

# FACT SHEET

For the  
Draft National Pollutant Discharge Elimination System (NPDES) and State  
Waste Discharge General Permit for Washington State Department of  
Transportation's Municipal Separate Storm Sewers

STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

February 4, 2009 – first issuance  
May 1, 2009 – minor modification errata  
May 5, 2010 – major modification statement of basis

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### APPENDICES TO THE DRAFT FACT SHEET

- A. List of applicable TMDLs
- B. Monitoring program cost estimate
- C. Response to Comments
- D. Errata
- E. Public Comment Period and Response to Comments on the Major Modification

## I. INTRODUCTION

This Fact Sheet accompanies the *Washington State Department of Transportation NPDES and State Waste Discharge Permit for Municipal Stormwater, modified for minor corrections May 1, 2009 and modified for major revisions May 5, 2010*. The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions the Department of Ecology (Ecology) has made in the process of developing and issuing this permit.

When issued, this permit will authorize the discharge of stormwater to waters of the State of Washington from municipal separate storm sewers that are owned or operated by Washington State Department of Transportation (WSDOT). WSDOT land uses covered include highways, maintenance facilities, ferry terminals, and rest areas. As required by paragraph 402(p)(3) of the Clean Water Act, this permit must effectively prohibit non-stormwater discharges into storm sewers that discharge to surface waters and apply controls to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). As authorized by the Revised Code of Washington, RCW 90.48.030 and RCW 90.48.162, Ecology must take action through the issuance of this permit to control impacts of stormwater discharges to all waters of Washington State, including ground waters, unless the discharges are authorized by another regulatory program.

This permit does not directly regulate discharges from agricultural runoff, irrigation return flows, process and non-process wastewaters from industrial activities, and stormwater runoff from areas served by combined sewer systems. These types of discharges may be regulated by local or other state requirements if they discharge to municipal separate storm sewers. This permit authorizes the municipal separate storm sewer to discharge stormwater that comes from construction sites or industrial activities under certain conditions.

## II. PUBLIC INVOLVEMENT OPPORTUNITIES

### PUBLIC COMMENT PERIOD

Ecology is soliciting public comment on the Draft Permit, Fact Sheet and Appendices from May 21, 2008 until 5:00 p.m. on June 24, 2008. Ecology welcomes all comments on these formal draft documents. If possible, the following information should be included with your comments:

- The specific language in the permit that is the subject of the comment. Please include the Special Condition number and page number.
- The basis for the comment, and in particular the legal, technical, administrative, or other basis for the concern.
- A suggested alternative to address the concern.

Ecology will issue the final permit after it considers all public comments and makes final changes to the draft permit.

Send electronic comments to [bhas461@ecy.wa.gov](mailto:bhas461@ecy.wa.gov) or written comments to:

Bill Hashim  
Department of Ecology  
Water Quality Program  
PO Box 47696  
Olympia, WA 98504-7696

You may provide oral testimony at the public hearing. The public hearing will immediately follow the workshop which begins at 1pm.

**Monday, June 23, 2008 1pm**  
**Timberline Regional Library**  
**500 College Street SE**  
**Lacey, WA**  
**360-491-3860**

The hearing will provide the public with an opportunity to give formal comments on the proposed permit. A short workshop with a question and answer session will precede the hearing.

Ecology will host three general public workshops on the Draft Permit during the public comment period. The purpose of the workshops is to explain the permit, to inform participants of how this draft of the permit has changed from the previous draft of the permit, and to answer questions. Ecology will not accept formal oral testimony or comments on the Draft Permit or Fact Sheet at the public workshops. The public workshops on the Draft Permit will be held at the following locations, dates and times:

<b>Washington State Department of Transportation Stormwater Discharge Permit General Workshops</b>	
<b>Date &amp; Time:</b>	<b>Location:</b>
Wednesday, June 4, 2008 1 pm	<b>Spokane</b> Spokane Shadle Library W 2111 Wellesley Ave. Spokane, WA
Thursday, June 5, 2008 1 pm	<b>Bellevue</b> Ecology Northwest Regional Office 3190 - 160 <sup>th</sup> Ave SE Bellevue WA
Monday, June 23 1 pm	<b>Lacey</b> Timberline Regional Library 500 College Street SE Lacey, WA

Ecology will issue the final permit after receiving and considering all public comments. Ecology expects to issue the final permit in summer 2008 and it will become effective 30 days after issuance. Ecology will send a copy of the Notice of Issuance to all persons who submitted written comment or gave public testimony at the public hearings.

