City of Fairview

A Community of History and Vision

STORMWATER ANNUAL ENVIRONMENTAL MONITORING REPORT
(Schedule B.5.a. through B.5.j.)

City of Fairview
Ph: 503.665.7929

1300 NE Village Street
www.ci.fairview.or.us

Fairview, Oregon 97024
Fax: 503.666.0888

Section Four – City of Fairview Summary of Program Monitoring

Municipal National Pollutant Discharge Elimination System Annual Report for Permit Year 19, Permit #101315, November 1, 2014

Executive Summary

The City of Fairview (City) manages the stormwater system with the goal of reducing pollutants to the maximum extent practicable, preventing flooding and enhancing natural resources. The City is a co-permittee with the City of Gresham on the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit (#101315).

DEQ reissued the Permit on December 30, 2010 requiring the City to modify the SWMP to reflect the new permit conditions. The City's 2011 SWMP incorporates the new Permit conditions and includes best management practices (BMPs) and other elements intended to reduce the introduction of pollutants to the maximum extent practicable (MEP).

This Permit Year (PY) 19 Annual Report documents implementation activities from July 1, 2013 through June 30, 2014 within the city limits of Fairview. Activities include, but are not limited to, the Best Management Practices (BMP) contained within the Stormwater Management Plan (SWMP). The status of the BMP's and adaptive management are summarized in the table that follows. Table 4-2 summarizes the time period July 1, 2013 to June 30, 2014 implementing the 2011 SWMP. Section 2 of this report summarizes the Environmental Monitoring Program that is conducted by the City of Gresham on behalf of the City of Fairview.

As part of the annual adaptive management process, data and feedback were collected from staff responsible for implementing/reporting on each BMP. Factors considered include but are not limited to: Was the BMP measurable goal attained? If not, describe circumstances why, and how progress will be made toward future attainment. For multi-year BMPs, were milestones or timelines met? Can we feasibly refine or improve the BMP to gain efficiency or effectiveness in removing stormwater pollutants? In addition to assessing the implementation of each BMP, staff weighed resource availability and needs related to the overall stormwater program, including consideration of budget/funding, training needs, new technology and available equipment. The annual adaptive management process will inform any alterations to the stormwater program or future modifications to

There are no Urban Growth Boundary expansion areas contiguous to the City of Fairview. Consequently there are no associated concept planning, significant land use changes or significant development activities to report for PY 19.

Stormwater Management Program Budget

City of Fairview Stormwater Management program costs for Permit Year 19 are primarily associated with the Department of Public Works.

Stormwater fund expenditures and anticipated budget allocations incorporate wages and benefits, operating materials, equipment repair/maintenance, water testing (NPDES compliance), storm water disposal (NPDES permitting), improvements, and general administration.

Street fund expenditures and anticipated budget allocations incorporate wages and benefits, operating materials, maintenance services (including IGA with Multnomah County), equipment repair/maintenance, improvements, traffic calming, footpaths and bike trails, and general administration.

The table below outlines fund expenditures for PY 19 and provides the anticipated budget for Permit Year 19, (Fiscal Year 2013-2014).

Table 4-1

Program Area	2013-2014 PY 19 Expenditures	2014-2015 PY 20 Anticipated Budget
Stormwater Fund	$627,935	$779,412
Street Fund	$540,029	$547,941

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status 2013-2014 (Ex. 19)	Summary and Date of Response Analysis Management Modifications	Responsible Entity
BMP Element 10 Illicit Discharge Detection and Elimination							
Illicit Discharge Enforcement	Ongoing	Implement City code sections 13.40.050 and 13.40.110: • 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. 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.	For identified illicit discharges conduct appropriate enforcement actions.	Track number, location and resolution of enforcement actions.	There were no illicit discharge events that were investigated and enforced for compliance during PY 19, except for a broken sanitary sewer service lateral (100 NE 2nd St. Fairview, OR). It was discovered during CIP project construction last May 29, 2014. The problem was when Frontier (formerly Verizon) installed their telephone cable fiber optic using directional boring (trenchless technology) which intersected the sewer service line. The broken section was repaired by the project contractor. Frontier was notified to conduct their projects with exploratory excavation (vacuum pressure or open excavation) prior to trenchless boring activities.	No modification	Engineering Associate
Illicit Discharge Field Screening Procedures	Ongoing	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.	The City of Fairview has updated and refined the stormwater GIS data on Structural Stormwater Facility Maps reflecting both facilities on public (BMP 8.1_Structural Public Stormwater Facilities) and private (Element 8.2_Structural Private Stormwater Quality Facilities). A new polygon layers of the GIS system was created for structural stormwater facilities and receiving sub-basins including outfall's discharge point to receiving streams, ponds and lakes. The City of Fairview has identified and mapped a total of 38 outfalls; nine of which are considered high priority. Only the high priority (9) outfalls out of the 38 identified total outfalls were inspected for "Dry Weather Field Screening" during PY 19 due to staff limitation and transitioning. However, the remainder of the 38 outfalls were completely inspected last September 9, 2014 for PY 20.	No modification	Storm Lead Worker Map Tech
Illicit Discharge Investigation Procedures	1-Jul-12	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.	Develop revised procedures by July 1, 2012. Until procedures are revised, investigate problems reported within 2 weeks of the initial report.	Track number and type of problems reported, and track problem resolutions. Track status of revisions to procedures.	Refer to BMP 1.1_Illicit Discharge Enforcement for event description reflecting investigation_BMP 1.3 and enforcement_BMP 1.1. There were no illicit discharge investigation events conducted during PY 19	No modification	Engineering Associate

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status	Summary of Data or Explanation Adaptive Management Modifications	Responsible Party
					2013-2014 (PY 19)		
Spill Prevention	Ongoing	**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. **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. 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. 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. 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.	Once during the permit term, conduct inspections of all businesses with regulated quantities in the well field.	Track the number of inspections conducted.	Three regulated industrial/commercial facilities at zone 1 of the Columbia South Shore Wellfield Protection Area were inspected during PY 19 reflecting BMP 2.1_Spill Prevention, which are as follows: 1) Moore Excavating, Incorporated (MEI) 2) Connor Manufacturing 3) NAACO Materials Handling There were no enforcement actions taken based on the conducted inspection. City of Gresham addresses BMPs 1.4 and 1.1 (Ground Water Quality Management) and City of Fairview addresses BMPs 2.1 and 9.2 (Stormwater Quality Management on receiving water bodies).	No modification	Engineering Associate City of Gresham (IGA)

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status	Summary of Date of Modified Schedule, Rationale and Modifications	Responsible Party
					2013-2014 (PY 19)		
Spill Clean-up	Ongoing	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. When there is a hazardous spill or a spill of any other substance that: • 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. 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. **Non-Hazardous Substances** 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. 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. **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. 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.	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.	There were no reported and recorded spill incident events that took place this PY 19 within the City of Fairview jurisdiction.	No modification	Gresham Fire Engineering Associate PW Superintendent
Municipal vehicle monitoring and maintenance	Ongoing	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 4-month schedule.	Track status of municipal vehicle maintenance.	All City fleet vehicles were regularly maintained and serviced as scheduled with auto service providers. No vehicular leaks were detected.	No modification	PW Superintendent Police Dept.
Water Line Flushing	Ongoing	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	No chlorine detected.	No modification	Water Lead Worker

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status 2013-2014 (PY19)	Summary of Proposed Adaptive Management Modifications	Responsible Party
BMP Element #2: Industrial and Commercial Facilities							
Industrial and Commercial Facility Inspections	Ongoing	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.	Spend one week (40 hours) implementing commercial and industrial inspection procedures.	Track number of facility inspections and follow-up.	There were 3 industrial / commercial businesses that were inspected during this PY 19, reflecting BMP2.1 and totaling 20 hrs. only of inspection and documentation due to staff limitation and transitioning. Please refer to BMP1.4 detail. The City of Fairview has updated an inventory list for regulated, non-regulated and monitored businesses as reference for inspections. Coordinated inspection effort is performed with the City of Gresham through IGA. City of Gresham addresses BMPs 1.4 and 1.1 (Ground Water Quality Management) and City of Fairview addresses BMPs 2.1 and 8.2 (Stormwater Quality Management on receiving water bodies).	No modification	Engineering Associate
Screen Industries/Businesses and Track NPDES Stormwater Permits	Annually	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. 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.	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.	Screening process of applicable SIC codes related to the 1200-COLS NPDES permit is being performed during pre-application of land use permit review. There was only 1 commercial development granted with 1200-COLS permit and continued monitoring inspection during this PY: 1) Troutdale Reynolds Industrial Park (TRIP).	No modification	Engineering Associate
BMP Element #3: Construction Site Runoff Control							
Erosion Control Activities	Ongoing	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. Review development sites required to meet City erosion control requirements.	Track the number of erosion control permits issued annually.	Resolution 49-2013 approved compliance order agreement with Environmental Protection Agency to implement reporting requirements and standards associated with the NPDES stormwater permit which includes adoption of the Erosion Prevention and Sediment Control (EPSC) Plan from the City of Gresham. The City developed a standard operating procedures for implementation of Erosion and Sediment Control Standards Total of 5 EPSC permits were issued for PY 19. Site development of these permits were less than an acre.	No modification	Permit Tech Engineering Associate
Erosion Control Program Training	Ongoing	The 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	Erosion Prevention and Sediment Control (EPSC) manuals are provided during Land Use Development Permit Review process.	No modification	Permit Tech Engineering Associate
Construction Site Inspections	1-Jan-14	The City currently reviews plans and inspects construction sites required to meet the City's erosion control standards using the following procedures: 1. Phone call before inspection to make sure BMPs are in place. 2. 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. Audit or review existing codes to ensure legal and escalation clauses exist for site design, source control, stormwater treatment BMPs, and post-construction BMPs by January 1, 2014.	Track the number of sites that were permitted and inspected. Report the number and type of enforcement actions.	Total of 5 EPSC inspections were conducted for PY 19; in addition to the City 1200 COLS permits on-going monitoring site development. No enforcement actions were taken.	No modification	Permit Tech Engineering Associate

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status 2013-2014 (PY 19)	Summary and Date of Proposed Adaptive Management Modifications	Responsible Party
BMP Element #4 - Education and Outreach							
Educational Activities	Ongoing	The City supports community programs, publishes articles in the City newsletter and coordinates with the City of Gresham where appropriate. 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). The City also supports the following programs: • Programs with local area schools • Programs with volunteer groups • Columbia Slough Watershed Council activities • Business Assistance Program – Private Catch Basin Cleaning • Spring Clean-up • Metro Hazardous Waste Clean-up • Informational kiosks at City events and City Hall • Doggy Don't waste bag	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	Educational Outreach Articles: 1) Developers' Proposal on Commercial / Industrial Development (July, 2013). 2) Permitting, Code Compliance and Emergency Management (August, 2013). 3) Fairview on the Green (September, 2013). 4) Rake the Leaves Away from the Storm Drain to Prevent Flooding (November, 2013). 5) Sidewalks and Street Trees (November, 2013). 6) Fairview seeks Public's Help Keeping Stormdrain Clears (November, 2013). 7) Sidewalk Repair Grant Assistance Program_Stormwater Collection (FVMC 12.05). (December, 2013). 8) Park Cleone Stormwater Retrofit Project (Dec, 2013). 9) Christmas Tree Recycling (12 Mile Disposal). (Jan., 2013). 10) Removal of Animal Waste (FVMC 8.10.055). (Feb., 2013). 11) Fairview Woods Wetland Park Earth Day Event (March, 2013). Local Outreach Efforts: Public Works staff maintained an annual booths at the Chili Festival and the "Fairview on the Green and Clean Up Earth Day" events presenting stormwater issues, problems and management and provided activities for children.	No modification	Engineering Associate Development Analyst Event Coordinator
Report Illegal Dumping and Illegal Connections	Ongoing	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.	Track the number of reports/complaints received, and the follow-up actions conducted (including the timing of the follow-up action).	There were no reported events and/or complaints from citizens reflecting illegal dumping and illegal connection events during this PY 19.	No modification	Engineering Associate PW Superintendent Code Compliance
Illegal Dumping and Illegal Connections, Public Education	Ongoing	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	Track the number of public recycling and disposal programs conducted annually.	Contact information for reporting illegal dumping and illicit discharges including submission of a stormwater complaint form is included on the City's website. The Fairview Point contains education outreach articles educating the public about harmful effects of dumping hazardous materials and waste into storm sewers or drainage channels as well as public recycling and disposal. There are five articles published during PY 19. See BMP 4.1 listing, Educational Activities.	No modification	PW Assistant Metro Recycling
Participate in a Public Education Effectiveness Evaluation	1-Nov-14	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.	Coordinate with other local jurisdictions in providing/compiling information regarding a public education effectiveness evaluation by November 1, 2014.	Report on activities annually.	Public Education Effectiveness Evaluation (Schedule A.4_NPDES Permit) is a one time report, which is due on November 1, 2014. The City has a current IGA with the City of Gresham regarding participation in the ACWA public education effectiveness evaluation. The results of the study conducted by DHM consulting in compliance to meet DEQ's intended requirements pertained to general and targeted findings. However, targeted findings are most applicable to ACWA members in conjunction with the NPDES MS4 permit requirement to conduct public education effectiveness evaluation. The targeted findings are focused on pet care, car care, lawn and garden care, and home care which are distinct municipal stormwater pollutant sources where source control activities (like public education) are generally a preferred treatment approach.	No modification	Engineering Associate

