CityofRedmond
WASHINGTON

FEBRUARY 5, 2010

Kevin Fitzpatrick
Water Quality Section Manager
Washington State Department of Ecology
3190 – 160th Ave SE
Bellevue, WA 98008-5452

Subject: City of Redmond Regional Stormwater Facilities Plan
Request for Review and Approval

Dear Mr. Fitzpatrick,

The City of Redmond is pleased to submit to you an update to the City of Redmond Regional Stormwater Facilities Plan. This plan was originally provided to Ecology in October 2006, for which the City received a letter of support from Ecology. We are aware that Ecology's letter did not provide support of the plan with respect to the NPDES Phase II Municipal Stormwater permit requirements S.5.C.4., Controlling Runoff From New Development and Redevelopment, which become effective later this month.

With this letter, the City is seeking approval from Ecology that the application of flow control and runoff treatment minimum requirements, for redevelopment and development, may be achieved through Redmond's Regional Stormwater Facilities Plan.

In the future, the City will seek Ecology's review of Redmond's site specific regional stormwater facilities design reports and civil drawings, if Ecology is interested in that level of participation.

Since the original plan was written, the City has made significant progress executing the plan. Some key achievements include:

- October 2007. Construction of McRedmond Water Quality Facility designed to provide enhanced treatment for 17.03 acres of Redmond. Monitoring under Washington State Emerging Technologies program, using the TAPE protocol, is underway. The City is committed to demonstrating enhanced treatment.
- August 2008. Meeting with Ecology to provide update on progress of the Regional Stormwater Facilities Plan.
- December 2008. Construction of Leary Way Stormwater Treatment Wetland providing enhanced treatment for 17.60 acres of Redmond.
- January 2009. Permits for Redmond Way Stormwater Trunk and Water Quality Facility submitted. Shoreline permit for the outfall was approved by Ecology.
- July 2009. Meeting with Ecology to provide update on progress. Discussion include the nexus of the regional facility plan and the NPDES Phase II permit, and how Redmond would like an approval from Ecology in support of Redmond meeting NPDES Phase II permit requirements for development and redevelopment through regional facilities.
- September 2009. Shoreline permit for Bear Creek Stormwater Treatment Wetland to treat 1.85 acres was approved by Ecology.

- November 2009. Redmond Way Storm Trunk Regional Facility preliminary design report reviewed by Ed Abbassi, who provided feedback on the preliminary report.

The City of Redmond is now seeking Washington State Department of Ecology's review of its stormwater regional facilities plan with respect to the NPDES Phase II Stormwater Permit. We understand that Washington State Department of Ecology does not intend to review stormwater management standards of NPDES Phase II permittees. However, Redmond would like to demonstrate that this innovative and proactive plan will reduce receiving water stormwater impacts and will result in accelerated protection and pollutant loading reductions in our receiving waters. After review, Redmond would like to receive a letter of support from Ecology indicating that the regional facility approach outlined meets or exceeds the protection of receiving waters by applying flow control and runoff treatment minimum requirements on a subbasin scale. Please contact me at (425) 556-2891 or shitch@redmond.gov so that we can work together to find the best course forward in this matter.

Sincerely,

Steve Hitch, PE
Senior Stormwater Engineer

Enclosures: City of Redmond Regional Stormwater Facilities Plan Update, 2/5/2010

City of Redmond
Regional Facilities Plan
February 5, 2010

Redmond's Regional Stormwater Facilities Plan is presented within this document. Specifically, this document describes:

- Goals and objectives of the Plan;
- Regulatory drivers related to the Plan;
- Ongoing communications with Ecology about this Plan;
- Redmond's Plan – administration and implementation and how goals, objectives, and regulatory requirements are met; and
- Request for approval of the Plan and individual regional facilities.

Goals and Objectives

Redmond's goal is to coordinate development of the City's urban centers with stormwater management improvements that provide water quality benefits for receiving waters on an accelerated schedule while taking advantage of economies of scale to reduce capital construction and long term operation and maintenance cost.

To meet this goal, the City has four main objectives:

1. Reduce impacts to receiving water bodies from stormwater.
2. Expedite the loading reduction of stormwater entrained pollutants beyond the development/redevelopment standards established in the NPDES Phase II Municipal Stormwater Permit.
3. Promote development/redevelopment in the City's urban centers to meet the goals and intent of the Washington State Growth Management Act.
4. Protect the City's shallow unconfined drinking water aquifer from potential stormwater related impacts.

