2023 Stormwater Management Plan

City of Vancouver | March 2023

Working together,
we can help prevent pollution
and keep the water around us
clean and safe for all.

Surface Water Management
Department of Public Works

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Hay disponibles a solicitud servicios de interpretación en varios idiomas. Póngase en contacto con la ciudad para obtener asistencia con este servicio. Para obtener más información, por favor póngase en contacto con: City of Vancouver 360-487-7130. Gracias por ayudarnos a proteger nuestros recursos hídricos.

По требованию могут быть предоставлены услуги по переводу на различные языки. При необходимости получения таких услуг, просьба обратиться в городскую администрацию.
Для получения дополнительной информации свяжитесь с: Ванкувер 360-487-7130. Благодарим за помощь в сохранении наших водных ресурсов.

Chúng tôi có sẵn dịch vụ thông dịch theo nhiều ngôn ngữ theo yêu cầu. Vui lòng liên hệ với Thành Phố để được hỗ trợ dịch vụ này. Muốn biết thêm chi tiết xin liên lạc với: Thành Phố Vancouver 360-487-7130. Xin cảm ơn quý vị đã giúp đỡ bảo vệ nguồn nước của chúng ta.

CITY OF Vancouver WASHINGTON

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Introduction

The purpose of this Stormwater Management Program (SWMP) document is to detail activities that the City of Vancouver intends to undertake between January 1and December 31, 2023, to protect water resources and maintain compliance with the Western Washington Phase II NPDES Municipal Stormwater Permit.

As Vancouver continues to grow, the City of Vancouver is committed to fostering a vibrant, connected city. Vancouver community members rely on the Department of Public Works for a variety of services including providing clean drinking water and reliable sanitary sewer and wastewater treatment facilities. Public Works designs and oversee construction of new streets. building new streets. and cost-effective garbage and recycling services. We help neighborhoods plant trees and oversee garbage and recycling services for cost-effective rates. We protect our waterways and groundwater aquifers. We are stewards of our community's future.

Note: This 2023 SWMP will be published on the City of Vancouver's website by May 31, 2023.

Regulatory Background

The National Pollutant Discharge Elimination System (NPDES) is the program created under the Federal Clean Water Act for administering stormwater discharge permits and establishing pretreatment requirements for discharges to surface waters of the state. In Washington these permits are administered by the Washington State Department of Ecology.

The Western Washington Phase II Municipal Stormwater Permit (Permit) was first issued in 2007. The current permit is effective from August 1, 2019, through July 31, 2024; an updated permit is expected to be issued at the end of each five-year term. The City of Vancouver is a Regulated Small Municipal Separate Storm Sewer System (MS4). The geographic area of coverage is the entire incorporated area of the city.

This Permit authorizes the discharge of stormwater to surface waters and to ground waters of the state from MS4s. "Waters of the State" includes those waters 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 90.48.020 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.

Although not regulated under the Clean Water Act, stormwater discharges to ground waters of the state through infiltration facilities are regulated under the federal Safe Drinking Act and state Water Pollution Control Act (RCW 90.48.30) through the Underground Injection Control (UIC) program, Chapter 173-218 WAC.

This Permit does not authorize a violation of Washington State Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Quality Standards (Chapter 173-200 WAC), Sediment Management Standards (chapter 173-204 WAC), or human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, NO. 246, Dec. 22, 1992, pages 60848-60923).

The City of Vancouver is responsible for compliance with the terms of this permit and must:

- Reduce the discharge of pollutants to the maximum extent practicable (MEP), and
- Use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the state of Washington.

Stormwater Management Program Administration

Stormwater Management Program

The Stormwater Management Program (SWMP) is a set of actions and activities designed to reduce the discharge of pollutants and to protect water quality. The purpose of the SWMP is to detail current and planned actions that the City of Vancouver intends to implement to meet the requirements of the NPDES Permit and protect both surface and ground water resources.

