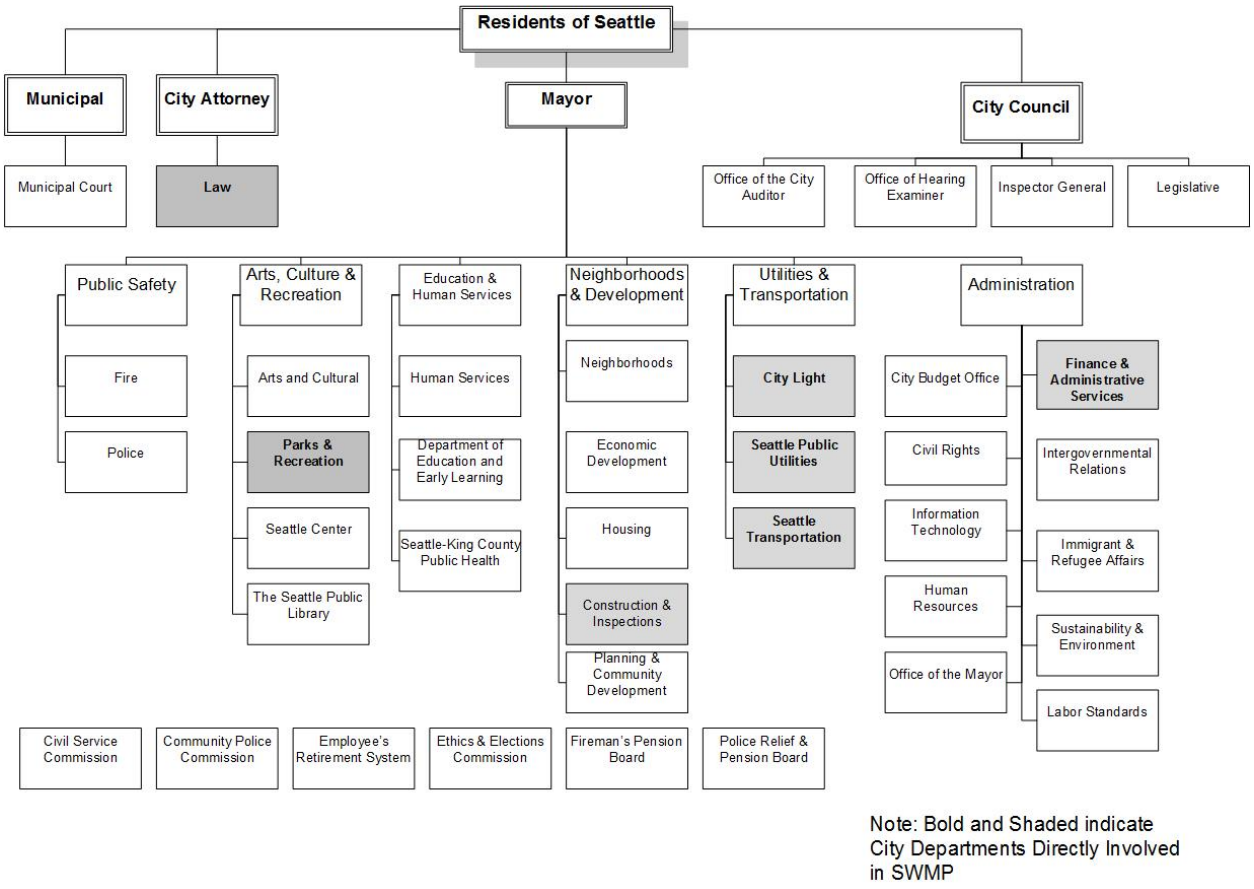


**Figure II.3-1 City Organizational Chart**

## II.3.2.1 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.3.2.1.1 Internal Coordination

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

#### II.3.2.1.2 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 water bodies. In addition, the group discusses stormwater related issues, shares permit implementation information and identifies solutions and potential future issues.

### II.3.2.2 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.3.2.3 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. Parks is responsible for implementation of the Stormwater Code at facilities under its management.

### II.3.2.4 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.3.2.5 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 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.3.2.6 Seattle Department of Transportation (SDOT)

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. SDOT is responsible for implementation of the Stormwater Code at facilities under its management.

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 typically takes over operation and maintenance of municipal stormwater facilities in the right-of-way.

### II.3.2.7 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 2019 NPDES Phase I Municipal Stormwater Permit. The City communicates with these entities about the control of pollutants, coordination of stormwater management activities for shared water bodies, and provides technical assistance when requested. The City communicates with other Phase I and Phase II municipalities where there are interconnected MS4s, shared water bodies, or both as needed to address issues or coordinate activities.

# II.4 Public Involvement and Participation – S5.C.4

## II.4.1 Permit 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, including overburdened communities, 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 website. All other Permit-required submittals shall be available to the public upon request.

## II.4.2 Current and Planned Activities for 2022

The public has several means of participating in the SWMP development process and associated activities, as described below. Overburdened communities are included in our efforts to engage the public participation in the SWMP.

### II.4.2.1 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 functions of the City Council—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 website: http://www.seattle.gov/council/default.htm.

### II.4.2.2 Public Participation During SWMP Development

SPU provides information on the stormwater management program plan on its public website (https://www.seattle.gov/utilities/about/plans/drainage-and-sewer/stormwater-management-plan) and provides an email, swmp@seattle.gov, that the public can use to ask questions and get more information on the stormwater management program plan.

SPU facilitates the Strategic Business Plan Customer Review Panel which provides ongoing opportunities for members of the public to participate in planning and development of policies and programs and to advise SPU. Information about the Customer Review Panel can be found on the following SPU webpage: https://www.seattle.gov/utilities/about/plans/strategic-business-plan/customer-review-panel.

SPU is also engaging the public on stormwater related topics as part of its Shape Our Water planning project. Shape our Water is a community-centered planning effort that will inform the City's stormwater strategies over the next 50 years. Shape Our Water has ongoing opportunities for residents to participate in the planning and development of the project. Information about ways for citizens to get

involved can be found on the Shape Our Water website at https://www.shapeourwater.org/get-involved.