When Ecology issues the final permit, the summary and response to comments will become part of the file on the permit and parties submitting comments will receive a notice on how to obtain copies of the final permit and Ecology's response to comments. Ecology will issue its response to comments and the resultant changes to the proposed permit as an appendix to the Fact Sheet titled Response to Comments.

You may download copies of the draft permit documents and submit comments online at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot.html>

Direct questions about the **workshops** and requests for printed copies of the Draft Permit and Fact Sheet to Julie Robertson at [jrob461@ecy.wa.gov](mailto:jrob461@ecy.wa.gov) or telephone at (360) 407-6401.

Please direct questions about the **Draft Permit** or **Fact Sheet** to Bill Hashim at (360) 407-6467 or [bhas461@ecy.wa.gov](mailto:bhas461@ecy.wa.gov).

### Public Involvement Opportunities

On January 19, 1999 Ecology filed a Notice of Intent to reissue the NPDES and State Waste Discharge General Permits for discharges from large and medium Municipal Separate Storm Sewers (MS4s). Ecology formed an advisory committee including representatives from Phase I and Phase II cities and counties, WSDOT, state and federal agencies, environmental groups, and the public to assist Ecology with developing the revised permit.

Substantial progress was made in developing a revised Phase I permit through the early advisory committee, however, in 2002 Ecology decided to postpone reissuance of the Phase I permit. Resources were shifted toward developing a separate state wide permit for WSDOT, and the new EPA requirements for Phase II municipal stormwater permits.

Ecology filed a Notice of Intent to issue the Phase I and Western Washington Phase II and the Washington Department of Transportation (WSDOT) municipal stormwater general NPDES permits in the State Register on June 22, 2004 (WSR 04-13-126). In accordance with Washington's Waste Discharge General Permit regulation, WAC 173-226-130, the announcement:

1. Provided notice of a preliminary determination to develop general permits,

2. Requested comments as to whether a general permit or individual permits would be more appropriate for such discharges, and
3. Provided an opportunity for interested or potentially affected parties to submit information on dischargers and discharges proposed to be covered under the permit as well as any other relevant information.

Ecology posted a preliminary draft of the WSDOT permit from December 19, 2005 through February 21, 2006. WSDOT had concerns with the preliminary draft permit regarding:

- Consistency with the 2007 Municipal Stormwater Phase I and Phase II permits.
- Statewide coverage.
- Requirements under Ecology's TMDL program.
- Consistency between WSDOT's Stormwater Management Program and the new permit.
- An equivalency review of the Highway Runoff Manual with Ecology's western and eastern Washington stormwater manuals.

Ecology worked with WSDOT and the Permit Advisory Committee to resolve the issues of concern and made the following changes to this draft:

- Sections of the WSDOT permit that cover authorized discharges, permittee responsibilities and compliance with standards are essentially identical to the Municipal Stormwater Phase I and Phase II permits. If the Municipal Stormwater Phase I and Phase II permits are modified as a result of current litigation, the WSDOT permit will be modified as well, if needed to ensure consistency.
- Ecology agreed to limit WSDOT's coverage to the urban areas regulated under the Municipal Stormwater Phase I and Phase II areas and to areas identified with an applicable TMDL. WSDOT agreed (formalized in an Interagency Agreement) to apply the maintenance and design standards of its Highway Runoff Manual (HRM) to its stormwater facilities statewide.
- WSDOT's TMDL requirements are outlined in Special Condition S6 of the permit.
- Ecology approved WSDOT's proposed Stormwater Management Program (SWMP) and incorporated it into Appendix 9 of the permit. The SWMP is open for public comment along with the rest of the permit during the public comment period.
- WSDOT completed updates to the HRM to meet equivalently with Ecology stormwater manuals. The HRM has been incorporated as Appendix 1 of the permit and is open for public comment during the public comment period.

On May 21, 2008 Ecology filed a notice with the State Register to reissue WSDOT's Draft NPDES and State Waste Discharge General Permit for their Municipal Separate Storm Sewers (MS4s).