This document is arranged to coincide with the Permit's program components and includes other essential activities undertaken by the City to protect water resources:

- ☐ Stormwater Planning
- ☐ Public Education and Outreach
- ☐ Public Involvement and Participation
- ☐ MS4 Mapping and Documentation
- ☐ Illicit Discharge Detection and Elimination
- ☐ Controlling Runoff from New Development, Redevelopment & Construction Sites
- ☐ Operations & Maintenance
- ☐ Source Control Program for Existing Development
- ☐ Monitoring & Assessment
- ☐ UIC Regulation/Groundwater Protection

This SWMP, and subsequent revisions to it, will be posted on the City's website and submitted to the state with the Annual Report by May 31st of each year. Public review and comment is encouraged.

Contact information is available on the City's website: www.cityofvancouver.us/publicworks/page/stormwater-management-plan.

Protection of water resources and implementation of the City's NPDES Stormwater Permit requires a coordinated effort from multiple departments. Public Works, Community Development, Economic Prosperity & Housing, and General Services are key to implementing programs and activities that reduce flooding, improve water quality, protect groundwater, and protect and restore aquatic habitat in the city's streams and lakes.

The Stormwater Management Program includes coordination mechanisms among entities and departments to eliminate barriers to compliance with the terms of the permit.

The City collaborates with other agencies throughout the region including the Port of Vancouver, Clark County and various state and federal agencies working together to integrate regional water quality protection efforts.

Coordination mechanisms are intended to clarify roles and responsibilities for the control of pollutants between physically interconnected MS4s permittees covered by a municipal stormwater permit and align stormwater management activities for shared waterbodies among permittees to avoid conflicting plans, policies and regulations.

Ongoing programs are in place for gathering, tracking, maintaining, and using information to set priorities and evaluate SWMP development, implementation, and permit compliance.

Stormwater Planning

The City of Vancouver implements a Stormwater Planning Program to inform and assist in development of policies and strategies as water quality management tools to protect receiving waters.

Water quality and watershed protection strategies and actions are guided by federal, state and city regulations that support integrated management of land and water resources. An interdisciplinary team collaborates in the development and implementation of policies and practices that protect and improve water quality.

The City has established a Critical Areas Ordinance that regulates development within sensitive habitats, wetlands, floodplains, aquifer recharge areas and geologic hazard areas. The entire city has been designated a Critical Aquifer Recharge Area (CARA) to protect Vancouver's drinking water, which is pumped from regional groundwater aquifers. The Shoreline Management Program identifies areas within the city and county where waterbodies are protected from development that could impair shoreline and habitat functions.

Stormwater management within the city is governed through municipal codes that direct stormwater mitigation for changes to impervious areas through development or redevelopment (VMC 14.25), minimize erosion from land disturbing activities (VMC 14.24), and prohibit discharges of contaminants to surface and groundwater (VMC 14.26).

Policies are in place to support the use of Low Impact Development (LID) Principles and Best Management Practices (BMPs) as the preferred approach for site development. The City's land use and development code provides guidance and oversight to protect native vegetation and tree canopy, a key stormwater mitigation strategy to decrease stormwater runoff and pollutants discharged to waterbodies. Newly identified barriers to LID implementation are assessed and documented to increase use of these strategies for stormwater management.

A Stormwater Management Action Plan is being prepared for one high priority drainage catchment within the city's jurisdiction. A receiving water assessment and prioritization process have been completed and has informed the selection of a watershed basin where stormwater management activities would provide the greatest benefit to water resources. Stormwater retrofits, improved land management practices, and targeted activities to minimize stormwater impacts will be key in implementing the plan.

Public Education and Outreach

Vancouver's education and outreach programs aim to engage members of the community to increase understanding of the impact stormwater runoff has on water quality and encourage positive behaviors to reduce the use of common practices that cause or contribute to stormwater pollution.

Public education and outreach is a vital component of the City of Vancouver's ongoing efforts to protect and enhance water resources and aquatic habitat. Central to these efforts is the Water Resources Education Center, funded and operated directly by the City of Vancouver.

