City of Keizer, Oregon

ANNUAL REPORT
PERMIT YEAR – 2011/2012
STORMWATER NPDES PERMIT #102904

October 24, 2012

Prepared by:
Stormwater Division Staff
City of Keizer, Public Works Department
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

---------------------
Bill Lawyer
Public Works Director
City of Keizer
930 Chemawa Rd NE
P.O. Box 21000
Keizer, OR  97307-1000
Table of Contents

## Sections

### Executive Summary

1

### Section 1 – Introduction

1.1 Background 3  
1.2 Annual Report 3  
1.3 Contents 5

### Section 2 – Program and Report Overview

#### Program Effectiveness Strategy

2.1 Introduction 7  
2.2 Program Effectiveness Strategy and Discussion 7  

Figure 2.1 Excerpt from Stormwater Quiz 8

### Section 3 – Public Education

3.1 Overview 10  
3.2 Tasks Completed 10  
3.3 Effectiveness Summary 15  
3.4 Future Tasks 16  

Figure 3.1 June 2, 2012 CCWC Event 12  
Figure 3.2 April 14, 2012 CCWC Event 12  
Figure 3.3 Guided Hikes and Storm Display 13  
Figure 3.4 2012 KP3 Display Board 14  
Figure 3.5 Marion County Employee / Guided Hikes 15

### Section 4 – Public Involvement / Participation

4.1 Overview 18  
4.2 Tasks Completed 18  
4.3 Effectiveness Summary 19  
4.4 Future Tasks 20  

Figure 4.1 Catchbasin Markers 19
Section 5 – Illicit Discharge Detection and Elimination
5.1 Overview 21
5.2 Tasks Completed 21
5.3 Effectiveness Summary 22
5.4 Future Tasks 22

Section 6 – Construction Site Runoff Control
6.1 Overview 23
6.2 Tasks Completed 23
6.3 Effectiveness Summary 24
6.4 Future Tasks 24

Figure 6.1 1200-C Site at Keizer Rapids Park 24

Section 7 – Development Standards (Post-Construction Runoff Control)
7.1 Overview 26
7.2 Tasks Completed 26
7.3 Effectiveness Summary 29
7.4 Future Tasks 29

Section 8 – Operations and Maintenance (Pollution Prevention/Good Housekeeping)
8.1 Overview 30
8.2 Tasks Completed 30
8.3 Effectiveness Summary 31
8.4 Future Tasks 32

Section 9 – Record-Keeping and Reporting
9.1 Overview 33
9.2 Tasks Completed 33
9.3 Future Tasks 34

Section 10 – Annexed area and Expansion of MS4
10.1 Summary 35

Section 11 – Enforcement Actions
11.1 Overview 36
11.2 New Procedures (plans, coordination) 36
11.3 Number of responses and complaints 36

Section 12 – Internal Review Process and Findings
12.1 Summary 38

Section 13 – Storm Sewer System and Waterways
13.1 Summary 39

Section 14 – Progress Towards Schedule B2(a)
14.1 Overview 40
14.2 Future Tasks 41

Section 15 – Other Activities
15.1 Summary 42
15.2 Specific Activities 42
  Figure 15.1 Howl-a-Palooza Participant 42
  Figure 15.2 Officer Wood and Dino 43
  Figure 15.3 Boat Ramp 44
  Figure 15.4 Stormwater Infiltration Facility 44
  Figure 15.5 Mitigation Site at Keizer Rapids Park 45

Section 16 – TMDL Implementation Plan
16.1 Summary 49
16.2 Specific Activities 49
  Figure 16.1 City of Keizer Staff / Guided Hikes 50

List of Tables

Table 16.2 – TMDL Implementation Plan Matrix

Attachments

Appendix A – Outreach/Education Material
Appendix B – Waterways and Outfall Map
Appendix C – Enforcement Action Log
Appendix D – Keizer Rapids Park
Appendix E – Claggett Creek Restoration Projects
ACRONYMS AND ABBREVIATIONS

ACWA  Association of Clean Water Agencies
BMPs  Best Management Practices
CCR  Consumer Confidence Report
CFR  Code of Federal Regulations
City  City of Keizer, Oregon
CS  Construction Site Standards
CWA  Clean Water Act
DEQ  Oregon Department of Environmental Quality
DLCD  Department of Land Conservation and Development
DSL  Oregon Department of State Lands
DS  Development Standards
DWPA  Drinking Water Protection Areas
EFU  Exclusive Farm Use
EPSC  Erosion Prevention Sediment Control
EPA  Environmental Protection Agency
ESU  Equivalent Service Unit
ESA  Endangered Species Act
FTE  Full Time Equivalent
FY  Fiscal Year
GIS  Geographic Information System
IDDE  Illicit Discharge Detection and Elimination
LID  Low Impact Development
MCM  Minimum Control Measure
MEP  Maximum Extent Practicable
MS4  Municipal Separate Storm Sewer System
NPDES  National Pollutant Discharge Elimination System
OAR  Oregon Administrative Rules
ODFW  Oregon Department of Fish and Wildlife
O & M  Operation & Maintenance
ORS  Oregon Revised Statues
PE  Public Education
Permittee City of Keizer
PI  Public Involvement and Participation
PY  Permit Year
RR  Record Keeping and Reporting
SWAC  Stormwater Advisory Committee
SWMP  Storm Water Management Plan or Program
TMDL  Total Maximum Daily Load
UGB  Urban Growth Boundary
UIC  Underground Injection Control
USACE  United States Army Corps of Engineers
USFWS  United States Fish and Wildlife Service
USGS  United States Geologic Survey
WPCF  Water Pollution Control Facilities (permit)
Executive Summary

The City of Keizer holds National Pollutant Discharge Elimination System (NPDES) permit No. 102904, which was issued in March 2007. The City is submitting the Permit Year 5 (PY 5) Annual Report as is required under that permit. The sections included in this report are consistent in format with previous reports and provide the documentation and program review as is listed in the City’s Stormwater Management Plan (SWMP). Keizer’s stormwater program is implemented by City personnel from the Public Works Department, specifically the Stormwater Division.

The City’s NPDES permit expired on February 28, 2012. In August 2011, Keizer submitted an application package to DEQ which included the required NPDES permit renewal application, a Land Use Compatibility Statement, a SWMP Evaluation, and a draft Revised SWMP for the next permit term. The current SWMP is being implemented while permit renewal is pending. Electronic versions of the permit renewal documents are located on the City website.

The Construction Site Runoff program was completed in full on August 1, 2011, with adoption of the erosion control plan fee structure. Regulatory staff has made good progress on implementation of this program. The City’s lead inspector has obtained the Certified Erosion and Sediment Control Lead (CESCL) certification. The City applied for two 1200-C permits during the permit year. The City has made good progress on implementation of the programs required for Minimum Control Measure (MCM) #4.

The City is continuing to require Low Impact Development (LID) design elements for all new commercial development in Keizer. Although growth is limited, the City actively promotes the use of LID for most development.

Stormwater Division regulatory staff has continued to participate as a partner with the Mid-Willamette Outreach Group (MWOG). The MWOG core group includes the City of Keizer, Marion County, the City of Salem, and the Marion Soil and Water Conservation District (SWCD). On February 7, 2012, the group hosted a regional Erosion Control Summit. Feedback received from the participants has resulted in a planning effort for the second annual event to be held on January 15, 2013. In addition, the group co-hosted a canine event with the Marion County Animal Services on October 6, 2012 designed to reach a large group about the importance of pet waste removal.

The City’s use of the Geographic Information System (GIS) has continued to grow and expand. In 2011/2012 the City contracted for televised inspection of local underground injection control
(UIC) devices in preparation for the requirements of a pending Water Pollution Control Facilities (WPCF) permit. This activity allowed the City to fine-tune the stormwater system inventory in GIS. MS4 televised inspection began in late July 2012 and will continue into the 2012/2013 fiscal year.

The Stormwater Division regulatory staff has continued to work productively with the Claggett Creek Watershed Council over the permit year. On April 14, 2012, the City combined forces with the Council for a variety of work projects throughout the City. The Council, City Staff, and 42 volunteers removed approximately 100 cubic yards of Scotch Broom from the riparian corridor of the Willamette River, installed 167 storm drain markers, and planted 170 native plants along Claggett Creek near Claggett Creek Middle School. See Section 3 for a more detailed accounting of these events.

PY 5 has seen changes in the Public Works Department as a whole that will ultimately result in changes to the Stormwater Division. The Public Works Director retired in February 2012, and the past Public Works Superintendent was selected as the new Director in May 2012. At this time, the vacant Public Works Superintendent position has not yet been filled, but recruitment is underway. In addition to leadership changes, two Stormwater Utility Workers were involved in an accident that left the Division short-handed for much of 2011/2012.

While the City has had significant successes over the course of the permit term, the Public Works Department operations staff continues to fall short of making stormwater an equal player in the Public Works Department. Change has been difficult, but a pending reorganization of the Department may very well result in positive alterations to the program in the future.

As the City of Keizer prepares for a new NPDES permit, staff is also preparing for the pending WPCF permit and focusing on adaptive management strategies for the TMDL Implementation Plan. The City is adjusting to personnel changes within the Department, and preparing for new elected officials. The Stormwater Advisory Committee (SWAC) is looking at options for a fee increase to meet the overall needs of the long term program. Staff looks forward to new challenges in the upcoming year.
Section 1 - Introduction

1.1 Background

The federal Clean Water Act (CWA) was amended in 1987 to include the requirement that stormwater be regulated as a point source discharge under the National Pollutant Discharge Elimination System (NPDES) program. In 1990, the Environmental Protection Agency (EPA) developed regulations for stormwater discharges that were applicable to entities that own and operate municipal separate storm sewer systems (MS4s). The program was employed in two phases with Phase I regulations first being applied to large MS4s with populations of 100,000 or more. Phase II regulations were adopted in 1999 for small MS4s. In Oregon, the Department of Environmental Quality (DEQ) has been delegated authority from the EPA for the NPDES program.

As a result of the NPDES Phase II requirements, the City of Keizer established a citizen’s Stormwater Task Force to assist in the development of a stormwater management strategy that would meet state and federal regulations, and was suitable for the City of Keizer. The original Stormwater Task Force worked with staff and a consultant to establish the Stormwater Management Plan (SWMP) and a stormwater utility fee. The initial stormwater fee was increased in 2010, and a second increase is pending.

After filing an application for an NPDES Permit, the City of Keizer was notified in a letter dated March 12, 2007, that the public review process for the Phase II Municipal Separate Storm Sewer System (MS4) permit for the City had been completed by the Department of Environmental Quality (DEQ). NPDES Permit No. 102904 (DEQ File No. 100032) was issued to the City of Keizer, Oregon. The Permit authorizes the discharge of stormwater from all municipal separate storm sewer system outfalls owned and operated by the City. In August 2011 the City of Keizer applied for a permit renewal. The original permit expired on February 28, 2012.

