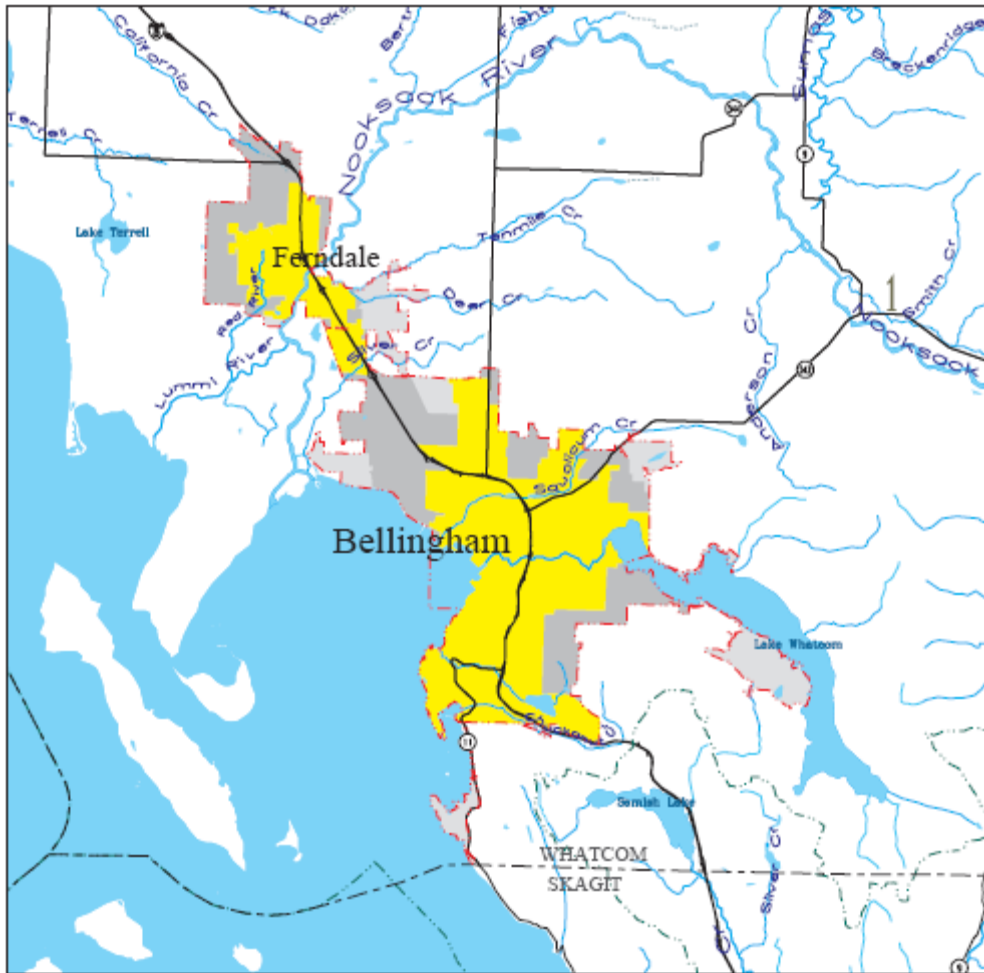


# Whatcom County NPDES Phase II Stormwater Management Program



**2010  
Compliance Program**

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## Objectives & Requirements of this NPDES Phase II Stormwater Management Program

This document serves as a management plan for the Municipal Separate Storm Sewer System (MS4) in unincorporated Urban Growth Areas (UGA), and census defined Urban Areas (UA), of Whatcom County. The required management program should address the existing conditions and anticipated growth under the adopted Whatcom County comprehensive plan. This NPDES Phase II Stormwater Management Program will provide guidance to County planners and community members to comply with the requirements of the National Pollution Discharge Elimination System (NPDES) Phase II Permit and help mitigate the impacts of previous and current activities such as development while at the same time planning for future growth in the currently designated areas and for compliant growth in the entire county.

The plan is divided into two parts. Part one deals with a description of the areas defined for regulation under the permit. Part two, deals with the critical components of the permit itself.

### Introduction & Background

Whatcom County is located in the northwest corner of the State of Washington. Whatcom County has numerous valuable aquatic natural resources that supply drinking water, economic, and recreational opportunities for the citizens of Whatcom County. Protecting the County's drinking water supplies, preserving and restoring the aquatic habitat for threatened and endangered aquatic life, as well as protecting public infrastructure and private property are the primary factors behind the creation and implementation of this NPDES Phase II Stormwater Management Program. This NPDES Phase II Stormwater Management Program currently applies to the areas of Whatcom County that are currently designated as Urban Growth Areas (UGA) or Urbanized Areas (UA), a designation that is defined as an area with a population of more than 1,000 people.

### Part One Description of Regulated Areas

This section of the NPDES Phase II Stormwater Management Program presents information on Whatcom County's NPDES Phase II area stormwater watershed characteristics, and current conditions. Throughout the unincorporated areas of Whatcom County timber harvesting has taken place over the last 150 years. The subsequent development has resulted in land clearing and road construction, and steadily increasing demands on the County's water resources. Many of these activities affect the hydrology and water quality of the receiving water bodies and their up-gradient water sources. The watersheds that are subject to the NPDES Phase II Permit and their drainage sub-basins are described below.

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## **Watershed Description & Characteristics**

### **Chuckanut Bay** <sup>(ref 1&2)</sup>

The Chuckanut Bay NPDES Phase II sub-area is primarily an ecologically sensitive coastal area that extends from the southern border of the City of Bellingham to the northern border of Skagit County, with Larrabee State Park to the east. The Chuckanut mountains are best known to geologists as the type locality for the Chuckanut Formation. Its land use is almost exclusively residential and recreational with only a few small businesses and restaurants catering to the visitors to the area. The estimated annual rainfall is 50 to 60 inches annually.

