# CITY OF NEWBERG TMDL IMPLEMENTATION PLAN

## Annual Report Covering 2016 Activities

**Submitted: March 30, 2017**

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# TABLES

## ACRONYMS

**ACWA -** Association of Clean Water Agencies

**ASCE -** American Society of Civil Engineers

**AWWA -** American Water Works Association

**BMP -** Best Management Practice

**CESCL -** Certified Sediment and Erosion Control Lead

**CRRC -** Citizen's Rate Review Committee

**City -** City municipal staff of Newberg, Oregon

**DEQ -** Oregon Department of Environmental Quality

**ESC -** Erosion and Sediment Control

**EWRI -** Environmental and Water Resources Institute

**FOG -** Fats, Oil, and Grease

**GIS –** Geographic Information System

**GFU -** George Fox University

**GYWC -** Greater Yamhill Watershed Council

**IDDE -** Illicit Discharge Detection and Elimination

**MS4** – Municipal Separate Stormwater Sewer System

**NORP -** Northwest Oregon Restoration Partnership

**NPDES –** National Pollutant Discharge Elimination System

**O&M-** Operations and Maintenance

**PW -** Public Works

**TMDL -** Total Maximum Daily Load

**YCSW -** Yamhill County Solid Waste

# EXECUTIVE SUMMARY

The City utilized pages on its website, social media, and the water quality report to fulfill part of its public education effort. In addition, volunteers were taught about stormwater before marking stormdrains and renovating stormwater planters. One presentations was made to a civic group, 2 were made to elementary students, and 2 presentations were made to middle school students. In addition, the City brought middle school students out to Hess Creek to learn about water quality and ecology.

For its public involvement effort, the City and the Citizen's Rate Review Committee worked with the City Council to set new 2016 to 2018 stormwater rates in meetings that were open to the public. The City uses its website to provide a phone number that can be called to log complaints about stormwater issues. The City provided over $1,600 in watershed grants to teachers for stormwater education. The public stormwater survey was not completed in 2016.

Yamhill County Solid Waste continues to sponsor the hazardous waste collection events with 19.7 tons of hazardous waste, 22.2 tons of paint and paint-related waste, and over 1,200 pounds of unwanted or expired medications collected during 2016. There were no illegal dumps reported in 2016, however 3 illicit discharge complaints were logged and investigated by staff. There were no reportable spills or spill kits used in 2016.

One person was certified as a stormwater inspector, one person was certified as an erosion and sediment control inspector, and one person was trained in vegetated facility maintenance. Staff completed erosion and sediment control inspections; however the locations were not documented. Stormwater requirements were discussed with developers at pre-application meetings, plans were reviewed for stormwater requirements, there was a pre-construction conference, and the stormwater credit program was available for participants in 2016. Nine projects were completed in 2016 that exceeded the threshold for stormwater management. Five of the projects received an exemption from stormwater management, 1 constructed a detention facility only, 2 completed green infrastructure facilities only, and 1 project used a combination of green infrastructure and detention.

In 2016, the city completed a retrofit project for two culverts affecting Hess Creek and restored floodplain connectivity to the stream. Both culverts were considered fish-friendly and were relatively larger to handle the winter flows. The culverts and another private project improved more than 11,600 sq ft of streambanks along Hess Creek and Chehalem Creek. As part of its temperature program, the City provided over 300 native plants to private homeowners and started a temperature monitoring program. Stream assessments and the wetland inventory were not completed in 2016.

Staff maintained the stormwater infrastructure with close to 3,500 ft of stormline inspected and cleaned and 0.45 cubic yards of debris collected per curb mile.

Even though two strategies and four goals became due in 2016, the City was able to implement 71% of the strategies and measurable goals in the TMDL Implementation Plan. The Public Education and Illicit Discharge measures continue to be most advanced in implementation. The City will continue to move towards implementation of the remaining strategies and measurable goals in 2017.

## STRATEGY AND MEASUREABLE GOAL STATUS

For 2016, the City's TMDL Implementation Plan consisted of 35 overall strategies for reducing mercury and bacteria and stabilizing the temperatures of its three streams (See Appendix 1). The strategies were subdivided into 55 goals for seven minimum measures with specific activities and deadlines. Six of the minimum measures are generally aligned with typical MS4 NPDES requirements. The seventh measure addresses stream temperature.

The City saw a drop in the percentage of measurable goals that were implemented for 2016, however one measurable goal became due for the Post-Construction measure, one became due for the Temperature measure and two goals became due for the Municipal Operations measure. The overall percentage of goals having a completed or ongoing status was 71% (see Table 1). The Public Education measure continues to be fully implemented (see Table 2).

**Table 1. Status of Measurable Goals, December 2016**

| | Measurable Goals | | | | | |
|---|---|---|---|---|---|---|
| Measure | Completed | Ongoing | Incomplete But Started | Not Implemented | Delayed | Added or Not Due |
| Public Education | 0 | 5 | 0 | 0 | 0 | 1 |
| Public Involvement | 0 | 4 | 1 | 0 | 0 | 0 |
| Illicit Discharge Detection and Elimination | 3 | 6 | 2 | 0 | 0 | 0 |
| Construction Site Stormwater Runoff Control | 1 | 3 | 1 | 0 | 0 | 0 |
| Post-Construction Stormwater Runoff Control | 1 | 4 | 5 | 0 | 0 | 0 |
| Pollution Prevention in Municipal Operations | 1 | 8 | 1 | 1 | 3 | 0 |
| Temperature | 0 | 3 | 1 | 1 | 0 | 0 |
| Totals | 6 | 33 | 11 | 2 | 3 | 1 |
| Percentage of Required Goals | 11% | 60% | 20% | 4% | 5% | NA |

NA: Not Applicable as these are goals that have a deadline after December 2016

On a broader outlook, the City has completed or incorporated 71% of the required strategies in its TMDL Implementation Plan (see Table 2) even with 1 strategy in Post-Construction and 1 strategy in Municipal Operations becoming due in 2016. Strategies for the public education and the illicit discharge programs have been substantially incorporated into City policies and procedures.

**Table 2. Status of Goals and Strategies with Deadlines before January 2017**

| Measure | Strategies | | | Measurable Goals | | |
|---|---|---|---|---|---|---|
| | Implemented | Percent | Change* | Implemented | Percent | Change* |
| Public Education | 5/5 | 100% | 0% | 5/5 | 100% | NA |
| Public Involvement | 3/4 | 75% | 0% | 4/5 | 80% | 0% |
| Illicit Discharge Detection and Elimination | 5/6 | 83% | 0% | 9/11 | 82% | -9% |
| Construction Site Stormwater Runoff Control | 2/3 | 67% | 0% | 4/5 | 80% | 20% |
| Post-Construction Stormwater Runoff Control | 2/5 | 40% | 0% | 5/10 | 50% | -6% |
| Pollution Prevention in Municipal Operations | 6/9 | 67% | 0% | 9/14 | 64% | 0% |
| Temperature | 2/3 | 67% | -33% | 3/5 | 60% | -40% |
| **Total** | **25/35** | **71%** | **-3%** | **39/55** | **71%** | **-4%** |

* Change in number of measurable goals or strategies completed or placed in an on-going status from 2015 to 2016

# MEASURE 1 – PUBLIC EDUCATION

## Overview

The Public Education measure has three components: stormwater, watershed, and infrastructure education. Stormwater education includes providing information on the city website, public events and presentations, and information in the water quality report. The watershed component includes signage at stream crossings or stormwater facilities and classroom education. Infrastructure education provides markers at stormdrains located throughout the city. The signage is due in 2017 while the remaining goals require activities each year.

## 2016 Tasks Completed

### *PE-1 Stormwater Education*

There were 16 stormwater **web pages** covering information on runoff, riparian vegetation, water quality, and the TMDL program. The City posted on social media 12 times about compost, native plant sales, Trees for Streams, and volunteer events. The TMDL is uploaded each year to the City's website after receiving comments from DEQ.

Leadership Newberg attended a presentation at the wastewater treatment plant in March to learn about City programs such as volunteer opportunities, Trees for Streams, watershed grants, FOG, and compost. The 10 participants were also given a tour.

In September, the City and the Greater Yamhill Watershed Council (GYWC) spoke with a group of 30 George Fox University (GFU) students about green infrastructure and how it can be used to reduce stormwater volume and erosion. Afterwards the group renovated 6 stormwater planters along 2nd Street; they removed weeds, laid down compost, and planted native species.

The **Water Quality Report** was sent to residents of the city in June and contained information on stormwater volunteer opportunities, watershed grants, illicit discharges, and riparian revegetation.

### *PE-2 Watershed Education*

In February, the City sponsored a Mad Science presentation on the impact of individual actions on streams for 90 students in the 5th grade.

