

City of Fairview Storm Water Management Plan



Above ~ Detention Pond

Below ~ Bioswale



Above ~ Outfall



Below ~ Stormwater Planter



*Above ~ Street-level
Stormwater Planter*



November 2022

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- Appendix A Stormwater Program Best Management Practices, metrics, and reporting**
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1.0 EXECUTIVE SUMMARY

Under the federal Clean Water Act and Oregon Revised Statute 468B.050, DEQ has issued the City of Fairview a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit. The City of Fairview is required to develop a Stormwater Management Plan (SWMP) as described in the Clean Water Act (CWA) 40 CFR 122.26 (d) (2) (iv) (A) through (D) and in Schedule A of the 2021 NPDES MS4 Permit #101315. The primary component of the SWMP is a management program comprised of Best Management Practices (BMPs) and other management activities developed to address the elements as detailed in the CWA and in Schedules A. thru D. of the permit. These are actions Fairview will take to minimize pollutant discharge into surface waters to the maximum extent practicable (MEP) in order to protect water quality and satisfy requirements of the NPDES MS4 Permit and the CWA.

The contents of this Stormwater Management Plan reflect the requirements as described in the permit issued by the Oregon Department of Environmental Quality (DEQ) dated October 1, 2021. **This SWMP is intended to carry the City through the September 30, 2026 permit cycle.**

Introduction

Section 2.0 describes the history of the City's permit.

Section 3.0 provides a description of Fairview's portion of the permit area, watershed boundaries within the permit area, and co-permittees.

Section 4.0 describes the City's organization structure and responsible groups relative to the SWMP implementation and includes organization charts as **Figures 2.0 and 3.0**. Figures will be updated if staffing for stormwater programs change.

Section 5.0 details the City's process for determining that its stormwater management program will reduce discharge of pollutants to the maximum extent practicable (MEP). The City has reviewed available data regarding the impact of urban runoff and performed the required reviews of its practices and benchmark evaluation. The proposed updates and changes are designed to improve water quality protection, while still meeting other important legal mandates and City goals such as flood control and groundwater protection. Detailed descriptions of the best management practices and their implementation schedule are listed in **Section 7.0. and Appendix A**.

Section 6.0 contains the purpose of the proposed revisions, a concise description in **Table 1.0** of the proposed BMP revisions and the rationale for those changes, and the focus of the SWMP. The majority of the proposed changes are insignificant in that their purpose is for clarity in language, grammar, formatting, etc., or the changes are deletion of information that is no longer accurate or were formerly listed as program goals and have now been incorporated into the Implementation Activity description.

Because Fairview's stormwater program is mature, has an adequate budget and reflects industry best practices, current science and best professional judgement, no major enhancements are deemed necessary to continue achieving water quality improvements over time.

During the next permit cycle, the City plans to continue requiring and/or incentivizing low impact development (i.e., surface infiltration techniques) where appropriate soils exist because of its regional and national recognition as a sustainable approach to stormwater management and benefits to flow/volume reduction that leads to less stream modification.

The City will continue to focus on the importance of trees and riparian buffers as a stormwater management tool in conjunction with its next stormwater manual update. Finally, the City will continue ensuring the proper function of both public and private water quality facilities that treat stormwater.

Section 7.0 includes the details of the SWMP as narrative that mirrors the permit's organization and headers. **Appendix A** follows and contains a brief description of each BMP, the purpose, program commitment (measurable goals) and reporting elements.

2.0 INTRODUCTION

Under the federal Clean Water Act and Oregon Revised Statute 468B.050, DEQ has issued the City of Fairview a National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Discharge Permit #101315. (Effective October 1, 2021). The City of Gresham is required to develop a Stormwater Management Plan (SWMP) as described in the Clean Water Act (CWA) 40 CFR 122.26 (d) (2) (iv) (A) through (D) and in Schedule A of the permit.

The SWMP and [the City of Gresham's Environmental Monitoring Plan](#) detail the actions (best management practices -BMPs) Fairview will take to minimize pollutant discharge into surface waters to the maximum extent practicable (MEP) in order to protect water quality and satisfy requirements of the NPDES MS4 Permit and the CWA.

This SWMP and Environmental Monitoring Plan have been updated to ensure compliance with the permit elements. The Plans and associated documents required for public comment will be posted on our website from October 21, 2022, through November 21, 2022. Upon receipt of comments, and proposed changes will be forwarded to DEQ for approval. We will take the plan to City Council for adoption upon completion and acceptance of the DEQ review.

I. Stormwater Management Plan History

The Clean Water Act (Act) of 1972 established regulations to control discharges to public waterways from industrial sources and municipal wastewater treatment plants. In 1987, Congress expanded the Act to regulate non-point source pollution, which includes stormwater runoff from agricultural and urban areas.

In September 1995 the Oregon Department of Environmental Quality (DEQ) issued NPDES MS4 permit #101315 to the City of Fairview, the City of Gresham, the Oregon Department of Transportation (ODOT), and Multnomah County. The permit required the implementation of a stormwater management plan (SWMP), stormwater monitoring program, and the submittal of annual reports. The specific regulatory components that established the basis for the SWMP are listed in 40 CFR 122.26(d)(2).

In March 2004, DEQ renewed NPDES permit #101315 with the City of Fairview, City of Gresham, and Multnomah County. ODOT was issued their own permit; thus they were removed as a co-permittee. The permit was further amended by DEQ in July 2005, and as a result, the City was required to submit an interim evaluation report (IER) to DEQ in May 2006. The IER included an updated SWMP that reflected the requirements of the amended permit. The SWMP was approved by DEQ in June 2006.

In August 2008, the City submitted the permit renewal application package to DEQ, which included an evaluation of their SWMP, total maximum daily load (TMDL) pollutant load reduction benchmarks, a water quality trends analysis and effectiveness evaluation, and a description of the City's public involvement process. The Draft SWMP submitted to DEQ as part of the permit renewal application was developed based on the anticipated permit requirements to be reflected in the reissued permit.

From August 2008 to August 2010, the City was involved in discussions and negotiations with DEQ related to the reissuance of their NPDES MS4 permit. Permit requirements and SWMP requirements were refined during this period. In August 2010, at the request of DEQ, the City submitted the Revised Draft SWMP to reflect the proposed permit language and requirements resulting from the discussions and negotiations. Following a 45-day public comment period and subsequent resulting edits to the permit, the City of Fairview's NPDES MS4 permit was reissued on December 30, 2010. Multnomah County was issued their own permit and removed as a co-permittee in this reissued permit.

DEQ approved a final updated SWMP in April 2011 and the plan was written for the length of the City's updated permit set to expire in December 2015. The city submitted its next permit renewal application in December 2015 DEQ administratively extended the existing permit. In 2019, DEQ began updating the permit that was issued in September of 2021.

II. 2022 Update

Staff began reviewing its Plans, program areas and standard operating procedures in fall 2021. Staff also worked collaboratively with the other Phase I permitted agencies to examine the new permit requirements and share approaches, analysis, and expertise. Due to budgetary constraints, no additional staff are proposed within the program and our basic approach to meeting the permit requirements remains the same.

3.0 DESCRIPTION OF THE PERMIT AREA, CO-PERMITTEES, AND SERVICE AREA EXPANSION

I. Fairview Permit Area & Watersheds

The permit area for the City includes all areas within the city boundary. This includes the Columbia River, Fairview Creek, Fairview Lake, Blue Lake, Osburn Creek, and Salmon Creek, as seen in Figure 1.0 Fairview Creek originates in Gresham and along with Osburn Creek flows into Fairview Lake. Salmon Creek discharges to the Columbia River. The City is responsible for managing stormwater within its permit boundaries.

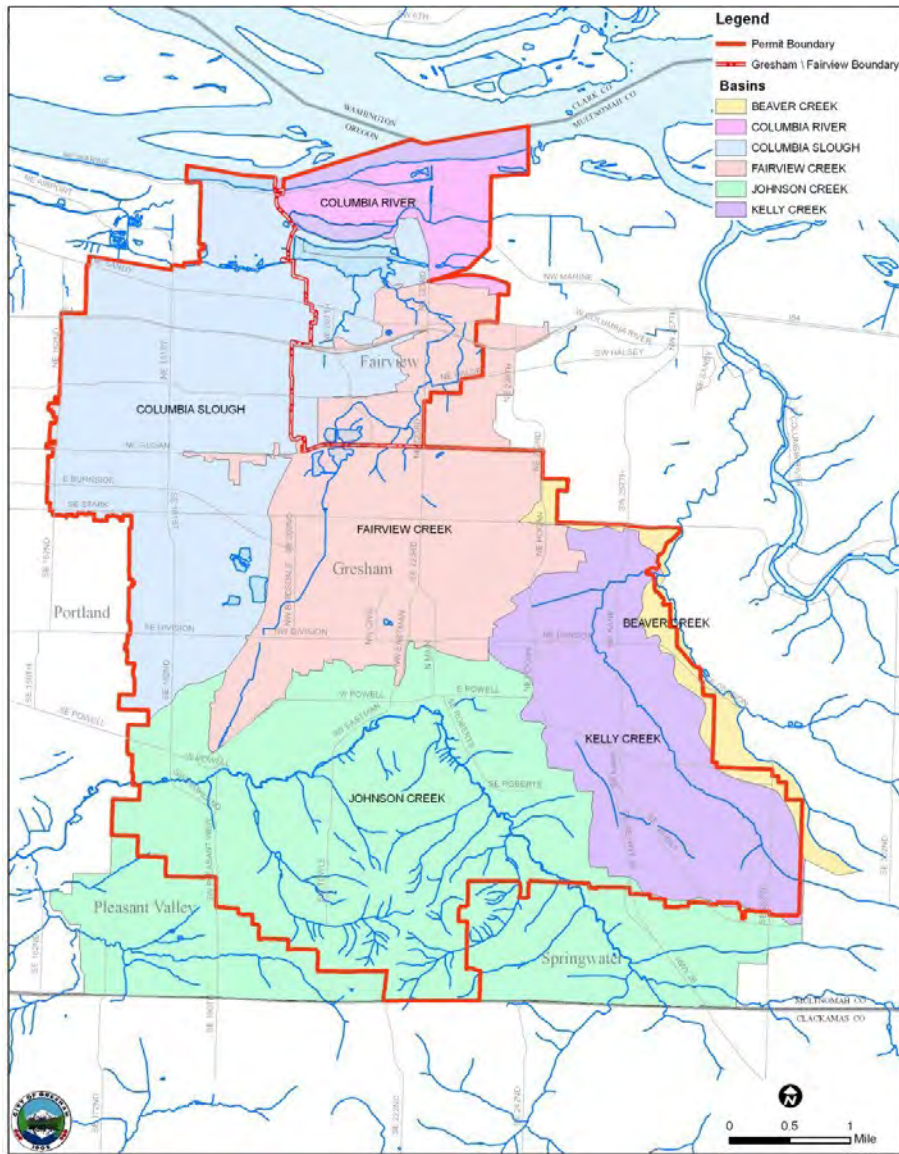


Figure 1.0 City of Fairview and City of Gresham Permit Areas

The City has a population of approximately 10,000 people. The Stormwater Program is managed out of the Public Works Department under the direction of the Public Works Director. This includes presentation of any associated intergovernmental agreement(s) (IGA) pertaining to the SWMP for approval by the Fairview City Council, and the implementation, as necessary, of all other pertinent documents referenced in this SWMP. The City Attorney works with City staff to ensure legal authority. Currently, and under approved IGAs, the City of Gresham performs water quality monitoring, spill response, and inspections for the wellhead protection program. Similarly, Multnomah County has an approved IGA to assure maintenance of county roads within the City and to perform street sweeping on City of Fairview streets. With respect to NPDES MS4 permit co-permittees, the City of Gresham acted as the lead permit applicant for the Gresham NPDES MS4 submittal in 1993, 1995, 2000, 2006, 2008 and 2015.

II. Description of Co-permittee Coordination Efforts

However, as of the 2010 NPDES MS4 permit reissuance, Multnomah County was issued its own permit and is no longer a co-permittee of the City of Gresham or the City of Fairview. A complete overview of the permit history may be found in **Section 1.0**. Although Gresham is the lead permit applicant, the co-permittees are responsible for development, implementation, and tracking of their jurisdictions' BMPs as well as submitting their respective annual reports to be collated with Gresham's annual compliance report and then submitted to DEQ. Gresham's responsibility is coordination of the program, communication with DEQ, and submittal of the annual report from each co-permittee. Costs associated with the implementation of the Environmental Monitoring Plan may be shared to meet watershed science objectives with Multnomah County and the City of Fairview using intergovernmental agreements (IGAs).

4.0 FAIRVIEWS'S STORMWATER MANAGEMENT PROGRAM ORGANIZATION

Effective program management is essential to guide Stormwater Management Plan (SWMP) development, implementation, administration, and continued assessment. The City has a management process that facilitates coordination between its departments, between co-permittees, and between the permittee and other organizations and agencies interested in stormwater quality.