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status	Proposed Revised Date or Permanent Alternative Management Modification	Responsible Party
					2013-2014 (PY 19)		
Staff Education and Training	Ongoing	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.	The Engineering Associate (responsible reporting party) has attended 10 meetings, presentations and trainings directly related to stormwater quality management during PY 19, which are as follows: 1) Wetland Development (Arata Rd.), Division of State Land, Salem - 4/18/2014. 2) Storm Spill Committee meeting, City of Portland Stormwater Pollution Facility Lab. - 4/22/2014. 3) TMDL Pollutant Load Reduction Evaluation (Torrey Lindbo, City of Gresham Watershed Specialist) - 4/25/2014. 4) Retrofit & BMPs for Reducing Bacteria & TMDL Pollutants in Municipal Water (ASCE_EWRG, Torrey Lindbo) - 4/30/2014. 5) ACWA PH. 1, Stormwater Committee meeting (Kerri Handalay, COG & Angela Wieland, B & C) - 5/1/2014. 6) TMDL, Designated Management Agency (Doug Drake, Lower Willamette Basin Coordinator) - 5/5/20104. 7) Columbia South Shore Wellfield Protection Program (Clay Walker, COG Wellfield Inspection Specialist - 5/13/2014. 8) ACWA PH. 1, Stormwater Committee meeting, Hydromodification (Krista Reininga, B & C) - 5/28/2014. 9) Columbia Slough Watershed Council, Action Plan Presentation (City of Gresham) - 6/3/2014. 10) ACWA, PH. 1 Stormwater Committed meeting (Keri Handalay, COG & Angela Wieland, B & C) - 6/11/2014.	No modification	Engineering Associate PW Superintendent Development Analyst
[illegible]							
Provide for Public Participation with the annual report, SWMP and Benchmark Submittals	Annually by November 1	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.	N/A	Public review and comments were solicited for public participation through publication on the City's website on NPDES MS4 annual compliance report and the TMDL Implementation Plan during PY 19.	No modification	Engineering Associate
[illegible]							
Development Review for Private Projects	Ongoing	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.	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.	There were only two development reviews for private projects conducted this PY 19, which pertain directly to construction site stormwater run-off, as follows: 1) 1910 NE 201st Ave., Fairview, OR 97024 - 5/11/2014. The City has updated it's stormwater facility GIS mapping through professional consulting services. New polygon layers (each layer has 8 files related to features of each layer) were created for stormwater facilities and sub-basins. There are 30 sub-basins identified in the entire City of Fairview boundaries. New identified and updated facilities and their attributes were integrated in the City's GIS system.	No modification	Permit Tech Engineering Associate Map Tech
Review Applicable Code and Development Standards related to Stormwater Management	1-Jan-14	In conjunction with the provisions and timeframe outlined in the City's MS4 NPDES permit, review and if necessary, revise existing stormwater design standards and relevant code provisions to ensure that they are consistent with applicable permit language. In addition, document the City's relevant inspection and enforcement response procedures.	Review and the City's current stormwater treatment standards for compliance with new MS4 NPDES permit language by January 1, 2014. Review the City's current public works development code provisions to ensure that applicable barriers related to the use of Low Impact Development techniques are minimized and eliminated where practicable by January 1, 2014. If necessary, update the City's post-construction stormwater design standards and code	Track progress related to the review of the City's code and development standards per provisions in the MS4 NPDES permit.	Resolution 49-2013 approved compliance order agreement with Environmental Protection Agency (EPA) to implement reporting requirements and standards associated with the NPDES stormwater permit which includes adoption of the Erosion Prevention and Sediment Control (EPSC) Plan from the City of Gresham. Low Impact Development barriers were presented in the Planning Commission to be identified in the City of Fairview Municipal Development Code. LID objective is to implement best management practices on stormwater by minimizing impervious cover and by using natural or man-made systems to filter and recharge stormwater into the ground. The City of Fairview's Public Works Director has attended four Phase I workshops with Gresham city staff in updating their stormwater design standards and stormwater design manual.	No modification	Engineering Associate Development Analyst

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status 2013-2014 (PY 19)	Summarized Date of Proposed Adaptive Management Modifications	Responsible Party
Design Standards for Public Projects	Ongoing	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.	The city of Fairview completed one of the CIP projects in the Consolidated Stormwater Master Plan, which is the NE Main St. Improvement Project. Project execution was in accordance with the City of Fairview design and construction standards, and was designed by a local design consultant (All County Surveyors and Planners, Inc.) and constructed by a local contractor (Oregon Underground, Inc.) The project components are installation of curbs and pavement overlay to collect storm surface run-off to be discharged in the 4 newly constructed rain gardens for detention and treatment prior to final discharge in the public storm pipe system. This is a combination of "On-site infiltration with surface infiltration facility and Off-site flow to storm-only pipe system , Flow Conveyance Standards. The Destination/Disposal Standards is classified under Off-site to Piped Flow category of the Stormwater Management Plan, Section1.4.3.	No modification	Engineering Associate
SMP 2 Control of Pollution Prevention for Municipal Operations							
O&M Plan	1-Nov-13	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	Operation and Maintenance procedures was one of the gap analyses and resolutions that were addressed by a professional services consultant this PY 19 in compliance to the NPDES MS4 reporting. The consultant conducted review, updates and refinement of the City of Fairview's stormwater program based on the SWMP. The following items are updates and refinements of the O & M program: 1) O & M agreement on private facilities under BMP 8.2, which is incorporated in the updated GIS stormwater facility mapping. 2) Electronic / digitized version of the Standard Operating Procedures were developed in addition to the hard copies for continual updating convenience. 3) Facility inspection and maintenance forms were also digitized and refined for improved documentation and tracking.	No modification	Engineering Associate PW Superintendent Storm Lead Worker
Right of way–O&M	Ongoing	The City contracts with Multnomah County for road maintenance that includes street sweeping, roadside mowing and 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.		City of Fairview maintains an IGA with Multnomah County for road maintenance activities. Road maintenance activities performed at County roads this PY 19, as follows: • Catch basins cleaning - once in September. • Mowing - once in April. • Route sweeping - 5 times: Aug, Oct, Dec, Jan and Apr. • Misc. sweeping (snow gravel pick up) - 2 times: Jan. and Mar.	No modification	PW Superintendent
Street Sweeping	Ongoing	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.	Multnomah County conducted a total of 7 street sweeping this PY. Please see detail above, Right of Way operation and maintenance.	No modification	PW Superintendent
De-icing and Yard Debris Activities	Ongoing	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.	As weather permits, remove gravel when it is no longer needed.	Track processes conducted for sand and gravel removal.	There are two de-icing events that took place during this PY19: • Once in January, 2014 • Once in March, 2014	No modification	PW Superintendent
Native Vegetation	Ongoing	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.	During PY 19, there were 2 Type 1, Natural Resource Permits (Riparian Buffer Permits) granted in addition to the 1200-COLS permits, as follows: 1) Dean Hurford's property at NW corner of NE Halsey & NE 223rd intersection (10/16/2013). 2) Troutdale Reynolds Industrial Park (TRIP).	No modification	Permit Tech
Integrated Pest Management	Ongoing	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: • 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.	Use Portland Parks and Recreation approved chemicals. Incorporate native plants in City planting projects to reduce chemical and fertilizer usage, as well as maintenance requirements.	Track City planting projects that incorporate native plants.	There were total of 29 City of Fairview parks that were treated with pesticides, this PY 19. Most of these parks were only treated with a mixture of herbicides as needed for evasive or unwanted native vegetation.	No modification	Engineering Associate Parks Lead Worker
Chemical Applicator Licensing	Ongoing	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	City of Fairview's Park Lead Worker is a certified Oregon Department of Agriculture (ODA) chemical applicator who updates his certification every 2-year renewal period. All events involving chemical applications are supervised by the Park Lead Worker.	No modification	Parks Lead Worker

BMP Name	Compliance Date	BMP Description	Measurable Goals	Tracking Measures	Status 2013-2014 (PY 19)	Summary and Date of Proposed Adaptive Management Modifications	Responsible Party
Track Municipal Facilities	Ongoing	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.		N/A	City staff conducted a follow-up inspection of the Corporation Yard Dumpster (Crestwood Shop) last April 28, 2014 and completed a municipal facility assessment questionnaire and concurred with the content of the SWPPP.	No modification	Engineering Associate
Litter Receptacles	Ongoing	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.	There are approximately 45 receptacles that are maintained once a week and after significant events.	No modification	Parks Lead Worker
Sanitary Sewer System Program	Ongoing	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.	Conducted an investigation and followed up by enforcement of a broken sanitary sewer service lateral at 100 NE 2nd St. Fairview, OR during construction of the Main Street Capital Improvement Project, last May 29, 2014. The problem was when Frontier Communication Co. installed their telephone cable fiber optic in the neighborhood using directional boring (trenchless technology) that intersected and shattered the sewer service line. The broken section was repaired by the project contractor. Frontier was notified to conduct their future projects performing exploratory excavation (vacuum pressure or open excavation) prior to trenchless boring activities.	No modification	Engineering Associate
Consolidated Stormwater Master Plan (CSMP)	Ongoing	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.	Track the number, type and watershed location of projects that are completed.	There were no Capital Improvement Projects (CIPs) identified in the Consolidated Stormwater Management Plan (CSMP) that were constructed this PY 19.	No modification	Engineering Associate
[illegible] Stormwater Facility Inspections and Maintenance							
Inspect and Maintain Public Storm Facilities	Ongoing	Perform inspection and required maintenance as stated in the O&M Plan–clean catch basins and storm pipe, sedimentation manholes, channels and stormwater detention basins in areas where sediment and/or debris tend to accumulate.	Inspect 50 percent of detention lines, ponds, swales and outfalls. Inspect natural stream channels from bridge and road crossing. 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	Track facilities inspected and maintained. Track number of catch basins cleaned. Estimate quantity of sediment removed from catch basins and water quality manholes.	City of Fairview's catch basin facilities is divided into 3 zones; each zone is inspected annually. Zone 3 (129 catch basins) were inspected this PY 19. All 3 Underground Injection Control (UICs) / Dry Well / Sump & Sedimentation Manholes were inspected this PY 19 and took sample of sediments for evaluation and determing hazardous wastes and materials and the sediments were disposed at PVV, Inc. Waste Water Solutions. Only nine outfalls (high priority), out of the 38 total identified outfalls were inspected this PY 19 due to staff limitation and transitioning.	No modification	Engineering Associate Storm Lead Worker PW Superintendent Map Tech
Private Water Quality Facilities Inspection and Maintenance	Ongoing	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.	Track number of inspections conducted and inspection results.	It is one of the requirements during the development review process of industrial and commercial businesses to include submittal of facility maintenance agreement. The City of Fairview participates with the cities of Gresham, Troutdale and Wood Village on a Stormdrain Cleaning Assistance Program (SCAP) for private properties like industrial/commercial businesses, apartments and schools. The program prequalifies licensed contractors that can provide parking lot stormdrain (catch basin) cleaning at a flat fee for businesses.	No modification	Engineering Associate

Appendix A -- Legal Authority

ADEQUATE LEGAL AUTHORITY	
Requirement	**Code Authority**
Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water *discharges associated with industrial activity* and the quality of storm water discharged from sites of industrial activity.	GRC Article 3.30 requires a Stormwater User Permit. Includes new connections and the alteration, modification or increase in discharge from existing development. GRC Article 3.24 requires compliance with NPDES permits, and requires notification of spills, elimination of illicit connections, remediation of pollution and restoration of property and the monitoring, analysis, and reporting to demonstrate compliance. GRC Article 3.23 regulates discharges from all sites.
Prohibit through ordinance, order or similar means, *illicit discharges* to the municipal separate storm sewer.	GRC 3.23.020 prohibits illicit connections and illicit discharges. GRC 3.23.025 specifically prohibits certain waste disposal. GRC 3.23.030 adds general discharge prohibitions.
Control through ordinance, order or similar means the discharge to a municipal separate storm sewer *of spills, dumping or disposal of materials other than storm water.*	GRC 3.23.010 generally prohibits non-stormwater discharge and GRC 3.23.025 specifically prohibits certain waste disposal. GRC 3.24.021 requires certain discharges to develop an Accidental Spill Prevention Plan
Control through interagency agreements among the co-permittees the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.	A cooperative monitoring and stormwater management program exists between the cities of Gresham and Fairview, and Gresham and Multnomah County, based on historical arrangements that were formalized in an IGA in June 2004. Additionally, the City of Gresham and Multnomah County have a longstanding IGA regarding stormwater issues relating to County roads within the City of Gresham.
Require compliance with conditions in ordinances, permits, contracts or orders.	GRC 3.26.030 and 3.26.035 provide for enforcement of stormwater provisions pursuant to GRC Article 7.50.
Carry out *all inspection, surveillance and monitoring* procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.	GRC Article 3.26 establishes authority for inspection and monitoring to enforce provisions of the Stormwater Code.

Beery Elsner & Hammond LLP

MEMORANDUM

TO: Allan Berry, Public Works Director, City of Fairview

FROM: David F. Doughman, City Attorney's Office DFD

SUBJECT: Legal Authority to implement and enforce NPDES MS4 permit

DATE: October 9, 2014

Fairview's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit requires it to "maintain adequate legal authority, through ordinance(s), interagency agreement(s) or other means, to effectively implement and enforce" the permit's provisions. *See* NPDES MS4 Permit No. 101315 at Schedule D(1). You asked our office to confirm that Fairview is maintaining such authority.

As outlined below, we are confident that Fairview has maintained and currently possesses adequate legal authority to implement and enforce the NPDES MS4 permit.

The legal authority must enable the City to:

(a) *Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity.*

In 2004, the City adopted a comprehensive ordinance to control non-stormwater discharge into its storm sewer system, codified at Fairview Municipal Code (FMC or Code) Chapter 13.40. It applies to "all water entering the city of Fairview storm drain system and generated on any developed and undeveloped property unless specifically exempted." FMC 13.40.020.

The Code, at FMC 13.40.070, regulates industrial discharges into the storm sewer system. It requires an industrial discharger to prove it is complying with any NPDES permit it may possess for industrial discharges and allows the Fairview public works department to inspect a discharger's facility. It grants the public works department the authority to install

monitoring devices at a facility to control the quality of storm water discharged from the site and provides for penalties for dischargers who fail to comply with FMC 13.40.070's terms.

For industrial dischargers that are not required to possess a NPDES permit, the City is able to require a reporting form and establish a schedule of monitoring discharges from such facilities.

(b) *Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer.*

The Code specifically prohibits illicit discharges to the system at FMC 13.40.040. Any materials that are not "stormwater" – defined as rain runoff, snowmelt runoff, and surface water and drainage – are not allowed to be discharged into the system, subject to certain exceptions. Penalties may be imposed upon persons illicitly discharging prohibited materials, including fines and suspending access to the system, among others. *See* FMC 13.40.060 and 13.40.110.

(c) *Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water.*

In addition to explicitly prohibiting non-stormwater discharges into the system as discussed above, the Code controls the discharge of materials other than stormwater by utilizing best management practices (BMPs) identified in Fairview's Stormwater Management Plan. *See* FMC 13.40.080. Further, the Code allows for monitoring of discharges at the public works department's discretion. *See* FMC 13.40.070.

