



Stormwater Management Program (SWMP) Plan

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Background

In 1987, Congress amended the federal Clean Water Act to include stormwater discharges in the National Pollutant Discharge Elimination System (NPDES) permit program. The Environmental Protection Agency (EPA) developed rules to implement the new stormwater requirements in two phases called Phase I and Phase II. The Washington State Department of Ecology (Ecology) implements these stormwater rules through municipal stormwater permits. The Phase I permit, which went into effect in 1990, covers large jurisdictions such as cities and counties serving more than 100,000 people. In 1999, EPA issued the Phase II stormwater permit regulations to cover stormwater discharges in urbanized areas that serve smaller populations (Ecology, 2006).

There are two separate Phase II municipal stormwater permits in the State of Washington, one for western Washington and one for eastern Washington. Ecology issued the NPDES Eastern Washington Phase II Municipal Stormwater Permit (Permit) in January 2007. The city of Pullman (City) applied for and was granted coverage under the Permit soon after. Eighteen other cities and six counties in eastern Washington are also covered under the Permit. The first Permit became effective February 16, 2007 and expired July 31, 2014. The second Permit became effective August 1, 2014 and is scheduled to expire July 31, 2019. This is the Permit the city is currently operating under.

The first Permit was designed to give jurisdictions an opportunity to develop their stormwater management programs and prepare for the second permit cycle which requires additional actions and an increased level of management and oversight. The City has spent the past nine years developing its stormwater management program in accordance with the requirements of the Permit, including adoption of new ordinances, changing policies and procedures, purchasing new equipment and training staff.

The current Permit can be viewed in its entirety on Ecology's website below.

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/ewph2permit.html>

Hatley Creek Storm Drainage Basin Study

In 2000, responding to citizen concerns and recognizing that stormwater runoff was a growing problem, the City hired consulting firm Gray & Osborne to conduct a study of the Hatley Creek drainage basin. Hatley basin is located in the southwest quadrant of town and drains approximately 760 acres (both city & county) which have been experiencing a high rate of development. The purpose of the study was to recommend a level of stormwater quantity control that seeks to decrease the existing peak rate of stormwater runoff in the basin, as well as provide water quality benefits. As a result of the study, the City requires enhanced stormwater detention design standards for all new and re-development within the Hatley basin (Gray & Osborne, 2000).

The Water Quality Problem

Pullman's network of storm drains is classified as a municipal separate storm sewer system (MS4). The storm drain system is separate from and therefore does not convey stormwater to the City's wastewater treatment plant. Stormwater runoff has been identified by Ecology as "the number one water pollution problem in the urban areas of our state" (Ecology, 2007). Pollutants commonly found in stormwater include fertilizers, pesticides, vehicle fluids, trash, sediment and pet waste. Stormwater can also contribute to problems associated with flooding.

Most storm drains within Pullman empty directly into the South Fork Palouse River (SFPR) or one of its main tributaries that flow through town. According to Ecology, the SFPR is on the State's list of impaired water bodies for not meeting water quality criteria for temperature, dissolved oxygen, pH and fecal coliform bacteria. Ecology has completed a Water Clean-up Plan or Total Maximum Daily Load (TMDL) for fecal coliform bacteria and is in the process of developing TMDLs for the remaining parameters. TMDLs have also been completed for Ammonia-N and Toxics (PCBs & Dieldrin) for the larger Palouse River basin, including the SFPR. Water quality sampling related to the TMDLs has shown that Pullman's stormwater quality is similar to other urban areas across the nation, indicating a need for enhanced stormwater management.

Stormwater Management Program (SWMP) Plan

The city of Pullman has been managing its stormwater for a long time. However, to be more effective and successfully meet permit compliance requirements, enhanced coordination among all city staff and departments is essential. The Permit requires the city of Pullman to develop and implement a comprehensive Stormwater Management Program (SWMP) Plan. An updated SWMP Plan documenting the actions the City plans to implement to satisfy State requirements and protect water quality is required to be made available to Ecology by March 31st and to the public by May 31st of each year. The SWMP Plan and other related documents are available on the City's Stormwater Services website below.