### III. BACKGROUND

#### The Stormwater Problem

Stormwater is the leading contributor to water quality pollution in our urban waterways and is also Washington's fastest growing water quality problem. Pollutants in stormwater can cause a wide range of impacts. Some pollutants such as metals, oil and grease, and organic compounds carried by stormwater are toxic to aquatic organisms if concentrations are high enough. Silt and fine particles in stormwater runoff cause tissue abrasion and gill clogging in fish, they reduce light and impair algal growth, they smother fish spawning habitat, and they transport other pollutants. Stormwater and sediments carried by stormwater contribute nutrients to surface waters that can accelerate eutrophication of surface waters and result in nuisance algal blooms, reduce clarity, produce odors and degrade drinking water quality. Stormwater runoff from impervious surfaces can increase the temperature of rain water and pose problems to fish and invertebrates that are sensitive to temperature and cannot survive in overly warm water bodies.

Impervious surfaces in urban areas increase the quantity and peak flows of runoff, which in turn cause hydrologic impacts such as scoured streambed channels, in-stream sedimentation and loss of habitat. Furthermore, because of the volume of runoff, mass loads of pollutants carried by stormwater significantly degrade water quality.

Impacts from stormwater are highly site-specific and vary geographically due to impervious surfaces, local land use conditions, hydrologic conditions, and the type of receiving water. Table 1 list the common pollutants found in stormwater.

The following is a list of typical impacts caused by stormwater discharges:

- **Human Health:** In general, untreated stormwater is unsafe. It contains bacteria and toxic metals and organic compounds. Untreated stormwater is not safe for people to drink, and is not recommended for swimming.
- **Drinking Water:** In some areas of Washington, notably Spokane County, and parts of Pierce and Clark counties, gravelly soils allow rapid infiltration of stormwater. Untreated stormwater seeping into the ground can contaminate aquifers that are used for drinking water.
- **Salmon Habitat:** In western Washington urban stormwater impairs streams that provide salmon habitat. Paved surfaces cause higher winter stormwater flows that erode stream channels and destroy spawning beds. Also, because more water flows offsite rather than seeping into the groundwater during the wet season, streams lose summertime base flows, drying out habitat needed for salmon

rearing. Over the past few years surveys of spawning adult Coho salmon in Seattle and Bellevue found that high percentages of adult females (up to 90 percent) die before they spawn. The Coho rely on runoff from the first significant rainfall events in the fall to move upstream. Although we don't know the precise causes of these acute die-offs, scientists believe stormwater pollution is likely to be involved. The problem is under active scientific investigation, and it appears to be widespread throughout urban streams in Puget Sound.<sup>1</sup>

- **Shellfish Industry:** The State's multimillion dollar shellfish industry is increasingly threatened by closures due to contaminants carried by stormwater.
- **Degraded Water Bodies:** Across Washington State changes in land cover resulting from residential, commercial and industrial land development has drastically altered, stream channels in urban areas. Fish resources, and other beneficial uses, have been and will continue to be severely degraded, and in many cases permanently lost, due to the impacts of urban land development.

### Characterization of Stormwater

Hydraulic impacts and the characterization of pollutants vary but can be generalized by land uses such as residential, commercial, industrial and open space.<sup>2</sup> In general, the wet season's first flush rains carry the most pollutants to receiving waters, the wettest months are October through May. Data between 1948 and 1986 in areas of western Washington covered by the permit, show an average range between 80 and 100 storm events per year with storm events defined as precipitation greater than 0.1 inches/day<sup>3</sup>. In addition, the following 18-year (1980 – 1997) average annual precipitation rates are noted:

**Table 1: Average annual precipitation for selected areas in western Washington**

Urban Area of Coverage	Average Annual Precipitation*
Bellingham Urban Area	36 inches
Bremerton Urban Area	52 inches
Longview/Kelso Urban Area	46 inches
Marysville Urban Area (Everett data used)	37 inches
Mount Vernon Urban Area	32 inches
Olympia/Lacey Urban Area	51 inches
Seattle Urban Area	35 – 39 inches
Everett Urban Area	37 inches
Tacoma Urban Area	37 – 39 inches
Vancouver Urban Area	39 inches

\*Source: Western Regional Climate Center, wrcc@dri.edu

<sup>1</sup> Personal communication: Jamie Glasgow, Washington Trout, and Nathaniel Scholz, NOAA Fisheries, 2003.