The Code also requires dischargers to immediately report spills or disposal of materials other than stormwater and provides for penalties for those who may fail to report such spills. *See* FMC 13.40.100 and 13.40.110.

Other Code sections control the discharge of materials other than stormwater. FMC 19.106.040(B) prohibits alterations to wetlands that would appreciably diminish the values or functions of the water body or wetland. FMC 19.106.040(C)(9) requires construction sites adjacent to wetlands to install erosion/sedimentation control devices between the land area to be disturbed and any wetlands. The devices must conform to the specifications and procedures of the City's erosion control standards

FMC 19.106.040(C)(10) requires developments with significant impervious surface areas adjacent to wetlands to have storm water detention and filtration facilities as part of their

approved design. The design of such facilities must conform to the BMPs described in the City's standard specifications for public facilities and related ordinances and technical/guidance manuals.

(d) *Control through interagency agreements among co-applicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system.*

The City has an intergovernmental agreement (IGA) with Gresham, a co-permittee for the duration of the permit term. The jurisdictions agree to minimize their contribution of pollutants to each others' stormwater systems to the maximum extent practicable through implementation of an approved Stormwater Management Plan. In addition, each jurisdiction may provide services related to water quality protection to the other upon mutual agreement, at full cost.

(e) *Require compliance with conditions in ordinances, permits, contracts or orders.*

All of Fairview's ordinances are subject to enforcement actions, either specific to a given ordinance (e.g. FMC 13.40.110) or generally through a violation citation in municipal court. Land use/development permits routinely condition approval upon satisfying various Code criteria and such permits may similarly be enforced in court. Naturally, if a contract pertaining to stormwater management is breached the City has the right to enforce the contract in court.

(f) *Carry out all inspections, surveillance, and monitoring procedures necessary to determine compliance and non-compliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.*

Fairview's comprehensive ordinance controlling non-stormwater discharges into its system explicitly:

- Permits the public works director to prohibit a discharger from engaging in activities that are, were or may be a significant source of non-stormwater discharge. FMC 13.40.040(B)(2).

- Prohibits illicit discharges into the system and illicit connections to the system. FMC 13.40.040(A).

- Permits the public works department to suspend MS4 discharge access if necessary to prevent an actual or threatened discharge that will harm the public, the system or the environment. FMC 13.40.060(A).

- Permits the public works department to enter and inspect a discharger's facilities, establish monitoring of the discharge, and require regular reporting to the City. *See* FMC 13.40.070.

For all of the above reasons, we believe the City continues to possess the adequate legal authority required by its NPDES MS4 permit. Please let me know if you have any questions.

STORMWATER MONITORING PROGRAM ANNUAL REPORT
(City of Gresham and City of Fairview)

Cities of Gresham & Fairview Environmental Monitoring Program Annual Report

A. History

Background

The data reported in this PY 19 Annual Report reflects the Cities of Gresham and Fairview's implementation of the Environmental Monitoring Plan that was approved by DEQ and became effective July 1, 2011. The City of Gresham collects data for Multnomah County under an Interjurisdictional Agreement and that data is included in this report.

B. Required Elements

This section of the Annual Compliance Report summarize the Environmental Monitoring Plan implementation and permit requirements contained in Schedule B. As described in the City of Gresham and Fairview's NPDES Permit, Schedule B) 5., the annual report must include:

f. A summary of monitoring program results, including monitoring data that are accumulated throughout the reporting year and/or assessments or evaluations.

g. Any proposed modifications to the monitoring plan that are necessary to ensure that adequate data and information are collected to conduct stormwater program assessments.

The environmental monitoring requirements specified in Table B-1 of the NPDES permit are summarize below in Table 1. Elements required by the permit are *italicized* text.

Table 1. Environmental Monitoring Requirements Summary

Monitoring Type	Monitoring Location(s)	Monitoring Frequency	Pollutant Parameter Analyte(s)	Notes
Instream Monitoring	*Three (3) sites in the Columbia Slough basin:* 1. Fairview Lake @ Lake Shore Park (FVL1) 2. Fairview Creek @ mobile estates (FCI0) 3. Fairview Creek @ Stark (FCI1)	*Four (4) events/year*	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS, Chlorophyll-a (May-Oct); nutrients (nitrate, ammonia, Total P, o-Phos); Total recoverable and dissolved metals (copper, lead and zinc); legacy pesticides (JC only)*	The City of Portland collects data on the entire Columbia Slough, but based on their probabilistic sampling design, locations monitored any permit year will be reported to DEQ by Portland.
	Two (2) sites in the Sandy River basin: 1. Kelly Creek @ Mt. Hood Community College Pond (KCI1) 2. Kelly Creek @ Detention Pond (KCI4)			
	Four (4) sites in the Johnson Creek subbasin: 1. Johnson Creek @ Jenne Rd (JCI1) 2. Johnson Creek @ Palmblad (JCI2) 3. Kelley Creek @ Pleasant Valley Grange (KI1) 4. Kelley Creek @ Rodlun Rd (KI2)			

Continuous Instream Monitoring	*Two (2) continuous monitoring stations:* 1. Johnson Creek @ Regner 2. Fairview Creek @ Glisan*	*Ongoing* 15-minute interval	*Temperature and flow*	Flow data collected by USGS through Joint Funding Agreement #3225. *Fairview gage does not collect temperature. City of Gresham periodically collects summer temperature at Glisan location, as well as other locations throughout city.
Stormwater Monitoring - Storm Event	*Three (3) sites.* Monitored 30 random and spatially balanced stormwater locations.	*Three (3) events/year* Monitored 1 event at each location	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS; nutrients (nitrate, ammonia, Total P, o-Phos); Total recoverable and dissolved copper, lead and zinc; pesticides*	The permit requirements as described by Schedule B)2)e)ii) would result in 9 data points annually. The City's approved monitoring approach results in 30 data points.
Stormwater Monitoring - Mercury	*Two (2) sites:* 1. Inlet to Fairview Creek Water Quality Facility (FCWQF-1) 2. West inlet to Columbia Slough Water Quality Facility (CSWQF-1) 3. East inlet to Columbia Slough Water Quality Facility (CSWQF-2)	Two (2) events/year; one summer event and one winter event	*Mercury (Total Recoverable and Dissolved); Methyl Mercury (Total Recoverable and Dissolved)*	Completed 2 years of low level mercury and methyl mercury monitoring, then DEQ approved request to discontinue. Continue to monitor total mercury.
Macro-Invertebrate Monitoring	*One (1) site in the Columbia Slough basin:* 1. Fairview Creek @ mobile estates (FCI0) 2. Fairview Creek @ Stark (FCI1) *One (1) site in the Sandy River basin:* 1. Kelly Creek @ Mt. Hood Community College Pond (KCI1) 2. Kelly Creek @ Detention Pond (KCI4) *Two (2) sites in the Johnson Creek subbasin:* 1. Johnson Creek @ Jenne Rd (JCI1) 2. Johnson Creek @ Palmblad (JCI2) 3. Kelley Creek @ Pleasant Valley Grange (KI1) 4. Kelley Creek @ Rodlun Rd (KI2)	One (1) event/year during summer/low flow conditions	*Macroinvertebrates*	Collected during same week as instream water quality data collection occurred in summer.

Structural BMP Monitoring	*One (1) site - inlet and outlet:* 1. Fairview Creek Water Quality Facility (FCWQF-1 and FCWQF-2) 2. Columbia Slough Water Quality Facility (CSWQF-1, CSWQF-2 and CSWQF-3)	*Two (2) events/year through Dec 31, 2013*	*DO, pH, temperature, conductivity, turbidity, E. coli, hardness, BOD, TSS; nutrients (nitrate, ammonia, Total P, o-Phos); Total recoverable and dissolved metals (copper, lead and zinc)*	Shifted monitoring from FCWQF to just CSWQF facility in 2013.

C. Summary of Monitoring Program Results

The data collected in PY 19 are provided in the Appendix. The in-stream data have been compared to the relevant DEQ water quality criteria. Values that do not meet the water quality standards are highlighted. Data from Stormwater (wet weather sampling) and Structural BMP Monitoring have not been compared to water quality standards because of the mixing that occurs in-stream.

Instream Monitoring

Instream monitoring results are generally within expected ranges. Some sites were above the temperature standard in late July/early August, and some sites had periodic exceedances of the 406 colony forming units (CFU/100ml) *E. coli* standard, primarily after events associated with rainfall. All of the sampled streams currently have TMDLs for both of these pollutants.

Continuous Instream Monitoring

The data from the continuous instream monitoring being conducted by USGS is available at www.usgs.gov. In addition to the data collected at the two USGS gages on Johnson and Fairview Creeks, the City of Gresham also collected continuous temperature data at all of the instream monitoring locations, as well as other locations. A summary of the number of days that the maximum daily temperature at each continuous temperature monitoring station exceeded the temperature standard (17.8 C), as well as the highest temperature reached at each station is included in the Appendix. Very few sites had no exceedances (highlighted in blue), while several streams had sites where the 7-day average of the daily maximum (7DADM) was >18 for 100 days or more (highlighted in red). The city is aware of the impact in-line ponds can have on temperature - Fujitsu Pond is a highly ranked Natural Resource CIP project, and the City is also studying ways to improve public and private ponds on Butler and Hogan Creeks. One interesting finding from the past year is the difference in max temp versus days of exceedance for 2 locations downstream of ponds. The Butler Creek site downstream of Marpol Pond (which has a surface release) had a much higher maximum temperature than the Butler Creek location downstream of Binford Lake (subsurface release point) - despite the fact that Binford Lake is downstream of Marpol Pond. This finding may inform design options for retrofiting ponds where removal may not be feasible.

Stormwater Monitoring

Stormwater monitoring data revealed higher traffic sites (>1000 vehicle trips per day) have higher pollutant concentrations for most pollutants (e.g. TSS, total and dissolved metals, nutrients, phthalates, and pesticides) in comparison to residential streets (<1000 trips/day). This past year, additional pesticides were analyzed based on identification in Gresham's pesticide assessment. Pesticide detections were minimal, with 15 of the 30 sites having a detection of pentachlorophenol (used as a weatherizing agent on telephones which are thought to be the primary source), 2 sites having a detection of triclopyr (licensed for broad leaf weed control for aquatic and non-aquatic use), 8 sites having a detection of 2,4-D (broadleaf weed control commonly used on residential and commercial lawns), 2 sites having a detection of MCPP (weed control for agricultural use), and dicamba (weed control for agriculture, residential and commercial use) and MCPA (broadleaf weed control for agriculture, residential and commercial use) each being detected in one sample. All other samples were less than the method reporting limits for pesticides analyzed. The values of each detected pesticide were compared to EPA aquatic life benchmarks and drinking water MCLs, and all were orders of magnitude below levels of concern. During PY19, BTEX was assessed at the 30 stormwater monitoring locations. Benzene was never detected, ethylbenzene was detected once; xylenes were detected in 6 samples; and toluene was present in 8 samples. All values were far below acute and chronic values listed in Table 30.

Structural BMP Monitoring

Structural BMP monitoring during 2013-14 included monitoring inlet and outlet locations at the Columbia Slough Water Quality Facility. In general, results show that the facility is reducing metals and other pollutants associated with sediment, as well as reducing nutrients and bacteria.

Macroinvertebrate Sampling

Macroinvertebrates were collected at all of the instream monitoring locations, except Fairview Lake. Results are similar to previous years, with the Kelley Creek location (KI2) showing the least amount of impairment (i.e., the greatest abundance and highest number of sensitive species). This site is predominantly surrounded by an undeveloped forested area. All of the other locations have biological communities that indicate moderate or severe impairment according to the statewide Benthic Index of Biological Integrity (B-IBI). Data trends will be assessed on a five year basis as described in the Environmental Monitoring Plan.

D. Adaptive Management

The City of Gresham submitted a Stormwater Monitoring Plan to DEQ, which was approved prior to the January 14, 2013 issuance of the Water Pollution Control Facility permit for Underground Injection Control devices (UICs). As noted in the 2011-12 Annual Report, this monitoring plan complies with both the WPCF permit requirements and the MS4 Stormwater Monitoring-Storm Event (wet weather sampling) requirements as described in Schedule B Table B-1.

Cities of Gresham and Fairview Environmental Monitoring Data

Water Quality Monitoring Site Locations & Criteria

Instream-Longterm & Macroinvertebrate Site Locations

FCI0	Fairview Creek @ West of Blue Lake Rd in Trailer Park
FCI1	Fairview Creek @ Conifer Park Subdivision, N of Stark
FVL1	Fairview Lake @ Public Dock on NE 217th
JCI1	Johnson Creek @ 174th Ave (Jenne Rd)
JCI2	Johnson Creek @ 252nd Ave. (Palmblad)
KI1	Kelley Creek @ Foster Rd. (tributary of JC)
KI2	Kelley Creek @ Rodlun Rd (tributary of JC)
KCI1	Kelly Creek @ Mt. Hood Community College Pond Outflow
KCI3	Kelly Creek @ Detention Pond Outflow
KCI4	Kelly Creek @ Detention Pond Inflow
BCI1	Beaver Creek @ Lower Bridge (Monitored on behalf of Multnomah County, not shown on Gresham Map of Instream Sites)
BCI2	Beaver Creek @ Division X Troutdale Rd. (Monitored on behalf of Multnomah County, not shown on Gresham Map of Instream Sites)

Structural BMP Evaluation Monitoring Locations

CSWQF-1	Columbia Slough Water Quality Facility - Stormdrain Creek
CSWQF-2	Columbia Slough Water Quality Facility - East Inlet
CSWQF-3	Columbia Slough Water Quality Facility - Outlet

Analysis Coding for the Reported Data

Bold = < than detection value or an Estimated value for bacteria

NA = constituents not sampled due to equipment failure or other extenuating circumstance

NM= not measured **ND**= not detected

MRL = method reporting limits are included at the top of each data set where they are constant. For parameters were no MRL is included, this means they vary by sample.