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

## II.5.1 Permit Requirements

Section S5.C.5 of the Permit 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 City will continue to implement existing, approved programs until the revised program applies.
  - The City must adopt and make effective a local program that meets the requirements in S5.C.5.b.i through ii no later than July 1, 2021.
- 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 Current and Planned Activities for 2022

The following sections outline ongoing and planned activities to meet the key Permit requirements.

### II.5.2.1 Stormwater Code

Appendix 10 of the 2019 Permit, modified in 2021, establishes that the City of Seattle is currently meeting permit requirements S5.C.5.a.i and S5.C.5.a.ii and has a program that is equivalent with Ecology's 2019 Stormwater Management Manual for Western Washington. The equivalent regulations and rules are:

- Seattle Municipal Code Chapters 22.800-22.808 titled, "Stormwater Code" as adopted in May 2021 (Ordinance 126336), effective July 1, 2021.
- Joint SPU/SDCI Directors' Rules titled, "Stormwater Manual" (Directors' Rule SPU DWW-200/SDCI 10-2021), effective July 1, 2021. The Stormwater Manual contains five volumes.

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

## II.5.2.3 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 in the next section.

### II.5.2.3.1 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 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 and 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 applies, including plans, to the SDCI Applicant Services Center. 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 includes the Memorandum of Drainage Control, which lists the BMPs to be constructed, and is the mechanism to allow future inspections of these facilities by City staff.

#### II.5.2.3.2 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.

The 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 SDCI issuance of the certificate of occupancy.

#### II.5.2.3.3 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. In 2020 and 2021, SDCI inspectors were able to continue their on-site inspections during the ongoing COVID-19 pandemic with additional safety measure in place. In 2022,

as the COVID-19 pandemic continues, SDCI inspectors will continue to implement the increased safety measures to conduct on-site 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 BMPs 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.5.2.3.4 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.5.2.4 Ecology Notice of Intent

SDCI will continue to direct applicants to the Washington State Department of Ecology for electronic "Notice of Intent for Construction Activity" (Ecology 2020a), "Notice of Intent for Industrial Activity" (Ecology 2020b), or both when necessary.

### II.5.2.5 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.

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# II.6 Stormwater Planning – S5.C.6

## II.6.1 Permit Requirements

Section S5.C.6 of the Permit requires the City to implement a Stormwater Planning program to inform and assist in the development of policies and strategies as water quality management tools to protect receiving waters. The specific requirements are:

- Convene an inter-disciplinary team to inform and assist in the development, progress, and influence of this program.
- Coordination with long-range plan updates. Describe how stormwater management needs and protection/improvement of receiving water health are (or are not) informing the planning update processes and influencing policies and implementation strategies in the City.
- Continue to require Low Impact Development (LID) principles and LID best management practices (BMPs) when updating, revising and developing new local development-related codes, rules, standards or other enforceable documents, as needed.
    - Annually assess and document any newly identified administrative or regulatory barriers to implementation of LID principles or LID BMPs.

## II.6.2 Current and Planned Activities for 2022

### II.6.2.1 Inter-disciplinary Team

In 2020, the City formed an inter-disciplinary stormwater planning team with representatives from five City departments: SPU, SDOT, Parks, SDCI, and the Office of Planning and Community Development (OPCD). In 2022, the team continues to review and prepare responses to the Stormwater Planning Annual Report questions that describe how anticipated stormwater impacts on water quality were addressed, if at all, during the current permit term in updates to the Comprehensive Plan (or equivalent) and in other locally initiated or state-mandated long-range land use plans that are used to accommodate growth or transportation.

### II.6.2.2 Low-Impact Development Code-Related Requirements

In 2021, the City updated its Stormwater Code as described in section II.5.2.1.1. The Code update process included review of development-related codes, rules, standards, and other enforceable documents. The City continues to assess possible administrative or regulatory barriers to implementation of LID principles or LID BMPs as needed.

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# II.7 Structural Stormwater Controls – S5.C.7

## II.7.1 Permit Requirements

Permit Section S5.C.7 requires the City to:

- Implement a Structural Stormwater Control Program (SSCP) that is designed to address stormwater impacts that are not adequately controlled by other required actions of the SWMP.
- Describe the SSCP in this SWMP document, including goals and the planning process: scale, issues and regulations, steps, budgets, public involvement, and the prioritization process, procedures and criteria used to select the projects.
- With each annual report, provide an updated list of planned SSCP projects scheduled to be implemented during the term of the Permit; including the information and formatting specified in Appendix 12 of the Permit.

## II.7.2 Current and Planned Activities for 2022

The following sections outline the goals of the City's SSCP, which are 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.7.2.1 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.7-1). 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, equity, and available funding.