These objectives can be met through construction of regional stormwater facilities that address minimum requirements for flow control and runoff treatment in large City owned facilities. Regional facilities will be designed to provide an equivalent or higher level of receiving water protection than would be achieved by applying runoff treatment and flow control at the site scale to development/redevelopment projects.

Regulatory Drivers

Redmond is significantly built-out, particularly within its two urban centers where the City's regional facilities plan is focused. According to the NPDES Phase II Municipal Stormwater Permit, development of a parcel that currently has 35% or more impervious area is redevelopment. Within the downtown urban center, excluding single family and park properties, more than 85% of future development will occur as redevelopment. Within the Overlake urban center, 100% of future development will occur as redevelopment.

Currently, there is little to no flow control or runoff treatment built into the City's existing stormwater infrastructure. Most of the City was built prior to 1996 when Redmond adopted the 1992 Washington Department of Ecology Stormwater Management

Manual for Puget Sound. The majority of Redmond's runoff flows to the Sammamish River, a water body identified as core summer salmonid habitat (WAC 173-201A-600) as well as habitat for salmonid rearing and migration during all seasons. The Sammamish River, and several other receiving water bodies in Redmond, is listed in the Clean Water Act's 303(d) list of impaired waters for temperature, dissolved oxygen, and fecal coliform.

Redmond adopted the 2005 Stormwater Management Manual for Western Washington in 2007. With that adoption, and with receiving coverage under the NPDES Phase II Municipal Stormwater Permit, the City committed to meet ten minimum requirements (2005 Ecology Manual) for development and redevelopment. The City is using two strategies to meet those minimum requirements:

1. Most development and redevelopment projects build stormwater flow control and runoff treatment facilities within their project site. Redmond requires project proponents to meet minimum requirements at thresholds lower than those required by the 2005 Ecology Manual and the NPDES Phase II Municipal Stormwater Permit (example: Redmond regulates sites under one acre and sites that do not discharge to the City's municipal stormwater system).
2. In some areas of the City, regional facilities are being used to meet flow control and runoff treatment minimum requirements. These regional facilities are designed to meet Ecology requirements for such facilities, effectively treating the entire tributary subbasin as the "site" for the facility. In addition to meeting flow control and runoff treatment minimum requirements for individual development and redevelopment projects, these large facilities are retrofitting many high pollution generating land uses that would likely not receive runoff treatment for a long time (such as roads). Individual development/redevelopment projects are still required to meet other minimum requirements for management of stormwater.

Regional Facilities are not defined in detail within the NPDES Phase II Municipal Stormwater permit or the 2005 Ecology manual, so the path to approval of this plan/approach has not been clear.

Table 2 summarizes Ecology's manual guidance and permit requirements and how they are addressed within Redmond's Plan. Citations from the permit and the manual are noted in bold.

Table 2: Permit Requirements, Ecology Manual Guidance, and Redmond's Plan	
Ecology Requirements (Permit) and Guidance (Manual)	**Redmond's Plan:**
". . . 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 shall provide equal protection of receiving waters and equal levels of pollutant control." **(Permit: S5.C.4.a.i)**	. . . is a regional facilities plan.
"Treatment and flow control requirements may be achieved through construction of regional facilities." **(Manual: Vol. I, Page 2-11)**	
New development and redevelopment sites greater than 1 acre must be regulated to control runoff. **(Permit: S5.C.4)**	. . . regulates runoff from sites that create 5,000 SF or more impervious.
For redevelopment projects, Ecology allows for flow control and runoff treatment "requirements to be met for an equivalent (flow and pollution characteristics) area within the same site. For public roads' projects, the equivalent area does not have to be within the project limits, but must drain to the same receiving water." **(Permit: Appendix 1, 3.3)** Ecology allows fee-in lieu programs for redevelopment projects. **(Manual: Vol. I, Page 2-14)**	. . . defines the "site" as the whole tributary subbasin that drains to the regional facility(ies), allowing fee-in-lieu and treatment of equivalent areas within the "site".
For **new development** projects, Ecology requires that regional facilities are operational prior to the new development. **(Manual: Vol. I, Page 2-11)**	. . . allows project sites with less than 35% existing impervious (**new development**) to participate in the regional facilities plan if the City has built a regional project for that site's area.
The City "may exempt . . . **redevelopment** projects from compliance with Minimum Requirements for treatment, flow control, and wetlands protection as applied to the replaced impervious surfaces if [the City] has adopted a plan and a schedule that fulfills those requirements in regional facilities." **(Permit: Appendix 1, Section 3.4)**	. . . allows project sites with more than 35% existing impervious (**redevelopment**) to participate in the regional facilities program if the City has a project included in the six-year CIP list.

