

CITY OF PUYALLUP
2012 STORMWATER MANAGEMENT
PROGRAM (SWMP)

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CITY OF PUYALLUP 2012 STORMWATER MANAGEMENT PROGRAM

1 INTRODUCTION

1.1 Overview and Background

The National Pollutant Discharge Elimination System (NPDES) permit program is a requirement of the federal Clean Water Act, which is intended to protect and restore waters for “fishable, swimmable” uses. The federal Environmental Protection Agency (EPA) has delegated permit authority to state environmental agencies. In Washington, the NPDES-delegated permit authority is the Washington State Department of Ecology (Ecology).

Municipalities with a population of over 100,000 (as of the 1990 census) have been designated as Phase I communities and must comply with Ecology’s Phase I NPDES Municipal Stormwater Permit. With Puyallup’s 1990 census falling below the 100,000 threshold, the City must comply with the Phase II Municipal Stormwater Permit. About 100 other municipalities in Washington must now comply with the Phase II Permit, along with Puyallup, as operators of small municipal separate storm sewer systems (MS4s).

The Permit allows municipalities to discharge stormwater runoff from municipal drainage systems into the State’s waterbodies (i.e., streams, rivers, lakes, wetlands) as long as municipalities implement programs to protect water quality by reducing the discharge of “non-point source” pollutants to the “maximum extent practicable” (MEP) through application of Permit-specified “best management practices” (BMPs). The practices specified in the Permit are collectively referred to as the Stormwater Management Program (SWMP) and grouped under the following components:

- Public Education and Outreach
- Public Involvement
- Illicit Discharge Detection and Elimination
- Controlling Runoff from Development, Redevelopment, and Construction Sites
- Pollution Prevention and Municipal Operation and Maintenance
- Monitoring

The Permit requires the City to report annually (March 31st of each year) on progress in SWMP Program implementation for the prior year. The Permit also requires submittal of documentation that describes proposed SWMP Program activities for the coming year. Implementation of various Permit conditions is phased throughout the five-year Permit term from February 16, 2007 through February 15, 2012. The Permit will be revised and reissued at the end of this period. A 2011 legislative change directed Ecology to reissue the existing Phase II permits unchanged for the period August 1, 2012 to July 31, 2013. A fully-updated Phase II NPDES MSWGPs will be issued with an effective date of August 1, 2013.

This document is the City’s written documentation of the Stormwater Management Program (SWMP). The remainder of this 2012 SWMP document describes actions Puyallup will take to maintain compliance over the sixth year of the Permit term (i.e., February 16, 2011 through February 16, 2012 plus one year for re-issuance, February 16, 2013).

1.2 Phased Permit Requirements

Ecology began work on the Phase II Municipal Stormwater Permit for Western Washington in the fall of 2004 and posted a preliminary draft for public comment on May 16, 2005. Ecology released a formal draft of the Permit in February 2006 and issued the final Permit on January 17, 2007. The permit was modified on June 17, 2009 to implement the outcomes of appeals. The Permit issued by Ecology became effective on February 16, 2007 and expires on February 15, 2012. Ecology is re-issuing the current permit for one additional year. The new expiration date for the re-issued permit will be February 15, 2013. Upon its expiration, a new permit will be revised and issued at the end of this period.

Ecology is phasing in many of the Permit requirements over the five-year Permit term. On March 31 of each year, beginning in 2008, the City must:

1. Submit its SWMP document to Ecology describing compliance activities planned for the coming year.
2. Submit an annual report documenting Permit compliance activities for the previous calendar year.
3. Post the SWMP document and annual report on the web.

This SWMP document includes the following attachments:

- Appendix A - Acronyms and Definitions from the Permit.
- Appendix B - 2011 City of Puyallup City Future Stormwater Monitoring Plan
- Appendix C - 2011 Effectiveness Monitoring Plan

The Western Washington Phase II Municipal Stormwater Permit and additional information can be found on Ecology's website:

<http://www.ecy.wa.gov/Programs/wq/stormwater/municipal/phaseIIww/wwphiipermit.html>.

1.3 Department Responsibilities

The Permit requirements affect departments across the City organization. One difficulty in assigning lead departments to address Permit sections is that those sections do not divide cleanly along department divisional lines. To encourage collaboration and efficient use of resources, the City plans to charter implementation teams for each Permit component. These teams would consist of members from affected departments. Those departments include City Management (CM), Development Services Engineering, Information Technology (IT), Finance, Buildings, Public Works (PW), Legal, and Human Resources (HR). While the teams for each task may be cross-departmental, the lead department has been identified in the task tables for each Permit component in the following sections.

1.4 Total Maximum Daily Load (TMDL) Compliance Issues

Stormwater discharges covered under the Permit are required to implement actions necessary to achieve the pollutant reductions called for in applicable TMDLs. Applicable TMDLs are TMDLs which have been approved by the EPA before the issuance date of the permit or which have been approved by the EPA prior to the date the permittee's application is received by Ecology. Information on Ecology's TMDL program is available on Ecology's website at www.ecy.wa.gov/programs/wq/tmdl.

All TMDLs approved by EPA before February 15, 2006, were reviewed by Ecology to determine whether stormwater including municipal stormwater sources were identified in the TMDL. When most of these TMDLs were developed, municipal stormwater was considered a subset of non-point discharges, rather than a

permitted discharge. As a result, very few TMDLs statewide contain requirements for municipal stormwater sources. Few TMDLs completed to date have established load allocations or waste load allocations for municipal stormwater discharges covered under the Permit. Ecology is interpreting TMDL requirements as follows:

- For TMDLs where stormwater was not identified as a source of the pollutants of concern, or if all of the sources were defined in the TMDL, Ecology considers the MS4 not to be a significant contributor of pollutants.
- Where stormwater was identified as a source of pollutants and the TMDL or implementation plans developed to support the TMDL identified control measures were less than or equivalent to the requirements of this permit, Ecology sets a narrative effluent limit: “compliance with the permit compliance constitutes compliance with the TMDL.”
- If stormwater was identified as a source of pollutants and specific WLAs, LAs or control measures were established, Ecology must develop effluent limits in addition to the other requirements of the permit. These effluent limits may be narrative or numeric depending on the control measures set by the TMDL or implementation plans.

Where a TMDL or the detailed implementation plan developed for the TMDL identifies actions or activities beyond what is required by this permit, Ecology has identified the additional requirements in Appendix 2 of the permit for all TMDLs approved by EPA prior to February 15, 2006. Appendix 2 of the permit lists the cities and counties affected by the TMDL.

The City of Puyallup has not been listed in Appendix 2.

1.5 Document Organization

The content in this document is based upon Permit requirements and Ecology’s [Draft Guidance for City and County Annual Reports for Western Washington Phase II Municipal Stormwater Permits](#). The remainder of the Stormwater Management Program document is organized similarly to the Permit:

- **Section 2.0** addresses Permit requirements for administration of the City’s Stormwater Management Program for 2012.
- **Section 3.0** addresses Permit requirements for Public Education and Outreach for 2012.
- **Section 4.0** addresses Permit requirements for Public Involvement and Participation for 2012.
- **Section 5.0** addresses Permit requirements for Illicit Discharge Detection and Elimination for 2012.
- **Section 6.0** addresses Permit requirements for Controlling Runoff from New Development, Redevelopment and Construction Sites for 2012.
- **Section 7.0** addresses Permit requirements for Pollution Prevention and Operation and Maintenance for Municipal Operations for 2012.
- **Section 8.0** addresses Permit requirements for the Water Quality Monitoring section of the Permit for 2012.

Each section includes a summary of the relevant Permit requirements and a description of current and planned compliance activities.

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2 STORMWATER MANAGEMENT PROGRAM ADMINISTRATION

This Section describes Permit requirements related to overall Stormwater Management Program administration, including current and planned compliance activities.

2.1 Permit Requirements

The Permit (Section S5.A) requires the City to:

- Develop and implement a Stormwater Management Program and prepare written documentation (SWMP document) for submittal to Ecology on March 31, 2008; and update the SWMP annually thereafter. The purpose of the Stormwater Management Program is to reduce the discharge of pollutants from the municipal stormwater system to the maximum extent practicable (MEP) thereby protecting water quality. The Stormwater Management Program is to include the actions and activities described in Sections 3 through 8 of this SWMP document.
- Submit annual reports beginning in 2008 to Ecology by March 31st (for the previous calendar year). These reports are to summarize SWMP implementation status and present information from assessment and evaluation activities conducted during the reporting period.