The City partnered with the Newberg School District, GYWC, and GFU to sponsor World Water Monitoring events for over 180 8thgrade students in April 2016. Staff spoke to the students in the classroom about stream ecology and water quality. Students then went to Hess Creek at the GFU campus for a field day where they collected water samples, completed water-quality analyses, sampled for macro-invertebrates, and learned about the ecology of Hess Creek. After the field day, students worked on reports that summarized their experience and one group presented the results to the City Council in May.

In May, the City spoke with approximately 25 5th grade students about green infrastructure and its use in reducing stormwater volume and streambank erosion. The students learned about infiltration

and the different kinds of green infrastructure. They used GIS to determine where stormwater could be managed and calculated the volume of stormwater reduced through green infrastructure.

### *PE-3 Infrastructure Education*

Volunteers marked over 100 stormdrains in 2016. The markers were placed at stormdrains south of First St and west of College St.

## Effectiveness Summary (January 2013 to December 2016)

### *Stormwater Education (PE-1)*

There were 16 pages on the City website with information on the TMDL program, stormwater, riparian vegetation, and water quality from 2013 to 2016. The City posted 12 items regarding compost, native plant sales, Trees For Streams, and volunteer events in 2016. In 2015, the City started using social media and posted 7 items covering riparian vegetation, volunteer groups removing invasive plants, erosion, and urban forestry. The annual TMDL reports are uploaded to the City's website each year after receiving comments from DEQ.

From 2014 to 2016, staff has provided a presentation to Leadership Newberg in March on our stormwater programs, compost program, and FOG program. The 10 to 15 participants were also given a tour of the wastewater treatment plant and its composting facilities.

In 2016, the City and GYWC spoke with a group of 30 university students about stormwater and the use of green infrastructure to reduce its effects on streams. After the talk, the students renovated 6 stormwater planters. In 2015, the City and GYWC spoke with two groups, 60 and 70 people respectively, about the correlation between invasive plants, stormwater, and streambank erosion. The groups removed invasive blackberry, laid down compost, planted native trees and shrubs, and stabilized the restoration site for the winter. In 2014, the City and the GYWC spoke with 30 George Fox University students about the effect of invasive plants on streambank erosion before going to a restoration site to remove invasive plants. Also in 2014, the City sponsored a group of 50 people to clean up Renne Park.

From 2013 to 2015, the City staffed a booth with the GYWC at the Camellia Festival in April that was attended by 2,000 to 3,000 people. We spoke with many people about riparian habitat and restoration. In April 2014, the City spoke to people at the Newberg Earth Day where approximately 200 people learned about rain gardens, composting, and natural gardening. A booth was set up for a week in April 2014 at the city's library with similar information. On Public Works Day in 2013 and 2014, the City included an area where children planted groundcovers and released ladybugs as they learned about the benefits of ladybugs for pest control and, in 2015, we had a booth with information on the benefits of compost on infiltration. The City staffed two booths in 2013 and one booth in 2014 at the Newberg Farmers Market where 600 to 800 people gather each week in the summer. We sponsored one booth for the GYWC in 2013 and two booths for the Yamhill County Solid Waste (YCSW) in 2014. The booths from 2013 to 2015 included information about natural gardening, erosion control, bioswales, water quality, recycling, and hazardous waste disposal. In 2013, the City staffed a booth with the GYWC and the YCSW at the 4-day Newberg Old-Fashioned Festival which attracts approximately 10,000 people each year. We spoke about fish habitat, water quality, natural gardening, and recycling. We included information about volunteer programs, illicit

discharges, the Trees for Streams program, and volunteer opportunities in our annual Water Quality Report from 2013 to 2016.

In summary, the City has maintained 16 pages on its website, posted the TMDL reports to its website, and started using social media to reach the public about stormwater issues. We provided 7 presentations that reached over 250 people and either staffed or sponsored 14 booths at events with attendances that varied from several hundred to several thousand. Each year, we have included information about stormwater in our Water Quality Report.

### *Watershed Education (PE-2)*

We sponsored a Mad Science presentation on water quality to approximately 360 elementary students from 2013 to 2016. In 2014 and 2015, the City partnered with the GYWC and the Newberg School District on an after-school ecology class that reached approximately 30 middle school students. In 2015, we spoke with 20 middle school students about watersheds, invasive plants, and erosion before working with them on a restoration site. In 2013, the City provided a presentation to 15 high school students on water management and its effect on water quality.

From 2013 to 2016, the City partnered with the Newberg School District and GFU to hold World Water Monitoring events with middle school students. Staff taught students about streams and water quality for a day and then helped them collect water samples from Hess Creek for physical and chemical analyses during a field day. Students received instruction in soil types in 2014 and macro-invertebrates in 2015 and 2016. Each year, GFU staff have provided historical information about the watershed and taught the students about stream ecology so they can better understand watershed issues. From 2013 to 2016, approximately 1,000 students have been introduced to the concept of watershed management and its effect on water quality.

The City, GFU, and Green Girl Land Development Solutions sponsored raingarden classes in 2013 and 2014. After the classes, the participants built bioswales that infiltrate a 2.5-inch rain event.

The City worked closely with the GYWC in 2013 and 2014 to provide watershed education to the public. We provided a $1,000 donation in 2013 and attended monthly meetings in 2013 and 2014. In addition, we reconnected the group in 2013 with a consortium of watershed councils which provide low-cost plants for stream restoration purposes. In December of 2014, the City resigned from the GYWC board in order to work more closely with them on local projects.

In summary, the City has provided or sponsored 31 presentations that reached over 1,500 people from 2013 to 2016. The presentations contained information about infiltration, native vs. invasive plants, macro-invertebrates, and water quality. The City attended GYWC meetings in 2013 and 2014 before resigning their board member status in 2014 to work more closely with the group on projects within the city's jurisdiction.

### *Infrastructure Education (PE-3)*

Through its volunteer program, the City marked 670 stormdrains from 2013 to 2016.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

# MEASURE 2 – PUBLIC INVOLVEMENT

## Overview

The strategies required for Public Involvement include reviewing the stormwater fee; providing funds for stream restoration and stormwater education projects; providing an avenue for responding to the public on illicit discharge, erosion, and stormwater issues; and conducting a public survey on stormwater. All of the strategies require activities each year with the exception of the public survey which is a BMP accomplishment.

## 2016 Tasks Completed

### *PI-1 Stormwater Utility Fee*

The Citizen's Rate Review Committee was started in 1992 and consists of volunteers from the public who meet every two years to review utility rates proposed by staff. After a discussion with the committee, the rates are presented by staff to the City Council for approval.

The CRRC met to review stormwater rates in October and November in 2015 and the City Council approved new rates for 2017 and 2018 in March 2016. The rates for 2016 were $8.67 and for 2017 and 2018 they will be $9.45 and $10.30, respectively. While the CRRC and City Council meetings were advertised and open to the public, no one from the public commented on the stormwater rates. The **minutes** from the CRRC meetings and the town hall are available on the City website.

### *PI-2 Public Participation in Stormwater Management*

In 2016, the City provided $733 to the Newberg School District for a 5th grade stormwater module and $945 for help with the World Water Monitoring Day event. Both projects utilized Hess Creek as the stream of interest with approximately 230 students taught about water quality.

### *PI-3 Public Participation in Reporting Stormwater Issues*

In 2016, the City used its website to provide a phone number for the public to call about stormwater issues. The City responded to 3 illicit discharge complaints and 4 erosion and sediment control complaints in 2015 (see Appendix 2). Flood complaints were not documented.

### *PI-4 Public Participation in Educational Focus*

The City was unable to provide staff in 2016 to complete this task.

## Effectiveness Summary (January 2013 to December 2016)

### *Stormwater Utility Fee (PI-1)*

The CRRC met to review stormwater rates in October and November in 2015 and the City Council approved new rates for 2017 and 2018 in March 2016. The rates for 2016 were $8.67 and for 2017 and 2018 they will be $9.45 and $10.30, respectively. While the CRRC and City Council meetings

were advertised and open to the public, no one from the public commented on the stormwater rates. The **minutes** from the CRRC meetings and the town hall are available on the City website.

The CRRC met in early 2014 and in late 2015 to discuss stormwater rates. While the meetings were advertised and open to the public, no one commented on the stormwater rates. The rates were $7.30 in 2013 and will be $8.67 in 2016.

### *Public Participation in Stormwater Management (PI-2)*

In 2016, the City provided $1,678 in watershed grants to the Newberg School District to defray costs associated with the World Water Monitoring event for 8th graders and a stormwater education module for 5th graders. Both projects used Hess Creek as the stream of interest.