Ongoing Communication with Ecology

The City seeks open and transparent communications with Ecology to ensure that the City's program is fully compliant with Ecology requirements. To that end, the following communications have occurred to date:

- October 2006. The City gave notice to the Washington State Department of Ecology of this plan, seeking Ecology approval.
- October 17, 2006. Ecology sent a letter to the City in support of the draft City of Redmond Regional Stormwater Facilities Plan and offered technical assistance in finalizing the plan.
- January 1, 2007. The City adopted its 2007 Clearing, Grading, and Stormwater Management Technical Notebook (adopting the 2005 Ecology Manual). The City's Regional Facilities program is documented within this manual. The manual was forwarded to Ecology.
- March 27, 2008. The City identified to Ecology that the regional facilities plan is underway in the NPDES permit annual report.
- August 26, 2008. The City met with Ecology to present the status of the program and determine the path to approval. It was made clear that the plan is not a variance to Ecology requirements, but simply documents the way the City is meeting Ecology requirements.
- July 20, 2009. The City met with Ecology to further develop a path to approval of the program.
- August 12, 2009. Ecology sent an email to the City outlining some of the required elements in a regional facilities program.
- December 1, 2009. The City's program was summarized in a letter to Ecology documenting how the program meets permit requirements, seeking concurrence with the City's interpretation of the permit requirements.

Redmond's Plan

Development and redevelopment projects that participate in the City's Regional Facilities Plan contribute a fee, in lieu of building site-specific facilities for flow control and runoff treatment. The fee is used toward design, property acquisition, and construction of regional stormwater facilities. The City has responsibility for ensuring that:

- Potential impacts from all new development or redevelopment within the City are addressed in a manner that meets the City's obligations on a subbasin scale, to protect habitat, and sustain / improvewater quality in receiving waters.
- Funds received for regional facilities are used for that purpose.
- Constructed regional facilities have capacity to provide equivalent flow control and runoff treatment for new development or redevelopment projects that contributed a fee.
- Regional facilities are upgraded in the event that standards change and existing facilities do not meet new stormwater management standards.

Development and redevelopment projects are still required to meet other minimum requirements such as managing stormwater on-site and providing source controls, separate from flow control and runoff treatment minimum requirements.

Project Eligibility

Several factors are used by the City to determine if a project is eligible to participate in the regional facilities program. These include:

- Projects may use regional facilities to meet their minimum requirements for flow control or runoff treatment or both.
- Participation in the regional facility program shall not create an unsafe situation.
- The downstream manmade conveyance system shall have adequate capacity to convey flow from the proposed project to the regional facility site without flooding downstream properties.
- For projects that have less than 35% existing impervious area, (a regional project that will meet the stormwater management minimum requirements for flow control and/or runoff treatment for the proposed project improvements has been constructed and has capacity to provide for the project.
- For projects that have 35% or more existing impervious area, (redevelopment)a regional project that will meet the stormwater management minimum requirements for flow control and/or runoff treatment for the proposed project improvements has been constructed and has capacity to provide for the project, or such a regional facility is on the City's six-year Stormwater Capital Improvement Plan.
- Participation in the regional facility program by a specific project is determined by the City, but at a minimum will meet the goals and objectives of the program.

Runoff Treatment and Flow Control

The City's program exceeds minimum requirements for runoff treatment and flow control in three important ways:

1. The Plan provides flow control and runoff treatment for right-of-way, one of the most impervious/pollution generating land uses. These areas are typically slow to be retrofitted.
2. The Plan rapidly retrofits large areas of the City faster than would occur under normal development/redevelopment, resulting in dramatic pollutant load reductions from portions of the City with the highest pollution generating potential; and
3. The Plan provides flow control and treatment for all sites, not just sites that are greater than one acre as is required by the NPDES Phase II Municipal Stormwater permit.

