



# **The City of Redmond**

## **Stormwater Management Program (SWMP)**

### **Plan**

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Division of Natural Resources

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# INTRODUCTION

## *General Information about this Document*

This document is the City of Redmond's Stormwater Management Program (SWMP) Plan. It has been created to comply with requirements found in the Western Washington Phase II Municipal Stormwater Permit (NPDES Permit), which part of the Federal Clean Water Act. The NPDES Permit requires that the City of Redmond produce a Stormwater Management Program Plan (SWMP Plan), and update it regularly, to reflect Redmond's actions and planned actions in meeting permit requirements.

The first NPDES Permit was issued to the City of Redmond by the State of Washington Department of Ecology in 2007 and revised in 2009. A new, one-year permit was issued to the City of Redmond on August 1, 2012. The 2012 re-issued permit extends the terms and conditions for the previously issued 2007 – 2012 NPDES permit for a period spanning between August 1, 2012 to July 31, 2013. A new, 5-year NPDES Permit took effect on August 1, 2013. This new 5-year permit will stay in effect until July 31, 2018.

Section S5.2.A requires that the City detail "activities for the upcoming calendar year" in order to meet the NPDES permit requirements. In many cases, requirements in the 2013-2018 NPDES permit do not take effect immediately. The City will meet new requirements as they take effect.

This document is organized according to the five NPDES Permit SWMP elements. Excluding this introduction section, the five elements are the sections of this SWMP: 1) Education and Outreach, 2) Public Involvement and Participation, 3) Illicit Discharge Detection and Elimination, 4) Controlling Runoff from Development and Redevelopment projects, and 5) Municipal Operations and Maintenance. Within each section, requirements of the permit are individually detailed (i.e. S5.C.3.b). To review the permit language in comparison to what Redmond has designed in response, one can access the permit at the following Washington Department of Ecology website:

<http://www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIIww/wvphiiperm.html>

The City's SWMP Plan aims to reduce the discharge of pollutants into receiving waters within Redmond to the maximum extent practicable (MEP), to apply all known and reasonable technologies (AKART) to address stormwater pollutants, and protect receiving waters from degradation. These goals will be accomplished by the implementation of all aspects of this SWMP Plan and through action taken by the City that are not required by NPDES and thus not detailed in this Plan. The City intentionally exceeds some NPDES Permit requirements to better protect water resources and to keep those resources safe for human contact and able to sustain aquatic ecosystems/species.

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## **PUBLIC EDUCATION AND OUTREACH**

The City of Redmond's Natural Resources Division of Public Works provides and participates in a variety of education and outreach efforts focused on environmental stewardship, including stormwater management.

### ***S5.C.1.a Targeted Stormwater Outreach***

In 2016, the City of Redmond will take the following action to provide targeted stormwater-related outreach programs to the public:

1. Continue to coordinate with other permitted jurisdictions in Western Washington to create an outreach group called Stormwater Outreach for Regional Municipalities (STORM).
2. Loan "Salmon Safe" car wash stormwater catch basin insert kits to charities and to businesses interested in holding or sponsoring car wash fundraising events within the City. A consultant (Full Circle Environmental) will provide "pre-season" outreach to selected audiences by: a) meeting with the managers of businesses to make sure that the managers understand their responsibilities regarding use of the kits and compliance with the City Stormwater Code (Redmond Municipal Code 13.06), b) ensuring that the kits function properly, and c) meeting with, and distributing educational material to the faculty advisors for sports teams and school clubs at Redmond Middle School and Redmond High School.
3. Continue to provide classroom environmental educational programs to schools in Redmond via a partnership with the *Cascade Water Alliance* and the environmental education non-profit organization, *Nature Vision*. In addition, the City is a financial partner for the *Sammamish Watershed Festival*—an outdoor festival that provides a full day of hands-on environmental education to over 280 Redmond fourth graders.
4. Offer other stormwater outreach activities as time and opportunity allow.

### ***S5.C.1.b Creating Stewardship Opportunities***

In 2016, the City will provide stewardship opportunities via the *Green Redmond Partnership*, a volunteer stewardship program in partnership with the non-profit land conservation organization, *Forterra*.