In 2015, the City provided $495 as a watershed grant to the Newberg School District for the World Water Monitoring event. We provided $1,000 in 2014 for a project restoring 240 feet of Hess Creek's streambank. The project partners were the Newberg School District, GYWC, and the Yamhill Watershed Stewardship Fund.

### *Public Concerns with Stormwater (PI-3 and PI-4)*

In 2016, the City used its website to provide a phone number for the public to call in the event of flooding or stormwater concerns. In 2015, the City used social media twice, in addition to its website, to inform the public of stormwater issues. In 2014 and 2015, the City provided a link (YourGov) for citizens to report stormwater issues. There were two complaints regarding Oregon Drainage Law, 18 complaints involving illicit discharges, and five complaints about erosion and sediment control from 2013 to 2015. Complaints of street flooding were not documented from 2013 to 2016. The public survey was not completed in 2015 or 2016.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

# MEASURE 3 – ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE)

## Overview

The strategies for the IDDE measure require the development and implementation of a program for controlling illicit discharges, staff training on investigations, documentation of stormwater outfalls, removal of illegal dumps, responses to spills, the purchase of spill kits for municipal trucks, and providing public access to proper hazardous waste disposal. The IDDE Plan is a BMP accomplishment while the remaining goals require activities each year.

## 2016 Tasks Completed

### *ID-1 Develop IDDE Plan*

This task has already been completed.

### *ID-2 Train Staff to Implement IDDE*

Each department or division within the City is responsible for their own employee training. One person was certified as a stormwater inspector as part of a class in 2016.

### *ID-3 Implement IDDE Plan*

The City screens outfalls during stormwater system maintenance and stream assessments, however no documentation was completed during the maintenance and no stream assessments were completed in 2016. No illegal dumps were reported in 2016.

There were 3 illicit discharge complaints investigated by staff and 1 wastewater overflow reported to DEQ (see Appendix 2). The investigations resulted in one warning letters and two educational efforts. The Fire Department and Public Works Maintenance did not respond to any spills within the City in 2016. Spill kits were available on 10 vehicles. There were no spill kits used in 2016.

### *ID-4 Hazardous Waste Collection*

The YCSW continues to sponsor the hazardous waste collection events for Newberg in May and for McMinnville in October. The events are open to all Yamhill County residents. In 2016, there was an average of 45 lbs/vehicle processed during the two events. The 2016 events collected 19.7 tons of hazardous waste and 22.2 tons of paint and paint-related waste (see Table 3). As part of the National Drug Take-Back program, the Newberg-Dundee police department maintained a drug drop-off box in the Public Safety Building where they collected 797 pounds. The YCSW collected 420 pounds of medications during their McMinnville collection event.

The City helped to advertise these events plus the Yamhill County Pesticide Collection Event held by the GYWC by posting about them on social media 5 times during 2106.

**Table 3. Household Hazardous Waste and Medications Collected from 2013 to 2016**

| | Newberg | | | McMinnville | | |
|---|---|---|---|---|---|---|
| Year | Hazardous Waste (tons) | Paint (tons) | Medications(pounds) | Hazardous Waste (tons) | Paint (tons) | Medications (pounds) |
| 2013 | 9.5 | 13.7 | 168 | 5.0 | 7.3 | 440 |
| 2014 | 3.6 | 17.8 | 705 | 9.6 | 14.7 | 490 |
| 2015 | 4.8 | 12.7 | 1,200 | 7.5 | 10.5 | 318 |
| 2016 | 11.2 | 15.1 | 797 | 8.5 | 7.1 | 420 |
| Average | 7.3 | 14.8 | 718 | 7.6 | 9.9 | 417 |

## Effectiveness Summary (January 2013 to December 2016)

### *IDDE Plan (ID-1)*

The IDDE Plan including tracking worksheets, investigation procedures, and sampling protocols was completed in 2014.

### *Staff Training (ID-2)*

One person was certified as a stormwater inspector for illicit discharges in 2016. In-house training on the IDDE Plan was provided in 2015 to some of the staff. One person attended a session on IDDE program implementation at the ACWA Stormwater Summit in May 2014. One person completed a course on industrial stormwater permits in December 2013.

### *IDDE Plan Implementation (ID-3)*

Staff responded to 21 illicit discharges from 2013 to 2016 (see Appendix 2) with the investigations resulting in one citation, 8 warning letters, and 13 clean ups of the affected areas by the dischargers. Five of the investigations resulted in no further action by the City due to the nature of the discharge. There was one wastewater system overflow (SSO) spill in 2016 and one in 2014. There was one dumping incident in 2014. Basic spill kits were kept on two emergency response vehicles in 2014 and in 10 municipal vehicles in 2015. No spill kits were used in 2015 and 2016. Spill kit usage was not documented in 2013 and 2014.

### *Hazardous Waste Collection (ID-4)*

From 2013 to 2016, the YCSW has collected an annual average of 7.3 tons of hazardous waste in Newberg and 7.6 tons in McMinnville. Although Oregon has the PaintCare collection program, people continue to bring an average of 14.8 tons of paint and paint-related products annually to the hazardous waste event in Newberg and 9.9 tons in McMinnville. The Drug TakeBack program has been implemented with great success in Newberg and McMinnville resulting in an average of 718 pounds of medication collected annually in Newberg and 417 pounds in McMinnville.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

# MEASURE 4 – CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

## Overview

In Measure 4, the City is required to develop and implement an erosion and sediment control (ESC) program, train staff, review construction plans, inspect sites, and enforce the ordinance. Creating the ESC program is a BMP accomplishment while the remaining strategies require activities each year.

## 2016 Tasks Completed

### *CS-1 Develop Erosion and Sediment Control Program*

This task has been completed.

### *CS-2 Train Staff in Erosion and Sediment Control*

Each department or division within the City is responsible for their own employee training. One person attended a class in 2016 to be certified as an ESC inspector.

### *CS-3 Implement Erosion and Sediment Control Program*

ESC project information is listed in Appendix 3. Staff reported that there were 83 ESC inspections in 2016 however the locations were not documented. Staff reported no citations in 2016.

## Effectiveness Summary (January 2013 to December 2016)

### *ESC Plan Development (CS-1)*

Staff completed an ESC manual in 2014 for construction sites less than one acre with sites greater than one acre required to provide a copy of their 1200-C permit and DEQ-approved plan to the City.

### *ESC Staff Training (CS-2)*

Each department or division within the City is responsible for their own employee training. One person was certified in 2016, one person was re-certified in 2015, two people were certified in 2014, and no training occurred in 2013. There are three people currently certified to conduct ESC inspections.

### *ESC Plan Implementation (CS-3)*

There were 83 ESC inspections in 2016 and 293 ESC inspections in 2015. The number of ESC inspections for 2013 and 2014 was not documented. The number of inspections per project location was undocumented from 2013 to 2016.

In 2015, a project was reported to DEQ for violation of its 1200-C permit. One notice of non-compliance was issued in 2014 and none were issued in 2013 and 2016. Code Enforcement received 2 ESC complaints in 2014 and 2 complaints in 2013. An ODOT project was the subject of a 2013 complaint but was referred to the County because it was not within our jurisdiction.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

# MEASURE 5 – POST-CONSTRUCTION RUNOFF CONTROL

## Overview

The strategies in Measure 5 require the City to update its design standards, provide training, require stormwater management for development and redevelopment, review plans, conduct pre-construction meetings, evaluate areas for retrofit opportunities, inspect stormwater facilities, and monitor streams. The design standards update is a BMP accomplishment and the remaining strategies require activities each year.

## 2016 Tasks Completed

### *DS-1 Develop Stormwater Management Program*

This task has been completed.

### *DS-2 Train Staff in Stormwater Management*

Each department or division within the City is responsible for their employee training. One person attended a class on vegetated stormwater facility inspections in 2016.

### *DS-3 Implement Stormwater Management Program*

There were 30 pre-application meetings where stormwater requirements were discussed with the applicant (see Table 4). There were 4 plan reviews in 2016. There was 1 pre-construction conference in 2016. The City has a stormwater credit program that had one participant in 2016.

There were 9 completed construction projects in 2016 (see Table 4 and Appendix 4) that exceeded the stormwater management threshold. Of these, 5 projects received exemptions from stormwater management. The remaining 4 projects completed 3 detention ponds, and 6 green infrastructure facilities (3 bioswales, 2 filtration planters, and 1 filtration raingarden).