1.2 Annual Report Requirements

In accordance with Schedule B(2) of the Permit, the City of Keizer as the permittee must submit an annual report to DEQ by November 1 of each year for the time period of July 1 through June 30. The annual report must contain:
1. The status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the maximum extent practicable (MEP), and the measurable goals for each of the minimum control measures;

2. Results of information collected and analyzed, if any, during the reporting period, including evaluation criteria used to assess the success of the program at reducing the discharge of pollutants to the MEP;

3. A summary of the stormwater activities the permittee plans to undertake during the next reporting cycle, including a schedule for implementation;

4. A description of changes made to the SWMP, including changes to BMPs or measurable goals identified in the SWMP;

5. Information on all new additions or removals of annexed areas that result in an expansion or contraction of the MS4’s boundaries;

6. Notice that the permittee is relying on another government entity to satisfy some of the permittee’s permit obligations (if applicable); and

7. Number and nature of enforcement actions taken.

This document serves as the Permit Year 5 (PY 5) Annual Report for the City of Keizer. The Environmental Program Coordinator is responsible for the implementation and coordination for the best management practices (BMPs) listed within the SWMP. The Stormwater Division is composed of 4 regulatory staff members and 2.25 maintenance employees. The Environmental Program Coordinator supervises the regulatory staff. Maintenance personnel are supervised by the Stormwater/Streets Field Supervisor who is funded 60% from the Stormwater fund and 40% from the Streets fund.

The City of Keizer does not rely on other government entities to satisfy any of the permit obligations. While Keizer owns the sanitary sewer system within the City’s UGB, the City of Salem provides maintenance and repair of that system through an Inter-governmental Agreement (IGA). The City of Keizer would also utilize outside agencies in the event of an emergency beyond the City’s response capacity. A large scale spill or accident might require a response from the Keizer Fire District, the City of Salem Fire Department or the Salem Public Works Environmental Services group, or the Marion County Fire District. The City of Keizer is a member of the Oregon Water/Wastewater Agency Response Network (ORWARN), and has and
Inter-governmental Agreement (IGA) with the Oregon Department of Transportation (ODOT); a Public Works Cooperative Assistance Agreement.

### 1.3 Contents

The introduction found in this section serves as background documentation for the stormwater program for the City of Keizer and covers NPDES Phase II permit requirements. Section 2 will address the progress of the program as a whole and the evolving effectiveness strategy. The effectiveness strategy is designed to provide a means to evaluate the program elements and control measures.

Sections 3 through 8 of this report will cover the individual progress and specifications of adherence to the six minimum control measures required through the Stormwater Management Plan (SWMP). The referenced control measures are as follows:

1. Public Education and Outreach
2. Public Involvement/Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site Stormwater Runoff Control
5. Post-Construction Stormwater Management in New Development and Redevelopment
6. Pollution Prevention in Municipal Operations

Sections 9 through 12 cover those other components required through the permit that were not previously mentioned such as record-keeping, SWMP review, and enforcement actions for PY5. Section 13 is an updated overview of the storm sewer system and the waterways which receive stormwater from the City of Keizer. Section 14 is a discussion on progress towards reducing discharges to the maximum extent practicable (MEP) under Schedule B2(a) of the NPDES Permit. Section 15 is included to capture other noteworthy actions or activities that do not fall easily within other Sections of this report. In order to reduce redundancy, Section 16 has been added to the report to capture activities covered under the TMDL Implementation Plan that are not covered in the Annual Report.

Those sections of the report that pertain to the Minimum Control Measures will be formatted consistently with the following subsections:
Overview
Tasks Completed
Effectiveness Summary
Future Tasks¹

The intent of this layout is to provide a less demanding review of progress, documentation, and specifications related to each control measure.

¹ The Revised SWMP submitted to DEQ in August 2011 includes updated and new BMPs not listed in the current SWMP. In addressing the category of Future Tasks, staff will provide additional efforts if the new NPDES permit has not been finalized. Obviously if the City is operating under a new SWMP, the future tasks listed in this document may be inaccurate.
2.1 Program Overview

The first term NPDES permit expired on February 28, 2012. Stormwater Division staff has continued to implement the SWMP during PY 5 and beyond the expiration date of the permit. The success of PY 4 activities has allowed Stormwater regulatory staff to fine-tune programs over PY 5 while looking ahead to the next permit term.

The Public Works Department proceeded with converting the temporary regulatory staff position to a regular status position in April 2012. This conversion has been crucial to programs such as the erosion control program, GIS advancement, and oversight of environmentally sensitive projects such as the construction of the Keizer Rapids Park Boating Facility.

2.2 Program Effectiveness Strategy and Discussion

As was addressed in Section 2.1, the City of Keizer has been successful in moving forward with program implementation during PY 5. No formal effectiveness strategy was conducted during PY 5; however, a stormwater quiz was sent to residents via utility bills in October and November 2011. The purpose of the quiz was to bring the first permit term to a close with some basic information about the community’s knowledge of stormwater and water quality issues. In addition to the quiz, respondents were also asked to provide basic demographic information. In looking at public outreach efforts in the future, the findings of this quiz will assist the Division in tailoring a program that is suitable for an identified target audience. See Appendix A.

Program Effectiveness

While the results of the quiz showed that some residents have a good understanding of stormwater and water quality issues, about 45% of respondents are not aware that MS4 stormwater is discharged, untreated, to local waterways. The majority of residents taking the quiz were older adults with few, if any children at home. Based on the findings from Question 1 (see abbreviated quiz, below), it appears that the City has yet to reach a large portion of the population with simple stormwater fundamentals. An abbreviated section of the quiz is provided in Figure 2.1.
Figure 2.1: Excerpt from Stormwater Quiz
The correct answers are circled in red. The percentages listed next to each option represent the percentage of respondents who chose that option as their answer.

1. Stormwater is rainfall that runs off hard surfaces like rooftops, driveways, streets, and parking lots. Where does most of the stormwater go? (Circle one)
   - A. To the sewer treatment plant at Willow Lake 14%
   - B. Directly into local waterways 55%
   - C. To a separate stormwater treatment plant 11%
   - D. I’m not sure 20%

2. The drains that you see on the street and in many parking lots are connected to the:
   - A. Stormwater system 62%
   - B. Sewer System 5%
   - C. Both A & B 22%
   - D. I’m not sure 11%

3. The Willamette River and many of the streams that flow into it have high levels of bacteria which can be hazardous to humans. Bacteria levels can be elevated through animal waste. In Keizer, which animals are most problematic when it comes to high bacteria levels?
   - A. Livestock 17%
   - B. Domestic Pets (dogs and cats) 38%
   - C. Ducks and Geese 23%
   - D. I’m not sure 22%

Program Accomplishments

As was noted in the Executive Summary, Stormwater regulatory staff elevated efforts for erosion control activities in PY 5. The BMPs listed under Minimum Control Measure (MCM) #4 have been implemented and the measurable goals have been met. In addition to erosion control measures, the City has also been very successful in requiring low impact development (LID) features for commercial development and re-development. Projects being planned or under construction using LID include 2 new restaurants in Keizer Station, a re-development project on River Road, a new transit district facility, new and re-development at an existing church site, and the Keizer Rapids Park Boating Facility project.

Sections 3 through 8 cover the accomplishments for each MCM.

Program Challenges

As was noted in the PY 4 report, Public Works maintenance personnel have continued to operate on a complaint driven basis since the program’s inception. Little emphasis has been
placed on developing annual routine stormwater maintenance or programmatic activities. Stormwater operational tasks are often disrupted in favor of other projects that may or may not be more important. As a result, accuracy and timeliness suffer in regard to stormwater field work. Maintenance personnel responsibilities will continue to be the weak point in Keizer’s stormwater program until a concerted effort is made to make positive changes. The Department has gone through management changes in the past year which may result in positive changes to this portion of the stormwater program.

In addition to the challenges listed above, stormwater staff will continue to struggle with the work load required by three stormwater regulatory programs (NPDES, TMDL Implementation, and pending WPCF permit).
Section 3 – Public Education and Outreach

3.1 Overview

Minimum Control Measure #1, as described in the NPDES MS4 Phase II rules, requires the City of Keizer to implement a public education program to distribute educational materials to the community. The rule includes the opportunity to implement other outreach activities in regard to the impact of stormwater on local waterbodies.

The three BMPs listed in the SWMP for Minimum Control Measure #1 are as follows:

PE-1 Preparation of a water bill insert. The intent of the BMP as stated in the SWMP description is to utilize an annual mailing that will reach all households, such as the drinking water Consumer Confidence Report (CCR).

PE-2 Requires the City to utilize local Channel 23 to provide stormwater quality-related education. Furthermore, stormwater-related information is to be added to the City’s website on an annual basis.

PE-3 Requires participation in the Claggett Creek Watershed Council meetings.

Copies of outreach materials are included in Appendix A.

3.2 Tasks Completed

All of the BMPs listed for this MCM were completed in PY 4 and expanded in PY 5. New additions to the public education achievements include activities such as facilitation of the Mid-Willamette Erosion Control Summit in February 2012, expansion of the City’s website to include new educational information, expansion of the City’s pet waste program, and two large community events with the Claggett Creek Watershed Council.

For BMP PE-1, City staff has utilized the drinking water Consumer Confidence Report (CCR) to reach the residents of Keizer each permit year. The most recent CCR was mailed in May 2012. Topics in this year’s report included information about the NPDES permit renewal, promotion of the Claggett Creek Watershed Council, and an overview of the new Keizer Rapids Park Boating Facility. The latter topic included information about the stormwater features at the facility that
will be used to infiltrate and treat stormwater from the parking/maneuvering area. As has been addressed in the past, the CCR is a useful tool for reaching all residents of Keizer, including those in multi-family dwellings. The CCR will continue to be utilized for public education in the next permit term.

In regard to BMP PE-2, the Stormwater Division was able to take advantage of Channel 23 in PY 4, but this tool was not utilized during PY 5. Staff has removed this BMP from the Revised SWMP for the next permit term. Although utilization of Channel 23 has not been an effective BMP for the most part, staff has put significant effort into updating the Stormwater Operations website. In addition to the work completed in PY 4, the website now includes, among other things, FAQ sheets with information about regulatory programs, native / invasive plant information, and a stormwater glossary. Stormwater Division staff has also used the City’s website to notify the public about pertinent projects, restoration projects, and educational opportunities.

BMP PE-3 calls for City participation in the Claggett Creek Watershed Council (CCWC). The watershed council continues to struggle with membership and participation. Stormwater regulatory staff attends monthly CCWC meetings and continues to partner with and support the group on various projects. City staff will continue to support the efforts of this small group, however they will have to focus more on creating projects that don’t rely solely on City staff for design and implementation. Despite small membership numbers, the group has had some very successful activities during the year. Among other projects, the group held two work parties at Keizer Rapids Park along the Willamette River to remove invasive vegetation. Both events were well attended, with involvement by local students.

