Multnomah County
Stormwater Management Program Document

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Stormwater System (MS4) Permit

November 2022

Water Quality Program
Transportation Division
Department of Community Services
Multnomah County
1620 S.E. 190th Avenue, Portland, OR 97233

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Section 1. Background

Introduction

This Stormwater Management Program Document (SWMPD) describes activities related to implementation of Multnomah County's National Pollution Discharge Elimination System - Municipal Separate Storm Sewer System Phase I (NPDES MS4 Phase I) Permit. The primary component of the SWMPD is the list of best management practices (BMPs), which outline the specific tasks that the County will conduct in order to reduce stormwater pollution to the maximum extent practicable (MEP). The SWMPD and other documents related to implementation of the County's stormwater program can be found online at the following link:

Water Quality Program | Multnomah County (multco.us/water-quality-program/reports-and-plans)

From 1995 to 2010, the Oregon Department of Environmental Quality (DEQ) regulated stormwater from Multnomah County through two separate NPDES Phase I MS4 Discharge permits: Permit #101314 for the areas within the City of Portland permit boundary and Permit #108013 for the areas within the Gresham permit boundary. Multnomah County was a co-permittee on both Portland and Gresham's MS4 Permit. The County had a limited amount of regulatory area under the two separate MS4 permits, and for the 2010 permit renewal, Multnomah County requested to DEQ that the permit areas be combined under a single individual permit. The 2010 individual permit expired in 2015 and went into administrative extension until a renewed permit was issued September 15, 2021 with an effective date of October 1, 2021.

Multnomah County's unique NPDES permit area includes coverage in several jurisdictions in addition to the cities of Gresham and Portland – City of Troutdale, Fairview and Wood Village - and is described in Section 2.0 below. The County's stormwater infrastructure is inter-connected with the stormwater infrastructure owned and managed by adjacent cities within the county. The digital map of this stormwater infrastructure network of the County and neighboring cities within the County can be found at:

https://multco.maps.arcgis.com/apps/webappviewer/index.html?id=01bc029bd294402eab98fffd89568133

The County implements stormwater related best management practices consistently among these areas to facilitate a comprehensive stormwater management, reporting and compliance program for all County areas within the MS4 areas. To clarify the County's permit responsibilities, Table 3-1details the specific permit areas of responsibility pertaining to each permit requirement and specifies how Multnomah County meets permit requirements.

The NPDES MS4 permit actions serve to reduce pollutants from stormwater to the maximum extent practical, as well as to meet Waste Load Allocations for specific pollutants identified in DEQ Total Maximum Daily Loads (TMDL). TMDL pollutant reduction requirements in the County's MS4 permit are given in Table 1-1. Best management practices that address TMDL pollutants are given in Appendix B.

Water quality monitoring requirements in this permit are implemented by the City of Gresham under an intergovernmental agreement.

Table 1-1. Water quality pollutants and TMDL waste load allocations for streams within the Multnomah County NPDES MS4 permit area.

Pollutant	*Waterbody*	*WLA*	*TMDL*
Bacteria	Beaver Creek	86% reduction	*Sandy*
	Johnson Creek	78% reduction	*L. Willamette*
	Springbrook Creek	80%	*L. Willamette*
	Columbia Slough/Fairview Creek	$1.75x10^{11}$/1.98m^3/sec (varies with flow)	*Columbia Slough*
	Fanno Creek	$9.14x10^{11}$/d	*Tualatin*
Mercury	Willamette River	75% reduction	*Willamette*
DDT (and Dieldrin)	Johnson Creek	77% urban stormwater	*L. Willamette*
	Columbia Slough	$3.24x10^{-6}$kg/d	*Columbia Slough*
PCB	Columbia Slough	$5.3x10^{-6}$ kg/d	*Columbia Slough*
Lead	Columbia Slough	Varies with flow	*Columbia Slough*
2,3,7,8 TCDD	Columbia Slough	$1.31x10^{-9}$ kg/d	*Columbia Slough*
Dissolved Oxygen, pH, chlorophyll a	Columbia Slough	Total P, BOD varies with flow	*Columbia Slough*
	Fanno Creek	50% reduction SVS 0.13 mg/l Total P	*Tualatin*

Summary of Multnomah County's Area of Permit Responsibility

As mentioned in Section 1.0, Multnomah County is a unique jurisdiction with NPDES permit areas composed of several discrete urban and rural pockets, and approximately twenty-eight miles of road and bridge right-of-ways. The 2021 NPDES permit expands the permit area to include areas of unincorporated county within the Urban Growth Boundary (UGB) adjacent the City of Gresham. (Appendix, Map 1).

The 2011 stormwater management plan used terms "Portland Area" and "Gresham Area" to relate to permit areas from previous permit terms, where the County was a co-permittee on two separate NPDES permits with the City of Portland and City of Gresham, respectively. This document revises the area description to clarify the areas covered by the 2021 NPDES permit, to avoid confusion with permit areas covered under the NPDES permits held by the City of Portland and City of Gresham.

Table 2-1. Summary of the areas of NPDES permit coverage in County jurisdiction.

Area name	*Description*
Unincorporated areas adjacent to Portland in the Tualatin Basin.	1.6 sq miles of urban and rural residential unincorporated County which drains to the Tualatin River.
Unincorporated areas adjacent to Portland in the Willamette Basin (UAP)	1.2 sq miles of urbanized unincorporated County drains to Tryon Creek and the Willamette River. 0.75 sq miles drains to Johnson Creek.
Unincorporated areas adjacent to Gresham (UAG)	0.71 sq miles of rural residential and agricultural unincorporated County drains to Johnson Creek.
Unincorporated area adjacent to Fairview (IL)	Unincorporated County area on a narrow strip of land between Fairview Lake and Blue Lake surrounded by the City of Fairview, consisting of 167 taxlots of lakefront residential development along Interlachen Rd.
County roadways within Troutdale, Wood Village, and Fairview (CR)	Twenty-eight miles of urban roadways, with sixteen miles draining to surface water. Land use authority remains with the municipal jurisdictions; however, the County maintains authority to regulate connections to the right-of-way, and ownership of the roadway assets.
Willamette River bridges (WRB)	Five County-owned and maintained moveable bridges spanning the Willamette River (and approach ramps) in downtown Portland: Hawthorne Bridge, Morrison Bridge, Burnside Bridge, Sellwood Bridge, and Broadway Bridge.
County facilities within Portland, Gresham, and Troutdale (FAC)	The Department of County Assets manages eight county facilities with stormwater discharge to surface waters. • Inverness Detention Center • Gregory Heights Library • Animal Services • Hillsdale Library • Multnomah County East community center • Gresham Probation Office • Gresham Library

Unincorporated areas adjacent to the City of Portland (UAP). Through a County Resolution (#89-43), Clean Water Services (District) manages drainage and surface water in the Tualatin River basin area within their District. This includes pockets of unincorporated areas of Multnomah County within Clean Water Service's MS4 permitted area. Stormwater maintenance is conducted by Clean Water Services consistent with the District's NPDES permit requirements. These areas have rural residential development, and low traffic streets. (Appendix, Map 2).

The pockets of unincorporated County areas adjacent to Portland which drain to Tryon Creek and the Willamette River contain rural residential development with low traffic streets, many with no curb or gutter. Beginning in 1998, and updated in 2010, the

County transferred road and drainage facility maintenance to the City of Portland for roads in the unincorporated pocket areas within the Portland Urban Services Boundary through an Intergovernmental Agreement known as the Westside Pocket Area Maintenance Agreement (WPAMA). Of note is the requirement that road and drainage facility maintenance provided by the City is to be provided in a manner consistent with applicable operations and maintenance best management practices as set forth in the City of Portland's Stormwater Management Program Document under their MS4 NPDES Permit. (WPAMA, Art. 3, Sec. I, (A)). The City of Portland and Multnomah County are in the process to renegotiate the WPAMA in 2022.

As a result of the Metro Urban Growth Management Functional Plan, the City of Portland and Multnomah County entered into an Urban Planning Area Agreement (UPAA) dated March 5, 1998 and amended June 23, 2005. The UPAA provided for the coordination and orderly conversion of unincorporated urbanizable land in the County to urban uses, and authorized the City to prepare applicable comprehensive plan and implementing ordinances for the County's urban areas. The County adopted the City's applicable land use regulations, comprehensive plan and zoning through County Ordinance 967, which went into effect January 1, 2002. Under the UPAA, the County agreed to transfer responsibility to the City for implementing and administering comprehensive plan and zoning regulations for all County unincorporated areas within the City's Urban Services Boundary.

An important aspect of the UPAA is the expressed responsibility of the City to address, through their comprehensive plan and zoning regulations, erosion control, floodplain review, grading, and stormwater disposal (UPAA III(C)(2)(a)). Further, land use planning review shall be provided by the City in a manner consistent with applicable best management practices as set forth in the City of Portland National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater Permit. The level of review shall be provided at the same level provided by the City to other areas within the City limits. (UPAA III(C)(2)(o)).

Unincorporated areas adjacent to the City of Gresham (UAG). In 1995, the County transferred many of its roads to the City of Gresham, including a majority of the associated drainage system and outfalls. Effective January 1, 2006, the remaining County roads within the City of Gresham were transferred to the City pursuant to Senate Bill 1096.

The areas of unincorporated County adjacent to Gresham are new additions to the 2021 NPDES permit. These areas are in agricultural and rural residential land uses. Roads in this area are built to rural standards with no curb and gutter. Ditches provide drainage from these rural roads. (Appendix, Map 3).

Unincorporated area adjacent to the City of Fairview (Interlachen). The County remains responsible for zoning and planning in the unincorporated residential area known as "Interlachen." This residential area is nearly entirely built out, and the local road is built to rural standards with few drainage features. (Appendix, Map 4).

County roadways within Troutdale, Wood Village and Fairview (CR). The County continues to own, operate and maintain approximately 11 miles of urban roads within the City of Fairview, 13 miles of roadway within Troutdale, and 4 miles of roadway in Wood Village. Roads in this area are classified as major arterial, minor arterial, major collector, neighborhood collector, urban local, and rural collector. Portions of these roadways are served by underground injection control devices or “drywells” to manage stormwater, or other means of infiltration into the right of way, and therefore are excluded from the NPDES MS4 area. Approximately 16 miles of roadway discharge to the MS4. (Appendix, Map 5). The County retains jurisdiction to review development connection or impacts to the right-of-way.

Willamette River Bridges (WRB). The County owns and maintains five of the Willamette River bridges within the urban area (Broadway, Burnside, Morrison, Hawthorne and Sellwood), including the approach ramps.

County facilities Portland, Gresham and Troutdale (FAC). County facilities, including three libraries, a detention and a probation center, a community center, and the animal services center, discharge runoff from parking lots and associated landscaping.

Section 2. Stormwater Management Program Approach and Revisions

Stormwater management program organization

Multnomah County's stormwater management program is coordinated through the Department of Community Services, Transportation Division, Water Quality Program. Several County functional workgroups implement and track best management practices to reduce stormwater pollutants to surface waters in the county's NPDES permit areas. The county also partners with other public partners to fulfill the requirements for public education and monitoring.

Water Quality Program. This is a program within the Transportation Planning and Development section. The program coordinates the NPDES permit activities, including stormwater management program development, annual reporting, dry weather screening, water quality monitoring coordination, public outreach, maintenance plan development, and overall program management and implementation.

Transportation maintenance section. Bridge maintenance and road maintenance workgroups maintain stormwater treatment facilities, clean catch basins and roadways, as well as provide emergency spill response. This section also coordinates Adopt-a-Road, and participates in the development and implementation of the Road Maintenance and Operations Manual and Integrated Vegetation Management Plan, which outline the practices for managing the right of way to avoid and minimize pollutant discharge to local streams.

Transportation engineering section. This section is responsible for capital project delivery for bridges and roadways, including erosion control and stormwater treatment, contractor management, and fiscal management.

Transportation Planning and Development section. Transportation planners and engineers review permits related to connections to the County right of way. This section also develops the County's design and construction manual and initiatives related to capital project planning.

Land use planning section. This section includes land use planners, who review and approve land use development, including ground disturbing activity permits, and code compliance officers to enforce permit conditions. Land use planning also revises and updates the County code and land use development plans for unincorporated Multnomah County.

Facilities section. The County Department of Facilities and Assets manages and coordinates stormwater at the County owned facilities, such as libraries and community centers. Their staff track data on catch basin and stormwater treatment facility cleaning, parking lot sweeping and any chemical use related to landscaping.

Nuisance code enforcement section. The County Health Department provides services to track and manage illegal dumping within the unincorporated County.

Asset management section. This section provides GIS mapping services and asset and work order management.

Communications section. Communications specialists manage the County social media and public news releases. This section supports public outreach and public engagement BMPs.

Coordination with other public entities for education and outreach. As stormwater is a regional and statewide issue, the County coordinates with other municipal jurisdictions for coordinated clean water and stormwater education and outreach. The Regional Coalition for Clean Rivers and Streams includes NPDES MS4 permit holders in the Multnomah, Clackamas, and Washington Counties. The County also participates in the Clean Rivers Coalition, a voluntary collaborative partnership with public and private partners across Oregon and Southwest Washington.

Monitoring and industrial facility inspection coordination. The County has met the permit monitoring requirement in partnership with the City of Gresham since the 1995, through an intergovernmental agreement (IGA). The County and Gresham update the scope for work for the IGA at each permit reissuance. Additionally, the City of Gresham will conduct industrial and commercial facility inspections within the County permit area under an IGA.

Legal authority

The County maintains legal authority to implement the best management practices described in this document, and describes review or changes in County ordinances where updates to existing ordinances are needed. Applicable County code references are provided in each best management practice.

Maximum Extent Practicable

The County implements this stormwater management program to achieve pollutant reductions in stormwater to the maximum extent practicable. This document may be updated during the permit term to modify and update the actions and activities through an adaptive management process. Adaptive management is a structured, iterative process designed to refine and improve the stormwater program over time by evaluating results and adjusting actions based on what has been learned. New and available technologies, data, and resources are considered to improve the effectiveness and efficiency of how the best management practices are implemented are to ensure that measurable goals are met.

Revisions to stormwater management plan

The 2022 Stormwater Management Program Document is based on the 2011 plan. The 2011 Plan was compared to the 2021 permit to identify any gaps based on new permit

language. Certain BMPs from the older plan have been combined into other BMPs where the tasks have become outdated, redundant, or otherwise not effective. Certain BMPs have been renamed with terms more consistent with the new 2021 permit. New BMPs have been added. An explanation below describes how the County effort has been shifted to maintain the level of protectiveness or effectiveness in the categories of BMPs. The table below references BMPs from the County's 2011 Stormwater Management Plan.

Table 2.1. Description of changes to BMPs.