**Table 4. Projects and Required Stormwater Management, 2013 to 2016**

| Stormwater Management Type | 2013 | 2014 | 2015 | 2016 | Average |
|---|---|---|---|---|---|
| None | 2 | 4 | 0 | 5 | 3 |
| Detention Facility Only | 0 | 2 | 2 | 1 | 1 |
| Detention Facility and Green Infrastructure | 0 | 1 | 2 | 1 | 1 |
| Green Infrastructure Facilities Only | 0 | 4 | 1 | 2 | 2 |

In 2016, the city completed a retrofit project for two stream crossings on Villa Rd that affected Hess Creek. The old culverts were badly damaged and the stream frequently flooded the street during large storms. The new 16ft diameter culvert on Hess Creek replaced 2 culverts (3ft and 5ft

diameter), is fish-friendly (graveled bottom), and has headwalls at the inlet and outlet. The new 7ft x 6ft culvert on the tributary to Hess Creek has a graveled bottom. Restoration was completed on the streams in the vicinity of the culverts with large woody debris placed in the stream, native species planted, and sculpting of the streambanks to restore floodplain connectivity. An adult Pacific lamprey and several juveniles were caught and released during the restoration effort. The City posted on social media 4 times during the culvert replacements.

The City started a temperature monitoring program in 2016 and placed temperature loggers at the upper and lower stretches of Hess Creek, Chehalem Creek, and Spring Brook. A cursory review of the data pulled monthly from July to October showed some temperatures of concern during August and September on the lower reaches of all streams, however a more complete analysis was not completed in time for this report.

## Effectiveness Summary (January 2013 to December 2016)

### *Stormwater Management Program Development (DS-1)*

Staff updated the stormwater design standards in March 2014 and August 2015 to comply with the municipal code adopted in 2012. It includes a requirement for applicants to use green infrastructure for at least some stormwater management.

### *Stormwater Staff Training (DS-2)*

Each department or division within the City is responsible for their own employee training. In 2016, one person was trained on vegetated stormwater facility maintenance. In 2015, one person attended the ACWA Stormwater Summit presentation on regulatory stormwater updates, new stormwater BMPs, and aquifer storage and recovery; one person attended the ASCE Stormwater Symposium presentations on bioretention, retrofits, and modeling; one person attended the APWA conference presentations on outfall design, design standards, and restoration; and in-house training occurred for stormwater maintenance procedures. One person attended presentations on green infrastructure design, stream restoration, and HEC-RAS analyses at the 2014 ASCE-EWRI Conference and the 2014 AWWA Sustainable Water Management Conference.In2013, one person attended webcasts on retrofitting techniques, one person attended a webcast on BMP selection for achieving TMDL goals, and one person attended two presentations on creating and implementing a stormwater retrofit program.

### *Stormwater Management Program Implementation (DS-3)*

There were 30 pre-application meetings in 2016 where stormwater requirements were discussed with the applicant. An average 4 stormwater management plans have been submitted between 2013 and 2016 with an annual average of 3 projects being exempted from stormwater management. There has been an average of 2.5 pre-construction conferences each year.

In 2016, the city completed a retrofit project for two stream crossings on Villa Rd to reduce flooding by Hess Creek. The new 16ft diameter culvert on Hess Creek replaced 2 (3ft and 5ft) old culverts, is fish-friendly (graveled bottom), and has headwalls at the inlet and outlet. The new 7ftx6ft culvert on the tributary to Hess Creek has a graveled bottom. Restoration was completed on the streams in the

vicinity of the culverts with large woody debris placed in the stream, native species planted, and sculpting of the streambanks to restore floodplain connectivity.

In 2014 and 2015, College Street/Hwy 219 underwent a 0.46-mile renovation to add sidewalks and bike lanes in an area that was prone to flooding. The project included 334 feet of 6-ft wide filtration planters and 180 feet of 5-ft wide filtration planters to manage stormwater. Between 2013 and 2014, staff worked with GFU and Green Girl Land Development Solutions to create 2 bioswales that infiltrate a 2.5-inch rain event. The City has a stormwater credit program with one participant each year from 2013 to 2016.

The City developed stormwater facility inspection forms in 2015. There were no stormwater facility inspections from 2013 to 2015. There were 2 detention ponds inspected in 2016.

The City started a temperature monitoring program in 2016 and placed temperature loggers at the upper and lower stretches of Hess Creek, Chehalem Creek, and Spring Brook. A cursory review of the data pulled monthly from July to October showed some temperatures of concern during August and September on the lower reaches of the streams.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

# MEASURE 6 – POLLUTION PREVENTION IN MUNICIPAL OPERATIONS

## Overview

Measure 6 requires the City to update procedures and policies to optimize water quality in our streams; maintain stormwater infrastructure; train staff; and sweep the streets. The update to procedures and policies are BMP accomplishments while the remaining strategies require activities each year.

## 2016 Tasks Completed

### *OM-1 Operations and Maintenance Manuals*

The City does not have an operations and maintenance manual. The catch basin cleaning program and street sweeping program BMPs have been completed.

### *OM-2 Operations and Maintenance Staff Training*

There was in-house training for Public Works Maintenance staff in 2016 using the Excal Visual Training video.

### *OM-3 Stormwater Infrastructure Maintenance*

The City cleans streets on a 5-week rotation. PW Maintenance reported 4,629 curb miles swept with 0.45 cubic yards of debris collected per curb mile. Debris was sent to the landfill.

It is estimated that less than 5% of major inlets have trash racks; none were installed in 2016. Over 2,400 feet of stormline was cleaned and over 1,000 feet of stormline was inspected. There were no stormline repairs.

The following specific maintenance was completed for the City's stormwater infrastructure:

- 17 catchbasins cleaned
- 1 catchbasin replaced or repaired
- 2 detention ponds were inspected
- 0 trash rack installed
- 2,435 feet of stormline cleaned
- 1,064 feet of stormline inspected
- 0 ft of stormline replaced
- 1,462 ft of ditches inspected/cleaned
- 1 new manhole cover with "Drains to Stream" installed
- 2 manholes replaced or repaired
- 27 grates and inlets inspected
- 0 culverts repaired
- 0 culverts installed

## Effectiveness Summary (January 2013 to December 2016)

### *Operations and Maintenance Manuals (OM-1)*

The City does not have an operations and maintenance manual. The catch basin cleaning program was reviewed in 2015 with no changes. The street sweeping program was reviewed in 2015 and material disposal practices established.

### *Operations & Maintenance Training (OM-2)*

In-house stormwater training was provided in 2015 and 2016 for staff. Seven staff attended a stormwater class in 2014. There was no stormwater training in 2013.

### *Stormwater Infrastructure Maintenance (OM-3)*

Maintenance for the stormwater system is shown in Table 5. An average 48 catch basins were cleaned from 2013 to 2016. An average of 1,236 feet of stormline was inspected and 4,567 feet cleaned from 2013 to 2016. Staff replaced 356 feet of stormline between 2013 and 2016.

Streets are swept on a 5-week rotation. An average 0.44 cubic yards of debris was collected per curb mile between 2013 and 2016 and sent to the landfill.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

**Table 5. Stormwater Infrastructure and Street Maintenance from 2013 to 2016**

| Component | 2013 | 2014 | 2015 | 2016 | Average |
|---|---|---|---|---|---|
| Catch Basins Cleaned | - | 47 | 126 | 17 | 48 |
| Trash Racks Installed | - | - | 1 | - | 0.25 |
| Stormline Inspected, feet | 500 | 1,859 | 1,519 | 1,064 | 1,236 |
| Stormline Cleaned, feet | 391 | 10,163 | 5,278 | 2,435 | 4,567 |
| Stormline Repaired, feet | - | - | 13 | - | 4.3 |
| Stormline Replaced, feet | 81 | 115 | 160 | - | 119 |
| Street Sweeping, curb miles | 3,109 | 1,022 | 4,840 | 4,629 | 2,990 |
| Street Debris, cubic yards | 1,131 | 1,436 | 1,426 | 1,352 | 1,331 |
| Debris per Curb Mile, cubic yards | 0.36 | 1.40 | 0.30 | 0.45 | 0.44 |

# TEMPERATURE

## Overview

The streams within the City's boundaries have been designated as rearing and migration corridors for salmon and trout; in addition, the Willamette River in the Newberg area is designated as a migration corridor for steelhead and salmon. In 2012, the City responded to DEQ comments by adding three temperature BMPs to the implementation matrix. The strategies are to maintain stream vegetation, increase canopy cover along streams, and complete stream assessments. All of the strategies require annual activities or staff review.

## 2016 Tasks Completed

### *T-1 Maintain Existing Stream Vegetation*

There were no new ordinances adopted in 2016. There were no changes to the stream corridor overlay in 2016. Two projects occurred which affected the area covered by the stream corridor overlay: 1) The Villa Road project along Hess Creek described in Measure 5 under retrofit opportunities resulted in 10,700 sq ft of improved streambank vegetation and 2) a homeowner who built a treehouse in the stream corridor of a tributary to Chehalem Creek improved 900 sq ft of streambank which was mostly completed before being required to do so by the City.