2.2 Current Activities

The City currently has in place activities and programs that meet the Permit requirements. Current activities associated with the above Permit requirements include:

- The City is on track to comply with Ecology's requirements for submittal of the SWMP documentation by March 31, 2012. The Public Works Department, with the assistance of an internal Steering Committee, is currently leading City development of the future planned activities.
- The City has set up the systems for tracking training (HR).
- The City has defined its strategy for cost tracking (Finance).
- The City is on track to comply with Ecology's requirements for submittal of the fifth Annual Report and SWMP by March 31, 2012.

2.3 Planned Activities

Puyallup has positioned itself well to maintain compliance as Ecology phases in the future Permit deadlines. Table 2-1 presents the proposed work plan for the 2012 SWMP administration activities. These tasks will continue to be refined through an iterative process of interviews and workshops with staff from affected City departments.

Table 2-1. 2012 Stormwater Management Administration Program Work Plan			
Task ID	Task Description	Lead	Schedule Notes
SWMP-1	Refine and implement NPDES cost accounting strategy for time spent on each component of Permit.	Finance	Ongoing process.
SWMP-2	Refine and implement training tracking procedures and systems.	HR	Ongoing process
SWMP-3	Provide new employee IDDE training.	HR	Use PowerPoint training provided by consultant for initial training for all field personnel at time of orientation.
SWMP-4	Summarize annual activities for "Stormwater Management Program" component of Annual Report; identify any updates to SWMP document.	Public Works-Stormwater	The SWMP and Annual Compliance Report are due on or before March 31st of each year.

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3 PUBLIC EDUCATION AND OUTREACH

This Section describes the Permit requirements related to Public Education and Outreach, including current and planned compliance activities.

3.1 Permit Requirements

The Permit (Section S5.C.1) requires the City to:

- Prioritize and target education and outreach activities to specified audiences, including general public, businesses, residents/homeowners, landscapers, property managers, engineers, contractors, developers, review staff and land use planners and other City employees to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts.
- Have an outreach program that is designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it.
- Track and maintain records of public education and outreach activities.

3.2 Current Activities

The City's Education and Outreach Program was developed in 2008 and has been updated annual to reflect changes in the program to meet permit requirements as well as the needs of the City. The program is detailed in the '2012 City of Puyallup Stormwater Education and Outreach Plan.' The plan outlines the outreach activities and programs the City will utilize to continue to achieve measurable improvements in the various target audiences' understanding of stormwater and ways to improve and protect water quality.

Several of the activities and programs implemented prior to 2012 will be continued in the upcoming year including those current activities from 2011 outlined below:

- Updating and management of the City's Stormwater Management webpage. This includes: uploading new information and documents, adding public service announcements, important updates about stormwater education and outreach events, and the number for the City's Illicit Discharge Hotline.
- Implementation of Puyallup's Rain Garden Program; during 2011 this program included the installation of 19 rain gardens, 8 rain barrels, and riparian planting along a TMDL-affected stream.
- The City strives to include stormwater-related information in City publications when possible. For example, in 2011 both the spring and fall clean-up brochures included articles related to stormwater pollution prevention. In addition, the quarterly Puyallup Today newsletter often highlights events of the Stormwater Department.
- Providing education and outreach as well as serving to improve water quality in our local streams, Silver Creek has been the focus of riparian restoration for the City for several years now. This past year, 2011, hosted five volunteer events at which several hundred native plants were installed, invasive weeds were cleared, and over 100 people learned of the importance of riparian zones, the impact we have on our waterways, and how they can help improve water quality in our streams, lakes and rivers.
- Continued management of the Fish Friendly Car Wash Program
- Purchase and distribution of car wash vouchers, as part of the Puget Sound Car Wash Association fish-friendly program.

3.3 Planned Activities

The City plans to expand its Education and Outreach program in 2012 through the continued expansion of collaborative partnerships with local organizations and other permittees including involvement in the local EcoNet group, regional STORM group, and local SOG group as a subset of STORM. In addition, the City has recently been selected for an interagency agreement with Ecology that will bring the Local Source Control Program to the City.

The City had previously adopted and incorporated the Puget Sound Starts Here logo on its catch basin markers and is continuing to integrate the branding on publications where possible, to build on the regional efforts to build a recognizable brand and message across jurisdictions. The City of Puyallup has also worked closely with other jurisdictions when opportunities have presented themselves. The City's active participation in the Sound Puget Sound NPDES Coordinators Group has helped identify some of those opportunities.

Table 3-1 is a work plan that summarizes the 2012 SWMP public education and outreach activities including those that will be continued from 2011 as well as detailing anticipated expansions of the program to include new focus on audiences such as businesses and school children. These tasks will be refined through an iterative process of interviews and workshops with staff from affected City departments.

Table 3-1. 2012 Public Education and Outreach Work Plan			
Task ID	Task Description	Lead	Schedule Notes
EDUC-1	Implementation of education and outreach plan.	Stormwater Department	Note specific projects for 2012 below
EDUC-2	Develop strategy and process to evaluate understanding and adoption of target behaviors.	Stormwater Department	Consider implementing Survey on website to gauge behavior
EDUC-3	Summarize annual activities for "Public Education and Outreach" component of Annual Report; identify any updates to SWMP document.	Stormwater Department	The SWMP and Annual Report submittal is due on or before March 31st of each year.
EDUC-4	Research potential for local collaboration to produce contractor-focused Rain Garden Workshop; perform 3 Rain Garden Neighborhood installations	Stormwater Department, Stream Team	Workshop: May 12 Installations: May 21 July 23 September 10
EDUC-5	Volunteer installations of storm drain markers in high profile areas of City, e.g. near City facilities, parks and schools. Goal of 1,500 markers per season.	Stormwater Department, Stream Team	Installations May-September
EDUC-6	Stormwater related articles in quarterly Puyallup Today and seasonal informational publications	City Management, Stormwater Department	January-December
EDUC-7	Stormwater related stories in Rainier Country broadcasts.	City Management, Stormwater Department	January-December
EDUC-8	Riparian restoration and relocation of maintenance road in Clarks Creek Park partially with volunteer labor. Interpretive signs for riparian restoration planting and porous gravel maintenance road. Multiple grant funding sources	Stormwater Department, Stream Team	March -October

Table 3-1. 2012 Public Education and Outreach Work Plan			
Task ID	Task Description	Lead	Schedule Notes
EDUC-9	Riparian maintenance and restoration of Silver and Meeker Creeks with volunteer labor. Interpretive signs on trails part of project.	Stormwater Department, Stream Team	March-October
EDUC-10	Outreach to Puyallup School District for stormwater educational calendar project	Stormwater Department	Spring 2012
EDUC-11	Natural yard care workshops for home owners.	Stormwater Department	September-October
EDUC-13	Develop online survey to track and monitor progress of various efforts.	Stormwater Department	Spring 2012
EDUC-14	Streamside landscaping demonstration plantings at volunteer sites. With volunteers providing labor.	Stormwater Department	Incorporate into Clarks Creek project (EDUC-8) as well as rain garden program
EDUC-15	Educational information on mandatory maintenance and reporting procedures for private storm system owners.	Development Services, Stormwater Department	Ongoing
EDUC-16	Develop private storm system owner maintenance and reporting program and provide education and information	Development Services, Stormwater Department	Ongoing 2012
EDUC-17	Refine and continue IDDE public employee, business and general public outreach program, solicit feedback, and produce report	Collections, Stormwater Department	August 19 th or earlier
EDUC-18	Utilize various media to promote the stormwater message and program	City Management, Planning, Stormwater Department	Ongoing
EDUC-19	Include at least one stormwater program update per year to Planning Commission and City Council	Stormwater Engineer	Ongoing
EDUC-20	Involve City staff in stormwater promotional events	Stormwater Department	Puget Sound Starts Here month, Tacoma Rainiers Night, rain garden installations
EDUC-21	Track types of public education and outreach activities implemented, # of activities implemented	Stormwater Department	Ongoing

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4 PUBLIC INVOLVEMENT

This Section describes the Permit requirements related to Public Involvement, including current and planned compliance activities.