BMP	*Description*	*Explanation of proposed change*
PI-3 Distribute public education information regarding stormwater	Distribute brochures at Land Use Planning and Survey Office counter. Distribute educational materials at public events, public meetings and county Water Quality Program webpage.	Deleted. Since the COVID-19 pandemic, the public can no longer visit these County offices without an appointment. The lack of public interaction at the office makes this a poor site for disseminating educational materials. Public events were also canceled during the pandemic. In the past decade, the expansion of social media and digital advertising makes the online environment a more effective, culturally-responsive outlet for educational content than traditional media. The County has transitioned to new collaborative outreach approaches in the digital media sphere, with participation at public events to promote the collaborative digital outreach. All outreach activities are now integrated into PI-1 Participate in Regional Public Education Efforts.
ILL -2 Address spills from private truck haulers	Contact private truck hauler who have contributed to spills on the roadway.	Deleted. Spills from truck haulers are addressed in ILL-1 Implement a Spill Response Plan.
ILL-3 – Require erosion control for public projects	Requiring erosion control for County capital projects, including plan inspection, and enforcement of erosion and sediment control plans.	Renamed CR-2. To be consistent with the language of the permit, this category of BMPS was renamed "Construction Site Runoff Control" (CR)
ND-3 Regulate stormwater discharge	Regulate stormwater discharge into the right-of-way.	Renamed PCR-1. To be consistent with the language of the permit, this category of BMPs was renamed "Post Construction Site Runoff" (PCR)
STR-1 Address Water Quality with New Capital or Roadway Improvement Projects	Ensure water quality facilities are built as part of capital projects.	Renamed PCR-3. To be consistent with the language of the permit, this category of BMPs was renamed "Post Construction Site Runoff" (PCR). This BMP was re-numbered.
STR-2 Retrofit Existing Facilities for	Hydromodification assessment and retrofit strategy.	Renamed PCR-4. To be consistent with the language of the permit, this category of BMPs

Water Quality Benefit		was renamed “Post Construction Site Runoff” (PCR).
STR-3 Inventory and Map of the Storm Sewer System	Ensure map of the existing stormwater sewer system is current.	Renamed ILL-4. This BMP was moved into the category of Illicit Discharge, as the stormwater sewer mapping requirement falls under this section in the permit.
ND-1 Require Erosion Control for private development	Review erosion control plans and inspect private development project sites.	Renamed CR-1.To be consistent with the language of the permit, this category of BMPs was renamed “Construction Site Runoff” (CR).
ND-2 Require Erosion Control for public projects	Review erosion control plans and inspect capital project sites.	Renamed CR-2. To be consistent with the language of the permit, this category of BMPs was renamed “Construction Site Runoff” (CR).
ND-3 Regulate stormwater discharge	Regulate stormwater discharge into the right-of-way	Renamed PCR-2. To be consistent with the language of the permit, this category of BMPs was renamed “Post Construction Site Runoff” (PCR)
New BMP - PCR-2 Address Water Quality for Private Development	Ensure post-construction stormwater pollutant and runoff control from private development	This BMP was split into two separate BMPs to differentiate between post-construction requirements in areas under a city’s land use development authority and areas under the county’s land use authority.
OM-5 Minimize Impacts from Ant-Icing Operations	Winter Maintenance strategy including sanding and anti-icing	Renamed PP-5. To be consistent with the language of the permit, this category of BMP was renamed “Pollution Prevention” - PP
OM-7 Minimize impacts from right-of-way and shoulder maintenance	Perform right of way and shoulder work according to the Road Maintenance and Operations Manual (RMOM)	This BMP is integrated into PP-1 Update the RMOM
OM-8 Minimize impacts from ditch maintenance	Perform ditch maintenance according to the RMOM.	This BMP is integrated into PP-1 Update the RMOM
OM-9 Maintenance of County owned stormwater facilities	Inspect and maintain stormwater treatment facilities, including sediment removal and vegetation	Renamed PP-6. To be consistent with the language of the permit, this category of BMP was renamed “Pollution Prevention” - PP
NS-1 Conduct Vegetation Management Activities	Perform vegetation maintenance according to the RMOM and Integrated Vegetation Management Plan (IVM)	This BMP is integrated into PP-1 Update the RMOM
NS-2 Specify native vegetation in the ROW and permitted projects	Encourage use of native vegetation to reduce pesticide use	Deleted. Native vegetation has been specified in private land development along stream buffers, however this is not relevant to the municipal stormwater system. Native vegetation is not necessarily recommended in vegetated stormwater facilities. Vegetation in stormwater facilities follows the recommendations in Portland Stormwater Management Manual or other guidance.
New BMP – PP-7 Reduce pesticide use in the ROW	Reduce pesticide and fertilizer use as means of improving water quality with an Integrated Vegetation Management Plans for the	Pesticide reduction is a new requirement in the 2021 NPDES permit.

	Right of Way and county facilities	
New BMP – IC-1 Inspect Industrial and Commercial Facilities	Develop and implement a strategy for inspecting industrial and commercial facilities within the permit area.	The 2021 NPDES permit includes areas of unincorporated county adjacent to the City of Gresham that were not a part of the permit area in previous permit terms. These areas contain industrial and commercial facilities.

Section 3. Best Management Practices

Best management practices overview

Best management practices (BMPs) in this document are presented as fact sheets, which include the portion of the permit area where the BMP applies, which workgroups are responsible for BMP implementation, a description of the BMP, the implementation tasks, measurable goals, and tracking measures. Measurable goals indicate the County commitments related to a specific BMP and tracking measures include the information that will be provided in the annual reports to track BMP implementation status.

The categories of BMPs are:

PI - Public Involvement and Education
ILL – Illegal Discharge Detection and Elimination
CR – Construction Site Runoff for New Development and Redevelopment
PCR – Post-Construction Site Runoff for New Development and Redevelopment
PP – Pollution Prevention and Good Housekeeping
IC – Industrial and Commercial Facility Inspection
PM – Program Management

These BMPs are aligned with the specific control measures identified in Schedule A and B of the permit. Table 3-1 below relates each control measure with a corresponding BMP.

Table 3-1. Permit control measures, corresponding BMP, application area and workgroups.

Permit requirements	*BMP #*
A.3.a. Public education and outreach	PI-1 PI-2 PI-5 PI-7
A.3.b. Public Involvement and Participation	PI-4 PI-6
A.3.c. Illicit Discharge Detection and Elimination	PI-3 ILL-1 ILL-2 ILL-3 ILL-4
A.3.d. Construction Site Runoff Control	PI-3 CR-1 CR-2
A.3.e. Post Construction Site Runoff	PI-3 PCR-1 PCR-2 PCR-3

A.3.f. Pollution Prevention and Good Housekeeping	PI-3 PP-1 PP-2 PP-3 PP-4 PP-5 PP-6 PP-7
A.3.g. Industrial and Commercial Facilities	IC-1
A.3.h. Infrastructure Retrofit and Hydromodification Assessment Update	PCR-4
B.1 Monitoring	The County maintains an intergovernmental agreement with the City of Gresham to contract monitoring requirements in this permit. The Gresham monitoring plan can be found online at: https://greshamoregon.gov/Watershed-Documents-and-Forms/#Compliancemanuals
B.3. Annual Report	PM-1 PM-2 PM-3

PI-1	Participate in Regional Public Education Efforts
Application area	All County MS4 Areas
Responsibility	Water Quality Program, Communications
Description	Participate with regional entities and cities in coordinating new and existing efforts to educate and inform the public about stormwater pollution problems, and to involve the public in developing stormwater pollution prevention programs. The County will provide funding and staff support for the various public involvement and education activities provided by the Regional Coalition of Clean Rivers and Streams (RCCRS) and the Clean Rivers Coalition (CRC).
Tasks	1. Provide County representative to attend the RCCRS and CRC steering committee meetings. 2. Plan and implement public education campaign promoting behaviors that improve water quality.
Measurable Goal	Help develop and implement RCCRS's *River Starts Here* campaign and CRC's *Follow the Water* campaign (including the *What's Your Lawn Style*, and other programs). Develop annual strategy to target priority audiences, promote behavior change, and focus on applicable priority pollution-reduction topics through website, digital advertising, social media, and public events. Public outreach campaigns can be found at the following links: • The River Starts Here - The Regional Coalition for Clean Rivers and Streams, a partnership of public agencies in the Portland/Vancouver metropolitan area, is dedicated to educating the public about the impact of stormwater runoff pollution on the health of our rivers and streams. • Follow The Water | Science, Stories & Positive Actions Around PNW Rivers • What's Your Lawn Style? | OSU Extension Service (oregonstate.edu) Note that the "Follow the Water" website can be accessed in four different languages.
Tracking measure	Provide narrative to describe activities, accomplishments, and level of effort annually.

PI-2	Participate in Public Meetings
Application area	All County MS4 Areas
Responsibility	Water Quality Program
Description	Coordinate the County's role in protecting stormwater quality and environmental monitoring with watershed councils, local jurisdictions, and other water and equity –related community organizations. Create opportunities for public participation and involvement and education on stormwater pollution problems by attending public meetings, and promote county interests in stormwater pollution reduction. Water Quality Program staff serves as the county representative on local watershed councils, and community advisory committees. These groups typically meet monthly throughout the year with special ad hoc committee work occasionally required.
Tasks	Attend public meetings related to water quality, watershed health, or monitoring.
Measurable Goal	Participate in ten watershed council and ad hoc committee meetings annually.
Tracking measure	Narrative describing meetings attended and outcomes associated with public meetings.

PI-3	Conduct Training and Education for County Personnel
Application area	All County MS4 Areas
Responsibility	Water Quality Program, Maintenance, Engineering, Land Use Planning
Description	Train and educate appropriate Multnomah County personnel to avoid and minimize pollution from stormwater to surface water. Topics include: • Illicit Discharge Detection and Elimination (IDDE) dry weather field screening (Water Quality) • Erosion control inspection and enforcement (Engineering, Land Use Planning) • Stormwater maintenance activities for stormwater management facilities. (Maintenance) • Pollution prevention activities for MS4. (Maintenance, Water Quality Program, Nuisance Code)
Tasks	1. Water Quality Program staff will maintain an understanding of IDDE procedures through annual review. 2. Engineering and Land Use Planning site inspectors will attend erosion and sediment control inspection training every three years to maintain certification. 3. Land Use Planning will provide training for planning staff on erosion and sediment control plan review every three years. 4. Maintenance will provide or coordinate stormwater and pollution prevention training annually for Maintenance staff.
Measurable Goal	Ensure Water Quality Program staff are appropriately trained to investigate and eliminate illicit discharges. Ensure that Engineering and Land Use Planning site inspectors are qualified to review erosion and sediment control plans, conduct site inspections and manage enforcement actions. Ensure that Maintenance staff are qualified to inspect and maintain stormwater facilities. Ensure that Maintenance and Water Quality Program are qualified to evaluate maintenance and pollution prevention strategies.
Tracking measure	Track training events and attendance at trainings.

PI-4	Implement the Adopt-a-Road Program
Application area	County roadways within Troutdale, Wood Village, and Fairview (CR)
Responsibility	Maintenance
Description	Continue to implement the Multnomah County Adopt-A-Road program to promote public stewardship and awareness of litter control and impacts to roads and waterways. The Adopt-A-Road program mainly focuses on picking up litter and trimming vegetation. The County uses Adopt-A-Road videos to train participants in the program. Interested groups volunteer time to conduct the maintenance activities. Maintenance staff provide trash bags, safety equipment and signage for the events. Following a maintenance event, crews pick up the bags of litter and trimmings collected by volunteer groups.
Tasks	1. Promote the adopt-a-road program on the county website. 2. Provide program support for the adopt-a-road program (e.g., coordinating volunteers and providing equipment).
Measurable Goal	Ensure timely response to volunteer requests to provide supplies, signage and debris removal for each event.
Tracking measure	Track road segments where volunteer roadside litter or debris removal is performed through participation in County Adopt-A-Road programs within the permit area.

PI-5	Maintain Signage to Protect Water Quality
Application area	All County MS4 Areas
Responsibility	Maintenance
Description	Participate in storm drain marking and other signage programs to promote public awareness of the importance of keeping pollutants out of storm drains as opportunities arise. A bi-lingual marker was developed by County staff for application to County Roads. All catch basins in the permit area have been previously marked. Install stream crossing signs at the request from local watershed councils.
Tasks	1. Inspect storm drain markers, and replace missing markers. 2. Maintain signs in right-of-way promoting watershed awareness, as requested by watershed councils.
Measurable Goal	All drain markers are inspected once per permit term at all catch basins in the permit area. All stream crossing signs are inspected and replaced, or installed.
Tracking measure	Track replacement of signage.

PI-6	Provide Opportunities for Public Involvement During the CIP and SWMPD Development Process
Application area	All County MS4 Areas
Responsibility	Water Quality Program, Transportation Planning, Communications
Description	The county provides opportunities for the public to comment on the Stormwater Management Program by posting copies of relevant documents on the County website, and advertising public comment periods in local print media. The county makes NPDES related documents and website links readily available to the public through the county website. These including ordinances, policies, outreach and permitting. The two-year update process for the Capital Improvement Program (CIP) identifies transportation projects, that the County needs to build to provide a balanced and efficient transportation system. Stormwater treatment is a feature of capital projects. Public meetings are held throughout the CIP update process.
Tasks	1. Post the draft, and any substantive updates to the 2022 Stormwater Management Program Document on the County's website for public comment. 2. Maintain the County's Water Quality Program website for the public's access to relevant ordinances, policies, and guidance documents relevant to the program. The website is provided in the introduction to the SWMPD. 3. Involve the public in the process of updating the Capital Improvement Plan and Program (every two years) and in evaluating the stormwater quality impacts and issues associated with the program.
Measurable Goals	Ensure opportunities for public participation in the CIP update process through public meetings. Provide opportunities for the public to comment on SWMPD modifications as necessary. Review the County's Water Quality Program website annually for completeness and accuracy.
Tracking measure	Track public meetings and other public involvement activities in the CIP and/or SWMPD update process.

PI-7	Facilitate Public Reporting of Illicit Discharges and Dumping
Application area	All County MS4 Areas
Responsibility	Nuisance Code, Maintenance
Description	Facilitate efforts to report illegal dumping and spills of pollutants, trash, and debris. The County utilizes its nuisance ordinance (MCC 15.225 through 15.235) to encourage the public to report incidents of illegal discharge and dumping. The County Nuisance Code Division web page at the following link provides the process and telephone number to report illegal dumping. Nuisance code enforcement investigates, enforces and assesses penalties. Nuisances | Multnomah County (multco.us) Residents may call the County Transportation Maintenance for illegal discharge into the stormwater system on a County road or in the right-of-way of any County road, or use the See Click Fix app. Road and Bridge Service Request App – See, Click, Fix (multco.us)
Tasks	1. Respond to public complaints received through Nuisance code office or Transportation Maintenance. 2. Determine if and where “no dumping” signs need to be posted based on public requests.
Measurable Goal	Maintain publicly accessible means to report illegal spill and dumping. Review all illegal dumping and spill complaints. Review all “no dumping” sign requests.
Tracking measure	Ensure the Nuisance Code webpage and See Click Fix (or similar app) is functioning and updated. Track all complaints or reports of illicit discharges and dumping, how the county responded and outcomes. Report on the addition of any new signage.

ILL-1	Implement the Spill Response Program
Application area	All County MS4 Areas
Responsibility	Maintenance, Water Quality Program
Description	The goals of this BMP are to respond to accidental non-stormwater discharges promptly to reduce the frequency and overall impact of spills to the stormwater system***.*** The County Road Maintenance Operations Manual (RMOM) outlines general Emergency Response procedures to address potential runoff of fine materials through waste streams and ditches. The Multnomah County Emergency Spill Response Plan details response procedures related county facilities and county owned rights of way. If spills constitute threat to human health or the environment, the Plan includes procedures to respond to spills within 24 hours or as soon as possible after becoming aware if notified after hours. For all other reports of illicit discharges, the County must respond within an average of 2 working days, and no greater than 4 working days. County personnel will contact the Oregon Emergency Response System for spills depending on the magnitude of the spill occurring on County property, coordinate with local cities, and provide initial response (and utilize appropriate clean up measures for minor spills and provide traffic control). For larger spills, the County contracts with clean up services, including those with a specialization in hazardous material spill clean up. Multnomah County Code 15.225 prohibits spills or dumping of any material other than stormwater to the MS4.
Tasks	1. Review, update, and implement the Multnomah County Spill Response Plan. 2. Track and record spills and information regarding spills as they occur. 3. Maintain agreements with contractors for spill response. 4. Participate in the regional Stormwater Spill Committee led by the City of Portland Bureau of Environmental Services.
Measurable Goal	Conduct spill response procedures when spills are reported. Maintain a current spill response plan with up to date contacts and procedures.
Tracking measure	Track the spills that occur, including response time and outcome.

ILL-2	Investigate Illegal Dumping
Application area	All County MS4 Areas
Responsibility	Nuisance Code, Maintenance, Water Quality Program
Description	For this BMP, the Nuisance Code officer will continue to implement a program to identify and investigate illegal dumping of pollutants including trash, fill, oil, or toxic materials in the right-of-way or to the storm sewer system; and, report and follow up on reports by the public or County staff when illegal dumping is discovered. Maintenance staff during typical job-related activities occasionally encounter various forms of illegal dumping either within the County right-of-way, on the premises of County facilities or on private property. If unusual occurrences or substances are found in the ditch, waterway, or right-of-way as observed by County field personnel they are immediately reported to the Water Quality Program or Nuisance Code officer. In addition, depending on the type of material, appropriate County staff will investigate and take enforcement action as necessary. Multnomah County Code sections 15.225 through 15.235 address illegal dumping.
Tasks	1. Continue to implement the Nuisance Code program with assistance of public reports and reports by Maintenance staff. 2. Follow up identification of an illegal dumping activity or discharge with solutions, including enforcement action as necessary, when the source of an illegal dumping or discharge activity can be determined. 3. Annually review field logs and public reports regarding litter and illegal discharge and dumping within the permit areas.
Measurable Goal	Clean up all reported discharge or debris dumped in the right-of-way. Document all complaints or reports of illicit discharges, how the County responded, and outcomes.
Tracking measure	Track observed dumping problems and outcomes.

