#### THE CITY OF SHORELINE

## STORMWATER MANAGEMENT PROGRAM

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# 1. INTRODUCTION AND BACKGROUND

This document presents a description of the City of Shoreline's Stormwater Management Program (SWMP) as of December 2007. This introductory section provides a discussion of the regulatory requirements and community setting, a description of the watersheds and stormwater system under the City's stewardship, and a brief discussion of the pollutants of concern.

# 1.1 **REGULATORY REQUIREMENTS**

Mandated by Congress under the Clean Water Act, the National Pollutant Discharge Elimination System (NPDES) Stormwater Program is a comprehensive two-phased national program for addressing non-agricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. The overall goal of the program is to protect and improve the water quality of water bodies (i.e. streams, rivers, lakes, and wetlands) that receive stormwater runoff. The program uses the NPDES permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies.

The Phase II Municipal Stormwater Permit rule extends the coverage of the NPDES program to certain "small" municipal separate stormwater sewer systems (MS4s). The Federal Environmental Protection Agency (EPA) has delegated permit authority to state environmental agencies. In Washington, the NPDES-delegated permit authority is the Washington State Department of Ecology (Ecology). The EPA's Phase II Municipal Stormwater Permit Rule outlines six minimum control measures to protect water quality (Appendix B). In Washington State, Ecology combined two of the minimum control measures (construction and post-construction components). The Western Washington Phase II Municipal Stormwater permit (Phase II permit) outlines five minimum control measures that qualifying municipalities in Washington State must implement over a five year period.

The Phase II permit covers certain urbanized areas located west of the crest of the Cascade Mountain range. According to the rules, Phase II communities are jurisdictions that:

- Are located within an Urbanized Area boundary as defined by the latest decennial U.S. Census.
- Have a population greater than 1,000 but less than 100,000
- Own and operate a storm drain system
- Discharge to surface waters

The City of Shoreline meets these criteria and qualifies as a Phase II community. In March 2003, the City submitted a Phase II permit application to Ecology to confirm the City's intent to comply and develop and comprehensive stormwater management program. The final Phase II permit was issued by Ecology on January 17, 2007 and went into effect February 16, 2007.

The Phase II permit allows municipalities to discharge stormwater runoff from municipal drainage systems into the State's water bodies as long as municipalities:

- Implement programs to protect water quality by reducing the discharge of "non-point source" pollutants to the "maximum extent practicable" (MEP)
- Meet Ecology's All Known and Reasonable Treatment (AKART) requirements, and protect water quality through application of Permit-specified "Minimum Control Measures."

The practices and programs specified in the Phase II permit to protect and improve the water quality of receiving waters are called Minimum Control Measures (MCMs). A SWMP is a written document that outlines steps the City will take to implement the MCMs and is designed to outline a set of actions and steps that will be taken in the next calendar year to fulfill the objectives of the MCMs. The City is required to develop and implement the SWMP in accordance with the schedules contained in the permit and the SWMP must be fully developed and implemented no later than August 12, 2011; 180 days prior to the expiration date of the current Phase II permit. Where the City is already implementing actions or activities called for in the SWMP, the City will continue those actions or activities regardless of the schedule called for in the SWMP.

The MCMs outlined in the Phase II permit are grouped under the following five components:

- Public Education and Outreach
- Public Involvement and participation
- Illicit Discharge Detection and Elimination
- Controlling Runoff from New Development. Redevelopment, and Construction Sites
- Pollution Prevention and Operation and Maintenance for Municipal Operations

The SWMP outlines the City's programs with respect to these MCMs. The SWMP is a living document and will be updated annually and submitted to Ecology along with the required annual Phase II permit report. The annual report summarizes the previous year's storm water management activities. The City's updated SWMP outlines activities the City is planning to implement in the upcoming year to comply with the required minimum control measures.

The responsibility for the implementation of the SWMP is shared among City departments. The Surface Water & Environmental Services (SWES) of the Public Works Department is primarily responsible for all Phase II permit issues. The SWES Manager has been designated as the Phase II permit primary contact. SWES department works closely with the Public Works Department Roads division and the Planning and Development Services (PADS) department to carry out many of the permit compliance activities

# **1.2 COMMUNITY SETTING**

The City of Shoreline is located in the northwestern corner of King County along the shores of Puget Sound (Figure 1, Appendix A). Shoreline is bounded by the City of Lake Forest Park to the east, the City of Seattle to the south, Puget Sound to the west, and Snohomish County to the north (including the Cities of Mountlake Terrace, Edmonds, and the Town of Woodway). The geographic area of Shoreline covers 11.74 square miles and contains 3.4 miles of Puget Sound shoreline. Puget Sound is the City's only shoreline of "statewide significance," as defined by the Washington State Shoreline Management Act but several lakes and ponds are located within City limits including Echo Lake, Hidden Lake, Ronald Bog and Twin Ponds. Numerous small stream and creeks are found within or adjacent to the City of Shoreline. Figure 2 in Appendix A shows the drainage basins within the City, as well as the major water bodies located within City limits.

Shoreline's development history begins with original non-native settlements dating back to the late 1800s. Most of the development in the City took place in the 1940s and 1950s, prior to the implementation of stormwater mitigation regulations in the 1970s. The City is substantially developed, with only about one percent of the total land area remaining vacant. Shoreline is primarily residential in character and approximately 50 percent of the households are single family homes. Commercial development stretches are located along Aurora Avenue, with other neighborhood centers located at intersections of primary arterials, such as N 175th Street at 15th Avenue NE and N 185th Street at 8th Avenue NW. There is limited industrial development. Development within the City continues to this day primarily in the form of redevelopment and infill. Past urban development has produced a large amount of impervious surface in the form of streets, sidewalks, parking lots, and roofs. When rain falls on these impervious surfaces they cause water to run off quickly into streams and local water bodies instead of naturally being absorbed into the ground or retained by natural wetlands. Surface water runoff picks up soil, chemicals and other pollutants and carries them into lakes, rivers and marine waters. This large amount of impervious surface in the City of Shoreline greatly affects the condition of the City's surface waters.