4.1 Permit Requirements

The Permit (Section S5.C.2) requires the City to:

- Provide ongoing opportunities for public involvement through advisory boards and commissions, watershed committees, public participation in developing rate structures and budgets, stewardship programs, environmental activities or other similar activities. The public must be able to participate in the decision-making processes involving the development, implementation and update of the Stormwater Management Program.
- Make the SWMP document and Annual Report available to the public, including posting on the City's website. Make other documents required to be submitted to Ecology in response to Permit conditions available to the public.

4.2 Current Activities

The current compliance activities associated with the above Permit requirements include:

- The City implemented public involvement activities intended to meet the Permit requirements for public involvement in development of its update to the SWMP. This process involved presentation to the Planning Commission at a session open to the public. The draft SWMP was made available on the City's website for comment as well.
- The City defined its process for annual SWMP updates, which includes discussions at Planning Commission sessions open to the public and publication on the website soliciting public input.
- The City posted the Draft 2012 SWMP document and the 2011 Annual Report on the City website.

4.3 Planned Activities

Puyallup will offer the public opportunities to be involved in the decision making process on stormwater issues. Actions recommended for continued compliance include:

- Make most current SWMP document and Annual Report available to public by posting on the City website.
- The City summarizes associated activities in its Annual Report by March 31st of each year
- The City has completed a Stormwater Comprehensive Plan update in 2011. It was made available to the public via workshops and public hearings.

Table 4-1 is the work plan for 2012 SWMP public involvement activities. These tasks will be refined through an iterative process of interviews and workshops with staff from affected City departments.

Table 4-1. 2012 Public Involvement Work Plan			
Task ID	Task Description	Lead	Schedule Notes
PI-1	Provide public involvement opportunities for annual SWMP update.	Stormwater Engineer	Public involvement opportunities will be available before and after 3/31/2012 submittal.
PI-2	Make SWMP document and Annual Report available to public by posting on the City website.	Stormwater Engineer	
PI-3	Summarize annual activities for "Public Involvement and Participation" component of Annual Report; identify any updates to SWMP document.	Stormwater Engineer	The SWMP and Annual Report submittal is due on or before March 31st of each year.
PI-4	Stormwater Comprehensive Plan update public involvement-presentation of plan at Planning Commission and City Council	Stormwater Engineer	November 2011-February 2012

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5 ILLICIT DISCHARGE DETECTION AND ELIMINATION

This Section describes the Permit requirements related to Illicit Discharge Detection and Elimination (IDDE), including current and planned compliance activities.

5.1 Permit Requirements

The Permit (Section S5.C.3) requires the City to:

- Implement an ongoing program to detect and remove illicit discharges, connections and improper disposal, including any spills into the municipal separate storm sewers owned or operated by the City. An illicit discharge means “any discharge to a municipal storm system that is not composed entirely of stormwater...” and illicit connection means “any man-made conveyance that is connected to a municipal storm system without a permit (excluding roof drains and other similar type connections) such as sanitary sewer connections, floor drains, etc.”
- Develop a storm sewer system map, have ordinances that prohibit illicit discharges, and create a program to detect and address illicit discharges.
- Publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges. Track illicit discharge reports and actions taken in response through close-out, including enforcement actions.
- Train staff on proper IDDE response procedures and processes and to recognize and report illicit discharges.
- Summarize all illicit discharges and connections reported to the City and response actions taken, including enforcement actions, in the Annual Report; including updates to the SWMP document.

5.2 Current Activities

The City currently implements activities and programs that meet the Permit requirements. The current compliance activities associated with the above Permit requirements include:

- The City currently has an IDDE program.
- The City has an emergency phone number posted on the City’s website that allows citizens to report illicit discharges or illicit dumping.
- The City is currently a subscriber to Pierce County’s geographic information system (GIS) and has the information and data necessary to create the required maps. The vast majority of the stormwater system has been mapped in GIS.
- City code adopted in August 2009 specifies IDDE program and enforcement provisions.
- The City summarizes associated activities in its Annual Report by March 31st of each year.
- First Responder training was conducted in August 2009 and will be updated as needed. Eight key staff attended the training at that time. Since that initial training, 82 additional City staff, both office and field personnel, have attended formal IDDE training.

5.3 Planned Activities

Puyallup conducts some illicit discharge detection and elimination activities but will need to expand current efforts in order to maintain compliance as Ecology phases in Permit requirements. Table 5-1 is the work plan for 2012 SWMP Illicit Discharge Detection and Elimination (IDDE) activities. These tasks will be refined through an iterative process of interviews and workshops with staff from affected City departments.

Table 5-1. 2012 Illicit Discharge Detection and Elimination Work Plan			
Task ID	Task Description	Lead	Schedule Notes
IDDE-1	Define and implement City-wide IDDE Program and develop any necessary supplemental IDDE activities.	Public Works Collections, Stormwater	Ongoing
IDDE-2	Update current GIS stormwater layer to include recently annexed areas, expand level of detail	Public Works Collections	Continue through 2011.
IDDE-3	Continue to review and revise current IDDE response process as needed to ensure City-wide IDDE response and enforcement process and procedures are adequate.	Public Works, Legal, Stormwater Department	Ongoing
IDDE-4	Train municipal field staff on the identification, investigation, termination, cleanup, and reporting of illicit discharges, improper disposal and illicit connections.	Public Works O&M, HR	Initial First Responders training occurred in 2009, awareness training occurred in February 2011. Train new employees as they are hired.
IDDE-5	Incorporate awareness of illicit discharges into public outreach and education program.	City Management, Stormwater	ongoing
IDDE-6	Summarize annual activities for "Illicit Discharge Detection and Elimination" component of Annual Report; identify any updates to SWMP document.	Public Works Collections	The SWMP and Annual Report submittal is due on or before March 31st of each year.
IDDE-7	Track number of hotline calls and number of follow up actions taken during the year	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-8	Improve visibility and frequency of appearance of hot line number on web site	City Management, Stormwater Department	Ongoing
IDDE-9	Develop and implement an ongoing program to detect and address non-stormwater illicit discharges, including spills, and illicit connections into the MS4.	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-10	Develop procedures for locating priority areas likely to have illicit discharges, including at a minimum: evaluating land uses and associated business/industrial activities present; areas where complaints have been registered in the past; and areas with storage of large quantities of materials that could result in illicit discharges, including spills.	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-11	Implement field assessment activities, including visual inspection of priority outfalls identified during dry weather and for the purposes of verifying outfall locations, identified previously unknown outfalls, and	Public Works Collections, Stormwater Engineer	Ongoing

Table 5-1. 2012 Illicit Discharge Detection and Elimination Work Plan			
Task ID	Task Description	Lead	Schedule Notes
	detected illicit discharges.		
IDDE-12	Conduct field assessments for three high priority water bodies.	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-13	Conduct field assessments on at least one high priority water body.	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-14	Develop and implemented Spill Response Plan with decision and phone trees	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-15	Develop and implement procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures.	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-16	Develop and implement procedures for removing the source of the illicit discharge, including notification of appropriate authorities; notification of the property owner; technical assistance for eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated	Public Works Collections, Stormwater Engineer	Ongoing
IDDE-17	Track the number of illicit discharges, including spills, identified	Public Works Collections	Ongoing
IDDE-18	Track number of inspections for Illicit Connections	Public Works Collections	Ongoing

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6 CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT AND CONSTRUCTION SITES

This Section describes the Permit requirements related to Controlling Runoff from New Development, Redevelopment and Construction Sites, including current and planned compliance activities.