ILL-3	Detect and Eliminate Illicit Discharges to the Storm Sewer
Application area	CR, WRB
Responsibility	Water Quality Program
Description	The goal of this BMP is to detect and eliminate prohibited non-stormwater discharges including spills and seepage from the sanitary sewer system. The Cities within the NPDES permit areas are responsible for ensuring that there are no cross connections or failing sewer lines within the county right of way. County staff will inspect dry weather flows from select major outfalls from county roadways within the Cities of Troutdale, Wood Village, and Fairview. Visual field screening will be conducted annually in dry weather, and follow up with sampling and laboratory analysis, if warranted. IDDE dry weather screening and enforcement procedures are outlined in the 2022 Illicit Discharge Detection and Elimination Program document, posted on the Water Quality Program webpage. Water Quality Program Reports and Plans | Mulco.us Complaints or reports of illicit discharges are maintained in email records maintained by the Water Quality Program, and summarized in the Annual Report. Spills may occur from remote restroom facilities located on the movable Willamette River Bridges. Maintenance personnel are responsible for inspection and maintenance of the restroom facilities to ensure that potential leaks and spills during pump out are prevented.
Tasks	1. Continue to inspect and maintain the bridge restroom facility holding tanks on a quarterly basis. 2. Update and implement the County's IDDE Program by November 1, 2023, including procedures to address repeat violations.
Measurable Goal	Conduct quarterly maintenance of bridge restroom facilities and holding tanks. Conduct annual inspection of dry weather flows at 4 priority outfalls.
Tracking measure	Document illicit discharge elimination process, any problems observed and any enforcement actions taken. (Reported complaints are tracked under PI-7).

ILL-4	Inventory and Map the County Storm Sewer System
Application area	All County-wide MS4 Area
Responsibility	Water Quality Program, Asset Management
Description	The goal of this BMP is to ensure the county storm sewer system map is current. For this BMP, the County will continue to inventory and map the municipal storm sewer system using GIS mapping technology, including catch basins, pipes, manholes, culverts, ditches, outfalls, drywells, and other County assets. The map also includes, watershed boundaries and streams, and any chronic illicit discharges if found. Stormwater catchment areas will be developed for all outfalls. (Note: priority outfall locations for dry weather screening are incorporated into the county's IDDE program document.) The County maintains stormwater system data in GIS format, as well as as-built drawings in CAD format, when available. The County coordinates with cities in the county to produce an up-to-date map showing data from all MS4 permittees within the county, so that all MS4 jurisdictions have a reference for the connections of the county system with city stormwater systems. The County's map can be found at the following link: https://multco.maps.arcgis.com/apps/webappviewer/index.html?id=01bc029bd294402eab98fffd89568133
Tasks	1. Continue to update the County GIS stormwater system map through coordination with adjacent local jurisdictions. 2. Transfer stormwater system catchment areas delineations by outfall to online map.
Measurable Goal	Maintain a current map of the stormwater system online. Transfer stormwater system catchment areas delinations to online map by November 1, 2023.
Tracking measure	Working website link to the online map.

CR-1	Require Erosion and Pollution Controls for Private Construction Projects
Application area	Interlachen, UAG
Responsibility	Land Use Planning and Code Compliance
Description	The Land Use Planning Division requires either a Minimal Impact Project (MIP) Permit, Erosion and Sediment Control (ESC) Permit, Geologic Hazards (GH) Permit, Large Fill (LF) Permit, or an Agricultural Fill (AF) Permit, for ground disturbing activities on any site within its jurisdictional authority. Within the MS4 permitted area, this includes the area of Interlachen and the unincorporated pockets adjacent to Gresham. Minimal Impact Project Permits (commonly applicable to the smallest projects) have no minimum ground disturbance area threshold, and apply to land disturbance up to 10,000 sq ft. Projects proposing larger disturbance areas require an Erosion and Sediment Control Permit, or a Geologic Hazards permit for larger sites on steeper slopes or in an identified slope hazard area. A Large Fill permit is required when greater than 5,000 cu yds of fill is imported, and Agricultural Fill permits are required when top soil is imported for purposes of agricultural soil amendment. All levels of permits require erosion and sediment control plans (ESCP) for temporary and permanent erosion control and water quality protection during construction stages and for long-term site stability and mitigation. Applicable Multnomah County code sections include the following which address construction site management requirements: • Minimal Impact Project Permit (39.6200 – 69.6220 & 39.6235) • Erosion and Sediment Control Permit (39.6200 – 39.6215 & 39.6225 & 39.6235) • Geologic Hazards Permit (39.6200 – 39.6210 & 39.5070 – 39.5090 & 39.6235) • Large Fill Permit (39.6200 – 39.6210 & 39.7200 – 39.7220 & & 39.6235) • Agricultural Fill Permit (39.6200 – 39.6210 & 39.6230 & 39.6235) Erosion and sediment control inspection fees apply to all permits listed above. Inspections are performed using the *Erosion Control Inspection Form* by certified erosion control personnel. Code Enforcement personnel follow the procedures in the county's *Case Investigation and Voluntary Compliance* procedures, which enable the staff to issue stop work orders, corrective actions and timelines, notice of violations, and an appeal process with a Hearings Officer. Permits are tracked using a dedicated land use planning database, PR Navigator. The permits themselves include project contact information, project size, area of disturbance, approved BMPs and date of permit approval.
Tasks	1. Review and approve ESCPs for all ground disturbance permits greater than or equal to 1,000 ft^2 in the permit area. For sites disturbing one

	acre or greater, ensure that ESCPs are consistent with the substantive requirements of the NPDES 1200-C permit. 2. Perform Erosion and Sediment Control Inspections except for small or low risk construction projects within the NPDES permit area. 3. Conduct enforcement procedures as necessary to ensure compliance with construction site requirements. Require corrective actions where appropriate. 4. Evaluate ESCP and inspection program, identify resources and align ordinances necessary to meet MS4 permit requirements by November 1, 2024.
Measurable Goal	Ensure that permitted projects result in no visible erosion or sediment leaving site.
Tracking measure	Track and report number of sites inspected, including size of project and date of ESCP approval. Number and inventory of permits issued, number of problems encountered, number of enforcement actions.

CR-2	Require Erosion and Pollution Controls for Public Projects
Application area	All County MS4 Permit Areas
Responsibility	Engineering
Description	This BMP is intended to apply to contractors hired to construct County projects, including road and bridge repair and construction, and associated projects. The County will implement requirements to control discharges from construction sites to ensure that construction practices do not release sediment and contaminants onto roadways or open space where they may be washed into storm drains or waterways by continuing to: 1) require erosion control measures and the development of an Erosion and Sediment Control Plan in contract specifications; 2) require cash deposits, performance-payment bonds, final inspections and other mechanisms to ensure compliance with permit requirements; 3) review erosion control permit requirements with contractors during projects; 4) inspect and review Erosion and Sediment Control Plans to ensure control of discharges; for projects with land disturbance greater than one acre or greater, ensure that the ESCPs are consistent with the substantive requirements of the County's NPDES 1200-CA permit. 5) continue pre-construction meetings to disseminate information about requirements to prevent damages during construction projects. The County establishes special provisions and specifications in individual project agreements/ROW permits to address erosion control. Current requirements include placing filters in catch basins, monitoring catch basins, following standards for construction of temporary access roads, and a $1,000 cash deposit.
Tasks	1. Execute formal contracting practices including pre-construction meetings, bonding, construction permit review, and erosion control inspections. 2. Review corrective actions and violations and evaluate whether changes are needed in future permit conditions and/or future pre-construction meetings to clarify requirements to avoid future erosion and sediment control problems. 3. Include pollution control for additional non-sediment related discharges in permits (e.g., paints, solvents, metals, etc.). 4. Conduct inspections.
Measurable Goal	Inspect 100% of County capital project sites, during and after construction, and report response to complaints or reports of visible sediment in reported discharge.

Tracking measure	Track and report number of sites inspected, including size of project and date of ESCP approval. Number and inventory of projects, number of inspections conducted, number of problems encountered, number of enforcement actions.

PCR-1	Regulate Stormwater Discharge from Private Development in Areas under City Land Use Jurisdiction
Application area	UAP, CR
Responsibility	Transportation Planning and Development
Description	The goal of this BMP is to provide review of County Right of Way permits regarding stormwater discharge to the county right of way (ROW) in areas where the County does not have land use authority. This includes reviews of Stormwater Certificates issued by the County. The County references the Portland Stormwater Management Manual in the Design and Construction Manual to regulate stormwater discharge issues into the county ROW within unincorporated county areas adjacent to Portland, and County roads in Fairview, Wood Village and Troutdale. In the unusual case where stormwater cannot be managed completely on site, the County can allow stormwater treatment in the ROW to treat stormwater from private development. The County inspects ROW permit projects where stormwater features are built in the ROW. These inspections also concern sediment from construction runoff during construction, however city land use inspectors are responsible for the on-site erosion controls. The County Design and Construction Manual will be updated during the permit term to update the stormwater manual reference, and threshold for compliance, and posted online on the county website.
Tasks	1. Continue to review new ROW permit applications, including stormwater certificates, to ensure water quality requirements are met. 2. Inspect existing and proposed stormwater facilities in the ROW, during and after construction, to ensure that the site is compliant with design standards. 3. Update the County Design and Construction manual with the updated reference and threshold by 11/1/2024.
Measurable Goal	Conduct plan reviews for all ROW permit applications in the UAP and CR areas. Conduct inspections for all permitted projects as described above. Update the Design and Construction Manual by 11/1/2024.
Tracking measure	Describe any permit violations and outcomes for inspected permitted sites where stormwater from private development required treatment in the county right of way.

	Track progress on completion of the Design and Construction Manual update and posting online.

PCR-2	Regulate Stormwater Discharge from Private Development within Areas of County Land Use Jurisdiction
Application area	UAG; Interlachen
Responsibility	Land Use Planning
Description	This BMP refers to stormwater treatment in the urban neighborhood of Interlachen and the rural residential and agricultural areas of the unincorporated pockets adjacent to Gresham (UAG). County code requires that an Oregon licensed Professional Engineer review potential stormwater drainage control impacts for all projects proposing new or replacing existing impervious surfaces exceeding 500 square feet. For these projects, stormwater runoff flow rates attributed to new and re-development must be managed on-site for a storm of ten-year, 24 hour design frequency or, must be discharged to a water body or across the property line at pre-developed rates. (MCC 39.6235) within the UAG, which includes Multiple Use Agriculture and Orient Rural Center zoning. The County's flow standard is based on stormwater infiltration to retain large storms on site, and meets the intent of low impact development. However, evaluation is needed to confirm whether the new retention standards are met with this flow standard.
Tasks	1. Evaluate the flow standard (10-year, 24-hour storm meets pre-development conditions) against MS4 permit stormwater retention requirements for the permit areas to prioritize LID and green infrastructure, considering soil conditions, slopes, lot size, and other factors affecting infiltration by November 1, 2023. 2. Review evaluation of flow standards and align ordinances, as needed, and implement new retention standards by November 1, 2024.
Measurable Goal	Ensure water quality is protected with current or updated standards by prioritizing infiltration.
Tracking measure	Complete tasks by expected dates above.

PCR-3	Address Water Quality with New Capital or Roadway Improvement Projects
Application area	All County-wide MS4 Areas
Responsibility	Engineering; Land Use Planning
Description	The goals of this BMP are to ensure that water quality facilities, built as part of a capital improvement project or road construction project apply appropriate design standards to reduce the discharge of pollutants from sites to the maximum extent practicable, and that practices are applied consistently. The County Engineering staff or consultant ensures through design and review of new capital improvement projects that stormwater structural controls are properly designed for Capital Improvement Program (CIP) projects. The City of Portland Stormwater Management Manual serves as guidance in the design of stormwater facilities to prioritize low impact development and green infrastructure. Capital projects that create or replace 1,000 ft^2 or more of impervious surface area will use stormwater controls at all qualifying sites. New and proven technologies, including pervious pavement, will be considered in stormwater treatment design, as appropriate. Stormwater facilities built in conjunction with County road or bridge projects are generally owned and maintained by the County. Long-term maintenance is assured through routine County maintenance and operations procedures (see BMP PP-6).
Tasks	1. At a minimum, incorporate stormwater treatment into public projects for projects resulting in 1,000 ft^2 or more of impervious surface. 2. Conduct plan checks of stormwater quality treatment facilities that are included in capital improvement or roadway improvement projects to assure they follow standard design criteria that include stormwater quality considerations, and that the appropriate facility is selected for the intended purpose. 3. Provide as-built drawings of new stormwater facilities to Asset Management section for inclusion in the County MS4 maps.
Measurable Goal	CIP projects with 1,000 ft^2 or more of impervious surface will be constructed with the appropriate stormwater controls, including guidance from the Portland Stormwater Management Manual or new technologies.
Tracking measure	List projects constructed during the reporting period.

PCR-4	Retrofit Existing Facilities for Water Quality Benefit
Application area	All County-wide MS4 Areas
Responsibility	Transportation Planning and Development
Description	The County will develop a Stormwater Master Plan and strategy for stormwater retrofits of existing public drainage and flood control facilities (sumps, water quality filtration devices, retention basins, drainage channels, bioswales, trash racks, sediment trap devices, etc.) where practicable to improve water quality. The County will also revisit this BMP and the 2014 hydromodification assessment and the strategy developed for retrofits to the existing stormwater infrastructure. The plan will be reviewed with respect to progress made, benefits and whether new goals should be developed and included in the Stormwater Master Plan.
Tasks	1. Develop a Stormwater Master Plan to include consideration of stormwater treatment for water quality purposes in capital projects to reduce pollutants to the maximum extent practicable. 2. Revisit the 2014 retrofit and hydromodification strategies and assess progress and need for new goals.
Measurable Goal	Reassess hydromodification and retrofit strategies by the third-year annual report (November 1, 2023), for inclusion in the Stormwater Master Plan to be developed prior to permit term expiration (September 30, 2026).
Tracking measure	List repair projects conducted both with and without treatment and provide the rationale.

PP-1	Update the Road Maintenance and Operations Manual
Application area	County-wide MS4 areas
Responsibility	Water Quality Program; Maintenance
Description	The goal of this BMP is to ensure that road maintenance practices are conducted in ways that minimize the impact to water quality, including right of way and drainage maintenance, emergency work, stockpiling and material handling. The 2015 County Road Maintenance and Operation Manual (RMOM) is a reference manual with guidance on vegetation management, equipment and material transport, emergency maintenance, and roadway and drainage maintenance. The manual represents the County's maintenance strategy and was developed to comply with ODOT's Routine Road Maintenance Water Quality and Habitat Guide Best Management Practices (2009), and serves as the core of the County's ESA 4(d) submittal to NOAA Fisheries. The RMOM manual can be found online at the following link: Multnomah County (multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com) For this BMP the County will conduct reviews of the manual once during the permit term.
Tasks	1. Review the RMOM once during the permit term. 2. When RMOM revisions are made, conduct refresher staff training as provided for under BMP PI-3.
Measurable Goal	Review the RMOM to ensure current practices are incorporated with respect to water quality.
Tracking measure	Describe updates to the RMOM when applicable.