Dup = Duplicate Sample

FD = Field Duplicate Sample

Blank = Deionized Water Sample

Exceedance of TMDL or Water Quality Criteria

Chronic exceedance of metal (Table 30)

Acute exceedance of metal (Table 30)

TMDL Constituent	Water Quality Criteria
Fairview Creek & Lake	
Temperature	No designated salmon and steelhead spawning use. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
Phosphorus	0.1549 mg/L (Columbia Slough 1998 TMDL)
Mercury	Aquatic life: 2.4 ug/L acute; 0.012 ug/L chronic. MCL: 2 ug/L
Johnson Creek (including Kelley Creek trib)	
Temperature	Spawning: 13 degrees Celsius (55.4 F) - October 15 to May 15. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
PCBs	Acute 2.0 ug/L, Chronic 0.014 ug/L (per Table 30)
PAHs	Not included in Table 40 or 41. Table 30 only lists saltwater acute level of 300 ug/L
Dieldrin	Acute 0.24 ug/L, Chronic 0.056 ug/L (per Table 30)
DDT	Acute 1.1 ug/L, Chronic 0.001 ug/L (per Table 30)
Mercury	Acute 2.4 ug/L, Chronic 0.012 ug/L (per Table 30)
Kelly Creek	
Temperature	Spawning: 13 degrees Celsius (55.4 F) - October 15 to May 15. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)

Columbia Slough

Temperature	No designated salmon and steelhead spawning use. Rearing: 18 degrees Celsius
E. coli	406 organisms/100mL (OAR 340-41)
pH	between pH 6.5 - 8.5
DO	No spawning
	6.5 mg/L: cool-water aquatic life (avg)
	4.0 mg/L: absolute minimum (Columbia Slough TMDL)
	5.5 mg/L: warm-water aquatic life
Phosphorus	0.1549 mg/L (Columbia Slough 1998 TMDL)
Chlorophyll-*a*	0.015 mg/L
Pb	Based on hardness. Table 30 has formula
PCBs	Acute 2.0 ug/L, Chronic 0.014 ug/L (per Table 30)
Dieldrin	Acute 0.24 ug/L, Chronic 0.056 ug/L (per Table 30)
DDT/DDE	Acute 1.1 ug/L, Chronic 0.001 ug/L (per Table 30)
Dioxins	Fish tissue 0.07 ng/kg (Columbia Slough 1998 TMDL)
Mercury	Acute 2.4 ug/L, Chronic 0.012 ug/L (per Table 30)

Non-TMDL WQ Constituents from OAR 340-41 Table 30	
Metals	Based on hardness, formula in Table 30
pH	Between 6.5-8.5: same for all watersheds in the permit area (OAR 340-41)
DO	Not evaluated, since the criteria are for averages. Cold water aquatic life; spawning: 11 mg/L; nonspawning 8.0 mg/L

In-Stream Monitoring Data

Sample ID	Site ID	Date	Time	24-hr Rainfall inches	Field DO mg/L	Field pH	Field Temp C	Conductivity µS/cm	Turbidity NTUs	BOD5 mg/L SM 5210B 2	TSS mg/L SM 2540D 2	NH3-N µg/L EPA 300.0 20	Chloro-phyll-a mg/M3 SM 10200H 2	NO3-N µg/L EPA 300.0 100	O-PO4 µg/L EPA 365.1 20	TKN µg/L EPA 351.2 20	Total-P µg/L EPA 365.4 30	Hardness mg CaCO3/ SM 2340B CA 1
W13G231-02	FCI0	7/29/2013	11:15	0.00	8.19	7.83	17.5	97.4	2.81	2	4	42	4	1500	145	540	186	79.2
W13G231-03	FCI1	7/29/2013	13:50	0.00	9.55	6.9	15.1	76.8	1.55	2	2	20	2	2600	99	200	97	63.9
W13G238-01	JCI1	7/30/2013	15:05	0.00	9.47	7.31	20.8	144.4	4.82	2	3	68	3.2	490	20	520	77	49.3
W13G238-02	JCI2	7/30/2013	13:50	0.00	10.39	7.61	18.8	129.7	6.92	2	2	21	2	1300	68	440	133	37.5
W13G238-06	KCI1	7/30/2013	11:30	0.00	8.72	7.65	20.4	202.3	7.46	2	19	20	3.2	110	20	530	73	70.5
W13G238-07	KCI3	7/30/2013	13:20	0.00	9.37	7.21	18.8	182.2	18.4	2	8	97	2	980	20	710	97	73.2
W13G238-08	KCI4	7/30/2013	13:05	0.00	8.65	7.11	17.5	169.1	18.5	2	16	73	2	1300	34	690	151	70.1
W13G238-04	KI2	7/30/2013	14:20	0.00	10.52	7.33	14.5	161.4	32.5	2	11	20	2	400	20	390	103	79.9
W13G238-03	KI1	7/30/2013	14:40	0.00	4.75	7.05	16.2	146.6	11.3	2	12	89	14.4	600	134	960	349	60.5
W13G238-08	BCI1	7/30/2013	10:50	0.00	10.65	7.26	16	194.2	3.01	2	3	25	2	1500	34	300	78	87.5
W13G238-09	BCI2	7/30/2013	12:40	0.00	10.96	7.24	17.9	122.8	2.73	2	2	37	12.8	360	54	590	91	45.5
W13G238-05	JCI2-FD	7/30/2013	13:50	0.00						2	2	20	2	1300	69	420	126	37.5
W13J224-01	FCI0	10/29/2013	16:05	0.00	11.33	7.68	10.2	84.9	1.52	2	2	20	2	820	27	270	54	55.5
W13J224-02	FCI1	10/29/2013	16:25	0.00	10.15	6.99	12.2	103.2	1.46	2	2	20	2	2100	64	220	83	57.5
W13J224-03	JCI1	10/29/2013	10:30	0.00	8.61	6.82	7.7	58.0	6.62	2	2	20	2	490	20	440	79	35
W13J224-04	JCI2	10/29/2013	13:00	0.00	13.2	7.3	6.7	55.8	5.54	2	2	20	2	1200	20	440	52	31.3
W13J224-05	KCI1	10/29/2013	14:45	0.00	10.07	7.2	10.3	73.6	6.52	3	3	23	2	470	20	680	74	42.9
W13J224-06	KCI3	10/29/2013	13:50	0.00	8.67	7.15	7.1	76.7	5.16	2	2	20	2	380	20	390	34	59.6
W13J224-07	KCI4	10/29/2013	13:30	0.00	10	7.13	7.8	72.0	4.41	2	7	20	2	510	20	350	30	63.8
W13J224-08	KI1	10/29/2013	10:50	0.00	6.29	6.8	6.9	72.2	14.4	2	13	22	2	260	46	510	142	45.9
W13J224-09	KI2	10/29/2013	11:15	0.00	12.65	7.24	6.7	104.5	17.4	2	9	101	2	320	20	250	39	76.1
W13J224-10	BCI1	10/29/2013	15:20	0.00	13.14	7.4	8.4	96.2	5.1	2	2	20	2	1100	29	310	67	62
W13J224-11	BCI2	10/29/2013	14:10	0.00	13.61	7.15	6	71.9	2.48	2	2	20	2	1400	20	340	56	43.5
W13J224-12	FD-KCI4	10/29/2013	13:30	0.00						2	2	20	2	510	20	330	38	62.4
W14A201-01	FCI0	1/27/2014	14:30	0.00	13.17	7.63	3.4	105.3	3.92	2	2	20	NM	140	25	270	60	66.2
W14A201-02	FCI1	1/27/2014	15:00	0.00	11.2	7.02	8.6	123.3	1.2	2	2	20	NM	240	82	200	95	60.3
W14A201-03	JCI1	1/27/2014	9:55	0.00	13.79	6.78	2	58.3	8.3	2	2	46	NM	230	20	240	36	32.2
W14A201-04	JCI2	1/27/2014	11:05	0.00	14.35	7.19	2.7	48.3	6.95	2	2	20	NM	280	20	200	30	23.4
W14A201-05	KCI1	1/27/2014	13:05	0.00	13.99	7.19	2.6	100.2	5.97	2	2	142	NM	170	20	300	48	61
W14A201-06	KCI3	1/27/2014	12:15	0.00	11.88	7.05	2.8	84.1	5.92	2	2	74	NM	180	20	260	30	50.3
W14A201-07	KCI4	1/27/2014	12:30	0.00	12.82	7.09	3.5	82.9	4.2	2	2	83	NM	160	20	270	30	49.7
W14A201-08	KI1	1/27/2014	10:20	0.00	12.27	7	3.1	71.9	7.53	2	4	47	NM	110	20	210	49	38.5
W14A201-09	KI2	1/27/2014	10:35	0.00	13.61	7.35	4.1	80.5	6.15	2	2	36	NM	190	20	200	30	47.4
W14A201-10	BCI1	1/27/2014	13:40	0.00	15.26	7.41	2.5	85.6	3.48	2	2	20	NM	260	20	220	42	50.4
W14A201-11	BCI2	1/27/2014	12:45	0.00	14.91	7.02	2.3	59.2	4.01	2	2	20	NM	310	20	220	31	31.2
W14A201-12	FD-FCI1	1/27/2014	14:30	0.00						2	2	20	NM	250	86	200	92	60.6
W14D249-01	FCI0	4/29/2014	14:25	0.00	9.05	7.52	15.2	119.2	5.11	2	6	23	NM	1200	20	300	63	55.5
W14D249-02	FCI1	4/29/2014	14:45	0.00	8.11	7.23	14.6	154.6	2.92	2	3	20	NM	1100	33	330	75	75.8
W14D249-03	JCI1	4/29/2014	10:10	0.00	12.65	6.69	11.2	60.9	21.4	2	6	20	NM	1900	20	320	43	26.7
W14D249-04	JCI2	4/29/2014	11:15	0.00	13.26	6.56	10.9	52.8	15.7	2	6	20	NM	2200	20	270	38	22.1
W14D249-05	KCI1	4/29/2014	13:05	0.00	11.73	6.8	12.8	101.2	6.15	2	2	45	NM	1300	20	370	42	50.5
W14D249-06	KCI3	4/29/2014	12:15	0.00	11.84	6.5	12.1	96.6	7.05	2	2	31	NM	1500	20	260	30	48.3
W14D249-07	KCI4	4/29/2014	12:30	0.00	12.42	6.88	11.6	95.0	6.19	2	2	20	NM	1600	20	240	30	47.4
W14D249-08	KI1	4/29/2014	10:25	0.00	12.39	6.64	10.4	72.4	9.3	2	3	20	NM	840	20	240	40	33.6
W14D249-09	KI2	4/29/2014	10:45	0.00	13.64	6.79	10.2	63.3	12	2	4	20	NM	1800	20	280	30	31.1
W14D249-10	BCI1	4/29/2014	13:40	0.00	10.54	7.34	13.4	91.9	5.79	2	2	20	NM	1900	20	210	38	41.4
W14D249-11	BCI2	4/29/2014	12:45	0.00	12.65	6.77	12.8	71.3	5.86	2	2	20	NM	2300	20	260	32	30.7
W14D249-12	FD-KI2	4/29/2014	10:45	0.00						2	3	20	NM	1800	20	230	30	30.6