The first event was held on April 14, 2012 and the second on June 2, 2012 (see Figures 3.1 and 3.2). The April 14th event involved 42 volunteers and resulted in the removal of approximately 100 cubic yards of Scotch broom in the Willamette River riparian corridor. Another group of volunteers worked at a restoration project adjacent to Claggett Creek. This second group of 12 installed 170 native trees and shrubs in conjunction with the Oregon Department of Fish and Wildlife (ODFW) Salmon and Trout Advisory Committee (STAC) grant covered in the PY4 annual report.

Stormwater Division regulatory staff also redesigned the CCWC brochure which is included in Appendix A.
Figure 3.1 – June 2, 2012 CCWC Event

McNary High School and Chemeketa Community College Students 6/2/12

Figure 3.2 – April 14, 2012 CCWC Event

Riparian planting adjacent to Claggett Creek 4/14/12
Additional Educational Activities

Public Service Fair

The Public Works Department holds an annual open house to educate the residents of Keizer on the services the City provides. The event is generally held in May in conjunction with the local Iris Festival activities. In 2011 the event was held as usual at the City Shop facility. In 2012, the event was held on August 20th at Keizer Rapids Park. The event was advertised as a Public Services Fair. Stormwater educational activities included 3 guided hikes in the park conservation easement adjacent to the river, educational brochures, and information on temperature issues displayed on the presentation board. (See Figure 3.3) The VacCon truck was onsite as well. Although the event was held at a new location for 2012, the crowd totaled approximately 400 people.

Figure 3.3 – Guided Hikes and Stormwater Display

Keizer Pet Poop Patrol (KP3)

KP3 was initiated in PY 2. This program continues to bring awareness to the community on the importance of picking up pet waste. KP3 was promoted at the Public Service Fair in August 2012. A display board is redesigned each year so those familiar with the program see a new product regularly. (See Figure 3.4) The Open House is a suitable event for educating residents and promoting the program. Promotional items are only distributed if the participant is willing to “take the pledge to always pick-up after your pet, even in your own backyard.” The incentive
item for those who pledge is a doggie bag container suitable for clipping to a leash. This year the City received 22 pledges.

**Figure 3.4 – 2012 Display Board for the Keizer Pet Poop Patrol**

Changes are underway for KP3. This effort is being incorporated into the Mid-Willamette Outreach Group (MWOG) activities listed below and also in Section 15.

**Mid-Willamette Outreach Group**

The Mid-Willamette Outreach Group (MWOG) was created in 2011 to develop a unified regional approach to public outreach messages and activities. The group includes the City of Keizer, the City of Salem, Marion County, and the Marion Soil and Water Conservation District.

In February 2012, the group hosted the first annual Mid-Willamette Erosion Control Summit. Speakers included Tony Gilbertson from Clean Water Services, Maria Cahill from Green Girl Land Developments Solutions, Scott Erickson from Evolution Paving, and presenters from local jurisdictions. There were 50 attendees. MWOG worked with the local homebuilders association on developing this training opportunity. The group was able to offer participants continuing education units (CEUs) for participation in the workshop. While participation was somewhat limited, MWOG learned shortly before the event that there were a number of other training opportunities that had been scheduled for that week. The group felt that turnout was good given the competition from other agency training.
Survey results from the event indicated that the participants thought this was a very worthwhile opportunity. As such, MWOG has planned a second event to be held on January 15, 2013. At this time event planning is well underway and ‘Save the Date’ information is being distributed.

Other actions that are being considered for the future are the development of regional messages that might be used on billboards or on buses, and an MWOG raingarden at the Oregon State Fairgrounds.

**Guided Hikes Program**

The guided hikes program that was started in 2011 has been actively promoted and will be continuing into the future. Stormwater Division staff hosted 4th and 5th grade students from Keizer Elementary School for educational activities at Keizer Rapids Park on October 9 and October 11, 2012. Partners for this activity included Marion County, Marion Soil and Water Conservation District, and instructors from the Straub Environmental Learning Center (see Figure 3.5).

*Figure 3.5 – Marion County Employee with Students*

### 3.3 Effectiveness Summary

The Environmental Program Coordinator and Stormwater Division regulatory staff have created useful and innovative outreach materials for PY 5. As was addressed in previous Annual Reports, this activity has been primarily directed toward taking advantage of suitable
opportunities rather than following a cohesive and well-developed plan. The development of a focused outreach and education plan will be addressed in the next permit cycle.

The use of the CCR for a citywide mailing reaches more households than a bill insert would, due to delivery to all addresses, including multi-family. This educational effort has proven to be worthwhile for the City. Stormwater Division regulatory staff will continue to use the CCR as a means to reach a wide range of Keizer residents. Staff has consistently received good feedback on the material presented in this document. Utilizing the CCR to address stormwater issues helps the community to recognize stormwater as a utility as the CCR is tied to the more traditional water utility.

The City of Keizer has used the annual Public Works Open House as a community education effort for the past 4 years. The Public Service Fair needs to be refined in order to have the same impact as previous events. Staff has received both positive and negative comments from residents about the event in 2012. The previous format had allowed working adults to attend given the event was held in the evening, but the new location allowed for attendees to transition more easily from one booth to another. The Public Service Fair included participants from across the region, such as emergency services, law enforcement, and construction related businesses. Some participants expressed confusion about the purpose of the event. Holding this activity at Keizer Rapids Park provided a nice venue, but if the event is to be held in the same format for 2013, it needs to be focused and refined. In general, this annual activity is an excellent opportunity to network with Keizer residents.

The KP3 program has received very good feedback since its inception. The expansion of this program into a regional effort will allow staff to reach a much larger audience. See Section 15 for a description of Howl-a-palooza and the Capital Canine Club for Clean Streams.

The Environmental Program Coordinator has listed a number of activities above that fall outside of the existing BMPs for stormwater education and outreach. The additional outreach efforts for PY 5 have been substantial.

### 3.4 Future Tasks

**BMP PE-1** No SWMP revisions are planned for this BMP and continued use of the CCR is proposed in the Revised SWMP.
BMP PE-2 As was noted in subsection 3.2, staff has not been successfully utilizing Channel 23. The audience is somewhat limited as well. Stormwater Division regulatory staff plans to continue to put emphasis on the City website instead.

BMP PE-3 Stormwater Division regulatory staff will continue to provide guidance to the Claggett Creek Watershed Council.
Section 4 – Public Involvement/Participation

4.1 Overview

Minimum Control Measure #2, Public Involvement and Participation, is intended to utilize interested citizens and community groups to help educate other residents about preventing stormwater pollution. There are three BMPs for this control measure in the City of Keizer SWMP which are as follows:

PI-1  Public participation in establishment of a funding source.

PI-2  Public participation in ordinance development. This BMP specifies establishment of an ordinance for the Illicit Discharge Detection and Elimination (IDDE) Program, an ordinance for the construction site runoff control program, and an ordinance for stormwater quality-related standards for new development.

PI-3  Storm Drain Markers/Door Hangers. This BMP specifies involvement of community groups to implement storm drain marking on an annual basis.

4.2 Tasks Completed

BMPs PI-1 and PI-2 are complete and the measurable goals have been met. The Stormwater fee was increased in 2010 from the base level of $2.70 each month to $3.82 each month. Stormwater fees are collected every other month as a $7.65 charge per equivalent service unit (ESU). The Public Works Director is proposing a $ .43 per month increase at this time, and the SWAC has endorsed that recommendation. The 5 year proposal was developed by the City’s Finance Director, Public Works Director, and the Environmental Program Coordinator. Every effort has been made to address anticipated activities and needs, although the SWAC has been advised that there will be unknowns that arise. The Keizer City Council has not yet reviewed the proposed rate increase.

BMP PI-2 called for public participation in ordinance development. During PY 4, the SWAC completed the erosion control ordinance which was adopted by the City of Keizer City Council on May 16, 2011. The fee structure for the erosion control permits were approved by City Council on August 1, 2011. With the exception of the ordinance required for MCM #5, Post-Construction Runoff, the SWAC has assisted with the other program elements required under
public involvement/participation. The SWAC continues to meet on a regular basis. The tasks ahead include evaluating the work load for the new NPDES permit and the UIC program. In addition, the SWAC will play a larger role in evaluating BMPs in the Revised SWMP.

The SWAC has not had all stakeholder positions filled since its inception. Despite having a small core group, this committee has been highly instrumental in moving the stormwater program forward. Staff will make every effort to keep the committee in place over the next permit term.

BMP PI-3 has been more effectively implemented over PY 5. Stormwater Division staff was able to creatively utilize school and community groups such as Forest Ridge Elementary School students, Claggett Creek Watershed Council volunteers, and Albertson’s employees to install 234 markers in PY 5 which far exceeds the measurable goal. These groups also handed out 65 informational brochures. The measurable goal for this BMP was to install 100 markers per year, and the City has seldom met that goal during the current permit term.

The City currently uses a blue aluminum marker for MS4 catchbasins, but has also purchased a red marker for UIC catchbasins (see Figure 4.2). City staff marked all UIC catchbasins during the summer of 2012 in order to prepare for full implementation of a Spill Prevention and Response Plan. The Plan is currently in draft stage and is expected to be completed in 2013/2014.

**Figure 4.2 – Catchbasin Markers**

![Catchbasin Markers](image)

### 4.3 Effectiveness Summary

PI-1 is complete. While the initial fee was insufficient for complete program implementation, the SWAC was instrumental in recognizing that the fee needed to be increased. The 2010 increase secured additional resources and ultimately resulted in a successful 5 year program. It is anticipated that the pending fee increase will help to sustain the program over several years.
Utilizing the SWAC to help develop ordinances has been very useful for the organization as a whole and, specifically, Stormwater Division staff. This is particularly true in development of the erosion control program. The ordinance and program elements were developed during difficult economic times, and yet the coordinated effort resulted in a comprehensive program. Although developing this portion of the program was extremely time consuming, the end product is being effectively implemented.

BMP PI-3 may be an effective tool for public involvement and participation. Unfortunately, MS4 storm drain marking as outlined in the current SWMP is time intensive for the City. Organizing volunteers, scheduling events, and watching the weather can result in a very lengthy project overall. The City has invested in aluminum markers and at this time, it’s prudent to see that they are installed. This BMP will be considered for adaptive management in subsequent years.

4.4 Future Tasks

BMP PI-1 is complete. The Environmental Program Coordinator has added a BMP to the Revised SWMP for the next permit period that calls for an annual budget analysis for the stormwater program. The findings are to be reported each year in the Annual Report. This activity is expected to be part of the advisory committee’s annual review. As such, the intent is that the committee will recognize any critical need before the program suffers. The addition of this BMP will be useful as the City plans for an upcoming fee increase.

BMP PI-2 is ongoing. The SWAC will continue regular meetings. The Environmental Program Coordinator anticipates the group will meet 8 to 12 times during the upcoming year.