PP-2	Inspect and Maintain the Storm Drainage System
Application area	FAC, CR, UAG, UAP (except in areas served by Clean Water Services)
Responsibility	Maintenance; Water Quality Program
Description	The goal of this BMP is to ensure that catch basins, and lateral pipes are maintained in a manner that reduces pollutants to the maximum extent practicable, but no less than once every five years. For catch basins in the right of way where there are no stormwater treatment facilities, catch basin cleaning frequency is determined by how full catch basins become. Catch basin fullness is measured at the time of cleaning, and the data is analyzed after a full round of cleaning (every two years). Cleaning frequency is set so that catch basins are cleaned before they are greater than 60% full. Cleaning criteria are described in the county *Catch Basin and Street Sweeping Frequency Criteria* document. For catch basins in county facilities parking lots, traffic is minimal and these catch basins are inspected and maintained once every five years.
Tasks	1. Implement catch basin (and lateral pipes) cleaning schedules based on the fullness of catch basins in the right of way. 2. Update catch basin cleaning frequency work order every two years. 3. Inspect catch basins at county facilities parking lots once every five years.
Measurable Goal	Clean catch basins in the right of way (with sumps depth greater than 12”) at a frequency such that no more than 10% exceed 60% full. Complete county facility parking lot catch basin cleaning once every five years.
Tracking measure	Track catch basin cleaning work order completion in the Cartegraph work order system for the right of way, and county facilities work orders. Analyze catch basin debris data every two years.

PP-3	Conduct Street Sweeping
Application area	CR, FAC, and the Sellwood Bridge
Responsibility	Maintenance, Facilities
Description	The street sweeping program for County roads reduces materials on the roadway and reduces impacts to the stormwater sewer system. The County will continue to review and revise the program and schedule and make improvements as appropriate. Within the Gresham area, the County's Road Services owns, operates and maintains approximately 28 center lane miles of paved public roads. Approximately 16 miles of these roadways discharge to the MS4. Street sweeping occurs on curbed streets in accordance with procedures in the Multnomah County Road Maintenance Operations Manual (RMOM), approximately 20 times per year for most roadways. The RMOM is located online at the link provided in the fact sheet for PP-1. The City of Portland sweeps the Willamette River Bridges, except the Sellwood Bridge. The County sweeps the Sellwood Bridge typically once a month, or as needed.
Tasks	1. Follow written procedures in the Multnomah County RMOM for inspection and maintenance of streets as part of the street sweeping program for protecting water quality. 2. Track street sweeping efforts to record the sweeping frequency.
Measurable Goal	Sweeping will occur a minimum of 20 times per year on county roads within Troutdale, Fairview and Wood Village.
Tracking measure	Track the frequency of sweeping and volume of debris removed and reference catch basin conditions from PP-2.

PP-4	Properly Dispose of Road Waste Material
Application area	County-wide MS4 area
Responsibility	Maintenance
Description	The objective of the road waste disposal operations for County roads is to implement practices for disposal of road waste materials that protect water quality. Materials removed from the drainage system are collected by the County road crews on a regular basis. Vactor waste and sweepings are disposed of at a private transfer facility. Vactor liquid is decanted into the public sewer trunk with approval from the City of Fairview. The County will continue to investigate alternatives to decant and dispose of road waste materials including partnerships with neighboring jurisdictions, or contracts with other private waste handlers as needed.
Tasks	1. Include road waste disposal handling in the County's Road Maintenance and Operations Manual (RMOM) by November 1, 2023. 2. Conduct sampling of road wastes and provide reports to the landfill facility, as required by the facility.
Measurable Goal	Update RMOM to include road waste handling.
Tracking measure	Describe selected disposal options and report on updates to the County's RMOM by November 1, 2023.

PP-5	Winter Maintenance Strategy
Application area	CR
Responsibility	Maintenance
Description	The overall goal of this BMP is to reduce effects of roadway anti-icing activities on water quality by proper sand collection methods and evaluation of chemical anti-icing applications. During winter sanding operations, the County applies washed rock (less than 3/8" dia.) to roadways. Clean up operations begin as soon as practicable by Multnomah County road crews. Removed sanding material is stockpiled at Multnomah County's Vance Pit for recycling. The material is recycled by rewashing or screening out road debris when feasible. If material is free of road debris, it can be reused. Several alternatives to anti/de-icing are currently available and used by local and state agencies in the Portland area. Alternatives must be effective to provide safety for the travelling public while minimizing pollutants and environmental effects along the roadsides and waterways. The County Road Maintenance and Operations Manual (RMOM) gives procedures for the application (and removal) of sanding materials, and the application of chemical anti/de-icing products. When possible, chemical anti-icing is used to reduce the use of sanding materials to reduce sediment discharge from the sanding materials.
Tasks	1. Continue to follow the County RMOM procedures (Appendix B) for the application, collection, and washing of sanding materials applied to roadways. 2. Continue to research alternative anti-icing methods.
Measurable Goal	Conduct street sweeping to recover sanding materials within two weeks after the Road Maintenance Manager determines that the roads are free from the threat of an ice or snow event.
Tracking measure	Report on number of anti-icing events, list of materials used, quantities and general locations of materials used and material recovery.

PP-6	Maintenance of County-owned stormwater facilities
Application area	County-wide permit areas
Responsibility	Maintenance; Facilities
Description	The purpose of this BMP is to ensure that stormwater treatment facilities are properly maintained to control and reduce the amount of sediment and pollutants discharged to the receiving waters via the right-of-way. The Maintenance section performs routine maintenance on county-owned stormwater treatment facilities in the right-of-way in the permit area, including the Willamette River Bridges. Activities include annual inspection, sediment removal, vegetation maintenance and replacement of the filtration media. The Facilities section inspects and maintains stormwater treatment facilities and devices located at county facilities annually.
Tasks	1. Conduct annual inspection and maintenance activities.
Measurable Goal	Conduct annual inspections of treatment facilities and perform maintenance based on inspection results.
Tracking measure	Report on annual maintenance conducted.

PP-7	Reduce pesticide use in the ROW
Application area	County wide MS4 areas (except UAP), FAC
Responsibility	Maintenance, Water Quality Program, Facilities
Description	The goal of this BMP is to reduce pesticide and fertilizer use as means of improving water quality. The county maintains Integrated Vegetation Management Plans for the Right of Way and county facilities. The County maintains separate plans for these areas. Vegetation management in the UAP areas are managed by the City of Portland under the Westside Maintenance IGA
Tasks	1. Review and update the Integrated Vegetation Management Plan 2. Review and update guidance for county facilities landscaping.
Measurable Goal	Ensure that Integrated Vegetation Management Plans for the Right of Way and county facilities are up to date by November 1, 2023.
Tracking measure	Provide updated plans with Annual Report and make available to the public through the county website.

IC-1	Inspect Industrial and Commercial sites
Application area	UAG, UAP
Responsibility	Water Quality Program
Description	The purpose of this BMP is to develop or provide a strategy for inspecting industrial and commercial facilities within the permit area. The 2021 NPDES permit includes areas of unincorporated county adjacent to the City of Gresham that were not a part of the permit area in previous permit terms. This area potentially includes industrial/commercial facilities in the county permit area. The county will provide an updated strategy (Appendix F) that includes a list of facilities that are priorities for inspection based on a screening rationale. The strategy includes inspection procedures, documentation standards and frequency of inspections, as well as a description of the assessment and tracking of compliance with county code related to the discharge of pollution to the county stormwater system. The county will contract inspectors with training on pollution prevention practices, and have access to educational materials.
Tasks	1. Develop industrial/commercial facility inspection strategy. 2. Conduct inspections by qualified industrial/commercial facility inspectors.
Measurable Goal	Annual facility screening and inspection prioritization. Update strategy for industrial/commercial inspections by November 1, 2023. Inspect sites according to inspection frequency defined in strategy.
Tracking measure	Provide updated list of new industrial and commercial sites in Annual Report. Provide overview of site and inspection report results.

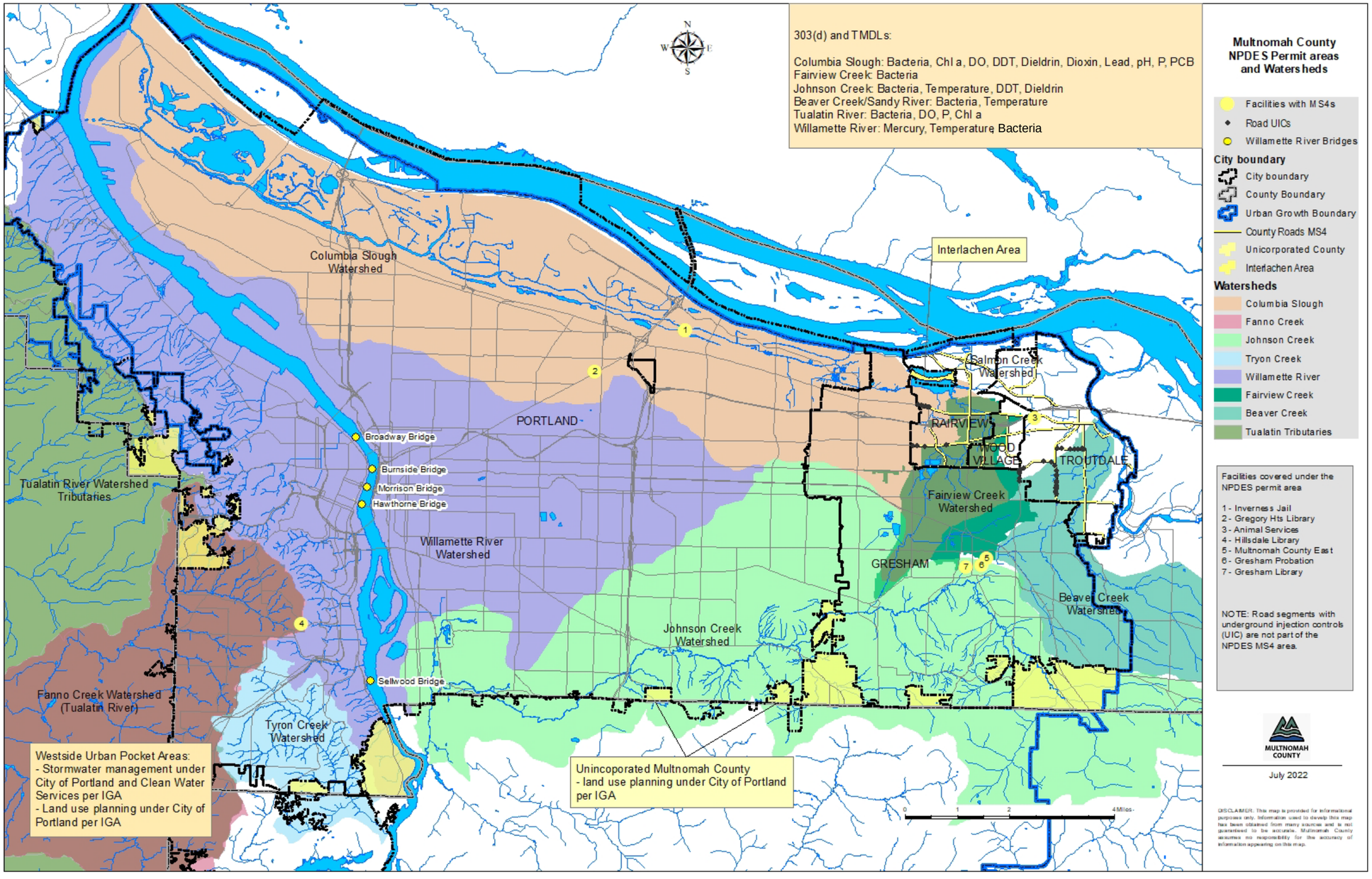
PM-1	Stormwater Program Management
Application area	All County-wide MS4 Areas
Responsibility	Water Quality Program
Description	The goals of this BMP are to develop and manage the County's stormwater program to ensure compliance with the NPDES permit, and to develop and implement cost-effective, practical BMPs and activities that are designed to reduce stormwater pollution to the maximum extent practicable. Multnomah County participates in periodic NPDES MS4 coordination meetings and the Oregon Department of Environmental Quality (DEQ) meetings. The County conducts program management that includes implementation scheduling, budgeting and tracking. The County prepares the required Annual Compliance Reports for submittal to DEQ.
Tasks	1. Continue to participate in the NPDES MS4 coordination meetings and any DEQ meetings. Continue to work with other NPDES MS4 permittees and DEQ to implement the stormwater management program. 2. Review each BMP file annually. Prepare an annual report to demonstrate the County's compliance with requirements. Submit to DEQ.
Measurable Goal	Annually review BMP implementation data and submit annual report by November 1 each year.
Tracking measure	Submit annual report.

PM-2	Assess and Evaluate the Stormwater BMP Program
Application area	All County-wide MS4 Areas
Responsibility	Water Quality Program
Description	The County has continually assessed and evaluated progress on the BMPs. Work sessions each permit year occur to ensure progress of each BMP. Program updates and progress review regarding BMP implementation is also conducted via emails. BMP files demonstrate work done to date for each BMP. The implementation of the BMPs is summarized in each annual report. The County will assess and evaluate the program to ensure the best use of available resources, and make recommendations for improvements in program implementation tasks. An adaptive management approach will be developed to guide the program evaluation.
Tasks	1. Evaluate progress of BMPs for annual report using adaptive management approach.
Measurable Goal	Continually improve the program through an adaptive management approach.
Tracking measure	Provide results of the BMP evaluations in the annual reports and include any changes to the BMPs.

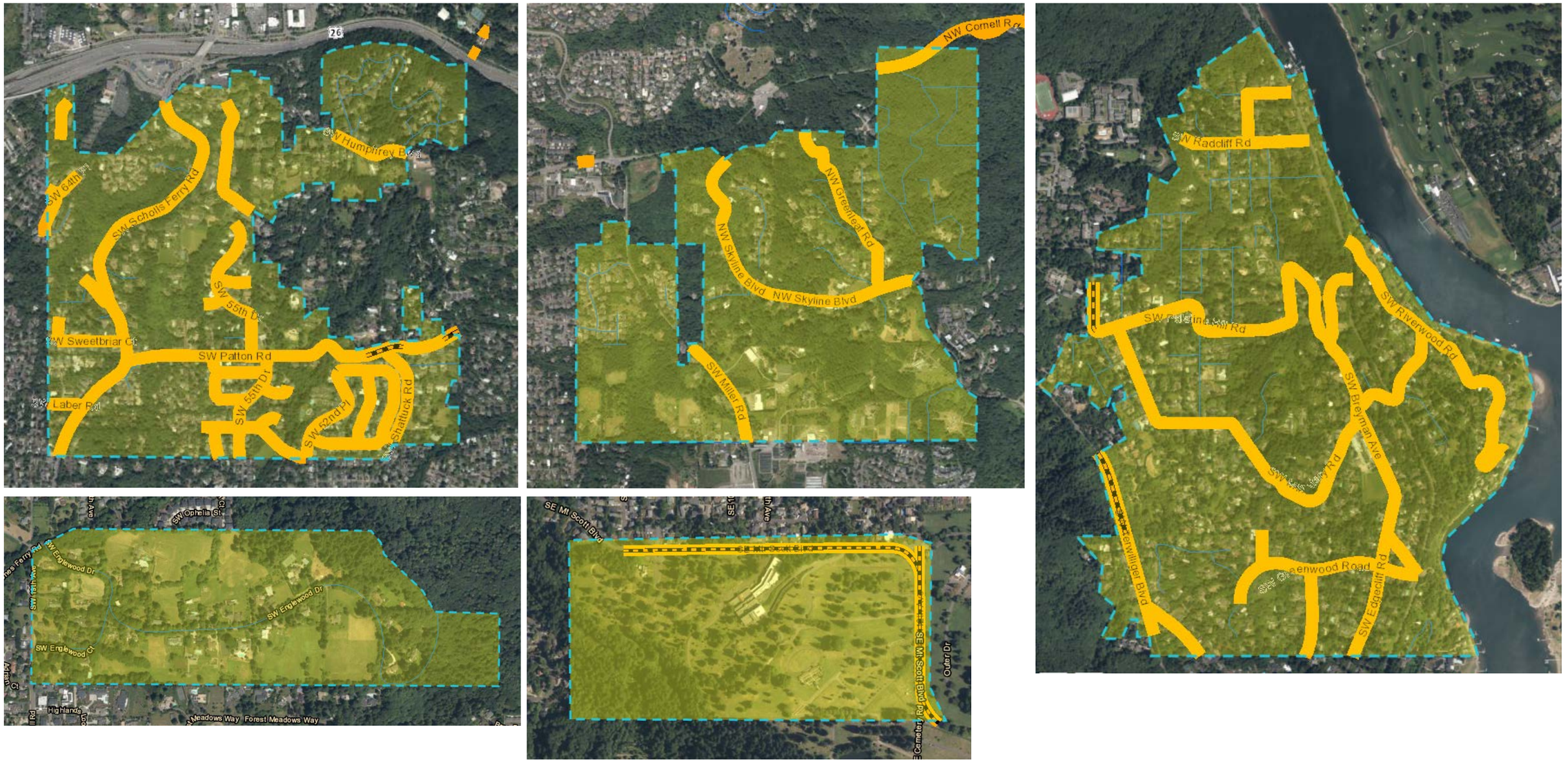
PM-3	Maintain Records of NPDES Activities
Application area	All County-wide MS4 Areas
Responsibility	Asset Management, Water Quality Program
Description	The County has previously maintained records of NPDES permit activities through the Environmental Management Database (Access Database). Data was entered by each functional group (except for Maintenance) and those data are summarized for the Annual Report. Because of the limited activities in the NDPES permit area, these data are now stored in email communications with workgroup staff by the Program Management staff to reduce database maintenance. Workgroups independently track activities for their respective work, including land use permit database, facilities management database, and illegal dumping tracking. The County Road Maintenance data is recorded into the Transportation Division's GIS-based asset management work order system to streamline data entry and analysis of road maintenance activities.
Tasks	1. Maintain operations and maintenance data in the asset management work order system. 2. Update work orders for new stormwater assets. 3. Maintain email records from respective functional groups.
Measurable Goal	Ensure tasks are completed annually.
Tracking measure	Update on progress with description of tasks.