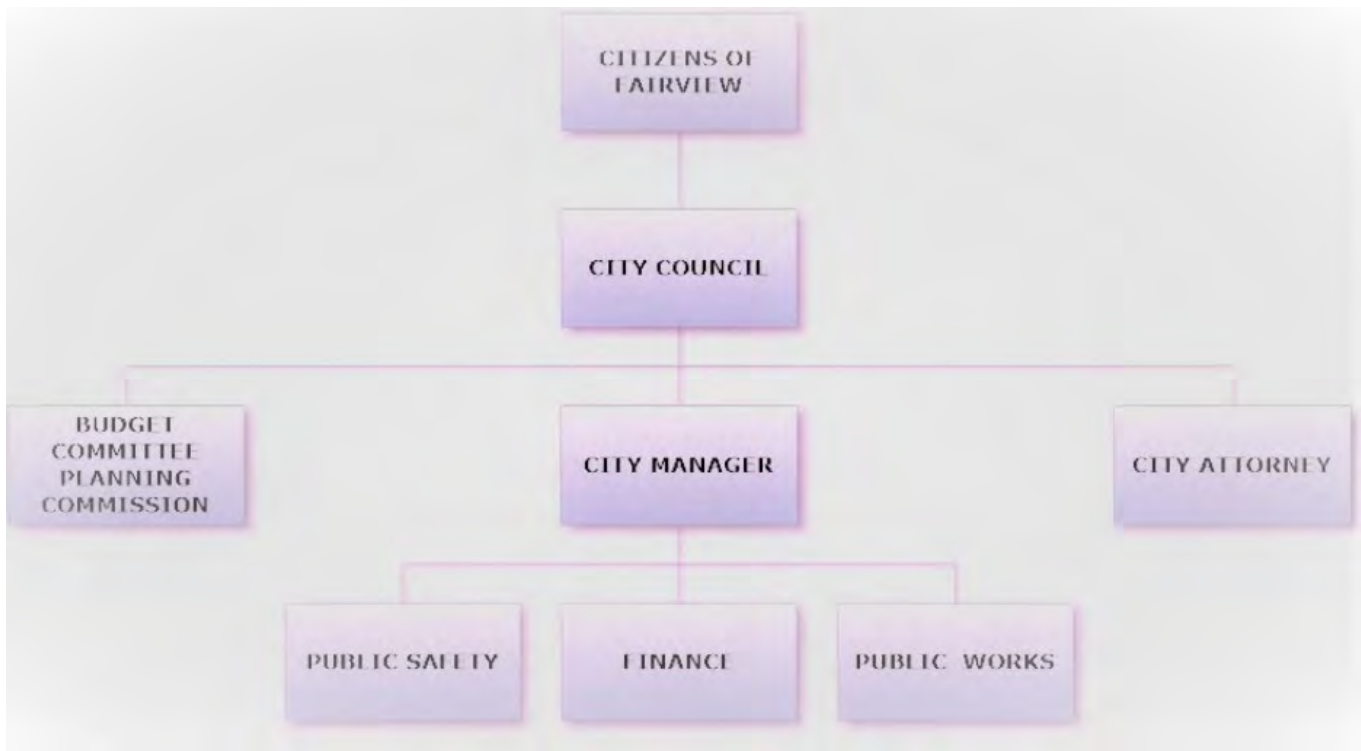


Figure 2.0 City Organizational Chart

Internal

The City is comprised of three departments— Finance, Administration, and Public Works— as shown in **Figure 2.0**. The Public Works Department has primary responsibility for implementation of the stormwater program and consists of fifteen people including the Director, Operations Manager, Lead Worker, Engineering Technician, Planning Manager, Parks Maintenance, Maintenance Workers, and Office Support Staff. The organizational chart is shown in **Figure 2.0**. The stormwater program staff list is included as **Figure 3.0**.

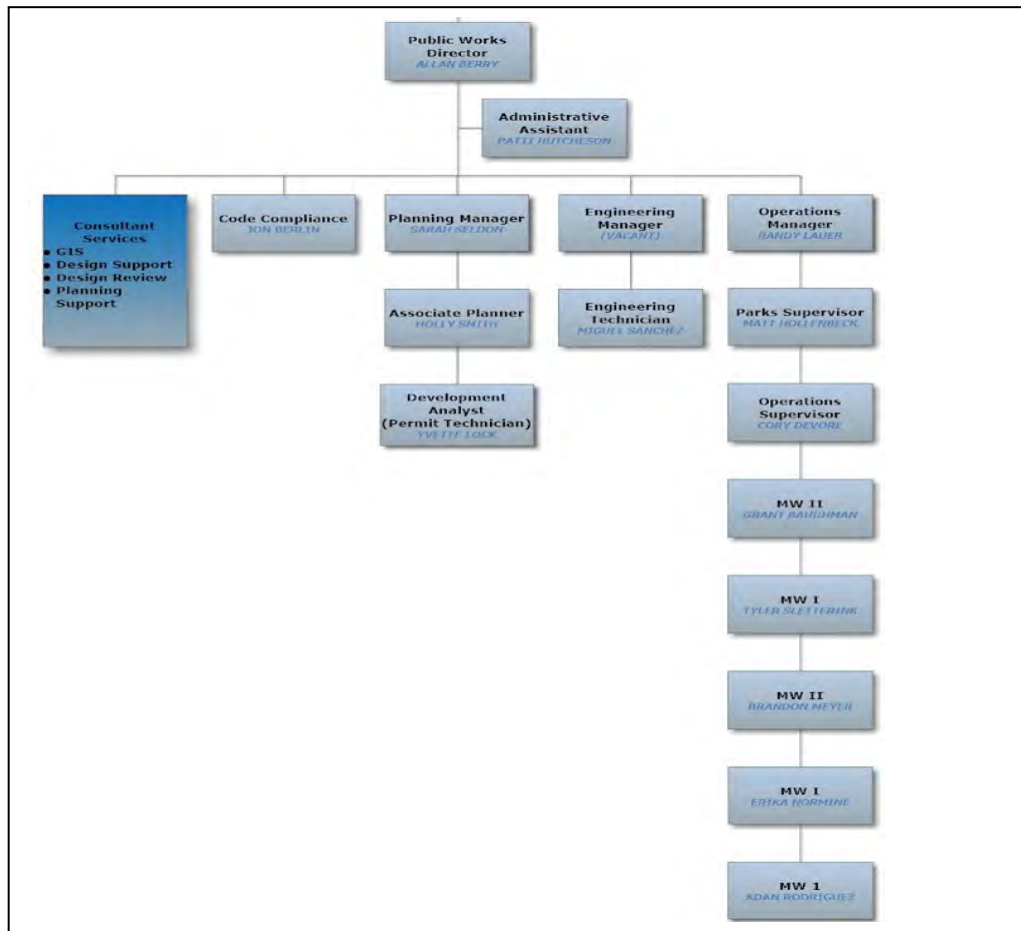


Figure 3.0 City Stormwater Program Staff

External

In addition to internal coordination, the City works together with outside jurisdictions on preparation of annual reports, permit renewal applications, and daily operations of the stormwater program.

Co-permittees. The City is a co-permittee with the City of Gresham. Gresham acts as the lead permittee and coordinates annual report submittals and the permit renewal application. The City also has intergovernmental agreements with Gresham for water quality monitoring and spill response.

Other Organizations. The City coordinates with Multnomah County for routine road maintenance within the city and street sweeping on city streets. Additionally, the City has partnerships with Metro for waste disposal and the City of Portland for its wellhead protection program that monitors and controls pollutants from industrial facilities.

Permit Reporting Requirements

The City is required to submit an annual system-wide report by November 1 of each year for the time period July 1 through June 30. The report is coordinated by the City of Gresham and contains the status of the stormwater program. In addition, every 5 years the City is required to submit a permit renewal application package that synthesizes the implementation and findings of the current permit cycle to support the proposed SWMP for the renewed permit.

Stormwater Operation and Maintenance (O&M)

The City has an ongoing stormwater maintenance program that is documented in its Stormwater O&M Manual. The maintenance program enhances stormwater and stream quality by removing excessive sediment, trash and debris. The manual provides basic procedures for common stormwater system maintenance activities that integrate water-quality friendly practices. The manual assists City personnel in performing proper maintenance of the system and also helps with the reporting and documentation of maintenance activities, observations, and citizen contact.

Illicit Discharge Detection and Elimination Program

The Illicit Discharge Detection and Elimination (IDDE) program is an important tool in reducing dry weather discharges that may contribute to pollutants. Illicit flows may come from many sources including sanitary wastewater, industrial and commercial discharges, failing septic systems and vehicle maintenance activities.

Columbia South Shore Well Field Wellhead Protection Program

In order to protect the City of Fairview and Portland’s groundwater reserves, the City of Portland Water Bureau works with the Cities of Fairview and Gresham, Portland Fire and Rescue, the Columbia Corridor Association and area businesses to protect water quality in the Columbia South Shore Well Field. The groundwater protection program is a regulatory program in place to protect the region’s groundwater supply from contamination from hazardous chemicals. The program has residual benefits to stormwater in terms of providing pollution prevention. Businesses are regulated in this area if they use over a certain quantity of chemicals of concern. Information on what chemicals are regulated, the quantities that are regulated and regulatory requirements can be found on the City of Portland website:

<http://www.portlandonline.com/water/groundwater>.

Regulations vary from structural best management practices to contain and prevent chemical spills to operational best management practices. There is also an inspection and reporting component to the program.

Consolidated Stormwater Master Plan

The City developed the Consolidated Stormwater Master Plan (CSMP) to combine all needed infrastructure improvements including retrofit opportunities along with federal and state water quality requirements for each project into one comprehensive document. 28 projects (8 of these on private properties or within Multnomah County right-of-way) were developed to address water quantity and quality issues, utilizing hydrologic and hydraulic modeling as well as information from the TMDL regulatory program and the NPDES stormwater discharge permit. The City uses this information for updating stormwater rates and system development charges.

Development Review

The City implements code regulations through its Public Works Department. New development and redevelopment projects are reviewed for conformance to the following existing City regulations:

- Fairview Comprehensive Plan, June 2004 – provides the guiding direction to protect the natural environment and ensure that long-term growth does not adversely affect the natural resources.
- Land Use and Building Permits – compels conformity to the State Building Code standards.
- Title 19, Development Code – guides the development and use of land in accordance with the Fairview Comprehensive Plan.
- Riparian Buffer Regulations – protects and regulates the City’s major water features of the Columbia River and the Fairview Creek Watershed: Fairview Creek, Osburn Creek, No Name Creek, Salmon Creek, Fairview Lake, Columbia Slough, and associated wetlands and riparian areas.
- Fairview Municipal Code Chapter 13 – regulates the operation and use of the water, sanitary sewer, and stormwater systems.
- City of Fairview Standard Specifications for Public Works Construction –establishes standard construction specifications for public and private transportation facilities and utilities consistent with the design standards of the development Code and application of engineering principles.
- [City of Gresham Stormwater Management Manual](#) – was adopted by the City of Fairview December 2, 2020, to provide developers and design professionals with specific requirements for reducing the impacts of increased stormwater runoff and pollution resulting from new development and redevelopment.
- City of Gresham Erosion Control Manual – was adopted by the City of Fairview on December 2, 2020, and describes regulations, standards, and provisions for erosion control.

5.0 Maximum Extent Practicable Determination

NPDES MS4 permittees must develop and implement a stormwater management program to reduce the discharge of pollutants to the maximum extent practicable (MEP). This program is designed and implemented to comply with City's NPDES MS4 (Stormwater) Permit No: 101315. The program elements and implementation goals are described in the Stormwater Management Plan (SWMP), and other procedures and policies are described within a variety of city documents and plans as referenced within the SWMP, where applicable. These program elements vary by permitted municipality because they take into consideration site-specific conditions and the City Council's and public approved budgets for City Divisions and programs that support this work amongst many other competing City needs such as Police and Fire services.

The City of Fairview developed and established the program that met MEP as part of their original 1993 permit application, which has become the foundation of the City's program since the Phase 1 NPDES MS4 permit was issued in 1995. The overall program has been continuously evaluated and adaptively managed based upon new data, technology, and/or program evaluation of individual best management practices with on-going oversight and approval from the Oregon Department of Environmental Quality. As such, this updated SWMP reflects the City's best professional judgment regarding resource allocation and optimization to reduce or eliminate the discharge of stormwater pollutants from the MS4 system based upon site-specific conditions and other factors as described further below.

The City of Fairview has used the following sequential processes to ensure its SWMP meets the MEP standard:

- I. The original development of the SWMP submitted with the 1993 permit application.
- II. The continual adaptive management process reported in annual reports and the following updates to the SWMP:
 - a. The SWMP review conducted for the 2000 permit renewal application.
 - b. The SWMP review conducted for the 2006 Interim Evaluation Report.
 - c. The SWMP review conducted for the 2008 permit renewal application.
 - d. The SWMP review conducted for the 2015 permit renewal application.
 - e. The SWMP review conducted in 2022 to comply with the October 2021 permit reissuance.

These processes are described below.

I. PERMIT APPLICATION (1993)

To comply with requirements set forth by the 1987 amendments to the Clean Water Act, the City of Gresham, and its co-permittees (City of Fairview, Multnomah County, and the Oregon Department of Transportation) submitted Part 1 of the NPDES MS4 permit application in May 1992, which contained a brief description of existing management programs implemented by the co-applicants. No comments were received from DEQ on this section of the Part 1 application; therefore, no adjustments were made.

The Part 2 application contained a SWMP that was designed to address the most critical existing storm water quality problems, as identified within the permit area. Gresham and co-permittees participated in workshops to define the problems and develop strategies to address them. Pollutants of concern were identified using a national literature search and from data collected locally by the City of Portland.

A public process was held to elicit the public's concerns, understanding, priorities and willingness to support a stormwater management program that included stormwater consultants, watershed committee representatives, developers, and a neighborhood association representative. One hundred and twenty candidate BMPs were identified, and selection criteria were developed in order to prioritize the BMPs based upon available and future projected resources to support their implementation. The factors included:

- a. Lifecycle costs
- b. Meets a regulatory requirement
- c. Addresses a pollutant of concern
- d. Ability to implement (included public acceptability and willingness to pay)
- e. Reliability/Sustainability

Based upon scoring criteria applied by committee representatives, the BMPs were narrowed to 45. Using professional feedback, detailed BMP fact sheets and another complete review by City staff and its co-permittees, the BMPs were narrowed to the 35 that were submitted and accepted in 1993.

II. ADAPTIVE MANAGEMENT

As described in the NPDES MS4 permit in Schedule B.2 and Schedule D, section D4. Adaptive Management, the City follows an annual adaptive management process to assess and modify, as necessary, program elements to achieve reductions in stormwater pollutants to the maximum extent practicable. This includes consideration of available technologies and practices; review of monitoring data generated by the implementation of this Plan and corresponding analysis of the data; review of SWMP measurable goals and tracking measures; and evaluation of City resources available to implement the technologies and practices.