The City actively engages in community education and outreach on surface water quality, drinking water protection and storm water management through a variety of communication vehicles, including local media with advertisements and articles, and providing content through internet resources. Vancouver partners with many other agencies and organizations to reach out to the community such as the Urban Forestry Commission, Watersheds Alliance of Southwest Washington, and Columbia Springs Environmental Education Center.

Vancouver also provides technical assistance and outreach to local businesses and industries. Since 2003, the Water Resources Protection program has been visiting and inspecting commercial operations, offering guidance and technical assistance on practices which help protect both surface and groundwater resources. The City became a member of Ecology's Pollution Prevention Assistance program in 2020. This program offers free, hands-on technical assistance to help businesses find and resolve potential pollution issues.

Urban trees can help the City manage stormwater as part of an integrated stormwater management plan to improve water quality, reduce pollutants, and enhance wildlife habitat. Increased tree canopy aids in Clean Water Act, Clean Air Act, and Endangered Species Act compliance.

Urban Forestry coordinates educational workshops targeting property owners, homeowners, and landscapers on how what they do in their landscapes has a direct impact on water quality and watershed health. Urban Forestry coordinates on average one workshop a month and one month-long comprehensive volunteer training, Tree Stewards, annually. Participants learn about how behaviors in their landscapes can improve water quality, such as removing high maintenance lawns, planting native trees and shrubs, using organic mulch and fertilizers, preserving existing trees, reducing pesticide use and, picking up pet waste.

Education and outreach will continue to be provided through Water Resource Protection, Water Center, and Urban Forestry activities, and technical assistance to local businesses and industries. Members of the public can become informed of city and community actions to protect our environment by attending open public City Council workshops, hearings, stakeholder meetings, and neighborhood presentations.

Public Involvement and Participation

On-going opportunities for public involvement and participation in stormwater management planning provides valuable insight on priorities and concerns for mitigating stormwater impacts in the community.

A variety of platforms are available for the public to provide input on Vancouver's stormwater management plans, including annual updates to the Stormwater Management Program (SWMP) and the Stormwater Management Action Plan (SMAP) currently under development. The SWMP and Annual Report are submitted to the Department of Ecology and posted on the City website by May 31 each year.

Vancouver City Council enacts ordinances and resolutions, adopts rules and regulations, and approves the city budget and utility rate structure. City Council meets the first through fourth Mondays of each month (except holidays or fifth Mondays). Council meetings are open to the public and provide various opportunities for public testimony. Meetings are held at City Hall Council Chambers and aired (live closed captioning available) via Clark/Vancouver Television (CVTV) and on the City's Facebook page.

MS4 Mapping and Documentation

Vancouver's stormwater utility maps identify tributary conveyances, associated drainage areas and land use, all known outfalls to surface waters, existing stormwater treatment facilities, and connections with other public and private stormwater systems.

The City has a dedicated team of GIS technicians that maintain and update electronic maps and databases for the stormwater utility. Field reconnaissance and televised inspections support the ongoing process of identifying pipe type and verifying public and private connections to and from the city's stormwater system. Mapping information is regularly updated as new projects are completed and existing systems inspected. Stormwater mapping data is available upon request.

Illicit Discharge Detection and Elimination

Vancouver's Illicit Discharge Detection and Elimination (IDDE) program is designed to prevent, detect, characterize, trace, and eliminate illicit connections and illicit discharges into the MS4 to reduce the risk of non-stormwater contaminants entering water resources.

Vancouver Municipal Code Chapter 14.26 (VMC 14.26) prohibits the discharge of contaminants to water resources and requires certain operations to utilize best management practices to protect the health, safety, and welfare of the residents of the city and preserve the integrity of the city's water resources.

The City offers education and technical assistance to businesses, industries, and the general public on how to implement water resource protection and pollution control practices. When those measures have been unsuccessful in eliminating illicit discharges, the use of escalating enforcement procedures and legal actions are supported through VMC Chapter 22.

The City works with local, state and federal agencies to locate, assess, characterize, trace and remove sources of illicit discharges. When discharges contribute to violations of state water quality standards the Washington State Department of Ecology (Ecology) is notified.