BMP PI-3 has been implemented and although the measureable goal has not always been met, staff exceeded the goal during PY 5. As was stated in Subsection 4.3, if marking activities are not effective in the future, adaptive management may be applied to this BMP. The locations of installed storm drain markers have been added to the City GIS layers.
Section 5 – *Illicit Discharge Detection and Elimination*

5.1 Overview

There are four BMPs listed in the SWMP for Minimum Control Measure #3, Illicit Discharge Detection and Elimination (IDDE).

**ID-1** Development of an ordinance to prohibit illicit discharges

**ID-2** Development of an IDDE Plan including outfalls inventory map

**ID-3** Training for City staff to implement the IDDE Plan

**ID-4** Implementation of the IDDE Plan

5.2 Tasks Completed

The BMPs and measureable goals for MCM #3 have been met. The City has been fully implementing the program throughout PY 5. The Stormwater Discharge Ordinance listed under BMP ID-1 was developed by staff and the Stormwater Advisory Committee (SWAC) and adopted by the City Council in March 2009.

Stormwater maintenance personnel completed a citywide outfall inspection in PY 5. Maintenance personnel used a GPS unit for the field work this year. A total of 139 outfalls were identified. This number may change next year given staff used paper maps to locate outfalls in 2012. It appears that maintenance personnel may have missed a number of outfalls, but this situation will be resolved in 2013 given outfall locations are now identified with the GPS unit. Stormwater regulatory staff will assist maintenance personnel with correcting the issue in subsequent years. Overall the annual process has been refined over the permit term. Maintenance personnel are now familiar with outfall locations. The process takes far less time than in earlier years.

No suspicious discharges were observed during the annual inspection. Stormwater regulatory staff has a procedure developed for conducting dry weather sampling should a discharge be identified in the field.

A stormwater outfall map is included in Appendix B.
5.3 Effectiveness Summary

The IDDE Program is developed and being implemented. The program as a whole is suitable for Keizer. The City has conducted annual outfall inspections for each year of the permit term. This activity has allowed for a more complete inventory over the past 5 years. Maintenance personnel have had difficulty collecting accurate data from year to year, but hopefully using the GPS unit in upcoming years will result in a more consistent annual inventory.

5.4 Future Tasks

No revisions are necessary for this section of the SWMP.

**BMP ID-1** The Stormwater Discharge Ordinance has been adopted.

**BMP ID-2** The IDDE Plan has been developed. Staff will look at reviewing the document and revising in the next permit term. Stormwater personnel will continue annual outfall inspections, and dry weather sampling when a discharge is identified.

**BMP ID-3** All maintenance personnel need to have annual training for this BMP.

**BMP ID-4** Implementation of the IDDE Plan will continue.
Section 6 – Construction Site Stormwater Runoff Control

6.1 Overview

Minimum Control Measure #4, Construction Site Runoff Control, contains four BMPs designed to prevent pollutants from construction activities from contaminating stormwater runoff to the MS4.

CS-1 Development of a construction site runoff control ordinance
CS-2 Train City employees regarding construction site controls
CS-3 Conduct plan reviews, inspections, enforcement
CS-4 Establish hotline to receive complaints from the public

6.2 Tasks Completed

BMP CS-1 – The erosion control ordinance adopted in 2011 was fully implemented during PY 5. Erosion control forms, general information, and project examples have been created to assist the development community with erosion control requirements. The City’s website has detailed information about the program.

Under BMP CS-2, initial training was held for Public Works personnel in PY 4. No additional department-wide training was conducted in PY 5. Two members of the Stormwater regulatory staff have obtained specialized training and certification over the last year. One of the City’s Environmental Program Technicians has secured the Certified Erosion and Sediment Control Lead (CESCL) certification. This individual has acted as the inspector for the City’s own 1200-C permits, such as was required for the Keizer Rapids Park Boating Facility. (See Figure 6.1)

The City and the MWOG group hosted the Mid-Willamette Erosion Control Summit on February 7, 2012. The event brought in 50 participants. Feedback from the event has resulted in a planning effort for a second event which will be held on January 15, 2013. Topics for the 2012 event included a presentation on erosion control BMPs and correct installation techniques, a presentation on low impact development techniques, and presentations regarding local regulations from Marion County, the City of Salem, and the City of Keizer.
In regard to BMP CS-3, Stormwater Division regulatory staff are actively reviewing all plans and conducting inspections. The program as a whole has been refined over the past year. The process is being implemented effectively. Small changes such as redesigning the permit application forms have helped make a more efficient program. Stormwater regulatory staff has reviewed the ordinance and will target any needed amendments for 2013.

Figure 6.1 – 1200-C Site at Keizer Rapids Park

The hotline referenced in BMP CS-4 has not yet been developed. The after-hours phone system which allows callers to access the appropriate Division for assistance is still in use. The Public Works Director supports the addition of a special phone number for stormwater issues, including erosion control. Staff is looking at options for obtaining that goal.

As was reported in PY 4, signs were purchased to post at development sites which were to be used as a way for staff to determine if a permit had been obtained for erosion control. In addition, the sign included a phone number should the public notice a problem. The inspectors are no longer using these signs; they were regularly being removed or destroyed by vandals.
6.3 Effectiveness Summary

The Construction Site Runoff program was developed late in the permit term, but it has been effective and implementable. Stormwater regulatory staff has provided excellent customer service in assisting with plan review as well as working with contractors in the field. As was noted in subsection 6.2, the ordinance should be amended to tighten the program as a whole.

Staff was notified by DEQ that automatic coverage under the 1200-CN permit is likely to occur during the permit renewal process sometime in early 2013.

6.4 Future Tasks

**BMP CS-1** The erosion control ordinance requires minor amendments.

**BMP CS-2** Stormwater maintenance personnel need to have erosion control inspection certification and training in plan review in order to become fluent in the program.

**BMP CS-3** The program includes plan review, inspection, and a process for enforcement action.

**BMP CS-4** Staff is currently exploring options for an erosion control hotline.
Section 7 – Post-Construction Stormwater Management in New Development and Redevelopment

7.1 Overview

There are three BMPs associated with Minimum Control Measure #7 in Keizer’s SWMP related to post-construction stormwater management.

DS-1 Development of an ordinance to prevent or minimize stormwater pollutants from new and re-development projects

DS-2 Train City staff for the newly developed standards

DS-3 Implementation of the new regulations developed under DS-1

7.2 Tasks Completed

This minimum control measure has progressively gained attention from City staff over the permit term, but major changes are planned in subsequent years. The primary task facing staff will include revisions of the Design Standards and Development Code.

As is discussed in Section 10, the City of Keizer is nearly entirely built out, with residential development being limited primarily to infill construction. Of the 25 development sites requiring erosion control permits in PY 5, 19 were residential construction. The other sites were primarily commercial development, all of which were required to use some type of low impact development (LID) techniques in their plans.

The intent of the MCM #7 has been achieved through existing Design Standards and Development Code. Both documents were adopted through ordinance, which meets the criteria for BMP DS-1. The City’s Design Standards were adopted in 2007 by the City Council. Ordinance #2007-533 formally recognizes these standards, which have effectively addressed stormwater flow reduction throughout the developable portions of the City. The City of Keizer Development Code was adopted by ordinance on February 22, 2000.
See pertinent language for the Design Standards and Development Code under BMP DS-1 below.

**DS-1 Develop an Ordinance to Control Runoff from New and Re-Development**
The SWMP description for BMP DS-1 says that the City of Keizer will develop an ordinance for new and re-development disturbing one acre or more. The ordinance will include: 1) requirements for implementation of BMPs that prevent or minimize water quality impacts, 2) requirements for adequate long-term operation and maintenance of the BMPs, and 3) enforcement mechanisms/sanctions to ensure compliance.

The applicable Design Standards language is as follows:

CITY OF KEIZER DESIGN STANDARDS
STORM DRAINAGE - 3

4.02 Additional Referenced Standards
Design of storm drainage, storm water quality facilities, and related improvements shall conform to these Design Standards, City of Keizer Standard Construction Specifications, and certain sections (as required by the City Engineer) of the current edition of the following referenced standards or documents:

   Oregon Department of Transportation (ODOT)
b. “Surface Water Design Manual”
   King County, Washington Surface Water Management Division
c. “Appendix B: Water Quality & Quantity Facility Design”
   Clean Water Services of Washington County, Oregon (formerly Unified Sewage Agency (USA))
d. Oregon Plumbing Specialty Code
   International Association of Plumbing and Mechanical Officials (IAPMO)
e. City of Keizer Flood Insurance Rate Map (FIRM), current adopted
   Federal Emergency Management Agency (FEMA)

4.08 Storm Water Quantity Calculations
Design calculations performed and stamped by a Civil Engineer registered in the State of Oregon shall be included with all plan submittals. Peak design flows may be calculated using the Rational Formula, \( Q = CiA \) for basins with a total area under 20 acres. Alternate methods or programs including King County, SCS, TR-
20, SWMM, or others as approved by the City Engineer may be used for drainage basins with a total area greater than 20 acres.

Design of storm drainage and related facilities shall incorporate both quantity standards utilizing the required frequency rainfall event, and storm water quality provisions as required in these Design Standards.

Project Engineer shall submit a certified set of detailed drainage calculations identifying drainage basins, estimated quantities of runoff for the existing and developed conditions, and detention/retention systems as required in these Design Standards.

CITY OF KEIZER DEVELOPMENT CODE (2.306 Storm Drainage)

2.306.05 General Standards
A. Requirements. All development shall be planned, designed, and constructed and maintained to:
1. Protect and preserve existing natural drainage channels to the maximum practicable extent;
2. Protect development from flood hazards;
3. Provide a system by which water within the development are substantially free of pollutants, through such construction and drainage techniques as sedimentation ponds, reseeding, phasing of grading;
4. Assure that waters are drained from the development in such a manner that will not cause erosion to any greater extent than would occur in the absence of development;
6. Provide dry wells, French drains, or similar methods, as necessary to supplement storm drainage systems;
7. Avoid placement of surface detention or retention facilities in road rights-of-way.

G. Storm Water Quality
Point source water quality facilities shall be provided where required by the Department of Public Works. Catch basins shall be outfitted with approved ‘turndowns’ and sumps for oil/water separation and sedimentation control. Storm water quality manholes shall be installed in all proposed storm drains out letting into existing drainage facilities.

Stormwater regulatory staff has taken the lead on assisting with the design of LID elements in public facilities. New software purchased recently will allow staff to design professional planting plans for stormwater facilities such as the feature at the new Keizer Rapids Park Boating Facility.
As was noted in earlier, Stormwater regulatory staff has proposed revision of the Design Standards and Development Code for the next permit term. This task will include a more comprehensive plan review and inspection / enforcement schedule.

7.3 Effectiveness Summary

Progress for this BMP is suitable for existing conditions. The City is requiring LID elements for all commercial construction within Keizer. Revision of the Design Standards and Development Code in the next permit term is likely to coincide with the anticipated UGB expansion.