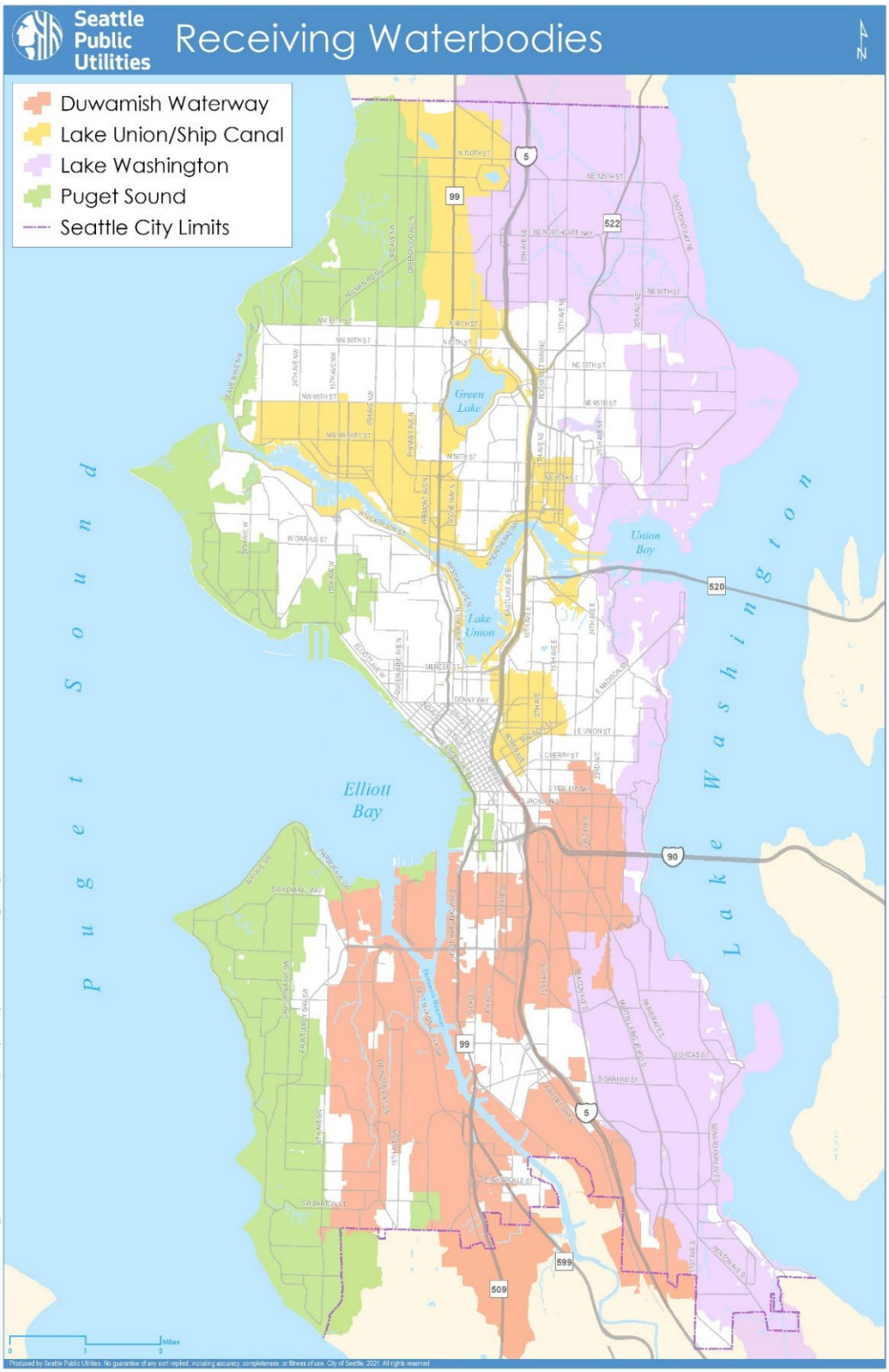


**Figure II.7-1 Major Receiving Water Bodies**

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 based on an assessment of receiving water body conditions, anticipated benefits of the project, regulatory compliance needs, opportunity, equity considerations, 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, participating in capital projects community engagement, participating in the Shape Our Water plan, State Environmental Policy Act (SEPA) review, and Joint Aquatic Resources Permit Application (JARPA) review.

The Structural Stormwater Control projects that the City reports on for compliance with the City's NPDES Municipal Stormwater Permit are summarized in Table II.7.1 below. In addition, the City conducts other Structural Stormwater Control projects, many at a much smaller scale, which may include other flow control facilities, runoff treatment facilities, property acquisition, maintenance with capital construction costs greater than or equal to $25,000, line cleaning, restoration of riparian buffer, floodplain reconnection projects, and permanent removal of impervious surface.

**Table II.7-1 Structural Stormwater Control Project List**

| Project Name | Description | Cost Estimate | Status | Receiving Water Body |
|---|---|---|---|---|
| **Natural Drainage System Program** | Bioretention in basins that drain to Piper's, Thornton, and Longfellow Creeks along approximately four miles of right-of-way. | $57 M | Design | Longfellow Creek, Thornton Creek, Piper's Creek |
| **South Park Water Quality Project*** | Stormwater quality treatment of an industrial/commercial/high density residential basin. | $53 M | Design | Duwamish Waterway |
| **Street Sweeping for Water Quality** | High efficiency sweeping of arterial roadways in MS4. There are 46 separate routes with a total of 657 curb miles in the MS4. Routes are swept at a frequency between 1 to 54 times/year, with an average frequency of 25 times/year. | $1.7 M/yr | Ongoing | Lake Washington, Lake Union, Ship Canal/ Salmon Bay, Puget Sound, Duwamish Waterway, Longfellow Creek, Piper's Creek, Thornton Creek |

*This project will not meet the timeline deadlines to be eligible for points during this permit term.

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# II.8 Source Control Program for Existing Development – S5.C.8

## II.8.1 Permit Requirements

Permit Section S5.C.8 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 August 1, 2021.
- 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 for sites identified through credible complaints.
- Implement a progressive enforcement policy to require sites to come into compliance with stormwater requirements within a reasonable time period.
- An ongoing training program for staff who are responsible for implementing the source control program to conduct these activities.

## II.8.2 Current and Planned Activities for 2022

### II.8.2.1 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 effective July 2021, are equivalent to Appendix 1 of the 2019 Permit, 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 July 1, 2021.

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 Your 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.8.2.1.1 Stormwater Code and Directors' Rule Update

The 2019 Permit required Seattle to adopt and make effective enforceable requirements, technical standards and manuals that correspond to updates identified in Appendix 10, Part 2 of the Permit, and additional significant changes by July 1, 2021. In 2021, the City updated its Stormwater Code (SMC 22.800-22.808) and SPU Directors' Rule Volume 4-Source Control. More information on this process can be found in Section II.5.

### II.8.2.2 Business Inspection Program

The Source Control Team (SC) within SPU h conducts 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. In 2020, the City updated its Source Control inspection protocol to adapt to the additional safety measures needed in response to the ongoing COVID-19 pandemic, allowing for virtual inspections as well as a hybrid of virtual and in-person inspections. In 2022, SC will continue to administer the updated inspection protocol to complete the required number of inspections.

Education and technical assistance provided by SC is delivered during site visits, inspections, or complaint investigations and through outreach materials, such as best management practice (BMP) sheets. Enforcement is used when the inspection process has failed to gain compliance voluntarily. The SPU Green Your 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 SPU Green Your Business Program facilitates the Spill Kit Incentive Program (SKIP), which provides free spill kits and spill plans to Seattle businesses.