6.1 Permit Requirements

The Permit (Section S5.C.4) requires the City to:

- Develop, implement, and enforce a program to reduce pollutants in stormwater runoff (for example, sediment, construction site wastes, and illicit discharges) to the municipal separate storm sewer system from new development, redevelopment and construction site activities. The program must apply to both **private and public projects**, including roads, and address all construction/development-associated pollutant sources.
- Adopt regulations (codes and standards) and implement plan review, inspection, and escalating enforcement processes and procedures necessary to implement the program in accordance with Permit conditions, including the minimum technical requirements in Appendix 1 of the Permit (i.e., 2005 Ecology Stormwater Management Manual for Western Washington, equivalent Phase I Manual or one of the Manual options with a Puyallup-specific basin-planning overlay).
- Provide provisions and processes and procedures (plan review, inspection, and enforcement) to allow non-structural preventive actions and source reduction approaches such as Low Impact Development techniques (LID), measures to minimize the creation of impervious surfaces and measures to minimize the disturbance of native soils and vegetation.
- Adopt regulations (codes and standards) and provide provisions to verify adequate long-term operations and maintenance of new post-construction permanent stormwater facilities and best management practices (i.e., private drainage system inspections) in accordance with Permit conditions, including an annual inspection frequency and/or approved alternative inspection frequency and maintenance standards for private drainage systems as protective as those in Chapter IV of the 2005 Ecology Stormwater Management Manual for Western Washington.
- Provide training to staff on the new codes, standards, processes and procedures and create public outreach and education materials.
- Develop and define a process to record and maintain all inspections and enforcement actions by staff for inclusion in the Annual Report.
- Summarize annual activities for the “Controlling Runoff” component of the Annual Report; identify any update to SWMP document.

6.2 Current Activities

The City currently has activities and programs that meet the Permit requirements. Current compliance activities associated with the above Permit requirements include:

- The City has developed and implemented a program to reduce pollutants in stormwater runoff to the municipal separate storm sewer system from some development and construction site activities. The City enforces this program through the Civil Code.
- The City requires submittal of Erosion and Sediment Control (ESC) plans and stormwater management plans (i.e., for post-construction, permanent site drainage, and water quality facilities).
- The City conducts construction and stormwater site inspections during the pre-construction and construction phases.
- The City provides copies of Notices of Intent (NOI) for construction and industrial activities during the permit review process with developers.
- The City summarizes associated activities in its Annual Report by March 31st of each year.

6.3 Planned Activities

Puyallup has a program to help reduce stormwater runoff from new development and construction sites but updates will be necessary to maintain compliance as Ecology phases in Permit requirements. Table 6-1 is the work plan for 2012 SWMP activities related to control of runoff from new development, redevelopment and construction sites. These tasks will be refined through an iterative process of interviews and workshops with staff from affected City departments.

Table 6-1. 2012 Controlling Runoff from Development, Redevelopment, and Construction Sites Work Plan			
Task ID	Task Description	Lead	Schedule Notes
CTRL-1	Adopt 2005 DOE Stormwater manual for developments 1 acre or greater.	Engineering, Public Works, Legal	Stormwater Manual was adopted by 2/16/2010.
CTRL-2	Draft and adopt new code language for managing stormwater runoff from development, redevelopment, and construction sites.	Engineering, Public Works, Legal	Codes were adopted by 2/16/2011.
CTRL-3	Establish new permitting process SOPs to implement new code.	Engineering	SOPs were completed by 2/16/2011.
CTRL-4	Develop and deploy system for project record keeping regarding permitting, plan review, construction site inspections, and enforcement actions.	Engineering,	Tracking of inspections and enforcement actions by 2/16/2011.
CTRL-5	Train staff responsible for implementing the controlling runoff program from new development, redevelopment, and construction sites.	Engineering	Training was completed by 2/16/2010.
CTRL-6	Summarize annual activities for "Controlling Runoff from New Development, Redevelopment, and Construction Sites" component of Annual Report; identify any updates to SWMP document.	Engineering, Public Works CIP	The SWMP and Annual Report submittal is due on or before March 31st of each year.
CTRL-7	Conduct Stormwater Site Plan reviews for new development and redevelopment projects over 1 acre in size, track number of site plans reviewed during the year.	Engineering (Private Projects), Stormwater Engineer (Public Projects)	Began February 16, 2010

Table 6-1. 2012 Controlling Runoff from Development, Redevelopment, and Construction Sites Work Plan			
Task ID	Task Description	Lead	Schedule Notes
CTRL-8	Inspect, prior to clearing and construction, all known development sites that have high potential for sediment transport as determined by plan review and requirements in Appendix 7 of the permit, track number of sites inspected during the year.	Engineering, Public Works CIP	Began February 16, 2011
CTRL-9	Inspect construction phase stormwater controls at permitted sites to verify proper installation and maintenance of erosion and sediment controls, track number of sites inspected during the year.	Engineering, Public Works CIP	Began February 16, 2011
CTRL-10	Enforce erosion and sediment controls as necessary at new development and redevelopment sites, track number of enforcement actions taken during the year.	Engineering, Public Works CIP	Began February 16, 2011
CTRL-11	Inspect permitted development sites upon completion and prior to final approval or occupancy to ensure proper installation of permanent stormwater controls, track number of sites and number of sites inspected.	Engineering, Public Works CIP	Began February 16, 2011
CTRL-12	Verify a maintenance plan is completed and responsibility for maintenance is assigned.	Engineering, Public Works CIP	Began February 16, 2011
CTRL-13	Enforce regulations as needed based on inspections, e.g. require systems brought in to compliance before final acceptance, track number of enforcement actions taken during the year.	Engineering, Public Works CIP	Began February 16, 2011
CRTL-14	Develop and implement an enforcement strategy to respond to issues of non-compliance.	City Management, Legal, Engineering	Began February 16, 2011
CRTL-15	Provide copies of the Notice of Intent for Construction Activity and Notice of Intent for Industrial Activity to representatives of proposed new development and redevelopment (private development) or submit to Ecology (public development)	Engineering (private), CIP (public)	Ongoing

CITY OF PUYALLUP 2012 STORMWATER MANAGEMENT PROGRAM

7 POLLUTION PREVENTION AND OPERATION AND MAINTENANCE FOR MUNICIPAL OPERATIONS

This Section describes the Permit requirements related to Pollution Prevention and Operation and Maintenance for Municipal Operations, including current and planned compliance activities.

7.1 Permit Requirements

The Permit (Section S5.C.5) requires the City to:

- Develop and implement an operations and maintenance (O&M) program with the ultimate goal of preventing or reducing pollutant runoff from the municipal separate stormwater system and municipal operations and maintenance activities.
- Establish maintenance standards for the municipal separate stormwater system (MS4) that are at least as protective as those specified in the 2005 *Stormwater Management Manual for Western Washington*.
- Perform inspection of stormwater flow control and treatment facilities and catch basins at the required frequencies, unless previous inspection data show that a reduced frequency is justified.
- Have processes and procedures in place to reduce stormwater impacts associated with runoff from municipal operation and maintenance activities for streets, parking lots, roads or highways owned or maintained by the City, and to reduce pollutants in discharges from all lands owned or maintained by the City.
- Train staff to implement the modified processes and procedures and document that training.
- Prepare Stormwater Pollution Prevention Plans (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the City (Corporate Yards, Parks Maintenance, WWTP).
- Summarize annual activities for the “Pollution Prevention and Operations and Maintenance for Municipal” component of the Annual Report; identify any update to SWMP document.

7.2 Current Activities

The City currently has activities and programs that meet the Permit requirements. The current compliance activities associated with the above Permit requirements include:

- The City has a program for catch basin and inlet inspections.
- The City has a regular street sweeping program.
- Many of the City’s landscape, open space, and facility management activities are managed to minimize the potential for stormwater pollution.
- The City has created a list of City owned properties that will need Stormwater Pollution Prevention Plans (SWPPP), they are Corporate Yards, Waste Water Treatment Plant, and Parks Maintenance Facility.
- The City summarizes associated activities in its Annual Report by March 31st of each year.
- The wash bay project, identified in the Corporate Yard SWPPP, is was completed in 2011.

- The fueling island replacement, identified in the Corporate yard SWPPP, is expected to be begin in 2012.

7.3 Planned Actions

Puyallup performs many activities to limit stormwater pollution potential related to its municipal operations and maintenance program. However, updates will be necessary to maintain compliance as Ecology phases in Permit requirements. Table 7-1 is the work plan for 2012 SWMP activities related to pollution prevention and operations and maintenance activities. These tasks were developed through an iterative process of interviews and workshops with staff from affected City departments.