In-Stream Monitoring Data

Sample ID	Site ID	Date	Hg-Total µg/L EPA 200.8 0.002	Cu-Total µg/L EPA 200.8 0.2	Pb-Total µg/L EPA 200.8 0.1	Zn-Total µg/L EPA 200.8 0.5	Cu-Diss µg/L EPA 200.8 0.2	Pb-Diss µg/L EPA 200.8 0.1	Zn-Diss µg/L EPA 200.8 0.5	E. coli MPN/100ml SM 9223B 10	4,4'-DDD ng/L EPA 8081 0.5-various	4,4'-DDE ng/L EPA 8081 0.5-various	4,4'-DDT ng/L EPA 8081 0.5-various	Aldrin ng/L EPA 8081 0.5-various	alpha-BHC ng/L EPA 8081 0.5-various	beta-BHC ng/L EPA 8081 0.5-various	gamma-BHC ng/L EPA 8081 0.5-various
W13G231-02	FCI0	7/29/2013	0.0020	8.480	0.124	2.46	7.12	0.10	1.47	200							
W13G231-03	FCI1	7/29/2013	0.0020	0.309	0.146	2.83	0.228	0.10	2.54	120							
W13G238-01	JCI1	7/30/2013	0.0020	1.530	0.151	2.64	1.3	0.10	1.48	200	0.97	0.62	2.3	1.2	1	4.2	0.66
W13G238-02	JCI2	7/30/2013	0.0020	1.860	0.140	1.76	1.6	0.10	0.833	170	1.0	1.0	3.4	3.4	2.4	3.3	0.97
W13G238-06	KCI1	7/30/2013	0.0020	2.070	0.183	9.71	1.06	0.10	2.27	10							
W13G238-07	KCI3	7/30/2013	0.0021	2.070	0.322	7.79	1.46	0.10	1.64	790							
W13G238-08	KCI4	7/30/2013	0.0021	1.990	0.151	3.96	1.64	0.10	1.71	540							
W13G238-04	KI2	7/30/2013	0.0051	1.840	0.880	7.68	0.363	0.10	0.827	30							
W13G238-03	KI1	7/30/2013	0.0033	2.700	0.818	24.20	1.53	0.10	1.9	130							
W13G238-08	BCI1	7/30/2013	0.0020	0.983	0.100	1.76	0.72	0.10	1.13	75							
W13G238-09	BCI2	7/30/2013	0.0020	1.500	0.100	0.76	1.32	0.10	0.5	180							
W13G238-05	JCI2-FD	7/30/2013	0.0020	1.880	0.142	1.66	1.66	0.10	1.14	290							
W13J224-01	FCI0	10/29/2013	0.0020	0.790	0.100	4.25	0.74	0.10	3.7	63							
W13J224-02	FCI1	10/29/2013	0.0020	0.563	0.133	10.90	0.484	0.10	10.7	110							
W13J224-03	JCI1	10/29/2013	0.0021	2.060	0.197	7.44	1.81	0.10	5.74	270	9.5	9.5	9.5	9.5	9.5	9.5	9.5
W13J224-04	JCI2	10/29/2013	0.0020	1.190	0.103	1.18	1.04	0.10	0.766	550	9.8	9.8	9.8	9.8	9.8	9.8	9.8
W13J224-05	KCI1	10/29/2013	0.0020	2.710	0.238	32.10	2.45	0.10	29	730							
W13J224-06	KCI3	10/29/2013	0.0020	1.150	0.100	14.10	1.02	0.10	11.6	63							
W13J224-07	KCI4	10/29/2013	0.0020	1.440	0.100	11.20	0.812	0.10	10.3	20							
W13J224-08	KI1	10/29/2013	0.0022	1.810	0.343	4.52	1.32	0.10	2.17	680							
W13J224-09	KI2	10/29/2013	0.0020	0.495	0.138	4.80	0.33	0.10	1.13	20							
W13J224-10	BCI1	10/29/2013	0.0020	1.280	0.100	5.10	1.16	0.10	4.31	41							
W13J224-11	BCI2	10/29/2013	0.0020	2.070	0.100	1.35	1.83	0.10	1.26	580							
W13J224-12	FD-KCI4	10/29/2013	0.0020	0.874	0.100	11.10	0.858	0.10	10.4	20							
W14A201-01	FCI0	1/27/2014	0.0020	0.681	0.106	2.79	0.552	0.10	2.23	85							
W14A201-02	FCI1	1/27/2014	0.0020	0.312	0.100	7.60	0.259	0.10	6.84	30							
W14A201-03	JCI1	1/27/2014	0.0020	0.577	0.151	2.77	0.415	0.10	1.74	52	1.0	1.0	1.0	1.0	1.0	1.0	2.3
W14A201-04	JCI2	1/27/2014	0.0020	0.442	0.116	1.39	0.306	0.10	0.74	41	1.0	0.74	1.0	1.0	1.0	1.0	1.0
W14A201-05	KCI1	1/27/2014	0.0020	0.936	0.113	10.10	0.782	0.10	7.79	10							
W14A201-06	KCI3	1/27/2014	0.0020	0.648	0.100	6.70	0.534	0.10	4.42	20							
W14A201-07	KCI4	1/27/2014	0.0020	0.526	0.100	4.10	0.49	0.10	3.73	10							
W14A201-08	KI1	1/27/2014	0.0020	0.638	0.120	2.49	0.578	0.10	1.99	30							
W14A201-09	KI2	1/27/2014	0.0020	0.359	0.100	2.59	0.293	0.10	1.17	75							
W14A201-10	BCI1	1/27/2014	0.0020	0.584	0.100	2.17	0.517	0.10	1.49	10							
W14A201-11	BCI2	1/27/2014	0.0020	0.500	0.100	0.86	0.455	0.10	0.568	10							
W14A201-12	FD-FCI1	1/27/2014	0.0020	0.298	0.100	7.42	0.417	0.10	6.9	20							
W14D249-01	FCI0	4/29/2014	0.0015	1.160	0.407	6.31	0.753	0.10	2.54	63							
W14D249-02	FCI1	4/29/2014	0.0012	1.200	0.316	8.29	0.89	0.10	7.53	10							
W14D249-03	JCI1	4/29/2014	0.0023	0.951	0.333	4.70	0.553	0.10	3.04	120	1.1	1.9	2.1	1.1	1.1	1.1	1.1
W14D249-04	JCI2	4/29/2014	0.0019	0.817	0.273	2.91	0.427	0.10	1.19	74	1.1	1.7	1.8	1.1	1.1	1.1	1.1
W14D249-05	KCI1	4/29/2014	0.0020	1.390	0.204	28.50	1.03	0.10	20.9	96							
W14D249-06	KCI3	4/29/2014	0.0012	0.863	0.100	5.64	0.635	0.10	4.22	31							
W14D249-07	KCI4	4/29/2014	0.0020	0.800	0.100	4.70	0.607	0.10	3.51	20							
W14D249-08	KI1	4/29/2014	0.0015	0.731	0.178	2.79	0.522	0.10	1.88	160							
W14D249-09	KI2	4/29/2014	0.0015	0.562	0.180	5.21	0.301	0.10	2.68	10							
W14D249-10	BCI1	4/29/2014	0.0013	0.865	0.106	6.29	0.633	0.10	2.82	41							
W14D249-11	BCI2	4/29/2014	0.0011	0.646	0.100	1.05	0.468	0.10	0.595	85							
W14D249-12	FD-KI2	4/29/2014	0.0013	0.515	0.186	5.22	0.287	0.10	2.55	10							

In-Stream Monitoring Data

Sample ID	Site ID	Date	delta-BHC ng/L EPA 8081 0.5-various	Dieldrin ng/L EPA 8081 0.5-various	Endosulfan I ng/L EPA 8081 0.5-various	Endosulfan II ng/L EPA 8081 0.5-various	Endosulfan Sulfate ng/L EPA 8081 0.5-various	Endrin ng/L EPA 8081 0.5-various	Endrin Aldehyde ng/L EPA 8081 0.5-various	Endrin Ketone ng/L EPA 8081 0.5-various	Heptachlor ng/L EPA 8081 0.5-various	Methoxychlor ng/L EPA 8081 0.5-various	Other 8081 ng/L EPA 8081 0.5-various
W13G231-02	FCI0	7/29/2013											
W13G231-03	FCI1	7/29/2013											
W13G238-01	JCI1	7/30/2013	2.5	2.1	1.0	1.0	3.1	1.0	2.9	1.0	1.0	1.0	
W13G238-02	JCI2	7/30/2013	1.3	2.5	0.97	0.97	6.0	0.97	0.97	0.97	0.97	0.97	
W13G238-06	KCI1	7/30/2013											
W13G238-07	KCI3	7/30/2013											
W13G238-08	KCI4	7/30/2013											
W13G238-04	KI2	7/30/2013											
W13G238-03	KI1	7/30/2013											
W13G238-08	BCI1	7/30/2013											
W13G238-09	BCI2	7/30/2013											
W13G238-05	JCI2-FD	7/30/2013											
W13J224-01	FCI0	10/29/2013											
W13J224-02	FCI1	10/29/2013											
W13J224-03	JCI1	10/29/2013	9.5	9.5	9.5	9.5	9.5	9.5	9.5	NM	9.5	NM	
W13J224-04	JCI2	10/29/2013	9.8	1.4	9.8	9.8	2.4	9.8	9.8	NM	9.8	NM	
W13J224-05	KCI1	10/29/2013											
W13J224-06	KCI3	10/29/2013											
W13J224-07	KCI4	10/29/2013											
W13J224-08	KI1	10/29/2013											
W13J224-09	KI2	10/29/2013											
W13J224-10	BCI1	10/29/2013											
W13J224-11	BCI2	10/29/2013											
W13J224-12	FD-KCI4	10/29/2013											
W14A201-01	FCI0	1/27/2014											
W14A201-02	FCI1	1/27/2014											
W14A201-03	JCI1	1/27/2014	1.0	2.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
W14A201-04	JCI2	1/27/2014	1.0	2.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
W14A201-05	KCI1	1/27/2014											
W14A201-06	KCI3	1/27/2014											
W14A201-07	KCI4	1/27/2014											
W14A201-08	KI1	1/27/2014											
W14A201-09	KI2	1/27/2014											
W14A201-10	BCI1	1/27/2014											
W14A201-11	BCI2	1/27/2014											
W14A201-12	FD-FCI1	1/27/2014											
W14D249-01	FCI0	4/29/2014											
W14D249-02	FCI1	4/29/2014											
W14D249-03	JCI1	4/29/2014	1.1	4.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
W14D249-04	JCI2	4/29/2014	1.1	5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	
W14D249-05	KCI1	4/29/2014											
W14D249-06	KCI3	4/29/2014											
W14D249-07	KCI4	4/29/2014											
W14D249-08	KI1	4/29/2014											
W14D249-09	KI2	4/29/2014											
W14D249-10	BCI1	4/29/2014											
W14D249-11	BCI2	4/29/2014											
W14D249-12	FD-KI2	4/29/2014											

BMP Effectiveness Monitoring-Fairview Creek and Columbia Slough Water Quality Facilities

Sample ID	Site ID	Date	Time	24-hr Rain fall inches	NH3-N mg/L EPA 300.0 20	BOD5 mg/L SM 5210B 2	NO3-N mg/L EPA 300.0 100	O-PO4 mg/L EPA 365.1 20	TKN mg/L EPA 351.2 20	Total-P mg/L EPA 365.4 30	TSS mg/L SM 2540D 2	Hardness mg CaCO3/L SM 2340B CAL 1	Hg-Total ug/L EPA 200.8 0.002	Cu-Dissolved ug/L EPA 200.8 0.2	Pb-Dissolved ug/L EPA 200.8 0.1	Zn-Dissolved ug/L EPA 200.8 0.5	Cu-Total ug/L EPA 200.8 0.2	Pb-Total ug/L EPA 200.8 0.1
W14A212-01	CSWQF-1	1/28/2014	comp	0.36	85	3	42	23	410	75	8	18.2	0.002	1.91	0.123	46.1	3.31	1.17
W14A212-01	CSWQF-1	1/28/2014	22:00	0.36														
W14A212-02	CSWQF-2	1/28/2014	comp	0.36	88	3	36	20	340	54	4	26.1	0.002	1.64	0.1	25.4	2.99	0.581
W14A212-02	CSWQF-2	1/28/2014	22:15	0.36														
NA	CSWQF-3	1/29/2014	23:10	0.36														
W14A212-03	CSWQF-1-1	1/29/2014	0:00	0.36														
W14A212-04	CSWQF-1-2	1/29/2014	3:00	0.36														
W14A212-05	CDWQF -1-3	1/29/2014	6:00	0.36														
W14A212-06	CSWQF-2-1	1/29/2014	0:10	0.36														
W14A212-07	CSWQF-2-2	1/29/2014	3:10	0.36														
W14A212-08	CSWQF-2-3	1/29/2014	6:10	0.36														
W14A212-09	CSWQF-3-1	1/29/2014	5:10	0.36														
W14A224-01	CSWQF-3	1/30/2014	comp	0.36	52	3	86	35	330	83	8	41.1	0.002	1.54	0.1	27.6	1.54	0.98
W14A224-01	CSWQF-3	1/30/2014	8:00	0.36														
W14A224-02	CSWQF-3-2	1/29/2014	14:00	0.36														
W14A224-03	CSWQF-3-3	1/29/2014	23:00	0.22														
W14C086-01	CSWQF-1	3/8/2014	16:05	0.22														
W14C086-01	CSWQF-1	3/8/2014	comp	0.22	28	2	500	20	270	54	6	19.8	0.0032	4.01	0.1	22.6	3.79	0.894
W14C086-02	CSWQF-2	3/8/2014	16:10	0.22														
W14C086-02	CSWQF-2	3/8/2014	comp	0.22	24	2	390	22	240	58	6	29.8	0.003	1.57	0.1	22.9	3.37	0.46
W14C086-03	CSWQF-1-1	3/8/2014	18:00	0.22														
W14C086-04	CSWQF-1-2	3/8/2014	21:00	0.22														
W14C086-05	CDWQF -1-3	3/9/2014	1:00	0.22														
W14C086-05	CDWQF -1	3/9/2014	4:00	0.22														
W14C086-06	CSWQF-2-1	3/8/2014	18:05	0.22														
W14C086-07	CSWQF-2-2	3/8/2014	21:05	0.22														
W14C086-08	CSWQF-2-3	3/9/2014	1:10	0.22														
W14C086-08	CSWQF-2	3/9/2014	4:05	0.22														
W14C086-09	CSWQF-3	3/8/2014	17:05	0.22														
W14C086-09	CSWQF-3	3/8/2014	comp	0.22	19	2	700	32	240	52	6	29.4	0.0024	1.41	0.1	19.4	2.09	0.49
W14C086-10	CSWQF-3-1	3/8/2014	23:05	0.22														
W14C086-11	CSWQF-3-2	3/9/2014	9:00	0.22														
W14C086-12	CSWQF-3-3	3/9/2014	18:00	0.22														
W14C086-12	CSWQF-3	3/10/2014	3:00	0.22														

BMP Effectiveness Monitoring-Fairview Creek and Columbia Slough Water Quality Facilities

Sample ID	Site ID	Date	Zn-Total ug/L EPA 200.8 0.5	E. coli MPN/100ml SM 9223B 10
W14A212-01	CSWQF-1	1/28/2014	58.7	
W14A212-01	CSWQF-1	1/28/2014		
W14A212-02	CSWQF-2	1/28/2014	35.9	
W14A212-02	CSWQF-2	1/28/2014		
NA	CSWQF-3	1/29/2014		
W14A212-03	CSWQF-1-1	1/29/2014		75
W14A212-04	CSWQF-1-2	1/29/2014		20
W14A212-05	CDWQF -1-3	1/29/2014		360
W14A212-06	CSWQF-2-1	1/29/2014		41
W14A212-07	CSWQF-2-2	1/29/2014		75
W14A212-08	CSWQF-2-3	1/29/2014		110
W14A212-09	CSWQF-3-1	1/29/2014		270
W14A224-01	CSWQF-3	1/30/2014	39	
W14A224-01	CSWQF-3	1/30/2014		
W14A224-02	CSWQF-3-2	1/29/2014		340
W14A224-03	CSWQF-3-3	1/29/2014		1400
W14C086-01	CSWQF-1	3/8/2014		
W14C086-01	CSWQF-1	3/8/2014	30.8	
W14C086-02	CSWQF-2	3/8/2014		
W14C086-02	CSWQF-2	3/8/2014	31.5	
W14C086-03	CSWQF-1-1	3/8/2014		24000
W14C086-04	CSWQF-1-2	3/8/2014		24000
W14C086-05	CDWQF -1-3	3/9/2014		1300
W14C086-05	CDWQF -1	3/9/2014		
W14C086-06	CSWQF-2-1	3/8/2014		63
W14C086-07	CSWQF-2-2	3/8/2014		63
W14C086-08	CSWQF-2-3	3/9/2014		63
W14C086-08	CSWQF-2	3/9/2014		
W14C086-09	CSWQF-3	3/8/2014		
W14C086-09	CSWQF-3	3/8/2014	24.7	
W14C086-10	CSWQF-3-1	3/8/2014		14000
W14C086-11	CSWQF-3-2	3/9/2014		930
W14C086-12	CSWQF-3-3	3/9/2014		2300
W14C086-12	CSWQF-3	3/10/2014		

