



Stormwater Management Program (SWMP) Plan

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March 21, 2008

INTRODUCTION

This document has been prepared as written documentation to meet the City of Redmond's Western Washington Phase II Municipal Stormwater Permit (Permit) requirement for written documentation of the City's Stormwater Management Program (SWMP).

The City's SWMP is intended to 1) reduce the discharge of pollutants from the City's Municipal Separate Storm Sewer System (MS4) to the maximum extent practicable (MEP), 2) meet Washington State's All Known and Reasonable Treatment (AKART) requirements, and 3) protect water quality. This goal is accomplished by the inclusion of all Permit SWMP components, minimum measures, and implementation schedules into the City's SWMP.

In compliance with Permit requirements, where the City is already implementing actions or activities called for in this document, the City will continue those actions or activities regardless of the schedule called for in this document.

- 1) The SWMP was developed and implemented in accordance with the schedules contained in the Permit and will be fully developed and implemented no later than 180 days prior to February 16, 2012. At a minimum the City's SWMP will be implemented throughout the entire incorporated area of the city.
- 2) The SWMP documentation is organized according to the program components in section S5C of the Permit. This document will be updated at least annually for submittal with the City's annual reports to Ecology. The SWMP documentation includes:
 - a. A description of each of the program components included in section 3, and
 - b. Any additional actions implemented by the City pursuant to section 3, and
- 3) As part of the implementation of the City's SWMP, the City will gather, track, maintain and use information on an on-going basis to evaluate the SWMP development, implementation, Permit compliance, and to set priorities.
 - a. Beginning no later than January 1, 2009, the City will track the cost or estimated cost of development and implementation of each component of the SWMP. This information will be provided to Ecology upon request.
 - b. The City will track the number of inspections, official enforcement actions and types of public education activities as stipulated by the respective program component. This information will be included in the annual report.
- 4) The SWMP described herein supersedes SWMP descriptions provided by permit applicants in individual applications submitted to the Department prior to the effective date of this permit.

Notwithstanding the schedules for implementation of SWMP components contained in this permit, the City will continue to implement existing programs some or all of the SWMP components in this section will continue

implementation of those components of their SWMP. The City will not repeal existing local requirements to control stormwater that go beyond the requirements of this permit for new development and redevelopment sites.

Under the Western Washington Phase II Municipal Stormwater Permit, the following components are mandatory.

1. PUBLIC EDUCATION AND OUTREACH

The City of Redmond's Natural Resources Division provides a variety of educational opportunities focused to change and eliminate behaviors or practices which adversely impact or contribute to stormwater quality. Target audiences are residents, students, businesses, industries, policy makers, elected officials, and city staff.

1.1. Permit Requirements

The City will formalize a Public Education and Outreach Program by February 16, 2009. The Program will be designed to achieve measurable improvements in the target audience's understanding of the problems and what they can do to resolve them. Efforts will be prioritized to target the following audiences and subject areas.

The minimum measures are:

- a. No later than February 15, 2009, the City will provide an education and outreach program for the area served by the MS4. The outreach program will be designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it.

Education and outreach efforts will be prioritized to target the following audiences and subject areas:

- i. General public
 - General impacts of stormwater flows into surface waters.
 - Impacts from impervious surfaces.
 - Source control BMPs and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping and buffers.
- ii. General public, businesses, including home-based and mobile businesses
 - BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials.
 - Impacts of illicit discharges and how to report them.
- iii. Homeowners, landscapers and property managers
 - Yard care techniques protective of water quality.
 - BMPs for use and storage of pesticides and fertilizers.
 - BMPs for carpet cleaning and auto repair and maintenance.
 - Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
 - Stormwater pond maintenance.

- iv. Engineers, contractors, developers, review staff and land use planners
 - Technical standards for stormwater site and erosion control plans.
 - Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
 - Stormwater treatment and flow control BMPs.
- b. The City will measure the understanding and adoption of the targeted behaviors among the targeted audiences. The resulting measurements will be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.
- c. The City will track and maintain records of public education and outreach activities.

1.2. Current Program Elements

Redmond's outreach program designed to raise awareness about non-point stormwater pollution (including those topics listed as "priority areas" in the NPDES permit) can be separated into three distinct categories: a) Foundational Market Research, b) Developing Regional Collaboration, and c) Ongoing and short-term actions to address priority areas.

a. Foundational Market Research

In 2005, Redmond collaborated with two other Phase II cities (Bellevue and Shoreline) to create a marketing survey of 1200 area residents to identify attitudes, knowledge, and behaviors relative to stormwater. This work allows us to effectively identify gaps in the general public's knowledge, prioritize our messaging and programming, and create a baseline from which we can measure and learn from our outreach efforts. Currently, Redmond is collaborating with three other Phase II cities (Bellevue, Shoreline, and Kirkland) to create focus groups to test existing public messages about general stormwater impacts and to research questions presented from the 2005 survey results.

In 2005, Redmond joined with the Cities of Bellevue and Shoreline to fund a "*Residential Surface Water Quality Survey*." The study benchmarked knowledge, attitudes, and behaviors among residential households regarding surface water quality. This will help plan public information and involvement efforts to better protect surface water quality. Many citizens put "surface water" at the top of their list of environmental issues – even above traffic issues. Among the key findings of this survey were the following:

- Many citizens (68%) said they lack understanding and knowledge about surface water quality (SWQ).
- Many citizens have misperceptions about SWQ – For example, local SWQ is good or excellent (yes, 45%) – unfortunately, not

true. Another example, runoff is treated before it enters local streams (yes, 28%) – again, unfortunately not true.

- Many don't know how much households contribute to SWQ, nor how much they can do to protect it.
- Respondents said pesticides, car oil leaks, and household hazardous waste "contribute the most" to SWQ pollution.
- Convenience, proof it makes a difference, and protecting wildlife are top motivators to more involvement.
- Inconvenience (50%) and lack of knowledge (39%) are key barriers to action.

The survey concluded that Citizens do not presently know the basics about SWQ and that cities can work jointly to make a difference. More qualitative information is needed to develop outreach campaigns – such as testing messages and materials with target audiences. Key indicators of SWQ awareness, knowledge, and action are identified in the study and should be tracked on a regular basis (City of Redmond 2006).

b. Developing Regional Collaboration

The City has played a key role in helping to bring regional jurisdictions together to share resources, apply for funding, and create "best educational practices" to address non-point source pollution and to meet the priority areas identified in the NPDES permit. This work allows us to more economically create and distribute messages and programs, more widely distribute consistent messages and programs, and to better evaluate messages and programs.