To ensure the on-going effectiveness of the City's SWMP, the BMPs are evaluated annually during the preparation of the NPDES Annual Report to DEQ. The Annual Reports include the following:

- a. The status of implementing the components of the SWMP.
- b. Proposed changes to the SWMP components and/or newly proposed BMPs.

III. PERMIT RENEWAL SUBMITTAL (2000)

The City's NPDES MS4 Permit requires a permit renewal submittal to be completed 180 days prior to the permit's expiration. As such, the City's renewal submittal consisted of an updated SWMP with the rationale for the proposed changes. At this time, the Oregon Department of Transportation was removed as a co-permittee in order to receive its own permit.

During the permit renewal process, third party environmental groups expressed concern that the DEQ permit was not protective enough to ensure that creeks, streams, and rivers would eventually meet water quality standards. As a result, DEQ convened an advisory group to help determine

what water quality goals would be included in the new permits; a process that lasted over three years. In March 2004, the City's new permit was issued and later reconsidered as a result of a third-party appeal. The permit was reissued in 2005 and contained more specific requirements relating to the SWMP including:

- a. The establishment of performance measures aimed at assisting with SWMP evaluation,
- b. Estimates of pollutant load reductions based upon what is known about BMP effectiveness,
- c. The evaluation of progress towards meeting those estimates,
- d. The application of an adaptive management process until the estimates are projected to be achieved, and
- e. An overall evaluation of the SWMP.

IV. INTERIM EVALUATION REPORT (2006)

Because of the five-year delay between the 2000 permit renewal submittal and the reissuance of the next permit, DEQ required that the City and its co-permittees prepare an "Interim Evaluation Report" that included:

- a. A review of the City's estimated progress towards meeting the established Total Maximum Daily Loads for permitted streams,
- b. An analysis of the SWMPs ability to help reduce pollutants on the 303(d) List for permitted streams,
- c. A review of sources of non-stormwater discharges, and
- d. A review of the previously submitted SWMP and Monitoring Plan with proposed updates.

Related to this effort, the City of Gresham hired a consultant team with a national reputation for expertise in stormwater to assist in the review of its programs and the preparation of some of the documents listed above. The City contributed financially to the City of Gresham's consultant contract to review its stormwater program in concert with the City of Gresham's. The City also hired its own consultant to update its SWMP independent of Gresham's.

The City met MEP in 2006 by implementing the programs listed in the SWMP, complying with permit requirements, and implementing adaptive management, including an update to the 2000 SWMP. The SWMP underwent a public review process and adoption by City Council. Discussion of MEP can be found in the Executive Summary of the 2006 SWMP.

V. PERMIT RENEWAL SUBMITTAL (2008) and SUBSEQUENT SWMP UPDATES (2010 AND 2011)

As with the 2000 Permit Renewal Submittal, the City's 2008 submittal package was due 180 days prior (August 1, 2008) to the expiration of the NPDES MS4 permit (January 31, 2009). Prior to this renewal submittal, the City worked with DEQ and other Phase I NPDES municipalities to develop a standardized template for a process to make an MEP determination that included the following three factors:

- a. **Program Effectiveness:** Describe how your program continues to address pollutants of concern in MS4 discharges to local receiving waters.

- b. **Local Applicability:** Describe how your program continues to be appropriate for local conditions (climate, geology, hydrology, MS4 size, etc.).
- c. **Program Resources:** Describe how you continue to allocate program resources appropriately (e.g., current ability to finance the program, capacity to perform operation and maintenance, tax base, public acceptability).

The City's overall process to arrive at the proposed SWMP and Monitoring Plan is as follows:

- a. Internal reviews to optimize BMPs
- b. Review of technical information from external sources and monitoring data, including a formal literature search
- c. Review data collected by staff and knowledge of program effectiveness
- d. Discussion with other jurisdictions concerning best practices
- e. Consideration of fiscal constraints
- f. Input from the general public
- g. Deliberation by Council

From 2008 to 2010, DEQ received significant guidance and feedback from EPA related to stormwater management provisions that should be incorporated into reissued NPDES MS4 permits. Such guidance and feedback resulted in significant changes to the (anticipated) draft permit language that was used as a guide for the 2008 SWMP. The general process for subsequent (2010 and 2011) SWMP revisions, as a result of the changes in permit language is outlined below.

1. Participate in discussions with ACWA, DEQ, and other Phase I municipalities related to anticipated requirements of the new permit.
2. Prepare coordinated responses to DEQ on proposed permit language as part of ACWA and as a co-permittee with Gresham.
3. Review staff knowledge and data with respect to current program implementation and commitments outlined in the 2008 SWMP.
4. Update the 2008 SWMP to reflect requirements outlined in the April 2010 draft permit and submit the updated (2010) SWMP to DEQ.
5. Present the 2010 SWMP to City Council, highlighting new requirements and significant changes from the 2008 SWMP version.
6. In coordination with DEQ, issue the 2010 SWMP and draft permit for a 45-day public comment period.
7. Consult with DEQ related to permit language changes (and associated, required SWMP changes) as a result of public comments.
8. Following reissuance of the City's NPDES MS4 permit (December 30, 2010), modify the 2010 SWMP to reflect permit language changes resulting from public comments.
9. Present the (2011) SWMP to City Council, highlighting modifications to the 2010 SWMP as a result of public comment.
10. Submit the 2011 SWMP to DEQ in accordance with the compliance date specified in the reissued permit.

These above processes outline changes to the SWMP for the permit renewal submittal and for

The permit reissuance. The City's program and associated SWMP addresses MEP through consideration of program effectiveness, local applicability, and appropriate allocation of program resources.

VI. PERMIT RENEWAL SUBMITTAL (2015)

The following process was conducted for the 2015 SWMP update:

- a. Internal reviews to optimize BMPs
- b. Review of technical information from external sources and monitoring data and a literature search
- c. Review data collected by staff and knowledge of program effectiveness
- d. Discussion with other jurisdictions concerning best practices
- e. Consideration of fiscal constraints
- f. Input from the general public and specific stakeholders such as Watershed Councils.

The 2015 SWMP draft proposed only minor changes to the one previously adopted in 2011 and was released for public comment. In anticipation of an updated permit, the City limited the changes and plans to update the SWMP at a future date. The City considers this an administrative extension of the SWMP.

VII. 2022 SWMP UPDATE

The process for the plan presented here for public comment included:

- a. Internal discussions regarding best available technology, process, strategy and plans for the future given what is known via rate and budget forecasting
- b. Review and updates to Standard Operating Procedures
- c. Professional management and scientific discussions with other Phase I permitted agencies regarding best practices and scientific knowledge and approaches
- d. The City will post the documents for public comment from Nov 1st – Dec 1st, 2022 on its Stormwater webpage, include a notice in its, social media, and will advertise in the *Fairview Point Newsletter*.

6.0 SWMP REVISIONS AND RATIONALE FOR THOSE REVISIONS

I. Purpose

The purpose of this section is to summarize the 2022 updated SWMP and explain the rationale for the proposed changes.

The review and consideration of each of the BMPs effectiveness at the current rate of implementation consisted of the process described in **Section 5.0**.

II. Focus of the SWMP

The BMPs within the proposed draft SWMP are running smoothly and are considered current technology, scientifically relevant, industry accepted, and reflect best professional judgement as to what level of effort is a priority for making the biggest contribution towards water quality protection and enhancement. The changes proposed are based on creating more transparency related to specific permit requirements, a review of programs and processes, discussions and comparisons of various approaches utilized by other Phase I MS4 communities via the Association of Oregon Clean Water Agencies, as well as conversations with other community organizations

that implement nature and water related programming. Therefore, the primary elements of the City’s monitoring plan, and other BMPs outlined in this document will be continued, with updated milestones, as applicable.

Science data continues to reinforce that green infrastructure such as rain gardens are highly effective at removing many pollutants of concern including mercury, pesticides, bacteria, and other heavy metals. Thus, the stormwater program’s continued focus remains on infiltrating water into or through a soil matrix whenever feasible.

III. Proposed SWMP Revisions

General changes to the SWMP include the following:

- a. BMP descriptions, measurable goals and reporting metrics were reviewed and updated. Reporting metrics were calibrated to the most useful and available data from staff and program areas.
- b. Language has been clarified to reflect basic administrative changes within the City and over time as programs have evolved.
- c. Some historic BMPs reported historically are proposed to be removed because of the program’s maturity, they are simply built into our everyday actions and reporting does not represent any meaningful data for the public or DEQ.

Table 1.0 Rationale for Changes to Fairview’s Stormwater Management Plan

BMP or Task Name	Explanation of the Proposed Change
Appendix A	The City of Fairview changed its SWMP format to match Gresham’s Fairview’s BMP activities were transferred over.
Construction Inspection and Plan Review	BMP not previously reflected and is an important part of the O&M program hours and compliance assurance with Stormwater Manual Compliance
CCTV/Pipe Cleaning	Added these two BMP’s in combination to capture the cleaning of Pipes and CCTV activities.
Storm Drain Cleaning	Organized existing BMP’s to include only underground BMPS
Maintain Green Infrastructures	Organized existing BMP’s to include only surface BMPS
Proprietary Devices (grey)	This includes filter cartridges that are used in Oil Water Separator under City Ownership for tracking.
City Outreach	Replaced “Educational Activities” with “City Outreach” BMP name. The description remains the same.
Stormwater Management Manual	This is a BMP added to track any changes or updates proposed for the SWMP
Retrofit/Hydromodification Assessment Update	This is a new row added that will contain assessment and outcomes related to creation of previous reports.

7.0 CITY OF FAIRVIEW STORMWATER MANAGEMENT PLAN (SWMP)

I. SWMP Narrative

This section of the SWMP mirrors the organization and nomenclature of the permit and documents the program foundations and how they are designed to comply. Best Management Practices with commitments and timeframes will be included in **Appendix A**.

BMPs listed in Appendix A contains the following information:

Description

Measurable Goals***

Tracking Measures

Reporting Metrics

*The timeline for which the BMP will be initiated, implemented, or completed. “Ongoing” refers to an annual commitment to continue the BMP for the duration of the permit term.

***Measurable Goals include the reportable outcome that will be tracked, recorded, and reported in the annual report, such as street miles swept, debris removed, number of trees planted, number of persons reached, etc. Location is city-wide, unless otherwise noted.

II. Condition A.1 - AUTHORIZED DISCHARGES

Condition A.1.a Requirement to Reduce the Discharge of Pollutants: The City’s programs and services are designed based upon efficient use of available resources and scientific studies and empirical data regarding the effectiveness of pollutant removal. This process review constitutes the City’s Maximum Extent Practicable (MEP) determination as described in **Section 5.0**.

Condition A.1.b Water Quality Standards

The permit requires the City to notify *DEQ* if a stormwater discharge is causing or contributing to a water quality exceedance, based on *site specific* credible evidence. The City’s Environmental Monitoring Plan includes instream data that are compared to the State’s water quality standards. The instream monitoring data collection, analysis and response procedures are described in the City’s Environmental Monitoring Plan **Sections 3.8.3 and 6.8.2**.

1. Compliance Description

Analysis of stormwater data shows higher levels of heavy metals on major arterial roads compared to lower traffic streets. Arterial roads also occur in commercial and industrial zoned areas, and sources of the heavy metals include atmospheric deposition, building materials, outdoor storage, and vehicles. As such, these pollutants are ubiquitous in the environment and not specific to a point source that can be easily controlled. Programs that assist with the reduction of these pollutants include DEQ’s 1200Z permits for Industry, the Operation & Maintenance (O&M) programs to remove sediment from streets, catch basins and pipes. Related to instream monitoring, if the monitoring staff become aware that a sampling site has an unusually high amount of a specific pollutant, staff will conduct an upstream investigation as applicable to look for specific sources in the upstream drainage area and will report findings to DEQ.

Temporal or ongoing point source causes of stormwater pollution that the City considers illegal discharges include:

- A. Accidental spills
- B. Illicit connections to the stormwater system
- C. Illegal Dumping
- D. Construction run off of sediment laden water
- E. Certain “allowable” non-stormwater discharges that require BMPs to be legal per city policy/programs

The City maintains programs to address each of these illegal discharge concerns and a summary of these activities are included in the Annual Report to DEQ, as stated within the permit and are *not* subject to intermittent reporting.

- A. **Accidental Spills:** Historic point sources include spills at commercial or industrial sites or on the roadway from accidents or illegal dumping, as well as inadequate control of sediment laden runoff from agricultural or development sites upstream or within the city. The City maintains a cross-departmental and multi-agency spill response protocol to aid with cleanup and enforcement, as applicable.
- B. **Illicit connections:** occur typically by accident when a contractor doing work at an existing home or business connects to the stormwater pipe when they are intending to connect to wastewater. The city remedies this concern by conducting closed-circuit television (CCTV) video of its stormwater pipes. This activity is done to inspect, clean and repair pipes.
- C. **Illegal dumping:** examples include improper disposal of human or animal waste (bacteria), or improper handling and disposal of commercial or industrial wastewater, etc. The City maintains a dry weather season screening program that randomly inspects portions of the City’s system each year to look for water flowing in the stormwater pipes and find sources illegal discharge. Also, City staff respond to public reports of concern regarding suspected unusual releases that might harm local waterways.
- D. **Construction site runoff:** sediment laden runoff is prohibited by City code, and methods and requirements for controlling and preventing sediment from entering stormwater are defined in the City’s Erosion Prevention and Sediment Control (EPSC) Manual which is available on the City’s website. Sediment carries attached pollutants like pesticides and heavy metals to local waterways and have the potential to impact water quality. The City maintains an EPSC program consisting of an inspector who inspect sites and apply enforcement until sediment laden water is kept on site.

- E. *Prohibited non-stormwater discharges

Per Fairview Municipal Code 13.40, non-stormwater discharges are not comprised entirely of stormwater and must use best management practices to control or remove pollutants.