To meet the 2022 requirements in S5.C.8.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.

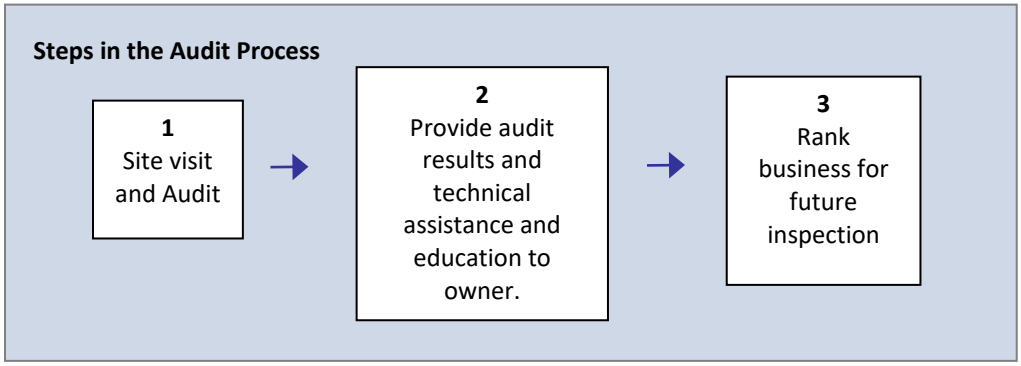


**Figure II.8-1 Audit Process**

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.

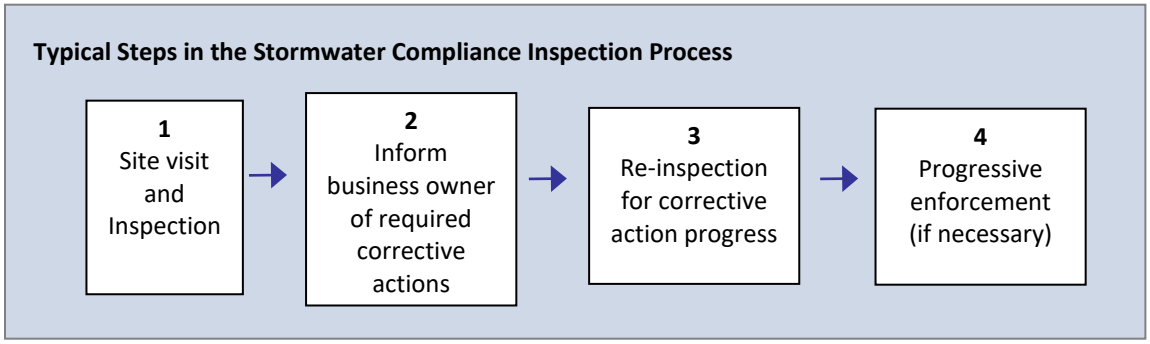


**Figure II.8-2 Stormwater Compliance Inspection Process**

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.8.2.3 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.

The enforcement process is closely linked to the inspection process. Figure II.8-3 summarizes typical steps as reflected in the enforcement process.

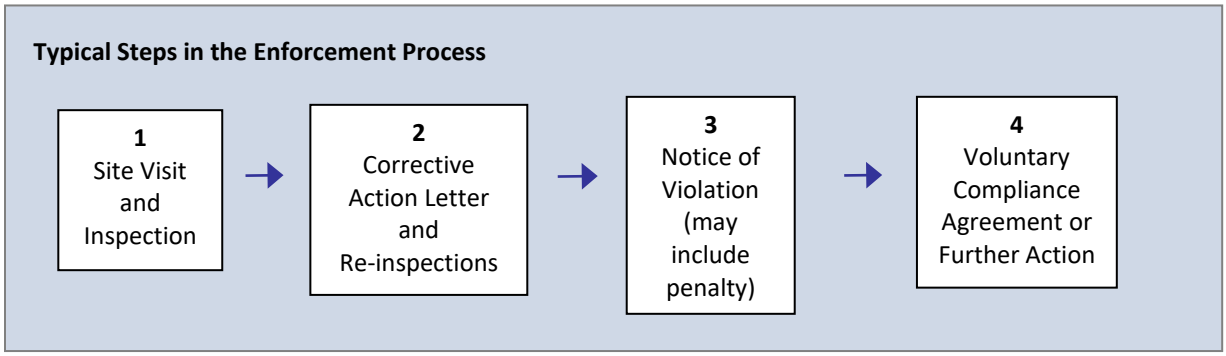


**Figure II.8-3 Enforcement Process**

#### II.8.2.3.1 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.8.2.3.2 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.8.2.4 Lower Duwamish Waterway Source Control Implementation Plan

Appendix 13 of the 2019 NPDES Phase I Permit required the City to update its Source Control Implementation Plan (SCIP) for the Lower Duwamish Waterway by March 31, 2020. The SCIP describes the City's activities towards source control in the MS4 basins that discharge to the Lower Duwamish Waterway Superfund Cleanup area. The updated SCIP covers 2021-2026 and builds upon the City's 2015-2020 SCIP to continue to identify and control sources of pollution to support Superfund Cleanup efforts. Information on the City's source control efforts and the SCIP can be found at: https://www.seattle.gov/utilities/neighborhood-projects/lower-duwamish-waterway.

Appendix 13 requires that SPU prioritize actions each year. The 2022 priorities as detailed in the 2021-2026 SCIP are:

- Source Tracing and Sampling
- Line Cleaning
- Structural Controls

#### *Source Tracing and Sampling*

- SPU will continue to install sediment traps, including the new low-profile traps, to fill in data gaps where solids data are limited or lacking.
- SPU will conduct post line cleaning sampling of areas where line cleaning occurs to determine that cleaning has removed pollutants of concern.
- Continue quarterly solids monitoring in catch basins and maintenance holes on S. Myrtle St.
- Continue to collect near-end-of-pipe solids sampling to evaluate the effectiveness of the LDW source control program.