- i. The City helped to organize an affiliated regional stormwater outreach group made up of 30-plus jurisdictions. The group is called STORM.
- ii. The City serves on STORM's Steering and "Best Educational Practices" committees.
- iii. The City joined STORM to apply for a Centennial Grant that was awarded to King County, which is acting as the grant's administrator. The grant will help to: evaluate existing programs, identify gaps in programming to meet priority areas, and help clarify and establish roles among various local and regional organizations involved in outreach related to stormwater runoff and reducing surface water pollution.

c. Ongoing and Short-term Actions to Address Priority Areas

The City will continue with its existing programs and will also implement several short-term temporary actions to address priority areas identified in the NPDES permit. Some of these programs started prior to the NPDES process have been evaluated and will continue. Other, newer programs have been implemented with the knowledge

that they may be altered or replaced with better developed programs as current marketing information provides better guidance.

- i. The City has taken the following actions to address General Awareness of Stormwater Issues:
 - Developed messaging for ads and brochures that illustrate that storm drains lead to natural waterways—"The River Starts Here" and "This Drains Here" brochures.
 - Placed bill inserts into the City water bills that reinforced the message that storm drains flow to natural waterways, provided information on how to contact the City to report illegal dumping, and addressed pet waste issues.
 - Placed articles and ads in the City's Focus Magazine that explained the effect of temperature on stream habitats, examined the importance of trees in protecting the watershed, discussed the placement of Redmond streams onto the Washington State's Water Quality Assessment 303[d] List, provided information concerning the effects of washing cars and car maintenance on stream health, and addressed pet waste issues.
 - Made presentations to neighborhood citizen advisory groups regarding the effect of non-point source pollution and impervious areas on local streams.
 - Delivered "EnviroScape" and benthic monitoring environmental education programs to grade school children (1st-8th grade). Both curriculums examined the effect of non-point source pollution on natural waterways. An estimated 1,200 grade schools participated in this program in 2007.
 - Involved approximately 400 volunteers in stewardship activities; either habitat restoration or storm drain stenciling.
 - Provided Charity Carwash Inserts by placing kits at 3 permanent locations and keeping one on hand that could be checked out for temporary loan.
 - Provided information on our website regarding various non-point source pollution treatments.
 - Produced and aired a TV spot for Redmond's cable channel RCTV21 illustrating the connection between neighborhood runoff and the City's natural waterways.
- ii. The City has taken the following actions to address General Education to Businesses:
 - Provided hazardous material management consultations as part of the Wellhead Protection efforts.

- Developed Restaurant Stormwater BMP pamphlet used during Fats, Oil & Grease (FOG) inspections and during one-on-one consultations as part of the Illicit Discharge Elimination Program.
 - Developed a general stormwater BMP pamphlet that details proper disposal BMPs for an array of business related wastes. This pamphlet is used during one-on-one consultations as part of the Illicit Discharge Elimination Program.
 - Developed a car washing/car maintenance BMP pamphlet for businesses.
 - Provided Technical Assistance to violators during investigations for illicit discharges or spill response incidents.
- iii. The City has taken the following actions to address Education to Homeowners
- Offered the Natural Yard Care Program (in coordination with King County and other agencies) to residents—this program provides 6 hours of natural yard care education to approximately 30-40 residents/year.
 - Co-sponsored Spring Garden Fair to highlight natural yard care practices and provide training on this topic.
 - Supported Natural Yard Day promotional program to provide discounts on natural yard care products such as compost, mulch, slow release organic fertilizers, etc.
 - Sponsored the Hazardous Wastemobile visits three times a year as part of our City-wide Recycling Events.
 - Provided pond maintenance consultations as part of our Private Stormwater Inspection Program.
- iv. The City took the following actions to address Training and Education to Engineers, Contractors, Developers, Review Staff, and Land Use Planners
- Sponsored Low Impact Development (LID) informational presentations for City staff.
 - Created an LID demonstration project as part of the Grass Lawn Redevelopment Project.
 - Co-sponsored King County 'Greentools' workshops to examine LID as well as other "green building" techniques.

- Presented summary of City's stormwater monitoring data to City's long-range planners, City's stormwater maintenance workers, and City's Transportation Division.
- v. Among the education and outreach messages regularly shared with Redmond citizens are:
- "Never dump anything into a stormdrain." Whatever goes into the stormdrain goes directly to our lakes, rivers, streams, and ponds, untreated. They are not connected to the wastewater (sewer) system"
 - "Maintain your stormwater infrastructure" to assure that is functioning properly.
 - "Licensed vector contractors must perform waste removal from stormwater structures"
 - "Dispose of household chemicals (antifreeze, oil, paint, and other chemicals) at local hazardous waste collection events/stations"
 - "Dispose of medicines correctly." Don't flush medicines or solvents down the toilet; put them in the garbage or contact your pharmacy about their "take-back" policy.
 - "Wash and maintain your car properly." Don't wash cars on streets or driveways. Instead, park on lawns that act as a natural filter to remove pollution, or go to a commercial carwash that collects the runoff. Recycle your motor oil.
 - Clean up after your pet – bag it and put it in the garbage"
 - "Garden naturally." Avoid overwatering, plant hardy native plants, and minimize use of fertilizers, pesticides and herbicides.
 - "Plant tree." Trees offer many benefits to the environment.

2. PUBLIC INVOLVEMENT AND PARTICIPATION

The SWMP will include ongoing opportunities for public involvement through advisory councils, watershed committees, participation in developing rate-structures, stewardship programs, environmental activities or other similar activities. Each City will comply with applicable State and local public notice requirements when developing their SWMP.

2.1. Permit Requirements

The minimum measures are:

- a. No later than February 16, 2008, the City will create opportunities for the public to participate in the decision-making processes involving the development, implementation and update of the City's entire SWMP. The City will develop and implement a process for consideration of public comments on their SWMP.
- b. Each City will make their SWMP, the annual report and all other submittals required by this Permit, available to the public. The annual report, and SWMP that was submitted with the latest annual report,

will be posted on the City's website. To comply with the posting requirement, a City that does not maintain a website may submit the updated SWMP in electronic format to the Department for posting on the Department's website.