III. Schedule A. 2. CO-PERMITTEE'S RESPONSIBILITIES

A. Schedule A.2.a Coordination Among Other Public Entities & Joint Agreements

The city maintains IGAs with Gresham and Multnomah County and periodically meets to ensure its maps and procedures and systems of support are meeting each other's needs. The interjurisdictional map that illustrates inlets, pipe, and other asset ownership so that agencies can cross collaboration for spills is housed as an ARC GIS tool on the Multnomah County website: [Urban Drainage System Map of Multnomah County \(arcgis.com\)](http://arcgis.com)

B. Maintain Adequate Legal Authority

The City has maintained its authority to comply with the elements of the permit. A summary of its Code Compliance will be included in the Annual Report.

IV. Schedule A. 3. Stormwater Management Plan Control Measures

A. Schedule (A.3.a & A.3.b.) Public Education and Outreach/Public Involvement

1. City of Fairview's Education Strategy

The City's E&O strategy is supported with the following:

Stormwater – 1 staff

Columbia Slough Watershed Council – annual contract to provide education and outreach to schools, events, plantings, regional outreach committees, workshops.

Solid Waste & Sustainability – 1 staff– regional participation and outreach to local community

Water Staff – 1 staff–coordinates efforts between water conservation, management, and stormwater education

A mixture of approaches that communicate with the public regarding the importance of water conservation and protection are utilized including print, digital ads, television, social media, events, workshops, webinars and neighborhood or business community meetings. In total, the stormwater budget for the E&O program including contracts, material/supplies, translation, printing, advertising, interns or temporary workers and Natural Resource budget is approximately \$55K to 75K per year.

Key messages in the community include:

- a) Stormwater goes to streams untreated, unlike wastewater which is treated and released into the Columbia River
- b) Nothing but rain should go into a storm drain and even dirt is a pollutant
- c) Individuals contribute to pollution by littering, property maintenance, and using a vehicle
- d) Even though wastewater is treated, some types of household and business products are not removed by the processes at the wastewater treatment plant (WWTP), so we must use caution related to what we buy and what goes down the indoor drains
- e) Avoid and reduce the use of pesticides/quick release fertilizer to prevent runoff from lawns/landscaping
- f) Methods to manage stormwater on your property and create wildlife habitat
- g) Reporting erosion and illegal dumping

- h) Local events to learn and get involved in stream clean ups, DIY stormwater management and backyard wildlife habitat

The city partners with community organizations to deliver events and workshops including but not limited to:

- a) Watershed Councils/Soil & Water Conservation District
- b) Solve

The city partners with other agencies in the region, in the media shed, and statewide, including but not limited to:

- a) Regional Coalition for Clean Rivers and Streams (since 1995)
- b) Public Service Announcements on TV (formerly KOIN, now KPTV)

Key audiences include but are not limited to:

- a) K-12 youth in partnership with Watershed Councils or upon request by teachers
- b) Homeowners (managing stormwater on site)
- c) Apartments (recycling outreach)
- d) HOAs (maintenance of private stormwater facilities)
- e) Dog owners (Doggie bags at public parks)
- f) Car owners (car care best practices-via regional and KPTV)
- g) New development (importance of green infrastructure, low impact development)
- h) Private stormwater facility owners (facility management expectations/oversight)
- i) Construction site operators (Wet weather best practices outreach)

Information channels including but not limited to:

- a) City printed newsletter (direct mail)
- b) Watershed council newsletters and social media
- c) City social media (Next Door, Facebook, Twitter,)
- d) City website: Fairvieworegon.gov (With manuals, reports, education, code, maps, permits, complaint/spill/illegal dumping reporting, business licensing, staff contacts, etc.)

B. Condition A. 3. c. Illicit Discharge Detection & Elimination

The City coordinated with its boundary partners to create and maintain an online GIS map which includes the locations of outfalls with unique identifiers, conveyance system, stormwater facility types, locations, and watersheds. This allows for effective spill or illegal dumping response coordination across jurisdictions whose infrastructure may also be impacted.

1. Illicit Discharge Dry Weather Screening Map

Dry weather screening locations for the illicit discharge detection & elimination program are shown in **Figure 2** within the City's Monitoring Plan. **Figure 3** in the Monitoring Plan shows locations where groundwater has been historically detected at outfalls and the locations where samples reveal pollutant levels that recur above the program's action levels but the repeated investigations can only hypothesize a specific cause and has now been classified per the DEQ permit requirements as "chronic discharges."

2. Illicit Discharge Public Reporting & Investigation

As noted above in Schedule A. 1. Non-stormwater discharges are prohibited by Fairview Municipal Code Chapter 13.40.

Complaints from the public may be sent through the City's website or by phone call. Both systems allow for 24-hour recording and messages are checked Monday to Friday 8am to 5pm. The city's website features an after-hours non-emergency line which will contact the on-call utility staff for significant concerns after hours or on the weekend. Occasionally, concerns that come directly from DEQ are passed along to staff via phone or email and asked for a follow up. Occasionally reports about incidents occurring in other, adjacent, jurisdictions come to Fairview or vice versa or locations that are in Unincorporated Multnomah County. As soon as staff begin investigating and determine the issue is outside the authority or jurisdiction of the City, staff phone and/or email the other entity(ies) to respond.

Serious threats of pollutant with potential to or knowledge of entering the stormwater system or a stream are investigated as soon as possible either by Public Works staff almost always within the workday when the report was provided to staff.

The City has a Spill Response SOP that includes taking the details of a verbal or written concern and notifying the City's cross-coordinated department contacts via a Spill Response contact list email group. This initiates an investigation of applicable department staff and includes the goal of estimating reportable quantities that necessitate notifying the Oregon Emergency Response System (OERS). Staff will also contact other agencies/neighborhood jurisdiction spill control staff in order to loop them into the communication about investigation and/or cleanup, especially when there is a stream discoloration that may be seen and reported multiple times.

The City uses a proprietary database to record the location, estimated quantities, entities notified, contact information for the responsible party (if identified) and enforcement and/or cleanup actions taken. This allows for documenting the number of events per year and the associated outcomes and this BMP reporting is included in **Appendix A**.

C. Condition A. 3. d. Construction Site Runoff and Control

The Gresham Stormwater Management Manual prohibits erosion, sediment, and waste materials from leaving private property or entering the public system. This code applies to all construction sites that disturb 1,000 sq. ft. or more and is also enforced for any residential or business landscaping or other small unpermitted projects that staff become aware are causing a violation, such as those reported by the public or by other staff working throughout the city.

The City has adopted the City of Gresham Erosion Prevention and Sediment Control (EPSC) Manual which outlines minimum plan requirements for sites, the proper installation and maintenance of BMPs, and prohibits sediment laden water from discharging from a construction site. Construction sites disturbing more than one acre or are part of a common plan of development that will disturb one or more acres, are required to obtain a DEQ 1200-C permit.

For large sites, the operator must submit an EPSC plan to indicate where they will store building materials, waste materials, provide a washout station, construction entrance, and the types of BMPs to be utilized. For small sites, the City provides a checklist of elements that must be evaluated, signed, and controlled by the operator. The checklist is utilized by the City's inspector to ensure compliance. At any time, the City's plan or minimum checklist is not providing sufficient controls, the Inspector will require additional controls to be added until compliance is achieved. The inspection reports become the record of the modified checklist.

The City uses an electronic system for plan filing or are assisted by Permit Counter staff. Plans are filed and must be approved for compliance with the EPSC Manual prior to beginning construction. City staff consider potential impacts to water quality from a site's proposed activities and use their training and experience to approve onsite BMPs. However, EPSC controls do not always succeed as anticipated, and plans are updated with additional control requirements to attain compliance.

Once the plan is approved, the City inspects prior to clearing or grading of large sites. For single family home sites, BMPs are inspected and approved prior to foundation installation. Interim site inspection frequency varies by weather and activity and are outlined in the EPSC Manual and a final inspection that requires stabilization of all bare soil with permanent vegetation or mulch before a certificate of occupancy will be issued.

1. Inspection Documentation & Enforcement Procedures

The City's Municipal Code Chapter 16 references the Gresham EPSC Manual which describes the inspection & enforcement procedure. The escalating enforcement procedure is documented in Fairview Municipal Code Chapter 2.

2. Construction Site Inspection Training and Education

City of Fairview construction site inspectors attend an official training led by a CECSL professional company or agency to obtain their certification as defined by DEQ. CECSL requirements must be renewed every three years.

The EPSC Manual, Standard Operating Procedure, and Code can be found on the city website, fairvieworegon.gov. **Appendix A** contains the EPSC Program reporting metrics and timeframes to be included in the City's Annual Stormwater Report.

D. Schedule A. 3. e. Post-Construction Site Runoff for New Development and Redevelopment

This section summarizes the main elements of the manual that comply with i. – vi. of the Post-Construction requirement in the permit.

1. Ordinance and/or Other Regulatory Mechanism

In 2020, Fairview City Council adopted the Gresham Management Manual (SWMM). The manual became effective in December 2020.

2. Qualifying sites & Site-Specific Approach

- a. **Section 1** of the SWMM contains the details summarized here and are consistent with permit. a. All sites that will add or replace more than 1,000 square feet of impervious area must infiltrate stormwater as close to the impervious surface being treated, (roof, driveway, street, etc.) whenever feasible.

- b. The SWMM prioritizes the use of green infrastructure and using methods of flow control to mimic pre-development hydrology and sizing standards to manage quantity and quality
- c. The SWMM requires the maintenance of all privately owned stormwater facilities.

3. Prioritization of Low Impact Development & Green Infrastructure

The permit requires the City to update its strategy and standards to require the use of LID/GI design, planning, and engineering to minimize impervious surfaces and reduce the volume of runoff and discharge of pollutants in runoff caused by development. The City's SWMM document effective on December 2, 2020, meets this requirement.

4. Numeric Stormwater Retention Requirement

The numeric retention standard that must be met for development projects managing stormwater on-site is infiltration of the 10-year storm event.

Sites that are located on fill, with slopes >20% slope, with groundwater within 3 feet of ground surface, and on contaminated soils are not required to infiltrate, but instead must maximize filtration using vegetated facilities. The SWMM does allow "other facilities" to be proposed if site constraints, such as steep slopes or grade required to get flow in/out of a surface vegetated facility would make a green facility infeasible. When a filtration facility is allowed, the pollutant reduction requirement for stormwater treatment is 80 percent of the average annual runoff. The stormwater quality design storm is 1.2 inches during a 24-hour period, which is equivalent to 80% of the average annual rainfall in Fairview.

For facilities that cannot retain the 10-year storm event on-site, flow control is required to prevent stream channel erosion (also called hydromodification). The flow control thresholds set to prevent hydromodification are to have post-development peak runoff match or be lower than the pre-development flow rate targets – in Fairview that means matching the 5, 10, and 25-year storm peaks, with the 2-year post-development peak matching 50% of the pre-development 2-year, 24-hour flow rate peak.

5. Post-Construction Site Runoff Plan Review

The section summarizes the City's Plan Review process. Much of the procedure is detailed in the Stormwater Management Manual. Additional Plan Review Checklists for staff are included in **Appendix B**.

A. Plan Submittal

Plans for all development projects are submitted to the City through an online platform that allows electronic plan and document submittal. The software routes plan sets to all departments for review and sign off. Stormwater compliance is a required review step for erosion control plans for any site proposing disturbance of more than 1,000 square feet, and for permanent stormwater management controls/facilities on any development (which include both new and redevelopment project) of more than 1,000 square feet.

City plan review and approval will consider whether the following goals were considered in the proposed development:

- a) Ensure that the existing topography, tree canopy, riparian buffers and drainage conditions are considered before streets, parking lots, buildings, and other fabricated structures are constructed;
- b) Optimize site design and reduce or eliminate potential conflicts between planned development and required stormwater management systems;
- c) Reduce new impervious surfaces to minimize stormwater requirements;
- d) Integrate site attributes to mimic natural hydrology and preserve natural resources;
- e) Optimize multifunctional uses such as neighborhood greenways and wildlife habitat.

B. Review of Projects with Public Improvements

Development proposals that include public improvements such as sidewalks, street trees, connections to the City's stormwater pipes, etc., must go through the Engineering review process to ensure the Public Works standards are met and must submit a Stormwater Report for review and approval. The Engineering group then takes the lead on reviewing the submittal to determine if it meets the requirements outlined in the SWMM.

Components required in the Stormwater Report are detailed in **Section 2** of the SWMM and include a site plan showing the proposed stormwater facility(ies) and the calculations demonstrating that the sizing requirements in the SWMM are met. Any project proposing to manage stormwater with a facility that does not infiltrate using one of the facilities detailed in the SWMM must also submit a geotechnical report or other evidence demonstrating infeasibility. An Example Construction Plan Review Process and Associated Plan Review Checklists and Required Submittal Documents List are included in **Appendix B**. These documents are "living" as they are updated to reflect everchanging process needs, as such they represent a point in time for purposes of the permit compliance.

C. Review of Projects without Public Improvements

Smaller development projects that are not required to install public improvements (e.g., single-family residential projects that are not altering the street frontage, adding sidewalks, etc.) are able to obtain permits and submit their plans electronically to the Building Department. These permits trigger requirements in the SWMM include grading, erosion control and construction.

Development proposals that are incomplete (don't submit all of the required submittals) or are not deemed appropriate based on the facility design criteria listed in SWMM **Section 3.0** or the typical details in Appendix H of the SWMM are not approved and comments are provided to the applicant.

7. Long-Term Operations and Maintenance (O&M)

Fairview Municipal Code Chapter 13 is the legal authority for this requirement. Fairview's development intake process tracks the types of facilities being installed (both public and private) and are mapped by the City's GIS Department. This data entry is ongoing and QA/QC'd for use in

the City's required TMDL pollutant reduction benchmarks. Staff managing the Private Water Quality Facility Program maintain an SOP that describes the maintenance and inspection criteria, rationale, frequency, procedures, and inspection schedule. Staff tracks facility maintenance and documents compliance and enforcement, as applicable which ensures that facilities are functional and do not represent negative impacts to the City's stormwater system or streams.