The Chuckanut area serves as important recreational resource areas for local residents within Whatcom and Skagit Counties. Further, the Chuckanut area serves as a region-wide recreational resource, attracting visitors to the Bellingham/Whatcom County area. However, there is very limited public access. The primary reason for limited access is the increasing desirability for individuals to live where these amenities exist.

As stated above the Chuckanut Formation-derived soils, create conditions conducive to landslides and their associated hazards, along with the steep slopes in the area, the use infiltration techniques to deal with runoff issues will be inhibited.

### **Chuckanut/Padden Watershed** <sup>(ref 2)</sup>

The portion of the NPDES Phase II area in the Chuckanut Watershed includes the approximately 4,700-acre Chuckanut Creek Drainage Basin, which includes numerous small drainages emanating from Galbraith Mountain to the northeast and from Chuckanut Mountain to the south. This drainage is steeply sloped, mostly forested and drains to Chuckanut Bay. The Chuckanut Creek Drainage Basin drains the land area generally lying between the Lake Whatcom watershed, the Lake Padden cliffs above Interstate 5, and the ridge of Chuckanut Crest Drive. This drainage includes Chuckanut Creek, as well as four unnamed streams that flow into Chuckanut Creek. This drainage is steeply sloped and mostly forested.

Forestry is the primary land use in this area. Secondary uses include residential, commercial and park space. This basin is also used for recreation, fishing, shellfish harvest, scenery and fish and wildlife habitat.

### **Lake Whatcom** <sup>(ref 1)</sup>

Lake Whatcom is a natural lake located within and directly southeast of the City of Bellingham in Whatcom County, Washington. It serves as a recreational water body and as a drinking water source for the majority of Whatcom County residents. A number of homes in the watershed also draw water directly from Lake Whatcom. The northwestern corner of the lake lies within Bellingham city limits and the city's urban growth boundary.

The approximately 5,000-acre lake has three distinct parts, or basins, due to the natural underwater topography of the lake bed. Basins 1 and 2 are relatively small and shallow with an average depth of approximately 30 feet. Basin 3 is at the southeastern end of

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the lake and, with an average depth of 150 feet, is relatively deep; it contains over 90 percent of the lake's total volume. The lake's average water surface elevation is approximately 314 feet above mean sea level.

The mountainous Lake Whatcom watershed is approximately 31,000 acres and is divided into 23 drainage sub basins. Thirty-six creeks discharge into Lake Whatcom, 11 of which are considered major. The Middle Fork diversion of the Nooksack River provides supplemental water to Lake Whatcom. Lake Whatcom water drains to Bellingham Bay through Whatcom Creek.

Average precipitation is 40 to 45 inches per year in the northern portion of the Lake Whatcom watershed. In the southern and eastern portions of the watershed, which are at a greater elevation within the higher Cascade foothills, average precipitation is 50 to 60 inches per year. Most of this precipitation falls between October and April.

Lake Whatcom was formed as the pressure of glaciers was released and the ice melted at the end of the last ice age 18,000 years ago. Over the last 18,000 years, the area has slowly risen, relieving the compression that occurred due to glacial ice.

The same processes that formed the Cascade Mountains also formed the mostly mountainous terrain surrounding Lake Whatcom. Lake Whatcom watershed topography, combined with the Chuckanut Formation-derived soils, create conditions conducive to landslides and their associated hazards. Soils in the watershed contain volcanic ash, colluvium, and slope alluvium. Alluvium is material deposited relatively recently, with little or no material modification or horizon development. Colluvium is defined as unconsolidated material deposited at the bases of slopes by mass movement and local runoff. This unconsolidated and recently deposited material is subjected to erosion and deposition. Local soils are only moderately permeable in the upper horizons and decrease in permeability in the lower horizons. These conditions affect the feasibility and effectiveness of infiltration as a stormwater management method.

### **Hillsdale/Emerald Lake**

This NPDES Phase II UGA/UA is located to the northeast of the City of Bellingham and Lake Whatcom. It is very similar in hydrological and geological characteristics to that of the Lake Whatcom watershed.

It is a largely forested area that has a primarily residential land use. A large portion of the Emerald Lake watershed is served by public water but not public sewer and the residences rely on On-Site Septic Systems (OSS). There are many seasonal creeks and drainage pathways in the Hillsdale, Brownsville and Academy areas that drain to the head waters of Silver Beach Creek.

### **North Bellingham/King Mountain <sup>(ref 3)</sup>**

The majority of this area was annexed in 2009 by the City of Bellingham. This Urban Growth Area lies directly to the north of the City of Bellingham and is surrounded by the city to the south, the east, and to the west. The area is primarily residential but is surrounded a mixture of residential, commercial, and light industrial land uses inside the city limits.

This NPDES Phase II designated area is located within the Squalicum Watershed which drains a total of 15,800 acres, of which approximately 4,700 acres are in the northern

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part of the affected permit area, including Baker Creek, Spring Creek, McCormick Creek, Toad Creek, Upper Squalicum Creek, Squalicum Creek and additional unnamed streams. The Spring Creek basin drains approximately 3,000 acres in the central part of the Urban Fringe Subarea and the Guide Meridian corridor in the City of Bellingham, generally north of the Bellis Fair Mall.

In some places, recent sediments overlie the bedrock and glacial deposits. These include alluvial deposits and peat. Alluvial deposits, composed of fine textured silt and sand are generally found in Floodplains. Peat consists of decomposing organic matter (usually vegetation), which has accumulated in former streambeds, lakes, or ponds.

### **Northwest Bellingham/Airport** <sup>(ref 3)</sup>

The area to the Northwest of Bellingham is location of the outlet of the Nooksack River into the Puget Sound. The area has a mixture of land uses ranging from agriculture, residential, light industrial, commercial, and contains the Bellingham International Airport. The Airport is probably the most significant contributor to potential stormwater contamination in this area regulated under the NPDES Phase II permit. The average annual rainfall at the Bellingham International Airport is approximately 35 inches per year.