Appendix 1. Map of areas covered under the Multnomah County NPDES MS4 permit.

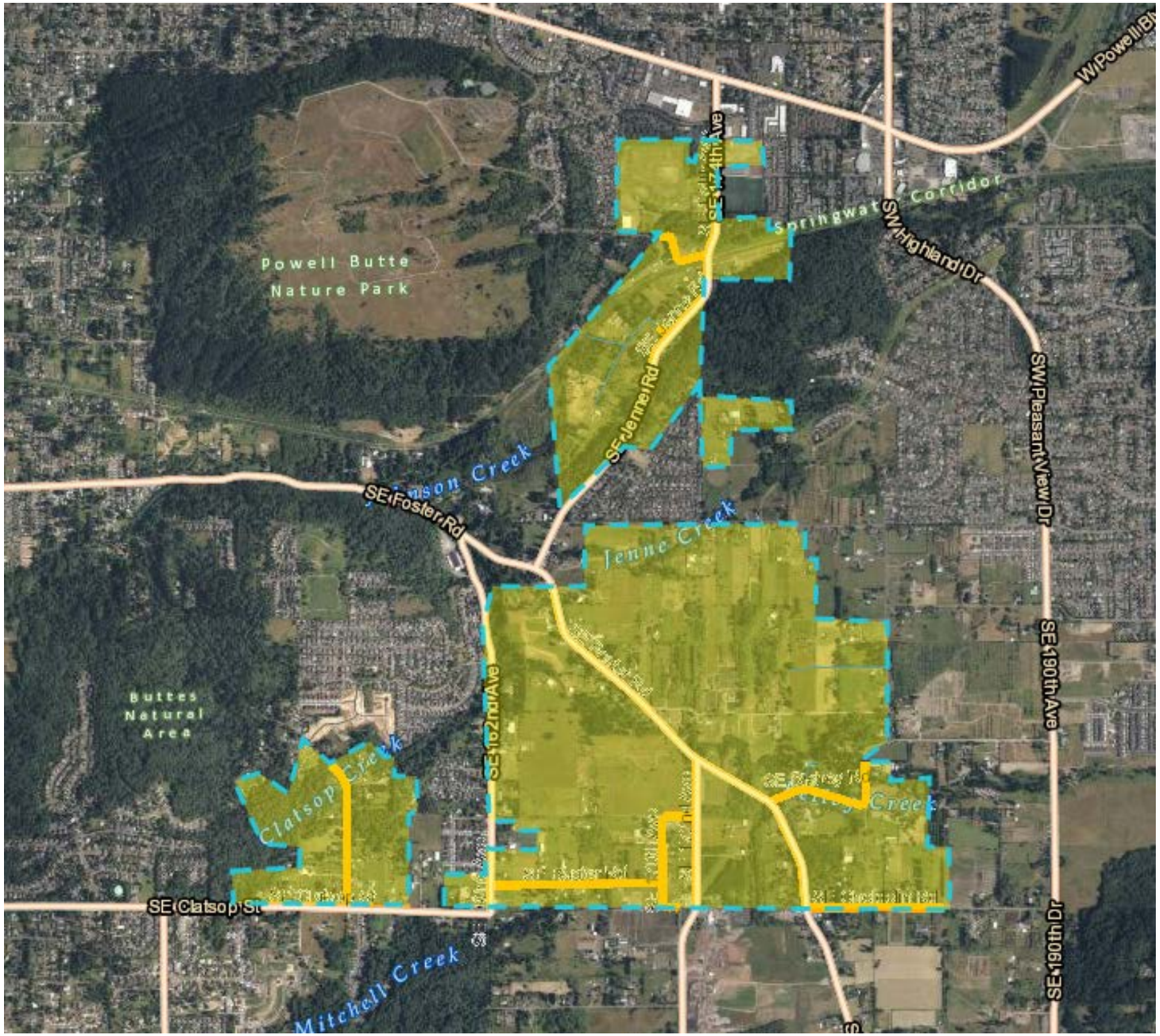
Map 1. NPDES Area overview.



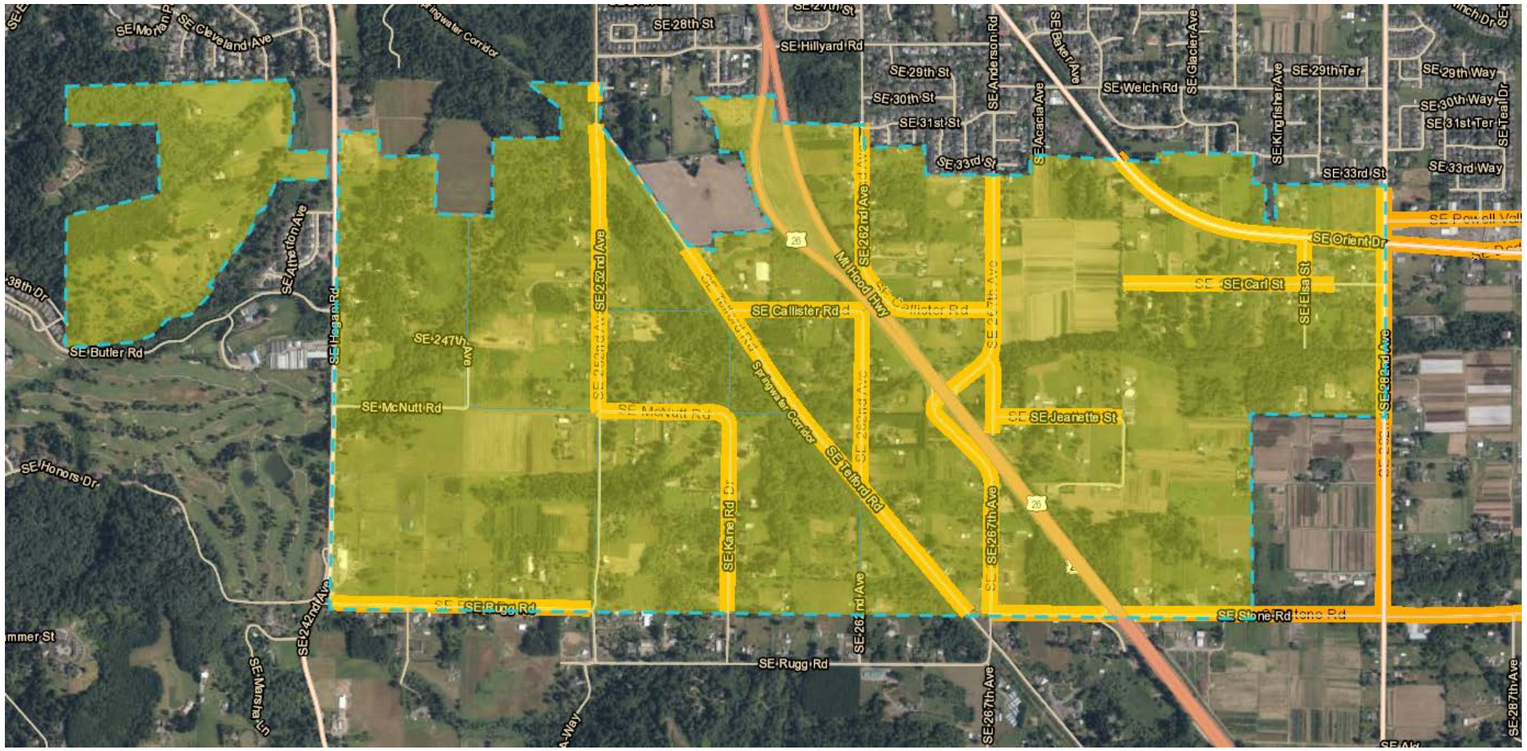
Map 2. Permit area detail: Unincorporated county area adjacent to Portland (UAP). Roadways outlined in orange are maintained by Multnomah County. These include areas draining to the Tualatin Basin (top left, top center), areas draining to the Willamette River, known as Dunthorpe (top right), and an area draining to Tryon Creek, without county road drainage (bottom left).



Map 3. Permit area detail: Unincorporated county areas adjacent to City of Gresham . Roadways outlined in orange are maintained by Multnomah County.

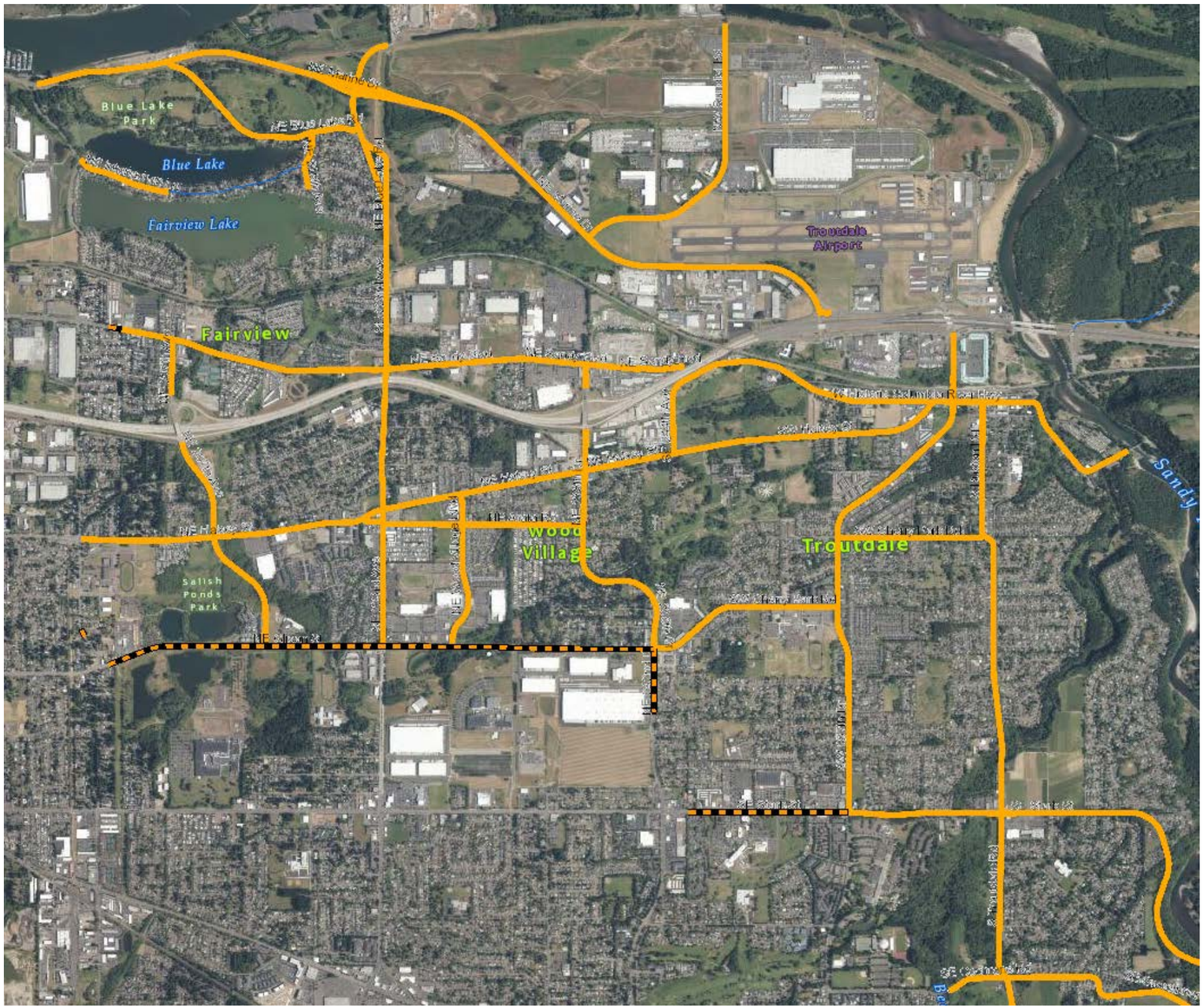


Map 3. (continued)



Map 4. Permit area detail: Interlachen.

Map 5. Permit area detail: Roadways within the Cities of Troutdale, Wood Village and Fairview, included in the County MS4 permit area (outlined in orange). Hatched orange lines indicate roads owned by Multnomah County and City of Gresham, where ownership is divided by the centerline).



Appendix B. Best management practices that address TMDL pollutants.

BMP #	*BMP*	*Bacteria*	*Heavy Metals (except mercury)*	*Nutrients*	*Toxic Organic Compounds*	*Sediment/Solids*	*Mercury*	*BOD*
PI-1	Participate in Regional Public Education Efforts	Y	Y	Y	Y	Y	Y	Y
PI-2	Participate in Public Meetings							
PI-3	Conduct Training and Education for County Personnel	Y	Y	Y	Y	Y	Y	Y
PI-4	Implement the Adopt-a-Road Program	Y	Y	Y	Y	Y	Y	Y
PI-5	Maintain Signage to Protect Water Quality	Y	Y	Y	Y	Y	Y	Y
PI-6	Provide Opportunities for Public Involvement During the CIP/SWMPD Development Process							
PI-7	Facilitate Public Reporting of Illicit Discharges and Dumping	Y	Y	Y	Y	Y	Y	Y
ILL-1	Implement the Spill Response Program	Y	Y	Y	Y	Y	Y	Y
ILL-2	Investigate Illegal Dumping	Y	Y	Y	Y	Y	Y	Y
ILL-3	Detect and Eliminate Illicit Discharges to the Storm Sewer	Y	Y	Y	Y	Y	Y	Y
ILL-4	Inventory and Map the county Storm Sewer System							
CR-1	Require Erosion and Pollution controls for Private Construction Projects	Y	Y	Y	Y	Y	Y	Y
CR-2	Require Erosion and Pollution controls for Public Projects	Y	Y	Y	Y	Y	Y	Y
PCR-1	Regulate Stormwater Discharge from Private Development in Areas under City Land Use Jurisdiction	Y	Y	Y	Y	Y	Y	Y
PCR-2	Regulate Stormwater Discharge for Private Development within Areas of County Land Use Jurisdiction	Y	Y	Y	Y	Y	Y	Y
PCR-3	Address Water Quality with New Capital or Roadway Improvement Projects	Y	Y	Y	Y	Y	Y	Y
PCR-4	Retrofit Existing Facilities for Water Quality Benefit	Y	Y	Y	Y	Y	Y	Y
PP-1	Update the Road Maintenance and Operations Manual							
PP-2	Inspect and Maintain the Storm Drainage System	Y	Y	Y	Y	Y	Y	Y
PP-3	Conduct Street Sweeping	Y	Y	Y	Y	Y	Y	Y
PP-4	Properly Dispose of Road Waste Material	Y	Y	Y	Y	Y	Y	Y
PP-5	Winter Maintenance Strategy		Y	Y		Y	Y	Y
PP-6	Maintenance of County-owned facilities	Y	Y	Y	Y	Y	Y	Y
PP-7	Reduce pesticide use in the ROW				Y			
IC-1	Inspect Industrial and Commercial Sites	Y	Y	Y	Y	Y	Y	Y
PM-1	Stormwater Program Management							
PM-2	Assess and Evaluate the Stormwater BMP Program							
PM-3	Maintain Records of NPDES Activities							

Appendix C. IDDE program

Illicit Discharge Detection and Elimination Program

September 2022

Multnomah County
Transportation Division – Water Quality Program
Department of Community Services

A. INTRODUCTION

Illicit discharge is a non-stormwater discharge into the municipal separate storm sewer system (MS4) that is not exempted by the NPDES MS4 Phase I stormwater permit (Schedule A.1.d), and therefore is illegal. Typically, these illicit discharges pose a risk to stream health because they are contaminated by liquid wastes from industry, sewage, or wash water.