#### *Line Cleaning*

During 2022, SPU will focus on the following areas for line cleaning:

- 7th Ave S Storm Drainage
- Diagonal Ave S Storm Drainage, Rainier Valley sub-basins
- S Georgetown Storm Drainage
- S Hinds St Storm Drainage (East Waterway)

SPU intendeds to clean at least 4,000 linear feet of storm drain lines in 2022 to comply with Appendix 13 requirements.

#### *Structural Controls*

- South Park Water Quality Project: SPU continues to make progress on the planning and development of a stormwater treatment facility in the South Park Neighborhood of Seattle.

- SPU and the Seattle Department of Transportation will continue to implement the Street Sweeping for Water Quality program including weekly sweeping of S. Myrtle St.

## II.8.2.5 Records Management

The Source Control Program tracks its inspection and enforcement records through a database and electronic file management system. The inspection database was converted from a Sequel Server and Microsoft Access platform to Microsoft Dynamics. The database includes records for 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 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.8.2.6 Training

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.8.2.6.1 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.8.2.6.2 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.8.2.6.3 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.9 Illicit Connections and Illicit Discharges Detection and Elimination – S5.C.9

## II.9.1 Permit Requirements

Section S5.C.9 of the Permit requires the City to have an ongoing program designed to detect, characterize, trace, and eliminate illicit connections and illicit discharges into the City's MS4. The performance measures include:

- Implement procedures for conducting investigations of the MS4, including field screening and methods for identifying potential sources.
- Publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges.
- Ongoing training program for municipal staff.
- Implement ordinances, inspect and use enforce authority against illicit connections and illicit discharges.
- 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.9.2 Current and Planned Activities for 2022

### II.9.2.1 Ongoing IDDE Program

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

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. 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.9.2.1.1 Water Quality Investigations


The City provides a publicly listed Water Quality Hotline and web form (http://www.seattle.gov/utilities/environment-and-conservation/our-city/report-pollution) 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.

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.

All the water quality complaints, regardless of the suspected cause, are responded to within 3 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.9.2.1.2 Field Screening and Source Tracing

SC has developed a dry weather screening program for compliance with S5.C.9.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 (see Appendix B). 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.9.2.1.3 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 hours/7 days week. In 2020 and 2021, the Spill Coordinators continued to respond to spills during the ongoing COVID-19 pandemic, with additional safety measures in place, and will continue to respond to in 2022. The Spill Coordinator is responsible for responding to the spill, coordinating cleanup, and filing a report form.

Spill response calls are dispatched through the SPU 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.9.2.2 Records Management

Enforcement actions are tracked both in the Dynamics 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.

In 2019-2020, the SC Team scanned all hard copy files into electronic format to assist with field access and for preservation. All documents are stored on SharePoint and are accessible via the Dynamics database. Records are managed in accordance with the state record keeping requirements.

## II.9.2.3 Training

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.9.2.3.1 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.9.2.3.2 Inspector Meetings

SC staff hold bi-monthly 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.9.2.3.3 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.9.2.3.4 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, are trained during staff meetings, on the job or via computer-based learning on how to identify illicit discharges and connections and how to properly report and/or respond to them

# II.10 Operation and Maintenance Program – S5.C.10

## II.10.1 Permit Requirements

Permit Section S5.C.10 requires the City to implement and document a program to regulate maintenance activities and to conduct maintenance activities to prevent or reduce stormwater impacts. The performance measures include the following, 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.
- Evaluate and, if necessary, update existing ordinances or other enforceable documents requiring maintenance of all stormwater treatment and flow control BMPs/facilities regulated by the City, establishing maintenance standards as or more protective than those specified in the 2019 Stormwater Management Manual for Western Washington no later than July 1, 2021.
- 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.
- 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.
- 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.10.2 Current and Planned Activities for 2022

The following sections outline planned activities needed to meet the key Permit requirements. In 2022, staff continue to implement increased safety measures to complete inspection requirements during the ongoing COVID-19 pandemic.

## II.10.2.1 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 (2021), and the current Directors' Rule (SPU DWW-200/SDCI 10-2021), 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.10.2.1.1 Stormwater Code and Directors' Rule Update

The 2019 Permit required Seattle to adopt and make effective enforceable requirements, technical standards and manuals that correspond to updates identified in Appendix 10, Part 2 of the Permit, and additional significant changes by July 1, 2021. In 2021, the City updated its Stormwater Code (SMC 22.800-22.808) and SPU Directors' Rule. More information on this process can be found in Section II.5.

## II.10.2.2 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 SPU DWW-200/SDCI 10-2021. 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. In 2022, SPU continues to prioritize inspections and implement additional safety measures due to the ongoing COVID-19 pandemic.

Maintenance standards for private stormwater facilities regulated by the City Stormwater Code are defined and described in Appendix G of the 2021 City of Seattle Stormwater Manual (aka Directors' Rule SPU DWW-200/SDCI 10-2021). 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.10.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.10.2.3 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 implement 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.10.2.4 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 Directors' Rule 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.10.2.5 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 System Maintenance Division 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.10.2.6 Records of Inspections, Maintenance, or Repair

### II.10.2.6.1 Private Stormwater Facilities

The SC group tracks private facility inspection and enforcement records through a Microsoft Dynamics database and electronic 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 SharePoint.

### II.10.2.6.2 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.10.2.7 Stormwater Practices to Reduce Impacts Associated with City-Owned Land and Maintenance Activities

The City's Stormwater Manual, Stormwater Code, and the Directors' Rule establish practices to reduce the stormwater impacts associated with land 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.10.2.7.1 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 (2021) 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.

SDOT's Street Use and Urban Forestry Division has policies and procedures in place to address 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).

#### Dust Control

The policy for addressing dust control can be found in the City's Stormwater Manual, Volume 4 – Source Control under BMP 29: Dust Control in Disturbed Land Areas and on Unpaved Roadways and Parking Lots.

#### Integrated Pest Management

Policies for addressing application of fertilizer, pesticides, and herbicides are addressed in the City's Stormwater Manual, Volume 4 – Source Control under BMP 22: Landscaping and Vegetation Management , BMP 49: Pesticides and an Integrated Pest Management Program, and BMP 50: Fertilizer Application. SDOT's Street Use and Urban Forestry Division limits the use of fertilizers, pesticides, and herbicides in accordance with City policies and procedures. 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).