Shoreline's climate is typical of the mild, mid-latitude coastal climate of the Pacific Northwest, moderated by marine air from the Pacific Ocean. In the summer, temperatures range from the 70s to the 90s during the day and drops to the 60s at night. In the winter, temperatures average in the 40s during the day and 30s at night, with occasional cold spells and temperatures in the low 20s. Precipitation in the study area is influenced by the moist marine air, which is lifted and cooled by the mountains as it moves inland, causing persistent cloudiness and precipitation and resulting in an average of about 40 inches of precipitation annually. Snowstorms occur rarely, often followed by warming temperatures and rain. Most of the rain falls during the wet season, approximately October to May, usually with low intensity but long duration. While prevailing winds are from the southwest, severe storms occasionally blow in from the north.

The predominant soil type in most Shoreline basins is Alderwood gravelly sandy loam. Alderwood soils can drain slowly during heavy rains and cause rainfall to pond or run off in sheet flow. Everett gravelly sandy loam and Everett gravelly loamy sand are found in greater proportions in the Middle Puget Sound Basins (North and South) and in the Lyon Creek basin in the eastern edge of the City. Everett soils infiltrate stormwater much better than Alderwood soils, and thus produce less ponding and runoff during heavy rains. Other soil types found in much smaller proportions in the City are: Norma fine sandy loam, Kitsap silt loam, Indianola fine sandy loam, Coastal beach, Carbondale muck, Rifle peat, Mukilteo peat, and Greenwood peat. The muck and peat soils are hydric soils which frequently support wetlands. Peat soils are predominantly located in Twin Ponds and Ronald Bog parks.

# 1.3 Watersheds and Storm Sewer System

The City of Shoreline study area contains eight separate drainage basins defined by their receiving waters:

- Boeing Creek
- McAleer Creek
- Thornton Creek
- Lyon Creek
- West Lake Washington
- Middle Puget Sound (north and south)
- Seattle Golf Course (not shown on Figure 2)
- Bitter Lake (not shown on Figure 2)

The City is essentially split into two drainage networks. The western portion of the City, including the Boeing Creek and the Middle Puget Sound basins, drain to Puget Sound either directly or through Boeing Creek and other smaller drainage systems. A small drainage basin, the Seattle Golf Course Basin, has no surface water outlet, but infiltrates to the groundwater below. The rest of the City drains to Lake Washington, primarily through McAleer, Thornton, and Lyon Creeks.

Prior to incorporation 1995, the City's drainage facilities were owned and maintained by King County. After incorporation, the City of Shoreline took over ownership and maintenance of the stormwater conveyance system. Drainage facilities in the City consist of a combination of stormwater conveyance pipes, ditches, and stream channels. There are approximately 500,000 linear feet (95 miles) of stormwater pipe, 5,500 catch basins, 180,000 linear feet (34 miles) of ditches and 60 outfalls in the City of Shoreline. The City operates and maintains nine stormwater detention ponds. The stream systems in Shoreline consist of open water courses (including drainage ditches) and piped water courses.

# 1.4 POLLUTANTS OF CONCERN

Urban development can lead to water quality problems resulting from a variety of common development activities. Water quality problems in the vicinity of Shoreline are typical of problems encountered in other urban areas. Surface water in the City generally flows overland, collecting in small roadside ditches and traveling to storm drain inlets, streams, or other waterways, which lead to Puget Sound or Lake Washington. The quantity of runoff from rainfall, erosion of soils and stream channels, and the transport of non-point source pollutants all are factors in the decline of water quality in an urban watershed. Non-point source pollution is pollution that is generated on the land surface over a large area that then washes off into the

storm drainage system during storm events. Examples of non-point source pollutants include chemical contamination from motor vehicles and machinery operation (e.g., oil, grease, hydraulic fluids, and heavy metals), erosion and sediment transport from disturbed soils (sediment and nutrient loading), and nutrient and biological pollution from domestic pets (e.g., phosphorus and fecal coliform bacteria).

# 2.0 MINIMUM CONTROL MEASURES AND BEST MANAGEMENT PRACTICES.

The Phase II permit outlines five MCMs the City must implement in order to comply with the permit. This section outlines the best management practices (BMPs) the City is implementing to reach those measurable goals.

## 2.1 MCM 1 - Public Education and Outreach

The City shall design a public education and outreach program that includes an educational program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the City. The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts and shall be designed to achieve measurable improvements in the target audience's understanding of the problem and what they can do to solve it. No later then February 16, 2009 the City shall provide an education and outreach program for the area served by the MS4.

BMP 1(a)	Permit Section: S5.C.1.a
Permit Requirements	The City shall develop an education and outreach program. The outreach program shall 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 shall be prioritized to target the following audiences and subject areas: general public, businesses, homeowners, landscapers, property managers, engineers, contractors, developers, review staff and land use planners.
Milestones and Current Activities	The City participates in the Stormwater Outreach for Regional Municipalities (STORM) Forum. The aim of the STORM forum is to develop a regional public education campaign aimed at educating the public about stormwater concerns. The specific goals of the STORM forum are to create a several year outreach plan that municipalities can all plug into, roll out a major regional advertising campaign and create a system by which to measure and support our work. The City participated in two meetings in 2007 and became a member of the steering committee. The City currently posts a NPDES Phase II and environmental/stormwater

BMP 1(a)	Permit Section: S5.C.1.a
	educational website with basic information aimed at educating residents about stormwater in general and about the new Phase II NPDES Permit coverage for the City of Shoreline. There is an electronic form available on the website that residents can use to contact the surface water management office with questions, issues and concerns.
	The City provides environmental educational materials including targeted education of businesses, schools and community groups through flyers, brochures, site visits, and coordination with other agencies.
	The City hosts an annual Natural Yard Care Event to educate home owners and landscape professionals about techniques to maintain the landscape without chemical application. Through collaboration with a local supermarket, the City provides education materials and product samples that promote natural yard care practices.
	The City participates in the community's Earth Day Stewardship Event. At the annual Earth Day Stewardship Event, the City educates residents on the value of protecting habitat and water quality and distributes Integrated Pest Management brochures.
	The City involves citizen organizations and residents in the City's storm drain stenciling program. The goal of the program is to label storm water systems that drain to natural water bodies and to foster stewardship within the general public for the City's watercourses.
	Through the City's Clean and Green car wash program, the City assisted organizations that hold car wash fundraisers to keep wastewater from polluting natural water bodies. The City has developed a brochure that describes the program and encourages clean water quality practices. The City acquired clean car wash kits for use by organizations conducting car wash fund raising events.
	The City has posted information on the construction site NPDES on the City's stormwater website for contractors and developers.
	In 2007 the City launched a Neighborhood Environmental Stewardship (NEST) Program. The City held two neighborhood NEST meetings to identify neighborhood environmental concerns (including stormwater impacts and water quality), develop a comprehensive neighborhood plan to address these issues and implement that plan.
	The City has developed a Business Waste Reduction and Recycling Outreach & Assistance Program in accordance with the King County Final