Staff training includes the following approaches:

- a. reading the City's manuals and codes.
- b. professional erosion prevention and sediment control training

The City's Stormwater Manual is available at: fairvieworegon.gov/181/Stormwater-Services
Appendix A contains the Development program tracking metrics and timeframes that will be included in the City's Annual Stormwater Report.

E. Condition A. 3. f. Pollution Prevention and Good Housekeeping for Municipal Operations

1. **The City's Operations & Maintenance (O&M) Strategy** for publicly owned facilities is to map, photograph, and continuously evaluate data, processes, research, and technology as we become aware in order to adaptively manage the approach to ensuring the long-term performance and overall pollutant removal effectiveness of diverse types of stormwater assets.
2. **Inspection, Maintenance and Cleaning of the MS4** efforts are described in **Appendix A**.
3. **The City's O&M program includes proper disposal of materials.** All underground (grey) and above ground (green & grey) facilities are inspected and cleaned according to SOP thresholds to remove sediment or other debris and associated pollutants on a schedule intended to benefit the pollutant removal performance. Debris quantities are estimated by activity and materials are disposed and records are kept documenting these processes.

4. **Pollution Prevention in Facilities and Operations** (city properties and city assets)

Required permit elements are:

- A. & B. Operation and maintenance of public streets, roads, highways, bridges, and associated stormwater controls, ditches, and pipes. The City's operation and maintenance program related to these appurtenances are described in **Appendix A**.
- C. Control and minimization of the use of pesticides and fertilizers on City-owned/managed public land. The City's approach includes an Integrated Pest Management Plan that is described in **Appendix A**.
- D. Control or minimization of stormwater runoff from municipal facilities that treat, store or transport municipal waste, including yard waste, which are not covered under an NPDES permit.

- E. Control measures to limit or eliminate infiltration of seepage from municipal sanitary sewer system to the stormwater system. The City's sanitary operation & maintenance program is described in **Appendix A**.

5. Winter Operations and Maintenance Program

A. Winter Management Materials

The materials used for the City's winter road management program are stored at the operation's yard on Crestwood Street, and best practices are used to ensure safe storage, cleanup of any drips or spills, and inspection, repair, and calibration of operating equipment.

B. Winter Maintenance Strategy

The City's Winter Operations & Management Plan is overseen by the Public Works. A map of roads that are prioritized for plowing, deicing, sanding, etc. to maintain public safety and a synopsis of the road strategy is on the City's website. The Winter Plan is linked on the page with the SWMP (stormwater documents).

6. Requirements for Pesticide and Fertilizer Applications

The City's pesticides and fertilizers are stored at the Operations facility on Crestwood Street and are checked annually to ensure their packaging is not leaking or stored or labeled improperly. City staff using chemicals are given training that enables comprehension of instructions with regard to weather, personal protection, environmental risks, application guidelines, and proper rinsing and disposal of rinsate. Leftover chemicals no longer in use are disposed of as hazardous waste, as required by law. **Appendix A** contains the Integrated Pest Management Plan metrics and timeframes for inclusion in the City's Annual Stormwater Report.

7. Litter Control

Under the terms of an IGA, Multnomah County city-wide street sweeping and Public Works cleans publicly owned storm drains. The City partners with community organizations such as SOLVE, and watershed councils, and volunteers to offer public events that result in litter being removed from public land. **Appendix A** Education & Outreach program describes activities and metrics that will be included in the City's Annual Stormwater Report.

8. Materials Disposal

Appendix A describes the City's management of materials collected via its O&M program activities and lists the metrics for inclusion in the City's Annual Stormwater Report.

9. Flood Control, Transportation, and Other Infrastructure

The City's Stormwater Management Manual describes the application of stormwater design standards for the City's projects. Since the 2011 SWMP's implementation, the City

has evaluated its flood control projects for the ability to also reduce stormwater pollution and will continue to do so.

10. Operations & Maintenance Staff Training

Public Works staff are trained in a variety of ways. Knowledge is shared from long term staff to new staff regarding standard operating procedures for determining how to determine when specific stormwater facilities need to be maintained is one example. Staff also attend short schools with sessions that aid their knowledge and networking across agencies to compare experiences and lessons learned. **Appendix A** contains the metrics and timeframes for training efforts that will be included in the City's Annual Stormwater Report.

11. Tracking and Assessment

Appendix A contains the metrics and time frames for municipal operations pollution prevention efforts that will be included in the City's Annual Stormwater Report.

F. Condition A. 3. g. Industrial and Commercial Facilities if. Screening for Industrial Stormwater Permitting

The City has a business license requirement for firms located within or doing business within the City of Fairview. The exception is commercial and residential contractors and landscapers who are regionally licensed by Metro and are regulated by the City's erosion control program. The City's permit staff who intake applications for business licenses, refer the applications to the Public Works Staff for review and inclusion in either program's business inspection program, or if the business may need to be referred to DEQ for 1200Z Industrial permit evaluation. Once a year, a complete business list will be exported and evaluated as part of QA/QC procedure for the City's ongoing Business Inspection Program database. This QA/QC will act as another opportunity to review the 1200Z permitted industries (whose permits may have been issued for the first time within that year or have been reissued) and determine if any potential DEQ referrals may be needed based on updated inspection information.

G. Condition A. 3. h. Infrastructure Retrofit and Hydromodification Assessment Update

Appendix A includes the metrics and timeframe for complying with Schedule A. h. i. (A)–(E) and will be included in the City's Stormwater Annual Report.

H. Schedule B -Monitoring and Reporting Requirements

The City of Fairview has an Environmental Monitoring Plan (EMP) that is complimentary to this Stormwater Management Plan. The EMP has been updated to meet the permit requirements

included in Schedule B 1. **Appendix A** describes the EMP compliance evaluation and elements that will be described in the City's Stormwater Annual Report, as well as the future required documents and analyses for the next Permit Renewal Submittal.

I. Schedule D. -Special Conditions

1. Maintain **Legal Authority** to implement and enforce provisions of this permit.
2. **303 (d) Listed Pollutants** from the 2018/2020 DEQ Integrated Stream Assessment Report will be evaluated as required for the City's Permit Renewal Application which is due 180 days prior to the permit's expiration date.
3. **Total Maximum Daily Loads (TMDLs)**

The City has established a mature stormwater program that has been adaptively managed since its 1998 development. BMPs have been evaluated related to their ability to reduce TMDL pollutants and other pollutants of concern related to both those dissolved in water or those that move thru soil or attach to sediment particles. The level of activities selected have been optimized within the City's staffing and financial resources to achieve the best outcomes related to reducing these pollutants to the maximum extent practicable. **Appendix A.** includes the BMP descriptions and reporting metrics and includes activities to achieve compliance with the Willamette Basin mercury TMDL issued in Feb 2021.

A. Schedule D. 3. b. Mercury Minimization Assessment

1. Permit Requirement:

Schedule D.3.b. Willamette Basin Mercury TMDL

Each co-permittee is responsible for the applicable WLAs included in the Total Maximum Daily Load (TMDL) for Mercury in the Willamette Basin and the implementation requirements associated Water Quality Management Plan issued by EPA on December 30, 2019 and reissued with modification on February 4, 2021. These requirements include:

- i. Develop and submit a mercury minimization assessment with the annual report due November 1, 2022, that documents the current actions, such as BMPs implemented, that reduce the amount of solids discharged into and from the permitted MS4 system (similar to the actions currently required in Schedule A). If the assessment indicates that mercury and sediment reducing BMPs are fully incorporated into the SWMP Document, a report documenting the results as such is sufficient.*
- ii. Continued implementation of the BMPs and other actions described in the mercury minimization assessment that are effective for mercury reduction, along with documentation of implementation in each subsequent annual report.*

2. Sources and Risk

Mercury in the aquatic food chain is a significant risk to humans because it magnifies in fish tissue as it moves up the food chain and is a widely distributed problem throughout North America. In the Willamette basin, a TMDL was developed for mercury in order to develop fish consumption advisories.

According to the U.S. Environmental Protection Agency, the primary source of mercury in our waterways is atmospheric deposition from the burning of fossil fuels. Other significant sources include volcanic eruptions, wildfires, mining, industrial metal, and concrete production. The City's stormwater monitoring measures total mercury which acts as a proxy for Hg²⁺ which can react with organic compounds in the water and/or historically deposited sediment that is holding

mercury and then potentially converted to methylmercury (MeHg) by organisms and sunlight. Lower oxygen levels in freshwater contribute to the conversion.

3. Stormwater Transport and Treatment

Stormwater runoff is the primary pathway by which aerially deposited mercury in the urban environment reaches aquatic systems via public and private pipes and overland flows. The City's BMPs within its SWMP such as, soil stabilization projects, erosion control program, sediment removal activities, and use of green infrastructure, lowers levels of total mercury in stormwater, which reduces the potential mercury that could be converted to MeHg.

The goal of stormwater BMPs is to reduce the load of mercury to receiving waters. BMPs that infiltrate and prevent sediment movement reduce the mercury load in absolute terms, thereby reducing the potential for methylation in the environment (streams and wetlands). Mercury binds strongly to sulfur-containing organic ligands such as weathered plant material so that mercury that reaches biologically active soils tends to be well-sequestered (i.e., less bioavailable for methylation). Therefore, other than infiltration devices, sediment trapping BMPs are most effective for reducing mercury loads.

4. SWMP Strategies

The City's SWMP focuses on preventing the movement of sediment and the removal of accumulated sediment prior to entering streams. In particular, stormwater facilities will help sequester mercury in upland soil or subsurface environments. Structural stormwater BMPs that are most effective at reducing mercury loads include the following characteristics:

- a. Prioritize retention. When retention is not feasible, prioritize extended detention to maximize the contact time for dissolved mercury to adsorb to particulates.
- b. Trap sediment (particularly fine sediment) for alternative disposal.
- c. Reduce flow volumes to allow mercury to incorporate into the soil matrix
- d. Aerobic conditions that limit methylation.
- e. Design avoids the remobilization of sediment and mercury.

5. Removal Evaluation

Effectiveness of stormwater BMPs in reducing mercury loads has not been quantified adequately to calculate pollutant load reduction benchmarks. Therefore, Fairview's revised monitoring plan has included mercury in the suite of parameters for analysis to inform future local knowledge regarding the levels and sources of mercury in stormwater and the removal efficiency by structural stormwater controls. The results of this monitoring, as well as evaluations of non-structural BMPs, will be used to re-evaluate the SWMP with respect to mercury for the next permit term. BMPs that Fairview currently implements that can be effective at reducing mercury loads include:

- a. Encourage LID practices
- b. Illicit discharge detection and elimination
- c. Maintain public streets by sweeping, other activities
- d. Reduce/limit sanitary sewer discharges and/or infiltration into the storm system
- e. Maintain the MS4 system

- f. Promote construction-phase erosion and sediment control
- g. Implement public education programs to promote improved stormwater quality
- h. Require stormwater treatment for new and redeveloped areas
- i. Inspect and maintain stormwater facilities to remove accumulated sediment and vegetation

6. Conclusion

The overall SWMP Plan and BMP activities research and review regarding the prevention and control of mercury did not reveal any innovative technologies or programs to add to the SWMP at this time. The City's Environmental Monitoring Plan has been updated to comply with mercury monitoring requirements.

Appendix A

Stormwater Program Best Management Practices, Metrics, and Reporting

Appendix A: Stormwater BMP, Metrics and Reporting

City of Fairview Stormwater Management Plan (2022-2026)

Stormwater Assets Maintenance Program (SMP) A-C.				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. CC/TV/Pipe Cleaning	The City's stormwater system currently consists of approximately 13.6 miles of pipes that drain to both surface and groundwater. The City inspects a portion of its existing pipes each year for assets management that record the condition and repair needs in the near and long term. Pipes are cleaned to remove excessive buildup, if the SOP threshold for cleaning is met.	Inspect 1 - 2 miles, clean if SOP threshold is met	Inspect: annually/ongoing Cleaning projected to be an average of 1-2 miles over permit cycle	
B. Storm Drain Cleaning	The City's stormwater system currently consists of approximately 490 stormdrains that drain to both surface and groundwater. Arterial drains are priority due to higher pollutant loads than lower traffic streets and residential are also a priority due to potential for clogging and minor flooding. Inspection of all drains is a goal, but due to parked cars (even after notices are given) 100% is not attainable. Studies have shown that drains tend to remobilize trapped sediment once 2/3 or more full, and at this time is the City's SOP cleaning threshold. Typically, the City cleans all drains regardless of reaching the threshold, which is a higher performance standard. The range quoted allows flexibility in work load shifting to address other significant water quality facility rehabilitation activities in the future, as needed, while still meeting objectives over the permit cycle. • Outfalls: 38 total (9 High Priority Outfalls) • Underground Injection Control Facilities (UICs) / Sumps and Sedimentation Manholes: 3 total • Flow Control Manholes: 4 total • Vortex Manholes: 3 total • Trash Racks: 3 total • Weir: 1 total • Oil Water Separator: 1 total • Storm Cartridges/Filters: 2 total • Detention Pipelines	Inspect 50 percent of outfalls. Clean catch basins and inspect adjacent pipes in one third of the City annually. Clean all water quality manholes (5). Update maps of City Structural Stormwater Facilities.	Track facilities inspected and maintained. Track number of catch basins cleaned. Estimate quantity of sediment removed from catch basins and water quality manholes.	
C. Maintain Green Infrastructure	Inspect and maintain vegetated facilities. It is important to note that vegetated facilities require the control of noxious weeds as well as thinning, pruning, plant replacement, in addition to sediment removal. Plant removal over time is beneficial, as some plants uptake pollutants in their roots and leaves. There are 5 neighborhood ponds that require sediment removal based on capacity for accumulation (varies from 5-12 year lifecycle). Perform inspection and required maintenance as stated in the O&M Plan—clean stormwater detention basins in areas where sediment and/or debris tend to accumulate. Lastly, a smaller portion of annual hours are utilized for bio-filtration swales, stream vegetation/woody debris support work. • Rain Gardens: 4 total • Detention Ponds: 5 total • Natural Streams • Bio-filtration Swales	Inspect 50 percent of ponds, swales and ditches. Inspect natural stream channels from bridge and road crossing. Maintain vegetation and control weeds using Integrated Pest Management techniques. Update maps of City Structural Stormwater Facilities.	Track facilities inspected and maintained. Estimate quantity of sediment removed from pond, swales and ditches. Annually/ongoing	