7.4 Future Tasks

**BMP DS-1** Revisions to new standards will be adopted by ordinance or resolution

**BMP DS-2** Training for staff will occur in the next permit term

**BMP DS-3** New standards will be implemented in accordance with the provisions of the approved Revised SWMP
Section 8 – *Pollution Prevention in Municipal Operations*

8.1 Overview

There are four BMPs listed in the City of Keizer SWMP for Minimum Control Measure #6 which addresses pollution prevention in municipal operations.

OM-1 Development of a water quality sensitive Operations & Maintenance (O & M) program

OM-2 Train City employees regarding revised O & M practices

OM-3 Conduct catchbasin cleaning

OM-4 Conduct street sweeping

8.2 Tasks Completed

The O & M Program BMPs, which include OM-1 and OM-2, were finally completed in PY 4. The Good Housekeeping manual was completed in February 2011. The manual was developed by Stormwater regulatory staff with input from the Public Works maintenance supervisors. Every effort was made to incorporate existing activities into a user-friendly format. Inspection procedures were developed for facilities and activities throughout the City. Stormwater regulatory staff needs to design additional inspection forms for some activities identified in the manual.

An initial training was held shortly after the manual was completed in 2011. No training has occurred since that time primarily due to the lack of use of the manual by operations personnel. As was noted in Section 2, the management changes which have occurred recently may result in correcting the short-comings of fully implementing this program.

Catchbasin cleaning continues to be a successful activity for the City of Keizer. However, in PY 5 the program had a setback due to a severe accident for the crew which resulted in being short-staffed for the majority of the year. The Public Works Department did not assign other personnel to this BMP. For PY 5, cleaning only occurred between July and early October 2011. The crew cleaned 101 MS4 catchbasins and 167 UIC catchbasins; approximately 9% of total structures. UIC cleaning occurred in conjunction with televised inspection work for UICs.
Many of the UIC catchbasins being cleaned for the year were associated with perforated pipe that is connected to MS4 which outfall to waterways.

In order to provide light duty opportunities for field personnel, the City purchased a high precision GPS unit. Field personnel were able to pinpoint locations for over 4200 stormwater assets. (See Section 9)

Street sweeping has been an effective program for the City of Keizer. Debris removal decreased again over the permit year. Utilization of Wheat LLC is of great benefit to the City in that this is a local business that is aware of special situations that occur within our neighborhoods. Public Works staff is able to communicate on short notice with the company in the event of an emergency or special need.

The following data is the total debris removal (cubic yards) from the street sweeping program by quarter for PY 4 and PY 5:

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>2010/11</th>
<th>2011/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>July – Sept 2011</td>
<td>165</td>
<td>51</td>
</tr>
<tr>
<td>Oct – Dec 2011</td>
<td>463</td>
<td>490</td>
</tr>
<tr>
<td>Jan – Mar 2012</td>
<td>188</td>
<td>158.5</td>
</tr>
<tr>
<td>April – May 2012</td>
<td>127</td>
<td>197</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>943</strong></td>
<td><strong>896.5</strong></td>
</tr>
</tbody>
</table>

8.3 Effectiveness Summary

According to the Stormwater Phase II Rule, minimum control measure #6 “requires the small MS4 operator to examine and subsequently alter their own actions to help ensure a reduction in the amount and type of pollution that: (1) collects on streets, parking lots, open spaces, and storage and vehicle maintenance areas and is discharged into local waterways; and (2) results from actions such as environmentally damaging land development and flood management practices or poor maintenance of storm sewer systems”
The Public Works Department must move toward recognizing the Stormwater Division as an equal player among its other Divisions. Personnel have made some good behavioral changes, but the program suffers in consistency, recordkeeping, and prioritization of responsibilities.

BMP OM-1 is complete. Staff anticipates revising the manual during the next permit term in order to address any deficiencies in the current document. Overall, maintenance personnel continue to inconsistently apply water quality BMPs even with the new manual. This is an issue that has been ongoing over the term of the permit. While some new practices have been absorbed by staff, there is little emphasis placed on preparing for projects, follow through with recordkeeping, and review of new practices.

BMP OM-2 Initial training was conducted Department-wide for use of the Good Housekeeping Manual in February 2011. No formal training has occurred since that time. The reluctance of maintenance personnel to utilize the manual and lack of emphasis to do so has resulted in a poor training record for Keizer.

BMP OM-3 As noted in subsection 8.2, two of the Stormwater maintenance staff were injured during PY 5, which resulted in their absence from work and regular duties for a significant portion of the year. Only about 9% of the City’s catchbasins were cleaned in PY 5.

BMP OM-4 is complete and being implemented effectively.

8.4 Future Tasks

BMP OM-1 Maintenance personnel need to use the Good Housekeeping Manual

BMP OM-2 Maintenance personnel need to have regular training

BMP OM-3 The measureable goal for this BMP has been changed to annual cleaning of 50% of MS4 catchbasins. Staff is working toward refining the cleaning and inspection schedule.

BMP OM-4 City staff will continue to collect quarterly removal totals
Section 9 – Record Keeping and Reporting Overview

9.1 Overview

The City of Keizer included BMP RR-1 and RR-2 in the SWMP to address the record keeping and reporting requirements of the NPDES MS4 Phase II program and to ensure that information collected during the implementation of the SWMP is accessible to City staff.

RR-1 The City will track compliance and prepare annual reports

RR-2 The City will link SWMP information with GIS

9.2 Tasks Completed

Stormwater Division regulatory staff continues to accelerate record keeping efforts. Staff revises and updates data management as part of the ongoing stormwater program. The addition of the regular status Environmental Program Technician has been instrumental in the effectiveness of this BMP.

During PY 5, Stormwater regulatory staff continued to utilize GIS, spreadsheets and databases to track and record information on BMP elements in the SWMP. Written inspection records, online IDDE incident spreadsheets, and GIS mapping and analysis are all used to track the system and SWMP activities. Stormwater staff has continued to add to and refine the stormwater maps and asset-related data in GIS. Below is a list of some of the accomplishments from PY 5:

- Stormwater staff utilized a high-precision GPS unit to pinpoint asset locations in the field, and updated GIS with the new location data. To date, staff has gathered exact positions for 4,272 stormwater assets.
- The new Environmental Program Technician used GIS analysis tools to convert separately mapped stormwater pipes into an integrated system with direction and flow. This process provides the foundation needed for future identification of upstream and downstream networks, which may assist in illicit discharge ‘potential source’ identification, and other analyses.
- Stormwater asset maps are updated to reflect discovered changes in asset type, position, connection or existence (new or not existing) as identified in the field by staff and contracted television inspections.
• A numbering convention was created for all stormwater assets based on type, and the asset labels created. Over 4,600 assets have been numerically labeled and cross-checked to correct any inaccuracies resulting from the labeling process. Individually named assets will enable more exact tracking of repairs, inspections and maintenance history. Mapped ‘private’ assets are also being assigned asset numbers for reference.

• Stormwater regulatory staff has created a prototype stormwater maintenance and repair database which is still in draft form. The database, along with the instituted individual asset labeling, may be used in the future to track maintenance, inspection and repair of stormwater assets.

9.3 Future Tasks

Stormwater Division staff looks forward to entering into the next permit term and moving forward with revised BMP implementation. While many activities will remain the same, the new management plan has been fine-tuned and will provide a clear path for management of data.
Section 10 – Annexed Area / Expansion of MS4

10.1 Summary

The City of Keizer encompasses an area of approximately 7 square miles. Keizer is almost entirely built out to the Urban Growth Boundary (UGB). Very little undeveloped property remains within the City. There has been commercial development within Keizer over the past permit period along with residential infill development.

There were no annexations of land into Keizer’s UGB during PY 5. As was noted in the PY 4 Annual Report, the City anticipates that a major annexation may occur within the next one to three years. The pending annexation could include up to 1000 acres located to the north of the existing UGB.

The expansion of the MS4 during PY 5 was attributed to the decommissioning of 3 UICs. A total of 1434 feet of pipe was installed over the permit year.
Section 11 – Enforcement Actions

11.1 Summary

The Stormwater Discharge Ordinance was adopted by the Keizer City Council in March 2009 and the Erosion Control Ordinance was adopted in 2011. Staff anticipated an increase in enforcement actions with the development of the erosion control program. However the City inspectors have become very efficient at encouraging quick responses to warnings. The number of enforcement actions has remained comparable to previous years.

11.2 New Procedures (Plans and Coordination)

The Public Works Department has refined the enforcement and tracking procedure since 2010. As was stated above, the inspection procedures for the erosion control program are being implemented efficiently at this time.

The process for water quality calls includes investigation primarily by Stormwater maintenance personnel and enforcement by regulatory staff. Follow-up is shared by both groups. The Revised SWMP for the next permit period includes elevated measures for inspection and GIS development for quicker response to incidents of concern. An Enforcement Response Plan is scheduled to be developed in the next permit term which will provide all personnel with a clear process for handling water quality violations and investigations.

11.3 Number of Responses and Complaints

For PY 5, there were a total of 21 recorded water quality or stormwater related calls to which Stormwater Division staff responded. Incidents are categorized as indicated in Figure 11.3 below.

**Fig 11.3 Enforcement Action Categories**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>8</td>
</tr>
<tr>
<td>Chemical</td>
<td>2</td>
</tr>
<tr>
<td>Construction</td>
<td>4</td>
</tr>
<tr>
<td>Food/Grease</td>
<td>4</td>
</tr>
<tr>
<td>Sediment</td>
<td>2</td>
</tr>
<tr>
<td>Sanitary Saver</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Water Quality Incidents</strong></td>
<td><strong>21</strong></td>
</tr>
</tbody>
</table>
Each reported incident was assigned an identifying number, and tracked via spreadsheet to record relevant reported information, reporter and suspected offender details, staff response and follow up actions. An abbreviated tracking table of incidents is included in Appendix C.
Section 12 – Internal Review Process and Findings

12.1 Summary

According to the provisions of the City’s NPDES Permit #102904, Schedule A.6(a) the permittee must conduct an annual review of its SWMP in conjunction with preparation of the annual report required under condition B(2). During PY 5, Stormwater Division regulatory personnel spent little time reviewing the current SWMP. Staff has put more emphasis into looking ahead and evaluating the new activities proposed for the Revised SWMP. Having had time to reflect on new activities has highlighted the need for some revisions of the new SWMP. The SWAC has had a number of opportunities to review the contents of the proposed Revised SWMP. In addition, the proposed SWMP is available on the City’s website.

The SWMP created for the first permit period was suitable for a new stormwater program. The Revised SWMP has elevated activities that are suitable for a community with a number of years of stormwater management experience. As was stated in previous reports, the general consensus is that the SWMP is a solid document; specifically for a first permit term. These factors were highlighted in the SWMP Evaluation submitted as part of the NPDES permit renewal process. It is crucial that the City and guiding committees are aware that stormwater programs are not static and require annual resource management.