Coal deposits underlie a large portion of the area between Bellingham Bay and Interstate 5 and from the Bellingham city limits north as far as Slater Road. Over 1,300 acres of the area's coal reserves were mined between 1918 and 1955 using the room and pillar underground mining method. Abandoned underground mine areas present a land subsidence hazard and are considered geologically hazardous areas under the Whatcom County Critical Areas Ordinance (CAO).

Overlying the bedrock in most lowland areas are glacially derived surface deposits of varying thicknesses that were deposited by continental ice sheets. The thickness and stratification of these deposits vary greatly due to the changing conditions associated with the periodic advance and retreat of glaciers over the area. They include marine terrace deposits, glaciomarine drift and glacial outwash deposits.

Marine terrace deposits are composed of silt, clay and sand. These deposits lie adjacent to the alluvial deposits of the Nooksack River floodplain in the western portion of the planning area.

Glaciomarine drift deposits, consisting of unsorted and un-stratified pebbly and sandy silty clay, overlie most of the planning area with the exception of localized areas containing the other geologic units described in this section.

The Nooksack Floodplain portion of the area, tends to have high quality fluvial soils and generally has access to water, although there may not be existing water rights for all parcels.

### **Silver Creek & Barrett Lake Watershed UA** <sup>(ref 2)</sup>

The Urbanized Area to the northwest of Bellingham and to the southeast of Ferndale. The Silver Creek Watershed is approximately 1,700 acres southeast of Ferndale. Land uses in this drainage include the North Bellingham Golf Course, and low-density rural and agricultural uses. In the area between I-5 and Northwest Drive, rural residential land uses are interspersed with commercial and industrial development. This drainage also provides fish and wildlife habitat, recreation and livestock water supply.

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The Barrett Lake Watershed approximately 26,300 acres. Deer Creek, Ten Mile Creek, Four Mile Creek and several unnamed streams are in this watershed. The Deer Creek Drainage Basin is approximately 4,300 acres. The Tenmile Creek is approximately 11,800 acres. There are scattered small wetlands in this area. The primary land use in the Barrett Lake Watershed is agriculture, residential land uses are scattered throughout this watershed, which is also used for domestic and agricultural water supply and fish and wildlife habitat.

### **Ferndale East and West UGA**

The Urban Growth Areas surrounding the City of Ferndale are currently under appeal for inclusion under the Whatcom County NPDES Phase II Permit. These areas contain a mix of agricultural, residential, commercial, and light industrial land uses.

The area to the north of the city contains the headwaters of California Creek. The area to the south of the city contains small segments of the Red River and the Nooksack River. The area is primarily residential but contains a mixture of agricultural, residential, commercial, and light industrial land uses.

## **Part Two <sup>(ref 4)</sup>**

### **Critical Components**

#### **Section (1): Public Education and Outreach**

Per Section S5.C.1.a –c:

##### **Education**

Many stormwater issues are caused by the everyday actions of people that live in or visit the affected watersheds. While difficult, changing behavior patterns is a cost-effective programmatic solution to surface water problems. Imperative to these education programs is establishing public knowledge, of the link between human activities upon the health of a watershed. The Whatcom County NPDES Phase II SWMP includes education programs aimed at:

- Residents
- Businesses and industries
- Elected officials, and policy makers
- Planning staff and other employees of the County

The goal of the education program is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. An education program may be developed locally or regionally.

The County will continue to create and provide education and outreach programs for the area served by the MS4. The outreach program is 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 are prioritized to target the following audiences and subject areas:

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1) For the General Public:

- General impacts of stormwater flows into surface waters.
- Impacts from impervious surfaces.
- Source control BMPs and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping and buffers.

2) General public, businesses, including home-based and mobile businesses:

- BMPs for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials.
- Impacts of illicit discharges and how to report them.

3) Homeowners, landscapers and property managers:

- Yard care techniques protective of water quality.
- BMPs for use and storage of pesticides and fertilizers.
- BMPs for carpet cleaning and auto repair and maintenance.
- Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
- Stormwater pond maintenance.

4) Engineers, contractors, developers, review staff and land use planners:

- Technical standards for stormwater site and erosion control plans.
- Low Impact Development techniques, including site design, pervious paving, retention of forests and mature trees.
- Stormwater treatment and flow control BMPs.

The County will measure the understanding and adoption of the targeted behaviors among the targeted audiences. The resulting measurements will be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.

The County will track and maintain records of public education and outreach activities.

In 2009 Whatcom County accomplished the following :

- Residents
  - i) Whatcom County, the City of Bellingham, WSU Cooperative Extension and the Sudden Valley Community Association re-established the Lake Whatcom Education Team and developed a new suite of outreach programs and efforts.
  - ii) Began a preliminary outreach effort to the Sudden Valley Community Association and the Geneva Neighborhood Association about the need to create a stable funding mechanism to combat stormwater related runoff problems.
  - iii) Conducted public presentations with the Geneva Neighborhood Association and residents within the Silver Beach Creek Watershed, regarding NPDES Phase II and Lake Whatcom TMDL issues. Met with several Home Owner Association Board members to provide technical assistance with regard to their stormwater treatment facilities. Meet with neighborhood and homeowner associations to expand their understanding of the Phase II permit requirements.

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- Businesses and industries
    - i) Conducted a presentation for local Engineering firms the Building Industry Association of Whatcom County regarding NPDES Phase II Permit requirements and the 2005 Stormwater Management Manual for Western Washington. Begin an education program for engineers and developers.
    - ii) Conducted two brief conversations at monthly meetings of the Whatcom County Utility Coordinating Council.
  
  - Elected officials, and policy makers
    - i) Made two presentations to the Whatcom County Council (February and June Surface Water Work Sessions) regarding the need to create a funding mechanism to provide a stable funding source for stormwater management. Educate policy makers of the need for a stable funding source for NPDES Phase II and TMDL compliance
    - ii) Continue to make presentations on the expanding requirements of the permit.
  