Table 7-1. 2012 Pollution Prevention and Operations and Maintenance Work Plan			
Task ID	Task Description	Responsible	Schedule Notes
PPOM-1	Update municipal storm system inspection and operations and maintenance processes and procedures for new Stormwater Manual maintenance standards.	Public Works Collections	Standards adopted by 2/16/2010.
PPOM-2	Refine data management systems to track maintenance activities and inspections (Cartegraph CMMS).	Public Works Collections, IT&C	Ongoing
PPOM-3	Implement Stormwater Pollution Prevention Plan (SWPPP) for Corporate Yards, Waste Water Treatment Plant and Parks Maintenance Facilities.	Public Works, Parks	Update of Corporate Yard SWPPP completed in 2011
PPOM-4	Implement Field Island Retrofit identified in Corporate Yards SWPPP	Public Works	By December 2012
PPOM-5	Implement Wash Bay Reconfiguration and Stormwater Pond Water Quality Retrofit identified in Corporate Yards SWPPP	Public Works	Completed 2011
PPOM-6	Develop and establish policies and procedures to reduce pollutants in stormwater discharges from lands owned or maintained by the City.	Public Works	Began development in 2009; began implementing SOPs by 2/16/2010.
PPOM-7	Establish annual inspection program for City-owned flow control and runoff treatment facilities and perform identified maintenance within prescribed Permit timelines.	Public Works	Began development in 2009; began implementing SOPs by 2/16/2010. In progress.
PPOM-8	Develop curricula and define staff training requirements for pollution prevention training program.	Public Works O&M,	Training completed by 2/16/2009.
PPOM-9	Summarize annual activities for "Pollution Prevention and Operation and Maintenance" component of Annual Report; identify any updates to SWMP document.	Public Works, Public Works Collections	The SWMP and Annual Report submittal is due on or before March 31st of each year.
PPOM-8	Inspect post construction stormwater controls, including structural BMPs, at new development and redevelopment projects (Private systems) per the approved maintenance plan, track the number of sites, number of structural BMP's and number of enforcement actions during the year.	Public Works Collections,	Began February 16, 2010

Table 7-1. 2012 Pollution Prevention and Operations and Maintenance Work Plan			
Task ID	Task Description	Responsible	Schedule Notes
PPOM-9	Establish program to annually inspect all stormwater treatment and flow control facilities (other than catch basins) and catch basins every 6 months, track number of treatment facilities and number of catch basins maintained during the year.	Public Works Collections	Started February 16, 2010
PPOM-10	Inspect all new stormwater treatment and flow control facilities owned or operated, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, every 6 months during the period of heaviest house construction to identify maintenance needs and enforce compliance with maintenance standards as needed, track the number of facilities inspected during the year.	Public Works Collections	Started February 16, 2010
PPOM-11	Implement process to maintain records on inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, other enforcement records, maintenance inspections and maintenance activities.	Public Works Collections	Started February 16, 2010
PPOM-12	Verify and maintain staff training permitting, plan review, construction site inspections and enforcement, track number of trainings and number of staff trained.	HR	Started February 16, 2010
PPOM-13	Conduct spot checks of stormwater facilities after major storms (>3"/24 hr), track number of facilities inspected after storms for the year.	Public Works Collections	Started February 16, 2010
PPOM-14	Maintain GIS database of number of stormwater facilities other than catch basins (public and private), track number of facilities and inspections	Public Works Collections	Ongoing
PPOM-15	Inspect all public inlets and catch basins.	Public Works Collections	Ongoing
PPOM-16	Track number of catch basins inspected and number cleaned for reporting period	Public Works Collections	Ongoing
PPOM-17	Train staff on Operations and Maintenance procedures contained in Regional Road Maintenance ESA Program Guidelines, track number of trainings	Public Works Collections, HR	Ongoing

CITY OF PUYALLUP 2012 STORMWATER MANAGEMENT PROGRAM

8 MONITORING

This Section describes the Permit requirements related to water quality monitoring, including current and planned activities.

8.1 Permit Requirements

The Permit (Section S8) does not require municipalities to conduct water quality sampling or other testing during this Permit term, with the following exceptions:

- Water quality monitoring required for compliance with TMDLs [total maximum daily pollutant loads, a.k.a., water quality clean-up plans]. The City's current Permit does not include TMDL requirements because there were no EPA-approved TMDLs affecting the City prior to the cut-off date (February 2006) for inclusion in the current Permit.
- Any sampling or testing required for characterizing illicit discharges pursuant to the Permit's Illicit Discharge Detection and Elimination (IDDE) conditions.
- Preparation for future, comprehensive, long-term water quality monitoring efforts consistent with current Phase I monitoring requirements. According to the Permit, this program would include two components: 1) general stormwater quality monitoring and, 2) targeted Stormwater Management Program (SWMP) effectiveness monitoring. The stormwater monitoring is intended to characterize stormwater runoff quantity and quality at a limited number of locations. This characterization would allow for analysis of pollutants and changes in conditions over time and across the City. The SWMP effectiveness monitoring is intended to improve stormwater management efforts by evaluating various stormwater controls. Results of the monitoring will be used to support the adaptive management process for improving programs over time.
- Identification of two outfalls where permanent stormwater sampling stations can be installed and operated for future monitoring (by the end of the Permit term and with the 4th Annual Report). The two outfalls must represent commercial, high-density residential, and industrial land uses. The monitoring shall include plans for stormwater, sediment or receiving water monitoring of physical, chemical, and/or biological characteristics.
- Identification of two suitable SWMP Program questions and sites where targeted SWMP Program effectiveness monitoring can be conducted together with development of a monitoring plan for these questions and sites. The proposed effectiveness monitoring should be prepared to answer the following types of questions:
 - How effective is a specific targeted action or a narrow suite of actions?
 - Is the Stormwater Management Program achieving a targeted environmental outcome?

In addition, the City is required to provide the following monitoring and/or assessment data in Annual Reports:

- A description of stormwater monitoring or studies conducted by the City during the reporting period. If stormwater monitoring was conducted on behalf of the City, or if studies or investigations conducted by

other entities were reported to the City, a brief description of the type of information gathered or received shall be included in the Annual Report.

- An assessment of the appropriateness of the best management practices identified by the City for components of the Stormwater Management Program; and changes made, or anticipated to be made, to the practices that were previously selected to implement the Stormwater Management Program and why those changes are desirable.

8.2 Current Activities

The City, in partnership with the Puyallup Tribe and Department of Ecology, conducted a 15-month monitoring program for the Clarks Creek Watershed Pollution Reduction Project. The monitoring results were used to identify pollutant sources and estimate pollutant loads. The results of the monitoring are described in the *Clarks Creek Watershed Pollution Reduction Project Submittal Report* (URS and Brown and Caldwell, February 2005).

8.3 Planned Activities

Puyallup will likely need to create a Water Quality Monitoring Program to maintain compliance during the next Permit term. Except for summarizing monitoring activities no actions are required until 2013. Table 8-1 presents the work plan for 2012 SWMP monitoring activities.

Table 8-1. 2012 Water Quality Monitoring Work Plan			
Task ID	Task Description	Lead	Schedule Notes
MNTR -1	Develop a monitoring strategy for the current and future Permit water quality monitoring conditions.	PW	Continue through 2012.
MNTR-2	Prioritize three receiving waters for visual inspection.	City Management, Public Works	Completed February 16, 2010
MNTR-3	Conduct field assessment on at least one high priority water body.	Public Works	Ongoing
MNTR -4	Summarize annual monitoring activities for the Annual Report; identify any updates to the SWMP document.	Public Works	The SWMP and Annual Report submittal is due on or before March 31st of each year.
MNTR-5	Identification of two outfalls where permanent stormwater sampling stations can be installed and operated for future monitoring	Stormwater Engineer	See Appendix B, 2012 City of Puyallup City Future Stormwater Monitoring Plan
MNTR-6	Identification of two suitable SWMP Program questions	Stormwater Engineer	See Appendix C, Effectiveness Monitoring Plan Puyallup

APPENDIX A

Acronyms and Definitions

The following definitions and acronyms are taken directly from the Phase II Permit and are reproduced here for the reader's convenience.