<sup>2</sup> Pitt et al 2004, *The National Stormwater Quality Database*, <http://www.cwp.org>

<sup>3</sup> Perrich, Jerry P.E. 1992. *ESE National Precipitation Databook*, Cahners Pub.

Many pollution sources contaminate stormwater including land use activities, operation and maintenance activities, illicit discharges and spills, atmospheric deposition, and vehicular traffic conditions. Many of these sources are not under the direct control of WSDOT. Table 2 lists sources of pollutants for several typical stormwater pollutants.

Table 2: Common Pollutants in Stormwater and Some Potential Sources<sup>4</sup>

Pollutant	Potential Sources
Lead	Motor Oil, Transmission Bearings, Gasoline <sup>5</sup>
Zinc	Motor Oil, Galvanized Roofing, Tire Wear, Down Spouts
Cadmium	Tire Wear, Metal Plating, Batteries
Copper	Brake Linings, Thrust Bearings, Bushings
Chromium	Metal Plating, Rocker Arms, Crank Shafts, Brake Linings, Yellow Lane Strip Paint
Arsenic	ASARCO Smelter, Fossil Fuel Combustion
Bacterial/Viral Agents	Domestic Animals, Septic Systems, Animal & Manure Transport
Oil & Grease	Motor Vehicles, Illegal Disposal of Used Oil
Organic Toxins	Pesticides, Combustion Products, Petroleum Products, Paints & Preservatives, Plasticizers, Solvents
Sediments	Construction Sites, Stream Channel Erosion, Poorly Vegetated Lands, Slope Failure, Vehicular Deposition
Nutrients	Sediments, Fertilizers, Domestic Animals, Septic Systems, Vegetative Matter
Heat	Pavement Runoff, Loss of Shading Along Streams
Oxygen Demanding Organics	Vegetative Matter, Petroleum Products
PAHs	<a href="http://www.dot.ca.gov/hq/env/stormwater/publicat/newsflash/10_02_06.pdf">http://www.dot.ca.gov/hq/env/stormwater/publicat/newsflash/10_02_06.pdf</a> Motor oil, tire wear, vehicle exhaust, coal-tar based sealants

Oregon has collected and characterized data on the quality of stormwater discharges. The rainfall patterns and land cover characteristics in Oregon are sufficiently similar to

<sup>4</sup> Adapted from a number of sources: Novotny, V. and G. Chesters, 1981. *Handbook of Nonpoint Pollution*. Van Nostrand Reinhold Company, New York, p. 322. Galvin D. and R. Moore, 1982. *Toxicants in Urban Runoff*, METRO Toxicant Program, Report #2. METRO, Seattle, pp 3-89 - 3-92. PTI Environmental Services, 1991. *Pollutants of concern in Puget Sound*. Puget Sound Estuary Program, U.S. EPA, Seattle, pp 47-51. URS et al, 1988. City of Puyallup, Stormwater Management Program. *Technical Memorandum WQ-1: Stormwater Quality Issues*. Table 1.

<sup>5</sup> Although lead is no longer an additive to gasoline, it is still present in trace amounts and remaining lead on the ground is picked up by stormwater runoff.

Washington to provide an indication of the general quality of stormwater discharges in Washington. Table 3 shows the mean of the “event mean concentrations” (EMCs) of common stormwater pollutants for different land use categories.<sup>6</sup> The EMC is defined as the total constituent mass discharge divided by the total runoff volume. EMCs are typically based on flow weighted composite samples. Total phosphorus concentrations for comparative purposes only, since phosphorous concentrations were not found to be consistent among similar land use stations. Total phosphorous concentrations may be more affected by soil type than by land use.