### *T-2 Increase Effective Shade*

The City provides native plants to homeowners with riparian property to decrease and stabilize stream temperatures. In 2016, 80 trees, 174 shrubs and 50 groundcovers were provided planted; of those, 49 were planted in the Chehalem Creek watershed, 159 were planted in the Hess Creek watershed, 60 were planted in the Spring Brook watershed, and 36 were planted along the Willamette River (see Table 6).

### *T-3 Stream Assessment*

Stream assessments were not completed in 2016. No progress was made on a wetland inventory.

## Effectiveness Summary (January 2013 to December 2016)

### *Maintain Existing Stream Vegetation (T-1)*

There have been no municipal code changes affecting stream health since 2012. In 2014, a property with a Hess Creek tributary was annexed and the stream corridor overlay was amended by the City. In 2016, there were 10,700 sq ft of streambank improvements along Hess Creek as part of the City's Villa Rd project and there was 900 sq ft of improved streambank vegetation along a Chehalem Creek tributary as a result of a treehouse being built within the stream corridor.

**Table 6. Native Trees, Shrubs and Groundcovers Planted from 2013 to 2016**

| | 2013 | 2014 | 2015 | 2016 | Total |
|---|---|---|---|---|---|
| | **Chehalem Creek Watershed** | | | | |
| **Trees** | 7 | 26 | 18 | 6 | 57 |
| **Shrubs** | 17 | 56 | 1 | 21 | 95 |
| **Groundcovers** | 20 | 51 | 22 | 22 | 115 |
| | **Hess Creek Watershed** | | | | |
| **Trees** | 245 | 276 | 18 | 18 | 557 |
| **Shrubs** | 315 | 317 | 115 | 115 | 862 |
| **Groundcovers** | 25 | 32 | 26 | 26 | 109 |
| | **Spring Brook Watershed** | | | | |
| **Trees** | 0 | 6 | 40 | 44 | 90 |
| **Shrubs** | 0 | 30 | 31 | 16 | 77 |
| **Groundcovers** | 0 | 0 | 3 | 0 | 3 |
| | **Willamette River Watershed** | | | | |
| **Trees** | 18 | 16 | 23 | 12 | 69 |
| **Shrubs** | 17 | 37 | 22 | 22 | 98 |
| **Groundcovers** | 0 | 7 | 2 | 2 | 11 |
| **Total** | 664 | 854 | 321 | 304 | 2,143 |

### *Increase Effective Shade (T-2)*

From 2013 to 2016, over 2,100 native trees, shrubs, and groundcovers have been planted along streams and in raingardens through the City's Trees for Streams program. Of those, 218 were planted in the Chehalem Creek watershed; 1,369 in the Hess Creek watershed; 110 in the Spring Brook watershed; and 142 along the Willamette River (see Table 6).

### *Stream Assessment (T-3)*

From 2013 to 2015, there were 3.05 stream miles assessed in the Newberg watersheds. There were no stream assessments completed in 2016. In 2015, the City assessed streambank vegetation, channel characteristics, and canopy cover for 0.8 stream miles of Chehalem Creek. Approximately 0.25 stream miles of Chehalem Creek were assessed in 2014 and 2 stream miles of Hess Creek were assessed in 2013.

## 2016 Adaptive Management

The City is not proposing adaptive management for this minimum measure.

## SUMMARY

For its public education effort, the City maintained 16 stormwater **web pages**, posted on social media 12 times, provided stormwater information in the water quality report, and provided materials to a group that marked over 100 stormdrains. The city presented information to Leadership Newberg and, in September, the City and the Greater Yamhill Watershed Council (GYWC) spoke with a group of 30 George Fox University (GFU) students before they renovated 6 stormwater planters along 2nd Street. In March, the City participated in the World Water Monitoring event along with GFU, the Newberg School District, and the GYWC. The event included an-school presentation to classes and a field day in which 180 students collected water samples from Hess Creek and analyzed them for nutrients, dissolved oxygen, pH, and temperature. The City worked with Joan Austin elementary students on a stormwater module in which they learned about green infrastructure and its effect on stormwater volume. In February, the City sponsored a Mad Science presentation to 90 elementary students.

For its public involvement effort, the City and the Citizen's Rate Review Committee (CRRC) worked with the City Council to set new stormwater rates of $8.67 for 2016 and 2017, $9.45 for 2017, and $10.30 for 2018. While the CRRC and City Council meetings were advertised and open to the public, no one from the public commented on the stormwater rates. The **minutes** from the CRRC meetings and the town hall are available on the City website. The City uses its website to provide a phone number that can be called to log complaints; in 2016, there were 3 illicit discharge complaints and 4 erosion and sediment control complaints. Flooding complaints were not documented.

The City provided over $1,600 in watershed grants to teachers for stormwater education. The public stormwater survey was not completed in 2016.

One person was certified as a stormwater inspector in 2016. The City screened outfalls during storm system maintenance but there is no documentation of the results. No illegal dumps were reported in 2016, however 3 illicit discharge complaints were investigated by staff and there was 1 wastewater overflow reported to DEQ. The investigations resulted in one warning letters and two educational efforts. Spill kits were available on 10 vehicles. There were no reportable spills or spill kits used in 2016.

Yamhill County Solid Waste (YCSW) continues to sponsor the hazardous waste collection events for Newberg in May and for McMinnville in October. With 19.7 tons of hazardous waste and 22.2 tons of paint and paint-related waste collected at the two events. As part of the National Drug Take-Back program, the Newberg-Dundee police department and the YCSW over 1,200 pounds of unwanted or expired medications.

One person was certified in 2016 as an erosion and sediment control inspector and one person was trained in vegetated stormwater facility inspections. Staff reported 83 ESC inspections were completed in 2016; unfortunately the locations were not documented. There were 30 pre-application meetings where stormwater requirements were discussed with the applicant. There were four plan reviews, one pre-construction conference in 2016, and one participant in the City's stormwater credit program in 2016.

There were nine construction projects completed in 2016. Five of the projects received exemptions from stormwater management, one installed a detention facility, one combined detention with green infrastructure and two projects used only green infrastructure facilities to fulfill the requirements.

In 2016, the city completed a retrofit project for two culverts affecting Hess Creek and a tributary to Hess Creek. Both of the replacement culverts are considered fish-friendly and are larger to handle the winter flows of Hess Creek and the tributary. Restoration was completed for the streambanks in the vicinity of the culverts with large woody debris placed in the stream, native species planted, and sculpting of the streambanks to restore floodplain connectivity.

There were 18 catchbasins cleaned, replaced, or repaired; 2 detentions ponds inspected; and 3,499 ft of stormline inspected, cleaned, or replaced in 2016. There were 1,462 ft of ditches inspected and cleaned. No trash racks or culverts were installed, repaired, or replaced; 27 grates/inlets were inspected by staff. Two manholes were replaced and one manhole cover was installed. Staff swept 4,629 curb miles and collected 0.45 cubic yards of debris per curb mile.

There were no changes to the stream corridor overlay in 2016; however two projects improved more than 11, 600 sq ft of streambanks along Hess Creek and Chehalem Creek.

As part of its temperature control program, the City provided 80 trees, 174 shrubs, and 50 groundcovers to homeowners to plant along privately-owned streambanks. Stream assessments were not completed in 2016 and there was no progress made on a local wetland inventory. The City started a temperature monitoring program in 2016 by placing temperature loggers on the upper and lower reaches of Chehalem Creek, Hess Creek, and Spring Brook. Data was pulled monthly and a cursory review of the data showed that there were some temperature spikes in August and September as a result of our unusually hot and dry summer.

Even though two strategies and four goals became due in 2016, the City was able to implement 71% of the strategies and measurable goals in the TMDL Implementation Plan. The Public Education and Illicit Discharge measures continue to be most advanced in implementation. The City will continue to move towards implementation of the remaining strategies and measurable goals in 2017.