These factors represent huge gains in runoff treatment as compared to permit requirements. As an example of how the Regional Facilities Plan provides these benefits, Figure 1 illustrates the water quality improvements that are realized by the planned retrofitting of the downtown drainage area, all of which contribute to the Sammamish

River. The figure shows areas that are treated by regional facilities (blue line), as compared to areas that would be treated under the traditional site by site approach (magenta line) with an assumed redevelopment/development rate of 5 acres per year. The distance between the blue and magenta lines represents the area that would have runoff treatment compared to conventional application of runoff treatment.

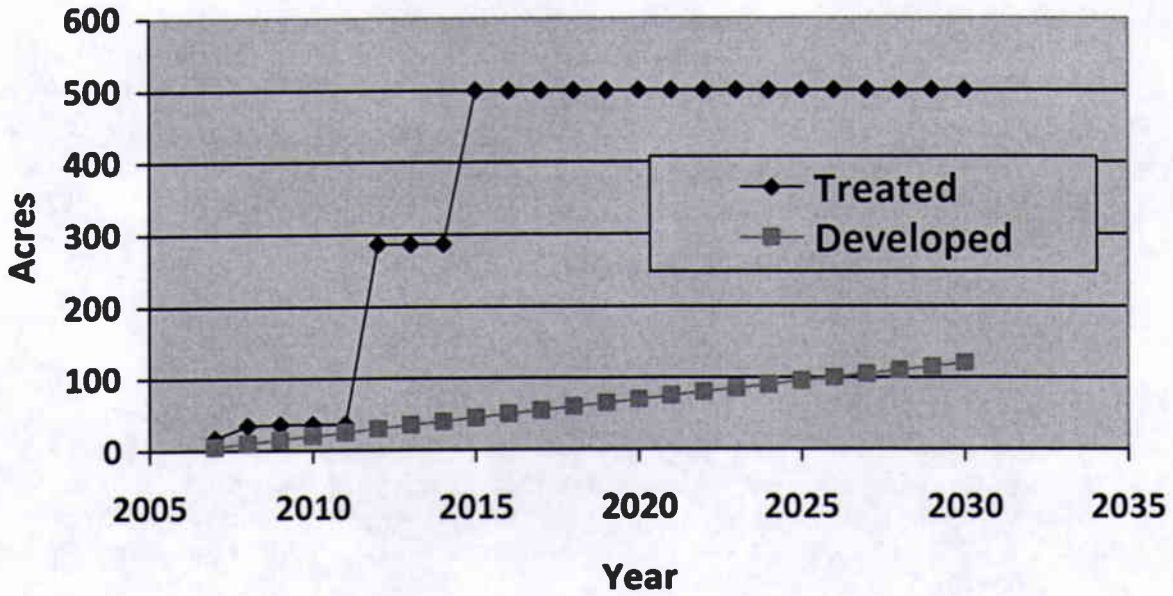

Figure 1: Pollution Curve (Sammamish River)

With the development/redevelopment rate of 5 acres per year in the downtown area, it would take over 100 years for the drainage area to meet what this regional facility plan would achieve by 2012. The treatment capabilities of the regional facilities will include all runoff from the drainage, something unlikely to be achieved in over 100 years.

For the purposes of this program, the City is divided into four planning areas based onreceiving waters: 1) the Sammamish River; 2) Kelsey Creek; 3) Lake Sammamish; and 4) Bear-Evans Creek.

Facilities Status (Sammamish River Watershed):

The City's Plan implementation began in 2007. In 2007 and 2008, there was a total of 11.3 acres of commercial development in the downtown area. The 11.3 acres of development projects met their stormwater treatment obligations by paying a fee-in-lieu of constructing on-site facilities. Under the traditional site by site approach, those 11.3 acres of area would have been developed with treatment that would consist of detention and water quality vaults located within the project sites, providing treatment to only a fraction of the downtown area. Roads near these developments would not typically have been retrofitted. Instead, the City constructed its first two regional

facilities. The newly built regional facilities were designed to provide treatment to 2005 Ecology Manual standards for 34.63 acres, treating all the areas that drain to the new facilities.