2.2. Current Program Elements

The City of Redmond SWMP is located on the City's website, www.redmond.gov. The public is welcome to provide feedback at any time regarding development, implementation and updates of the City's SWMP by emailing NR@redmond.gov, by calling 425.556.2701, or by faxing 425.556.2820. Comments received between March 24 and May 2, 2008 are included in Appendix I.

3. **ILLCIT DISCHARGE DETECTION AND ELIMINATION**

Illicit discharge detection and elimination program is designed to prevent contamination of ground and surface water supplies by monitoring, inspection and removal of these illegal non-stormwater discharges. The SWMP will include an ongoing program to address these items.

3.1. Permit Requirements (Section S5.A)

The City's SWMP will update the existing IDDE Program to meet the following requirements in order to detect and remove illicit connections, discharges as defined in 40 CFR 122.26(b)(2), and improper disposal, including any spills not under the purview of another responding authority, into the municipal separate storm sewers owned or operated by the City. The City will fully implement the minimum performance measures no later than August 15, 2010.

Minimum measures are:

a. Develop MS4 Map

A municipal storm sewer system map will be developed no later than four years from the effective date of this permit. Municipal storm sewer system maps will be periodically updated and will include the following information:

- i. The location of all known municipal separate storm sewer outfalls and receiving waters and structural stormwater BMPs owned, operated, or maintained by the City. The City will map the attributes listed below for all storm sewer outfalls with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems:
 - Tributary conveyances (indicate type, material, and size where known).
 - Associated drainage areas.
 - Land use.
- ii. The City will initiate a program to develop and maintain a map of all connections to the municipal separate storm sewer authorized or allowed by the City after the effective date of this Permit.

- iii. Geographic areas served by the City's MS4 that do not discharge stormwater to surface waters.
- iv. Each City will make available to Ecology, upon request, municipal storm sewer system map(s) depicting the information required in section 1. a. through e. above. The preferred format of submission will be an electronic format with fully described mapping standards. An example description is provided on Ecology WebPages under Core Services, GIS Data.
- v. Upon request, and to the extent appropriate, City's will provide mapping information to co-City's and secondary City's.

b. IDDE Ordinance

Each City will develop and implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater, illegal discharges, and/or dumping into the City's municipal separate storm sewer system to the maximum extent allowable under State and Federal law. The ordinance or other regulatory mechanism will be adopted no later than 30 months from the effective date of this Permit.

- i. The regulatory mechanism does not need to prohibit the following categories of non-stormwater discharges:
 - Diverted stream flows.
 - Rising ground waters.
 - Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)).
 - Uncontaminated pumped ground water.
 - Foundation drains.
 - Air conditioning condensation.
 - Irrigation water from agricultural sources that is commingled with urban stormwater.
 - Springs.
 - Water from crawl space pumps.
 - Footing drains.
 - Flows from riparian habitats and wetlands.
 - Non-stormwater discharges covered by another NPDES permit.
 - Discharges from emergency fire fighting activities in accordance with S2 Authorized Discharges.
- ii. The regulatory mechanism will prohibit the following categories of non-stormwater discharges unless the stated conditions are met:
 - Discharges from potable water sources, including water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges will be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4.

- Discharges from lawn watering and other irrigation runoff. These will be minimized through, at a minimum, public education activities (see section 3) and water conservation efforts.
 - Dechlorinated swimming pool discharges. The discharges will be dechlorinated to a concentration of 0.1 ppm or less, pH-adjusted and reoxygenized if necessary, volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4. Swimming pool cleaning wastewater and filter backwash will not be discharged to the MS4.
 - Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents. The City will reduce these discharges through, at a minimum, public education activities (see section 3.) and/or water conservation efforts. To avoid washing pollutants into the MS4, City's must minimize the amount of street wash and dust control water used. At active construction sites, street sweeping must be performed prior to washing the street.
 - Other non-stormwater discharges. The discharges will be in compliance with the requirements of the stormwater pollution prevention plan reviewed by the City, which addresses control of construction site de-watering discharges.
- iii. The City's SWMP will, at a minimum, address each category in b above in accordance with the conditions stated therein.
- iv. The SWMP will further address any category of discharges in a or b above if the discharges are identified as significant sources of pollutants to waters of the State.
- v. The ordinance or other regulatory mechanism will include escalating enforcement procedures and actions.
- vi. The City will develop an enforcement strategy and implement the enforcement provisions of the ordinance or other regulatory mechanism.

c. IDDE Program

Each City will develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping into the City's municipal separate storm sewer system. The program will be fully implemented no later than August 15, 2011 and will include:

- i. Procedures for locating priority areas likely to have illicit discharges, including at a minimum: evaluating land uses and associated business/industrial activities present; areas where complaints have been registered in the past; and areas with storage of large quantities of materials that could result in spills.
- ii. Field assessment activities, including visual inspection of priority outfalls identified in a, above, during dry weather and for the

purposes of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges.

- Receiving waters will be prioritized for visual inspection no later than February 15, 2010, with field assessments of three high priority water bodies made no later than February 15, 2011. Field assessments on at least one high priority water body will be made each year thereafter.
- Screening for illicit connections will be conducted using: Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004, or another methodology of comparable effectiveness.

- iii. Procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the City. Procedures will include detailed instructions for evaluating whether the discharge must be immediately contained and steps to be taken for containment of the discharge.

Compliance with this provision will be achieved by investigating (or referring to the appropriate agency) within 7 days, on average, any complaints, reports or monitoring information that indicates a potential illicit discharge, spill, or illegal dumping; and immediately investigating (or referring) problems and violations determined to be emergencies or otherwise judged to be urgent or severe.

- iv. Procedures for tracing the source of an illicit discharge; including visual inspections, and when necessary, opening manholes, using mobile cameras, collecting and analyzing water samples, and/or other detailed inspection procedures.
- v. Procedures for removing the source of the discharge; including notification of appropriate authorities; notification of the property owner; technical assistance for eliminating the discharge; follow-up inspections; and escalating enforcement and legal actions if the discharge is not eliminated.

Compliance with this provision will be achieved by initiating an investigation within 21 days of a report or discovery of a suspected illicit connection to determine the source of the connection, the nature and volume of discharge through the connection, and the party responsible for the connection. Upon confirmation of the illicit nature of a storm drain connection, termination of the connection will be verified within 180 days, using enforcement authority as needed.

d. Informing the Public

The City will inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

- i. No later than August 15, 2010, the City will distribute appropriate information to target audiences identified pursuant to section 3.