BMP 1(a)	Permit Section: S5.C.1.a
	2000 Comprehensive Solid Waste Management Plan. The plan states that "The cities and County will continue to provide educational programs and technical assistance to promote waste reduction and recycling to businesses, residents, and schools" (p. 4-29); "Incentiveswill be incorporated where appropriate" (p. 4-30).
Measurable Goals	The City will continue to participate in the STORM forum as well as targeted steering committees.
	The City is working with consultants to redevelop the City website (format). The SWM office will work with these consultants to develop a new website aimed at educating residents about stormwater in general and about the new Phase II NPDES Permit coverage for the City of Shoreline. This website will provide residents with access to information they can use to minimize stormwater impacts in around their home and in their community. This website will also feature the completed SWMP for review and comment and the NPDES Report.
	The City will continue to provide environmental educational materials, including targeted education of businesses, schools and community groups, through flyers, brochures, site visits, and coordination with other agencies. The City plans to develop an educational brochure regarding stormwater and the new Phase II NPDES program. These flyers are scheduled to be mailed out to all shoreline residents in January 2008. The City will also make these brochures available on the City's website, at the City Clerks office and the PADS front desk.
	City staff will continue existing education programs including Natural Yard Care Education, participate the in the annual Earth Day event and host two recycling events per year. The recycling program assists residents with recycling used motor oil, antifreeze and batteries, and provides information on proper disposal of other hazardous materials.
	The City will continue to assist residents and organizations in stenciling storm drains and continue to maintain a map and GIS database of storm drains stenciled.
	The City will continue to encourage organizations that hold car wash fundraisers to prevent water pollution by: (1) providing equipment to collect the soapy water and pump it to a sanitary system or lawn, and (2) by encouraging alternative fund raising methods, such as selling coupons to commercial car wash operations that discharge to a sanitary system.

BMP 1(a)	Permit Section: S5.C.1.a
	The City will continue to supply information to and foster compliance among contractors and developers regarding the construction NPDES Permit.
	The City will continue the NEST program in 2008 and develop and implement a comprehensive neighborhood plan for two additional neighborhoods.
	The City is planning to launch a small reoccurring article in the City's newsletter to residents, Currents, in 2008. The article content will vary with each publication but will focus on issues associated with the environment and urban runoff.
	The City will continue to work with business to improve their Waste Reduction and Recycling Practices.

<b>BMP 1(b):</b>	Permit Section: S5.C.1.b
Permit Requirements	The City shall measure the understanding and adoption of the targeted behaviors among targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of targeted behaviors.
Milestones and Current Activities	In 2005, the City of Shoreline, in conjunction with the Cities of Bellevue and Redmond, conducted a Residential Surface Water Quality Attitudes Survey to serve as a baseline for future studies.
Measurable Goals	The City (in partnership with the cities of Redmond, Kirkland and Bellevue) has hired a consultant to conduct at least 3 focus groups in each city, as well as one regional interactive polling session, in 2008. The City will use the results of the Focus Groups to develop targeted educational outreach and marketing programs to inform and motivate the residents and businesses in the region to protect water quality. The City participates in the Stormwater Outreach for Regional Municipalities (STORM) Forum. One of the goals of this forum is to develop a regional public education campaign aimed at educating the public about stormwater concerns. Measuring targeted behaviors is one of the tasks that are required by the Ecology grant and this task will be addressed as the grant-funded programs are developed

<b>BMP 1(b):</b>	Permit Section: S5.C.1.b

<b>BMP 1(c):</b>	Permit Section: S5.C.1.c
Permit Requirements	The City shall track and maintain records of public education and outreach activities.
Milestones and Current Activities	The City does not currently have a formal tracking program in place to track public education and outreach activities.
Measurable Goals	The City will work to develop a formal tracking system by the permit deadline.

# 2.2 MCM 2 - Public Involvement/Participation

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

<b>BMP 2(a):</b>	Permit Section: S5.C.2.a
Permit Requirements	No later than February 16, 2008 the City shall create opportunities for the public to participate in the decision making process involving the development, implementation and update of the City's entire SWMP. The City shall develop and implement a process for consideration of public comments on their SWMP.
Milestones and Current Activities	The public produced extensive comments on the City's Surface Water Master Plan in 2004-2005. The public can give input each year to the capital improvement plan and budget that details programs outlined in the current SWMP. The City developed a Surface Water Master Plan for the City with

	extensive public involvement in 2004-2005. The City developed a 2008 Stormwater Management Plan.
Measurable	The City plans to mail a brochure to current residents in January 2008 describing the NPDES program and asking for input to the SWMP.
Goals	The City will create additional opportunities for the public to participate in the decision-making process involving the development, implementation and update of the SWMP for 2009.

<b>BMP 2(b):</b>	Permit Section: S5.C.2.b
Permit Requirements	The City shall post the SWMP and annual report submitted to Ecology on the City website.
Milestones and Current Activities	The City currently posts a NPDES Phase II and environmental/stormwater educational website with basic information aimed at educating residents about stormwater in general and about the new Phase II NPDES Permit coverage for the City of Shoreline.
Measurable Goals	After the SWMP and annual report are submitted to Ecology at the end of March 2008 they will become available to the public on the City's website.

# 2.3 MCM 3 - Illicit Discharge Detection and Elimination (IDDE)

The City's SWMP shall include an ongoing program to detect and remove illicit connections, discharges, improper disposal, including any spills not under the purview of another responding authority, into the municipal separate storm sewers owned or operated the by the permittee. The City shall fully implement an ongoing illicit discharge detection and elimination program no later than August 12, 2011.