### ***S5.C.1.c Measuring Outreach Effectiveness***

In 2016, the City will again hire a consultant to conduct Charity Carwash Program drive-through (windshield) monitoring in Redmond six weekends a year. The consultant monitors sites that have sponsored charity carwashes in the past and searches for new locations where this activity may be taking place. If the consultant discovers a charity event that does not have a kit, they supply a kit and offer education as to why and how car wash events can harm local waterways. If the consultant finds an event that is using a kit, they inspect the kit's set up to ensure that it is installed correctly and diverting water to the proper location. The consultant will provide two reports to the City. These reports will provide the City

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with information on program effectiveness and make recommendations as to how the program might be improved.

In 2016, the Cities of Redmond, Bellevue, and Kirkland used all seasonal reports to meet requirement S5.C.1.c, “measure the understanding and adoption of the targeted behaviors for at least one target audience in at least one subject area. City of Redmond NPDES Outreach Program Assessment Measure Understanding and Adoption of a Targeted Behavior for One Target Audience (S5.C.1.c) is available upon request.

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## **PUBLIC INVOLVEMENT AND PARTICIPATION**

The City of Redmond is committed to ongoing opportunities for public input into the development of this plan and for public input into initiatives designed to improve water quality.

### *S5.C.2.a and S5.C.2.b Involving the Public in the SWMP*

In 2016, the City invited the public to review and comment on the City's Stormwater Management Program Plan (SWMP Plan) via an advertisement on the City's web home page. The City welcomes comments from the public at any time throughout the year, and provides a contact number for residents to call with questions throughout the year from the City's SWMP webpage:

<http://www.redmond.gov/Environment/StormwaterUtility/NPDES/>

The City is also holding a workshop and an engagement opportunity to the development community to ensure that they are aware of upcoming stormwater code updates, required December 31, 2016. A more full engagement strategy which includes all numerous stakeholder groups will be implemented in 2016.

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## **ILLICIT DISCHARGE DETECTION AND ELIMINATION**

The Illicit Discharge Detection and Elimination (IDDE) program is designed to prevent contamination of groundwater and surface water by monitoring, tracking, and removing non-stormwater discharges into the stormwater drainage system.

### ***S5.C.3.a Municipal Stormwater Drainage System Map***

In 2016, the City will continue to maintain an up-to date stormwater conveyance map in an enterprise geospatial database. Updating and managing geospatial data is done according to documented procedures and quality control standards. Global information system (GIS) data includes attributes that describe ownership, water quality facility design details, flow control facility design details, conveyance design information, and spatial data. GIS data is managed with ESRI software and database management system solutions. Both private and public stormwater system data is managed geospatially. The GIS stormwater data includes all nominal diameter pipes, not just 24 inch or larger. Land use and drainage area delineations for each outfall have been developed and are updated regularly.

### ***S5.C.3.b Water Pollution Prevention Ordinance/Municipal Code 13.06***

The City of Redmond Municipal Code 13.06 authorizes the IDDE program and meets the requirements specified in the NPDES. In the vast majority of cases, the City works to enforce this code by using education and technical assistance to seek voluntary compliance. The City will escalate its response as necessary to ensure compliance; first by supplying violators with a warning letter that clearly details what is needed to comply with Municipal Code 13.06 and the consequences of refusal to comply. If further actions are needed, the City has the power to bring violators before the City's hearing examiner.

### ***S.5.C.3.c Ongoing IDDE Program to detect non-stormwater discharges and Illicit Connections***

The City is required to screen 40% of the City's stormwater system for illicit connections by December 31, 2017. In 2014, City's stormwater maintenance crew began using required stormwater facility inspections as an opportunity to conduct vision inspection procedures for signs of illicit connections. This visual inspection protocol is noted as an acceptable screening practice in *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessment, Center for Watershed Protection, October 2004*. These inspections are recorded as part of the Stormwater Crew's catch basin inspection records. The stormwater crew will notify the City's IDDE coordinator if potential pollution issues are identified.

A portion of the 40% of the City's stormwater system may also be fulfilled by using a camera cart to video sections of the City's stormwater system. This method is also identified as an acceptable screening practice in the document noted in the previous paragraph. The percentage of this requirement that will be fulfilled by this requirement has not yet been determined.