- ii. No later than February 15, 2009 The City will publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges. Keep a record of calls received and follow-up actions taken in accordance with section 3.b through d. above; include a summary in the annual report (see section S9 Reporting and Record Keeping Requirements).

e. Program Evaluation and Assessment

The City will adopt and implement procedures for program evaluation and assessment, including tracking the number and type of spills or illicit discharges identified; inspections made; and any feedback received from public education efforts. A summary of this information will be included in the City's annual report (see section S9 Reporting and Recordkeeping Requirements).

f. Staff Training

Each City will provide appropriate training for municipal field staff on the identification and reporting of illicit discharges into MS4s.

- i. No later than August 15, 2009 the City will ensure that all municipal field staff who are responsible for identification, investigation, termination, cleanup, and reporting illicit discharges, including spills, improper disposal and illicit connections are trained to conduct these activities. Follow-up training will be provided as needed to address changes in procedures, techniques or requirements. The City will document and maintain records of the training provided and the staff trained.
- ii. No later than February 15, 2010 an ongoing training program will be developed and implemented for all municipal field staff, which, as part of their normal job responsibilities, might come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system will be trained on the identification of an illicit discharge/connection, and on the proper procedures for reporting and responding to the illicit discharge/connection. Follow-up training will be provided as needed to address changes in procedures, techniques or requirements. The City will document and maintain records of the training provided and the staff trained.

3.2. Current Program Elements

The City of Redmond initiated an Illicit Discharge Detection and Elimination (IDDE) Program in January 2005. Federal regulations define an illicit discharge as, *"...any discharge to an MS4...(regulated small municipal separate storm sewer system)... that is not composed entirely of stormwater..."* Such discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-stormwater wastes (USEPA 2005). In Redmond's case Stormwater is either infiltrated into the ground or discharged to the Sammamish River. Stormwater

enters the Sammamish River through several avenues such as direct discharges into Lake Sammamish, direct discharge to Sammamish River, or by small streams. Less than 10% of the City's stormwater discharges to Kelsey Creek basin through a connection to the City of Bellevue's Stormwater system.

An Illicit Discharge is any discharge (or seepage) to the City's storm water system that is not composed entirely of storm water or uncontaminated groundwater. Illicit discharges can enter the system directly (e.g., wastewater piping that mistakenly or deliberately is connected into the stormwater infrastructure), or through indirect connections. Examples of the later include, infiltration into the stormwater system from cracked sanitary systems, overflow from malfunctioning septic systems, spills collected by drain outlets, runoff from construction sites, or any materials (wash water, paint, oils, fertilizers, animal wastes, etc.) dumped directly into a stormwater drain.

The City currently implements activities and programs that meet some of the Permit requirements. The current compliance activities include:

a. Municipal Storm Sewer System Map

The City maintains an up-to date storm sewer map in multiple electronic formats and has standard operating procedures (SOPs) for keeping the municipal separate storm sewer system map and inventory up-to-date. The GIS mapping database includes layers for land-use, drainage basins, catch basins, manholes, tanks, ponds and pipe attributes, such as pipe size.

The City maintains a map of private stormwater systems connected to the municipal system.

b. IDDE Ordinance

Redmond Municipal Code 13.06 allows for maintenance requirements which prohibit all non-stormwater discharges to the stormwater system.

c. Ongoing IDDE Program

The City currently has an IDDE program. The City responds, investigates, and manages to all calls regarding environmental concerns such as illegal dumping, spills, illicit discharges, and illicit connections.

d. Public Information

The City manages a telephone hotline that allows citizens to report illicit discharges or illicit dumping. The calls to the hotline are distributed to the appropriate response authority.

e. Program Evaluation and Assessment

Table 1 displays stormwater pollution sources Identified by the IDDE program from April through December of 2007. The pollution sources were classified into four categories: illicit connections, routine dumping, responses to accidental spills, and other.

An **Illicit Connection** is the discharge of pollutants or non-storm water materials into a storm sewer system via a pipe or other direct connection. Sources of illicit connections may include sanitary sewer taps, wash water from laundromats or carwashes, and other similar sources.

Routine Dumping is the discharge of pollutants or non-storm water materials to storm sewer systems via overland flow or direct dumping of materials into a catch basin. Some examples of illicit discharges include the overland drainage from a carwash or dumping used motor oil in or around a catch basin.

An **Accidental Spill** is the discharge of pollutants or non-storm water materials to storm sewer systems via overland flow or direct dumping of materials into a catch basin. Some examples of accidental spills include fluids leaking from vehicle accidents, equipment failures leaking fluids, or any non-intentional act that results in the discharge of pollutants or non-storm water materials to storm sewer systems.

Other is a category utilized to describe an event which does not fit into the above categories or investigations did not result in a finding or violation. Some examples include broken water lines, and dye testing of city systems.

Table 1
Stormwater Pollution Sources Identified by the IDDE Program, 2007

Pollution Source 4/2007-12/2007	Severity of Pollution Risk	Number of Incidences	Percentage of Incidences Resolved
Illicit Connections	High	0	0%
Routine Dumping to Storm drains	Moderate	32	100%
Responses to Accidental Spills	High	14	100%
Other	low	11	100%

4. CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT AND CONSTRUCTION SITES

Sediment is the number one water quality pollutant originating from construction sites. Construction sites can release significant amounts of sediment into stormwater, and eventually into local receiving waters. Routine activities at construction sites (storage and handling of construction materials, fueling of equipment) also can result in pollutants being discharged into receiving waters. The SWMP will address such issues.

4.1. Permit Requirements

The City will develop, implement, and enforce a program to reduce pollutants in stormwater runoff to a regulated small MS4 from new development, redevelopment

and construction site activities. This program will be applied to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale. The program will apply to private and public development, including roads. The "Technical Thresholds" in Appendix 1 will be applied to all sites 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale.