AKART means all known, available, and reasonable methods of prevention, control and treatment. **All known, available and reasonable methods of prevention, control and treatment** refers to the State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.

Basin Plan is a surface water management process consisting of three parts: a scientific study of the basin's drainage features and their quality; developing actions and recommendations for resolving any deficiencies discovered during the study; and implementing the recommendations, followed by monitoring.

Best Management Practices ("BMPs") are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by the Department that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

BMP means Best Management Practice.

Component or **Program Component** means an element of the Stormwater Management Program listed in S5 Stormwater Management Program for Cities, Towns, and Counties or S6 Stormwater Management Program for Secondary Permittees of this permit.

CWA means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq.

Discharge for the purpose of this permit means, unless indicated otherwise, any discharge from a MS4 owned or operated by the permittee.

Ecology's Western Washington Phase I Municipal Stormwater Permit regulates discharges from municipal separate storm sewers owned or operated by Clark, King, Pierce and Snohomish Counties, and the cities of Seattle and Tacoma.

Ecology's Western Washington Phase II Municipal Stormwater Permit covers certain "small" municipal separate stormwater sewer systems.

Entity means another governmental body, or public or private organization, such as another permittee, a conservation district, or volunteer organization.

Equivalent document means a technical stormwater management manual developed by a state agency, local government or other entity that includes the Minimum Technical Requirements in Appendix 1 of this Permit. The Department may conditionally approve manuals that do not include the Minimum Technical Requirements in Appendix 1; in general, the Best Management Practices (BMPs) included in those documents may be applied at new development and redevelopment sites, but the Minimum Technical Requirements in Appendix 1 must still be met.

Heavy equipment maintenance or storage yard means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored.

Illicit connection means any man-made conveyance that is connected to a municipal separate storm sewer without a permit, excluding roof drains and other similar type connections. Examples include sanitary sewer

connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the municipal separate storm sewer system.

Illicit discharge means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

IDDE- Illicit discharge detection and elimination

Low Impact Development (LID) means a stormwater management and land development strategy applied at the parcel and subdivision scale that emphasizes conservation and use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely mimic pre-development hydrologic functions.

Major Municipal Separate Storm Sewer Outfall means a municipal separate storm sewer outfall from a single pipe with an inside diameter of 36 inches or more, or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive stormwater from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent (discharge from other than a circular pipe associated with a drainage area of 12 acres or more).

Material Storage Facilities means an uncovered area where bulk materials (liquid, solid, granular, etc.) are stored in piles, barrels, tanks, bins, crates, or other means.

Maximum Extent Practicable (MEP) refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water Act which reads as follows: Permits for discharges from municipal storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques, and system, design, and engineering methods, and other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

MEP means Maximum Extent Practicable.

MTRs means Minimum Technical Requirements.

Municipal Separate Storm Sewer System (MS4) means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

(i) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over

disposal of wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.

(ii) designed or used for collecting or conveying stormwater.

(iii) which is not a combined sewer; and (iv) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal Clean Water Act,

for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of Ecology.

Notice of Intent (NOI) means the application for, or a request for coverage under this General Permit pursuant to WAC 173-226-200.

Outfall means point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the State and does not include open conveyances connecting two municipal separate storm sewer systems, or pipes, tunnels, or other conveyances which connect segments of the same stream or other waters of the State and are used to convey waters of the State.

O&M- Operations and Maintenance

Permittee unless otherwise noted, the term “Permittee” includes Permittee, Co-Permittee, and Secondary Permittee, as defined below:

- (i) A “Permittee” is a city, town, or county owning or operating a regulated small MS4 applying and receiving a permit as a single entity.
- (ii) A “Co-Permittee” is any operator of a regulated small MS4 that is applying jointly with another applicant for coverage under this Permit. Co-Permittees own or operate a regulated small MS4 located within or adjacent to another regulated small MS4.
- (iii) A “Secondary Permittee” is an operator of regulated small MS4 that is not a city, town or county.

Small Municipal Separate Storm Sewer System or Small MS4 is a conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels and/or storm drains which is:

- a. Owned or operated by a city, town, county, district, association or other public body created pursuant to State law having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer districts, flood control districts or drainage districts, or similar entity.
- b. Designed or used for collecting or conveying stormwater.
- c. Not a combined sewer system,
- d. Not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.
- e. Not defined as “large” or “medium” pursuant to 40 CFR 122.26(b)(4) & (7) or designated under 40 CFR 122.26 (a)(1)(v).

Small MS4s include systems similar to separate storm sewer systems in municipalities such as: universities, large publicly owned hospitals, prison complexes, highways and other thoroughfares. Storm sewer systems in very discrete areas such as individual buildings do not require coverage under this Permit.

Small MS4s do *not* include storm drain systems operated by non-governmental entities such as: individual buildings, private schools, private colleges, private universities, and industrial and commercial entities.

Stormwater means runoff during and following precipitation and snowmelt events, including surface runoff and drainage.

Stormwater Associated with Industrial and Construction Activity means the discharge from any conveyance which is used for collecting and conveying stormwater, which is directly related to manufacturing,

processing or raw materials storage areas at an industrial plant, or associated with clearing grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.

Stormwater Management Manual for Western Washington means the 5-volume technical manual (Publication Nos. 99-11 through 15 for the 2001 version and Publication Nos. 05-10-029-033 for the 2005 version (The 2005 version replaces the 2001 version) prepared by Ecology for use by local governments that contains BMPs to prevent, control, or treat pollution in storm water.

Stormwater Management Program (SWMP) means a set of actions and activities designed to reduce the discharge of pollutants from the regulated small MS4 to the maximum extent practicable and to protect water quality, and comprising the components listed in S5 or S6 of this Permit and any additional actions necessary to meet the requirements of applicable

Vehicle Maintenance or Storage Facility means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

APPENDIX B

2012 City of Puyallup City Future Stormwater Monitoring Plan

CITY OF PUYALLUP FUTURE
STORMWATER MONITORING
PLAN

Prepared by
City of Puyallup Public Works Department
December, 2011

Section 1

Monitoring Overview

This section provides a brief overview of the monitoring requirements that are set forth in the Washington State Phase II Municipal Stormwater Permit for Western Washington (Phase II Permit).

1.1 Current Permit Monitoring Requirements

The Phase II Permit regulates stormwater discharges for small municipal separate storm sewer systems (MS4s) as established in Title 40 CFR, part 122.26. The Phase II Permit, issued in 2007 and modified in 2009, includes requirements for permittees to prepare to conduct a monitoring program in future permits.

The Phase II Monitoring Program described in Section S8.C includes two types of monitoring:

4. Stormwater Monitoring (S8.C.1.a)
5. Stormwater Management Program (SWMP) Effectiveness Monitoring/Targeted SWMP Effectiveness Monitoring (S8.C.1.b)

Stormwater Monitoring (S8.C.1.a) requires permittees to identify sites suitable for monitoring stormwater discharges based on jurisdictional size and land use types, and on known water quality problems and/or targeted areas of interest for future monitoring.

SWMP Effectiveness Monitoring (S8.C.1.b) requires permittees to identify questions that monitoring may answer to determine the effectiveness of specific components of their Stormwater Management Program (SWMP). The permittee must identify sites for monitoring and create monitoring plans to answer at least two effectiveness questions.

This document covers stormwater monitoring for Phase II Permit condition S8.C.1.a; effectiveness monitoring (S8.C.1.b) is described in a separate plan.

1.2 Future Phase II Permit Monitoring Requirements

This monitoring plan was prepared to meet the requirements of the current (2007) Phase II Permit. However, the next Phase II Permit, which is scheduled to be issued in 2013, is expected to contain monitoring requirements substantially different from those envisioned in the current Permit. In 2008, *Ecology convened the Puget Sound Stormwater Workgroup (SWG) to develop a comprehensive, sustainable, stormwater monitoring strategy for Puget Sound, as well as monitoring requirements for the next Phase I and Phase II permits. The SWG members represent caucuses of local, state, and federal agencies, environmental and business organizations, tribes and agriculture. The SWG submitted the comprehensive strategy in July 2010 to Ecology (in a document titled 2010 Stormwater Monitoring and Assessment Strategy for the Puget Sound Region). Based on this strategy, the SWG submitted monitoring recommendations for the next NPDES Phase I and II permits on October 29, 2010, in a document titled Recommendations for Municipal Stormwater Permit Monitoring.*

The SWG recommends that Ecology designate an independent entity to administer the stormwater-related monitoring and assessment activities in the next municipal stormwater permits. This recommendation is called the “pay-in” option. The SWG recommended receiving water monitoring rather than the outfall monitoring described in the current Phase II Permit. Moreover, the SWG recommended that the regional entity (rather than by each permittee) administer the program effectiveness monitoring and focus on questions of regional significance.