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#### ***S.5.C.3.d Implement an ongoing program designed to address illicit discharges***

The City currently has an ongoing, fully funded, IDDE program. The City responds to and investigates, calls regarding environmental concerns such as illegal dumping, spills, illicit discharges, and illicit connections. Documentation of IDDE procedures are detailed in the City's *Illicit Discharge Detection and Elimination (IDDE) Program Manual: City Policies and Procedures (2011)*.

The City operates a telephone hotline that allows citizens to report illicit discharges or illicit dumping within city limits: (425)556-2868. The hotline is covered 24 hours a day, seven days a week. During regular business hours, calls are received and followed up on by the Natural Resources Division of Public Works. Off hour calls are managed by Redmond's police dispatch and standby maintenance crew. The hotline has been publicized by the City's website, magnets distributed at community events, Redmond's television channel (RCTV), and most outreach materials created by the City typically include the hotline number. All calls are tracked and followed up on.

Additionally, targeted outreach materials have been developed and deployed to the public for restaurant related non stormwater discharges, car washing, and general awareness of stormwater and prohibited discharges.

In 2016, these activities will continue.

#### ***S.5.C.3.e IDDE Staff Training***

Scott McQuary, the City of Redmond Pollution Prevention Program Administrator (including IDDE program) and Joe Capis, Private Drainage Inspector, attended King County's IC/IDDE training to comply with Section S5.C.3.f.i of the Phase II Municipal Stormwater Permit in 2009. In 2016, IDDE staff will look for and participate in opportunities to remain up-to-date on new spill response and illicit discharge detection procedures by participating in webinars, training workshops, conferences and other capacity building activities, if and when such activities become available.

#### ***S.5.C.3.f Program Recordkeeping***

The City currently tracks each type of IDDE incidence that rises to the level of a G3 notification. Records include a copy of the G3 notification, the City's response to the incident, the timing of the response and how those incidences are resolved. As previously mentioned, the City also maintains records of visual inspections of catch basins and other stormwater facilities in order to meet the 40% screening requirement.

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## **CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT AND CONSTRUCTION SITES**

How development and redevelopment occur within Redmond can have a significant impact on the health of City waterways. The City reviews development plans, inspects development sites during construction, and monitors private stormwater system infrastructure bi-annually to ensure facilities are maintained. In addition, the City has begun taking actions to incorporate new alternative stormwater management practices--a.k.a. Low Impact Development (LID)--into its code and operating procedures as required by the NPDES permit.

### ***S5.C.4.a Apply Stormwater Management Standards to Development, Redevelopment, and Construction Sites***

Redmond Municipal Code (RMC) 15.24 codifies stormwater management in Redmond, and includes code for construction, and stormwater infrastructure design. RMC 15.24 was updated June 15, 2010 to include all minimum requirements and language required by this section of the permit and the permit's *Appendix 1*.

Redmond uses its *Stormwater Technical Notebook* (2012) to detail the required construction practices to protect waterways and to convey construction standards for new or retrofitted stormwater infrastructure. The current notebook is based on the *2005 Stormwater Management Manual for Western Washington (SWMMWW)*. In 2015, the City has begun identifying necessary actions and strategies to update the *Technical Notebook* to the standards detailed in the 2012 SWMMWW by December 31, 2016.

In the Downtown Redmond and the Overlake Neighborhood, the City will use regional facilities to meet Minimum Requirement #5: On-site Stormwater Management and Minimum Requirement #6: Runoff Treatment in the permit's *Appendix 1*. In 2015, a regional stormwater vault in the Overlake Neighborhood, and a regional water quality treatment facility in Downtown Redmond will be fully operational. More information regarding Redmond's use of regional facilities, including a copy of Ecology's *Letter of Support* for this approach, is available on the City's website:

<http://www.redmond.gov/Environment/StormwaterUtility/RegionalFacilities>.

*Section 7 of Appendix 1* allows permittees to seek approval from Ecology to tailor certain development and redevelopment stormwater requirements. The City used this provision to gain approval for an alternative method of achieving compliance with Minimum Requirement #5: On-site Stormwater Management, Minimum Requirement #6: Runoff Treatment, and Minimum Requirement #7: Flow Control in permit's *Appendix 1*.