The minimum measures are:

a. Ordinances:

The program will include an ordinance or other enforceable mechanism that addresses runoff from new development, redevelopment, and construction site projects. Pursuant to Introduction A, in adopting this ordinance or other regulatory mechanism, existing local requirements to apply stormwater controls at smaller sites, or at lower thresholds than required pursuant to section 4, will be retained. The ordinance or other enforceable mechanism will be in place no later than thirty months from the effective date of this Permit. The ordinance or other enforceable mechanism will include, at a minimum:

- i. The Minimum Requirements, technical thresholds, and definitions in Appendix 1 or an equivalent approved by Ecology under the NPDES Phase I Municipal Stormwater Permit, for new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 will be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of basin plans or other similar water quality and quantity planning efforts. Such local requirements will provide equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.
- ii. A site planning process and BMP selection and design criteria that, when used to implement the minimum requirements in Appendix 1 (or equivalent approved by Ecology under the Phase I Permit) will protect water quality, reduce the discharge of pollutants to the maximum extent practicable and satisfy the State requirement under Chapter 90.48 RCW to apply all known, available and reasonable methods of prevention, control and treatment (AKART) prior to discharge. The City will document how the criteria and requirements will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy State AKART requirements.

The City will use the site planning process and BMP selection and design criteria in the 2005 *Stormwater Management Manual for Western Washington*, or an equivalent manual approved by the Department under the Phase I Permit, may cite this choice as their sole documentation to meet this requirement.

- iii. The legal authority, through the approval process for new development, to inspect private stormwater facilities that discharge to the City MS4.

- iv. Provisions to allow non-structural preventive actions and source reduction approaches such as Low Impact Development Techniques (LID), measures to minimize the creation of impervious surfaces and measures to minimize the disturbance of native soils and vegetation. Provisions for LID should take into account site conditions, access and long term maintenance.
- v. If the City chooses to allow construction sites to apply the "Erosivity Waiver" in Appendix 1, Minimum Requirement #2, the ordinance or regulatory mechanism will include appropriate, escalating enforcement sanctions for construction sites that provide notice to the City of their intention to apply the waiver but do not meet the requirements (including timeframe restrictions, limits on activities that result in non-stormwater discharges, and implementation of appropriate BMPs to prevent violations of water quality standards) to qualify for the waiver.

b. Permit and Plan Review Process

The program will include a permitting process with plan review, inspection and enforcement capability to meet the standards listed in (a) through (d) below, for both private and public projects, using qualified personnel (as defined in Definitions *and Acronyms*). At a minimum, this program will be applied to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale. The process will be in place no later than thirty months from the effective date of this Permit.

- i. Except as provided in Section 4.2.g. below, review of all stormwater site plans for proposed development activities.
- ii. Except as provided in Section 4.2.g. below, inspect, prior to clearing and construction, all known development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 Identifying Construction Site Sediment Transport Potential.
- iii. Except as provided in Section 4.2.g. below, inspect all known permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection.
- iv. Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs. Also, verify a maintenance plan is completed and responsibility for maintenance is assigned. Enforce as necessary based on the inspection.
- v. Compliance with the inspection requirements in (b), (c) and (d) above will be determined by the presence and records of an established inspection program designed to inspect all sites and achieving at least 95% of scheduled inspections.

- vi. An enforcement strategy will be developed and implemented to respond to issues of non-compliance.
- vii. If the City chooses to allow construction sites to apply the "Erosivity Waiver" in Appendix 1, Minimum Requirement #2, the City is not required to review the construction stormwater pollution prevention plans as part of the site plan review in (a) above, and is not required to perform the construction phase inspections identified in (b) and (c) above related to construction sites which are eligible for the erosivity waiver.

c. Long-term Operation and Maintenance

The program will include provisions to verify adequate long-term operation and maintenance (O&M) of post-construction stormwater facilities and BMPs that are permitted and constructed pursuant to section 4.2 above. These provisions will be in place no later than thirty months from the effective date of this Permit and will include:

- i. Adoption of an ordinance or other enforceable mechanism that clearly identifies the party responsible for maintenance, requires inspection of facilities in accordance with the requirements in (b.) through (e.) below, and establishes enforcement procedures.
- ii. Each City will establish maintenance standards that are as protective as or more protective of facility function than those specified in Chapter 4 of Volume V of the 2005 Stormwater Management Manual for Western Washington. For facilities which do not have maintenance standards, the City will develop a maintenance standard.
 - The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facilities required condition at all times between inspections. Exceeding the maintenance standard between the period of inspections is not a permit violation.
 - Unless there are circumstances beyond the City's control, when an inspection identifies an exceedence of the maintenance standard, maintenance will be performed:
 - Within 1 year for wet pool facilities and retention/detention ponds.
 - Within 6 months for typical maintenance.
 - Within 9 months for maintenance requiring re-vegetation, and
 - Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the City's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedence of the required timeframe, the City must

document the circumstances and how they were beyond their control.

- iii. Annual inspections of all stormwater treatment and flow control facilities (other than catch basins) permitted by the City according to Section 4.2 unless there are maintenance records to justify a different frequency.

Reducing the inspection frequency will be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the City may substitute written statements to document a specific less frequent inspection schedule. Written statements will be based on actual inspection and maintenance experience and will be certified in accordance with *Certification and Signature* as outlined in the permit G19.

- iv. Inspections of all new flow control and water quality treatment facilities, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, every 6 months during the period of heaviest house construction (i.e., 1 to 2 years following subdivision approval) to identify maintenance needs and enforce compliance with maintenance standards as needed.

d. Records Management

The program will include a procedure for keeping records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records. Records of maintenance inspections and maintenance activities will be maintained. The City will keep records of all projects disturbing more than one acre, and all projects of any size that are part of a common plan of development or sale that is greater than one acre that are approved after the effective date of this Permit.

e. Notice of Intent

The program will make available copies of the "Notice of Intent for Construction Activity" and copies of the "Notice of Intent for Industrial Activity" to representatives of proposed new development and redevelopment. City will continue to enforce local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology.

f. Staff Training

No later than thirty months from the effective date of this Permit, each City will verify that all staff responsible for implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these

activities. Follow-up training will be provided as needed to address changes in procedures, techniques or staffing. Cities will document and maintain records of the training provided and the staff trained.

4.2. Current Program Elements

a. Ordinances

Redmond Municipal Code 15.24 codified the adoption of the current edition (2005) of the Stormwater Management Manual for Western Washington. The Clearing, Grading and Stormwater Management Technical Notebook, Issue 5, January 1, 2007 contains specifications and standards for clearing, grading, and stormwater management exceeds the requirements in Appendix 1 of the Permit. The City is currently in compliance with the minimum requirements, technical thresholds, and definitions described in Appendix 1.