# APPENDICES

## Appendix 1 TMDL Implementation Matrix

| | | | | | | | Pollutant | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| **Measure No. 1 - Public Education** | | | | | | | | | | | |
| **PE-1 Stormwater Education** | All | Website Education | Provide stormwater information on the city website | Provide links to webpages and post annual TMDL reports. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | Educate Citizen Groups | Present stormwater information to interested citizen groups or at local venues | Track number of presentations and events, program messages, and number participating | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | Water Quality Report | Provide stormwater education in the annual Water Quality Report | Provide link to WQ report; track article message | June 2014 and annually | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **PE-2 Watershed Education** | | Watershed Education | Provide signage at stream crossings or green infrastructure | Track number of signs and locations | October, 2017 | Not Due | **X** | **X** | **X** | **X** | **X** |
| | | Classroom Education | Provide stormwater education in the classroom | Track number of presentations, program messages, and number participating | December 2013 and ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **PE-3 Infrastructure Education** | Spills and illicit discharges | Mark stormdrains in high profile areas | Mark 50 catch basins a year until all are marked | Track number of catch basins marked per year. Provide GIS map showing coverage. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | | | | | | | | | | |
| **Measure No. 2 - Public Involvement** | | | | | | | | | | | |
| **PI-1 Stormwater Utility Fee** | All | Participate in Citizen Rate Review Committee meetings. | Present funding needs to committee | Document meeting attendance, adopted rates, and effective dates of rate changes. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **PI-2 Public Participation in Stormwater Management** | Post-Construction Runoff | Provide funds for projects by public groups or citizens that increase water quality or watershed awareness | Provide a minimum of $2,000 in a grant program to fund non-profit projects that fulfill goals of the TMDL Plan. | Track number of funded projects, amount disbursed per project, stream affected, and either the number of stream miles affected or the number of participants. | January, 2014 and ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **PI-3 Public Participation in Reporting Stormwater Issues** | All | Provide mechanism for public to report stormwater, illicit discharge, and erosion control issues | Provide methods for citizens to report concerns during and after business hours. Notify public on a recurring basis. | Document methods. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

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| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | | Respond to public concerns | Document number of flooding complaints reported by citizens. Document number of erosion complaints reported by citizens. Document number of illicit discharge complaints reported by citizens. | July, 2013 and ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **PI-4 Public Participation in Educational Focus** | All | Determine focus of educational messages | Conduct survey to revise and refine educational message | Provide copy or link to survey and report results of survey | December, 2015 | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | | | | | | | | | |
| **Measure No. 3 - Illicit Discharge Detection and Elimination (IDDE)** | | | | | | | | | | | |
| **ID-1 Develop IDDE Plan** | Spills and illicit discharges | Develop plan to detect illicit discharges | Develop procedures to address non-stormwater discharges | Document procedures | December, 2013 | Completed (Original deadline 2010) | **X** | **X** | **X** | **X** | **X** |
| | | | Develop investigative sampling and monitoring plan | Document plan. | December, 2013 | Completed (Original deadline 2010) | **X** | **X** | **X** | **X** | **X** |
| | | | Develop worksheets for inspections | Document worksheets. | December, 2013 | Completed (Original deadline 2010) | **X** | **X** | **X** | **X** | **X** |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| **ID-2 Train Staff to Implement IDDE** | Spills and illicit discharges | Train employees in illicit discharge investigation and spill response. | Train staff that is new to illicit discharge investigation and spill response. Provide training in some aspect of illicit discharge investigation and spill response every 5 years for all applicable staff. | Track type of training (webcast, class, certification, etc.), number of employees trained, and the training subject (maintenance, response, investigation, sampling, etc). | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **ID-3 Implement IDDE plan** | Spills and illicit discharges | Conduct illicit discharge inspections | Fieldscreen outfalls | Inventory type, size, and location of public and private outfalls. Link to GIS. | November, 2015 | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | Investigate outfalls for illicit discharges | Document location, number of samples taken, date, cause, and resolution | November, 2015 | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | Respond to illegal dumps | Clean up illegal dumps | Track number of citations issued and resolution. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | Respond to spills | Fire Department Spill Response | Track date and cause of spills that occur. Document whether the spill reached the stormwater system or a stream and if water sampling was conducted. Document response resolution. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

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| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | | Public Works Spill Response | Track date and cause of spills that occur. Document whether the spill reached the stormwater system or a stream and if water sampling was conducted. Document response resolution. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | | Provide spill response cards and spill response kits on municipal trucks and sweepers. | Track number of municipal trucks and sweepers with spill response cards and spill kits. Document the number of spill kits used in response to spills. | December 2014 and Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **ID-4 Hazardous Waste Collection** | Illicit discharges | Provide opportunity for residents to dispose of hazardous waste | Offer free hazardous waste collection service twice per year to city residents. | Track volume of waste received during collection events. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | |
| | | | | | | | | | | | |
| **Measure No. 4 - Construction Site Stormwater Runoff Control** | | | | | | | | | | | |
| **CS-1 Develop Erosion and Sediment Control Program** | Construction Site Runoff | Develop ESC Manual | Develop and approve an ESC Manual. Post on website. | Provide link to ESC Manual. | June, 2013 | Completed (Original deadline 2009) | **X** | **X** | **X** | **X** | **X** |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| **CS-2 Train Staff in Erosion and Sediment Control** | Construction Site Runoff | Train staff in plan review, inspection, and enforcement of ESC program | Train staff whose responsibilities change to include erosion and sediment control plan review and enforcement. Provide refresher training to all staff involved in ESC every 3 years. | Document number of staff trained and type of training (recertification or new certification) | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **CS-3 Implement Erosion and Sediment Control Program** | Construction Site Runoff | Implement ESC program | Conduct plan review | Document location and size of all construction projects. Document which projects were required to have a 1200-C permit. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | | Conduct site inspections at least once during active construction by trained or experienced staff. | Provide number of ESC inspections for each project. Document location and size of construction project. | Ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | Enforce ordinance | Report number of warning letters or non-compliance citations by project and resolution. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

| Best Management Practice or Activity | Source | Strategy | Measurable Goal | Performance Measure | Expected Implementation Timeline | 2016 Status | Pollutant | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Nutrients | Bacteria | Tot Suspended Solids | Mercury | Temperature* |
| **Measure No. 5 - Post-Construction Stormwater Runoff Control** | | | | | | | | | | | |
| **DS-1 Develop Stormwater Management Program** | Development and Redevelopment | Update Development Manuals and Plans | Update design standards manual and notify development community of new requirements. | Provide summary of changes and link to new design standards when complete. | May, 2013 | Completed August 2015 | **X** | **X** | **X** | **X** | **X** |
| **DS-2 Train Staff in Stormwater Management** | Development, Infrastructure, Redevelopment, and Watershed Management | Train staff with stormwater runoff responsibilities in watershed and stormwater management | Provide training opportunities for staff | Track type of training (webcast, class, certification, etc.), number of employees trained, and the training subject (plan review, inspection, enforcement, etc.) | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | | Train staff that is new to stormwater facility inspections. Provide refresher training for all staff every 3 years. | Track type of training (webcast, class, certification, etc.), number of employees trained, and the training subject (plan review, inspection, enforcement, etc.) | June, 2014 and ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **DS-3 Implement Stormwater Management Program** | Development, Redevelopment, and Watershed Management | Require Stormwater Management for Development and Redevelopment | Require plan submittals, conduct plan reviews | Document number of construction plan submittals, plan reviews, project type (commercial, institutional, residential, etc), size, and location. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

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| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | | Require stormwater management for development | Document number and type (detention basin, flow dissipater, raingarden, filtration swale, etc.) of stormwater facilities required for each project. | Ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | Conduct pre-construction conferences | Document number of pre-construction conferences, project type (commercial, institutional, residential, etc), size, and location. | Ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | Improve Watershed Management | Evaluate Retrofit Opportunities | Summarize hierarchy used for screening. Document location and number of sites reviewed, drainage area, and result of evaluation. | May, 2014 and ongoing | Incomplete but started (Original deadline 2010) | **X** | **X** | **X** | **X** | **X** |
| | | | Implement Retrofit Program | Document number of projects including location, size, type (GI, traditional, etc), and drainage area. | May, 2014 and ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

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| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | Optimize Water Quality | Inspect stormwater facilities | Document number of inspections, type of facility (detention basin, raingarden, porous pavement, swale, etc.) and whether facilities were categorized as excellent, fair, or poor condition. | July, 2014 and ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | Implement monitoring program | Document sampling locations, dates, parameters, and results | January, 2016 and ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | | | | | | | | | |
| **Measure No. 6 - Pollution Prevention in Municipal Operations** | | | | | | | | | | | |
| **OM-1 Operations and Maintenance Manual** | Public Operations and Maintenance Practices | Update Policies | Review existing operation and maintenance practices | Document current procedures | December, 2018 | Not completed (Original deadline 2009) | **X** | **X** | **X** | **X** | **X** |
| | | | Update O&M manual to optimize water quality | Document modifications to manual. | April, 2014 | Delayed | **X** | **X** | **X** | **X** | **X** |
| | | Update Infrastructure Procedures | Update catch basin cleaning program | Document current procedures and modifications to optimize water quality. | December, 2014 | Incomplete but started | **X** | **X** | **X** | **X** | **X** |
| | | | Implement revised catch basin cleaning program | Track progress. | June, 2015 | Delayed | **X** | **X** | **X** | **X** | **X** |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | Update Street Sweeping Procedures | Evaluate street sweeping program and revise as necessary to optimize water quality | Document current procedures and modifications to optimize water quality. | March, 2016 | Completed | **X** | **X** | **X** | **X** | **X** |
| | | | Implement revised street sweeping program | Track progress. | July, 2016 | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **OM-2 Operations and Maintenance Training** | Public Operations and Maintenance Practices | Train staff in infrastructure and street sweeping procedures that optimize water quality | Train staff new to stormwater maintenance duties in O&M procedures | Track type of training (webcast, class, certification, etc.), number of employees trained, and the training subject (inspections, maintenance, repair, construction, etc.) | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | | Train all staff in revised O&M procedures | Track type of training (webcast, class, certification, etc.), number of employees trained, and the training subject (inspections, maintenance, repair, construction, etc.) | July, 2014 | Delayed | **X** | **X** | **X** | **X** | **X** |
| | | | Train staff in maintenance procedures that maximize water quality. | Track training events. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **OM-3 Stormwater Infrastructure Maintenance** | Development and Redevelopment | Catch Basins | Clean catch basins | Track number of unique* catch basins cleaned per year. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