Table 3: Land Uses Mean Concentrations for Selected Pollutants

<b>Oregon Urban Runoff Water Quality Data</b>					
<b>Land Use</b>	<b>TSS mg/l</b>	<b>Total Cu mg/l</b>	<b>Total Zn mg/l</b>	<b>Dissolved Cu mg/l</b>	<b>Total P mg/l</b>
<b>In-pipe Industrial</b>	194	0.053	0.629	0.009	0.633
<b>Instream Industrial</b>	102	0.024	0.274	0.007	0.509
<b>Transportation</b>	169	0.035	0.236	0.008	0.376
<b>Commercial</b>	92	0.032	0.168	0.009	0.391
<b>Residential</b>	64	0.014	0.108	0.006	0.365
<b>Open</b>	58	0.004	0.025	0.004	0.166

The National Stormwater Quality Database (NSQD)<sup>7</sup> collected and evaluated data from a representative number of municipal stormwater permit holders across the country. To date it serves as the largest urban stormwater database ever developed.

Notable observations from the NSQD include the following:

- Preliminary statistical analyses found significant differences among land use categories for all pollutants. The because National Urban Runoff Program (NURP) findings show no significant differences in urban runoff concentrations as a function of common urban land uses (EPA, 1983).
- Freeway locations generally had the highest median values, except for phosphorus, nitrates, fecal coliforms, and zinc.
- The industrial sites had the highest reported zinc concentrations.
- Total Kjeldahl Nitrogen (TKN), copper, lead, and zinc observations are lowest for open space areas.

<sup>6</sup> Strecker et al. 1997. *Analysis of Oregon Urban Runoff Water Quality Monitoring Data Collected from 1990 to 1996*, prepared for the Oregon Association of Clean Water Agencies, Table 3-2.

<sup>7</sup> Pitt et al 2004, *The National Stormwater Quality Database*, [http://www.cwp.org/NPDES\\_research\\_report.pdf](http://www.cwp.org/NPDES_research_report.pdf)

- Lead concentrations, as expected, have decreased by an order of magnitude over the last 20 years, largely assumed to be the result of instituting unleaded gasoline regulations.
- Nutrient concentrations between NSQD and NURP show relatively similar data..

Tables 4 and 5 from the NSQD are provided to give an indication of the general quality of stormwater discharges for a broader range of parameters than the Oregon data set.

Table 4: Median Values and EMCs for Selected Parameters in the NSQD, Version 1.0

Parameter	Overall	Residential	Commercial	Industrial	Freeways	Open Space
Area (acres)	56	57.3	38.8	39	1.6	73.5
% Imperv.	54.3	37	83	75	80	2
Precip. Depth (in)	0.47	0.46	0.39	0.49	0.54	0.48
TSS (mg/L)	58	48	43	77	99	51
BOD5 (mg/L)	8.6	9	11.9	9	8	4.2
COD (mg/L)	53	55	63	60	100	21
Fecal Coliform (mpn/100 mL)	5081	7750	4500	2500	1700	3100
NH3 (mg/L)	0.44	0.31	0.5	0.5	1.07	0.3
N02+NO3 (mg/L)	0.6	0.6	0.6	0.7	0.3	0.6
Nitrogen, Total Kjeldahl (mg/L)	1.4	1.4	1.6	1.4	2	0.6
Phos., filtered (mg/L)	0.12	0.17	0.11	0.11	0.2	0.08
Phos., total (mg/L)	0.27	0.3	0.22	0.26	0.25	0.25
Cd, total (ug/L)	1	0.5	0.9	2	1	0.5
Cd, filtered (ug/L)	0.5	ND	0.3	0.6	0.68	ND
Cu, total (ug/L)	16	12	17	22	35	5.3
Cu, filtered (ug/L)	8	7	7.6	8	10.9	ND
Pb, total (ug/L)	16	12	18	25	25	5
Pb, filtered (ug/L)	3	3	5	5	1.8	ND
Ni, total (ug/l)	8	5.4	7	16	9	ND

<b>Ni, filtered (ug/L)</b>	4	2	3	5	4	ND
<b>Zn, total (ug/L)</b>	116	73	150	210	200	39
<b>Zn, filtered (ug/L)</b>	52	33	59	112	51	ND
<i>ND = not detected, or insufficient data to present as a median value.</i>						