City of Fairview Stormwater Management Plan (2022-2026)

Stormwater Assets Maintenance Program (SMP) A-I.				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. Proprietary Devices (grey)	There are 1 Proprietary Devices with multiple filter cartridges (varies 1-12 per device) which are maintained at the frequency recommended by the manufacturer.	Inspect 100% of Proprietary Devices Clean based on Manufacturers threshold recommendation.	Annual inspection, cleaning typically includes Sediment removal from about 1 proprietary devices annually	
B. Spills, Illicit Discharge Investigation, Emergency Response	Investigate and/or assist with spill response, illicit discharge concerns, emergency stormwater controls for other department assistance, natural disaster response (flooding, downed trees, etc.)	Follow City Spill Response and Illicit Discharge Investigation procedures Conduct Spill Response all Department training and procedure review twice during the permit cycle	annually/ongoing	
C. Illicit Discharge Enforcement	Implement City code sections 13.40.050 and 13.40.110: <ul style="list-style-type: none"> City code section 13.40.050 prohibits constructing, using, maintaining, or continuing an illicit connection to the storm drain system. City code section 13.40.110 discusses enforcement actions for failing to comply with control of non-stormwater discharge. The penalty for a first violation is \$250. A penalty of \$1,000 may be imposed for each subsequent failure to comply and each day of a continuing violation shall constitute a separate offense. <p>The City may order compliance by written notice that includes performance of monitoring, analysis, and reporting; elimination of illicit connections or discharges; abatement or remediation; payment of fines; and implementation of source control or treatment BMPs. The public works director may also exercise authority to enforce a construction permit or NPDES permit through a stop work order if necessary.</p>	For identified illicit discharges conduct appropriate enforcement actions.	Track number, location and resolution of enforcement actions.	
D. Illicit Discharge Field Screening Procedures	Conduct dry weather inspections of accessible outfalls following the procedure in the Stormwater Operation and Maintenance (O&M) Manual to search for, detect, and prevent illegal dumping of pollutants and illicit connections (including connections from sanitary sewers and commercial and/or industrial wastewater sewers) to the storm sewer system. Any dry weather flows identified will be reported to the public works department. Annually update maps as necessary to indicate field screening locations.	Inspect accessible outfalls annually. Maintain maps of outfall inspection locations.	Track number and percent of outfalls inspected.	
E. Illicit Discharge Investigation Procedures	Implement follow-up actions on a prioritized basis when problems are reported to the public works department. Follow up actions may include sampling for pH, dissolved oxygen, temperature, conductivity, ammonia, and total chlorine. If elevated results or poor water quality are detected, additional samples could be collected for lab analysis. If screening results indicate a potential problem, staff will conduct upstream investigations. The City will revise and document standard operating procedures to address new permit requirements and to document and update the details of the illicit discharge field screening and investigation procedures by June 30, 2012.	Annually review and update Illicit Discharge and Investigation Procedures related to mapping, enforcement response and pollutant parameter action levels. Respond to illicit discharges within 5 days of source identification..	Track number and type of problems reported, and track problem resolutions. Track status of revisions to procedures.	

City of Fairview Stormwater Management Plan (2022-2026)

Stormwater Assets Maintenance Program (SMP) A-I.				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
F. Spill Prevention	<p>Wellhead Protection Program. The wellhead protection program serves to prevent spills and illegal dumping. The City will work to maintain its existing agreement with the City of Gresham for wellhead inspection in the Columbia South Shore Well Field Wellhead Protection Area and continue to implement wellhead protection throughout Fairview for the protection of groundwater. This program is included here because of its residual benefits to stormwater.</p> <p>Wellhead Protection - Intergovernmental Agreement. The City of Gresham and the City of Portland entered into an intergovernmental agreement for the implementation of the Columbia South Shore Well Field Wellhead Protection Program in 2003 (City of Gresham contract number 1609). This agreement provides protection of the Columbia South Shore Well Field Wellhead Protection Area lying within Gresham and Fairview from contamination by hazardous substances generated at industrial and commercial facilities.</p>	Coordinate with the City of Gresham to conduct inspections once during the permit term of all businesses with regulated quantities of hazardous materials in the well field.	Track the number of inspections conducted.	
	<p>Fairview has adopted Ordinance #12-2002 to protect the Columbia South Shore Well Field Wellhead Protection Area from contamination by hazardous substances by establishing an inspection and enforcement program governing the utilization, storage and transportation of hazardous materials in Fairview's portion of the Columbia South Shore Well Field Wellhead Protection Area.</p> <p>A wellhead inspection is performed at commercial and industrial facilities by the City of Gresham. The entire city, except for a residential area, high school and park, is included in the wellhead protection program.</p> <p>Fairview, Gresham and Portland Staff meet at least annually to discuss any changes to code provisions and any rules promulgated thereunder by either party. Wellhead Protection - City Code and Reference Manual.</p>			
	Wellhead protection is discussed in City code chapter 16.10. A wellhead protection program reference manual has been developed that establishes the wellhead protection boundaries. The code also includes requirements for reporting, standards, and inspections related to the storage, handling, use and transportation of hazardous materials; penalties for violations and enforcement actions; compliance requirements; building and site permit review and approval requirements; and inspection fees.			
G. Spill Clean-up	<p>Maintain agreement with the City of Gresham Fire Department for clean-up after structural fires and vehicular accidents to prevent pollutants and debris from being washed into the storm drain system.</p> <p>When there is a hazardous spill or a spill of any other substance that:</p> <ul style="list-style-type: none"> • Is hazardous in any quantity • Is non-hazardous and greater than 42 gallons on the ground • Or is any quantity that has entered a waterway or a dry well. <p>The City of Gresham Fire Department staff notifies the Oregon Emergency Response System (OERS). OERS then notifies the Oregon Department of Environmental Quality (DEQ) and other state and local agencies that may be affected. The responsible party, if identified, is required to contact an environmental clean-up company and pay for clean-up costs. Examples could include spillage of a 55-gallon-drum of restaurant grease or sanitary sewer overflows on private property, resulting in or having the risk of resulting in, discharges to the public stormwater system. DEQ remains the enforcement authority in these cases. DEQ may choose to enforce against the responsible party under the following conditions: 1) the party has acted maliciously; 2) the party is a repeat offender; or 3) the party has failed to report the incident to DEQ.</p>	Maintain agreement with City of Gresham Fire Department. Investigate spills and provide emergency containment and clean-up as necessary.	Track spill locations, type of materials and response activities.	
	<p>Non-Hazardous Substances</p> <p>Public Works staff will investigate and provide emergency containment and clean-up as necessary. If the responsible party can be identified, he or she is directed to provide containment and site clean-up. If the spill is an imminent threat to waters of the state, the City reserves the right to provide clean-up and bill the responsible party for the work. The responsible party will be invoiced for any response and clean-up provided by the City. Examples include spills or dumping of paint, auto fluids, carpet cleaning wastes or concrete, etc. into catch basins or onto the street.</p> <p>In non-emergency situations, such as dumping of debris on private property near a stream bank, Public Works staff will notify the responsible party, verbally and in writing, and specify a timeframe for clean-up. Staff will refer the incident to Code Enforcement if the responsible party does not respond within the specified time frame. Code enforcement has the authority to issue Abatement Procedures, Violations or Civil Actions.</p>			
	<p>Releases from Traffic Accidents If there is a spill of automotive fluids resulting from a traffic accident, the Gresham Fire Department will spread an absorbent compound (usually clay) and specialized absorbent pads on automotive fluids. Buckets are placed underneath dripping fluids. The road is swept and cleaned and, when necessary, additional protection is placed around the catch basins. Large leaking spills from commercial vehicles or semi-trucks are captured using a children's plastic pool. From a legal standpoint, the generator of the spill is responsible; therefore the waste materials are bagged and placed inside the wrecked vehicle or given to the tow truck driver for disposal.</p> <p>The City will perform the clean-up or utilize private clean-up contractors in order to continue the spill response program, when no responsible party can be identified.</p>			

City of Fairview Stormwater Management Plan (2022-2026)

Stormwater Assets Maintenance Program (SMP) A-I.				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
H. Construction Site Inspections	The City currently reviews plans and inspects construction sites required to meet the City's erosion control standards using the following procedures: 1. Visit every site over 1 acre after the first significant rainfall event and periodically thereafter. If time is limited, the City prioritizes inspections by visiting problem sites first, then visiting facilities that would have the highest environmental effect if the erosion control failed.	Inspect all construction sites required to meet City erosion control standards. Make the Erosion Prevention & Sediment Control (EPSC) manual available online. Annually review code provisions.	Track the number of sites that were permitted and inspected. Report the number and type of enforcement actions.	
I. Good Housekeeping: O&M Yard	The City has one facility that includes the treatment, storage or transport of municipal waste. This facility is the Corporation Yard Dumpster. Collection of waste from municipal litter receptacles is collected and stored in a dumpster at this site until the City's garbage hauler collects the waste on a weekly basis. The dumpster has a cover on it and runoff from the site is treated by a structural stormwater filter. No additional stormwater management practices are deemed necessary for this site. Update SWPPPs for two municipal facilities and conduct annual inspections.	Annually inspect two municipal facilities (Crestwood and Public Works Shop)	annually/ongoing	
Public Land Management (PLM A-E)				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. Consolidated Stormwater Master Plan (CSMP)	The Consolidated Stormwater Master Plan (CSMP) adopted in 2007 combines infrastructure improvements including retrofit opportunities with federal and state water quality requirements. Projects were developed to address water quantity and quality issues, utilizing hydrologic and hydraulic modeling as well as information from the TMDL regulatory program and the NPDES stormwater discharge permit.	Continue to make progress in the implementation of the CSMP. Update CSMP within one year of permit issuance.	Track the number, type and watershed location of projects that are completed.	
B. Integrated Pest Management	The City encourages use of the Portland Parks and Recreation Pest Management Guide. This guide emphasizes controlling pests that are harmful to the health or aesthetic value of park plantings in a manner that is cost-effective, safe, and environmentally responsible. It is an approach that uses multi-faceted strategies that minimize negative impacts on the environment and on human health. The controls used in this program include manual, mechanical, cultural, biological and chemical methods. Often a combination of methods is used. Examples of Integrated Pest Management include: <ul style="list-style-type: none"> • Timing of chemical applications to avoid runoff. • Mowing high grass and brush to reduce weed seed crops in rough areas. • Pruning of trees and shrubs to increase air circulation to reduce susceptibility to disease and insect problems. • Appropriate fertilizing to encourage plant health and resistance to pests (i.e., weeds, insects and disease). • Using plants with natural resistance to pests. • Combining turf aeration and over-seeding along with any application of broadleaf weed control to eliminate the cause of the problem, and therefore the need for repeated applications. 		Track City planting projects that incorporate native plants.	
C. Chemical Applicator Licensing	Maintain staff certification in public pesticide application and follow Oregon Department of Agriculture (ODA) requirements related to herbicide application.	All chemical applications will be supervised by an ODA Certified Applicator.	N/A	
D. Native Vegetation	Encourage the use of native vegetation in riparian areas on private and public property to reduce the need for fertilizers, pesticides, and herbicides. Planting and landscape policies for riparian buffer areas encourage use of vegetation (indigenous or imported) that is self-sustainable without the need for pesticides or herbicides. Riparian buffer permits are issued for alterations to the landscape within 50 feet of Fairview Creek, Fairview Lake, the Columbia Slough and their tributaries (City code chapter 19.106).	Review planting plans associated with riparian buffer permits.	Track number of riparian buffer permits.	
E. Design Standards for Public Projects	Follow the Standard Specifications for Public Works Construction which requires treatment of stormwater runoff through the use of BMPs. Maintain database of BMPs that are implemented.	Ensure that public works stormwater related projects address treatment of runoff as appropriate.	Number and type of public stormwater quality BMPs built.	

City of Fairview Stormwater Management Plan (2022-2026)

Pollution Prevention from City Activities (PPCA A-1)				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. O&M for Public Roads, bridges: sweeping	The City contracts with Multnomah County for street sweeping (approximately 6 times per year). The frequency is based on weather conditions, road conditions and funding.	Maintain contract with Multnomah County.	Track frequency of sweepings.	
B. O&M for Public Roads, bridges: deicing	Sand and gravel are applied to roadway surfaces to assist with traction during inclement weather. The sand is removed and recycled as soon as possible after the snow or ice event. Yard debris is picked up from residents weekly by the City's solid waste provider. The Winter Road Operating Plan is available on the City's website.	As weather permits, remove gravel when it is no longer needed.	Track processes conducted for sand and gravel removal.	
C. Right of Way – O&M	The City contracts with Multnomah County for road maintenance that includes roadside mowing, brushing and pavement maintenance. The maintenance program is substantially similar to, and at least as protective as, the ODOT Routine Road Maintenance program approved under the current 4(d) limit.	Maintain contract with Multnomah County for road maintenance.	N/A	
D. Water Line Flushing	The City periodically flushes all public water lines to ensure the reliability and quality of the domestic water system. To minimize impacts to the storm system, discharges are dechlorinated with the use of ascorbic acid (vitamin C). The flushing crew periodically tests the chlorine levels of the discharge prior to entering the storm system.	Dechlorinate waterline flushing with vitamin C.	NA	
E. Sanitary Sewer System Program	Limit wastewater infiltration through the operation, maintenance and construction of the sanitary sewer infrastructure based on existing conditions and projected sanitary flows.	Respond to pump station failures. Perform cleaning of the problem areas of the City's sanitary sewer system. Construct pipe restoration projects to replace defective pipe and reduce inflow and infiltration.	Track identified sanitary problems and resolutions related to the storm system each year.	
F. Municipal vehicle monitoring and maintenance	Ensure that materials from municipal vehicles do not leak, spill, or otherwise release contaminants onto roadways or open spaces where they may be washed into storm drains or waterways. Municipal vehicles are inspected by the driver during loading and unloading. If any leaks are observed between the regular maintenance the vehicles are repaired immediately.	Maintain vehicles on a 6-month schedule.	Track status of municipal vehicle maintenance.	
G. O&M Plan	Use the O&M Plan as a guide for designing and maintaining public storm facilities in order to maximize water quality benefits while maintaining flood capacity. The O&M Plan is intended to help locate and eliminate pollutants and provides a framework for maintaining field inspections records.	Implement the procedures in the O&M Plan. Review the O&M Plan by November 1, 2013, and update as necessary to maximize water quality benefits while maintaining flood capacity.	Track annual changes made to the O&M Plan	
H. Litter Receptacles	Provide, collect, and maintain litter receptacles in strategic public areas and during major public events to provide disposal of pet waste bags and prevent trash from entering the stormwater system.	Maintain at least one litter receptacle at all public parks greater than 1 acre. Provide collection a minimum of once per week.	Track number of litter receptacles.	
I. Staff Education and Training	Conduct training for new employees and contract employees on stormwater requirements and train existing employees when there is a significant update to the documents used by the City that regulates stormwater pollution control activities.	Provide annual training to personnel involved in stormwater management.	Track personnel receiving training annually and document the trainings received.	