*The City of Redmond Watershed Management Plan* provides the details of this alternative approach. For 2016, the City continues to implement the *Watershed Management Plan* by building additional stormwater detention facilities in Tosh Creek Watershed using a \$5 million grant from the Washington State Department of Ecology. In addition, the City received another National Estuaries Program grant for Monticello Creek Watershed and is continuing to formulate a watershed restoration implementation strategy for that area. More information regarding the *Watershed Plan*, including Ecology's *Letter of Approval* for this approach, is available on the

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City's website:

<https://www.redmond.gov/Environment/StreamsHabitat/lakesriversstreams/WatershedManagement>.

#### ***S5.C.4.b Review and Inspect Development/Redevelopment Projects***

The City has a permitting process with civil/site plan review and approval process, inspection, and enforcement to meet standards established by S5.C.4b for all new and redeveloped sites that meet the thresholds details in Appendix 1 of the NPDES permit (see Figures 3.2 and 3.3. on pages 9 and 10 of Appendix 1). This oversight occurs in phases: prior to construction during the plan acceptance process, before the site is cleared during an initial site construction best management practices (BMP) implementation inspection, during construction via construction site inspections, and post construction as part of the stormwater infrastructure acceptance inspection.

Plans are reviewed by licensed engineers or qualified engineering firms for compliance with Redmond's standards. Public projects do not typically trigger local permits; however, public projects are subject to and abide by Redmond's development/redevelopment stormwater management standards.

The City's stormwater engineers review projects that trigger temporary erosion and sediment control (TESC) plans, wet weather plans, or stormwater pollution prevention plans (SWPPP). Once the City has accepted a plan to control erosion, runoff and other potential construction impacts, and prior to extensive clearing and construction, City staff inspects the site to ensure that the proper TESC measures have been selected, properly placed, and installed correctly.

During construction, the City conducts frequent inspections at the worksite--typically more than once a week when utilities are being constructed, and after major rain events--to ensure proper implementation and maintenance of TESC best management practices. Redmond inspectors have the authority to enforce Redmond Municipal Code (RMC) 13.06 and RMC 15.24, using corrective action notices and stop work orders, to insure the protection of receiving waters from construction impacts.

After construction, the City again inspects stormwater structures at a project site. If the maintenance thresholds have been triggered, the City requires that needed maintenance take place. If the maintenance thresholds have not been reached, or once maintenance has been completed, the City then accepts the project.

#### ***S5.C.4.c Post Construction Operation and Maintenance***

The City has provisions to verify adequate long-term operation and maintenance (O&M) of post-construction stormwater facilities and BMPs. RMC 13.06 requires inspection and maintenance of private stormwater facilities, and all stormwater structures (including pipes and catch basins), in accordance or excess of requirements established by the NPDES Permit. RMC 13.06 also establishes enforcement authority and procedures. In 2016, Redmond will adopt and enforce maintenance standards equivalent to or more protective than those established in the 2012 *Stormwater Management Manual for Western Washington* (Volume V, Chapter 4).

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The City has records of our private stormwater inspection program dating back to 1990. These records enable the City to use a reduced frequency inspection of stormwater infrastructure as allowed by the permit in S5.C.4.c.iii. Based on an analysis of these program records, the City inspects private stormwater treatment and flow facilities every other year on a rotating basis, splitting drainages between even and odd numbered years. In 2015, the City will inspect stormwater facilities in the following basins: Marymoor, North Star, Education Hill, Westside, Lake Sammamish as well as coalescing plate vaults and media cartridges vaults. For additional information regarding why and how the City uses reduced frequency inspections, contact Peter Holte, 425-556-2822.

When maintenance needs are identified, City staff notifies the property owners. The property owners provide the City with receipts and other documentation as proof that the work has been completed. In some cases, the private stormwater facilities inspection coordinator will revisit the site to ensure that necessary maintenance has occurred.

As mentioned previously, all stormwater infrastructure, including runoff treatment and flow control facilities, are inspected post construction one year after acceptance, to release warranty bonds. Once this occurs, sites are added to the long term private system inspection program and typically get inspected within one year from the warranty bond release.