The Clearing, Grading and Stormwater Management Technical Notebook, Issue 5, January 1, 2007 does allow for Low Impact Development as a local design standard.

b. Permitting Process

The City has a permitting process with plan review, inspection and enforcement standards to meet the standards listed in (i) through (iv) below, for both private and public projects, using qualified personnel. A clearing and grading permit is required for all projects that meet any of the following thresholds:

- Move over 50 CY of soil; or
 - Change the topography by more than four feet; or
 - Perform work within a City of Redmond easement or right-of-way; or
 - Work with a stormwater pipe 12-inches in diameter or greater; or
 - Clear 7,000 SF of land; or
 - Remove more than 10 trees; or
 - Add 2,000 SF or more of impervious surface; or
 - Work within a Critical Area or buffer as defined in the Community Development Guide; or
 - Modify a private water quality or flow control stormwater facility.
- i. All stormwater site plans for proposed development activities are reviewed by the Public Works Department's Plan Review Engineers with support from an on-call consultant.
 - ii. All known permitted development sites are inspected by the Public Works Construction Division during construction to verify proper installation and maintenance of required erosion and sediment controls. The City enforces installation and maintenance through correction notices and stop work orders as necessary.
 - iii. Upon completion of construction and prior to final approval or occupancy, all permitted development sites are inspected by the

Public Works Construction Division to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs. The City enforces as necessary by requiring the developer to post a performance bond.

- iv. The City does not allow construction sites to apply the "Erosivity Waiver" in Appendix 1 of the Permit.

c. Long-term Operation and Maintenance

The City has provisions to verify adequate long-term operation and maintenance (O&M) of post-construction stormwater facilities and BMPs that are permitted and constructed pursuant to section 4.2 above.

- i. Redmond Municipal Code 13.06 requires inspection of facilities in accordance with the requirements in (b) through (e.) below, and establishes enforcement procedures.
- ii. The City has established maintenance standards for private stormwater facilities. Maintenance Standards will be updated to be as protective as or more protective of facility function than those specified in Chapter 4 of Volume V of the 2005 Stormwater Management Manual for Western Washington. For facilities which do not have maintenance standards, the City will develop a maintenance standard.
 - Unless there are circumstances beyond the City's control, when an inspection identifies an exceedence of the maintenance standard:
 - a. Routine maintenance and minor repairs shall be completed within 30 calendar days,
 - b. Removal of prohibited substances shall be completed with 24 hrs,
 - c. Repairs and/or modifications necessary to stop water quality degradation shall be completed within 24 hrs,
 - d. And other repairs and modifications timeframes requiring longer than 30 calendar days will be reviewed and approved by the Director on a case-by-case basis.

Circumstances beyond the City's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work

- iii. The Natural Resources Inspector inspects all private commercial stormwater systems treatment and flow control facilities (other than catch basins) permitted by the City according to Section 4.2 on a biannual basis. As of June 2007, privately owned stormwater systems across the City nearly equal the public system, with 145 miles of pipes and over 9,400 stormwater chambers. All clean-out and maintenance work performed on the

private stormwater systems must be performed by appropriately qualified and City-approved contractors, principally drainage system maintenance services with vactoring capabilities. As part of the inspection system, the contractors are routinely required to submit vector waste tracking forms and disposal receipts to the City. These records allow the City to track maintenance locations, approximate tonnage of material removed from the private storm drain system (as wet weights), and where the material was disposed.

- iv. Inspections of all new flow control and water quality treatment facilities, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, are inspected by the Construction Division during construction and at the time of final approval to identify maintenance needs and enforce compliance with maintenance standards as needed.

d. Records Management

The City keeps records of inspections and enforcement actions by staff, including inspection reports, warning letters, notices of violations, and other enforcement records for new and existing commercial, multifamily, and residential developments. Records of maintenance inspections and maintenance activities are kept. The City keeps records of all projects disturbing more than one acre, and all projects of any size that are part of a common plan of development or sale that is greater than one acre that are approved after the effective date of this Permit.

e. Notice of Intent

The Development Review Division requires the developer to submit a copy of the "Notice of Intent for Construction Activity". The City enforces local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology.

f. Staff Training

All staff responsible for plan review of stormwater runoff controls are licensed professional engineers or qualified consultants. Follow-up training will be provided as needed to address changes in procedures, techniques or staffing. The City will document and maintain records of the training provided and the staff trained.

5. **POLLUTION PREVENTION AND OPERATION AND MAINTENANCE FOR MUNICIPAL OPERATIONS**

5.1. Permit Requirements

By February 15, 2010, the City will develop and implement an operations and maintenance (O&M) program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.

The minimum measures are:

a. Maintenance Standards

The City will establish maintenance standards that are as protective, or more protective, of facility function than those specified in Chapter 4 of Volume V of the 2005 Stormwater Management Manual for Western Washington. For facilities which do not have maintenance standards, the City will develop a maintenance standard.

- i. The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facilities required condition at all times between inspections. Exceeding the maintenance standard between inspections and/or maintenance is not a permit violation.
- ii. Unless there are circumstances beyond the City control, when an inspection identifies an exceedence of the maintenance standard, maintenance will be performed:
 - Within 1 year for wet pool facilities and retention/detention ponds.
 - Within 6 months for typical maintenance.
 - Within 9 months for maintenance requiring re-vegetation.
 - Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the City's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. For each exceedence of the required timeframe, the City will document the circumstances and how they were beyond their control.

b. General Inspections

Annual inspection of all municipally owned or operated permanent stormwater treatment and flow control facilities, other than catch basins, and taking appropriate maintenance actions in accordance with the adopted maintenance standards. The annual inspection requirement may be reduced based on inspection records.

Reducing the inspection frequency will be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the City may substitute written statements to document a specific less frequent inspection schedule. Written statements will be based on actual inspection and maintenance experience and will be certified in accordance with G19 *Certification and Signature*.

c. Post Storm Inspections

Spot checks of potentially damaged permanent treatment and flow control facilities (other than catch basins) after major (greater than

24-hour-10-year recurrence interval rainfall) storm events. If spot checks indicate widespread damage/maintenance needs, inspect all stormwater treatment and flow control facilities that may be affected. Conduct repairs or take appropriate maintenance action in accordance with maintenance standards established above, based on the results of the inspections.

d. Catch Basins and Inlet Inspections

Inspection of all catch basins and inlets owned or operated by the City at least once before the end of the Permit term. Clean catch basins if the inspection indicates cleaning is needed to comply with maintenance standards established in the 2005 *Stormwater Management Manual for Western Washington*. Decant water will be disposed of in accordance with Appendix 6 *Street Waste Disposal*. Inspections may be conducted on a "circuit basis" whereby a sampling of catch basins and inlets within each circuit is inspected to identify maintenance needs. Include in the sampling an inspection of the catch basin immediately upstream of any system outfall. Clean all catch basins within a given circuit at one time if the inspection sampling indicates cleaning is needed to comply with maintenance standards established under section 4.c., above.