Stormwater Monitoring

Lab ID	System_ID	Trips per Day	Date	Time	Rainfall Previous 24 hrs	DO	pH	Temp	Cond	Turbid	E. coli 10 MPN/100 mL	BOD 2 mg/L	TSS 2 mg/L	Ammonia 10 ug/L	Nitrate 100 ug/L	o-Phos 20 ug/L	TKN 200 ug/L	T-Phos 30 ug/L	Hardness mg/L CaCO3
W13K075-01	3151-F-064	>1000	11/7/2013	10:45	0.81	8.66	6.08	10.9	14.8	32	640	3	26	166	100	20	620	70	7.88
W13K075-02	3251-F-013	<1000	11/7/2013	10:24	0.81	9.74	6.35	10.7	12.3	8.32	300	3	8	20	100	30	310	69	5.58
W13K075-03	3148-W-014	>1000	11/7/2013	11:35	0.86	8.93	5.9	11.2	6.9	19.3	840	3	8	12	100	20	390	47	3.51
W13K075-04	3153-F-040	>1000	11/7/2013	9:20	0.72	10.79	7.14	11.8	8	10.1	220	3	13	20	100	20	380	54	3.8
W13K075-05	3053-F-027	>1000	11/7/2013	10:05	0.81	9.18	6.45	11.2	12.2	40.4	310	3	34	212	130	20	690	90	6.09
W13K075-06	3149-W-038	>1000	11/7/2013	11:55	0.86	8.54	6.09	11.6	29.7	23.1	1400	11	14	16	100	20	1030	165	12
W13K075-07	3148-W-057	>1000	11/7/2013	11:20	0.56	9.21	5.89	11.3	16.4	32.2	900	4	22	128	100	20	350	80	6.74
W13K075-08	Field Duplicate	NA	11/7/2013	NA	NA	NA	NA	NA	NA	NA	1300	3	20	174	100	20	590	68	8.02
W13K075-09	Blank	NA	11/7/2013	NA	NA	NA	NA	NA	NA	NA	10	2	2	23	100	20	200	30	0.705
W13K075-10	3155-F-033	>1000	11/7/2013	9:45	0.72	9.69	6.34	10.8	17.4	50.1	2900	12	28	425	100	20	1820	182	7.47
W13K154-01	3248-W-064	<1000	11/19/2014	8:30	0.50	11.25	6.33	11.2	12.7	20	85	7	28	15	100	38	570	128	5.59
W13K154-02	3151-F-070	>1000	11/19/2014	9:00	0.67	11.43	6.37	10.4	15.3	14.1	6100	7	10	70	100	80	340	152	9.13
W14B074-01	3348-W-035	>1000	2/11/2014	17:00	0.70	16.07	5.94	3.7	23.4	411	290	5	125	308	100	20	1400	331	19.4
W14B074-02	3150-F-034	>1000	2/11/2014	22:00	0.86	14.79	5.93	5.6	16	173	1700	6	130	260	100	20	1780	278	16.3
W14B074-03	3047-W-010	>1000	2/11/2014	20:20	0.74	16.27	6.04	3.8	19.3	617	41	10	316	419	100	20	2460	636	29
W14B074-04	3053-F-003	>1000	2/11/2014	19:30	0.73	14.61	6.46	4.1	53.8	895	63	7	418	282	170	45	3100	2610	52.6
W14B074-05	3149-W-058	>1000	2/11/2014	21:40	0.83	15.12	5.82	4.5	12.4	95.9	170	4	85	149	100	20	830	186	10.5
W14B074-06	2950-W-079	>1000	2/11/2014	19:50	0.74	16.17	6.38	4.4	19.2	815	290	16	16	187	100	20	4870	1030	34.9
W14B074-07	3048-W-089	>1000	2/11/2014	20:45	0.74	14.21	5.98	6.2	9.5	218	52	11	393	108	100	20	2820	470	14.7
W14B074-08	3348-W-048	>1000	2/11/2014	21:25	0.83	15.93	5.79	3.6	9.9	517	75	12	428	190	100	20	2560	742	23.8
W14B074-09	3348-W-006	<1000	2/11/2014	16:20	0.70	12.43	5.76	3.2	8.7	178	10	10	98	37	100	26	1820	301	7.2
W14B074-10	Field Duplicate	NA	2/11/2014	17:00	NA	NA	NA	NA	NA	NA	180	5	115	291	100	20	1360	292	17.1
W14B074-11	3249-W-015	<1000	2/11/2014	21:05	0.83	14.57	6.73	7.2	9.9	50.9	120	7	38	28	100	20	810	155	3.85
W14D179-01	3449-J-016	<1000	4/17/2014	9:15	0.35	9.8	6.07	13.4	31.1	15.1	24000	11	6	322	380	20	1150	66	7.5
W14D179-02	3153-F-062	<1000	4/17/2014	13:33	0.60	9.29	5.77	15.4	8.3	5.12	440	5	2	39	100	20	500	55	3.77
W14D179-03	3349-W-501	<1000	4/17/2014	9:45	0.35	8.65	5.65	12.3	25	20.8	10	13	8	36	100	178	1000	385	8.05
W14D179-04	3251-F-079	<1000	4/17/2014	12:55	0.57	8.9	5.78	16.1	6.6	7.03	140	18	19	13	100	20	610	950	2.28
W14D179-05	3148-W-028	<1000	4/17/2014	12:10	0.57	8.81	5.85	15.2	18.4	15.3	380	13	17	70	100	20	970	135	5.21
W14D179-06	3252-F-053	<1000	4/17/2014	13:12	0.60	9.04	5.61	14.8	13.4	12.8	63	7	10	107	100	21	690	116	5
W14D179-07	3047-W-057	<1000	4/17/2014	11:00	0.50	9.18	5.72	14.4	8.8	7.46	10	9	3	50	100	20	730	137	0.206
W14D179-08	3248-W-023	<1000	4/17/2014	10:05	0.46	10.16	5.92	13.6	11.5	10.5	74	9	6	58	120	20	700	107	3.46

Stormwater Monitoring

System_ID	Total Antimony	Total Copper	Total Lead	Total Mercury	Total Zinc	Diss Copper	Diss Lead	Diss Zinc	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a) anthracene	Benzo(a) pyrene	Benzo(b)fluoranthene	Benzo(ghi) Perylene	Benzo(k)fluoranthene	Chrysene	Dibenzo(a,h)anthracene	Fluoranthene	Fluorene
	0.100 ug/L	0.200 ug/L	0.100 ug/L	0.00200 ug/L	0.500 ug/L	0.200 ug/L	0.100 ug/L	0.500 ug/L												
3151-F-064	1.02	8.72	2.54	0.00595	40.3	8.72	0.100	14.8	0.020	0.020	0.020	0.015	0.020	0.032	0.063	0.010	0.037	0.010	0.060	0.010
3251-F-013	0.100	4.18	0.183	0.00445	65.3	4.18	0.100	45.3	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
3148-W-014	0.418	3.22	0.924	0.0039	17.5	3.22	0.100	11.1	0.020	0.020	0.020	0.010	0.010	0.014	0.023	0.010	0.011	0.010	0.017	0.010
3153-F-040	0.193	2.67	1.21	0.00755	17.6	2.67	0.100	7.97	0.020	0.020	0.020	0.014	0.015	0.025	0.030	0.010	0.022	0.010	0.027	0.010
3053-F-027	2.31	16.3	3.49	0.00882	62.1	16.3	0.100	20.6	0.020	0.020	0.020	0.022	0.028	0.048	0.089	0.015	0.047	0.013	0.073	0.010
3149-W-038	0.454	5.19	0.892	0.0152	34.7	5.19	0.209	24.4	0.020	0.020	0.020	0.010	0.010	0.010	0.014	0.010	0.010	0.010	0.017	0.010
3148-W-057	0.986	7.29	4.63	0.00502	48.5	7.29	0.202	21.7	0.020	0.020	0.020	0.022	0.027	0.043	0.070	0.014	0.046	0.012	0.078	0.010
Field Duplicate	1.01	7.61	2.15	0.00559	34.9	7.61	0.100	14	0.020	0.020	0.020	0.014	0.018	0.010	0.059	0.010	0.032	0.010	0.065	0.010
Blank	0.100	0.752	0.100	0.00200	2.04	0.752	0.100	0.598	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010
3155-F-033	2.67	19.7	2.99	0.00773	85.2	19.7	0.488	49.8	0.020	0.020	0.020	0.018	0.021	0.034	0.071	0.010	0.037	0.010	0.070	0.026
3248-W-064	0.309	3.55	1.61	0.00489	19	0.922	0.100	4.9	0.020	0.020	0.020	0.013	0.018	0.025	0.039	0.010	0.022	0.010	0.033	0.010
3151-F-070	0.64	4.79	1	0.00368	24.1	2.15	0.137	11.8	0.020	0.020	0.020	0.010	0.011	0.015	0.038	0.010	0.018	0.010	0.030	0.010
3348-W-035	3.01	34.3	16.1	0.01140	201	3.46	0.168	36	0.060	0.060	0.074	0.084	0.089	0.200	0.320	0.045	0.210	0.046	0.480	0.079
3150-F-034	1.86	25.7	11	0.01230	178	2.51	0.100	37.3	0.020	0.042	0.059	0.044	0.049	0.110	0.210	0.033	0.120	0.024	0.260	0.076
3047-W-010	2.8	46.1	24.7	0.01720	267	2.61	0.127	36.6	0.060	0.099	0.094	0.120	0.140	0.260	0.530	0.072	0.260	0.063	0.580	0.096
3053-F-003	0.986	29.5	20.3	0.04120	175	2.14	0.123	3.57	0.020	0.031	0.031	0.027	0.036	0.051	0.130	0.015	0.067	0.015	0.130	0.042
3149-W-058	1.23	12.8	6.1	0.00589	75.7	1.45	0.100	17.3	0.020	0.028	0.030	0.038	0.045	0.110	0.150	0.024	0.100	0.022	0.180	0.042
2950-W-079	3.16	58.4	31.2	0.03160	408	2.79	0.204	26.6	0.100	0.140	0.150	0.150	0.240	0.470	0.940	0.100	0.460	0.120	0.840	0.130
3048-W-089	2.49	37.5	19.9	0.01700	19.9	2.13	0.100	20.4	0.029	0.083	0.091	0.087	0.080	0.210	0.280	0.056	0.270	0.033	0.590	0.069
3348-W-048	4.55	66	48.1	0.03360	387	1.82	0.165	31.3	0.100	0.110	0.140	0.190	0.200	0.420	0.670	0.094	0.410	0.086	0.980	0.130
3348-W-006	0.898	10.7	8.46	0.01060	63	1.4	0.100	12.9	0.022	0.030	0.035	0.074	0.120	0.018	0.080	0.018	0.080	0.015	0.180	0.450
Field Duplicate	2.64	29.5	13.4	0.00942	179	3.41	0.161	36.5	0.020	0.049	0.065	0.073	0.075	0.190	0.230	0.044	0.190	0.030	0.440	0.068
3249-W-015	0.307	4.56	2.18	0.00939	20.9	1.21	0.100	5.52	0.020	0.027	0.020	0.014	0.014	0.023	0.032	0.010	0.030	0.010	0.062	0.040
3449-J-016	0.197	29.2	0.284	0.00793	69.4	23.8	0.100	55.6	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020
3153-F-062	0.156	7.86	0.27	0.00426	63.7	5.77	0.100	46.5	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020
3349-W-501	0.442	4.98	0.791	0.00945	13.7	4.19	0.111	10.6	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020
3251-F-079	0.399	4.03	0.644	0.00361	13.7	4.19	0.100	6.72	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020
3148-W-028	0.353	4.19	1.76	0.00490	19.9	2.83	0.111	10.6	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.011	0.020
3252-F-053	0.271	3.41	0.685	0.00338	20	2.49	0.100	11.7	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.011	0.020
3047-W-057	0.259	2.65	0.235	0.00571	12.9	2.12	0.100	13	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.020
3248-W-023	0.559	7.3	0.51	0.0062	20.1	5.54	0.143	16.9	0.020	0.020	0.020	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.012	0.020

Stormwater Monitoring

System_ID	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	Butyl benzyl phthalate	Di-n-butyl phthalate	Diethyl phthalate	Dimethyl phthalate	Di-n-octyl phthalate	Bis(2-ethylhexyl) phthalate	2,4,5-T	2,4,5-TP (Silvex)	2,4-D	2,4-DB	3,5-Dichlorobenzoic acid	Acifluorfen	Bentazon	Clopyralid	Dicamba	Dichlorprop
											0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L		0.040 ug/L	0.040 ug/L
3151-F-064	0.022	0.010	0.047	0.100	1.0	1.0	1.0	1.0	0.6	4.3	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3251-F-013	0.010	0.010	0.010	0.011	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3148-W-014	0.014	0.010	0.026	0.029	1.0	1.0	1.0	1.0	1.0	1.40	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3153-F-040	0.017	0.010	0.028	0.036	1.0	1.0	1.0	1.0	1.0	0.53	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3053-F-027	0.031	0.044	0.061	0.130	1.0	1.0	1.0	1.0	1.0	6.3	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3149-W-038	0.010	0.051	0.031	0.024	1.0	1.0	1.0	1.0	1.0	0.6	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3148-W-057	0.027	0.010	0.061	0.120	1.0	1.0	1.0	1.0	0.7	4.8	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
Field Duplicate	0.020	0.010	0.053	0.100	1.0	1.0	1.0	1.0	0.7	3.8	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
Blank	0.010	0.010	0.025	0.010	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3155-F-033	0.021	0.043	0.075	0.150	1.0	1.0	1.0	1.0	1.6	7.2	<0.080	<0.080	1.7	<0.080	NM	<0.080	<0.080	<0.080	0.22	<0.080
3248-W-064	0.019	0.010	0.033	0.047	1.0	1.0	1.0	1.0	1	1.6	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3151-F-070	0.013	0.010	0.038	0.058	1.0	1.0	1.0	1.0	0.5	2.5	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3348-W-035	0.110	0.190	0.520	0.740	3.0	3.0	3.0	3.0	2.7	20.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3150-F-034	0.057	0.110	0.330	0.450	1.0	1.0	1.0	1.0	1.7	11.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3047-W-010	0.150	0.330	0.620	1.000	3.0	3.0	3.0	3.0	3.5	23.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3053-F-003	0.033	0.130	0.150	0.270	1.0	1.0	1.0	1.0	1.3	15.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3149-W-058	0.053	0.085	0.190	0.290	1.0	1.0	1.0	1.0	0.9	5.9	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
2950-W-079	0.280	0.250	0.880	1.600	5.0	5.0	5.0	5.0	4.4	32.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3048-W-089	0.074	0.160	0.540	0.830	0.6	1.0	1.0	1.0	2.7	18	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3348-W-048	0.220	0.290	0.960	1.600	5.0	5.0	5.0	5.0	5.7	38	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3348-W-006	0.039	0.087	0.210	0.240	0.89	1.0	1.0	1.0	1.0	2.7	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
Field Duplicate	0.082	0.160	0.460	0.670	1.0	1.0	1.0	1.0	2.2	18	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3249-W-015	0.013	0.040	0.094	0.065	1.0	1.0	1.0	1.0	1.0	1.4	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3449-J-016	0.010	0.040	0.020	0.013	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	0.23	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3153-F-062	0.010	0.040	0.020	0.010	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	0.88	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3349-W-501	0.010	0.040	0.020	0.010	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	0.12	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3251-F-079	0.010	0.040	0.022	0.012	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3148-W-028	0.010	0.040	0.023	0.018	1.0	1.0	1.0	1.0	0.6	1.9	<0.080	<0.080	0.35	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3252-F-053	0.010	0.040	0.022	0.020	1.0	1.0	1.0	1.0	1.0	1.1	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3047-W-057	0.010	0.040	0.020	0.010	1.0	1.0	1.0	1.0	1.0	1.0	<0.080	<0.080	0.2	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080
3248-W-023	0.010	0.040	0.029	0.016	1.0	1.0	1.0	1.0	1.0	1.4	<0.080	<0.080	<0.080	<0.080	NM	<0.080	<0.080	<0.080	<0.080	<0.080