<b>BMP 3(a):</b>	Permit Section: S5.C.3.a
Permit Requirements	The City shall develop a municipal storm sewer map for the City storm water drain system no later than February 16, 2011. Municipal storm

<b>BMP 3(a):</b>	Permit Section: S5.C.3.a
	sewer maps shall include the location of all known MS4 outfalls with a 24-inch nominal diameter or larger and geographic areas served by the City's MS4 that do not discharge stormwater into surface waters. This map shall be periodically updated and be made available to Ecology upon request.
Milestones and Current Activities	The City has completed mapping and inventorying of approximately 90 percent of the City's constructed storm drain system within the right-of-way. The data is amended to the City's GIS data-base. This map includes some of the City's outfalls but none of the information required by the permit has been recorded for these outfalls. Hard copies of the GIS map are available to Ecology and the general public through public disclosure requests.
Measurable Goals	The City will continue to complete the existing stormwater drainage system map within the right-of-way. The City will update and maintain this map as new projects are completed and new pipe networks are
	<ul><li>The City will work to develop and program to map outfalls owned and operated by the City.</li></ul>
	The City will initiate a program to track, develop and maintain a map of all connections to the MS4 authorized or allowed by the permittee after February 16, 2007.
	The City intends to explore the possibility of making this map available to the public on the City's website.

<b>BMP 3(b):</b>	Permit Section: S5.C.3.b
Permit	
Requirements	The City shall develop and implement an ordinance or other regulatory mechanism to effectively prohibit non-stormwater, illegal discharges, and/or dumping into the City's MS4 to the maximum extent allowable under State and Federal law. The ordinance or other regulatory mechanism shall be adopted no later than August 16, 2009.
Milestones and	
Current	Shoreline Development Code, Section 20.60.120, Water Quality, states;
Activities	"It is unlawful for any person to discharge any contaminants into

<b>BMP 3(b):</b>	Permit Section: S5.C.3.b
	surface water, stormwater, ground water, or Puget Sound Any connection that could convey anything not composed entirely of natural surface water and stormwater directly to surface, storm, or ground water is considered an illicit connection and is prohibited" (Ordinance 238, 2000)."
	Additionally, Ordinance No. 238, adopts <i>Urban Land Use BMPs</i> , <i>Volume IV</i> of the 1992 <i>Stormwater Management Manual for the Puget</i> <i>Sound Basin</i> (DOE SWMM), and future amendments by reference as the Source Control BMP Manual for the City of Shoreline. Ordinance No. 238 is continuously enforced under City Development Code, Subchapter 9 of Title 20, Enforcement.
Measurable Goals	The City will work to update the City's surface water codes in 2008. The new ordinance prohibiting non-permitted uses of the storm drain system will be updated to include all of the new Phase II NPDES requirements.

<b>BMP 3(c):</b>	Permit Section: S5.C.3.c
Permit Requirements	The City shall develop and implement an ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping into the City's MS4. The program shall be fully implemented no later than July 20, 2011.
Milestones and Current Activities	The City does not currently have a formal program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping into the City's MS4. The current program relies on resident and City employee reports of spills and illicit connections. City staff investigates the report and enforces cleanup or mitigation as necessary. In 2007, the City drafted an update to the City's Emergency Spill Response Plan.
Measurable Goals	The City will work to develop a more structured and comprehensive tracking and enforcement system, as outlined in the Phase II Permit. The program will include 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

<b>BMP 3(c):</b>	Permit Section: S5.C.3.c
	public education efforts.
	The City will work to develop procedures for locating priority areas likely to have illicit discharges.
	The City will work to develop a plan for field assessment activities. This plan will include procedures for the visual inspection of priority outfalls, characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the permittee and the development of procedures for tracing the source of and removing an illicit discharge.
	The City will work to finalize and approve the updates to the City's Emergency Spill Response Plan.

<b>BMP 3(d):</b>	Permit Section: S5.C.3.d
Permit Requirements	The City shall inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste. The City shall distribute appropriate information to target audiences identified pursuant to S5.C.1. No later than February 16, 2009, the City shall publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges (and keep track of calls).
Milestones and Current Activities	The phone number for the City's Customer Response Team (CRT) is publicized on the City's website. Residents are directed to contact CRT number to report illegal discharges or spills. In addition, an electronic report form is available on the City's website to report concerns. The City also relies on City field staff to report any spills or potential illicit connections or discharges. The City currently tracks the incoming calls regarding illicit connections, illicit discharges and spills. This information is recorded in the City's Hansen tracking database.
Measurable Goals	The City plans to develop an educational brochure regarding stormwater and the new Phase II NPDES program. These flyers are scheduled to be mailed out to all shoreline residents in January 2008. The public reporting hotline number will be advertised on the NPDES stormwater brochure.

<b>BMP 3(d):</b>	Permit Section: S5.C.3.d
	The City will consider other avenues for publicizing the City's spill and illicit connection/discharge reporting hotline (general CRT number).
	The City intends to periodically publish the public reporting hotline information in the City's Currents publication.
	The City will evaluate the program designed to track customer calls and reports of illicit connections, illegal discharges and spills to identify any areas that might need improvement.

<b>BMP 3(e):</b>	Permit Section: S5.C.3.e
Permit Requirements	No later then August 12, 2011, permittees shall 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 shall be included in the City's annual report.
Milestones and Current Activities	The City does not currently have a formal IDDE program.
Measurable Goals	The City will work to develop an IDDE program, according to the components outlined in the Phase II Permit, by the permit deadline. This program will include 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.

<b>BMP 3(f.i) :</b>	Permit Section: S5.C.3.f.i
Permit	
Requirements	The City will provide appropriate training for municipal field staff on the identification and reporting of illicit discharges. The City shall ensure that all municipal field staff that are responsible for identification, investigation, termination, cleanup and reporting of illicit discharges, including spills, improper disposal and illicit connections are trained to conduct these activities. This program shall be in place no
	later than August 17, 2010.

<b>BMP 3(f.i) :</b>	Permit Section: S5.C.3.f.i
	Follow-up training shall be provided as needed to address changes in procedures, techniques or requirements. The City shall document and maintain records of the training provided and the staff trained.
Milestones and Current Activities	The City has one full time Water Quality Specialist responsible for investigation of illicit discharges. The City's Water Quality Specialist completed two EPA IDDE on-line training modules: IDDE 101, Developing your IDDE Program, and IDDE 201, conducting IDDE investigations.
Measurable Goals	Training will be expanded and updated as needed.