Illicit discharges may be continuous, periodic, seasonal, or incidental depending on the type and source of the discharge. Illicit discharge detection can involve complex detective work where frequently there is no single approach to take but rather a variety of information leading to the source. From visual screening to field monitoring, dye testing, and in-pipe camera work, a combination of techniques are used to successfully detect and ultimately eliminate illicit discharges.

The goal of the County Illicit Discharge Detection and Elimination Program is to detect and eliminate illicit discharges in an effective and efficient manner such that impacts to surface water are avoided or minimized. The program includes stormwater infrastructure mapping, field screening, lab analysis, and documentation for dry weather inspection. The program focuses on investigation of the underground infrastructure where special methods and documentation are needed. This program is based on the Illicit Discharge Detection and Elimination requirements in the NDPES permit (Schedule A.3.c) and the Stormwater Management Program Best Management Practice - ILL-3: *Detect and Eliminate Illicit Discharges to the Storm Sewer*.

Illicit discharge detection involves other field activities including regular catch basin inspections that are conducted by the Road Maintenance program as part of the routine catch basin cleaning activity. The County responds to illegal dumping incidents, maintains a program to report illegal dumping and a plan to contain emergency spills. These program elements are described in the Stormwater Management Program Document, Road Maintenance and Operations Plan, and the Emergency Response Plan.

Governing Laws and Regulations

Multnomah County maintains stormwater discharge permit coverage under the NPDES MS4 Phase I permit (#103004) renewed in October 2021. This permit contains specific requirements for an Illicit Discharge Detection and Elimination program in Schedule A.3.c.

Provisions of the Clean Water Act (1987) require National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges. Section 402(p)(3)(B)(ii) requires that permits for municipal separate storm sewers shall include a requirement to effectively prohibit problematic non-stormwater discharges into storm sewers. Emphasis is placed on the elimination of inappropriate connections to urban

storm infrastructure and requires local jurisdictions to identify, locate, and remove non-stormwater discharges into the municipal storm sewer system.

B. STORMWATER SYSTEM MAP

The County maintains an online map of the stormwater system owned and managed by the County, including stormwater infrastructure owned and managed by adjacent cities that connect to the County stormwater system. The map contains all known County pipes, manholes, stormwater facilities, catch basins, ditches, and outfalls. The map also shows watersheds for the Sandy River, Beaver Creek, Johnson Creek, Salmon Creek, and Fairview Creek (Columbia Slough) watersheds. The online map can be found in this hyperlink: Urban Drainage System Map of Multnomah County.[1]

C. DRY WEATHER FIELD SCREENING AND MONITORING

Dry weather field screening is the process of selecting target outfalls, inspecting outfalls for non-stormwater discharges, and confirming illicit discharges through general observation or monitoring results. Sources of illicit discharge are investigated with a variety of field methods including visual screening and lab analysis.

The County's infrastructure is physically connected to the stormwater systems of the surrounding urban jurisdictions (Portland, Fairview, Wood Village, Gresham, and Troutdale) where stormwater originating from pipes under County-owned roadways is discharged through other jurisdictions' outfalls; and conversely, stormwater from other jurisdictions enters the County system. Coordination between other municipal jurisdictions will occur according to the requirements of the NPDES permit, referenced below in response procedures.

Dry weather field screening occurs at County-owned outfalls to area streams. Field screening activities occurs annually, typically during the summer months when groundwater tables are low and interception/infiltration into the pipe infrastructure is reduced. A 72-hour antecedent dry period is required for field screening.

Priority Outfall Sites

NDPES permit requires that priority outfall selection must be based on an equitable consideration of hydrologic conditions, total drainage area of the location, population density of the location, traffic density, age of structures or buildings in the area, history of area, land use types, personnel safety, accessibility, historical complaints, or other appropriate factors. Characteristics of the four priority outfalls are described below:

[1] https://multco.maps.arcgis.com/apps/webappviewer/index.html?id=01bc029bd294402eab98fffd89568133

Outfall	*Size/Material*	*Non-stormwater Flow*
Halsey St @ Fairview Creek	42” concrete	Spring discharge from Glisan St area
Wood Village Blvd @ No Name Creek	42” concrete	Headwaters of No Name Creek
Stark St @ Beaver Creek (West)	27” concrete	Groundwater discharge from Mt Hood Community Collage parking lot
Stark St @ Beaver Creek (East)	42” concrete	none

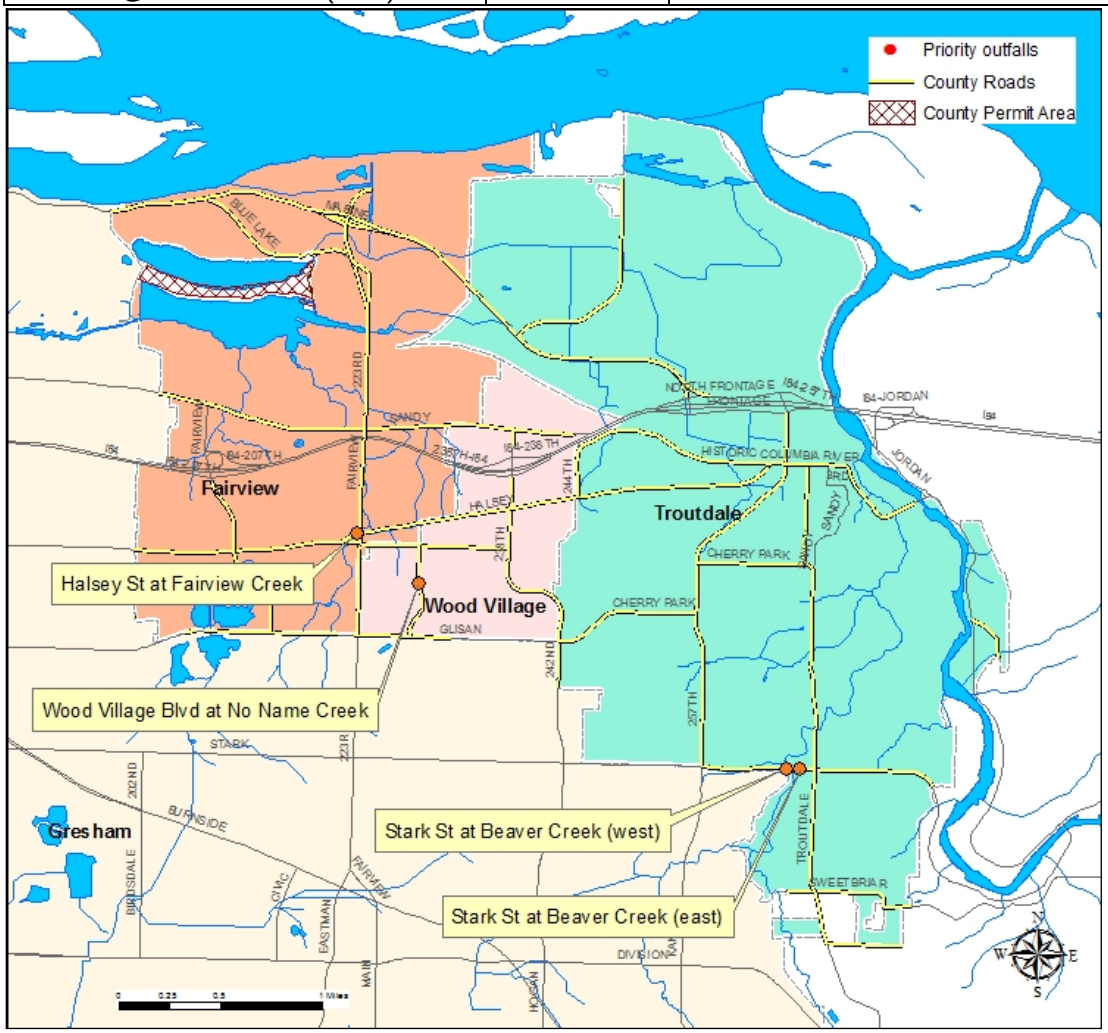


Figure 1. The County priority stormwater outfalls for field screening.

Field Screening

Visual presence of flow, turbidity, algae, oil sheen, trash, foam/scum, color/stains, and any other relevant observations related to the potential presence of non-stormwater or illicit discharge, such as odor or temperature, are important clues to determine whether dry weather flow is an illicit discharge. Visual indicators and odors typically provide an indication of the type of illicit discharge and often can be quite obvious (e.g., toilet paper or sewer odor). Other times, dry weather flow may be clear without obvious odors. Flow volume or timing (e.g., pulses) may also indicate the sources of discharge. General observations will be documented during the annual outfall visits and during any other visit if suspicious flow is reported.

Sample Collection and Analysis

Sampling the dry weather flow is a useful way to identify pollutants and locate the source of an illicit discharge as a follow up on visual clues, odors, or other obvious clues. Sample analysis using simple field kits may distinguish between intercepted groundwater, potable water, wash water or industrial water, and sewage should be done with follow up investigation of the physical source of the discharge. A sample will be collected and screened for indicators of illicit discharges when appropriate using field testing kits and equipment. Table 2 below lists the pollutant and pollutant parameter action level, and follow up action.

Table 2. Screening analytes with action levels and follow up actions

Parameter	*Action level*	*Suspected Source and Action*
Ammonia	> 0.5 mg/L	Natural groundwater and potable water have low ammonia concentrations. Presence of ammonia likely indicates sewage or industrial waste. Follow up investigation of pipe infrastructure for the source is needed for positive identification. Sewage odors may also be an indicator, as well as fecal bacteria.
Temperature	> 18°C	Groundwater and potable water are generally below 15°C. Elevated temperature may indicate industrial process water, wash water or wastewater.
Total chlorine	> 0.5 mg/L	Presence of chlorine indicates potable water. Follow up investigation of pipe infrastructure for the source is needed to positive identification. Car washing, building washing, pool discharge, irrigation or other potable water uses may be likely sources.
Turbidity	> 15 NTU	Turbidity may be used to distinguish between process water and clean potable water (i.e., irrigation).
Conductivity	> 100 µS/cm > 500 µS/cm	Conductivity of Portland potable water is very low, and thus may be used to distinguish between groundwater infiltration and potable sources. High conductivity may indicate waste water to distinguish it from groundwater. Follow up investigation of the pipe infrastructure for source is needed for positive identification.

Lab analysis

If field kits indicate a potential illicit discharge and the source cannot be identified through other investigative methods, a water quality sample may be sent to the City of Portland Water Pollution Control Laboratory for analysis. The types of pollutant

parameters will be determined by the area businesses or land uses that may have potential sources of discharge.

Source Investigation

When a potential illicit discharge to the County stormwater system is found, the pipe system and area draining the source will be inspected to identify the source of the discharge. Follow up investigation to track the source will be coordinated with the adjacent city jurisdiction, and include one or more of the following:

- Inspection of manholes in the upstream direction of the storm pipe
- Inspection using remote closed circuit television cameras in the storm pipe
- Dye testing particular buildings in question
- Smoke testing stormwater system to trace discharge in an upstream direction

If the suspected illicit discharge originates on private property, the County will coordinate with the municipal jurisdiction to obtain permission for inspection. Review of construction permits with the municipal jurisdiction is also helpful to identify where construction may have impacted the system either by damaging the stormwater system or by accidental cross connection.

Documentation

Outfall screening information is stored in a spreadsheet format and GIS database. The County will retain records of monitoring information for a period of at least three years consistent with permit requirements.

D. RESPONSE PROCEDURES

The County responds to all spills and discharges that have the potential to impact receiving waters through the County's stormwater system.

Spill Response. The County provides first response providing defensive measures to control a spill, per OR-OSHA 1910.120, on County roadways in the permit area, following procedures in the Multnomah County Emergency Spill Response Plan. Spill containment with absorbent booms, pads, and granules is installed to prevent material or liquid from entering the stormwater system. Emergency response is coordinated with local cities, and conducted by local law enforcement, fire response, and a spill response contractor, as needed. Spills, which constitute a threat to human health, welfare, or the environment, or are greater than 40 gallons, are reported within 24 hours to the Oregon Emergency Response System and to DEQ.

Illicit Discharge Detection. Once the source of an illicit discharge is identified, an initial evaluation to eliminate the discharge will be completed in five (5) working days. If the elimination of the illicit discharge will take more than fifteen (15) working days due to technical, logistical, or other reasonable issues, an action plan will be created to eliminate the discharge in an expeditious manner. The action plan will be completed

within twenty (20) working days of determining the source of the illicit discharge. The action plan will include a timeframe for elimination of the illicit discharge as soon as practicable.

If the illicit discharge is identified to be discharging from or to other jurisdiction, the affected jurisdictions will notified as soon as practicable, and within one (1) working day of becoming aware of the discharge.

If the elimination of illicit discharge involves the repair or replacement of the County stormwater system, or other capital improvements, the County will remove the source of illicit discharge within 3 years of the date of identification.

Enforcement response plan

1. *Notice of violation*. Upon determination by the County Engineer of the source an illicit discharge to the County stormwater system, the County Engineer shall issue a written notice of violation to the discharger within five (5) working days, which outlines the violation and the potential penalty. The notice shall be personally delivered to the discharger's premises or be sent certified or registered mail, return receipt requested.

2. *Discharge elimination timeframe.* The notice shall further request correction of the illicit discharge within a specified time or require written confirmation of the correction or efforts being made to correct the violation by a specified date. If the elimination of discharge will take longer than 15 working days, the discharger must submit a plan with timeframes to eliminate the illicit discharge in an expeditious manner within 20 working days to the County Engineer. The discharger must eliminate the illicit connection within six (6) months, unless otherwise approved by DEQ.

3. *Penalties.* A civil penalty may be assessed for each violation in the amount up to $500 per day. (Multnomah County Code, Subchapter 27.999)

4. *Coordination with municipal authorities.* Concurrent with the notice of violation to the discharger, the County Engineer will notify the appropriate land use authority and sewer utility of the illicit discharge, and make an initial evaluation of the feasibility to eliminate the discharge. The County will coordinate with the local jurisdictions on inspections and follow up actions.

5. *Reporting to DEQ.* The County will notify DEQ water quality program of potential impacts to water quality from the illicit discharge, including source and type of the discharge, watershed, outfall location, and timeframes for elimination.

E. SPILL PREVENTION AND MITIGATION

Stormwater education is the key to prevent spills, dumping, and other illicit discharges into the County stormwater system. Drain markers, web video, radio, and television ads are part of the larger stormwater program as described in the Stormwater Management Program Document. The County relies on the coordinated work of the Regional Coalition of Clean Rivers and Streams, a consortium of NPDES permittees of which the County is a member. Further coordination from smaller municipal jurisdictions is expected to provide adequate business education in their respective jurisdictions to prevent spills and illicit discharges because the County does not have regulatory authority in those land uses adjacent to the right of way in Gresham, Fairview, Troutdale and Wood Village.