  - Planning staff and other employees of the County
    - i) Conducted a complete Phase II Permit training session for Planning and Development Services and Public Works Engineering services in May.
    - ii) Conducted a specific IDD&E training session for Maintenance and Operations Staff in June.

In 2010 Whatcom County plans to work with the targeted groups in the following ways:

- Residents
  - i) Continue working with and expanding efforts of the Lake Whatcom Education Team
  - ii) Meet with neighborhood and homeowner associations to expand their understanding of the Phase II permit requirements.
  - iii) Begin an outreach program to the entire NPDES Phase II regulated area in educating residents about the need to create a stable funding mechanism to meet permit requirements.
  
- Businesses and industries
  - i) Continue an education program for engineers and developers.
  - ii) Conduct trainings with utilities and other targeted businesses to raise awareness of potential areas of concern.
  
- Elected officials, and policy makers
  - i) Educate policy makers of the need for a stable funding source for NPDES Phase II and TMDL compliance.
  - ii) Continue to make presentations on the expanding requirements of the permit.
  
- Planning staff and other employees of the County
  - i) Continue to make presentations on the expanding requirements of the permit.
  - ii) Educate County staff on the Lake Whatcom TMDL.

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## Section (2): Public Involvement and Participation

Per Section S5.C.2.a. & b.

Citizens from Whatcom County communities are encouraged to participate in the development of this NPDES Phase II Stormwater Management Program and individual watershed plan development. In order to most accurately assess watershed conditions and problems, and to address local needs and expectations, Whatcom County has established a website [http://www.co.whatcom.wa.us/publicworks/pdf/water/npdes\\_phase2.pdf](http://www.co.whatcom.wa.us/publicworks/pdf/water/npdes_phase2.pdf). The website is used for the dissemination of pertinent information regarding public workshops and hearings regarding the affected watersheds, to allow for the most direct involvement and communication to the local communities. Public workshops will be held throughout the course of the development of the program. The County will continue its collection and retention of information received from participants at these forums and will incorporate them when and where appropriate.

### Public Involvement

Public involvement promotes awareness of and fosters a sense of responsibility for the health of the affected watersheds. The Whatcom County NPDES Phase II SWMP includes ongoing opportunities for public involvement through advisory councils, watershed committees, participation in developing rate-structures, stewardship programs, environmental activities or other similar activities. The County will comply with applicable State and local public notice requirements when developing their SWMP. The minimum performance measures are:

- County staff conducted several meetings involving the Phase II permit and the potential creation of a stormwater utility in 2009. Continuing opportunities for the public to participate in the decision-making processes involving the development, implementation and update of the County's NPDES Phase II SWMP will be provided throughout the permit cycle. The County has implemented a process for consideration of public comments. Please submit comments to the following: [canderso@co.whatcom.wa.us](mailto:canderso@co.whatcom.wa.us) or [waterresources@co.whatcom.wa.us](mailto:waterresources@co.whatcom.wa.us).
- The County makes our NPDES Phase II SWMP, our annual report, and all other submittals required by section S9.A of this Permit available to the public. The annual report, and SWMP that was submitted with the latest annual report, will be posted on the County's website.

## Section (3): Illicit Discharge Detection and Elimination

Per section S5.C.3.a.-f.

### Illicit Discharge Detection and Elimination

Illicit discharge detection and elimination is an NPDES Phase II Permit requirement. The permit requires the County to have an ongoing program to detect, remove, and prevent illicit connections, discharges, and improper disposal, including spills, into the stormwater system. The permit requires full implementation of an Illicit Discharge, Detection and Elimination Program.

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### **Baseline Drainage System Inventory**

In accordance with (section S5.C.3.a) the County completed a map of the MS4 in the affected areas. The County will keep the inventory up to date as part of the NPDES Phase II Stormwater Management Program. Developers are required to submit mapping information detailing new construction as it occurs, and Whatcom County PDS plans to integrate this information into the GIS and database within the specified time period.

### **Ordinances for IDD&E**

In accordance with (section S5.C.3.b) , Whatcom County developed an ordinance to prohibit non-stormwater or other illegal or illicit discharges to the County's MS4. The ordinance does not prohibit the following categories of non-stormwater discharges:

- Diverted stream flows.
- Rising ground waters.
- Uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)).
- Uncontaminated pumped ground water.
- Foundation drains.
- Air conditioning condensation.
- Irrigation water from agricultural sources that is commingled with urban stormwater.
- Springs.
- Water from crawl space pumps.
- Footing drains.
- Flows from riparian habitats and wetlands.
- Non-stormwater discharges covered by another NPDES permit.
- Discharges from emergency fire fighting activities in accordance with S2 Authorized Discharges.

The ordinance does prohibit the following categories of non-stormwater discharges unless the stated conditions are met:

- Discharges from potable water sources, including water line flushing, hyper chlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges will be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4.
- Discharges from lawn watering and other irrigation runoff need to be minimized through; at a minimum, public education activities (see section S5.C.1) and water conservation efforts.
- De-chlorinated swimming pool and spa discharges. The discharges need to be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted and re-oxygenized if necessary, volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4. Swimming pool cleaning wastewater and filter backwash shall not be discharged to the MS4.
- Street and sidewalk wash water, water used to control dust, and routine external building wash down that does not use detergents. The County intends to reduce these discharges through, at a minimum, public education activities (see section S5.C.1.) and/or water conservation efforts. To avoid washing pollutants into the MS4, contractors must minimize the amount of street wash and dust control water

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used. At active construction sites, street sweeping must be performed prior to washing the street.

- Other non-stormwater discharges. The discharges will be in compliance with the requirements of the stormwater pollution prevention plan reviewed by the County, which addresses control of construction site de-watering discharges.

Whatcom County will further address any category of discharges than those listed above if the discharges are identified as significant sources of pollutants to waters of the State.

The ordinance has escalating enforcement procedures and actions including the following:

- An enforcement strategy to implement the provisions of the ordinance.
- An ongoing program to detect and address non-stormwater discharges, spills, illicit connections and illegal dumping into the County's MS4.