The City established a hotline that allows community members to report illicit discharges or dumping. Calls are directed to the appropriate response authority for investigation, containment, and follow up.

The Water Protection Program actively inspects and monitors industrial facilities, commercial operations and residences for water quality compliance and best management practices. Technical assistance is offered to public employees, businesses, and the general public on the hazards associated with illicit discharges and improper disposal of potentially harmful materials.

Field assessments and outfall inspections take place throughout the year with targeted screening during the dry weather months to locate and accurately map storm system features and look for indicators of illicit discharges. All inspections, investigations, illicit discharges and spill-related activities are tracked in the program's database.

Ongoing efforts include improving clarity in standard operating procedures and methods for tracking, evaluating, categorizing, correcting, and documenting illicit discharges. City staff continue to research, review, and develop technical assistance tools to minimize accidental pollutant releases to waters of the state. Training is conducted for all city staff responsible for identification, investigation, termination, cleanup, and reporting of illicit discharges.

Controlling Runoff from Development and Construction

Multiple city departments implement programs to reduce pollutants in stormwater runoff to the City's stormwater system and water resources from new development, redevelopment and construction site activities for private and public development.

Vancouver Municipal Code 14.24 (Erosion Prevention and Sediment Control) and 14.25 (Stormwater Control) were established to prevent harm to the health or safety of the public by minimization of stormwater runoff and erosion of sediment from land development and land-disturbing activities. The Water Resources Protection Ordinance (VMC 14.26) was created to protect water resources by establishing development regulations and minimum standards to reduce the risks of contaminants entering water resources. Collectively, these ordinances provide the City with the legal authority to inspect and enforce requirements and standards that protect water quality, reduce the discharge of pollutants to the Maximum Extent Practicable (MEP), and satisfy the state requirement to apply All Known, Available, and Reasonable methods of prevention, control and Treatment (AKART).

Citywide processes have been established for controlling runoff from new development, redevelopment, and construction sites through planning review and field inspection. The City's Community Development department coordinates the overall site planning process while Public Works staff review proposals to determine the applicability of Minimum Requirements for stormwater management following Appendix 1 of the Stormwater Permit. An integrated, multi-department database system and GIS mapping are some of the tools used to track and record reviews, inspections, and enforcement actions for property development and construction activity.

The City has qualified engineering and planning staff reviewing all site plans for stormwater, erosion control, and water resource protection on private and public projects, including roads.

The link to the electronic Notice of Intent (NOI) forms for the Construction Stormwater General Permit and the Industrial Stormwater General Permit are provided to applicants during the site plan review process.

The City inspects all development sites that meet the minimum thresholds of the Stormwater Permit prior to land clearing, during construction, and upon completion of construction. All primary inspection staff have completed required and appropriate training to implement these program elements; follow-up training is routinely scheduled to address changes in procedures, techniques or staffing.

Operations & Maintenance

Vancouver implements an operations and maintenance (O&M) program to regulate and conduct activities that ensure facilities continue to prevent or reduce stormwater impacts by setting standards and timely maintenance intervals for facilities owned, operated, or regulated by the City.

City Stormwater Operations has an ongoing program to inspect and clean or maintain publicly owned catch basins, manholes, conveyance pipes, and stormwater facilities as well as regularly sweeping City streets. Inspections are conducted at intervals prescribed in the NPDES Stormwater Permit. Maintenance actions are performed in accordance with standards. Spot checks of stormwater facilities following major storm events identify any damage and additional maintenance needs.

The City's Stormwater Control ordinance (VMC 14.25) and land use process are the mechanisms used to identify maintenance responsibilities and inspection authority for privately owned stormwater facilities in Vancouver. Stormwater facilities that discharge to the MS4 are inspected in accordance with the Permit and Stormwater Manual.

A multi-department database system (Infor) and GIS mapping applications are used to schedule and document inspections, maintenance activities and enforcement actions.