More information on the SWG is available at

<http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>.

The monitoring requirements will be substantially different from those envisioned in the current Permit. Thus, this monitoring plan should be regarded as tentative and subject to change based on the next Phase II Permit. As of the writing of this document, a definitive monitoring plan has not been established by Ecology.

Section 2

Monitoring Site Selection Process

2.1 Land Use Requirements

Puyallup has a population of 37,022 according to the 2010 US Census Bureau population data. Based on the thresholds set in Permit section S8.C.1.a, the City must select two outfalls where stormwater characterization monitoring could be conducted. One site should represent commercial land uses and the other should represent high-density residential land uses.

In addition to the selecting outfalls which the land uses noted above, Ecology guidance recommends selecting locations where municipalities already have an interest in the receiving water quality.

2.2 Sampling Sites Selection

The Phase II permit states that Permittees shall select outfalls or conveyances based on known water quality problems and/or targeted areas of interest for future monitoring. The City would like to highly consider locations where monitoring has been or is being conducted. This will allow monitoring collected as part of this proposal to build upon past or current monitoring information and to be used to identify trends and/or statistically significant changes. It also increases likelihood that the monitoring sites will be accessible and that power and other monitoring station needs are met. The City has been collecting monitoring data at many sites over the past 20 years and so it could be informative for the City if they could build on this existing data.

Ecology's May 2010 Monitoring and Reporting Guidance for Phase II Municipal Stormwater Permits (Publication 10-10-030) was also used to select outfalls or conveyances.

The NPDES permit requires Permittees to document:

Why sites were selected;

Possible site constraints for installation of and access to monitoring equipment;

A brief description of the contributing drainage basin including size in acreage, dominant land use, and other contributing land uses;

Any water quality concerns (or interests) in the receiving water of each selected outfall or conveyance.

The two potential monitoring sites are described below.

Site 1 (Commercial): Puyallup River Outfall #14

Brief Description- The monitoring site is located at City outfall #14 near the skate park (see Figure 1). It is a concrete pipe in line with 4th St NW and the Puyallup River.

Reason for Selection- This site was selected due to its high concentration of commercial land use.

Constraints- Flow from this outfall may be affected by backwater conditions during storm runoff events that coincide with Puyallup River flows above 17,000 cfs. However, this combination of conditions is expected to occur very infrequently.

Brief Description of Contributing Drainage Basin (size, dominant land use, other contributing land uses)- The drainage basin is 138 acres. As shown in Table 1, over half of the basin is commercial. The rest of the basin is a combination of High Density Residential, Low Density Residential, Open Space, and Public Facilities.

Table 1. Commercial Drainage Basin Characteristics			
Land Use		Area (acres)	Percent
Commercial	Auto Commercial	58.6	55%
	Pedestrian Oriented Commercial	3.8	
High Density Residential		3.0	3%
Low Density Residential		42.0	37%
Open Space		0.0	0%
Public Facilities		5.1	5%

Water Quality Concerns or Interests- The Puyallup River downstream of the city limits (approximately two miles downstream of outfall #14) is listed as “polluted” by fecal coliform bacteria. The fecal coliform listing is based on samples collected in 1998; however, samples collected in 2006 and 2008 did not exceed the state standards for fecal coliform. The same reach is listed as a “water body of concern” for dissolved oxygen. The reach about a third of a mile upstream h is listed as “polluted” due to elevated mercury concentrations. The City is unaware of any potential mercury source(s) in the outfall #14. drainage area.

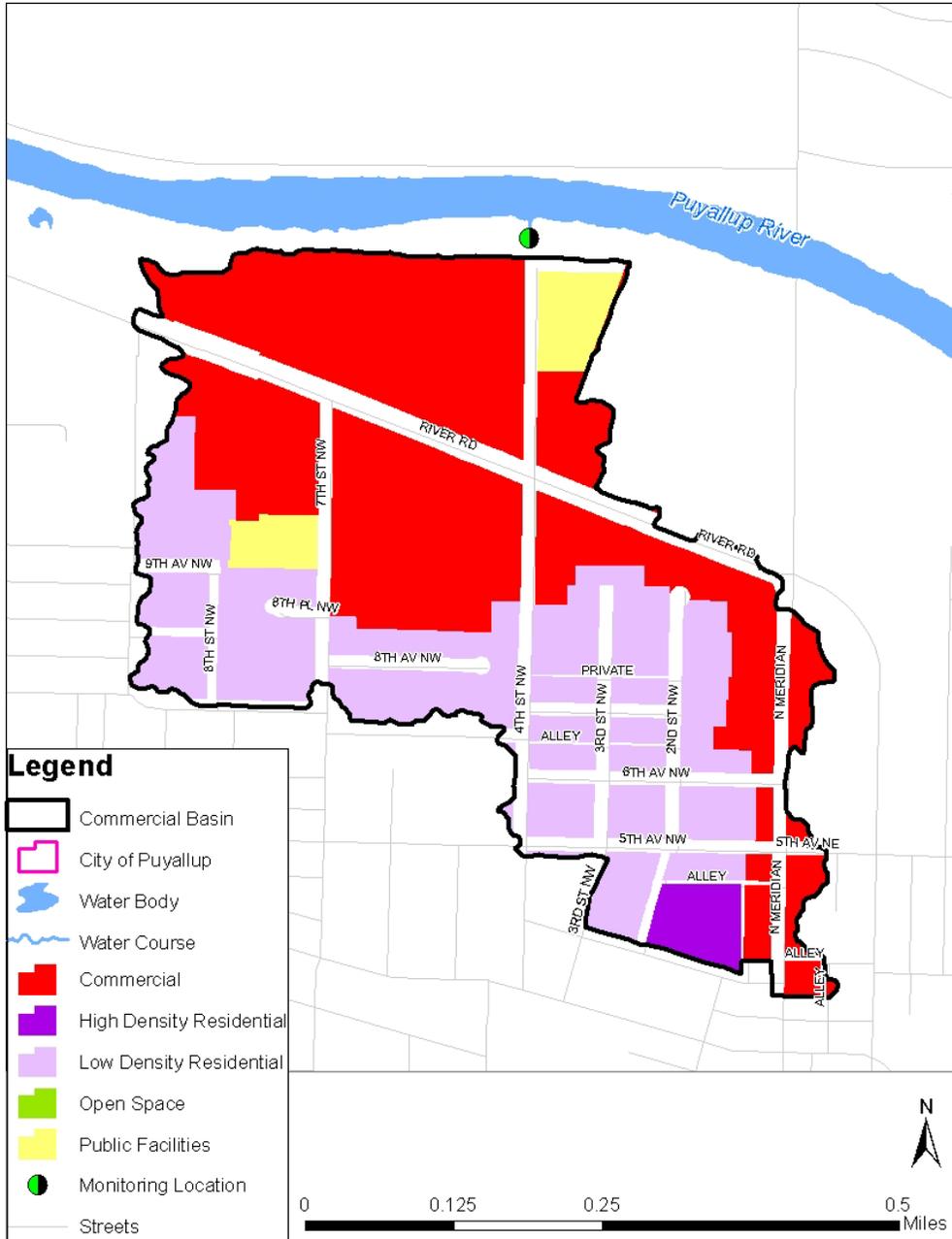


Figure 1. Commercial Land Use Basin

Site 2 (High Density Residential): Clarks Creek Outfall #24

Brief Description- The monitoring site is located at the outfall pipe just downstream of the Pioneer Ave bridge crossing over Clarks Creek. This 48-inch diameter concrete pipe receives stormwater runoff from an area that contains a mix of High Density Residential, Commercial, and Low Density Residential land uses (see Figure 2).