During heavy house construction, single-family home inspectors inspect the stormwater drainage system that can potentially be impacted by the home construction activity. This occurs every six months during heavy home construction. If facilities and stormwater conveyance require cleaning during home construction, responsible parties are required to perform maintenance/cleaning.

#### ***S5.C.4.d Notice of Intent (NOI)***

The City makes the application for NOIs for coverage under the NPDES Construction Stormwater General Permit and the NPDES General Industrial Stormwater Permit available to the development proponents. Copies of the application are also available at Redmond City Hall, in the Development Services Center. This activity is on-going in 2016.

#### ***S5.C.4.e Staff Training***

All staff responsible for plan review of stormwater runoff controls are licensed professional engineers or qualified consultants. Follow-up training is provided as needed to address changes in standards, procedures, techniques, and staffing. City staff members responsible for inspection of stormwater infrastructure are adequately trained to do so. All staff responsible for managing construction TESC measures are Certified Erosion and Sediment Control Lead (CESCL) trained. Additional Public Works construction staff and maintenance technicians may also receive their first CESCL certification if it is determined it will ensure that the City's inspection requirements are being met. The City will continue to document and maintain records of training provided and the staff trained.

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#### ***S5.C.4.f Low Impact development code-related requirements***

The permit's Low Impact Development (LID) requirements require the City to review, revise, and alter City codes, standards, and procedures with the goal of making LID the "preferred and commonly-used approach to site development." The City has started the work necessary to comply with requirement, using guidance provided by the Washington State Department of Ecology via the *Integrating LID Local Codes: A Guidebook for Local Government (Puget Sound Partnership, 2012)* and others materials provided in Ecology sponsored LID Integration Workshops.

The City has established a cross-department steering group to oversee the integrations process, and contracted with a private contractor, SvR Designs, to coordinate a policy review. In 2016, City staff completed a review of City policies and procedures. This work will result in a gap analysis that will be used to determine what changes to City codes, procedures and standards. In 2016, the City will begin adopting changes to the codes and procedures. The City also began "phasing in" LID development standards by adopting most requirements associated with Minimum Requirement #5 in the permit's Appendix 1 on March 1, 2016 for projects at a specified stage within the City's development review process.

#### ***S5.C.4.g Watershed-scale stormwater planning***

The City of Redmond is continuing conversations with King County to support the county's watershed planning process in the Bear Creek Watershed. The City has actively taken part in stakeholder engagement activities. In 2016, the City will continue to fully participate in the County's efforts to implement this permit requirement.

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## **POLLUTION PREVENTION AND OPERATION AND MAINTENANCE FOR MUNICIPAL OPERATIONS**

The City of Redmond has taken many steps to insure operation and maintenance activities are done in a manner that protect and reduce potential impacts to stormwater drainage and receiving waters.

### ***S5.C.5.a Maintenance Standards***

The City adheres to and has adopted maintenance standards in Chapter 4 of Volume V of the *2005 Stormwater Management Manual for Western Washington*. In some instances, as with the trigger to clean catch basins, the City exceeds maintenance requirements. In 2016, the City will adopt the new standards within the *2012 2005 Stormwater Management Manual for Western Washington* by December 31, 2016.

### ***S5.C.5.b Annual Inspection of Flow Control and Runoff Treatment Facilities***

The City currently inspects and maintains flow control and runoff treatment facilities owned and operated by the City to ensure they are maintained in accordance with City standards. Control structures related to ponds and bioswales are inspected annually. The stormwater crew uses a GIS database to inspect, identify maintenance needs, and detail what facilities have been maintained. Cleaning and maintenance occurs within the timeframe prescribed by the NPDES Permit. New stormwater treatment and flow control facilities are added to the inspection list when the City takes them into ownership.

In some cases, the stormwater crew relays maintenance issues to City stormwater engineers so they can assess if the issue can be addressed for less than \$25,000. If the remedy exceeds \$25,000, it is considered a capital improvement project and is placed on a list of prioritized capital stormwater facility needs.

### ***S5.C.5.c Major Storm Event Inspections***

The City typically inspects the stormwater system during and after large storm events. In 2016, as per NPDES requirements, the City's stormwater crew and City engineers will inspect the stormwater system should we have an event that is equal to or greater than the 10-year 24-hour storm (2.8 inches of rainfall in 24 hours).