City staff with construction, operations, or maintenance activities related to stormwater control and treatment receive training at regular intervals on preventing or reducing pollutant runoff from municipal operations. Recently developed training videos for field staff are available to all City employees through a city-wide learning program (Workday). Videos can be viewed on demand and assigned to new personnel. In-person trainings resumed after the Covid-19 pandemic restrictions were lifted.

Operational activities are guided by resources such as the Integrated Pest Management Plan, adopted by the City to reduce chemical applications for vegetation management. A Pollution Prevention Program was developed by City Operations staff to comply with permit requirements. Representatives from Water Production & Distribution, Stormwater, Wastewater, Grounds & Parks, Greenway/Sensitive Lands, Facilities, Streets, Traffic, Equipment Services and Surface Water Engineering collaborated to produce a comprehensive Stormwater Pollution Prevention Plan (SWPPP). The plan details the stormwater best management practices used to protect water resources from equipment, materials and activities that may be exposed to precipitation and where runoff could result in contaminating water resources.

Source Control for Existing Development

The City of Vancouver implements the Water Resource Protection Program to prevent and reduce pollutants in stormwater runoff with legal authority adopted in Vancouver Municipal Code (14.26).

This program includes maintaining an inventory of sites that have the potential to generate pollutants, conducting inspections of sites identified in the inventory, requiring application of operational and structural source control Best Management Practices (BMPs) and implementing enforcement policies for sites that fail to adequately implement required BMPs.

City staff have developed a site inventory and inspection schedule to ensure businesses are provided information and technical assistance to support effective source control for activities and land uses identified for inspection. Inspections are initiated to verify and document complaints of pollutant discharges to surface water or the stormwater drainage system.

Inspection and enforcement of source control BMPs include potential and/or reported discharges to both surface and groundwater. Appropriate follow-up, education, and progressive enforcement actions are used to bring sites into compliance.

Inspection staff responsible for implementing the source control program receive on-going training on source control BMPs and their proper application, inspection protocols, and enforcement procedures to remain current with technological advances in stormwater management and compliance with regulatory requirements.

Monitoring and Assessment

Vancouver, in collaboration with other Southwest Washington stormwater permittees, developed a regional status and trends monitoring program to meet state receiving water monitoring objectives. All permittees in the Lower Columbia River Basin pay into a collective fund to implement monitoring of urban streams across Clark and Cowlitz Counties.

Through NPDES Permit fees, which are allocated by population, the City supports regional status and trends monitoring and technical studies that evaluate the effectiveness of stormwater management and source identification practices and procedures.

Monitoring under this permit requirement has been initiated under contract with Clark County, Washington and administered by the Department of Ecology. One site in the Burnt Bridge Creek watershed is included as a long-term trend site in the regional monitoring program.

Ongoing water quality monitoring in the Burnt Bridge Creek watershed is undertaken by the City to maintain consistency with past monitoring efforts, identify stream reaches that show improvement, and provide feedback for adaptive strategies in stormwater management. Eleven sites are currently monitored for a broad suite of parameters in twelve events each year.

The City continues to provide technical support in the state's development of an Alternative Restoration Plan to improve water quality in Burnt Bridge Creek. The Alternative Restoration Plan is being prepared to identify water quality targets and activities needed to meet state standards before completion of a full Total Maximum Daily Load (TMDL) plan. TMDL compliance requirements, identified in the stormwater permit (S7), are not applicable until a formal TMDL plan has been completed and approved by EPA.

Monitoring along the Columbia Slope watershed has recently been funded by grants from the U.S. Environmental Protection Agency (EPA) awarded through the Lower Columbia River Basin Toxics Reduction Program. This effort will enhance our understanding of stormwater contaminants that potentially reach the Columbia River.
City departments and partners collaborate to enhance the efficiency and effectiveness of these programs and activities. The results from effectiveness studies inform the adoption of proactive and adaptive stormwater treatment measures as best available science is integrated into new water quality treatment options.