City of Fairview Stormwater Management Plan (2022-2026)

Public Reporting, Engagement, Outreach & Behavior Change (PREOB A-E)				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. Report Illegal Dumping and Illegal Connections	Continue to facilitate efforts by the public to report illegal dumping, illicit connections, and other incidents. Implement public reporting program as described in the Stormwater Operation and Maintenance (O&M) Manual.	Respond to reports and/or complaints from citizens regarding observed water quality problems within 24hrs or the next business day if report is made during the weekend.	Track the number of reports/complaints received, and the follow-up actions conducted (including the timing of the follow-up action).	
B. Illegal Dumping and Illegal Connections, Public Education	Educate the public about the harmful effects of dumping oil, antifreeze, pesticides, paints, solvents, and other potentially harmful chemicals into storm sewers or drainage channels.	Support recycling and disposal programs; programs that provide convenient means to dispose of materials, existing solid waste management programs. Educate the public regarding the stormwater pollution that results from dumping and illegal connections.	Track the number of public recycling and disposal programs conducted annually.	
C. City outreach	The City uses a variety of communication channels to reach its residents. Examples include its website, print newsletter, social media, earned media etc. Current City public education programs that are related to stormwater include educational programs on stormwater quality and the use of nonpolluting alternative garden products, including low-volume uses of pesticides, herbicides, and fertilizers (e.g., household uses).	Publish stormwater related articles in the City newsletter. Support local education programs.	Track newsletter articles produced annually. Track activities conducted to support local education programs.	
D. Provide for Public Participation with the annual report, SWMP and Benchmark Submittals	Co-permittees must submit an annual report for the portion applicable to its jurisdiction by November 1 of each year. SWMP revisions and pollutant load reduction benchmarks are required for submittal to DEQ at the permit renewal submittal (180 days prior to permit expiration). Prior to submittal of these items, the City will provide the public with an opportunity to comment on the annual report, revisions to the SWMP and proposed pollutant load reduction benchmarks. The documents will be made available on the City's website or through web links. Comments on the documents will be collected and considered and a response to comments will be provided.	Provide for public participation with the annual report, SWMP and pollutant load reduction benchmarks prior to the permit renewal application deadline.	Annually by November 1	
E. Participate in a Public Education Effectiveness Evaluation	By November 1, 2014, the City of Fairview will coordinate with other local, Phase I jurisdictions to provide information related to an effectiveness evaluation. The effectiveness evaluation information will focus on assessing changes in targeted behaviors and will allow for additional information that can be used in adaptive management of the City's education and outreach strategy. This is where effective evaluation reports will be found as they are submitted.	Coordinate with other local jurisdictions in providing/compiling information regarding a public education effectiveness evaluation by November 1, 2014.	Ongoing	

City of Fairview Stormwater Management Plan (2022-2026)

Control Impacts from Development and Business Activities (CIDBA A-I)				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
A. Stormwater Management Manual (SWMM)	This manual contains the regulatory development thresholds that necessitate stormwater controls, the prioritization of green infrastructure, the design standards, plan review process, and long term maintenance requirements.	Review SWMM at least once within the permit cycle. Update, if necessary	Goal for review FY23-24	
B. Private Water Quality Facilities Inspection and Maintenance	Require plans conforming to the requirements of City of Fairview Standard Specifications for Public Works Construction and City of Portland Stormwater Management Manual at the time of permitting for stormwater facilities related to new private development and redevelopment/retrofitting. Include recording of operations and maintenance plans for stormwater quality facilities.	Ensure new private stormwater facility plans conform to City requirements. Inspect new facilities for conformance to approved O&M plans. Develop a private facility maintenance Standard Operating Procedure within one year of permit issuance.	Track number of inspections conducted and inspection results.	
C. Erosion Control Activities	Ordinance 3-1993 adopts an erosion control plan. The ordinance includes an Erosion Control Technical Guidance Handbook (Technical Guidance) that describes regulations, standards and provisions for erosion control as well as fees and penalties for violation. The City enforces the erosion control requirements through a permitting process required for sites disturbing 500 ft ² or more as discussed under the BMP, Development Review. The Technical Guidance prescribes the following four steps to consider in planning for erosion control: Step 1: Identify Site Characteristics Step 2: Lay Out Preconstruction Plan and Proposed Base Measure Step 3: Measures During Construction Step 4: Post Construction Measures The Technical Guidance also has requirements for single-family homes and duplexes on existing lots of record, private developments construction, private construction in public rights-of-way, public works construction, erosion control measures, inspections and enforcements, and penalties. Non-stormwater wastes on construction sites are also addressed through the City's nuisance ordinance in Chapter 8 of the municipal code.	Inform all construction site owners that have 1 acre or more of disturbed land that they are required to obtain a 1200-C permit from DEQ. Projects that disturb more than 500 ft ² are required to obtain a City erosion control permit. Review development sites required to meet City erosion control requirements.	Track the number of erosion control permits issued annually.	
D. Erosion Control Program Training	The Erosion Prevention & Sediment Control Technical Guidance describes regulations, standards and provisions for erosion control as well as fees and penalties for violation.	Provide a copy of the Technical Guidance to all developers and contractors.	N/A	
E. Development Review for Private Projects	Implement and enforce regulations which give legal authority to: 1) require site-drainage designs and systems which address water quality; and/or 2) minimize the total volume of runoff and the peak rate of runoff, where local conditions permit. The City implements these regulations through its Community Development Department and Public Works Department. New development and redevelopment projects are reviewed for conformance to the following existing City regulations: • Fairview Comprehensive Plan, June 2004 – provides the guiding direction to protect the natural environment and ensure that long-term growth does not adversely affect the natural resources. • Community Development Department–Land Use and Building Permits; Land Use Code Enforcement. • Title 19, Development Code–requires accommodation and treatment of stormwater runoff and system installation conforming to standards and specifications adopted by the City. • City of Fairview Standard Specifications for Public Works Construction	Review development plans for conformance with standards. Maintain map of private water quality facilities	Track acreage of new and re-development activities requiring stormwater treatment annually. Track the number and type of private water quality BMPs built.	

City of Fairview Stormwater Management Plan (2022-2026)

Control Impacts from Development and Business Activities (CIDBA A-1)				
Activity Name	Description	Measurable Goal	Tracking Measures	Reporting Metrics
F. Review Applicable Code and Development Standards related to Stormwater Management	<p>Review and the City's current stormwater treatment standards for compliance with new MS4 NPDES permit language by January 1, 2014.</p> <p>Update the City's post-construction stormwater design standards and code language.</p> <p>Document the City's post-construction inspection and enforcement response procedures by January 1, 2014</p>	Update the municipal code, design standards and enforcement procedures to eliminate barriers to LID and to implement stormwater management requirements.	Track progress related to the review of the City's code and development standards per provisions in the MS4 NPDES permit.	
G. Screen Industries/Busi-nesses and Track NPDES Stormwater Permits	<p>Annually, the City will review their business license inventory to determine whether any new facilities would be subject to an industrial stormwater NPDES permit. This determination will occur based on a review of the applicable SIC codes related to the 1200-series NPDES permit. If a facility is identified that would be subject to an industrial stormwater NPDES permit, the facility and DEQ will be notified within 30 days.</p> <p>During industrial and commercial inspections staff will obtain a copy of the facility's permit or work with the facility to either obtain a permit, or eliminate the potential for contact of pollutants with stormwater, thereby eliminating the need for a permit. In cases where discharges appear contaminated, the City will send a copy of the inspection report to DEQ.</p>	Annually notify DEQ of any existing or new industrial facilities within the City's jurisdiction that may potentially be subject to an industrial stormwater NPDES permit.	Track number and type of new facilities identified as needing permits.	
H. Industrial and Commercial Facility Inspections	Implement the City's Industrial and Commercial Facility Inspection procedure that is included in the Stormwater Operation and Maintenance Manual to control the discharge of pollutants in stormwater from industrial and commercial facilities to the municipal separate storm sewer system.	<p>Spend 40 hours implementing commercial and industrial inspection procedures.</p> <p>Review and/or inspect all applicable facilities once during the permit term.</p>	Track number of facility inspections and follow-up.	
I. Retrofit/Hydromodification Assessment Update	City will provide an assessment of how the reports previously provided have been considered, updated, or implemented, remaining gaps of knowledge, if applicable, new goals, tools, priorities for future improvement. Submit report as Appendix to Annual Report.	Provide DEQ an assessment with outcomes related to the creation of the original reports.	Third year of the permit term (FY 22-23)	

Appendix B
Example Plan Review Documents

Appendix B: Example Plan Review Documents



**CHECKLIST
CONSTRUCTION PLAN REVIEW
GENERAL CONDITIONS FOR DEVELOPMENT**

PROJECT: _____ **CHECKED BY:** _____

LOCATION: _____ **DATE:** _____

OWNER/DEVELOPER: _____ **PHONE:** _____

ENGINEER: _____ **PHONE:** _____

SURVEYOR: _____ **PHONE:** _____

ARCHITECT: _____ **PHONE:** _____

CLASS OF WORK: SANITARY SEWER WATER STREET STORM OTHER

GENERAL REQUIREMENTS: Yes No N/A Comp.

- | | | | | | |
|----|--|-------|-------|-------|-------|
| 1. | Title Sheet: | | | | |
| | a) Site plan of entire project with street right-of-way and/or subdivision layout at a 1" - 100' scale. A 1" = 200" scale may be used if project size is too large. Drawings shall be 1" = 50', unless another scale is approved. The site plan shall also be composite utility plan showing all properties served by proposed sewer, water, and storm facilities, in addition to the proposed facility. | _____ | _____ | _____ | _____ |
| | b) Vicinity map at 1" = 1000" scale, or greater. | _____ | _____ | _____ | _____ |
| | c) Index of sheets. | _____ | _____ | _____ | _____ |
| | d) Complete legend of symbols used, per city standards. | _____ | _____ | _____ | _____ |
| | e) General and construction notes pertinent to project. | _____ | _____ | _____ | _____ |

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
f) Temporary and/or permanent benchmarks used along with descriptions, elevations of benchmark and datum. Elevations shall be referred to the U.S.C. and G.S. datum plane.	_____	_____	_____	_____
g) Engineer's name, address, phone number and seal.	_____	_____	_____	_____
h) Developer's/owner's name, address and phone number for public improvements with private financing.	_____	_____	_____	_____
i) Statement referencing City of Fairview Standard Specifications.	_____	_____	_____	_____
j) Provide contact phone number for all affected utility companies.	_____	_____	_____	_____
k) Show tax lot numbers or lot and block designations.	_____	_____	_____	_____
l) Show adjacent and future phases.	_____	_____	_____	_____
2. Standard Detail Sheet included.	_____	_____	_____	_____
3. Easements shown on plans. 15' (7.5' each side of pipe), sanitary and water (depending on depth and size of line). Private lines if storm sewers in private lot easements.	_____	_____	_____	_____
4. Grading plan for subdivision, street construction, commercial and industrial development. (Back lot drainage swales and drainage lines shown on plans.)	_____	_____	_____	_____
5. 22" x 36" Standard sheet size.	_____	_____	_____	_____
6. Plan and profile required on all drawings. Profile not always required on water plans.	_____	_____	_____	_____
7. Sheets to have match line for adjoining sheets.	_____	_____	_____	_____
8. Right-of-way widths shown.	_____	_____	_____	_____
9. Existing utilities shown.	_____	_____	_____	_____
10. Protect existing monuments, benchmarks, property corners and government corners. Monumentation section 30.300.	_____	_____	_____	_____

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
11. Correct city street or County road name shown.	_____	_____	_____	_____
12. North arrow.	_____	_____	_____	_____
13. On each plan, show name address and stamp of engineer.	_____	_____	_____	_____
14. Permits necessary and responsibility for obtaining noted.	_____	_____	_____	_____
15. Overlay all utilities if no composite sheet, and look for horizontal and vertical alignment conflicts. In particular, sanitary sewer laterals and waterline services, storm sewer, C.B. lats. Main line conflicts grade and/or alignment.	_____	_____	_____	_____
16. Check R/W widths, street pavement widths, cul-de-sac R/W and pavement widths, curve radius, curb return radius, acute angle radius. Check for transitions in widths, e.g., 36' to 32'. Transition generally at street intersections.	_____	_____	_____	_____
17. Sidewalk widths and locations. Sidewalks fronting greenways and other public-owned areas to be installed by developer. Wheelchair ramps to be constructed by developer.	_____	_____	_____	_____
18. Erosion control plan shown. Show details, location, notes etc.	_____	_____	_____	_____
19. Site grading and drainage requirements during construction met. (See checklist sheet.)	_____	_____	_____	_____
20. Check Mid County streetlight proposal for water meter conflicts - do not approve plans until resolved.	_____	_____	_____	_____
21. Check ORS statement 757.541 to 757.571 regarding Utility Notification.	_____	_____	_____	_____
22. Show all private utility crossings at intersections. Conduit to be provided if actual utility not installed prior to paving.	_____	_____	_____	_____
23. Provide required fire flow calculations for buildings in development. Gresham Fire Department to verify.	_____	_____	_____	_____
24. As-builts required: 1 each Mylar, Blue Line, Floppy Disc (DXF format).	_____	_____	_____	_____
25. Has street numbering been approved?	_____	_____	_____	_____
26. Has reimbursement agreement been signed?	_____	_____	_____	_____

Yes No N/A Comp.