As an alternative to inspecting catch basins on a "circuit basis," the City may inspect all catch basins, and clean only catch basins where cleaning is needed to comply with maintenance standards.

e. Compliance

Compliance with the inspection requirements in 1, 2, 3, and 4 above will be determined by the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.

f. Reduction of Stormwater Impacts

Establishment and implementation of practices to reduce stormwater impacts associated with runoff from streets, parking lots, roads or highways owned or maintained by the City, and road maintenance activities conducted by the City. The following activities will be addressed:

- i. Pipe cleaning
- ii. Cleaning of culverts that convey stormwater in ditch systems
- iii. Ditch maintenance
- iv. Street cleaning
- v. Road repair and resurfacing, including pavement grinding
- vi. Snow and ice control

- vii. Utility installation
- viii. Pavement striping maintenance
- ix. Maintaining roadside areas, including vegetation management
- x. Dust control

g. Policies and Procedure

Establishment and implementation of policies and procedures to reduce pollutants in discharges from all lands owned or maintained by the City and subject to this Permit, including but not limited to: parks, open space, road right-of-way, maintenance yards, and stormwater treatment and flow control facilities. These policies and procedures will address, but are not limited to:

- i. Application of fertilizer, pesticides, and herbicides including the development of nutrient management and integrated pest management plans
- ii. Sediment and erosion control
- iii. Landscape maintenance and vegetation disposal
- iv. Trash management
- v. Building exterior cleaning and maintenance

h. Employee Training

Develop and implement an on-going training program for employees of the City whose construction, operations or maintenance job functions may impact stormwater quality. The training program will address the importance of protecting water quality, the requirements of this Permit, operation and maintenance standards, inspection procedures, selecting appropriate BMPs, ways to perform their job activities to prevent or minimize impacts to water quality, and procedures for reporting water quality concerns, including potential illicit discharges. Follow-up training will be provided as needed to address changes in procedures, techniques or requirements. City will document and maintain records of training provided.

i. Additional Facility Requirements

Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the City in areas subject to this Permit that are not required to have coverage under the Industrial Stormwater General Permit. Implementation of non-structural BMPs will begin immediately after the pollution prevention plan is developed. A schedule for implementation of structural BMPs will be included in the SWPPP. Generic SWPPPs that can be applied at

multiple sites may be used to comply with this requirement. The SWPPP will include periodic visual observation of discharges from the facility to evaluate the effectiveness of the BMP.

j. Records Management

Records of inspections and maintenance or repair activities conducted by the City will be maintained in accordance with *S9 Reporting Requirements*.

5.2. Current Program Elements

a. Inspections

As of June 2007, Redmond's publicly owned stormwater system includes almost 180 miles of stormwater pipes and approximately 10,500 chambers (manholes and catch basins). The focus of Stormwater Maintenance has been on the maintenance, cleaning, and repair of the City's publicly-owned stormwater infrastructure. Approximately 20% of public stormwater facilities are maintained and vactored every year.

Truck mounted Camera System

In 2004, Stormwater Maintenance purchased a truck mounted video camera system that allows "inside-the-pipe" inspections of the City's stormwater infrastructure. Addition of this "new" tool proved extremely powerful. About one-third of the City's stormwater infrastructure has been routinely inspected over the past 3-plus years.

Literally hundreds of examples of crushed or damaged stormwater pipes, leaks, and root blockages have been located and tagged for repair (estimated backlog of 5yrs worth of repair work). Several examples of optic cables and gas lines being installed right through stormwater pipes have been found and the installers have been required to correct the damage. The City now *requires* that newly constructed stormwater systems be inspected with the video camera – at contractor cost – prior to their formal approval and acceptance.

b. Maintenance Practices to Reduce Stormwater Impacts from Public Streets, Parking Lots, and Roads

Street Waste Decant Facility

In 1996, the Street Waste Decant Facility was designed. This decant facility is made up of a series of concrete bays, with sloping floors, that drained into a shared collector channel with a regulated outlet.

Different bays are designated to accept street sweepings, leaves, or vactor waste. The whole structure is covered with a broad sloping roof to keep materials stored in the bays well protected from the rain. Any dewatering runoff from each bay would drain into the collector channel and is piped directly to King County Lift Station No.11 and into the MetroSewer line. This eliminates the potential for soil and groundwater contamination.

Street Sweeping

Redmond's sweeping crew is responsible for cleaning approximately 250 miles of City streets and bike ways. They have divided the City into 17 zones and each zone is re-swept, on average, at approximately 25-day intervals. This cycling interval slows down somewhat during seasonal leaf fall and during the winter, when there is more sand on the roadways. The material collected by the vacuum sweepers is taken to the City's covered decant and storage facility from which it is trucked off-site for final disposal.

Street Litter Cleanup

One city staff performs this litter cleanup task, full-time, year-round along all of the City's arterial highways. In 2006, equivalent of 30, five-cubic-yard dump trucks worth of litter was removed from Redmond's streets.

Field observations indicate that litter lost from the back of garbage trucks and landscaper's blowing waste material into the street, without any subsequent cleanup, both aggravate street littering problems.

Stormwater Maintenance has also added a "vegetation control crew," to maintain ponds and bio-swales. These requirements reflect a move towards "preventive maintenance."

6. COMPLIANCE WITH TOTAL MAXIMUM DAILY LOAD REQUIREMENTS

6.1. Permit Requirements

The following requirements apply if an applicable Total Maximum Daily Load (TMDL) is approved for stormwater discharges from MS4s owned or operated by the City. Applicable TMDLs are TMDLs which have been approved by EPA on or before the date permit coverage is granted. The City will be in compliance with the requirements of applicable TMDLs:

- a. For applicable TMDLs listed in Appendix 2, the City will comply with the specific requirements identified in Appendix 2. Each City will keep records of all actions required by this Permit that are relevant to applicable TMDLs within their jurisdiction. The status of the TMDL implementation will be included as part of the annual report submitted to Ecology.
- b. Where monitoring is required in Appendix 2, the City will conduct the monitoring according to a Quality Assurance Project Plan (QAPP) approved by Ecology.
- c. For applicable TMDLs not listed in Appendix 2, compliance with this Permit will constitute compliance with those TMDLs.
- d. For TMDLs that are approved by EPA after this Permit is issued, Ecology may establish TMDL related permit requirements through future permit modification if Ecology determines implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and

other targets, are not occurring and will be implemented during the term of this Permit or when this Permit is reissued. Cities are encouraged to participate in development of TMDLs within their jurisdiction and to begin implementation.