No adaptive management is being proposed for the SWMP for PY 5.
Section 13 – Storm Sewer System and Waterways

13.1 Summary

A revised waterways map with outfall location is provided in Appendix B. No new information has been added to this map in regard to waterways, but outfall information has changed as was discussed in Section 5. The inventory has been refined since the initial inspection in 2008. At that time the City was able to locate about 80 outfalls. There may have been some issues with inaccuracies in the 2012 inspection using the GPS unit. Those issues should be resolved in subsequent years.
Section 14 – Progress Towards Schedule B.2(a)

14.1 Overview

Schedule B2(a) of the NPDES Permit states that the permittee must submit an annual report to the Department [DEQ] that will include “the status of compliance with permit conditions, an assessment of the appropriateness of the identified BMPs, progress towards achieving the statutory goal of reducing the discharge of pollutants to the MEP, and the measurable goals for each of the minimum control measures” The sections of this report that pertain directly to established BMPs provide status of compliance and assessment of appropriateness. This section of the report addresses the City of Keizer’s goal of reducing discharges to the MEP.

Keizer had difficulty meeting the timelines established in the SWMP during the first 3 years of the permit, but with the addition of new regulatory staff, the City was able to bring the program up to date. PY 5 was devoted to implementation of the programs outlined in the SWMP.

The City of Keizer continues to require LID elements for new commercial development and publically owned facilities. The new Keizer Rapids Park Boating Facility includes stormwater infiltration features designed to capture up to a 4” precipitation event in Keizer. The facility is anticipated for completion in November 2012.

In addition to new development at Keizer Station, which will employ LID to reduce volume, the City is also preparing to capture and infiltrate stormwater on approximately 1.5 miles of Chemawa Rd N. At present the street has no storm system of any kind. The City has developed a linear, rain garden style system that will capture and provide treatment for runoff from the roadway. No MS4 will be installed in conjunction with this project. The Oregon Department of Transportation (ODOT) has been a partner for the Chemawa Rd N project.

As was outlined in Section 9, Stormwater Division regulatory staff deserve high marks in PY 5 for updates and enhancements to the GIS stormwater information base. See Section 15 for a full accounting of GIS activities.

Approximately 95% of the publically-owned stormwater infrastructure has now been added to GIS. Section 9 of this document covers this and other record-keeping activities and
accomplishments. Most of these assets have been field verified, although updating information is an ongoing process.

The City has also started a TV inspection program for the MS4 (see Section 15). This 10 year pipe inspection program is directed toward inspection of publically-owned stormwater lines, with an eye on developing a repair and maintenance program that may be encompassed in a Stormwater Master Plan.

14.2 Future Tasks

As the City of Keizer prepares for negotiating and obtaining an NPDES permit renewal, the Public Works Department will be faced with promoting and requiring new standards and water quality practices.
Section 15 – Other Activities

15.1 Summary

The purpose of this Section of the PY 5 Annual Report is to document those actions or activities that fall outside of other sections of this report.

15.2 Specific Activities

Howl-a-Palooza

The MWOG group partnered with the Marion County Animal Services group for a canine resource and education event and dog license amnesty on October 6, 2012 (see Figure 15.1). The 1st Annual Howl-a-Palooza was held at River Road Park in north Salem adjacent to the Willamette River. MWOG staff has changed the name of the KP3 group to the Capital Canine Club for Clean Streams in order to transition from a local program to a regional program. A website is currently being developed. Participants are asked to take a pledge to always pick up after their pet, even in their own backyard. Promotional items are given to individuals who take the pledge. Howl-a-Palooza outreach information is included in Appendix A with the outreach material.

Figure 15.1 – Howl-a-Palooza Participant

The October 6, 2012 event will be discussed in more detail in the next annual report; however, the success of this first effort indicates the MWOG group will be working toward making this an
annual event. Staff estimates the event brought in approximately 400 participants. The Salem K-9 Officer and his dog Dino offered a demonstration to the group. Dino is now a member of the Capital Canine Club (see Figure 15.2).

Figure 15.2 – Officer Wood and Dino

Boating Facility

The Keizer Rapids Park Boating Facility is nearing completion (see Figure 15.3). Work is expected to be wrapped up by early November 2012. The boat ramp was installed in August/September 2012, and in-water work was completed prior to October 15th.

Stormwater regulatory staff acted as inspector for the 1200-C permit. Water quality compliance was emphasized with the contractor and sub-contractors. Public Works personnel spent a great deal of time on this project over the summer. In regard to environmental quality and consistency, the contractor for this project was not overly proactive; however, staff anticipates
the final work will be satisfactory. Stormwater regulatory staff will continue to monitor and evaluate the project over the next year.

**Figure 15.3 – Boat Ramp Under Construction**

The stormwater infiltration facility was designed to capture up to a 4” in 24 hour precipitation event (see Figure 15.4). The designed planting ratio is 1:1, and will consist of over 10,000 gallon-sized (or larger) native plants. Stormwater staff will report on the success of this feature in the next annual report.

**Figure 15.4 – Stormwater Infiltration Facility Under Construction**
In addition to the stormwater infiltration facility, the City is required to conduct bank stabilization projects in the conservation easement adjacent to the new boating area. Terracing and the use of native plantings will alleviate degradation in these areas (see Figure 15.5).

**Figure 15.5 – Mitigation Site Prior to Restoration Work**

This restoration work will also be described and documented in the next annual report.

A map of Keizer Rapids Park and the activities associated with the boating facility construction are included in Appendix D.

**Database Management**

**Spatial**

Over the last year, Stormwater Division staff has continued to manage essential spatial data in a shared GIS environment. The database is organized and continually updated with new files, as well as adjustments to existing data to conform with more recent state and local agency providers. This spatial database includes:

- Aerial Imagery: Cataloged to provide both a current and historic resource.
- Boundaries: UGB, City Limits, Subdivisions, Watersheds, Township/Range
- DWSA: Drinking Water Program Source Water Assessment results
- Electrical: Street light data for emergency response, utility poles
• Elevation: Custom digital elevation models and contour layers
• Environmental: Soil information, wetland information, critical habitat for endangered and threatened species, restoration sites and waterways
• Erosion Control: Tracking active Erosion Control Permit holders as well as closed sites
• Hazards: FEMA, GeoHazards-Landslide
• Hydro: Water wells, Fire Hydrants, Two year time of travel, Water Table Elevation Model, Observation Wells, Mainlines, Valves
• Land use: Keizer Zoning, Marion County Zoning
• Plans: Overlays of development plans
• Grid: Public Works asset grid
• Roads: Right of way and centerlines
• Sewer: Sewer lines and manholes
• Storm System: Detention basins, ditches, catch basins, junction boxes, manholes, outfalls, pipe, surface flow, spill kit locations and UIC drainage areas
• Parcel: Taxlots

Tabular Data

Keizer’s Stormwater regulatory staff has also continued to utilize a tabular database to manage data associated with operation and maintenance activities. This database will serve as an interface for all Public Works staff in the future; providing reports, queries, and schedules for a variety of activities with special regard to pollution prevention and system function. However, over the past year it has been utilized only to manage hot-spot facility inspection data. The goal is to implement a variety of new data management techniques over the next year as Keizer moves into a new permit. This would allow the database to integrate into a variety of programs, streamlining data management and analysis.

Network Management

Keizer’s Stormwater Division has grown and changed drastically over the last few years. This has led to an overhaul in the way staff manages projects and data on a shared network. To ensure efficiency in program development, implementation and management, staff has developed a new framework on a shared network from which all employees can retrieve, review, and edit project documents and data. This framework is a transition away from individual management of projects via personal computer memory. As staff continues to make the transition to this new file management system, the goal is to provide equal access to the most accurate up-to-date documents and data ensuring clear communication with productive management of tasks.

GPS Acquisition
Keizer Public Works staff was able to utilize a high-accuracy handheld computer/GPS unit over the past year. This unit was acquired through a grant to provide light duty accommodation to an injured field employee. This field employee captured highly accurate spatial data for the vast majority of storm catch basins and manholes owned by the City. Stormwater regulatory staff then managed the acquired data, integrating it into the existing spatial database. This activity has much improved accuracy in the map placement of stormwater assets, and will assist with on-the-ground stormwater utility locates.

**Restoration Activities**

No additional riparian restoration work was completed this year beyond what was reported last year. However, planting for the STAC grant was completed in April 2012. As was covered in Section 3, the installation of plants for this section of the restoration project was part of a joint work day with the Claggett Creek Watershed Council and volunteers. See Appendix E for a map of the project sites.

The City will continue to work with the Claggett Creek Watershed Council and other interested groups to expand the restoration corridor on this portion of Claggett Creek.

**Storm Main TV Inspection**

As was covered in the PY 4 annual report, the City of Keizer has applied for a WPCF permit for the portion of Keizer stormwater which is managed with UICs. In order to assess the condition of the UICs, the City contracted for UIC TV inspection work. While the work has not been completed in its entirety, completion of the project is planned for subsequent years.

In order to help finalize the City’s MS4 inventory, identify illegal connections, and plan for major stormwater repair work, Keizer entered into a contract for 2012/2013 for TV inspection of the MS4. The original goal was to inspect 10% of the MS4 annually, however the City will not reach that mark for the 2012/2013 fiscal year due in part to budget cuts. This BMP was approved by DEQ on May 16, 2012. Overall the inspection program will allow the City to verify assets and develop a repair and maintenance schedule. The Division will look toward creating a Stormwater Master Plan within the next 5 years.

**Water Quality Activity for the Classroom**

Regulatory staff has developed a 1-hour classroom activity and presentation for local elementary school students. The activity is offered to grades 3-5 and takes place in the classroom, making the activity available to all Keizer schools regardless of their budget.
Students conduct water quality tests on stormwater and surface water gathered near their school and perform calculations which help them visualize the quantity of stormwater contributed by impervious surfaces. A discussion of the City’s stormwater infrastructure is included, along with pictures, student-friendly maps, and videos of the inside of stormwater pipes (sampled from closed-circuit TV inspections of the City’s stormwater system). Weather-permitting, the students install a storm drain marker on at least one storm drain at or near their school.

The goals of the activity are to help students understand the importance of clean water, help them understand the ways in which they can impact water quality, and to inspire them to embrace a sense of stewardship. Implementation of this program began in late October 2012.

This activity will be covered in greater detail in the next annual report.
Section 16 – TMDL Implementation Plan

16.1 Summary

The purpose of Section 16 is to provide an overview of those activities that were not conducted under the NPDES Permit but are related to the TMDL Implementation Plan. The purpose of this format is to make annual review of specific TMDL activities a more streamlined process.

The report year 2011/2012 was devoted primarily to implementing developed programs, expanding existing activities, and preparing for a new NPDES permit.

16.2 Specific Activities

Outreach Materials

Many of the outreach materials completed during 2010/2011 were discussed in Section 3 of this document. Overall, outreach activities have been expanded for each year of program implementation. Specific outreach materials are included in Appendix A.