BMP 3(f.ii):	Permit Section: S5.C.3.f.ii
Permit	
Requirements	<ul> <li>The City will provide appropriate training for municipal field staff on the identification and reporting of illicit discharges. An ongoing training program shall 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 shall be trained on the identification of an illicit discharge/connection, and on the proper procedures for reporting and responding to the illicit discharge/connection. This program shall be in place no later than February 16, 2010.</li> <li>Follow-up training shall be provided as needed to address changes in procedures, techniques or requirements. The City shall document and maintain records of the training provided and the staff trained.</li> </ul>
Milestones and Current Activities	In 2007, the City trained 14 City employees in spill identification, reporting and containment procedures.
Measurable Goals	The City will assess staff positions to identify for which positions training is necessary. The City will work to develop an ongoing training program for municipal staff that are responsible for identification, investigation,

BMP 3(f.ii):	Permit Section: S5.C.3.f.ii
	termination, cleanup and reporting of illicit discharges, including spills, improper disposal and illicit connections are trained to conduct these activities. Staff training will be updated as needed.

# 2.4 MCM 4 - Controlling Runoff from New Development, Redevelopment and Construction Sites.

The City shall 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. The program shall 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 shall apply to private and public development, including roads. The "Technical Thresholds" in Appendix 1 shall 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.

<b>BMP 4(a):</b>	Permit Section: S5.C.4.a
Permit Requirements	The program shall include an ordinance or other enforceable mechanism that addresses runoff from new development, redevelopment and construction site projects. Pursuant to S5.A.2, 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 S5.C.4, shall be retained. The ordinance or other enforceable mechanism shall be in place no later August 16, 2010.
Milestones and Current Activities	The City adopted Ordinance No. 238, Development Code Title 20. This code describes requirements for new development to (A) reduce flooding, erosion, and sedimentation; (B) prevent and mitigate habitat loss; and (C) enhance groundwater recharge; and (D) prevent surface and subsurface water pollution through the implementation of comprehensive and thorough permit review and construction inspection. By Ordinance No. 238, the City adopted Urban Land Use BMPs, Volume IV of the 1992 Stormwater Management Manual for the Puget Sound Basin (DOE SWMM), and future amendments by reference as the Source Control BMP Manual for the City of Shoreline.

<b>BMP 4(a):</b>	Permit Section: S5.C.4.a
	The City's Development Code updated in June 2000, defines development standards addressing pollutant and runoff control from construction activities.
Measurable Goals	The City is in the process of updating the City's surface water codes. The new ordinance prohibiting non-permitted uses of the storm drain system will be updated to include all of the new Phase II NPDES requirements. The City plans to adopt a revised 2005 King County Storm Water Design Manual, when it is deemed equivalent by Ecology to the 2005 Ecology Stormwater Management Manual for Western Washington (Ecology Manual), as part of the update to the City's Surface Water Management Code in 2008.

<b>BMP 4(b):</b>	Permit Section: S5.C.4.b
Permit Requirements	The program shall include a permitting process with plan review, inspection and enforcement capability to meet the standards listed in (i) through (iv) in the Phase II permit, for both private and public projects, using qualified personnel. At a minimum, this program shall 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 development or sale. The process shall be in place no later than August 16, 2010.
Milestones and Current Activities	<ul><li>The City reviews all stormwater site plans for all new projects to ensure that stormwater control measures are adequate and consistent with local requirements.</li><li>The City inspects, prior to clearing and construction, all known development sites that have a high potential for sediment transport as determined through plan review.</li><li>The City inspects 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. This is enforced as necessary based on inspection.</li></ul>

<b>BMP 4(b):</b>	Permit Section: S5.C.4.b
	Enforcement procedures are in place. The City has one full time Code Enforcement Officer to investigate erosion control violations and enforce the code.
Measurable Goals	The City inspects, prior to clearing and construction, all known development sites that have a high potential for sediment transport as determined through plan review. The City will work to ensure that those inspections are based on definitions and requirements in Appendix 7 of the Phase II permit Identifying construction Site Sediment Transport Potential.
	The City will work to develop a program to inspect all known permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Erosion control will be enforced as necessary based on inspection.
	The City plans to adopt a revised 2005 King County Storm Water Design Manual, when Ecology deems it equivalent to the 2005 Ecology Manual, as part of the update to the City's Surface Water Management Code in 2008.
	The City will work to develop a more thorough tracking and enforcement procedure for construction site erosion control measures.

<b>BMP 4(c):</b>	Permit Section: S5.C.4.c
Permit Requirements	The program shall 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 $S5 C 4$ h above. The provisions shall include an ordinance that clearly
	identifies the party responsible for maintenance and requires inspections of facilities and establish maintenance standards. These provisions shall be in place no later than August 16, 2010.
Milestones and	
Current	The City currently has codes in place to require a two-year maintenance
Activities	bond for newly constructed facilities. After the maintenance bond expires the City determines who will assume responsibility and maintenance responsibilities. If the property owner maintains responsibility, the ordinance allows access for City staff to inspect the facilities or compliance with maintenance standards. (King County Title

<b>BMP 4(c):</b>	Permit Section: S5.C.4.c
	9 identifies responsible parties for stormwater facilities and allows for inspection by City staff.)
	<ul> <li>The City currently relies on the King County 1998 Storm Water Design Manual for stormwater requirements. This manual outlines specific maintenance standards for stormwater facilities. The City plans to adopt a revised 2005 King County Storm Water Design Manual, when Ecology deems it equivalent to the 2005 Ecology Manual. When the new manual is adopted, the new maintenance standards will be used.</li> <li>Procedures are in place to enforce the operation and maintenance of stormwater facilities.</li> </ul>
Measurable Goals	The City will work to develop a procedure for inspection of all new flow control and water quality treatment facilities, including catch basins, for new residential developments that are 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 of maintenance standards as needed.

<b>BMP 4(d):</b>	Permit Section: S5.C.4.d
Permit Requirements	The program shall 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 shall be maintained. The City shall 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.
Milestones and Current Activities	A procedure is in place for keeping records of inspections, maintenance and enforcement on all commercial, regional and residential facility inspections. 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

<b>BMP 4(d):</b>	Permit Section: S5.C.4.d
Measurable Goals	The City will continue to maintain and update these records.