UIC Regulation and Groundwater Protection

Stormwater management and source water protection are integrally tied in the City of Vancouver. Infiltration to manage stormwater runoff has been extensively used through large portions of the city as the underlying geology allows water to easily be drained into the ground. Reliance on groundwater to supply the city's drinking water increases the need to protect all water resources from stormwater runoff that may carry contaminants to surface or groundwater resources.

The Underground Injection Control (UIC) program was created under the federal Safe Drinking Water Act to regulate fluid discharges into subsurface areas through drywells and similar infiltration facilities. In Washington state all groundwater is considered a potential source of drinking water and the state Department of Ecology administers the state UIC program. Although the NPDES Stormwater Permit program was established under the Clean Water Act to protect water quality in surface waters, the state of Washington implements the permit and regulates discharges to all waters of the state, including groundwater. Washington State Department of Ecology regulates all UIC discharges through and section I-4 of the 2019 Stormwater Management Manual of Western Washington. All existing UICs operated and maintained by Surface Water Management are considered Class V injection wells. The City is directed to use all known, available, and reasonable methods of prevention, control and treatment to prevent and control pollution (AKART) to waters of the state.

Stormwater runoff that enters infiltration systems can combine with shallow groundwater that reaches surface water or eventually recharges deeper groundwater aquifers. Burnt Bridge Creek and springs along the Columbia Slope are fed by surface water and shallow groundwater that also carries stormwater from infiltration systems such as drywells. Vancouver inspects and maintains close to 5,000 drywells and infiltration trenches, many in place for over 40 years. Stormwater Operations staff inspect UICs on a regular basis, and clean when necessary. Special attention is paid to systems that have shown signs of diminished functionality, and non-functioning systems are retrofit or rebuilt where feasible. If a UIC needs a complete rebuild, additional BMPs such as pre-sedimentation manholes and catch basins with additional sediment capture capability are installed. In addition to maintenance on specific UICs, Stormwater Operations conducts targeted cleaning of drainage systems that flow into the UIC. These supplemental maintenance activities include street sweeping, more frequent cleaning of catch basins, and line flushing to increase the longevity and functionality of the systems. Over time, and where feasible, the City has added water quality treatment to infiltration systems that are not providing removal of sediment and contaminants to bring them up to current standards.

A primary source of Vancouver's drinking water is the Troutdale Aquifer which has been federally designated for protection as a Sole Source Aquifer, providing over 99% of the drinking water consumed in western Clark County. The entire City of Vancouver has also been designated as a Critical Aquifer Recharge Area (CARA) to protect groundwater that is the source of the city's drinking water supply. Vancouver enacted a Stormwater Control Ordinance in 1995 requiring water quality treatment for new development and redevelopment activities which create or replace impervious surfaces. The Water Resources Protection Program implements Vancouver Municipal Code Chapter 14.26 (VMC 14.26) which prohibits the discharge of contaminants to water resources and requires certain operations to utilize best management practices to protect the health, safety, and welfare of the residents of the city and the integrity of the city's water resources. VMC 14.26 also establishes greater standards of compliance for businesses and industries that manage hazardous materials and creates Special Protection Areas around the city's water stations.

Resources

City of Vancouver

Municipal Code https://vancouver.municipal.codes/

Comprehensive Plan https://www.cityofvancouver.us/cdd/page/vancouver-comprehensive-plan-and-zoning-code

Environmental Planning https://www.cityofvancouver.us/cdd/page/environmental-planning

Stormwater Management Program https://www.cityofvancouver.us/publicworks/page/stormwater-management-plan

Washington Department of Ecology

Municipal Stormwater General Permit https://ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Municipal-stormwater-general-permits

Stormwater Management Manual for Western Washington https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Stormwater-manuals

Critical aquifer recharge areas https://ecology.wa.gov/Water-Shorelines/Water-quality/Groundwater/Protecting-aquifers/Critical-aquifer-recharge-areas

Underground Injection Control program https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Underground-injection-control-program

Pollution Prevention Assistance program https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Pollution-prevention-services/Pollution-prevention-assistance