The County will have the program fully implemented by 2/16/2011.

Procedures for locating priority areas include:

- Land uses and associated business/industrial activities present
- Areas where complaints have been registered in the past
- Areas with storage of large quantities of materials that could result in spills.

Field assessment activities, including visual inspection of priority outfalls identified above, during dry weather and for the purposes of verifying outfall locations, identifying previously unknown outfalls, and detecting illicit discharges.

The County will by 2/16/2010 visually prioritize receiving waters. County staff will conduct field assessments of three high priority water bodies by 2/16/2011, continuing with field assessments on at least one additional high priority water body each year thereafter.

Screening for illicit connections will be conducted using the "Illicit Discharge Detection and Elimination, A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection, October 2004".

The County intends to develop procedures for characterizing the nature of, and potential public or environmental threat posed by, any illicit discharges found by or reported to the County. Procedures will include detailed instructions for evaluating whether the discharge must be immediately contained and steps to be taken for containment of the discharge. Compliance with this provision will be achieved by investigating (or referring to the appropriate agency) within 7 days, on average, any complaints, reports or monitoring information that indicate a potential illicit discharge, spill, or illegal dumping. Immediately investigating (or referring) problems and violations determined to be emergencies or otherwise judged to be urgent or severe.

Procedures for tracing the source of an illicit discharge include:

- Visual inspections
- When necessary opening manholes
- Using mobile cameras
- Collecting and analyzing water samples

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- Other site specific inspection procedures

Procedures for removing the source of the discharge include:

- Notification of appropriate authorities
- Notification of the property owner
- Technical assistance for eliminating the discharge
- Follow-up inspections
- Escalating enforcement and legal actions, if the discharge is not eliminated.

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

In accordance with (section S5.C.3.d) the County will inform public employees, businesses, and the general public, of hazards associated with illegal discharges and improper disposal of waste, and do the following:

- No later than 2/16/2011, distribute appropriate information to target audiences identified pursuant to S5.C.1.
- No later 2/16/2010, the County will publicly list and publicize a hotline or other local telephone number for public reporting of spills and other illicit discharges.
- Keep records of calls received and follow-up actions taken in accordance with S5.C.3.c.ii.-v.
- Include a summary in the annual report (in accordance with section S9 Reporting and Recordkeeping Requirements).

The County will develop and implement procedures for program evaluation and assessment, including:

- Tracking the number and type of spills or illicit discharges identified.
- Inspections made.
- Feedback received from public education efforts.
- Include a summary in the annual report (in accordance with section S9 Reporting and Recordkeeping Requirements).

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

In 2009, the County initiated program that ensured all municipal field staff responsible for identification, investigation, termination, cleanup, and reporting illicit discharges, including spills, improper disposal and illicit connections were trained to conduct these activities. Follow-up training will be provided as needed to address changes in procedures, techniques or requirements. The County will document and maintain records of the training provided and the staff trained.

No later than February 16, 2010 an ongoing training program will be developed and implemented for all municipal field staff, which, as part of their normal job responsibilities, might come into contact with or otherwise observe an illicit discharge or

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illicit connection to the storm sewer system will be trained on the identification of an illicit discharge/connection, and on the proper procedures for reporting and responding to the illicit discharge/connection. Follow-up training will be provided as needed to address changes in procedures, techniques or requirements. The County will document and maintain records of the training provided and the staff trained.

In 2009 Whatcom County accomplished the following:

- Established a hotline for reporting Illicit Discharges.
- Adopted an IDD&E Ordinance.
- Trained Maintenance and Operations staff in detecting, reporting, terminating and cleaning up illicit discharges.
- Worked with the Whatcom County Health Department on their source control program.

In 2010 Whatcom County will:

- Continue training program with Planning and Development Services Department and the Maintenance and Operations Division.
- Conduct outreach and education efforts to local utilities and fire districts to educate them of the potential of Illicit Discharges from their operations.

#### **Section (4): Controlling Runoff from New Development, Redevelopment and Construction Sites**

Per section S5.C.4.a.-f.

Whatcom County will develop, implement, and enforce a program to reduce pollutants in stormwater runoff to regulated small MS4's from new development, redevelopment, and construction site activities. This program will be applicable to all sites that disturb a land area 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale. The program will apply to private and public development, including roads. The "Technical Thresholds" in accordance with Appendix 1 will be applied to all sites 1 acre or greater, including projects less than one acre that are part of a larger common plan of the development or sale.

The minimum performance measures are:

The program will include an ordinance that addresses runoff from new development, redevelopment, and construction site projects. In accordance with section S5.A.2., in adopting this ordinance, existing local requirements to apply stormwater controls at smaller sites, or at lower thresholds than required pursuant to S5.C.4., will be retained.

**Note:** *In the Lake Whatcom Watershed, Whatcom County already has land clearing restrictions more stringent than those required in the permit. Land clearing is defined in the Whatcom County Code (WCC) as any destruction (by any method) of vegetation that results in exposed soils. The County has established thresholds for requiring County review and permitting for the entire Lake Whatcom watershed, as it is designated a Water Resource Special Management Area. Chapter 2 of the Whatcom County development standards has additional requirements for the Lake Whatcom Watershed. Clearing activities must comply with specific phasing, soil stabilization, tree canopy retention, and seasonal restrictions (WCC 20.80). Seasonal land clearing restrictions minimize potential for erosion. Clearing activities greater than 500 square feet are prohibited between September 1 and April 30, with limited exceptions for emergencies and maintenance of erosion and sediment control structures (WCC 20.80.735).*

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In January of 2010 the Whatcom County Council adopted changes to meet the following requirements of the permit:

- The Minimum Requirements, technical thresholds, and definitions in Appendix 1 or an equivalent approved by Ecology under the NPDES Phase I Municipal Stormwater Permit, for new development, redevelopment, and construction sites. Adjustment and variance criteria equivalent to those in Appendix 1 shall be included. More stringent requirements may be used, and/or certain requirements may be tailored to local circumstances through the use of basin plans or other similar water quality and quantity planning efforts. Such local requirements shall provide equal protection of receiving waters and equal levels of pollutant control to those provided in Appendix 1.
- A site planning process and BMP selection and design criteria that, when used to implement the minimum requirements in Appendix 1 (or equivalent approved by Ecology under the Phase I Permit) will protect water quality, reduce the discharge of pollutants to the maximum extent practicable and satisfy the State requirement under Chapter 90.48 RCW to apply all known, available and reasonable methods of prevention, control and treatment (AKART) prior to discharge. The County plans to document how the criteria and requirements will protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy State AKART requirements.
- The County may choose to use the site planning process and BMP selection and design criteria in the 2005 *Stormwater Management Manual for Western Washington*, or an equivalent manual approved by the Department under the Phase I Permit, and may cite this as their documentation to meet this requirement.
- The legal authority, through the approval process for new development, to inspect private stormwater facilities that discharge to the County's MS4.
- Provisions to allow non-structural preventive actions and source reduction approaches such as Low Impact Development Techniques (LID), measures to minimize the creation of impervious surfaces and measures to minimize the disturbance of native soils and vegetation. Provisions for LID should take into account site conditions, access and long term maintenance.
- The County may choose to allow construction sites to apply the "Erosivity Waiver" in Appendix 1, Minimum Requirement #2. The ordinance will include appropriate, escalating enforcement sanctions for construction sites that provide notice to the County of their intention to apply the waiver but do not meet the requirements, (including timeframe restrictions, limits on activities that result in non-stormwater discharges, and implementation of appropriate BMPs to prevent violations of water quality standards) to qualify for the waiver.

The program will include a permitting process with plan review, inspection and enforcement capability to meet the standards listed in (i) through (iv) below, for both private and public projects, using qualified personnel. At a minimum, this program applies 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.
- Review of all stormwater site plans for proposed development activities. Unless, the County allows the construction site(s) to apply the "Erosivity Waiver" see conditions below.

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- Inspect, prior to clearing and construction, all known development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7, Identifying Construction Site Sediment Transport Potential. Unless, the County allows the construction site(s) to apply the “Erosivity Waiver” see conditions below.
  - Inspect all known permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. Enforce as necessary based on the inspection. Unless, the County allows the construction site(s) to apply the “Erosivity Waiver” see conditions below.
  - Inspect all permitted development sites upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater controls such as stormwater facilities and structural BMPs. Also, verify a maintenance plan is completed and responsibility for maintenance is assigned. Enforce as necessary based on the inspection.
  - Compliance with the inspection requirements above is determined by the presence and records of an established inspection program designed to inspect all sites and achieving at least 95% of scheduled inspections
  - An enforcement strategy has been developed and implemented to respond to issues of non-compliance.
  - If the County chooses to allow construction sites to apply the “**Erosivity Waiver**” in Appendix 1, Minimum Requirement #2, the County is not required to review the construction stormwater pollution prevention plans as part of the site plan review above, and is not required to perform the construction phase inspections identified above related to construction sites which are eligible for the “Erosivity Waiver”.

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

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

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- Circumstances beyond the County's control include:
    - Denial or delay of access by property owners,
    - Denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to emergency work. For each exceedance of the required timeframe, the County must document the circumstances and how they were beyond their control.
  - Annual inspections of all stormwater treatment and flow control facilities (other than catch basins) permitted by the County according to S5.C.4.b. unless there are maintenance records to justify a different frequency.
  - Reducing the inspection frequency will be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, the County may substitute written statements to document a specific less frequent inspection schedule. Written statements will be based on actual inspection and maintenance experience and will be certified in accordance with G19 *Certification and Signature*.
  - Inspections of all new flow control and water quality treatment facilities, including catch basins, for new residential developments that are a part of a larger common plan of development or sale, every 6 months during the period of heaviest house construction (i.e., 1 to 2 years following subdivision approval) to identify maintenance needs and enforce compliance with maintenance standards as needed.

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

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

The County will verify that all staff responsible for implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. Follow-up training will be provided as needed to address changes in procedures, techniques or staffing. Permittees will document and maintain records of the training provided and the staff trained.

In 2009 Whatcom County accomplished the following:

- On January 26, 2010 Whatcom County adopted the Department of Ecology Stormwater Management Manual for Western Washington and required sections of Appendix 1 of the permit for the NPDES Phase II permitted areas.
- On January 26, 2010 Whatcom County modified current Land Disturbance and Construction Standards Ordinances to meet permit requirements.

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## **Section (5): Pollution Prevention and Operation and Maintenance for Municipal Operations**

Per section S5.C.5.a.-j.

By February 15, 2010 Whatcom County will develop and implement a Maintenance and Operations program that has a training component and the ultimate goal of preventing or reducing runoff from Whatcom County facilities.

The minimum performance measures are:

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

The purpose of the maintenance standard is to determine if maintenance is required. The maintenance standard is not a measure of the facilities required condition at all times between inspections. Exceeding the maintenance standard between inspections and/or maintenance is not a permit violation.

Unless there are circumstances beyond the Permittees control, when an inspection identifies an exceedance of the maintenance standard, maintenance will be performed:

- Within 1 year for wet pool facilities and retention/detention ponds.
- Within 6 months for typical maintenance.
- Within 9 months for maintenance requiring re-vegetation.
- Within 2 years for maintenance that requires capital construction of less than \$25,000.

Circumstances beyond the County's control include:

- Denial or delay of access by property owners,
- Denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to emergency work. For each exceedance of the required timeframe, the County must document the circumstances and how they were beyond their control.

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

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

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.

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Conduct repairs or take appropriate maintenance action in accordance with maintenance standards established above based on the results of inspections.