<http://www.pullman-wa.gov/departments/stormwater-services>

Early in 2007, the City hired consulting firm Otak, Inc. to assist with development of Pullman's first SWMP. Otak worked closely with City staff and in September 2007 produced the *Final Stormwater Program Implementation Plan*. The Implementation Plan contains the following Sections:

- Background
- Stormwater Program Definition Process
- Regulatory Gap Analysis - Process & Results
- Detailed Annual Stormwater Program Implementation Matrices
- Resources Needed for Pullman's Updated Stormwater Program

- Estimated Annual Program Revenue Needs & Sources
- NPDES Equipment & Funding Needs
- Capital Improvement Plan

As required by the Permit, the Implementation Plan addressed the following elements:

- Public Education and Outreach
- Public Involvement & Participation
- Illicit Discharge Detection & Elimination
- Construction Site Stormwater Runoff Control
- Post-Construction Stormwater Management for New Development and Redevelopment
- Pollution Prevention & Good Housekeeping for Municipal Operations
- Compliance with Total Maximum Daily Load (TMDL) Allocations
- Monitoring & Program Evaluation
- Reporting & Recordkeeping

In 2008 the City chose to create a new Stormwater Services Division within the Public Works Department and hired a program manager to coordinate the activities identified in the Implementation Plan.

In January 2009, Otak, Inc. produced the *Stormwater Program Funding Alternatives and Financial Plan (FAFP)*. The FAFP included program and projected budget needs for the newly created program. The FAFP served as a necessary update to the Implementation Plan. Funding decisions related to the Stormwater Services Division now follow the City's annual formal budget approval process (see *Stormwater Utility* below).

Among other things, the Permit required the City to adopt ordinances addressing illicit discharge detection and elimination (IDDE), runoff from construction sites and post-construction stormwater management. The City adopted an IDDE ordinance in August 2009 which added a new Chapter 10.31 to Pullman City Code (PCC). The City also adopted a combined Construction and Post-Construction stormwater ordinance in January 2011 which added a new Chapter 10.32 to PCC.

A stormwater field technician/inspector was hired in January 2010 to implement and enforce the provisions in these program areas. Also, in accordance with the Implementation Plan, budget has been allocated to the Maintenance & Operations Division to ramp up maintenance activities related to the City's stormwater system. An operations and maintenance plan (O&M Plan) that prescribes regularly scheduled maintenance activities on the stormwater system has been developed. In 2011, the City purchased a jet-vector truck and other specialized equipment to begin implementing the O&M Plan. Also, budget is made available annually to assist the Parks Department with litter control and pet waste management. The Engineering Division is also reimbursed

with Stormwater funds when surveying, drafting, mapping and other technical support is provided.

Stormwater Utility

Much like water supply and sanitary sewer systems, maintaining and replacing an aging storm drain infrastructure and providing other stormwater management services is very costly. In February 2009, the Pullman City Council created a storm drainage and surface water management utility and corresponding enterprise fund to sustain the stormwater program. This provides a permanent tracking and financial planning mechanism as part of the city's overall budget development process. The annual budget for Stormwater Services is typically adopted by City Council in December of each year. The utility currently only charges fees for developed properties with impervious surfaces. In 2011, an Advisory Committee was formed to provide the City Council with a recommendation on whether or not undeveloped properties should also be charged a stormwater utility fee. After a six month facilitated process, the Advisory Committee recommended to not charge undeveloped properties.

The codified stormwater utility ordinance is located in Chapter 10.30 of PCC and can be viewed on the City's website below.