#### Sediment and Erosion Control

The policy for addressing sediment and erosion control is addressed under BMP 31: Soil Erosion and Sediment Control at Industrial Facilities in the City's Stormwater Manual, Volume 4 – Source Control.

SDOT's Street Use and Urban Forestry Division has policies and procedures in place to address erosion and sediment control 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.

### Trash and Pet Waste Management

Policies for addressing trash and pet waste management can be found in the City's Stormwater Manual, Volume 4 – Source Control under Citywide BMP 3: Dispose of Fluids and Wastes Properly, Citywide BMP 4: Proper Storage of Solid Wastes, and BMP 45: Pet Waste.

### Exterior Building Cleaning and Maintenance

Policies for addressing exterior building cleaning and maintenance can be found in the City's Stormwater Manual, Volume 4 – Source Control under BMP 7: Property Maintenance and BMP 17: Cleaning or Washing.

## II.10.2.8 Training Program

The City provides on the job 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. 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. 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.10.2.9 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.

# II.11 Education and Outreach Program – S5.C.11

## II.11.1 Permit Requirements

Permit Section S5.C.11 requires the City to implement a stormwater education and outreach program for the area served by the MS4, based on local water quality information and target audience characteristics, designed to:

- Build general awareness among target audiences about methods to address and reduce impacts from stormwater runoff.
- Effect behavior change to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.
  - Conduct a new evaluation of the effectiveness of the ongoing behavior change program (required under S5.C.10.a.ii of the 2013 Permit). Document lessons learned and recommendations for which option to select from S5.C.11.a.iv no later than July 1, 2020. This evaluation may be skipped if it will not add value to the overall behavior change program.
  - Based upon the recommendations from the evaluation above, if conducted, by February 1, 2021, follow social marketing practices and methods, like Community-Based Social Marketing, and develop a campaign that is tailored to the community that meets one of the strategies below. Implement the strategy that is developed no later than April 1, 2021.
    - Develop a strategy and schedule to more effectively implement the existing campaign, or
    - Develop a strategy and schedule to expand the existing campaign to a new target audience or BMPs, or
    - Develop a strategy and schedule for a new target audience and BMP behavior change campaign.
  - No later than March 31, 2024, evaluate and report on the changes in understanding of targeted behaviors resulting from the implementation of the strategy and any changes to the campaign in order to be more effective, including a description of the strategies and process to achieve the results.
- Provide and advertise stewardship opportunities that encourage community engagement in addressing the impacts from stormwater runoff.

## II.11.2 Current and Planned Activities for 2022

The City implements a variety of educational programs to engage the general public, businesses, engineers, contractors, developers, and land use planners in Seattle of the general impacts of stormwater, LID principles, LID BMPs, stormwater treatment and flow control BMPs/facilities (Table II.11-1). These programs provide educational materials, instruction or designs that residents can use at their home, business, or in the community at large.

Some of the programs use social science methods, particularly Community Based Social Marketing, to foster behaviors that reduce stormwater pollution. This includes identifying barriers to an audience's ability to engage in sustainable behavior and working to remove those barriers to participation while simultaneously communicating the need for behavior change in a culturally competent way. Evaluation is built into the program design to track performance metrics and changes in the audiences' adoption of the target behavior.

2021 saw a continuing need to adapt programs due to the ongoing COVID-19 pandemic. The City will continue to implement the following education and outreach programs in 2022.

**Table II.11-1 Education and Outreach Programs**

| Program Name | Program Type | | |
|---|---|---|---|
| | General Awareness | Behavior Change | Stewardship |
| Adopt a Drain | x | x | x |
| Automotive Maintenance | x | x | |
| Green Business | x | x | |
| K-12 Youth Engagement | x | | |
| Pet Waste | x | x | x |
| RainWise | x | x | x |
| Spill Kits | x | x | x |
| STORM / Puget Sound Starts Here | x | x | |
| Stormdrain Stenciling | x | x | x |
| Sustainable Landscaping | x | x | x |
| Trees for Seattle | x | x | x |
| Water Quality Hotline | x | | |

## II.11.2.1 Adopt a Drain

**Program Description:** The Adopt a Drain program is a social science-based behavior change program that asks residents to adopt a nearby storm drain and keep it clear of debris. This program is part of a storm drain care approach that connects and promotes best practices for upstream pollution prevention behaviors like picking up pet waste, maintaining vehicles, and natural yard care practices.
**Target audience:** General public, including school age children
**Subject areas:** Preventing surface water pollution. BMPs to prevent non-point source pollution.

**2022 priority goals:**

- Recruit 300 new volunteers to care for 600 storm drains and collect 2500 pounds of debris.

- Engage a historically underserved community in an MS4 priority area to promote the program.
- Collaborate with regional jurisdictions to grow Adopt a Drain membership.

### II.11.2.2 Automotive Maintenance Program

**Program Description:** This program is restructuring to better address automotive related water quality issues.
**Target audience:** General public, including school age children
**Subject areas:** Preventing surface water pollution. BMPs to prevent non-point source pollution.

**2022 priority goals:**
- Identify staffing and priority work areas

### II.11.2.3 Green Business Program

**Program Description:** SPU'S Green Business Program promotes SPU's Community-Centered, One Water, Zero Waste vision by engaging businesses to meet and/or exceed environmental and health requirements through education, training, and technical assistance. This program also recognizes businesses who incorporate sustainable business practices through the EnviroStars program. The program provides spill kits, training on spill prevention and stormwater best management practices, education on Fats, Oils, and Grease (FOG) and 'what to flush', and technical assistance with environmental compliance.
**Target audience:** Businesses
**Subject areas:** Preventing surface water pollution. BMPs to prevent non-point source pollution.