The City intends to complete a total of five regional stormwater treatment facilities that discharge into the Sammamish River at four outfalls within 1/4 mile of each other, to retrofit more than 500 acres to current stormwater standards. In relation to these five coordinated facilities, the "site" will be defined as the tributary subbasin that drains to these four outfalls. These facilities are being designed to meet the 2005 Ecology Manual enhanced treatment minimum requirements. No flow control is required, as the Sammamish River is flow exempt. Status of the five current projects:

- The McRedmond Water Quality Facility, providing treatment for 17.03 acres, is a media filter vault being monitored for enhanced treatment performance through the TAPE protocol. The City is committed to adaptively managing that facility until enhanced treatment can be demonstrated. A Technical Engineering Report evaluating performance of the facility is scheduled to be submitted to Ecology in 2010.
- The Leary Stormwater Treatment Wetland, providing treatment for 17.60 acres, is a stormwater treatment wetland designed to provide enhanced treatment using the 2005 Ecology manual's standard requirements for such facilities. Construction was completed in 2008.
- The Bear Creek Stormwater Treatment Wetland, designed to provide treatment for 1.85 acres is a stormwater treatment wetland designed to provide enhanced treatment using the 2005 Ecology manual's standard requirements for such facilities. This project is currently in final design and is scheduled for construction in 2010.
- The Redmond Way Stormwater Facility, a new stormwater trunk and a large end of the pipe treatment system is under design and scheduled for completion by 2012. Preliminary design proposes use of the EcoStorm technology under evaluation at the McRedmond facility. Final design has been delayed, pending evaluation of the McRedmond facility.
- The 85th Street Stormwater Facility will be a large end of the pipe treatment system. Preliminary design is complete, using StormFilter vaults to provide enhanced treatment. Final design has been delayed pending evaluation of the McRedmond facility. This facility is proposed for construction in 2015.

The City is also looking for opportunities to construct regional facilities in other areas that drain to the Sammamish River, for similar benefits.

Facilities Status (Kelsey Creek Watershed)

The City is currently developing a regional facilities plan and conceptual design for approximately 320 acres that contribute runoff to Kelsey Creek. There are no streams in Redmond's portion of this watershed, but Redmond's piped stormwater network discharges into Bellevue's Sears Creek, a tributary of Kelsey Creek.

This plan is being designed to meet enhanced treatment and flow control requirements for the entire Kelsey Creek drainage area inside Redmond, treating this entire area as a "site" and building facilities to meet the site needs. Upon plan completion, in spring 2010, the City plans to proceed with a master plan, property acquisition and construction for the first regional facility in that watershed by 2016.

Facilities Status (Lake Sammamish and Bear-Evans Creek)

The City is currently developing a regional facilities plan and conceptual design for a series of regional detention ponds and runoff treatment facilities that drain to Bear Creek. Construction of the first of these facilities is expected to begin in the summer of 2010. Facilities constructed will provide flow control and runoff treatment for the entire area served by the regional facility constructed.

Ecology Approval

Design of each individual regional stormwater facility follows the guidance within the 2005 Ecology Manual and permit requirements for runoff treatment and flow control. Due to the nature and scale of regional facilities, some projects may require modest adjustments from the guidance within the manual. In all cases, the City seeks consultation from Ecology's Regional Stormwater Engineer.

Design of regional stormwater facilities are documented within an engineering design report that follows the format for preparation of a Stormwater Site Plan (Minimum Requirement #1). Designs consider future conditions based on full-build out and current zoning, and facilities are designed to meet runoff treatment and flow control as would be required if these facilities were part of a traditional development/redevelopment project. Based on the land uses present, most of these facilities will provide enhanced treatment per Ecology standards.

Ecology also has opportunities to comment on these facilities as they go through the SEPA or Shoreline permitting process. The City would welcome Ecology review and involvement in the design of these facilities.

Conclusion

The City's Regional Facilities Plan is an innovative approach for leveraging developer contributions to build large scale retrofit projects to bring a significant reduction in stormwater pollutant loadings. Once completed, stormwater ratepayers will fund maintenance, operation, and modifications. The program has already removed more pollutants than would have been removed under the traditional site-by-site approach, and this effect will be magnified as new facilities are constructed.

The City of Redmond feels this approach far exceeds the required stormwater improvements as prescribed by minimum requirements for flow control and runoff

treatment established in the NPDES Phase II Municipal Stormwater Permit. Redmond would appreciate Ecology's support of this program in perspective of achieving the permit prescribed minimum requirements for flow control and runoff treatment through the application of this program.