<http://www.pullman-wa.gov/>

Recent Activities

2015 saw continued development and implementation of the City's Stormwater Management Program. Notable activities included:

General Program Administration

- Continued management of and compliance with the City's NPDES Phase II Municipal Stormwater Permit. *The City's primary coordination mechanism is an official department head meeting held weekly at which time barriers to compliance can be discussed and eliminated.*
- Continued coordination with secondary permittee, Washington State University.
- Received a grant from Washington State Department of Ecology totaling \$329,000 for construction of Low Impact Development (LID) practices on two city owned parking lots, at Neill Public Library and the South Street Lot.
- Continued participation in the Eastern Washington Stormwater Coordinators Group, including initial phases of the effectiveness studies (S8B1).
- Employed a part-time (0.5 FTE) Stormwater Aide to assist with asset inventory, volunteer coordination, pet waste management, storm drain marker installation and field maintenance activities.
- Sponsored 7 WSU student interns, including 4 pursuing their BS in Engineering, one BS in Geography, one BS in Environmental Science and one BS in Wildlife Ecology. The students primarily worked on updating our detention pond and outfall inventories (GIS), light maintenance and public involvement activities such as the Stream Clean-up, the Adopt-a-Stream and pet waste management programs.
- Provided stormwater awareness training to staff.

- Effectively completed a federal Environmental Protection Agency (EPA) Region 10 targeted audit which resulted in a finding of “no areas of concern”. Program areas inspected by EPA included Construction, IDDE and Municipal Operations and Maintenance.

Public Education & Outreach

- Pursued education and outreach efforts via website, news media, radio PSAs and personal interaction with our customers.
- Partnered with the Palouse-Clearwater Environmental Institute (PCEI), Pullman School District and private schools to integrate stormwater concepts into the 5th and 8th grade science curriculum, totaling 16 lessons delivered to 428 students.
- Partnered with Pullman Parks & Recreation and provided stormwater education to the summer day-school program (15 students/3 hours)
- Designed, purchased and direct mailed IDDE brochures to 57 local Pullman restaurants with an emphasis on dumpster management.
- Collaborated with stakeholders on proper operation and placement of fundraiser car washes.

Public Involvement

- Sponsored the 11th Annual Pullman Stream Clean-up event in April. Approximately 100+ volunteers spent 300 hours cleaning Pullman streams by removing an estimated 8 cubic yards of trash and recyclables. Litter was removed from 4.4 miles of stream.
- Successfully implemented the Pullman Adopt-A-Stream Program. “Stream Stewards” were active on fourteen of the sixteen available segments. Stewards collectively participated in a total of 80 clean-up events throughout the year.
- Prepared for and/or attended 3 City Council meetings to address stormwater related issues.

Illicit Discharge Detection & Elimination (IDDE)

- Completed inspection and GPS inventory of 263 outfalls.
- Responded to, investigated and resolved 5 stormwater/illicit discharge related complaints.
- Continued implementation of a pet waste management program, including inspection and maintenance on a total of 85 pet waste stations in and along Pullman’s parks and trails.
- Completed Phase I of the West Crestview/Dry Fork Creek Fecal Coliform Bacteria Investigation Study.
- Code Enforcement:
 - Park St – Warning letters sent to 2 property owners.

Construction Site Runoff Control

- Reviewed 21 Site Plans and Stormwater Pollution Prevention Plans (SWPPPs) for large grading and new construction projects.

- Reviewed 55 Erosion and Sediment Control (ESC) plans for projects of Duplex size or smaller (mostly single family residential homes).
- Conducted 134 documented construction related erosion control inspections.
- Issued 83 Stormwater Permits for new and re-development projects.
- Continued monitoring of an Inter-Agency agreement with WSU for regulation of Construction and Post-Construction activities. WSU EHS Dept. submits an annual report to Stormwater Services documenting these activities.
- Code Enforcement:
 - Sunnyside Heights Subdivisions 7 & 8 – Issued warning letter.
 - Paradise Hills Subdivision 7 – Issued warning letter.
 - Whispering Hills Subdivision 8 & 9 – Issued warning letter.
 - Barclay Estates Subdivision 2 – Issued warning letter.

Post-Construction Stormwater Management

- Reviewed 9 drainage reports and civil drawings of post-construction stormwater BMPs included in site plans for newly proposed development.
- Began administration of a grant from the Washington Department of Ecology totaling \$329,000 for construction of stormwater retrofits and Low Impact Development (LID) practices on two city owned parking lots.