<b>BMP 4(e):</b>	Permit Section: S5.C.4.e
Permit Requirements	This program shall 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. The City will continue to enforce local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology.
Milestones and Current Activities	Information about the construction stormwater general permit is available on the City's website. The City created a focus sheet aimed at contractors and developers. This focus sheet explains when a construction stormwater general permit is required and how to obtain one. Local ordinances controlling runoff from sites that are also covered by stormwater permits issued by Ecology are enforced.
Measurable Goals	The City will continue these current programs.

<b>BMP 4(f):</b>	Permit Section: S5.C.4.f
Permit	
Requirements	No later than August 16, 2009, the City shall 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 shall be provided as needed to address changes on procedures, techniques or staffing. The City shall document and maintain records of the training provided and the staff trained.
Milestones and	
Current	Currently, one person in the Surface Water and Environmental Services
Activities	department and two people in the Planning and Development

<b>BMP 4(f):</b>	Permit Section: S5.C.4.f
	department have been trained and are Ecology Certified Erosion Control and Sediment Leads.
Measurable	
Goals	One additional employee in the SWM office will receive Ecology's Certified Erosion Control and Sediment Lead training in 2008.
	The City will work to ensure 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 by the permit deadline.
	The City will develop a program to document and maintain records of the training provided and the staff trained.

# 2.5 MCM 5 - Pollution Prevention and Operations and Maintenance for Municipal Operations

The City shall develop and implement and operations and maintenance program that includes a training component and has the ultimate goal for preventing or reducing pollutant runoff from municipal operations. The City shall have this plan developed no later then February 15, 2010.

<b>BMP 5(a):</b>	Permit Section: S5.C.5.a
Permit Requirements	The City shall 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 Manual for Western Washington. For the facilities that do not have maintenance standards, the City shall develop a maintenance standard.
Milestones and Current Activities	The City currently relies on the the King County 1998 Storm Water Design Manual for this program. This manual outlines specific maintenance standards for stormwater facilities. The City participates in the Regional Roads ESA Forum. The Regional Roads ESA Forum promotes pollution prevention and good housekeeping for municipal operations. Section 2(b) of the ESA states that the purpose of the ESA is to provide a means whereby the

<b>BMP 5(a):</b>	Permit Section: S5.C.5.a
	ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of such listed species. Habitat degradation in both freshwater and estuarine/near- shore marine environments has been identified as a major factor of decline for ESAs. When properly modified and implemented, road maintenance practices can contribute to the conservation of listed species and the ecosystems upon which they depend by protecting or restoring habitat.
Measurable Goals	The City will continue to participate in the Regional Roads ESA Forum. The City plans to adopt a revised 2005 King County Storm Water Design Manual, when Ecology deems it equivalent to the 2005 Ecology Manual, as part of the update to the City's Surface Water Management Code in 2008. When the manual is adopted, the updated maintenance standards will be applied.

<b>BMP 5(b):</b>	Permit Section: S5.C.5.b
Permit Requirements	The City shall conduct annual inspections of all <b>municipally owned or</b> <b>operated</b> permanent stormwater treatment and flow control facilities, <b>other than catch basins</b> , and taking appropriate maintenance actions in accordance with the adopted maintenance standards. The annual inspection requirement may be reduced based on inspection records.
Milestones and Current Activities	The City currently inspects all <b>municipally owned or operated</b> permanent stormwater treatment and flow control facilities, other than catch basins, annually. During inspection, conditions are compared to the maintenance standards in the 1998 King County Surface Water Design Manual. Maintenance of facilities is performed as needed.
Measurable Goals	The City will continue the annual inspection of municipally owned and operated stormwater facilities. The City plans to adopt the revised 2005 King County Surface Water Design manual, when it is deemed equivalent by Ecology, as part of the update to the City's surface water management code in 2008. When the manual is adopted, the new maintenance standards outlined in the manual will be used during inspections.

<b>BMP 5(b):</b>	Permit Section: S5.C.5.b

<b>BMP 5(c):</b>	Permit Section: S5.C.5.c
Permit Requirements	The City shall conduct 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 make appropriate maintenance action in accordance with maintenance standards established above, based on the results of inspections.
Milestones and Current Activities	After a major storm, potentially damaged permanent treatment and flow control facilities (other than catch basins) are inspected to check for damage and proper functioning. If needed, maintenance is performed to restore the facility. City dams, and other major stormwater facilities, are inspected after major storms.
Measurable Goals	The City will continue the inspection program.

<b>BMP 5(d):</b>	Permit Section: S5.C.5.d
Permit Requirements	The City shall inspect <b>all catch basins</b> and inlets <b>owned or operated</b> by the City at least once before February 15, 2012. The City shall 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 shall be disposed of in accordance with Appendix 6 of the Phase II permit Street Waste Disposal.
Milestones and Current Activities	City-owned and operated catch basins are cleaned on a circuit basis. Approximately one-third of the catch basins are inspected cleaned in any given year.

<b>BMP 5(d):</b>	Permit Section: S5.C.5.d
Measurable Goals	The City will continue the maintenance program. All catch basins owned or operated by the City will be inspected at least once by the permit deadline. The City plans to explore options to make the inspection and cleaning process more efficient.

<b>BMP 5(e):</b>	Permit Section: S5.C.5.e
Permit Requirements	Compliance with the inspection requirements in a, b, c and d above shall be determined by the presence of an established inspection program designed to inspect all sites and achieving inspection of 95% of all sites.
Milestones and Current Activities	An established inspection program exists to inspect all sites annually.
Measurable Goals	The City will continue the inspection program.

<b>BMP 5(f):</b>	Permit Section: S5.C.5.f
Permit Requirements	The City shall establish and implement 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.
Milestones and	
Current	The City participates in the Regional Roads ESA forum. The Regional
Activities	Roads ESA Forum promotes pollution prevention and good housekeeping for municipal operations, including the maintenance of streets and stormwater infrastructure. Section 2(b) of the ESA states that the purpose of the ESA is to provide a means whereby the ecosystems upon which endangered and threatened species depend may be conserved, and to provide a program for the conservation of such listed species. Habitat degradation in both freshwater and estuarine/near-shore marine environments has been identified as a major factor of decline for ESAs. When properly modified and implemented, road maintenance practices can contribute to the conservation of listed species and the ecosystems upon which they depend by protecting or restoring habitat.