### ***S5.C.5.d Catch Basin Inspections***

Currently the City has opted to inspect and clean all municipally operated catch basin once by August 1, 2017, and every two years thereafter. The City may use a different alternative in another part of the City in future years. The City is choosing to clean all catch basins which have 50% of the catch basin's storage capacity filled. This exceeds the City's formal standard of 60%. Maintenance and cleaning of catch basins occurs within 6 months of the inspections as required by the permit.

### ***S5.C.5.f Reduction of Municipal Operations Stormwater Impacts***

Redmond has developed and adopted procedures for all items listed in the permit requiring documentation of practices/procedures. Locally developed standard operating procedures (SOPs) are equivalent or more protective of receiving waters

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than those in Volume V of the 2005 Ecology *Stormwater Management Manual for Western Washington*. Procedures and associated policies have been developed and provided to maintenance staff and maintenance staff supervisors/management in Public works and Parks and Recreation; training has also been provided. In 2016, the City is using its Asset Management Development Process to double its efforts, conducting a review to ensure that the correct maintenance standard is used at the associated Stormwater Treatment and Detention Facility.

In the last two years the City's Public Works Maintenance Operation Center has hired a number of new supervisors. The City will schedule a regular; routinely review of stormwater-related SOPs. This schedule will similar to that of other Maintenance Operation Center SOPs—for example, health and safety SOPs.

#### ***S5.C.5.g O&M Employee Training***

The City maintains a training program for all operations field staff on procedures necessary to protect stormwater drainage and receiving waters. The training also included Redmond specific information on water quality and IDDE awareness as discussed in the IDDE section of this plan. All maintenance staff have been trained and plans have been established to train new maintenance employees, including limited duration employees. In 2016, the City is evaluating at what interval to repeat this training.

#### ***S5.C.5.h Stormwater Pollution Prevention Plan (SWPPP) for Redmond's Maintenance and Operations Center***

The City developed a SWPPP for its Maintenance and Operations Center. The plan was developed using a consulting firm (Brown and Caldwell) with experience developing SWPPPs for industrial sites. The City's SWPPP details a stormwater and BMP monitoring program, spill response protocol, structural (with implementation dates) and operational BMPs, site maps, contaminant inventory, and a schedule to annually review the SWPPP.

The Current SWPPP has been updated to reflect new construction at the Public Works and Parks Maintenance and Operation Center (MOC). As required by the SWPPP, MOC staff will continue to conduct monitoring in accordance with the schedules provided in the SWPPP.

#### ***S5.C.5.i Record Maintenance***

The City maintains records of inspection, maintenance, and repair to City operated stormwater facilities as detailed in each section of S5.C.5.

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## **MONITORING AND ASSESSMENT**

For a number of years, the City of Redmond has monitored both water quality in lakes, rivers and streams, and the effectiveness of best management practices to protect water quality. The 2013-2018 permit now requires all permittees to either pay into a regional monitoring program or conduct water quality monitoring as defined by the permit. The following details how the City will meet permit requirements related to: a) status and trends monitoring, b) effectiveness studies, and c) source identification and diagnostic monitoring.

### ***S8. A. Annual Reporting***

In 2016, the City will provide a description of studies of monitoring and stormwater related activities conducted by or on behalf of the City as part of this annual report.

### ***S8.B Status and Trends Monitoring***

The City of Redmond has chosen to conduct its own status and trend monitoring, as is allowed by the permit. In 2016, the City monitored 7 sites identified in the approved *Quality Assurance and Project Plan (QAPP)* provided to the City by the Department of Ecology. This monitoring conforms to the methods and procedures specified in the QAPP. More information regarding the City's efforts to monitor status and trends in local waterways is available by contacting our Surface Water Quality Technician, Tanya MacFarlane, at 425-556-2764.

### ***S8.C Effectiveness Studies***

The City has chosen to buy into the Regional Stormwater Management Program (RSMP) effectiveness study in order to meet this requirement. In 2014, the cost to City of Redmond to buy into this program is \$21, 899.00.

### ***S8.D Source Identification and Diagnostic Monitoring***

The City is required to pay into the RSMP source identification and diagnostic monitoring program. In 2014, the cost to City of Redmond to buy into this program is \$2,013.00.