Howl-a-Palooza

The TMDL Implementation Plan calls for expansion of the local pet waste program. This BMP was accomplished through Howl-a-palooza and the new pledge program covered in Section 15 of this report. The conversion of the local KP3 pet waste program to a regional program will ultimately reach a much wider audience. The new Capital Canine Club for Clean Streams will offer an online pledge form, educational information on the website, promotional items, and annual outreach events.

Keizer Rapids Park

The Keizer Rapids Park activities were covered in Section 15 of this report. The TMDL Implementation Plan calls for the installation of interpretive signs for the stormwater facilities. Software has been purchased in order for Stormwater staff to develop the graphics for the signs. That work will commence when the features have been planted.
Guided Hikes Program

As was reported in Section 3, the guided hikes program was expanded and this year students from Keizer Elementary School participated in activities at Keizer Rapids Park on October 9th and 11th. The program was initiated in October 2011 and the overall success of the first effort warranted a longer term program. Stormwater Division regulatory staff is selecting different schools for participation each year in order to reach more students.

In addition to participation from Public Works personnel, partners for the event included Marion County, the Straub Environmental Learning Center in Salem, and the Marion Soil and Water Conservation District (see Figure 16.1).

Figure 16.1 – Public Works Personnel Preparing the Nature Stick Station

TMDL Matrix

The TMDL Matrix follows this Section. The Matrix reflects activities for report year 2011/2012. A revised Matrix will be submitted to DEQ no later than January 1, 2013.
TMDL Implementation Plan Revisions

Stormwater regulatory staff met with DEQ on September 28, 2012 to discuss the process for evaluating the current TMDL program, completing the 5th year comprehensive report, and moving forward with a revised Implementation Plan for the next review period. The City of Keizer is currently in its 6th year of program implementation. As has been the process since plan approval, the yearly report is submitted on or before November 1 of each year.

This Section of the NPDES Annual Report serves as the TMDL progress update for 2011/2012. The timeline for the program evaluation, comprehensive 5th year review, reporting and revision (through the revision of the 3rd TMDL Implementation Plan in 2017) is provided below. This schedule has been approved by DEQ.

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st TMDL Implementation Plan (TMDL/IP) Report,</td>
<td></td>
</tr>
<tr>
<td>Evaluation of First TMDL/IP</td>
<td></td>
</tr>
<tr>
<td>(Comprehensive report for the first 5 years and Evaluation for the First TMDL/IP)</td>
<td>Due no later than January 1, 2013</td>
</tr>
<tr>
<td>Revised TMDL Implementation Plan and Matrix, (2nd TMDL/IP)</td>
<td></td>
</tr>
<tr>
<td>and DEQ ‘Key Strategies’ Checklist</td>
<td>Due no later than January 1, 2013</td>
</tr>
<tr>
<td>Anticipated DEQ Review &amp; Approval of 2nd TMDL/IP</td>
<td>April 1, 2013</td>
</tr>
<tr>
<td>(or 60 to 90 days after submittal)</td>
<td></td>
</tr>
<tr>
<td>2nd TMDL/IP Report #1</td>
<td>Due November 1, 2013</td>
</tr>
<tr>
<td>(for TMDL activities from Second TMDL/IP ‘date of acceptance’ through June 2013)</td>
<td></td>
</tr>
<tr>
<td>2nd TMDL/IP Report #2</td>
<td>Due November 1, 2014</td>
</tr>
<tr>
<td>(reporting TMDL activities in FY 2013/14)</td>
<td></td>
</tr>
<tr>
<td>2nd TMDL/IP Report #3</td>
<td>Due November 1, 2015</td>
</tr>
<tr>
<td>(reporting TMDL activities in FY 2014/15)</td>
<td></td>
</tr>
<tr>
<td>2nd TMDL/IP Report #4</td>
<td>Due November 1, 2016</td>
</tr>
<tr>
<td>and Evaluation of 2nd TMDL/IP</td>
<td></td>
</tr>
<tr>
<td>(covering TMDL activities in FY 2015/16, and evaluating the 2nd TMDL/IP)</td>
<td></td>
</tr>
<tr>
<td>Revised TMDL Implementation Plan and Matrix (3rd TMDL/IP)</td>
<td>January 1, 2017</td>
</tr>
<tr>
<td>Anticipated DEQ Review &amp; Approval of 3rd TMDL/IP</td>
<td>April 1, 2017</td>
</tr>
<tr>
<td>(or 60 to 90 days after submittal)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 16.2 City of Keizer TMDL Implementation Plan Matrix – Report Year 5

#### (Six Minimum Control Measures Listed at the End of Each Table)

<table>
<thead>
<tr>
<th>SWMP BMP</th>
<th>Source</th>
<th>Strategy</th>
<th>How</th>
<th>Fiscal Analysis</th>
<th>Measure</th>
<th>Timeline</th>
<th>Milestone</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-1</td>
<td>i.</td>
<td>a. Prevent domestic animal waste from reaching waterway</td>
<td>1. Stormwater booth at National Public Works Week celebration in May</td>
<td>Funded</td>
<td>Utilize KP3 and other pledge type programs to document willingness to adopt new behavior</td>
<td>Annually</td>
<td>May 19, 2008 event</td>
<td>Public Service Fair was held in August at Keizer Rapids Park. This event replaced the annual open house during National Public Works Week.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii. Expand ‘doggie’ bag program in local parks</td>
<td></td>
<td>Funded</td>
<td>Check bags at scheduled intervals</td>
<td>2011</td>
<td>Currently working with Parks staff and Park Advisory Board for sites and message content</td>
<td>Restocking bags is part of the maintenance schedule for Parks staff. Stormwater personnel are working with an eagle scout for new dispensers in local parks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii. Use KP3 pledge program</td>
<td></td>
<td>Staff time</td>
<td>Track pledges and continue to expand program</td>
<td>2009</td>
<td>Program developed and initially implemented in 2009</td>
<td>This BMP has been converted from a Keizer specific program to a regional program that includes Keizer, Salem, and Marion County. The new group is called the Capital Canine Club for Clean Water</td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv. Identify ‘hobby farms’ within the UGB. Partner for ongoing restoration activity</td>
<td></td>
<td>Staff time</td>
<td>Track activity and contacts</td>
<td>2011</td>
<td>Property location and owner list complete by 2010</td>
<td>No progress occurred on this BMP this year.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>v. Initiate guided hikes by Parks and Stormwater staff to highlight environmental issues of concern along waterways.</td>
<td></td>
<td>Funded</td>
<td>Feedback from participants, number of participants, and requests for programs.</td>
<td>2010</td>
<td>Develop tour content and establish schedule.</td>
<td>Guided hikes were conducted during RiverFair in August 2012 at Keizer Rapids Park. Stormwater staff also conducted hikes during the Public Service Fair in August 2012 and for Keizer Elementary Students in October 2012.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>vi. Prepare a resource list for the public. Stormwater links to include local, educational, and regulatory resources</td>
<td></td>
<td>Staff time</td>
<td>Post on website. Use as handouts at community events</td>
<td>2009</td>
<td>Template completed by 2008</td>
<td>The resource list was updated for report year 5</td>
</tr>
<tr>
<td>Activity</td>
<td>Source</td>
<td>Details</td>
<td>Start Date</td>
<td>Funding</td>
<td>Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>---------</td>
<td>------------</td>
<td>---------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE-2 vii. Add stormwater-related information to the City’s Website</td>
<td>Staff time and web design training – funded</td>
<td>Update annually – track changes</td>
<td>2008 / Ongoing</td>
<td>Preliminary information has been drafted</td>
<td>Good progress has occurred on this activity for report year 5. The Stormwater Operations page now has FAQ sheets, a glossary, and other useful information.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE b. Public outreach covering bacteria issues and concerns</td>
<td>Funded</td>
<td>Track locations and presentation material</td>
<td>2008</td>
<td>Initial display material designed and reviewed by May 2008. First display in Council Chambers and then to Public Works open house in May.</td>
<td>The display board was used at the Public Services Fair in August 2012.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI-3 i. Storm drain markers</td>
<td>Number of markers installed</td>
<td>2009 / Ongoing</td>
<td>Storm Drain marker has been chosen and will be ordered in 2008</td>
<td>234 MS4 stormdrain markers were installed during report year 5 by volunteers. 526 UIC stormdrain markers were installed by city staff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI ii. Public Review of TMDL Implementation Plan</td>
<td>Staff time</td>
<td>Track presentations, events, etc</td>
<td>Ongoing</td>
<td>Present to Planning Commission for recommended approval by City Council</td>
<td>Staff did not hold a public review of the TMDL Implementation Plan this report year. However, the Implementation Plan is posted on the website.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID-1 b. Prevent human waste (from cross-connections), oil, grease, paint, and other pollutants from entering the storm system.</td>
<td>Staff time and public notice – funded</td>
<td>City Council adoption</td>
<td>2009</td>
<td>Draft ordinances are being selected for committee review</td>
<td>This BMP is complete. The ordinance is a useful tool for addressing prohibited activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID-2 ii. Develop illicit discharges detection and elimination plan</td>
<td>Staff time</td>
<td>Internal review, comments, and feedback from staff</td>
<td>2008</td>
<td>The City presently has two draft examples. Other options will be explored.</td>
<td>This BMP is complete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID-3 iii. Internal training for implementation of plan</td>
<td>Staff time</td>
<td>Track training topics and dates.</td>
<td>2009</td>
<td>Training schedule being developed</td>
<td>This BMP is complete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID-4 iv. Implement the plan</td>
<td>Staff time</td>
<td>Track violations and complaints</td>
<td>2009 / Ongoing</td>
<td>N/A</td>
<td>This BMP is complete</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Six Minimum Control Measures**
PE = Public Education
PI = Public Involvement/Participation
ID = Illicit Discharge Detection and Elimination (IDDE)
CS = Construction Site Runoff Control
DS = Development Standards (Post-Construction Runoff Control)
OM = Operations and Maintenance (Pollution Prevention/Good Housekeeping)
### TMDL Implementation Plan Matrix

#### Proposed Revised Matrix

(Six Minimum Control Measures Listed at the End of Each Table)