6.2. Current Program Elements

The City of Redmond is actively involved with developing a Water Quality Implementation Plan to address TMDLs in urban areas with Department of Ecology, EPA, and King County. The draft report is called the "Redmond Urban Watershed Initiative".

Currently, there are no TMDL requirements in Redmond. However the City is working closely with Ecology on the development of temp, dissolved oxygen, and fecal TMDL's to be applied in the Bear/Evans Creek Watershed on the eastern side of the City

APPENDIX 1

PUBLIC COMMENT

The following public comments were received during the comment period between March 24, 2008 and April 24th, 2008.

1. From: Robert Yoder [mailto:bob.yoder@comcast.net]
Sent: Tuesday, April 15, 2008 7:35 PM
To: Natural Resources
Cc: bob.yoder@comcast.net
Subject: website feedback Stormwater Mgmt Plan

I've barely read your long Plan but I do have the following comments:

1) RE: 520 -- I'm concerned about the "embankments" planned by WSDOT for Storm Water (SW) management for 8 lanes of traffic. WSDOT will be removing Wetland C and others. I think they will mitigate off site. Taking away these wetland "sponges" is not good for SW management! The embankments are novel. Will filtration be enough to remove the copious Cu and other heavy metals? It is my understanding in talking to staff that bio-swales need to be periodically "serviced" by removal of contaminated soil. How can WSDOT do this type of maintenance on their filtration soils. Contaminates will build up fast. What authority does the COR have in managing S520 stormwater? Any? How can we cooperate with WSDOT to do the best job possible to keep the water quality of the creek above our "level 4" average. (ref. community "guidelines: per Chruchill.)

(City response: The Stormwater Management Program Plan does not address individual projects. Individual projects are reviewed at the time of applications. Reference Page 17, Section 4.1.b for NPDES requirements for permitting and plan review. The City of Redmond does not have jurisdiction over state highways for stormwater management. Comments related to stormwater management on SR-520 improvements can be directed to Washington State Department of Transportation.)

2) We need to improve the water quality of our streams and lake. According to Mr. Churchill, we only rank a Level 4 (marginal) in water quality AND this is not testing the water near outfalls! Our regional stormwater system will be adding HUGE outfalls to Sammamish slough (sluggish "river") AND one to Bear Creek. Jon Spangler gave a talk to the King County Commissioners last year and said he MAY have to add bio-filtration. Please do! How can we get to 'level 5 or 6 if we don't empty tertiary treatments?

(City response: NPDES requirements and the Stormwater Management Program are intended to improve water quality. Stream monitoring is conducted by the city to track trends which are used to adapt program goals and activities. Information on City of Redmond regional stormwater facilities can be found on the City's website – www.redmond.gov/insidecityhall/publicworks/stormwater/.)

3) When we have severe rains as in Dec. , 2008 can we quantify how much untreated run-off enters our stream systems (by-passing the vaults)? Should we? Do we monitor the streams for water quality AFTER large storms? Should we? If we find poor water quality results, is there anything we can do to treat run-off better during heaving storms.

(City response: The city began collecting water quality and flow data on stream in 1995. Water quality samples are collected monthly and follow state protocol. NPDES requires monitoring of stormwater, such as at outfalls, for which the City is developing a program..)

4) I recommend some kind of field trips are offered students and citizens to understand stormwater management systems – preferably in our area.

(City response: The comment is appreciated and the City will explore opportunities to expand existing education programs.)

5) Plant native plants in the greenway on “Perrigo Woodland trail”. Most have been damaged or decayed. The green way is the only buffer and filtration system for the bog wetland from the trail and new development. Please, when priority Hartman Wetlands dry up from the increased southern winds and dearth of water from the removed woodland trees, pay attention and try to divert some water into the wetlands. If not, the forested wetlands will eutryfy into a forest.

(City Response: NPDES and the SWMP do not address native plants or wetlands. They are addressed through the city’s critical areas ordinance and Natural Resources capital improvement program.)

6) Keep doing the great work you do to restore stream banks with native shrubs! Removal of invasives provide better flood management. Hartman wetlands are starting to grow significant berry invasive now that direct sun in beating down on the forested wetlands.

(City Response: NPDES and the SWMP do not address stream banks and buffers. They are addressed through the city’s critical areas ordinance and Natural Resources capital improvement program.)

Thanks. Bob Yoder, redmond, WA.

2. From: Bob Yoder [mailto:bob.yoder@comcast.net]
Sent: Tuesday, April 22, 2008 7:12 PM
To: Natural Resources
Cc: Dick Schaetzel; Gary D. Smith
Subject: web site feedback on Stormwater Treatment Plan - Budget by Priorities

Hello - This is part 2 for me.

One area of concern I'd like on record is the maintenance of our infrastructure, especially the giant wet vaults on 116th and elsewhere. Many are privately owned and maintained by HOA's. What guarantee do we have these vaults will be adequately maintained? It is my understanding the C.O.R. public works inspectors periodically inspect publically owned infrastructure similar to code compliance procedures. But, are privately maintained vaults and pipes monitored for code compliance? If HOA's are responsible for maintenance does the city give them a list of VAC vendors and a checklist for servicing?

The city should have a code compliance system for private infrastructure just as they do for public. Adequate code compliance for private infrastructure should be a budget priority. Stream water quality will continue to exceed it's present "marginal" rating as measured by "community indicators" unless we monitor vaults – especially before the rainy season.

Thank you for your consideration.

Bob Yoder
10019 169th Ave. NE
Redmond, WA.
425-802-2523
<http://redmondblog.org>

(City response: The city inspects private post construction stormwater facilities including vaults and wet ponds throughout the City to assure that they are functioning properly. The property owners are provided a list of maintenance requirements and licensed vector contractors. Reference Section 4.2.c of the SWMP for more detailed information)