**2022 priority goals:**
- Provide spill kits to new businesses and employee training on their use
- Provide targeted wastewater outreach to provide restroom signage and garbage bins to keep trash out of sewer pipes
- Provide FOG best management practices training at new food service establishments

### II.11.2.4 K-12 Youth Engagement

**Program Description:** SPU's K-12 youth education program partners with schools to engage students in learning about stormwater issues and raising and releasing baby salmon. This program will continue to adapt to meet the covid guidelines as needed by providing virtual opportunities and holding events outdoors on school campuses instead of field trips to salmon bearing creeks or local parks.
**Target audience:** School age children
**Subject areas:** General impacts of stormwater on surface waters, including impacts from impervious surfaces and hazards associated with illicit discharges and improper disposal of waste.

**2022 priority goals:**
- Deliver stormwater field programs to 900 students
- Engage 60 schools in salmon rearing through Salmon in the Schools program
- Host 10 classes on the Duwamish River Experience Field Program
- Lead 2 teacher professional development workshops

## II.11.2.5 Pet Waste

**Program Description:** SPU's Pet Waste program lowers barriers to proper disposal of pet waste by maintaining doggy bag dispensers in various locations across Seattle. SPU engages with volunteers to support the program by regularly refilling dispensers.
**Target audience:** General public
**Subject areas:** Preventing surface water pollution. BMPs to prevent non-point source pollution.

**2022 priority goals:**

- Distributed over 64,000 Mutt Mitt doggy bags
- Support 8-10 volunteers to maintain Mutt Mitt dispensers
- Maintain ongoing relationships with Seattle Conservation Corps

## II.11.2.6 RainWise

**Program Description:** RainWise is a joint rebate program offered by SPU and King County that helps private property owners manage stormwater by installing cisterns and/or rain gardens on their properties. These systems absorb or slow the rate of stormwater entering the sewer system, prevent flooding, provide attractive landscaping, and offer water for summer irrigation. The RainWise program also provides a business opportunity for local contractors interested in landscaping and green stormwater infrastructure.
**Target audience:** General public, including school age children; Businesses; Engineers; Contractors; Developers; Land use planners.
**Subject areas:** Stormwater flow reduction, preventing surface water pollution.

**2022 priority goals:**

- Complete 100 installations in SPU basins, capturing over 100,000 sq feet of roof area
- Conduct stakeholder feedback interviews with the Chinese, Vietnamese and Latinx community
- Conduct an ad campaign to target African American communities eligible for RainWise
- Improve access to RainWise contractor training materials through a self-serve online module
- Conduct onsite inspections of a minimum of 50 RainWise installations to ensure a <2% facility loss rate and to address maintenance or repair concerns

## II.11.2.7 Spill Kits

**Program Description:** SPU provides 5-gallon bucket sized spill kits to businesses with a risk of environmental spills, focusing on businesses that discharge to the MS4 stormwater system. Spill kits contain a collection of spill cleanup materials and are provided along with technical assistance in developing a spill response plan.
**Target audience:** Businesses
**Subject areas:** Preventing surface water pollution.

**2022 priority goals:**

- Provide 200 spill kits/assistance

### II.11.2.8 STORM / Puget Sound Starts Here

**Program Description:** Stormwater Outreach for Regional Municipalities (STORM) is a coalition of 80 jurisdictions working to comply with NPDES and make a difference for water quality. The Puget Sound Starts Here campaign is a collaborative impact approach. Partners include STORM members, tribes, nonprofit organizations, and businesses dedicated to protecting Puget Sound.
**Target audience:** General public
**Subject areas:** BMPs to prevent non-point source pollution.

**2022 priority goals:**
- Develop and implement a new BMP campaign for Puget Sound Starts Here Month
- Participate on Steering Committees for both STORM and the Puget Sound Starts Here Campaign

### II.11.2.9 Storm Drain Stenciling

**Program Description:** SPU's storm drain stenciling program is a volunteer-based stewardship program that provides stencil supplies and hands-on instruction for individuals and community groups to stencil dumping awareness messages next to storm drains.
**Target audience:** General public, including school age children
**Subject areas**: Preventing surface water pollution including impacts from improper disposal of residential and commercial discharges into storm drains and catch basins.

**2022 priority goals**:
- Engage 120 volunteers in stenciling 2,000 drains
- Expand program to include 6 stencil kit supply pickup locations
- Support two community partnership events

### II.11.2.10 Sustainable Landscaping

**Program Description**: This program engages and educates residents and professional landscapers in sustainable landscaping practices to improve soil drainage function and to reduce the use of fertilizers and pesticides.
**Target audience**: General public, including school age children; Engineers; Contractors; Developers; Land use planners
**Subject areas**: Landscaping best practices, integrated pest management, infiltration, and erosion control.

**2022 priority goals:**
- Engage 4,000 residents on topics related to sustainable landscaping
- Participate in 250 classes or events for residents, 50% of which will be targeted specifically for BIPOC communities and/or disadvantaged populations
- Train 30 new Master Composter / Sustainability Steward volunteers
- Reach 3,000 residents via 500 hours of volunteerism from Master Composters / Sustainability Stewards
- Reach 1,000 landscape professionals at 20 events

## II.11.2.11 Trees for Seattle

**Program Description:** Trees for Seattle engages residents in stewarding Seattle's urban forest. Trees for Seattle ensures that Seattle's urban forest is healthy, vital, and growing by planting new trees with residents, supporting volunteer stewardship of the urban forest, tree-related awareness outreach, and in-person tree-appreciation events like Tree Walks.
**Target audience:** General public, including school age children
**Subject areas:** Urban forestry, green stormwater infrastructure.

**2022 priority goals:**

- Plant 1,000 trees with residents on residential property and school campuses
- Focus tree planting outreach in high-heat neighborhoods
- Support 20 engagement and stewardship events
- Engage 100 volunteers

## II.11.2.12 Water Quality Hotline


**Program Description:** SPU provides a hotline for the public to report Water Quality concerns to facilitate prompt SPU response. This creates an easy channel to communicate water quality concerns to increase reporting when water quality issues are seen by the public. This program ensures more water quality issues will be reported more quickly which improves the effectiveness of the City's response program.
**Target audience:** General public; Businesses
**Subject areas:** Preventing surface water pollution.