STREETS:

- | | | | | | |
|-----|---|-------|-------|-------|-------|
| 1. | Street classification, residential, collector, arterial? | _____ | _____ | _____ | _____ |
| 2. | Street width to City standards as shown. | _____ | _____ | _____ | _____ |
| 3. | Street structural section per City standards. | _____ | _____ | _____ | _____ |
| 4. | Curbs shown with drop curbs for driveways to existing houses. | _____ | _____ | _____ | _____ |
| 5. | Sidewalks to City/County/State standards for existing buildings. Shown location and width of sidewalk to be constructed by builder. Builder installs sidewalks in new subdivision. Developer installs handicap or wheelchair ramps. | _____ | _____ | _____ | _____ |
| 6. | Street grades shown, minimum 0.5%, maximum up to 12% with review. | _____ | _____ | _____ | _____ |
| 7. | Are street barricades shown where needed? | _____ | _____ | _____ | _____ |
| 8. | Grade tie-in to existing streets and future extension of street streets adequate. | _____ | _____ | _____ | _____ |
| 9. | Profile with existing ground or street shown, proposed street grades shown and mathematically correct. | _____ | _____ | _____ | _____ |
| 10. | Curb return minimum radius of 20 feet shown unless otherwise designated by the City. | _____ | _____ | _____ | _____ |
| 11. | Commercial or industrial up to maximum 40' radius. Sidewalk width and location should be noted on plans. Notes to whether sidewalks are to be built at street construction or at building construction. 5' Wide, 6" from property line. | _____ | _____ | _____ | _____ |
| 12. | Site distance requirements at intersections. Provide calculations. | _____ | _____ | _____ | _____ |
| 13. | Maximum dead-end length of 150' w/o turn-around or cul-de-sac for fire and emergency vehicles. | _____ | _____ | _____ | _____ |
| 14. | Check for sidewalk ramps and conflicts with catch basins. | _____ | _____ | _____ | _____ |
| 15. | Have street improvements been approved by City/County/State? | _____ | _____ | _____ | _____ |
| 16. | Do driveways meet City standards? Are details shown? | _____ | _____ | _____ | _____ |
| 17. | Have weep holes been provided for drainage? Generally placed 5' from property line. Weep holes shall conform to City of Fairview | _____ | _____ | _____ | _____ |

Yes No N/A Comp.

Specifications.

STORM SEWERS:

- | | | | | | |
|----|--|-------|-------|-------|-------|
| 1. | Compliance with City Storm Drainage Master Plan. | _____ | _____ | _____ | _____ |
| 2. | Design computation included for sizing. See Section 45.1 and 45.2 of City Standards. | _____ | _____ | _____ | _____ |
| a) | Calculations for 10, 25, 50, 100 year events. Method? | _____ | _____ | _____ | _____ |
| b) | Appropriate storm intensity curves for East County. | _____ | _____ | _____ | _____ |
| c) | Run-off co-efficient shall be based on the ultimate design of the entire area draining through the proposed drain. | _____ | _____ | _____ | _____ |
| d) | Drainage area above the development to be taken into consideration. | _____ | _____ | _____ | _____ |
| e) | Main line pipes shall be a minimum of 12-inch diameter. | _____ | _____ | _____ | _____ |
| f) | Slopes shall be based on a minimum full-flow velocity of 3.0 fps. | _____ | _____ | _____ | _____ |
| g) | Manning “N” value of 0.013 used for concrete pipe. | _____ | _____ | _____ | _____ |
| 3. | Cast-in-place or precast concrete pipe is only acceptable material in right-of-way. Unless otherwise approved. | _____ | _____ | _____ | _____ |
| 4. | Catch basins, not inlets, are to be used. Catch Basins shall be trapped. | _____ | _____ | _____ | _____ |
| 5. | Manhole spacing is 500’ <i>maximum</i> and at all alignment and size changes, grade breaks and intersections. | _____ | _____ | _____ | _____ |
| 6. | County permission is required to discharge into County storm drains or roadside ditches. | _____ | _____ | _____ | _____ |
| 7. | Normally minimum 0.1’ drop in a through manholes. | _____ | _____ | _____ | _____ |
| 8. | Pipe size change match 0.8 line of pipes. | _____ | _____ | _____ | _____ |
| 9. | Pipe cover to meet minimum strength and drainage requirements. Normally minimum 3-foot cover. | _____ | _____ | _____ | _____ |

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
10. Correct bedding and pipe zone material shown.	_____	_____	_____	_____
11. Is storm detention or retention required?	_____	_____	_____	_____
12. Are drainage inlets provided where necessary?	_____	_____	_____	_____
13. Is outfall protection noted and adequate (rip-rap, energy dissipater, flared ends, etc.)?	_____	_____	_____	_____
14. Is downstream owner or size of pipe or culvert adversely affected?	_____	_____	_____	_____
15. Standard location is 5 feet South or East of street centerline.	_____	_____	_____	_____
16. Select or granular backfill required in all City streets.	_____	_____	_____	_____
17. Are existing or proposed utilities shown and potential grade or alignment conflicts noted?	_____	_____	_____	_____
18. Are backyard storm drains needed to protect lots from drainage off adjacent lots?	_____	_____	_____	_____
19. Connect all drain tile encountered during construction to public storm drain.	_____	_____	_____	_____
20. Arrows showing direction of flow in street.	_____	_____	_____	_____
21. Catch basins to be spaced such that flow in gutters between inlets does not exceed 2 feet in width and not more than 30% of the water in gutter shall be permitted to bypass each catch basin (see Section 8-15 for spacing length Oregon State Hydraulic Manual).	_____	_____	_____	_____
22. Storm water not to be discharged onto other properties without drainage easement provided to City.	_____	_____	_____	_____
23. General note on site grading plan that lots are to be final graded to direct surface drainage to street or approved storm drainage system.	_____	_____	_____	_____
24. Weep holes in curbs for lot drainage. Standard 5' from property line. Weep holes shall conform to City of Fairview Specifications.	_____	_____	_____	_____
25. Standard details shown?	_____	_____	_____	_____
26. Have public & private ownership been approved?	_____	_____	_____	_____
27. Is access adequate for maintenance?	_____	_____	_____	_____

SANITARY SEWERS:

- | | | | | | |
|-----|--|-------|-------|-------|-------|
| 1. | Requirements of DEQ met? | _____ | _____ | _____ | _____ |
| 2. | Standard location is 5' North or West of street centerline. | _____ | _____ | _____ | _____ |
| 3. | Minimum pipe size 8". 6" Allowed on dead-end lines. 250' maximum length with clean-out. | _____ | _____ | _____ | _____ |
| 4. | Minimum slope shall be based on full flow of 2 fps. | _____ | _____ | _____ | _____ |
| 5. | Maximum inside drop of 2' with pipe larger than 12-inch diameter meeting at flow lines. | _____ | _____ | _____ | _____ |
| 6. | Manhole spacing is 500' maximum and at all alignment and size changes, grade breaks and intersections. | _____ | _____ | _____ | _____ |
| 7. | Future line extension provided for. | _____ | _____ | _____ | _____ |
| 8. | Existing houses and vacant lots served with tees or laterals. | _____ | _____ | _____ | _____ |
| 9. | Minimum lateral size of 4" and slope of 2%. | _____ | _____ | _____ | _____ |
| 10. | Correct bedding and pipe zone material shown. | _____ | _____ | _____ | _____ |
| 11. | Select backfill required in all City streets. | _____ | _____ | _____ | _____ |
| 12. | No combination storm and sanitary sewer permitted. | _____ | _____ | _____ | _____ |
| 13. | No curved sewers allowed. | _____ | _____ | _____ | _____ |
| 14. | Does pipe meet Oregon State Health Division waterline separation requirements? Ductile iron pipe used where vertical separation is less than 18" with horizontal separation less than 10'. | _____ | _____ | _____ | _____ |
| 15. | Minimum pipe cover within road right-of-way is 5'. | _____ | _____ | _____ | _____ |
| 16. | Pipe class adequate for deep sewers? | _____ | _____ | _____ | _____ |
| 17. | Are other existing or proposed utilities shown and potential grade or alignment conflicts noted? | _____ | _____ | _____ | _____ |
| 18. | Normally 0.2 foot drop-through manholes. | _____ | _____ | _____ | _____ |
| 19. | Manhole finish grade to be a minimum of 1' above existing ground in unimproved areas, at grade in existing street areas, and at future | _____ | _____ | _____ | _____ |

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
grade in proposed street areas.	_____	_____	_____	_____
20. Plug connection to existing public sewer until new line is tested and connection is approved by engineer.	_____	_____	_____	_____
21. Require immediate cold patch in existing streets.	_____	_____	_____	_____
22. Which sewer drainage basin is project in? Is there capacity in sewer system.	_____	_____	_____	_____
23. Are there any trunk sewer charges or other charges involved?	_____	_____	_____	_____
24. Have a copy of calculations been submitted and approved.	_____	_____	_____	_____
25. Note on plan that sanitary lateral locations shall be stenciled with "S" on curb for future location. Laterals should be 5' deep at property.	_____	_____	_____	_____
26. Keep laterals a minimum of 10' from P/L to avoid waterline services and meters and PGE/GTE vaults. Minimum lateral deflection from main line to be 45 degrees.	_____	_____	_____	_____
27. Standard details shown?	_____	_____	_____	_____

WATERLINES:

1. Requirements of DEQ met?	_____	_____	_____	_____
2. Comply with City Water Master Plan. 6" minimum normal in subdivision streets unless dead end lines, short loops, etc., or as approved by the City.	_____	_____	_____	_____
3. Is pressure zone identified?	_____	_____	_____	_____
4. Are mains looped?	_____	_____	_____	_____
5. Normal location is South and East of centerline, 4 ft. off the curb in the pavement.	_____	_____	_____	_____
6. Oregon State Health Division sanitary sewer pipe separation met?	_____	_____	_____	_____
7. Minimum cover from existing or future street grade equals 36". 42" in an unimproved right-of-way.	_____	_____	_____	_____
8. Proper pipe class and size noted and approved?	_____	_____	_____	_____

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
9. Correct bedding and pipe zone material shown.	_____	_____	_____	_____
10. Water service size and location shown properly? Double and single services to be placed at property lines not center of lot!	_____	_____	_____	_____
11. Fire hydrant spacing reviewed by Fire Marshal. 300' in commercial areas; 425' in residential areas.	_____	_____	_____	_____
12. Check hydrant location: In planter strip, behind S/W; if street is 36' wide in a 50' R/W, 18" distance from front port behind curb if planter strip is narrow. Fire hydrants: Waterous Pacer, Clow #2500, Mueller Centurion.	_____	_____	_____	_____
13. Minimum water tap spacing of 18" on main. 24" from end of pipe.	_____	_____	_____	_____
14. Location, size and class of valves, fittings and thrust blocks correct? At intersections valves to be placed at intersecting pipelines.	_____	_____	_____	_____
15. Are test requirements noted (pressure, chlorination, OSHD sample)? Note: no connection to existing waterlines until new line has been tested and accepted to water department.	_____	_____	_____	_____
16. Are pressure-reducing valves required?	_____	_____	_____	_____
17. Are other existing or proposed utilities shown and potential grade or alignment conflicts noted?	_____	_____	_____	_____
18. Sufficient number of valves to shut-off line with maximum 15 houses out of service at one time. Minimum of 2 valves at "T" intersection and 3 valves at cross. May need more if lines are not looped. At intersections valves are generally placed at intersecting property lines.	_____	_____	_____	_____
19. Maximum length of water shut-down is 15 houses in residential.	_____	_____	_____	_____
20. Have fire pressures, velocities and flow been determined?	_____	_____	_____	_____
21. Have calculations for domestic and fire been submitted and approved?	_____	_____	_____	_____
22. Has City approved water meters sizes and location?	_____	_____	_____	_____
23. Adequate pressure in main and service for house. State requires a minimum of 20 PSI. City requires 40 PSI at meter.	_____	_____	_____	_____

	<u>Yes</u>	<u>No</u>	<u>N/A</u>	<u>Comp.</u>
24. Stencil "W" in curb for curb water meter stops for locations. Not on plans.	_____	_____	_____	_____
25. Is air release valve required?	_____	_____	_____	_____
26. Is blow-off required? temporary? Permanent?	_____	_____	_____	_____
27. Are all details (hydrants, blow-offs, meters, vault, etc.) shown. Do vaults Drain?	_____	_____	_____	_____
28. Are all Oregon State Health Division Backflow requirements met?	_____	_____	_____	_____

GENERAL:

1. Receive Performance Bond for 110% of Public Improvements in ROW on private projects.	_____	_____	_____	_____
2. Receive 2-year Maintenance Bond for 110% of Public Improvements in ROW on private projects.	_____	_____	_____	_____
3. Grading and Erosion Control Permit Application	_____	_____	_____	_____
4. DEQ 1200-C Construction NPDES Permit	_____	_____	_____	_____
5. ROW Permit Application	_____	_____	_____	_____