Pollution Prevention & Good Housekeeping – Municipal Operations

- Spent 1,632.75 hours sweeping city streets (as reported by the M&O Division).
- Spent 2,262.50 hours on maintenance of the city's storm drain system (as reported by the M&O Division).

Capital Projects

- As part of its capital improvement program, Stormwater Services purchased a Trimble Hand-held GPS data recorder for asset inspection and inventory activities.

2016 promises to be even busier with the following activities already underway or planned:

Stormwater in the Classroom

The City will continue partnering with PCEI, the Pullman School District and private schools to challenge students with water quality and stormwater related exercises that complement the science curriculum in both the 5th and 8th grades.

Annual Pullman Stream Clean-up

The City will partner again with PCEI to sponsor the 12th Annual Stream Clean-up event on Saturday April 16, 2015. Other major partners involved in the Stream Clean-up include Pullman Parks & Recreation, Pullman Transit, Pullman Disposal Service, Pullman Civic Trust and numerous local businesses that donate food and other materials for the event.

Pullman Adopt-a-Stream Program

The City will continue to partner with PCEI to implement a program modeled after the adopt-a-highway program, where community groups and/or businesses can “adopt” a segment of stream in town and then be responsible for keeping it clean. As of January 1, 2016, all 16 of the identified segments of stream have been adopted, with 14 being actively cleaned.

West Crestview/Dry Fork Creek Fecal Coliform Bacteria Study

Phase I of the study was very successful and led to elimination of a significant source of fecal coliform bacteria to Dry Fork Creek. In Phase II, City staff and water quality consultant Worldthree, LLC will continue to attempt to identify sources of fecal coliform bacteria and other indicators within the West Crestview Street drainage basin and its receiving waterbody, Dry Fork Creek. In 2016-2017, staff will attempt to isolate and eliminate suspected sources (Phase III) at Mies Street and Rocky Way Drive.

As part of the TMDL process, Ecology identified this section of Dry Fork Creek as needing a reduction in fecal coliform bacteria. In addition to traditional grab sample methods and dye testing, the study is using multiple ultra-sensitive temperature probes deployed throughout the drainage basin to identify potential illicit connections. The drainage basins being studied are primarily residential in nature with some light commercial near the outfalls to Dry Fork Creek.

Pet Waste Management

To complement the additional pet waste stations installed throughout town, Stormwater Services staff implemented a pet waste receptacle pilot project. The Stormwater Division purchased 25 waste receptacles that were placed by pet waste stations and will be serviced by garbage trucks with automated side lifting (ASL) capability. City staff will evaluate whether the new ASL cans are cleaner, safer and more efficient than traditional waste collection methods and whether they are a cost-effective alternative to the city’s current solid waste approach. The need for additional waste receptacles was identified by Stormwater Services staff and members of the public who use the pet waste stations.

Detention Pond Inspection & Maintenance

Using the Stormwater Management Manual for Eastern Washington as a guide, Stormwater Services staff inspected each of the City’s 46 public detention ponds. As a result of the inspections, staff completed light maintenance on 37 of the 46 ponds.

Stormwater Utility

The original stormwater utility was established by measuring impervious surfaces using aerial photographs from April 2006. Using updated photographs from 2012 and more

recently updated on-line map service applications (i.e. Google Maps), the City will continue to review and if necessary make updates to customer accounts. New accounts will also be added as needed.

Contacts

Questions about Pullman's Stormwater Management Program can be directed to:

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Questions about the Eastern Washington Phase II Municipal Stormwater Permit can be directed to:

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References

Gray & Osborne, Inc. 2000. *Hatley Creek Storm Drainage Basin Study*.

Washington State Department of Ecology. 2006. *Frequently Asked Questions about Municipal Stormwater Permits*. Publication No. 06-10-005 (revised).

Washington State Department of Ecology. 2007. *Protecting Washington's Waters From Stormwater Pollution*. Publication No. 07-10-05.