| | | | | | | | Pollutant | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| | | Inlets | Place trash racks over major inlets | Track number and percentage of major inlets installed with trash racks. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | Stormline | Inspect, clean, repair, replace, and install stormline | Track length of stormline inspected. Document length of stormline cleaned. Document length and location of stormline repaired or replaced. Track length, diameter, and location of stormline installed | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | Culverts | Inspect, repair, and replace culverts | Document location of repaired and replaced culverts and reason for repair or replacement. For newly installed culverts, document new culvert size, material, and elevation from culvert bottom to stream bottom. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | Street Debris | Remove debris from streets | Sweep streets every 4 to 6 weeks | Track curb miles swept and debris collected per curb mile each year. Document disposal method. | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |

| | | | | | | | Pollutant | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Best Management Practice or Activity** | **Source** | **Strategy** | **Measurable Goal** | **Performance Measure** | **Expected Implementation Timeline** | **2016 Status** | **Nutrients** | **Bacteria** | **Tot Suspended Solids** | **Mercury** | **Temperature*** |
| **Temperature** | | | | | | | | | | | |
| **T-1 Maintain Existing Stream Vegetation** | Development, Redevelopment, and Watershed Management | Use code and other measures to maintain stream vegetation | Update city code that can affect stream health | Update ordinances that affect stream vegetation | December, 2015 | Ongoing | **X** | **X** | **X** | **X** | **X** |
| | | | Update Stream Corridor Overlay | Document changes to Stream Corridor Overlay map and code based on wetland inventory and property annexations | December, 2017 | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **T-2 Increase Effective Shade** | Development, Redevelopment, and Watershed Management | Increase shade along city streams | Provide incentives for citizens to plant trees | Document watershed and number of native trees planted per year | Ongoing | Ongoing | **X** | **X** | **X** | **X** | **X** |
| **T-3 Stream Assessment** | Development, Redevelopment, and Watershed Management | Assess stream health and canopy coverage | Assess at least 2 stream miles annually for vegetative cover, stream channel configuration, and canopy coverage. | Document results of assessment | November, 2013 and ongoing | Incomplete but Started | **X** | **X** | **X** | **X** | **X** |
| | | | Complete a wetland inventory that encompasses the Urban Reserve areas | Track Progress. Provide link to wetland inventory and map. | December, 2016 and ongoing. | Not Implemented | **X** | **X** | **X** | **X** | **X** |

* unique definition: each device may be cleaned multiple times but will be listed once

## Appendix 2 Illicit Discharge Investigations from 2013 to 2016

| Date | Cause | Water Samples | Resolution |
|---|---|---|---|
| **Chehalem Creek Watershed** | | | |
| 1/2016 | Wastewater overflow caused by roots in manhole reported to DEQ | 0 | Signs posted, area cleaned up, roots removed, and water samples for E.Coli taken until confirmation end of the impact. |
| 12/2015 | Auto reconditioner's washwater discharged to catchbasin | 0 | Warning letter required owner to connect to wastewater system. |
| 10/2015 | Auto detailer's washwater discharged to catchbasin | 0 | Warning letter required owner to connect to wastewater system. |
| 09/2014 | Homeowner's wastewater lateral broke. | 0 | Discharge cleaned up and lateral fixed. |
| 03/2014 | Metal fabricator's wastewater discharged to stormwater ditch | 4 | 2 warning letters written (1 from DEQ), area cleaned up, uncovered drums removed, and catchbasin cleaned out. |
| 02/2013 | Restaurant grease dumped into a catch basin | 0 | Owner educated about our illicit discharge ordinance |
| 01/2013 | Homeowner with broken wastewater lateral | 0 | Owner cleaned up the area. |
| **Hess Creek Watershed** | | | |
| 4/2016 | Resident complained of pesticide use/drift near creek | 0 | Property owner educated about proper use of pesticides. |
| 11/2015 | Residential paint cleanup discharged to stormdrain | 0 | Warning letter sent |
| 12/2014 | Iron precipitate | 2 | Two site visits. No further action taken. |
| 10/2014 | Grease from restaurant discharged to Hess Creek | 0 | Warning letter written and grease trap replaced. |
| 12/2013 | Swimming pool discharged into Hess Creek | 0 | Warning letter sent to swim center owner |
| 11/2013 | Grease trap overflowed to Hess Creek | 0 | Owner required to fix grease trap. |
| 10/2013 | Outfall with discharge | 1 | Discharge from failed pipe closure found and stopped. |

| Date | Cause | Water Samples | Resolution |
|---|---|---|---|
| **Spring Brook Watershed** | | | |
| 12/2016 | Washwater from car wash discharged to catchbasin | 0 | Owner had a hose break and was required to clean up the discharge. |
| 2/2016 | Grease from assisted living facility discharged to stormwater system | 0 | Warning letter sent and owner required to connect to wastewater system. |
| 04/2015 | Washwater from auto dealership discharged to catchbasin | 0 | Owner required to connect to the wastewater system. |
| 02/2015 | Grease from dumpster entering catch basin | 0 | Grease cleaned up and new dumpster installed |
| 06/2013 | Leaking oil barrels | 0 | Citation written and property cleaned up. |
| 04/2013 | Oil and grease dumped into catchbasin in parking lot | 0 | Catchbasin cleaned. |
| **Willamette River** | | | |
| 06/2015 | Brown algae mats on river appeared to be raw septage | 0 | No action taken. |

## Appendix 3 Construction Site Stormwater Management, 2013 to 2016

| CHEHALEM CREEK WATERSHED | | | | | | | |
|---|---|---|---|---|---|---|---|
| Project Name | Address | Acres | ESC Inspections | | | | Completed |
| | | | 2013 | 2014 | 2015 | 2016 | |
| 521 W Fifth St | 521 W Fifth St | 1.2 (1200-C) | 0 | 0 | - | - | 2014 |
| 725 N College | 725 N College | 0.4 | NA | NA | NA | 0 | 2016 |
| 1815 N College St | 1815 N College St | 0.5 | NA | 0 | - | - | 2014 |
| 2215 Prospect Drive | 2215 Prospect Drive | 0.4 | NA | NA | NA | 0 | 2016 |
| 3509 N College | 3509 N College | 0.98 | NA | NA | NA | 0 | 2016 |
| Chehalem Cultural Center parking lot | 415 E Sheridan St | 0.3 | 0 | 0 | - | - | 2014 |
| Columbia Estates | Columbia Dr/Chehalem Dr | 3.07 | NA | NA | NA | NA | Under Review |
| Edgewood Estates | Edgewood Dr/Crater Lane | 1.6 (1200-C) | 0 | 0 | - | - | 2014 |
| First St Yoga | Sheridan/Main St | 0.1 | NA | 0 | - | - | 2014 |
| Gracie's Landing | North Valley Rd/Chehalem Dr | 10.8 (1200-C) | NA | NA | NA | NA | Under Review |
| Heritage Meadows | Heritage Way / Lynn Dr | 0.7 | 23 | 0 | 0 | - | 2014 |
| Heritage Meadows | Heritage Way/Lynn Dr | 0.7 | NA | 0 | 0 | - | 2015 |
| Homes at Creekside | Main St/Creekside Lane | 0.6 | 0 | - | - | - | 2013 |
| Shellie Park | 735 N College Street | 4.3 (1200-C) | NA | NA | 0 | 0 | 2016 |
| Terra Estates | 3805 Terrace Drive | 7.9 (1200-C) | NA | 0 | 0 | - | 2015 |
| West of 725 N College | West of 725 N College | 0.4 | NA | NA | NA | 0 | 2016 |