Table 5: Summary of Selected Organic Information

	<b>Methylene - chloride (ug/L)</b>	<b>Bis (2-ethylhexyl) phthalate (ug/L)</b>	<b>Di-n-butyl phthalate (ug/L)</b>	<b>Fluor-anthene (ug/L)</b>	<b>Phen-anthrene (ug/L)</b>	<b>Pyrene (ug/L)</b>	<b>Diazinon (ug/L)</b>	<b>2, 4-D (ug/L)</b>
<b>Number of observations</b>	251	250	93	259	233	249	79	101
<b>% of samples above detection</b>	36	30	16	19	13	14	22	35
<b>Median of detected values</b>	11.2	9.5	0.8	6	3.95	5.2	0.06	3
<b>Coefficient of variation</b>	0.77	1.13	1.03	1.31	1.00	1.24	1.9	0.86

### Controlling Stormwater Discharges

Stormwater quality is difficult to manage because discharges are not continuous, highly predictable events. Rather, stormwater discharge depends on weather (i.e., rainfall and snowmelt) and flows intermittently. The range of pollutants in stormwater vary in type and concentrations depending on storm events. Further difficulty in controlling stormwater discharges from roads and highways comes from the large number of conveyance systems where stormwater is being discharged (hundreds or even thousands of outfalls within a highway system is typical). These features of stormwater runoff make it difficult to apply conventional end-of-pipe treatment options to existing discharges.

Three basic control strategies exist for stormwater. First, stormwater managers can prevent pollutants from coming into contact with stormwater by using source control best management practices (BMPs). Second, managers can apply treatment BMPs prior to discharge to surface or ground waters to reduce pollutants in the discharge. Third, managers can control the flow rate of stormwater through flow control BMPs.

Source control BMPs can effectively preventing stormwater contamination. Source control BMPs include diverse activities as:

- changing vehicle and equipment maintenance activities to prevent the leaking of oil or other fluids;
- design, installing, and maintaining landscapes at rest areas, maintenance facilities etc., to minimize stormwater runoff;
- product replacement or substitution (e.g., replace galvanized downspouts that are sources of zinc contamination with downspouts that are coated with non-polluting materials) at rest areas, maintenance facilities etc.;
- minimizing the removal of forests and native vegetation;
- covering materials and equipment stored outside and exposed to rainfall and runoff; and
- prohibiting or restricting the use of certain chemicals that are causing a pollution problem (e.g., pesticides or phosphorus in watersheds that drain to lakes).

Treatment BMPs include ponds, swales, filtration, and infiltration devices that capture runoff and treat it using physical, biological, and/or chemical processes. The effectiveness and feasibility of treatment BMPs is variable, subject to some debate, and much remains to be learned.

Flow control BMPs usually detain (control release rates) or retain (infiltrate to the ground) . Flow control prevents accelerated stream channel erosion and protects wetlands from changes in water elevations.

In summary, the complexity inherent in stormwater discharges and the difficulty of controlling such discharges will require many years to fully implement a program to adequately mitigate or prevent adverse environmental impacts.

#### Limitations of the Permit in Protecting Water Quality

In developing this permit, Ecology recognizes that permits alone cannot prevent all stormwater impacts and preserve natural resources and their associated beneficial uses. For multiple reasons, the cumulative impact of unregulated stormwater will continue to contribute to water quality degradation.

Ecology is required to implement the federal Clean Water Act and State Water Pollution Control Act. Ecology has developed this draft permit within the framework created by these statutes and has adopted WSDOT's Stormwater Management Program to meet state and federal requirements. In this Fact Sheet, Ecology has documented the rationale for many of the proposed permit requirements. The permit does not address all stormwater management needs associated with roads, highways, bridges, maintenance facilities, rest areas and ferry terminals and will not prevent all stormwater impacts. Citizens, state and local governments will need to work together to implement other actions to protect our water bodies.

## **Laws and Regulations**

### **Federal Clean Water Act**

The federal Clean Water Act (CWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the CWA is the National Pollutant Discharge Elimination System (NPDES) permitting program. In Washington, EPA has delegated authority to the Department of Ecology to administer the NPDES permit program for most dischargers including most municipal stormwater discharges. Chapter 90.48 RCW defines Ecology's authority and obligations in administering the NPDES permit program.

Amendments to the Clean Water Act in 1987 established new statutory requirements to control industrial and municipal stormwater discharges to waters of the United States. Waters of the United States include most surface water bodies and ground waters that are hydrologically connected to surface waters. The 1987 CWA amendments Congress directed EPA to study remaining sources of stormwater discharges and propose regulations, based on the study, to designate and control other stormwater sources.