<table>
<thead>
<tr>
<th>Pollutant: <strong>Mercury</strong></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SWMP BMP</th>
<th>Source</th>
<th>Strategy</th>
<th>How</th>
<th>Fiscal Analysis</th>
<th>Measure</th>
<th>Timeline</th>
<th>Milestone</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>PE  a. Public outreach covering mercury issues and concerns</td>
<td>i. Prepare a resource list for the public. Stormwater links to include local, educational, and regulatory resources</td>
<td>Staff time</td>
<td>Post on website. Use as handouts at community events</td>
<td>2009</td>
<td>Template completed by 2008</td>
<td>The BMP is complete</td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>PE  ii. Develop traveling display to be used in public settings</td>
<td>Funded</td>
<td>Track events and presentation material</td>
<td>2008 Initial display material designed and reviewed by May 2008</td>
<td>This BMP is complete</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PE  iii. Prepare educational material for contractors and builders. Develop a ‘small project’ erosion control plan for additions to developed property such as driveway replacement, patios, home expansion, etc.</td>
<td>Funded</td>
<td>Track applications and required plans</td>
<td>2010/2011 SWAC approved document</td>
<td>The BMP is complete. Educational material is available at the Public Works counter at the Keizer City Hall. Educational material is also available on the website. The ‘small project’ plan was eliminated. The intent of this measure will be addressed through strengthening the existing ordinance in 2012/2013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PE  iv. Coordination internally for development and educational opportunities at Keizer Rapids Park.</td>
<td>Staff time</td>
<td>Utilize educational opportunities directed towards bank stabilization, native species, and development actions</td>
<td>2012 Initial boat ramp design review in 2008</td>
<td>The mitigation work planned as a result of the new boating facility has provided opportunities for internal coordination on activities at Keizer Rapids Park. The park is being used for the guided hikes program which involves a wide range of staff. The City will work on expanding opportunities in the future.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PI-3</td>
<td>PI-3 a. Public involvement</td>
<td>i. Storm drain markers</td>
<td>Funded</td>
<td>Number of markers installed</td>
<td>2009 Ongoing</td>
<td>Storm Drain marker has been chosen and will be ordered in 2008</td>
<td>234 MS4 storm drain markers were installed during report year 3 by volunteers. 526 UIC storm drain markers were installed by city staff</td>
<td></td>
</tr>
</tbody>
</table>

---

Page 3 of 8
<table>
<thead>
<tr>
<th>CS-1</th>
<th>b. Keep soil on site. Prevent material from entering catchbasins and waterways</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>i. Develop ordinance to control construction site runoff</td>
</tr>
</tbody>
</table>

| CS-2 | ii. Internal training for field staff | Staff time | Record of meeting and content | 2008 | Ongoing | Training schedule being developed | This BMP is complete. Preliminary training has been conducted for all Public Works personnel and more thorough training has been held for City inspectors. |

| CS-3 | iii. Plan review, inspections, and enforcement | Staff time | Track staff progress | 2010 | Ongoing | Coordination with Community Development in 2008 for potential fee increase | This BMP is complete. Staff is actively conducting plan review and inspections. No enforcement action has been necessary to date. |

| CS-4 | iv. Establish hotline to receive complaints from the public | Funded | Develop tracking system | 2008 | Ongoing | Develop procedure for checking calls and responding | A separate hotline has not been developed, but the after-hours phone system has been updated. Staff is looking at opportunities for a more specific routing for water quality calls. |

| DS-1 | v. Develop ordinance to control runoff from new development | Staff time. Public notice is funded | City Council adoption | 2010 | Staff anticipates utilizing SWAC for this action | This BMP is complete. Design Standard and Development Code revisions are planned for sometime within the next 3 years |

| DS-2 | vi. Internal training for new development standards | Staff time | Completion of training | 2010 | Ongoing | | No progress on this BMP |

| DS-3 | vii. Plan review, inspections, enforcement | Staff time. Additional positions funded | Track staff progress | 2010 | Ongoing | | This BMP is complete. |

| OM-1 | viii. Develop a water quality sensitive O & M program | Staff time | Compare with other jurisdictions and conduct internal review | 2009 | Ongoing | Development and design to be coordinated with field staff | This BMP is complete. A Good Housekeeping Manual was developed in February 2011. |

| OM-2 | ix. Internal training for new O & M practices | Staff time | Agenda and instruction content | 2009 | Ongoing | Preliminary discussions underway | This BMP is complete. Additional training needs to occur. |

| OM-3 | x. Catchbasin cleaning | Additional staff funded. Vactor truck funded | Track number of catchbasins cleaned | 2008 | Ongoing | 25% of City catchbasins cleaned annually. | This BMP is complete. The Revised SWMP includes a BMP with a measurable goal of cleaning 50% of catchbasins annually. |
| OM-4 | xi. Conduct street sweeping | Funded | Track progress | 2008 Ongoing | Sweeping on a monthly basis. This program is currently underway. | This BMP is complete. The program is ongoing. |

**Six Minimum Control Measures**

- PE = Public Education
- PI = Public Involvement/Participation
- ID = Illicit Discharge Detection and Elimination (IDDE)
- CS = Construction Site Runoff Control
- DS = Development Standards (Post-Construction Runoff Control)
- OM = Operations and Maintenance (Pollution Prevention/Good Housekeeping)
### City of Keizer

#### TMDL Implementation Plan Matrix

**Proposed Revised Matrix**

(Six Minimum Control Measures Listed at the End of Each Table)

<table>
<thead>
<tr>
<th>SWMP BMP</th>
<th>Source</th>
<th>What source of this pollutant is being addressed?</th>
<th>Strategy</th>
<th>What is being done, or what will be done to reduce or control pollution from the source?</th>
<th>How</th>
<th>Specifically, how will this be done?</th>
<th>Fiscal Analysis</th>
<th>Measure</th>
<th>How will successful implementation or completion of this strategy be measured?</th>
<th>Timeline</th>
<th>When will the strategy be completed?</th>
<th>Milestone</th>
<th>What intermediate goals will be achieved and by when to know what progress is being made?</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE-1</td>
<td>1. Solar radiation and sediment deposition that results in a change in stream profile.</td>
<td>a. Retain mature trees, native vegetation, and encourage tree planting and use of native species for bank stabilization</td>
<td>i. Utilize the annual Consumer Confidence Report (CCR) to provide citywide outreach</td>
<td>Funded</td>
<td>Track number of inserts sent</td>
<td>Ongoing</td>
<td>Mailings scheduled for 2008. Draft is complete.</td>
<td><strong>This BMP is complete. CCR completed and mailed in May 2011. This year’s addition included a one page insert of stormwater related material.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii. Design a stormwater brochure to be handed out at meetings and events</td>
<td>Review annually</td>
<td>Funded</td>
<td>Track usage and events. Revise annually</td>
<td>2009</td>
<td>Preliminary design complete. 2008 brochures for open house in May.</td>
<td><strong>This BMP is complete. The stormwater brochure was revised in 2011and will be revised annually.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iii. Identify 5 project sites along Claggett Creek for native tree and shrub planting</td>
<td>Review aerials, make site visits, coordinate with adjacent property owners</td>
<td>Funded</td>
<td>Review of sites. Develop decision matrix for high quality sites.</td>
<td>2011</td>
<td></td>
<td><strong>This BMP is complete</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>iv. Implement planting of one or more of the project sites including public participation</td>
<td>Use internal review to determine most suitable site.</td>
<td>Funded</td>
<td>Implement planting. Develop maintenance schedule/</td>
<td>2012</td>
<td></td>
<td><strong>This BMP is complete. The Ben Miller Family Park restoration project was completed in report year 3. The project site is 5000 sq ft in size and is adjacent to Claggett Creek. In 2010, staff applied for an ODFW Salmon and Trout Enhancement Program (STEP) grant. A restoration project was completed upstream of the Ben Miller site in 2011. A new ODFW grant has been secured for 2011/2012 which will increase this site 4000 sq ft</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE</td>
<td>b. Public outreach covering temperature issues and concerns</td>
<td>i. Prepare a resource list for the public. Stormwater links to include local, educational, and regulatory resources</td>
<td></td>
<td>Staff time</td>
<td>Post on website. Use as handouts at community events</td>
<td>2009</td>
<td>Template completed by 2008</td>
<td><strong>This BMP is complete</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area</td>
<td>BMP Description</td>
<td>Staff Time</td>
<td>Design &amp; Construction</td>
<td>Funded</td>
<td>Track Locations &amp; Feedback</td>
<td>Year</td>
<td>Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------------------------------------------------</td>
<td>------------</td>
<td>------------------------</td>
<td>--------</td>
<td>---------------------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE-1</td>
<td>Develop traveling display to be used in public setting covering the impacts of increased water temperature. Display can be changed periodically to cover other stormwater issues such as mercury, and bacteria.</td>
<td>Staff time</td>
<td>Design &amp; Construction</td>
<td>Funded</td>
<td>Track locations and feedback</td>
<td>2008</td>
<td>Initial display material designed and reviewed by May 2008. First display in Council Chambers and then to Public Works open house in May 2008. This BMP is complete.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PE-3</td>
<td>Interpretive signage in parks along Claggett Creek and the Willamette. Signs may also be installed along other water features if appropriate</td>
<td>Staff time</td>
<td>Track programs and content</td>
<td>2010</td>
<td>Number of signs installed and locations</td>
<td>Staff time will coordinate locations with Parks staff for locations along Willamette and other water features. Some interpretive signage was installed at Keizer Rapids Park. The design was completed by a local boy scout group. Permanent signage should be considered in conjunction with construction of the boat ramp at Keizer Rapids Park.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Progress Report:**

| PE-2 | Utilize local Channel 23 to provide stormwater education                                                                 | Staff time | Design & Construction | Funded | Track programs and content | 2008 / Ongoing | Work with field staff to develop program - underway. Progress was made on this BMP for report year 4. The EPA video “After the Storm” was shown on Channel 23 for about 4 weeks during the spring of 2011. This BMP should be evaluated for adaptive management. The viewer demographic is limited and the process for adding material to the line-up is limited. |

**PE-3:**

| PE-3 | Participate in Claggett Creek Watershed Council                                                                   | Staff time | Meetings attended and topics covered | 2008 / Ongoing | Keep record of code updates and changes | Initial meetings with Community Development staff are underway. No progress on this BMP. This BMP will be addressed when City Design Standards and Development Code revisions occur. |

**PE-4:**

| PE-4 | Tighten existing City code to emphasize retention of 'native' vegetation. Explore existing code for addition changes that are not time intensive | Staff time | Keep record of code updates and changes | 2009 Ongoing | Track presentation content and dates | Training schedule being developed. No progress on this BMP. This BMP needs to be evaluated for adaptive management. |

**PE-5:**

| PE-5 | Internal education for field staff directed towards retention of trees along waterways and temperature issues | Staff time | Track presentation content and dates | Ongoing | Track presentation content and dates | Training schedule being developed. No progress on this BMP. This BMP needs to be evaluated for adaptive management. |
### Six Minimum Control Measures

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CS-1</td>
<td>b. Keep soil on site. Prevent material from entering waterways</td>
<td>1. Develop ordinance to control construction site runoff</td>
<td>Staff time</td>
<td>City Council adoption</td>
<td>2009</td>
</tr>
<tr>
<td>DS-1</td>
<td>v. Develop ordinance to control runoff from new development</td>
<td>Staff time. Public notice is funded</td>
<td>City Council adoption</td>
<td>2010</td>
<td>Staff anticipates utilizing SWAC for this action</td>
</tr>
</tbody>
</table>