*NA = Not Applicable ; - Project completed

| HESS CREEK WATERSHED | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | **Address** | **Acres** | **ESC Inspections** | | | | **Completed** |
| | | | **2013** | **2014** | **2015** | **2016** | |
| 805 Wynooski Road | 805 Wynooski Road | 0.2 | NA | NA | NA | 0 | 2016 |
| A Storage Place | Hancock and Elliott | 2.9 (1200-C) | NA | NA | NA | NA | Under Review |
| Cal Portland | 2716 Wynooski Road | 3.3 (1200-C) | NA | NA | 0 | 0 | 2016 |
| Church Street Apartments | 215 S Church St | 1.6 (1200-C) | 0 | - | - | - | 2013 |
| CPRD Pool Expansion | 1802 Haworth | 5.1 (1200-C) | NA | NA | NA | 0 | Under Construction |
| Deskin Commons | 1103 N Meridian St | 3.3 (1200-C) | 16 | 15 | - | - | 2014 |
| Elliott Self-Storage | 315 Elliott Road | 3.3 (1200-C) | NA | NA | NA | 0 | 2016 |
| Friendsview | 1301 East Fulton St | 2.5 (1200-C) | NA | NA | NA | 0 | Under Construction |
| GFU Brandt Hall | East North / Fulton St | 0.8 | NA | 0 | 0 | - | 2015 |
| GFU Commons Dining Hall and Pedestrian Bridge | 1400 E North | 2.0 (1200-C) | NA | NA | 0 | 0 | 2016 |
| GFU Stoffer Stadium | 1150 Fulton St | 4.4 (1200-C) | 18 | 12 | - | - | 2014 |
| Habitat for Humanity ReStore | 801 N Meridian | 0.6 | NA | NA | NA | 0 | Under Construction |
| Highlands at Hess Creek Phase 3 | Donna Dr/ Kennedy Dr | 2.5 (1200-C) | 32 | 20 | 0 | - | 2014 |
| Highlands at Hess Creek Phase 4 | Donna Dr/Kennedy Dr | 2.5 (1200-C) | NA | 0 | 0 | - | 2015 |
| Nova Grace | 900 Wynooski Road | 2.0 (1200-C) | NA | NA | NA | NA | Under Review |
| Old Mill Marketplace | 2401 Portland Road | 0.4 | NA | NA | 0 | 0 | 2016 |
| Ursus Place | 1500 E First Street | 0.99 | NA | NA | 0 | 0 | Under Construction |

*NA = Not Applicable ; - Project completed

| SPRING BROOK WATERSHED | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Project Name** | **Address** | **Acres** | **ESC Inspections** | | | | **Completed** |
| | | | **2013** | **2014** | **2015** | **2016** | |
| Marquis Newberg | 441 Werth Blvd | 2.3 | 0 | 0 | - | - | 2014 |
| Oak Grove Apartments | 3411 E Hayes St | 3.7 | 0 | 0 | - | - | 2014 |
| Providence Parking Lot | 1001 Providence Dr | 1.1 (1200-C) | NA | NA | 0 | 0 | 2016 |
| Springbrook Ridge Apartments | Fernwood Rd/Springbrook Rd | 7.0 | 0 | 0 | - | - | 2014 |

*NA = Not Applicable ; - Project completed

## Appendix 4 Post-Construction Stormwater Management, 2013 to 2016

| CHEHALEM CREEK WATERSHED | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Address** | **Acres** | **Land Use** | **Project** | **Stormwater Facilities Required** | **Completed** |
| 521 W Fifth St | 521 W Fifth St | 1.2 (1200-C) | Low Density Residential | 2 Lot Partition | None | 2014 |
| 725 N College | 725 N College St | 0.4 | Low Density Residential | 3 Lot Partition | None | 2016 |
| 1815 N College St | 1815 N College St | 0.5 | Medium Density Residential | 3 Lot Partition | 3 infiltration raingardens | 2014 |
| 2215 Prospect Drive | 2215 Prospect Dr | 0.4 | Low Density Residential | 3 Lot Partition | None | 2016 |
| 3509 N College | 3509 N College St | 0.98 | Low Density Residential | 2 Lot Partition | None | 2016 |
| Chehalem Cultural Center | 415 E Sheridan St | 0.3 | Institutional | Institutional | Pervious pavers in parking lot and forecourt | 2014 |
| Edgewood Estates | Edgewood Dr/Crater Lane | 1.6 (1200-C) | Low Density Residential | 10 Lot Subdivision | ConTech StormFilter manhole | 2014 |
| Heritage Meadows Phase I | Heritage Way / Lynn Dr | 0.7 | Medium Density Residential | 5 Lot Subdivision | 5 infiltration raingardens and 5 bioswales | 2014 |
| Heritage Meadows Phase II | Heritage Way / Lynn Dr | 0.7 | Medium Density Residential | 3 Lot Subdivision | 3 infiltration raingardens and 3 bioswales | 2015 |
| Homes at Creekside | Main St/Creekside Lane | 0.6 | Low Density PUD | 5 Lot Subdivision | None | 2013 |
| Shellie Park | 735 N College St | 4.3 (1200-C) | Low Density Residential | 21 Lot Subdivision | Detention Pond | 2016 |
| Terra Estates | 3805 Terrace Dr | 7.9 (1200-C) | Low Density Residential | 44 Lot Subdivision | Detention Pond | 2015 |
| West of 725 N College | West of 725 N College St | 0.4 | Low Density Residential | 3 Lot Partition | None | 2016 |

| HESS CREEK WATERSHED | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Address** | **Acres** | **Land Use** | **Project** | **Stormwater Facilities Required** | **Completed** |
| 805 Wynooski Rd | 805 Wynooski Rd | 0.2 | Medium Density Residential | 2-Lot Partition | None | 2016 |
| Cal Portland | 2716 Wynooski Rd | 3.3 (1200-C) | Heavy Industrial | Cement Plant | 160ft bioswale, 2 detention ponds | 2016 |
| Church Street | 215 S Church St | 1.6 (1200-C) | High Density Residential | 18 Unit Apartments | None | 2013 |
| CPRD Pool Expansion | 1802 Haworth Ave | 5.1 | Medium Density Residential | Recreation Facility | Under Construction | Under Construction |
| Deskin Commons | 1103 N Meridian St | 3.3 (1200-C) | High Density Residential | 56 Unit Apartments | Contech Stormfilter vault (6'x12') and pervious concrete sidewalk | 2014 |
| Friendsview | 1301 E Fulton St | 2.5 (1200-C) | Institutional | Retirement Community | 2 filtration planters, ≈2500 sq ft green roof | Under Construction |
| GFU Brandt Hall | East North / Fulton St | 0.8 | Institutional | Campus Housing | StormTech SC-310 (12'x63'), 292 feet of filtration planters, 1 filtration raingarden | 2015 |
| GFU Dining Hall and Pedestrian Bridge | 1400 E North St | 2.0 | Institutional | Campus Building | 700 sq ft filtration planter; Contech 210 ft underground detention | 2015 |
| GFU Stoffer Stadium | 1150 Fulton St | 4.4 (1200-C) | Institutional | Campus Building | 3 infiltration planters and 3 infiltration swales | 2014 |
| Habitat for Humanity ReStore | 801 N Meridian St | 0.6 | Light Industrial | Commercial Building | 4 raingardens, pervious paver parking lot | Under Construction |
| Highlands at Hess Creek Phase 3 | Donna Drive/ Kennedy Drive | 2.5 (1200-C) | Medium Density Residential | 16 Lot Subdivision | Detention pond | 2014 |
| Highlands at Hess Creek Phase 4 | Donna Drive/ Kennedy Drive | 2.5 (1200-C) | Medium Density Residential | 25 Lot Subdivision | Detention pond | 2015 |
| Old Mill Marketplace | 2401 Portland Rd | 0.4 | Community Commercial | Commercial Building | 2 filtration planters; 1 bioswale | 2016 |
| Ursus Place | 1500 E First St | 0.99 | Medium Density Residential | 10-Lot Subdivision, 10 ADUs | Under Construction | Under Construction |

* ADU= Accessory Dwelling Unit

| SPRING BROOK WATERSHED | | | | | | |
|---|---|---|---|---|---|---|
| **Project Name** | **Address** | **Acres** | **Land Use** | **Project** | **Stormwater Facilities Required** | **Completed** |
| Marquis Newberg | 441 Werth Blvd | 2.3 | Residential Professional | 54 Unit Skilled Nursing Facility | None | 2014 |
| Oak Grove Apartments | 3411 Hayes St | 3.7 | Residential Professional | 84-Unit Apartments | None | 2014 |
| Providence Parking Lot | 1001 Providence Dr | 1.1 (1200-C) | Institutional | Parking Lot | 140ft swale, ≈800 sq ft raingarden | 2016 |
| Springbrook Ridge Apartments | Fernwood Rd/ Springbrook Rd | 7.0 (1200-C) | High Density Residential | Apt Complex | None | 2014 |