Stormwater Monitoring

System_ID	Dinoseb	MCPA	MCPP	Pentachlorophenol	Picloram	Quinclorac	Triclopyr	Benzene	Ethylbenzene	m,p-Xylene	o-Xylene	Toluene
	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L	0.040 ug/L					
3151-F-064	<0.080	<0.080	<0.080	0.32	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3251-F-013	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3148-W-014	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3153-F-040	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3053-F-027	<0.080	<0.080	<0.080	0.21	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3149-W-038	<0.080	<0.080	<0.080	0.2	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.87
3148-W-057	<0.080	<0.080	<0.080	1.2	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
Field Duplicate	<0.080	<0.080	<0.080	0.2	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
Blank	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3155-F-033	<0.080	<0.080	0.6	1.3	<0.080	<0.080	0.13	0.2	0.5	1.0	0.5	0.5
3248-W-064	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.5
3151-F-070	<0.080	<0.080	<0.080	<0.16	<0.080	<0.080	<0.080	0.2	0.5	1.0	0.5	0.66
3348-W-035	<0.080	<0.080	<0.080	0.43	<0.080	<0.080	<0.080	0.2	0.5	1.56	0.96	0.5
3150-F-034	<0.080	<0.080	<0.080	3.6	<0.080	<0.080	<0.080	0.2	0.2	0.5	1.0	0.5
3047-W-010	<0.080	<0.080	<0.080	2.3	<0.080	<0.080	<0.080	0.2	0.5	1.97	0.84	0.64
3053-F-003	<0.080	<0.080	<0.080	0.5	<0.080	<0.080	3.9	0.2	3.03	0.63	16.8	8.56
3149-W-058	<0.080	<0.080	<0.080	0.77	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
2950-W-079	<0.080	<0.080	<0.080	0.32	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3048-W-089	<0.080	<0.080	<0.080	0.53	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3348-W-048	<0.080	<0.080	<0.080	0.8	<0.080	<0.080	<0.080	0.2	0.5	0.65	1.0	0.5
3348-W-006	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	<0.080	0.2	0.5	3.98	1.0	0.5
Field Duplicate	<0.080	<0.080	<0.080	0.39	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.57	0.96
3249-W-015	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3449-J-016	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3153-F-062	<0.080	<0.080	0.2	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3349-W-501	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.55
3251-F-079	<0.080	0.092	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3148-W-028	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	1.94
3252-F-053	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3047-W-057	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5
3248-W-023	<0.080	<0.080	<0.080	<0.160	<0.080	<0.080	<0.080	0.2	0.5	0.5	1.0	0.5

Macroinvertebrate Monitoring Data

Order	Family	Genus	species	Life stage or condition	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCH	BCI2	FCH	JCH	JCI2	KCH	KCI4	KH	KI2
Acari							4	9	14	2	1		10	4	6
Amphipoda				immature			3	1	13			49	52	31	1
		Crangonyx									3	8	12		
Copepoda								4	5				1		
Decopoda	Astacidae	Pacifasticus							1	1	1	1		1	1
Hirudinea						Tolerant				1		3	44		2
Hydra						Tolerant		1					1		
Isopoda	Asellidae					Tolerant	1		3						
Mollusca				no shell		Tolerant									
	Ancylidae	Ferressia			Tolerant	Tolerant	5	6		17	5	34			
	Hydrobiidae	Fluminicola				Tolerant	6			2					
		Gyraulus			Tolerant	Tolerant		3							
	Lymnaidae	Lymnaea			Tolerant	Tolerant									
	Physidae	Physa				Tolerant							1		
	Pleuroceridae	Juga			Tolerant	Tolerant	9	150	282	32	211	92		7	16
	Sphaeriidae							4	17	1		29	1	57	2
Nematoda							6	16	5	2	3	1	6	4	
Oligochaeta					Tolerant	Tolerant	37	90	39	43	10	17	44	36	12
Ostracoda															
Turbellaria	Planariidae						2	26		6		2	15	3	26
Ephemeroptera	Ameletidae	Ameletus													
	Baetidae	Baetis		immature			30	39	74	16	58	55		14	5
		Baetis	tricaudatus				46	25	41	23	42	37	1		
		Baetis	notus							2					
		Diphetor	hageni							20	21				20
		Pseudocloeon													
	Heptageniidae			immature											1
		Cinymga				Sensitive		1							1
		Cinymgula													1
		Heptagenia													1
		Ironodes													13
	Leptophlebidae	Paraleptophlebia					3	8		25	68	1		5	38
Plecoptera	Chloroperlidae			immature											
		Sweltsa													49
	Leuctridae			immature		Sensitive									12
	Perlodidae			immature											
		Isoperla													11
		Skwala													15
	Nemouridae	Malenka													6
		Soyedina									10				61
		Zapada	cinctipes												
	Peltoperlidae	Yoraperla													1
	Pteronacelidae	Pteronarcella													

Macroinvertebrate Monitoring Data

Order	Family	Genus	species	Life stage or condition	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BCH	BCH2	FCH	JCH	JCH2	KCH	KCH4	KH	KH2
Coleoptera	Elmidae			immature							2			2	2
		Lara							1	1	1			2	3
		Optioservus		larva		Tolerant					10			1	2
		Optioservus		adult				1			6			2	1
		Heterlimnus		larva											
		Heterlimnus		adult						1					1
		Narpus		larva				1							
		Zaitzevia		larva		Tolerant					2				1
	Dytisicidae			larva		Tolerant									
	Hydrophilidae			adult									1		
				larva									1		
Lepidoptera	Pyralidae					Tolerant								1	
Trichoptera	Brachycentridae	Micrasema		larva											
		Micrasema		pupa											
	Glossosomatidae			immature											
		Glossosoma													4
	Hydroptilidae	Hydroptila				Tolerant	1		1						
	Hydropsychidae			immature		Tolerant	23	1		71	14	52		132	
				pupa		Tolerant	1					1		1	
		Cheumatopysyche				Tolerant	48		1	223	40	64		108	1
		Parapysche													1
	Lepidostomatidae	Lepidostoma		larva					3					1	
		Lepidostoma		pupa					1						2
	Limnephilidae			immature											
		Dicosmoecus								1					
		Pseudostenophylax											1		
		Psychoglypha											1		
	Philopotamidae	Wormaldia			Sensitive										54
	Rhyacophilidae	Rhyacophila		immature											10
		Rhyacophila		pupa											
		Rhyacophila	betteni												8
		Rhyacophila	brunnea												
		Rhyacophila	grandis												
		Rhyacophila	narvae												
	Uenoidae	Neophylax													4
Diptera	Ceratopogoninae														2
	Forcipomyinae			larva						14			4		7
	Forcipomyinae			pupa								1			3
	Chironomidae														
		Boreochlus													
		Brillia						6		1			16		4
		Brundiniella													2
		Cardiocladius					1								
		Chaetocladius													

Macroinvertebrate Monitoring Data

Order	Family	Genus	species	Life stage or condition	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BC11	BC12	FC11	JC11	JC12	KC11	KC14	K11	K12
		Corynoneura						4			1		3	3	2
		Cricotopus					12	1							
		Cryptochironomus													
		Diplocladius				Tolerant		13					8	4	
		Eukiefferiella brehmi group							1		1				
		Eukiefferiella claripennis group					30	3				1			1
		Eukiefferiella devonica group							2						
		Eukiefferiella pseudomontana group					7				3				
		Heleniella												1	
		Heterotrissocladius													1
		Krenosmittia													
		Limnophyes				Tolerant		1				1	4	1	
		Macropelopia													
		Micropsectra					30	91	26		12	3	326	15	21
		Nanocladius						2		1					
		Nilotanypus						1		6				7	
		Orthocladius complex							1						
		Orthocladius (Symposiocladius)													1
		Parametriocnemus					2	12	2	5		20		62	5
		Paraphaenocladius													
		Paratanytarsus													
		Paratendipes				Tolerant							1		
		Phaenospectra						1					1		
		Polypedilum					2	14		14	18		6	26	2
		Prodiamesa													
		Psilometriocnemus													
		Radotanypus											3		
		Rheocricotopus								3					
		Rheotanytarsus								12	4			23	
		Smittia													
		Synorthocladius				Sensitive		1			1				
		Stempellinella								1					
		Stenochironomus													
		Synorthocladius													
		Tanypus													
		Tanytarsus								41					
		Thienemanniella					1								2
		Thienemannimyia complex					9	41	52	7	12	41	26	22	4
		Tvetenia bavarica group					21		79	1					15
		Zavrelimyia													3
		Xenochironomus								10					
	Dixidae			pupa											
		Dixa								1				1	32

Macroinvertebrate Monitoring Data

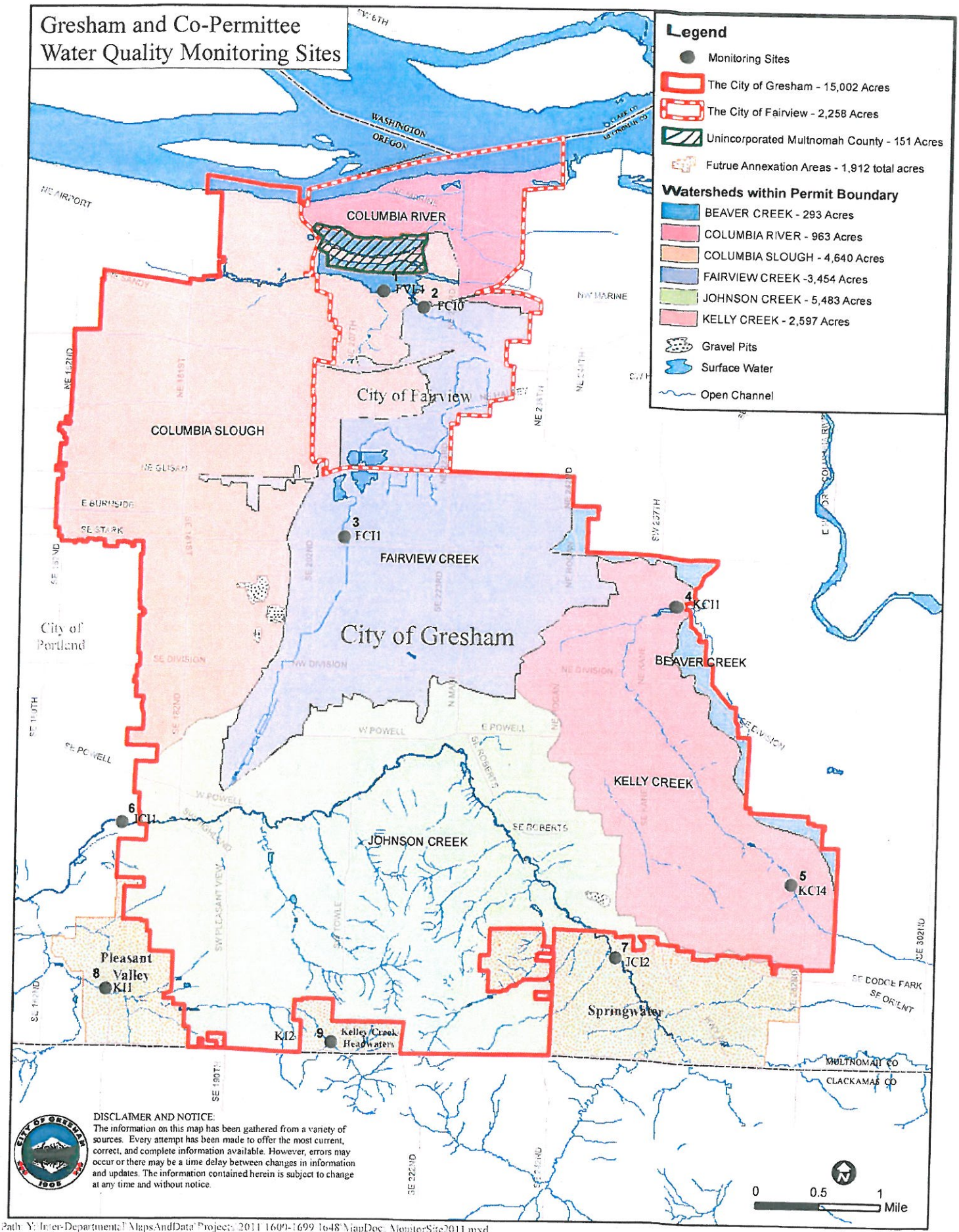
Order	Family	Genus	species	Life stage or condition	Sediment Sensitive/ Tolerant	Pollution Sensitive/ Tolerant	BC11	BC12	FC11	JC11	JC12	KC11	KC14	K11	K12
	Dolichopididae														
	Empididae			immature				1							1
				pupa								1	1		
		Clinocera					1		1				3		
		Neoplasta						2	3				4	2	
		Hemerdromia										1			
	Ephydridae			larva											
	Muscidae					Tolerant		1							
	Pelecorhynidae	Glutops				Sensitive									3
	Ptychopteridae	Ptychoptera													
	Sciomyzidae			pupa											
	Sciomyzidae			larva											
	Simuliidae			immature			144	2	19	4	16	5		1	3
				pupa			4		3						
		Simulium					58		10						1
	Thaumaleidae														8
	Tipulidae			immature											
		Antocha			Tolerant										
		Dicanota			Tolerant						1			1	4
		Erioptera			Tolerant	Tolerant									
		Hexatoma			Tolerant										1
		Limonia			Tolerant	Tolerant					1				
		Limnophila			Tolerant										
		Pedicia			Tolerant					1			5		
		Tipula			Tolerant			1		1	1		1	3	1
Benthic Index of Biological Integiry (B-IBI) score							**22**	**20**	**12**	**18**	**16**	**14**	**18**	**22**	**48**
IBI Stream Condition (Level of Impairment)							**Moderate**	**Moderate**	**Severe**	**Severe**	**Severe**	**Severe**	**Severe**	**Moderate**	**None**