**2022 priority goals:**

- 24/7 hotline availability and Water Quality response within 3 days of intake

# III. REFERENCES

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# III.1 References

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# III.2 Definitions and Abbreviations

All the definitions listed in Table IV.1-I below are directly from the 2019 NPDES Phase I Permit. Abbreviations in the Table of Abbreviations (Table IV.1-II) that are specific to the City of Seattle that were added beyond what was listed in the Permit are denoted with an asterisk.

**Table III-1 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. |
| 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. |
| B-IBI | Benthic Index of Biotic Integrity |
| BMP | Best Management Practice |
| Bypass | The diversion of stormwater from any portion of a stormwater treatment facility. |
| Circuit | A portion of the MS4 discharging to a single point or serving a discrete area determined by traffic volume, land use, topography or the configuration of the MS4. |
| 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. |
| Community-based social marketing | Is a social marketing methodology and employs a systematic way to change the behavior of communities to reduce their impact on the environment. Realizing that providing information is usually not sufficient to initiate behavior change, community-based social marketing uses tools and findings from social psychology to discover the perceived barriers to behavior change and ways of overcoming these barriers. |
| Conveyance System | Means a portion of the municipal separate storm sewer system designed or used for conveying stormwater. |

| Term | Definition |
|---|---|
| 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). |
| 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.) |
| 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. |
| EPA | The U.S. Environmental Protection Agency |
| Fully Stabilized | Means the establishment of a permanent vegetative cover, or equivalent permanent stabilization measure (such as riprap, gabions or geotextiles) which prevents erosion. |
| 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. |
| 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.9, 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.9, S6.D.3, and S6.E.3). |
| Impervious Surface | A non-vegetated surface area that either prevents or retards the entry of water into the soil mantel as under natural conditions prior to development. A non-vegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or stormwater areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater. |

| Term | Definition |
|---|---|
| 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. |
| Low Impact Development Best Management Practices (LID BMPs) | Distributed stormwater management practices integrated into a project design, that emphasize a pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations and water re-use. |
| 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):<br>● 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.<br>● Designed or used for collecting or conveying stormwater.<br>● Which is not a combined sewer.<br>● Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.<br>● 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 water body 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). |

| Term | Definition |
|---|---|
| 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." |
| 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 in S1.E.1. |
| Shared Water bodies | Water bodies, 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 technical manual (Publication No. 19-10-021) published by the Department of Ecology in 2019. |
| 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. |

| Term | Definition |
|---|---|
| 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.<br>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, Chapters 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 III-2 Abbreviations**

| Abbreviations | 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.) |
| 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 |
| GSI* | Green Stormwater Infrastructure |
| IDDE | Illicit Connection and Discharge Detection and Elimination |
| JARPA* | Joint Aquatic Resources Permit Application |

| Abbreviations | Definition |
|---|---|
| LID | Low Impact Development (See definition in definitions table.) |
| MEP | Maximum Extent Practicable (See definition in definitions table.) |
| MS4 | Municipal separate storm sewer system (See definition in definitions table.) |
| MTCA* | Model Toxics Control Act |
| 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 |
| Parks* | Seattle Parks and Recreation |
| PASV* | Pre-Application Site Visit |
| 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 Light |
| SC* | Source Control |
| SDCI* | Seattle Department of Construction and Inspections |
| SDOT* | Seattle Department of Transportation |
| SEPA* | State Environmental Policy Act |
| SKIP* | Spill Kit Incentive Program |
| SMC* | Seattle Municipal Code |
| SPU* | Seattle Public Utilities |
| 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.) |

# APPENDIX A

# Mayor's Executive Order (Clerk's File No. 309104)

**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

# APPENDIX B

# IDDE Field Screening Methodology

Seattle
Public Utilities

# Field Screening Methodology

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 (2019–2024 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

## 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.

## 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 B-I 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, and Pitt 2004).

**Table B-1 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 |

| Screening Parameter | Parameter Type | Trigger Parameter |
|---|---|---|
| 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 |

# 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 inch of rainfall in the preceding 6-hour period, with no more than 0.02 inch of rainfall in any 1-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 B-1.

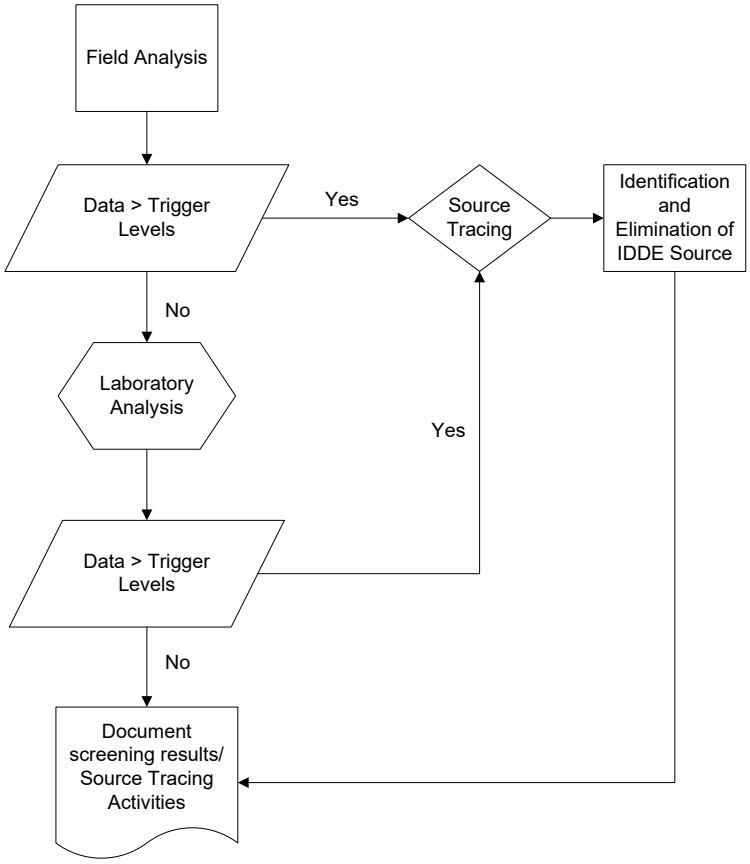


**Figure B-1 IDDE Field Screening Flow Chart**

# 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.

## 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.

## 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.

# 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 A2-I 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 overflows 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.