Reason for Selection- Using the City's original land use data no basins were found to be dominated by High Density Residential land use. The City land use descriptions in the tax parcel data do not define the definition for Low Density Residential; however, using GIS analysis the average density of the Low Density Residential properties in this basin is 4-5 units per acre, which by the Ecology guidance would be defined as High Density Residential. The Pioneer Avenue drainage area was selected because it is an area of high importance due to planned economic redevelopment in the City's downtown core.

The selected sampling site will allow characterization of stormwater discharges into Clarks Creek, which has a TMDL for fecal coliform bacteria as well as sediment and dissolved oxygen concerns.

Constraints- No known constraints.

Brief Description of Contributing Drainage Basin (size, dominant land use, other contributing land uses)- The drainage basin encompasses 431 acres, including the right-of-way. Table 2 lists the current land use composition. As noted above, the area of High Density Residential is expected to increase as a result of the City's economic redevelopment plan for the downtown area. The tables and figures are updated to use the Ecology, rather than City definition.

Table 2. High Density Residential Drainage Basin Characteristics			
Land Use		Area (acres)	Percent
Commercial	Auto Commercial	3.5	17%
	Limited Commercial	2.2	
	Pedestrian Oriented Commercial	56.4	
High Density Residential		198.8	56%
Low Density Residential		27.5	8%
Open Space		3.8	1%
Public Facilities		62.8	18%

Water Quality Concerns or Interests- Clarks Creek has a TMDL in place for fecal coliform. The Puyallup Tribe is developing a TMDL for dissolved oxygen in the creek. Excessive fine sediment and elodea growth are also key concerns for Clarks Creek.

Limitations

The next version of the Phase II Permit may contain monitoring requirements that are substantially different from those envisioned in the current (2007) Permit. Therefore, the City may modify this plan after the next Phase II Permit has been issued.

2012 Effectiveness Monitoring Plan

CITY OF PUYALLUP FUTURE
STORMWATER AND SWMP
EFFECTIVENESS MONITORING
PLAN

Prepared by
City of Puyallup Public Works Department
December, 2011

Section 1

Monitoring Overview

This section provides a brief overview of the monitoring requirements that are set forth in the Washington State Phase II Municipal Stormwater Permit for Western Washington (Phase II Permit).

1.1 Current Permit Monitoring Requirements

The Phase II Permit regulates stormwater discharges for small municipal separate storm sewer systems (MS4s) as established in Title 40 CFR, part 122.26. The Phase II Permit, issued in 2007 and modified in 2009, includes requirements for permittees to prepare to conduct a monitoring program in future permits.

The Phase II Monitoring Program described in Section S8.C includes two types of monitoring:

6. Stormwater Monitoring (S8.C.1.a)
7. Stormwater Management Program (SWMP) Effectiveness Monitoring/Targeted SWMP Effectiveness Monitoring (S8.C.1.b)

Stormwater Monitoring (S8.C.1.a) requires permittees to identify sites suitable for monitoring stormwater discharges based on jurisdictional size and land use types, and on known water quality problems and/or targeted areas of interest for future monitoring.

SWMP Effectiveness Monitoring (S8.C.1.b) requires permittees to identify questions that monitoring may answer to determine the effectiveness of specific components of their Stormwater Management Program (SWMP). The permittee must identify sites for monitoring and create monitoring plans to answer at least two effectiveness questions.

This document covers effectiveness monitoring as required for S8.C.1.b; stormwater monitoring (S8.C.1.a) is described in a separate monitoring plan.

1.2 Future Permit Monitoring Requirements

This monitoring plan was prepared to meet the requirements of the current (2007) Phase II Permit, as noted above. However, the next Phase II Permit, which is scheduled to be issued in 2013, may contain monitoring requirements substantially different from those envisioned in the current Permit. Thus, this monitoring plan should be regarded as tentative and subject to change based on the next Phase II Permit.

In 2008, Ecology convened the Puget Sound Stormwater Workgroup (SWG) to develop a comprehensive, sustainable, stormwater monitoring strategy for Puget Sound, as well as monitoring requirements for the next municipal stormwater NPDES permits. The SWG members represent caucuses of local, state, and federal agencies, environmental and business organizations, tribes and agriculture.

The SWG submitted the comprehensive strategy in July 2010 to Ecology (in a document titled *2010 Stormwater Monitoring and Assessment Strategy for the Puget Sound Region*). Based on this strategy, the SWG submitted monitoring recommendations for the next NPDES Phase I and II permits on October 29, 2010, in a document titled *Recommendations for Municipal Stormwater Permit Monitoring*.

The SWG recommends that Ecology designate an independent entity to administer the stormwater-related monitoring and assessment activities in the next municipal stormwater permits. This recommendation is called the “pay-in” option. The SWG recommended receiving water monitoring rather than the outfall monitoring described in the current permits. Moreover, the SWG recommended that the regional entity (rather than by each

permitee) administer the program effectiveness monitoring and focus on questions of regional significance. As of the writing of this document, a definitive effectiveness monitoring plan has not been established by Ecology.

More information on the SWG is available at

<http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>.

Section 2

Targeted Stormwater Program Effectiveness Questions

Phase II Permit condition S8.C.1. requires that each permittee prepare a monitoring plan to address two questions related to the effectiveness of the permittee's stormwater management program. The monitoring plan must contain the following elements:

- A. A statement of the question, an explanation of how and why the issue is significant to the permittee and a discussion of whether and how the results of the monitoring may be significant to other MS4s.
- B. A specific hypothesis about the issue or management actions that will be tested.
- C. Specific parameters or attributes to be measures.
- D. Expected modifications to management actions depending on the outcome of hypothesis testing.

The City's proposed effectiveness questions and monitoring approach are described below. As noted above, the City understands that the next version of the Phase II Permit may contain monitoring requirements substantially different from those envisioned in the current Phase II Permit. The City may revise these effectiveness questions and/or monitoring strategies after the next Phase II Permit has been issued.

Question 1- Will retrofitting alleys with porous pavement substantially reduce runoff?

Problem Statement/Description: Creation of impervious surfaces has been identified as a major cause of the flooding, water pollution, and channel erosion problems that often accompany urbanization (National Academy of Sciences 2008). Porous pavement is designed to allow rainfall to infiltrate into the underlying soil, thereby minimizing surface runoff and related flooding, water pollution, and channel erosion problems.

The City must devote substantial resources to meet NPDES flow and water quality control standards. Other MS4s are likely having similar issues.

Hypothesis: Catchments with alleys covered by porous pavement will generate less surface runoff than catchments with alleys covered by traditional pavement.

Specific parameters or attributes: The City will identify two small catchments with similar land uses, soils, and topography. The alleys in one of the catchments will be repaved using pervious material. The City will monitor runoff volumes from each catchment area and compare the results.

Expected modifications: If monitoring determines that the areas with porous pavement substantially reduce runoff volumes then the City will more likely install porous pavement sections in alleys.

Question 2- Will installation of rain gardens in road rights-of-way substantially reduce runoff?

Problem Statement/Description: Nearly all of the existing roads in Puyallup are covered with impervious pavement. In some areas, road runoff is directed to adjacent grassy areas with limited potential for flow and pollutant attenuation. Installing rain gardens in these grassy areas could increase infiltration and sedimentation, thereby reducing flow volumes and pollutant loads. Rain gardens are low-lying, vegetated depressions with absorbent soils that promote infiltration. Rain gardens are a popular form of stormwater mitigation, as they are easy retrofits for existing developments and are well suited for small sites, such as rights-of-ways.

Many other MS4s use rain gardens and therefore are likely to have similar questions regarding their effectiveness in reducing runoff from road rights-of-way.

Hypothesis: Catchments with rain gardens in the rights-of-way will have less runoff than catchments with grass in the rights-of-way.

Specific parameters or attributes: The City will identify two small catchments with grass-covered rights-of-way and similar land uses, soils, and topography. Rain gardens will be installed in the rights-of-way in one of the catchments. The City will monitor runoff volumes from each catchment area and compare the results.

Expected modifications: If monitoring determines that the areas with rain gardens substantially reduce runoff volumes then the City may install more rain gardens in rights-of-ways in the City.