Temperature Monitoring Data

Basin	Site	Days 7DADM >18	Max of 7DADM	Comments
Fairview	Fairview @ Division	82	20.3	d/s of Fairview headwaters (wetland)
Fairview	Fairview @ Birdsdale	96	20.7	
Fairview	Fairview @ Conifer Park	10	18.8	upstream of Fujitsu Ponds
Fairview	Fairview @ Glisan	116	26.6	downstream of Fujitsu Ponds
Kelly/Beaver	Beaver @ Glen Otto	104*	26.1	Exceedances prior to deployment
Kelly/Beaver	Burlingame @ Hogan	86	20.7	
Kelly/Beaver	Kelly Creek @ Ironwood culvert	53	19.5	upstream of Kelly detention pond
Kelly/Beaver	Kelly Creek @ KCDP outlet structure	33	21.7	downstream of Kelly detention pond
Kelly/Beaver	Kelly @ Kane Rd	80	20.8	
Kelly/Beaver	Kelly above MHCC pond	81	21.1	
Kelly/Beaver	Kelly below MHCC pond	48*	25.7*	Incomplete data after 7/25
Johnson	E Fk Butler @ 27th (Butler trib)	41	19.1	
Johnson	Bear @ mouth (Butler trib)	37	18.8	
Johnson	Butler @ Towle/Butler	0	14.9	
Johnson	Butler @ Willow Pkwy	0	17.8	
Johnson	Butler below Marpol Pond	108	28.1	surface release pond
Johnson	Butler above Binford	104	23.3	
Johnson	Butler below Binford	107	21.4	bottom release pond
Johnson	Butler @ SW 14th (mouth)	98	21.2	
Johnson	Hogan @ Butler Rd	105	23.8	below Persimmon Golf Course (ponds)
Johnson	Hogan @ mouth	106	23.7	below Cedar Lake (private pond)
Johnson	N Fk Johnson @ Telford	10	19.5	
Johnson	Badger @ Telford	72	20.7	
Johnson	Sunshine @ mouth	81	21.6	
Johnson	Johnson @ 282nd	86	22.1	
Johnson	Johnson @ Telford	87	23.1	
Johnson	Johnson @ Palmblad	82	22.5	
Johnson	Johnson @ Regner	87	23.1	
Johnson	Johnson @ Jenne Rd	101	23.8	
Johnson	Jenne @ mouth (Kelley trib)	0	17.1	
Johnson	Kelley @ Rodlun	0	17.1	
Johnson	Kelley @ 190th	6	19.0	
Johnson	Kelley @ PV Grange	75	21.2	

Red =temperature exceedances

Blue = no temperature exceedances



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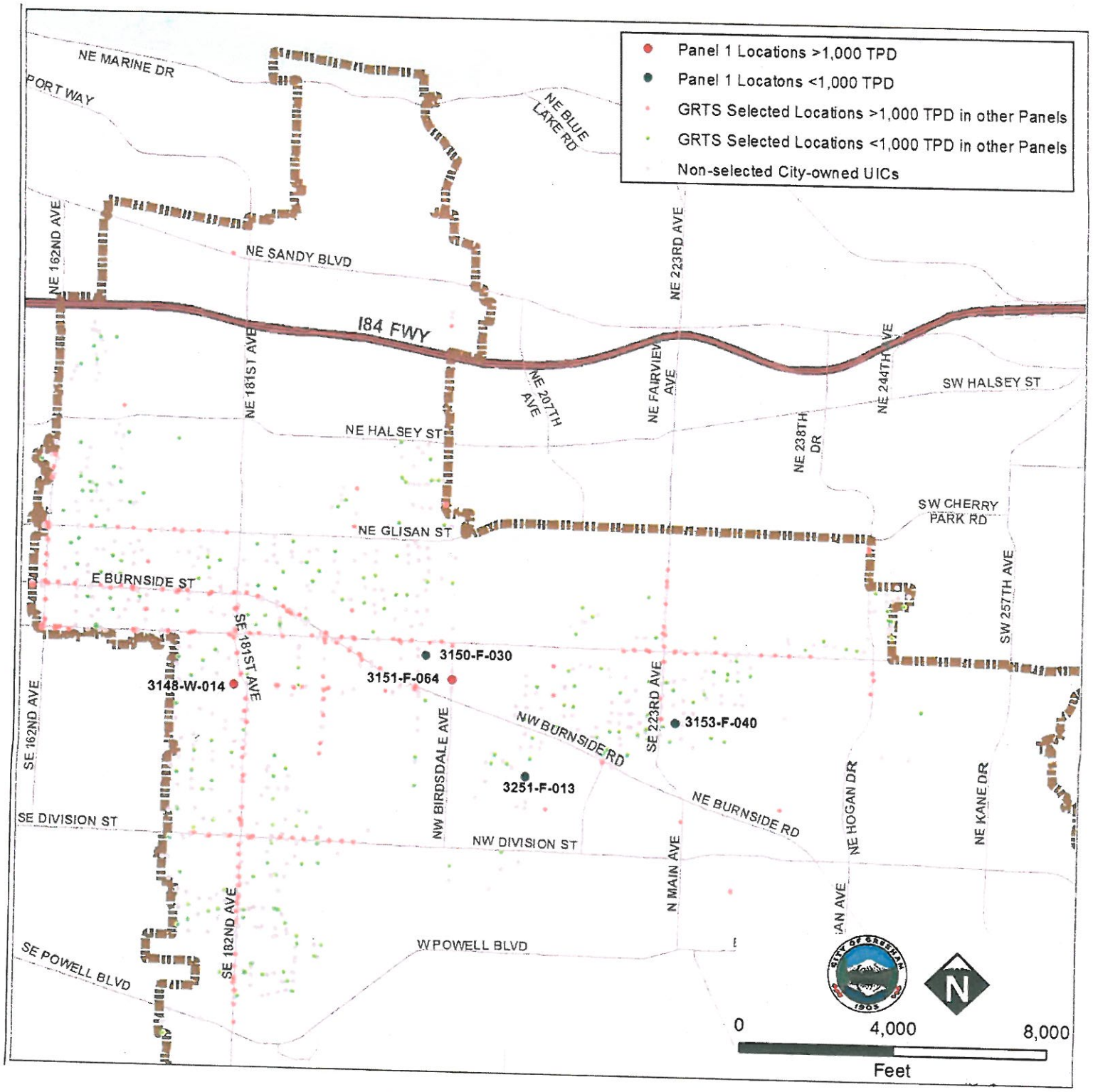
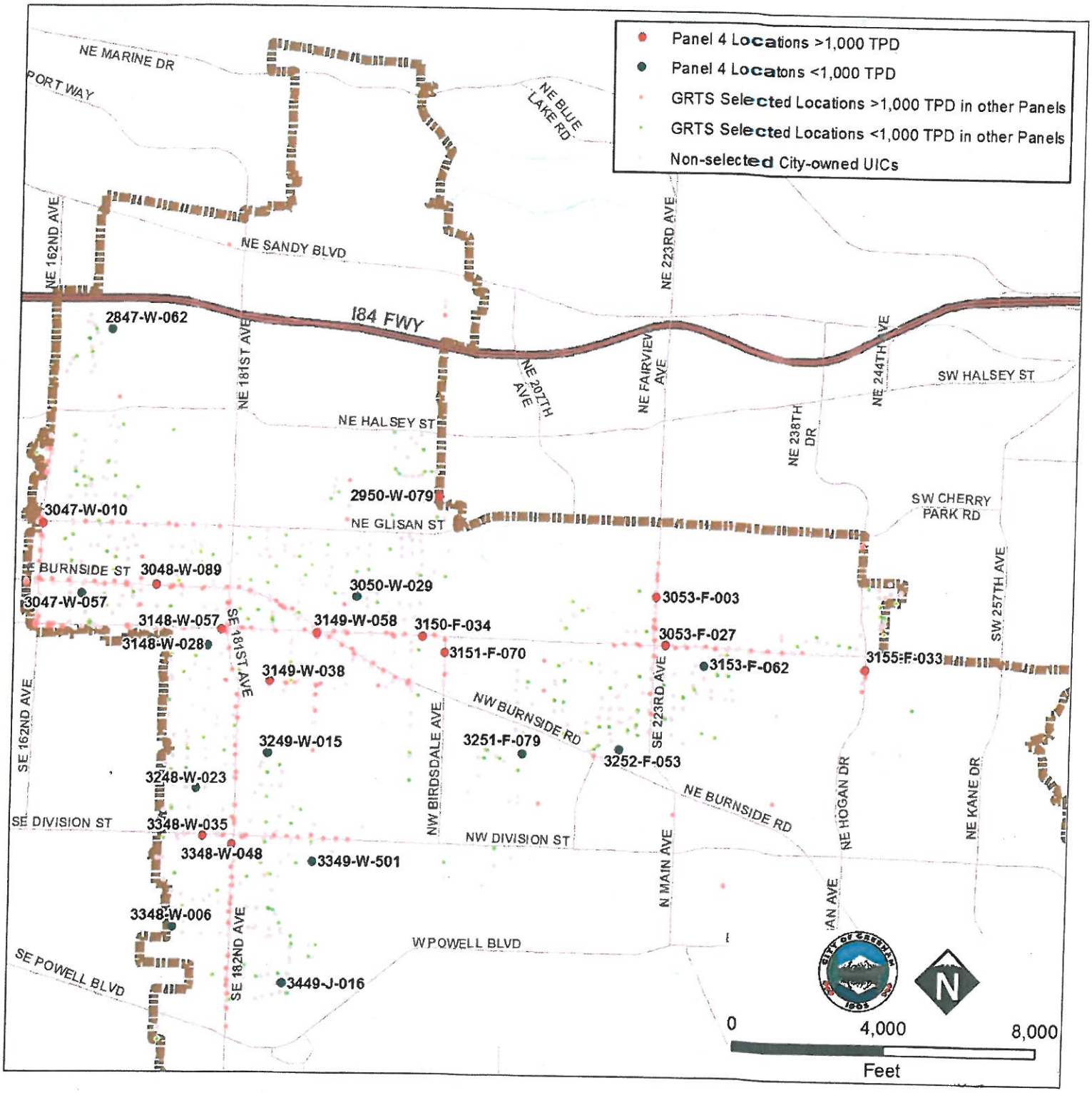
Date: 10/31/2011


Panel 1 Locations >1,000 TPD
Panel 1 Locatons <1,000 TPD
GRTS Selected Locations >1,000 TPD in other Panels
GRTS Selected Locations <1,000 TPD in other Panels
Non-selected City-owned UICs
NE MARINE DR
PORT WAY
NE BLUE LAKE RD
NE 162ND AVE
NE SANDY BLVD
NE 223RD AVE
I84 FWY
NE 181ST AVE
NE 207TH AVE
NE FAIRVIEW AVE
NE 244TH AVE
SW HALSEY ST
NE HALSEY ST
NE 238TH DR
SW CHERRY PARK RD
NE GLISAN ST
E BURNSIDE ST
SW 257TH AVE
SE 181ST AVE
3150-F-030
3151-F-064
3148-W-014
SE 162ND AVE
NW BIRDSDALE AVE
SE 223RD AVE
3153-F-040
NW BURNSIDE RD
3251-F-013
NE BURNSIDE RD
NE HOGAN DR
NE KANE DR
SE DIVISION ST
NW DIVISION ST
N MAIN AVE
SE 182ND AVE
W POWELL BLVD
SE POWELL BLVD
0
4,000
8,000
Feet
N


Panel 4 Locations >1,000 TPD
Panel 4 Locatons <1,000 TPD
GRTS Selected Locations >1,000 TPD in other Panels
GRTS Selected Locations <1,000 TPD in other Panels
Non-selected City-owned UICs
NE MARINE DR
PORT WAY
NE BLUE LAKE RD
NE 162ND AVE
NE SANDY BLVD
NE 223RD AVE
I84 FWY
2847-W-062
NE 181ST AVE
NE 207TH AVE
NE FAIRVIEW AVE
NE 244TH AVE
SW HALSEY ST
NE HALSEY ST
NE 238TH DR
2950-W-079
3047-W-010
NE GLISAN ST
SW CHERRY PARK RD
E BURNSIDE ST
3048-W-089
3050-W-029
3053-F-003
3047-W-057
3148-W-057
3149-W-058
3150-F-034
3053-F-027
3148-W-028
SE 181ST AVE
3151-F-070
3153-F-062
3155-F-033
SW 257TH AVE
3149-W-038
SE 162ND AVE
NW BURNSIDE RD
SE 223RD AVE
NW BIRDSDALE AVE
3249-W-015
3251-F-079
3252-F-053
3248-W-023
NE BURNSIDE RD
NE HOGAN DR
NE KANE DR
SE DIVISION ST
3348-W-035
NW DIVISION ST
3348-W-048
3349-W-501
N MAIN AVE
3348-W-006
SE 182ND AVE
W POWELL BLVD
SE POWELL BLVD
3449-J-016
0
4,000
8,000
Feet
N