Appendix D. Catch basin program

Multnomah County Transportation Davison

Catch Basin and Street Sweeping Frequency Criteria

Issue: *Incorporate sediment accumulation and removal rates from street sweeping and catch basin cleaning into an adaptive approach to improve BMP effectiveness.*

Goal: *Develop a strategy to determine the appropriate street sweeping and catch basin cleaning frequency to balance the performance of the catch basins with efficiencies in the maintenance tasks.*

Background

Catch basins are not designed to efficiently trap roadway sediment, however, they do provide significant reductions of sediment and associated pollutants if properly maintained. Studies have shown that sediment trapping efficiency of a catch basin can approach 75% when they are cleaned out on a semi-annual or annual basis. The removal rates decrease by about 50% when the catch basin reaches 50% capacity. A catch basin loses its effectiveness in capturing sediment when it reaches 60% of its capacity. Catch basin cleaning frequency must therefore consider how full a catch basin is to maintain the performance of the device.

Street sweeping provides a water quality benefit by removing a range of particle sizes from the roadway. Vacuum sweepers are capable of capturing fine particles (silt and fine sand) that often are associated with metals, PAHs and other pollutants, as well as the medium and coarse (sand) fractions of road sediment. Although vacuum sweeping is conducted largely for road safety and aesthetic reasons, it serves to capture a sediment fraction which catch basins are not designed to trap, and can potentially reduce catch basin cleaning frequency by removing sediment that would otherwise be directed into a catch basin.

Studies show that very frequent street sweeping (weekly) and catch basin cleaning (monthly) can remove more total sediment than less frequent cleaning, despite that the sediment removed during each maintenance event decreases with increased frequency. The costs associated with such an intense level of maintenance, however, are not practicable with the current budgeting for Multnomah County Road Services. Reducing

pollutants to the *maximum extent practicable* means that Road Services must achieve a balance of all road maintenance tasks and contracts to achieve the best results with the available staff and equipment resources. A strategy to maximize the pollutant reduction within the means of the current structural system and resources is needed to improve the program in an adaptive approach.

The current County catch basin maintenance program calls for cleaning catch basins twice a year. This level of maintenance is conducted uniformly across the County catch basins in the NPDES permit area without considering differences in sediment input, traffic, land use, or other metrics at a detailed level. However, in certain locations where known chronic problems occur, catch basin cleaning is done more often – up to six times a year. Measures of the total amount of debris collected has been recorded in the past, but this figure has not been useful to better understand the catch basin network and improve the program. A fine tuning of both catch basin cleaning paired with street sweeping can be achieved using new technologies, including GPS tracking, on-board computing, and GIS mapping software.

Goal and hypothesis

The goal for the program is to identify a catch basin frequency that ensures that cleaning is done before the catch basin reaches 60% capacity, and if possible, to clean before a sump reaches 50% capacity.

The hypothesis is that current program of sweeping (approximately 20-times per year) and catch basin cleaning (twice per year) achieves this goal.

Maintenance tasks

1. *Determine the capacity of each catch basin*

   The depth of the catch basin, measured from the bottom of the catch basin to the outlet pipe (*a*), is used as a surrogate to the volume (capacity) of sump (Fig.1). This depth was measured after the catch basin was cleaned during the summer of 2010. To facilitate estimation of catch basin fullness when sediment obscures the bottom of the sump, a measurement from the catch basin grate to the bottom of the sump was also recorded (*b*). These data are stored in a GIS map of catch basins.

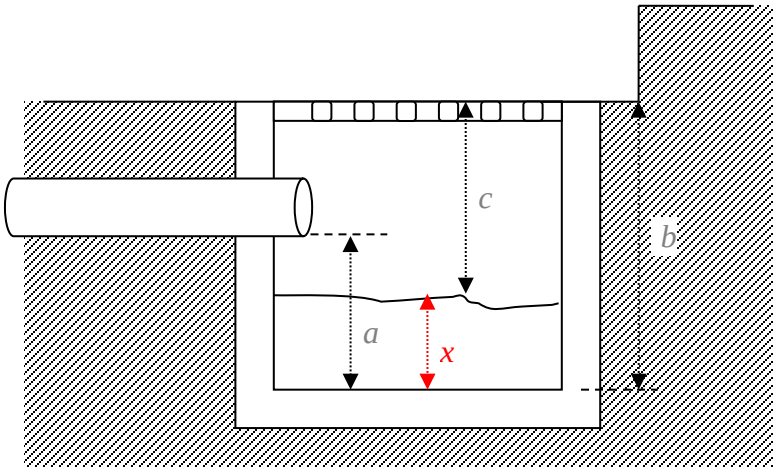


Figure 1. Measurements in the catch basin used to determine the rate of sediment accumulation and estimates of fullness.

2. *Determine the amount of sediment accumulation during the dry and wet months*

   Catch basins are typically cleaned during April/May and September/October. Prior to each cleaning a measurement from the catch basin grate to the top of accumulated sediment (*c*) is recorded (Fig. 1). The depth of accumulated sediment (*x*) is calculated by subtracting the measurement to the top of accumulated sediment (*c*) from the total depth from the grate to the bottom of the sump (*b*). This depth of accumulated sediment is a surrogate for sediment accumulation.

3. *Maintain a set sweeping schedule*

   Sweeping is conducted approximately 20 times per year. There is a regular frequency (approximately twice a month), and additional sweeping occurs after sanding material is applied during storm events. The number of sweeping passes will be recorded for each road segment.

Data evaluation

1. *Determine the rate of sediment accumulation*

   The rate of sediment accumulated in the catch basin is calculated from the sediment depth divided by the number of months between cleaning. The mean sediment accumulations rate per month will be estimated per road segment. Road segments will be identified on a GIS map.

2. *Estimate how full the catch basin becomes between cleanings*

The fullness of the catch basin is calculated as the ratio of sediment depth and the height of the outlet pipe, calculated as a percentage. The mean catch basin fullness and range will be estimated per road segment.

3. *Test hypothesis*

   Compare the mean and range of fullness to the 30% and 60% fullness criteria for each road segment. Compare the rate of sediment accumulation and forecast fullness at the time of the next cleaning.

4. *Determine follow up actions based on results*

   Using the following table as a guide, determine the appropriate changes to catch basin and street sweeping frequency.

		Sept/Oct catch basin cleaning		
		< 30% full	*30-60% full*	*> 60% full*
Apr/May catch basin cleaning	*< 30% full*	Reduce catch basin cleaning frequency to once in Sept/Oct	Reduce catch basin cleaning frequency to once in Apr/May. Increase sweeping frequency in dry months	Maintain semi-annual catch basin cleaning. Increase sweeping frequency in dry months
	30-60% full	Reduce catch basin cleaning to once in Sept/Oct. Increase sweeping frequency in wet months	No change	Maintain semi-annual catch basin cleaning. Increase sweeping frequency in dry months
	> 60% full	Maintain semi-annual catch basin cleaning. Increase sweeping frequency during wet months.	Maintain semi-annual catch basin cleaning. Increase sweeping frequency during wet months.	Increase catch basin cleaning to 3 times per year. Increase sweeping frequency during wet months.

Discussion

The relationship between sweeping and catch basin accumulation varies because of many variables including depth of catch basin, sediment trapping efficiency rates, sediment composition, rain volume, timing of cleaning, and sediment sources. It is therefore not possible to quantify or estimate the effect of sweeping on catch basin cleaning frequency by looking at the total street sweeping debris. Previous data of total catch basin sediment and sweepings has a wide range. Some of this variability can

also be attributed to the difficulty in cleaning or sweeping all or every portion of a road segment for practical reasons, particularly parked cars.

The height of the catch basin outlet pipe is key determinant of catch basin capacity. About 1/3 of the County's catch basins have the outlet pipe set at the bottom of the catch basin, hence these have no apparent capacity. However, outlet pipes set at the bottom are more prone to clogging with debris and trash, and ironically, clogged pipes create a sort of filter that causes these catch basins to rapidly fill up with sediment. These catch basins (and potentially other very shallow catch basins) will be reviewed as a separate category from other more typical catch basins which average 16" of sump depth (to the outlet pipe). Follow up inspections and increased cleaning or potential retrofits may occur depending on the condition of the catch basin.

Catch basin sediment accumulation will naturally vary, and we will consider the range as well as the mean in the evaluation. New grouping and subgrouping of catch basins may result from the evaluation. Some flexibility will be used in applying the guidelines in the table to accommodate efficiencies in conducting the maintenance. Catch basins with chronic or unusual problems will be handled in a separate category, like those with outlet pipes at the bottom, very large/deep catch basins, or catch basins located at the bottom of slopes, and inspection and cleaning strategies will be adjusted as needed.

The impact of lateral clogging is another variable that is difficult to assess. Lateral cleaning will occur once a year concurrently with catch basin cleaning. Broken laterals of other maintenance needs will be reported and repaired as they arise. Determining whether to include or exclude catch basins with maintenance needs will be done on a case by case basis.

A GIS mapping system will allow us to track catch basin cleaning and sweeping in a new way. The GIS mapping will help with developing work orders that target specific catch basins, as well as sets of catch basins on a road segments. A fine tuning of the maintenance schedule is possible with this data, so that follow up work can be assigned in an strategic manner. In the forthcoming adaptive management approach, we intend to use watersheds and subwatersheds to assign a priority scheme for maintenance using the health of the aquatic resources and the risks associated with stormwater on those resources as criteria. Work orders may be tailored to consider all of these factors to most effectively conduct this work.

Conclusion

Developing a strategy to create more efficient work plans and pollutant removal through street sweeping and catch basin cleaning will require program development, mobile computer resources, and good observations from staff. Given the variability in the stormwater system, there will be challenges to summarize and evaluate the sediment accumulation data. This paper outlines the strategy to collect data and established the criteria that will be used to evaluate the program. As more information is collected,

additional questions are certain to arise and further adaptive management will be needed to develop the program.

Appendix E. Emergency spill response plan

EMERGENCY SPILL RESPONSE PLAN

Created: October 2017

Last updated: September 2022

TABLE OF CONTENTS

1.0 Introduction

1.1 Document Purpose

In accordance with the Oregon Occupational Safety and Health Division (OR-OSHA) OAR-437-2/H-1910.120 (HAZWOPER) and OAR 340-044-0018 (GroundWater Protection) Multnomah County is required to develop and implement an Emergency Spill Response Plan. This plan will describe the procedures to be followed by employees who respond to releases of hazardous substances at any site. In addition, this plan is designed to minimize hazards to human health and the environment from all discharges that enter into the County Stormwater System including: fire, explosives, sudden and non-sudden releases of diesel, oil, and hazardous waste into the air, surface and groundwater, and/or soil, and all other prohibited non-storm water discharges to the Storm water System.

Areas and activities that are most vulnerable to spills include fueling activities, loading and unloading activities, vehicle maintenance, storage areas, bridges, roads, and parking lots.

1.2 Document Scope

The procedures described in this document are developed specifically for Multnomah County. **Multnomah County staff will clean up only incidental spills (as described in this document) and will only take defensive measures when responding to anything larger than incidental spills**. This document reflects the scope of those types of responses.

2.0 Pre-emergency Planning and Coordination with Outside Parties

2.1 Emergency responders available

When employees encounter known or suspected hazardous materials, and they perceive that there is an imminent danger (e.g. fire, explosion, environmental damage), they should contact 911.

2.2 Hazardous Material Contractor

Multnomah County has made arrangements with the following Hazardous Materials Remediation Contractor to provide additional emergency response services as needed:

a) NRC Environmental Services
Daytime work hours (503) 283-1150
24 hour number 1 (800) 337-7455

3.0 Personnel Roles, Lines of Authority, Training and Communications

3.1 General Program

This plan addresses spill response occurring on county property, bridges, roads, and rights of way. The county spill response system is designed to be a defensive response to provide protection for human safety, the environment, and property. For other than incidental spills, county staff are trained to take defensive measures only. Staff are not trained or equipped to clean up anything larger than an incidental spill.

3.2 Spill Report/Notification Procedure

3.2.1 If a spill occurs at a county facility:

a) Report to Facilities Dispatch (503) 988-3779. If possible, relay the location of the spill, the materials spilled, and the approximate amount spilled.

b) Trained personnel will be dispatched to the site.

3.2.2 If a spill is related to transportation:

a) During daytime work hours

1. Roads – Call the appropriate supervisor. If possible, relay the location of the spill, the material spilled, and the approximate amount of the spill.
2. Bridges – Call the appropriate supervisor. If possible, relay the location of the spill, the material spilled, and the approximate amount of the spill.
3. The operator will transfer the call to the appropriate supervisor. Department of Community Services for Road Maintenance 503-988-5050 or Bridge Services 503-988-3757.
4. Trained personnel will be dispatched to the site.

3.3 Key Personnel

3.3.1 Facilities Dispatch and Transportation Supervisors are able to contact 911 services and NRC Environmental Services as necessary.

3.2.2 Other key personnel include

Facilities and Property Management
24-hour # (FPM Dispatch) (503) 988-3779

Road Maintenance Supervisors

- Don Pfister: 503-539-5485
- Erick Johnson: 503-780-2482

Carl Morgan, Bridge Maintenance: (503) 970-1792

Jill Wolf, Bridge Operations: (503) 307-1297

Sarah Hurwitz, Communications Office: (971) 500-3311

3.4 Incident Commander

3.4.1 The highest ranking county employee at the emergency scene will be the Incident Commander. The Incident Commander position will be transferred to other county personnel with higher rank and training as they arrive at the emergency scene.

3.4.2 The Incident Commander is responsible for coordinating operations and the activities of county employees involved in the spill response.

3.4.3 The Incident Commander will also represent the county when other emergency responders (e.g. police, fire, clean-up contractors) arrive at the scene.

3.5 Training

Multnomah County staff who may encounter spills are trained to the First Responder Operations Level as per OR-OSHA 1910.120 and are familiar with this plan and proper spill response procedure. These employees will only take defensive measures to control anything larger than an incidental spill.

3.6 Means of Communication

3.6.1 Multnomah County Communication Systems consist of:

a) Telephones
b) Portable and vehicle two-way radios
c) Cellular telephones

3.7 Outside Agency Notification

Contacts will be made by one of the county key personnel, if required, as soon as possible after the spill. In a case of a known spill or illegal discharge that originates in the county's jurisdiction, enters another municipality, notification to the affected municipality must be notified as soon as practicable, and at least one working day from becoming aware of the discharge.

3.7.1 The Oregon Emergency Response System (OERS)
1 (800) 452-0311

The National Response Center (NRC)
1 (800) 424-8802

3.7.2 Telephone reports to the NRC and OERS are required when a spill involving a hazardous material results in:

a) Death

b) Hospitalization

c) Property damage in excess of $50,000

d) Any substance the Incident Commander or Key County Person thinks should be reported

e) A discharge of hazardous materials in excess of the reportable quantity (RQ) in the current 40 CFR Table 302.4 and OAR 340-108

f) Release into water way or drainage facilities

3.7.3 A hazardous waste specialist can be contacted at Oregon DEQ to determine if a spill is a substance of reportable quantity. Reportable quantity is defined in OAR 340-108 - 0010 as:

A. Any quantity of radioactive material or radioactive waste
B. Any quantity of oil released in the waterways of the state that can produce a visible sheen
C. Oil spilled on the surface of the land, any quantity over 42 gallons (one barrel)
D. Any amount equal to or greater than the quantity listed in 40 CFR Part 302 - one pound or more of nerve agents (released on site)
E. One pound of pesticide residues

3.7.4 When reporting a spill the following information shall be provided:

a) Name, address, and DEQ/EPA hazardous waste ID number of the facility

b) Date, time, and type of incident (e.g., spill or fire)

c) Quantity and type of hazardous material, hazardous substance or hazardous waste involved in the incident

d) Extent of any injuries

e) Estimated quantity and disposition of any recovered materials

3.7.5 Adjacent Agencies— if spills are discharged into a stormwater system of another municipality, contact the affected municipality as soon as practicable, and at least one working day of becoming aware of the discharge.