Inspection of all catch basins and inlets owned or operated by the County at least once before the end of the Permit term. Clean catch basins if the inspection indicates cleaning is needed to comply with maintenance standards established in the 2005 *Stormwater Management Manual for Western Washington*. Decant water will be disposed of in accordance with Appendix 6 *Street Waste Disposal*.

Inspections may be conducted on a "circuit basis" whereby a sampling of catch basins and inlets within each circuit is inspected to identify maintenance needs. Include in the sampling an inspection of the catch basin immediately upstream of any system outfall. Clean all catch basins within a given circuit at one time if the inspection sampling indicates cleaning is needed to comply with maintenance standards established under S5.C.4.c.

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

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

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

- Pipe cleaning
- Cleaning of culverts that convey stormwater in ditch systems
- Ditch maintenance
- Street cleaning
- Road repair and resurfacing, including pavement grinding
- Snow and ice control
- Utility installation
- Pavement striping maintenance
- Maintaining roadside areas, including vegetation management
- Dust control

Establishment and implementation of policies and procedures to reduce pollutants in discharges from all lands owned or maintained by the County and subject to this Permit, include but not limited to:

- Parks
- Open space
- Road right-of-way
- Maintenance yards
- Stormwater treatment and flow control facilities

These policies and procedures are intended to address, but are not limited to:

- Application of fertilizer, pesticides, and herbicides including the development of nutrient management and integrated pest management plans

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- Sediment and erosion control
  - Trash management
  - Building exterior cleaning and maintenance
  - Landscape Management and Vegetation Disposal

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

Development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the County in areas subject to this Permit that are not required to have coverage under the Industrial Stormwater General Permit. Implementation of non-structural BMPs will begin immediately after the pollution prevention plan is developed. A schedule for implementation of structural BMPs will be included in the SWPPP. Generic SWPPPs that can be applied at multiple sites may be used to comply with this requirement. The SWPPP will include periodic visual observation of discharges from the facility to evaluate the effectiveness of the BMP.

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

In 2009 Whatcom County accomplished the following:

- Continued its enhanced street sweeping program in sensitive watersheds and utilized work release crews to perform manual sidewalk debris removal in the Lake Whatcom Watershed.
- Phase II Coordinator trained in field with Maintenance and Operations Crews to understand current practices to develop program to meet permit requirements. Expand its training of Maintenance and Operation staff in regard to inspection and maintenance of the County's stormwater infrastructure.
- Conducted numerous field inspections of selected stormwater facilities to determine their functionality and proper maintenance schedule.

In 2010 Whatcom County will:

- Continue its enhanced street sweeping program in sensitive watersheds.
- Develop a training program with Maintenance and Operation staff in regard to inspection and maintenance of the County's stormwater infrastructure.
- Continue field inspections and develop appropriate maintenance protocols for stormwater facilities.

## **Section (6): Compliance with Total Maximum Daily Load Requirements (TMDL)**

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Per section S7.A-C.

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

Currently Whatcom County is not subject to any TMDL in the NPDES Phase II designated area.

In 2009 Whatcom County accomplished the following:

- Worked with the City of Bellingham and the Department of Ecology to respond to the Lake Whatcom TMDL Study.
- Participated with the Lake Whatcom Management Program in developing its next five year work plan that is intended to be the basis for the initial response to the TMDL study.

In 2010 Whatcom County will:

- Work with the City of Bellingham and the Department of Ecology to refine response strategy.

## **Section (7): Monitoring**

Per section S8.A-C.

The County is not required to conduct water sampling or other testing during the effective term of this Permit, with the following exceptions:

- Any water quality monitoring required for compliance with TMDLs, pursuant to section *S7 Compliance with Total Maximum Daily Load Requirements* and Appendix 2 of this Permit, and
- Any sampling or testing required for characterizing illicit discharges pursuant to section S5.C.3. or S6.D.3. of this Permit.

The County will provide the following information in each annual report:

- A description of any stormwater monitoring or studies conducted by the County during the reporting period. If stormwater monitoring was conducted on behalf of the County, or if studies or investigations conducted by other entities were reported to the County, a brief description of the type of information gathered or received will be included in the annual report(s) covering the time period(s) the information was received.
- An assessment of the appropriateness of the BMPs identified by the County for each component of the SWMP; and any changes made, or anticipated to be made, to the BMPs that were previously selected to implement the SWMP, and why.
- Information required pursuant to S8.C.2. below.

### **Preparation for future, long-term monitoring**

The County will prepare to participate in the implementation of a comprehensive long-term monitoring program. The monitoring program will include two components:

- Stormwater monitoring - Stormwater monitoring is intended to characterize stormwater runoff quantity and quality at a limited number of locations in a manner

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that allows analysis of loadings and changes in conditions over time and generalization across the County.

- Targeted Stormwater Management Program (SWMP) effectiveness monitoring - Stormwater program effectiveness monitoring is intended to improve stormwater management efforts by evaluating issues that significantly affect the success of, or confidence in, stormwater controls. The monitoring program can include long-term monitoring and short-term studies. The results of the monitoring program will be used to support the adaptive management process and lead to refinements of the SWMP.

### **Stormwater monitoring**

The County will identify sites for long-term stormwater monitoring. Adequate sites will be those completely mapped as required in S5.C.3.a., and be suitable for permanent installation and operation of flow-weighted composite sampling equipment. No later than December 31, 2010:

- The County will identify three outfalls or conveyances where stormwater sampling could be conducted. One outfall or conveyance will represent commercial land use, the second will represent low-density residential land use and the third will represent medium-to-high density residential land use.
- The County will document how sites are selected and justify the basin size, based on comparison of the times of concentration with rainfall durations for typical seasonal storms. Each site will represent a discernible type of land use, but not be a single industrial or commercial complex. Ideally, to represent a particular land use, no less than 80% of the area served by the outfall or conveyance will be classified as having that land use. Permittees may move upstream in the conveyance system to achieve the desired land use, or, if a primarily industrial or commercial area is not present, an area of mixed industrial and commercial land use may be selected.