<b>BMP 5(f):</b>	Permit Section: S5.C.5.f
	The City complies with all maintenance guidelines set forth by the Regional Roads ESA Forum:
	• National Marine Fisheries Service ESA 4(d) rule for endangered species of salmon.
	• City Manager's letter to NMFS committing the City to implementing the program
	<ul> <li>Completed training for essential maintenance crew, and supervisory and environmental staff. A Regional Forum and the University of Washington developed the training curriculum, with input from the NMFS.</li> </ul>
	In 2007, the City purchased a street sweeper so The City would not have to rely on a contractor to perform the work and would be able to more accurately track the amount of sediment and trash removed from City streets.
Measurable	
Goals	The City will continue to participate in the Regional Roads ESA Forum and continue to implement the Program's guidelines.
	The City will continue routine street sweeping program. The City will work to develop a comprehensive tracking and reporting system.

<b>BMP 5(g):</b>	Permit Section: S5.C.5.g
Permit Requirements	The City shall establish and implement policies and procedures to reduce pollutants in discharges from all lands <b>owned or maintained the</b> <b>City</b> 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. The policies and procedures shall address, but are not limited to, the application of fertilizers, pesticides and herbicides, sediment and erosion control, landscape maintenance and vegetation disposal, trash management and building exterior cleaning and maintenance.
Milestones and Current Activities	The City participates in the Regional Roads ESA forum. The Regional Roads ESA Forum promotes pollution prevention and good housekeeping for municipal operations, including the maintenance of streets and parking lots and road right-of-way.

<b>BMP 5(g):</b>	Permit Section: S5.C.5.g
	A program is currently in place for inspection and maintenance of municipally owned and operated stormwater treatment and flow control facilities.
	In February 2000, the Shoreline City Council adopted the Shoreline Park Maintenance Standards Manual. The Park Maintenance Standards Manual includes the Tri-County Integrated Pest and Vegetation Management Model Policy. The City's policy encourages mechanical and manual means of controlling weeds where possible, thereby reducing the need for herbicides.
Measurable Goals	The City will continue these current programs and activities. The City will work to establish and implement policies and procedures to reduce pollutants in discharges from all lands owned or maintained the City.

<b>BMP 5(h):</b>	Permit Section: S5.C.5.h
Permit Requirements	The City shall develop and implement an ongoing training program for employees of the City whose construction, operations or maintenance job functions may be impacted by stormwater quality. The training program shall 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 shall be provided as needed to address changes in procedures, techniques or requirements. The City shall document and maintain records of trainings provided.
Milestones and Current Activities	The City does not currently have an on-going formal training program in place. In 2007, the City trained 14 City employees in spill identification, reporting and containment procedures.

<b>BMP 5(h):</b>	Permit Section: S5.C.5.h
Measurable	The City will work to develop and ongoing training program for
Goals	employees whose job functions may be impacted by stormwater quality.

<b>BMP 5(i):</b>	Permit Section: S5.C.5.i
Permit	
Requirements	The City shall develop and implement 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 shall begin immediately after the pollution prevention plan is developed. A schedule for implementation of structural BMPs shall be included in the SWPPP. Generic SWPPPs that can be applied at multiple sites may be used to comply with this requirement. The SWPPP shall include periodic visual observation of discharges from the facility to evaluate the effectiveness of the BMP.
Milestones and Current Activities	The City operates one Public Works and Parks Maintenance Facility, Hamlin Yard on 15 <sup>th</sup> Ave, NE. No SWPPP has been developed for this site.
Measurable Goals	The City will develop and SWPPP for Hamlin Yard by the permit deadline.

<b>BMP 5(j):</b>	Permit Section: S5.C.5.j
Permit Requirements	Records of inspection and maintenance or repair activities conducted by the City shall me maintained in accordance with S9 Reporting Requirements (kept for at least 5 years).
Milestones and Current Activities	Regional and residential facility (owned or operated by City) and commercial (private) inspection records have been retained since the facility was added to the inspection program.

<b>BMP 5(j):</b>	Permit Section: S5.C.5.j
Measurable Goals	The City will continue to maintain these records according to the permit requirements.

# **III. SWMP PERFORMANCE AND EFFECTIVENESS EVALUATION**

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. Beginning no later than January 1, 2009, the City will begin to track the cost (or estimated cost) of development and implementation of each component of the SWMP.

# 3.1 BMP Performance Evaluation

An annual review will be conducted amongst the departments, evaluating progress and providing feedback on each BMPs success. The staff review will address the following criteria:

- Effectiveness: Is the BMP set up appropriately for City staff? Is there a better way of tracking/reporting? Is there a more appropriate staff person to handle part or all of the responsibilities associated with the BMP?

- Cost Analysis: A rough cost-benefit analysis for each BMP scrutinized by staff, the public, or a regulatory agency will be encouraged so that determinations may be made as to what, if any, changes should be made.

- Implementation: Is the BMP implementation schedule adequate/appropriate or will the schedule need to be modified? Based upon visual inspection, what benefits are observed?

- Pollution Removal: Is the BMP effective in improving storm water quality?

- Regulatory compliance: Is the BMP compatible with environmental regulation?

# 3.2 Annual Monitoring and Reporting

Annual planning will be performed in the following manner:

- Reports for tracking various BMPs will be generated, collected, and provided to the MCM Task Manager.

- Each BMP will be assessed against the SWMP measurable goals for perceived effectiveness, actual effectiveness, and financial impact.

- The MCM Task Manager and department staff will hold meetings to coordinate and identify where certain BMPs should be modified, and why.

Annual reporting to Ecology is required to:

- Identify the BMP's actual time versus SWMP implementation time goal.

- Provide a revised implementation schedule based upon the previous year's SWMP development and the projected year's progress.

- Describe the implemented BMPs and the criteria used to measure progress.

- Provide a list of BMPs that should be amended or incorporated in the revised SWMP.

The MCM Task Manager will be responsible for any and all interactions and reporting with Ecology.