City of Fairview	503-665-9320
City of Gresham	503-618-2626
City of Portland	503-823-1700
City of Troutdale	503-674-3300
City of Wood Village	503-667-6211
Clackamas County	503-557-6391
Columbia County	503-397-5090
Washington County	503-846-7623

4.0 Emergency Recognition and Prevention

This section describes the particular actions personnel will take in response to unplanned sudden releases of diesel, oil or hazardous materials to the surrounding environment. In the event of such a release, Multnomah County personnel will take all necessary precautions (up to the level of training received) to prevent the spread of contaminants.

4.1. Assess Hazardous Risk

4.1.1 Hazardous risk at a County facility.

Before responding to a spill at a County facility responders will use the Material Safety Data Sheet (MSDS) to:

a) Identify the hazard(s) and assess the risk.

b) Secure the scene.

c) Obtain help if needed.

d) Decide on site entry.

1. If County responders are not appropriately protected and trained for the level of emergency, they will not respond further than providing traffic control and site security, while waiting for assistance.

4.1.2 Hazard and risk on bridges and the right of way (ROW)

A material spilled on the roads and bridges is typically unknown to the responders, making it necessary to first identify the material spilled and then perform a basic hazard and risk assessment. County responders will follow the following steps when responding to spills on bridges, roads and rights of way:

a) Approach the spill area cautiously.

b) From a safe distance use whatever means available to identify the material spilled.

c) Once the spilled material is identified use whatever means available to identify the hazards.

d) Secure the scene from a safe distance.

e) Obtain help as needed.

f) Decide on what, if any, defensive actions can be taken.

1) If County responders are not appropriately protected and trained for the level of emergency, they will not respond further than providing traffic control and site security while waiting for assistance.

4.1.3 Tools for assessing hazard(s) and risk

When approaching the scene of an emergency spill, County responders will use any of the following means available to identify the material and assess the hazard(s):

a) Vehicle placards and chemical ID numbers

b) Container labels

c) Shipping papers

d) Material Safety Data Sheets (MSDS or SDS) if available

e) The Department of Transportation (DOT) Guide book for assistance in identifying the spilled material and assessing hazards.

When approaching the scene of an emergency spill, responders will be aware of warning signs (Red Flags) that might indicate a hazardous material release, such as:

a) Collapsed victims

b) People running from the area

c) Flames or smoke

d) Sound from venting safety devices on vehicles

e) Hissing sound

f) Birds and insects falling from the sky

4.2 Spill Response

Spills which constitute a threat to human health, welfare, or the environment, county personnel must respond within 24 hours or as soon as possible after becoming aware of it if notified during weekends or after hours.

4.2.1 Spill Classification

Spills are divided into three categories:

a) Incidental spills -- these include drips or other small spills of a quantity less than a gallon of diesel, gasoline, oil or antifreeze.

b) Medium spills -- these are spills where:

(1) The spill is greater than one gallon but less than 42 gallons of diesel (NOT including gasoline), oil and antifreeze.

(2) The spill is not threatening to impact the environment via runoff or contact with surface and or groundwater (i.e., the spill is entirely contained on asphalt or gravel areas).

c) Large spills - large spills include:

(1) 42 gallons or more of diesel, hydraulic oil, waste oil, and antifreeze (on land).

(2) Any hazardous material. (This includes a quantity of greater than 1 gallon of gasoline.)

(3) Release of oil that causes a film, sheen, or discoloration of surface water.

4.2.2 Response Procedures

a) The hazards posed by an incidental hazardous material spill are no greater than those posed by using the material itself. For example, the hazards of filling a portable generator with diesel are similar to those of cleaning up a half-gallon spill of diesel.

Thus incidental spills may be cleaned up by staff using appropriate personal protective equipment (PPE).

b) County staff will **only use defensive measures** when responding to medium and large spills Defensive measures include:

(1) Following the spill report/notification procedure (in section 3.2 above) to give accurate information as to the location, material spilled, and estimated amount of the spill.

(2) Evaluating the hazard(s) from a safe distance. If the spilled material is flammable, eliminate sources of ignition if possible near the spill area.

(3) Assisting other emergency responders as needed.

(4) Preventing spilled material from entering drains, catch basins, and waterways.

(5) Securing the scene and controlling traffic (both vehicle & pedestrian).

5.0 Safe Distances and Places of Refuge

5.1 Emergencies occurring at a Multnomah County Facility

a) County facilities have Emergency Action Plans, developed by occupying departments that employees will follow.

b) The plans contain procedures for evacuating the facility and designate gathering locations for employees and visitors that are deemed safe distances.

5.2 Emergencies occurring on roads and bridges

If County personnel are responding to a spill that has occurred on a road or bridge, the following steps will be taken:

a) Responders will approach the scene cautiously.

b) Stay upwind as much as possible.

c) Move further away if experiencing symptoms that may be related to hazardous materials exposure.

6.0 Security and Control

6.1 To prevent convergence onto the scene by unauthorized individuals, County personnel will begin securing the site by isolating the hazard area and denying entry. As a responder, you may need to exercise your authority to stop traffic.

6.2 County employees will not clean up anything other than an incidental spill.

6.3 If County employees are on-scene during a medium or large spill response they will remain in uncontaminated areas.

7.0 Evacuation Procedures

7.1 At County Facilities

a) All Multnomah County facilities have an evacuation plan, developed by occupying departments, to assure proper evacuation of a County Facility under emergency conditions. Each plan is designed to ensure

employee and visitor safety by providing the most efficient means of evacuation and identifying lines of communication and responsibility.

b) It is the responsibility of management at each County facility to ensure that employees at that facility are familiar with the evacuation procedure. It is the responsibility of each employee to follow the evacuation procedure at his/her facility.

7.2 Roads, Homes, and Businesses

a) During a spill of a hazardous material it may become necessary to evacuate people from nearby homes and businesses. In these situations, County responders will follow the lead of local police and fire authorities and give assistance as directed.

8.0 Decontamination Procedures

The purpose of decontamination is to prevent the spread of contamination from the hazard area to clean areas and into the environment. Because County staff will only take defensive measures to control medium or large spills, they should not be in contact with hazardous materials.

Nonetheless PPE, equipment, tools or materials that may have been in contact with hazardous materials will be bagged at the scene and transported back to the facility where they can be decontaminated.

County staff who clean up incidental spills will clean (i.e. decontaminate) or dispose of contaminated PPE, equipment, tools or materials as per their customary procedures. The Spill Response Contractor is capable of decontaminating impacted items as well.

9.0 Emergency Medical Plan

9.1 Use your site or workgroup-specific procedures for responding to medical emergencies in the field. If immediate medical assistance is needed contact 911.

9. 2 If an injured employee is taken to an emergency medical provider directly from the field, contact the employee's supervisor or designee as soon as possible. In addition, contact Risk Management as soon as possible.

10.0 After Action Review (AAR) of Emergency Response

10.1 Critique meeting

Following an emergency response, an AAR meeting will be held to review and revise all aspects of the emergency response. Appropriate personnel will attend this meeting. At a minimum, the following topics will be discussed:

a) Managing the scene
b) Identification of hazard(s)
c) Analyzing the hazard(s)
d) Selection and use of PPE
e) Communication & Control of the hazard(s)
f) Decontamination
g) Termination of operation

10.2 Incident documentation

During an emergency response, the Incident Commander will initiate documentation of the incident for future reference. The following items will be documented:

a) History and facts about the cause of the incident.
b) Description of steps taken by responders from the time of notification to the time of termination.
c) Names and roles of on scene response personnel.
d) Third party information, i.e., name, address, phone, insurance.
e) Police report and official incident number.
f) Internal Order Number (I.O. number) for chargeback.
g) External vendor reports and invoice copies

11.0 Emergency Response Equipment

Multnomah County Transportation maintains a trailer equipped for the purpose of responding to emergency spills. The following equipment is on the trailer:

11.1 Personal Protective Equipment (PPE)

a) Disposable boot covers
b) Gloves
c) Goggles
d) Cloth Overalls (various sizes)
e) Dust masks

11.2 Emergency Safety Equipment

a) First aid kit
b) Self-contained portable eye wash station

11.3 Clean-up Equipment & Supplies

a) Absorbent (grease sweep)
b) Booms, long and short (petroleum and universal)
c) Absorbent pads (petroleum and universal)
d) Drain covers
e) Small swimming pool (for spill containment)
f) Shovels
g) Push brooms
h) Large heavy duty trash bags with ties and labels
i) Barrier tape and cones
j) Wipes for clean up
k) Drum for waste collection
l) 10’ x 10’ - 6 mil visqueen tarp for PPE removal.-

11.4 **Spill Kit Locations**

There are a number of spill control kits in a variety of locations throughout the County. Spill control kits have been placed at the following locations:

a) In Road Maintenance Supervisors trucks
b) District 1 Shop (Skyline)
c) District 5 Shop (Springdale)
d) Yeon Shops Warehouse
e) Hansen Station
g) Operator’s towers on the four Willamette River drawbridges
h) Emergency Response Coordinator’s Vehicle
i) Bridge Shop maintenance area, rack across from shop office

j) Facility: B437 - Multnomah County East - 600 NE 8th Gresham, Oregon. Spill kit located in the boiler room adjacent to the main parking lot east end of the building.

k) Facility: B314 - Inverness Jail - 11540 NE Inverness Drive. Spill kit is located in the lobby reception desk.

l) Facility: B311 - Juvenile Justice Center - 1401 NE 68th Avenue, Portland, Oregon. Spill kit located inside the HVAC Plant outside wall of the office door.

m) Facility: B420 - Southeast Health - 3653 SE 34th Avenue, Portland, Oregon. Spill kit located on the first floor in the Janitor storage room adjacent to the front door.

n) Facility: B322 - Northeast Health - Walnut Park/NEHC, 5329 NE MLK Blvd. Spill kit located in the compressor room at the south end of the building adjacent to the parking lot.

o) B504 the Multnomah Garage - 501 SE Hawthorne Blvd. Spill kit located in the electrical room at the entrance of the garage.

p) Facility: B119 - Justice Center - 1120 SW 3rd. Spill kit located in the guard shack at the bottom of the entrance ramp L1.

Appendix F. Industrial and Commercial Facilities Inspection Program

Industrial and Commercial Facilities Inspection Program

Introduction

Multnomah County Water Quality Program manages an industrial and commercial facility inspection program for facilities subject to DEQ 1200Z industrial stormwater NPDES general permit or have the potential to contribute a significant pollutant load to the County's stormwater system. Within the County's municipal separate storm sewer NPDES permit area, there are few commercial facilities, as these areas are largely zoned for rural use. Water quality issues from agricultural businesses in the permit area, including crop farms and nurseries, are regulated under the Oregon Department of Agriculture's Agricultural Water Quality Rural Areas plans for the Lower Willamette River and Sandy River areas.

In these unincorporated pocket areas within the County's NPDES permit area, there is a potential for new and existing facilities that may impact water quality. To meet the requirements in Schedule A.3.g. of the County's NPDES permit, this strategy outlines the screening, inspection and education requirements for facilities and facility owners.

A. Prioritization for Facility Inspection

Facility inspection priority is based on the type of facility and the high potential to discharge pollutants of concern to the County's stormwater system. Facility types include:

- Facilities with DEQ NPDES 1200Z permits
- Businesses that transport, store, load, unload, or use hazardous chemicals, halogenated solvents, or petroleum products
- Store or generate hazardous wastes
- Manufacture or generate retail products, by-products, waste, or recycling exposed to the outdoors
- Food service establishments
- Automotive-related businesses that 1) store or use hazardous chemicals, 2) conduct repairs, bodywork, detailing, washing, or painting, or 3) store or recycle waste products such as metals, auto fluids, oil filters, and oil filters.

B. Facility Screening and Inspection Frequency

Annually, the County will screen permit area maps and other data for new and existing facilities, including public notices for new DEQ NPDES 1200Z Industrial Facility Permits. Businesses will be evaluated to the risk to water quality, and assigned an initial inspection frequency based on the type of business. Existing businesses with frequent

or significant violations may be assigned an increased inspection frequency, following the City of Gresham Business Inspection Program guidelines. Risk levels also follow these guidelines, based on the amount and type of chemicals used or stored on site, and the potential for these chemicals to discharge to the stormwater system or natural waterways, including potential for spills or use outdoors.

If a new facility is determined though annual screening to be subject to a DEQ 1200Z industrial stormwater permit, the County will notify the industrial facility and DEQ within 30 days of discovery.

C. Inspection and Education Resources

Given the limited number of industrial and commercial facilities in the rural unincorporated county permit area that may require an inspection, the County will contract professional inspectors through the City of Gresham's Business Inspection Program when such inspections are needed. The Gresham program provides trained staff with extensive backgrounds in construction, stormwater and wastewater systems, as well as training in stormwater controls.

Regular inspections will include review of the on site stormwater system for pollutant contributions or pollution risk, description of needed corrections documented with photos, an inspection report, and a schedule of corrective actions needed, including follow up inspections.

D. Enforcement

If the contracted inspector finds that corrective action are not implemented according to the determined schedule, the County will follow response and enforcement procedures outlined in the County Illicit Discharge Detection and Elimination Program, unless the violation is deemed low or moderate risk according to the Gresham Business Inspection Program guidelines. Correction deadlines for low to moderate risk are set based on the risk to water quality and the complexity of the required remedy.

APPENDIX G. Intergovernmental agreement for Monitoring with City of Gresham

The County implements the NPDES permit monitoring requirement under an Intergovernmental Agreement (IGA) with the City of Gresham. As the streams required for monitoring flow through both County and Gresham jurisdictions, consistent sampling is ensured through this cooperation. The updated sampling scope of work is included as well as the signed IGA, are included below. The sampling protocols follow the City of Gresham Monitoring Plan approved by DEQ. (https://greshamoregon.gov/WorkArea/DownloadAsset.aspx?id=14474).

EXHIBIT A

A. GRESHAM'S SCOPE OF WORK.

1. Macroinvertebrate Sampling
Gresham shall complete macroinvertebrate sampling at two (2) sites on Beaver Creek annually.

2. Instream Sampling

Gresham shall complete instream sampling at two (2) sites on Beaver Creek quarterly. This sampling meets the requirements for the mercury Total Maximum Daily Load (TMDL). As part of the Columbia Slough TMDL, Gresham shall complete quarterly instream sampling at sites on Fairview Creek, of which, one half (0.5) of one site shall be covered by Multnomah County. The sites shall be selected by mutual agreement of the Parties. Instream monitoring includes sampling and/or analyses of the following, as per the Gresham Stormwater Monitoring Plan:

a. Total metals (Copper, Lead, Zinc, Mercury)
b. Dissolved metals (Copper, Lead, Zinc)
c. E. coli
d. Nutrients (Ammonia-Nitrogen, Nitrate-Nitrogen, o-Phosphate-Phosphorus-Dissolved, Total Kjeldahl Nitrogen, Total Phosphorus)
e. Conventionals (BOD5, Total Suspended Solids, Chlorophyll-a, Total Hardness)
f. Field parameters (pH, Temperature, Dissolved Oxygen)

3. Pesticides

Gresham shall complete monitoring for pesticides at two (2) sites on Beaver Creek, following the requirements of the County's pesticide monitoring requirement.

4. Data Submission

Gresham shall format, review, and submit data to the Oregon Department of Environmental Quality annually, following the requirements of the County's data submission requirement.

B. COST ESTIMATE. Monitoring cost estimates for each task are below. Cost estimates include labor, equipment, and lab costs, which will be reimbursed by Multnomah County.

The Parties stipulate that the cost estimates provided herein are solely for the purpose of budget planning; actual costs may vary depending upon laboratory costs, staff time, and vehicle/equipment required for acquiring and delivering samples provided, however, that actual costs exceeding 20% of the estimated costs set forth herein shall require an update of Exhibit A, and any such cost increase shall be reimbursed only if agreed to in writing by the affected parties.

Tasks	Cost Estimate for FY 2022-2023
1. Macroinvertebrates	$900
2. Instream	$9,200
3. Pesticides	$3,000
4. Data Submission	$400
Total	**$13,500**

Cost estimates are for FY 2022/2023. It is expected that costs will rise by ~3% or ~$500 each year of the agreement.

Fiscal Year	**Cost Estimate**
FY 2022/23	$13,500
FY 2023/24	$14,000
FY 2024/25	$14,500
FY 2025/26	$15,000
FY 2026/27	$15,500
Estimated 5-year Total	**$72,500**