### **SWMP effectiveness monitoring**

The County will prepare to conduct monitoring to determine the effectiveness of the County's SWMP at controlling stormwater-related problems that are directly addressed by actions in the SWMP. This component of the monitoring program will be designed to answer the following types of questions:

- How effective is a targeted action or narrow suite of actions?
- Is the SWMP achieving a targeted environmental outcome?

By December 31, 2010, the County will identify at least two suitable questions and select sites where monitoring will be conducted. This monitoring will include, at a minimum, plans for stormwater, sediment or receiving water monitoring of physical, chemical and/or biological characteristics. This monitoring may also include data collection and analysis of other measures of program effectiveness, problem identification and characterizing discharges for planning purposes.

For each question, the County intends to develop a monitoring plan containing the following elements:

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- A statement of the question, an explanation of how and why the issue is significant to the County, and a discussion of whether and how the results of the monitoring may be significant to other MS4s.
  - A specific hypothesis about the issue or management actions that will be tested.
  - Specific parameters or attributes to be measured.
  - Expected modifications to management actions depending on the outcome of hypothesis testing.

In 2009 Whatcom County accomplished the following:

- In coordination with the Lake Whatcom Management Program the Lake Whatcom Tributary Monitoring Project.
- In coordination with the Lake Whatcom Management Program begin a comprehensive monitoring program of Silverbeach Creek.
- Initiate a comprehensive pilot monitoring program to evaluate the effectiveness of a selected stormwater treatment vault and different cartridge media types.

In 2010 Whatcom County will:

- In coordination with the Lake Whatcom Management Program continue the Lake Whatcom Tributary Monitoring Project.
- In coordination with the Lake Whatcom Management Program begin assessing the effectiveness of the Silverbeach Creek Watershed Pilot Project.
- Continue the comprehensive pilot monitoring program to evaluate the effectiveness of a selected stormwater treatment vault and different cartridge media types.
- Develop a monitoring plan for the entire NPDES Phase II area.

### **Monitoring program reporting requirements**

The fourth annual report will in 2011:

- Describe the status of identification of sites for stormwater monitoring, if required.
- A summary of proposed questions for the SWMP effectiveness monitoring and describe the status of developing the monitoring plan, including the proposed purpose, design, and methods.

To comply with the requirements of all or part(s) of this section, permittees in a single Urbanized Area or WRIA may choose to submit a collaborative report or reports in lieu of separate reports.

## **Section (8): Reporting Requirements**

Per section S9.A-E.

No later than March 31 of each year, The County will submit an annual report. The reporting period for all subsequent annual reports will be the previous calendar year. Two printed copies and an electronic (PDF) copy of each document will be submitted to Ecology. All submittals will be delivered to:

Department of Ecology  
Water Quality Program  
Municipal Stormwater Permits  
P.O. Box 47696

The County will be required to keep all records related to this permit and the SWMP for at least five years. Except for the requirements of the annual reports described in this permit, records shall be submitted to Ecology only upon request,

The County will make all records related to this permit and the County's SWMP available to the public at reasonable times during business hours. The County will provide a copy of the most recent annual report to any individual or entity, upon request.

- A reasonable charge may be assessed by the Permittee for making photocopies of records.
- The County may require reasonable advance notice of intent to review records related to this Permit.

Each annual report shall include the following:

A copy of the County's current Stormwater Management Program as required by

- S5.A.2.
- Submittal of Appendix 3 – *Annual Report Form for Cities, Towns, and Counties*, which is intended to summarize the County's compliance with the conditions of this permit, including:
  - Status of implementation of each component of the SWMP in section S5 *Stormwater Management Program for Cities, Towns and Counties*.
  - An assessment of the County's progress in meeting the minimum performance standards established for each of the minimum control measures of the SWMP.
  - A description of activities being implemented to comply with each component of the SWMP, including the number and type of inspections, enforcement actions, public education and involvement activities, and illicit discharges detected and eliminated.
  - The County's SWMP implementation schedule and plans for meeting permit deadlines, and the status of SWMP implementation to date. If permit deadlines are not met, or may not be met in the future, include:
    - Reasons why
    - Corrective steps taken and proposed
    - Expected dates that the deadlines will be met
  - A summary of the County's evaluation of their SWMP, according to sections S5.A.4. and S8.B.2.
  - If applicable, notice that the MS4 is relying on another governmental entity to satisfy any of the obligations under this permit.
  - Updated information from the prior annual report plus any new information received during the reporting period, pursuant to S8.B.2.
  - Certification and signature pursuant to G19.D, and notification of any changes to authorization pursuant to G19.C.

The County will include with the annual report, notification of any annexations, incorporations or jurisdictional boundary changes resulting in an increase or decrease in the County's geographic area of permit coverage during the reporting period, and implications for the SWMP.

In 2010 Whatcom County will:

- Continue its required NPDES Phase II Permit reporting.

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- Train staff in various departments to document their activities to submit with our Annual Report.

### **Section (9): Funding and Other Resource Requirements**

- Prepare plan documents to be ready for next round of DOE/EPA grants
- Coordinate planning with County Roads to combine projects
- Coordinate planning with other jurisdictions to combine projects

### **Section (10): References**

- 1) Adapted and paraphrased from November 2007 Lake Whatcom Comprehensive Stormwater Plan prepared by CH2M HILL
- 2) Adapted and paraphrased from August 2005 Whatcom County Comprehensive Plan Map and Zoning Map Amendment Staff Report Chuckanut RR2/Suburban Enclave to R5A/Rural or ROS/Public Recreation APPENDIX C
- 3) Adapted and paraphrased from July 2004 City of Bellingham FEIS Bellingham Comprehensive Plan Bellingham Urban Growth Area Boundary Five Year Review Areas and Whatcom County Urban Fringe Subarea Plan
- 4) Adapted and paraphrased from January, 2007 S5 Western Washington Phase II Municipal Stormwater Permit