# **IV. Funding**

## SWM fee:

King County's program and the fee began in 1987, as a requirement of the Federal Clean Water Act. Stormwater service fees are the primary funding source for the City's surface water management activities. Some maintenance tasks, such as street sweeping and shoulder reconstruction, are partially funded from the City's Street Fund because street sweeping serves both street maintenance and drainage system maintenance functions.

# Grants:

The City received a grant from the Department of Ecology during 2007 in the amount of \$75,000. This grant was awarded to assist municipalities with the implementation of the NPDES program.

**Appendix A - Figures** 

## Appendix B

Minimum Control Measure Requirements (The six Minimum Control Measures as outlined in the EPA's Phase II Municipal Stormwater Permit Rule) (source: 40 CFR 122.34(b))

#### 1. Public Education & Outreach on Stormwater Impacts

#### **Minimum Requirements** – 40 CFR 122.34(b)(1)(i)

You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff.

#### **Regulatory Guidance** – 40 CFR 122.34(b)(1)(ii)

You may use stormwater educational materials provided by your state; tribe; EPA; environmental, public interest, or trade organizations; or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce stormwater pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil and household hazardous wastes. EPA recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities, as well as activities that are coordinated by youth service and conservation corps or other citizen groups. EPA recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling and watershed and beach cleanups. In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant stormwater impacts. For example, providing information to restaurants on the impact of grease clogging storm drains, and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

## 2. Public Involvement/Participation

#### **Minimum Requirements** – 40 CFR 122.34(b)(2)(i)

You must, at a minimum, comply with state, tribal, and local public notice requirements when implementing a public involvement/participation program.

#### **Regulatory Guidance** – 40 CFR 122.34(b)(2)(ii)

EPA recommends that the public be included in developing, implementing, and reviewing your stormwater management program, and that the public participation process should make efforts to reach out and engage all economic and ethnic groups. Opportunities for members of the public

to participate in program development and implementation include serving as citizen representatives on a local stormwater management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

## 3. Illicit Discharge Detection & Elimination

#### **Minimum Requirements** – 40 CFR 122.34(b)(3)(i)

You must develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at *Sec.* 122.26(b)(2)) into your small MS4.

#### (ii) You must:

- (A) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
- (B) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-stormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions;
- (C) Develop and implement a plan to detect and address non-stormwater discharges, including illegal dumping, to your system; and
- (D) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

(iii) You need address the following categories of non-stormwater discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at *40 CFR 35.2005(20)*), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-stormwater and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

## **Regulatory Guidance** – 40 CFR 122.34(b)(3)(iv)

EPA recommends that the plan to detect and address illicit discharges include the following four components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; procedures for removing the source of the discharge; and procedures for program evaluation and assessment. EPA recommends visually screening outfalls during dry weather and conducting field tests of selected pollutants as part of the procedures for locating priority areas. Illicit discharge education actions may include storm drain stenciling; a program to promote, publicize, and facilitate public reporting of illicit connections or discharges; and distribution of outreach materials.

## 4. Construction Site Stormwater Runoff Control

## **Minimum Requirements** – 40 CFR 122.34(b)(4)(i)

You must develop, implement, and enforce a program to reduce pollutants in any stormwater runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the NPDES permitting authority waives requirements for stormwater discharges associated with small construction activity in accordance with *Sec.* 122.26(b)(15)(i), you are not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

Your program must include the development and implementation of, at a minimum:

- (A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;
- (B) Requirements for construction site operators to implement appropriate erosion and sediment control (ESC) best management practices;
- (C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
- (D)Procedures for site plan review which incorporate consideration of potential water quality impacts;
- (E) Procedures for receipt and consideration of information submitted by the public, and
- (F) Procedures for site inspection and enforcement of control measures.

# **Regulatory Guidance** – 40 CFR 122.34(b)(4)(iii)

Examples of sanctions to ensure compliance include non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance. EPA recommends that procedures for site plan review include the review of individual pre-construction site plans to ensure consistency with local (ESC) requirements. Procedures for site inspections and enforcement of control measures could include steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving water quality. You are encouraged to provide appropriate educational and training measures for construction sites within your jurisdiction that discharge into your system. See Sec. 122.44(s) (NPDES permitting authorities' option to incorporate qualifying State, Tribal and local erosion and sediment control programs into NPDES permits for stormwater discharges from construction sites). Also see Sec. 122.35(b) (The NPDES permitting authority may recognize that another government entity, including the permitting authority, may be responsible for implementing one or more of the minimum measures on your behalf).

## 5. Post-Construction Stormwater Management in New Development & Redevelopment

## **Minimum Requirements** – *40 CFR 122.34(b)(5)(i)*

You must develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

## (ii) You must:

- (A) Develop and implement strategies which include a combination of structural and/or nonstructural best management practices (BMPs) appropriate for your community;
- (B) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law;
- (C) Ensure adequate long-term operation and maintenance of BMPs.

# **Regulatory Guidance** – 40 CFR 122.34(b)(5)(iii)

If water quality impacts are considered from the beginning stages of a project, new development and potentially redevelopment provide more opportunities for water quality protection. EPA recommends that the BMPs chosen: be appropriate for the local community; minimize water quality impacts; and attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, EPA encourages you to participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders including interested citizens.

When developing a program that is consistent with this measure's intent, EPA recommends that you adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or nonstructural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address stormwater runoff quality. In addition to assessing these existing documents and programs, you should provide opportunities to the public to participate in the development of the program. Non-structural BMPs are preventative actions that involve management and source controls such as: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure; education programs for developers and the public about project designs that minimize water quality impacts; and measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches. EPA recommends that you ensure the appropriate implementation of the structural BMPs by considering some or all of the following: preconstruction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with design, construction or operation and maintenance. Stormwater technologies are constantly being improved, and EPA recommends that your requirements be responsive to these changes, developments or improvements in control technologies.

#### 6. Pollution Prevention/Good Housekeeping for Municipal Operations

#### **Minimum Requirements** – 40 CFR 122.34(b)(6)(i)

You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your state, Tribe, or other organizations, your program must include employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

#### **Regulatory Guidance** – 40 CFR 122.34(b)(6)(ii)

EPA recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and nonstructural stormwater controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all stormwater management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.