In 1990 the EPA promulgated the phase I regulations. Phase I also included Washington State Department of Transportation. In 1999, EPA promulgated the Phase II rule which extends coverage to "small" municipal separate storm sewer systems.

Operators of separate storm sewers serving populations of 100,000 or greater are required to have a National Pollutant Discharge Elimination System (NPDES) permit to discharge stormwater. Operators with populations of 250,000 or more are defined as "large" while those with populations between 100,000 and 250,000 are defined as "medium". Under the Act the permit requirements for discharges from municipal separate storm sewer systems are:

“Municipal Discharge. – Permits for discharges from municipal storm sewers -  
(i) may be issued on a system- or jurisdiction-wide basis;  
(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and  
(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.” (33 U.S.C. §1342 (p)(3)(B))

The regulatory definition of an MS4 (40 CFR 122.26(b)(8)) is "a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body

(created to or pursuant to state law) including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States. (ii) Designed or used for collecting or conveying stormwater; (iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2."

In practical terms, operators of MS4s include municipalities and local sewer districts, state and federal departments of transportation, public universities, public hospitals, military bases, and correctional facilities.

### EPA Rules

U.S. EPA implemented regulations that define the term "municipality" to mean incorporated cities and unincorporated counties that have sufficient population in a Census Bureau designated urbanized area to meet the population thresholds. In addition, other public entities (excluding incorporated cities) regardless of their size, that own and operate storm sewer systems located within the municipalities that meet the population thresholds are also required to be covered under the permit program. This includes state highway systems such as those owned or operated by WSDOT. Other examples of other publicly-owned storm sewer systems include state highway systems, ports, drainage districts, and flood control districts located within named municipalities.

Recognizing the complexity of controlling stormwater, Congress and the U.S. EPA have established a regulatory framework for municipal stormwater discharges that is very different from traditional NPDES permit programs. Some of the key provisions of the stormwater rule that reflect these differences are:

- Permits must require the implementation of stormwater management programs rather than establishing numeric effluent standards for stormwater discharges (40 CFR 122.26(d)(2)(iv)).
- Permits must to cover a large geographic area rather than individual "facilities." A permit coverage area may include hundreds or even thousands of individual outfalls discharging stormwater (40 CFR 122.26(a)(3)).
- Flexibility that allows permittees to first focus their resources on the highest priority problems (40 CFR 122.26(d)(2)(iv)).
- Permits allow, and even encourage, a watershed approach to comprehensively manage stormwater (40 CFR 122.26(a)(3) & (d)(2)(iv)).
- Permits emphasize pollution prevention with some provisions requiring eliminating or controlling pollutants at their source. Permittees must assess potential future impacts due to population growth and other factors (40 CFR 122.26(d)(2)(iv)(B) & (d)(1)(iii)).

EPA rules for discharges from large and medium MS4s establish a two part application process, but did not establish actual permit requirements. EPA deliberately allowed the

permitting authority flexibility to establish permit requirements that are appropriate for the local area under regulation.

#### Chapter 90.48 RCW - The Water Pollution Control Act and Implementing Regulations

Along with requirements in federal law, state law requires the control of pollution. RCW 90.48.010 establishes “the public policy of the state of Washington (is) to maintain the highest possible standards to insure the purity of all waters of the state consistent with public health and public enjoyment thereof, the propagation and protection of wild life, birds, game, fish and other aquatic life, and the industrial development of the state, and to that end require the use of all known available and reasonable methods by industries and others to prevent and control the pollution of the waters of the state of Washington.”

RCW 90.48.020 defines the terms “pollution” and “waters of the state.” The statute does not define the phrase “all known available and reasonable methods” but authorizes Ecology to define it.

State law requires a permit to discharge pollutants or waste materials to waters of the state (RCW 90.48.162). A discharger must make an application to obtain a discharge permit. Ecology has an obligation to investigate the application and determine whether the use of public waters for the waste disposal will pollute state waters in violation of the public policy of the state (RCW 90.48.170). Unless Ecology finds the disposal of waste materials will pollute the waters of the state in violation of the public policy (RCW 90.48.180), Ecology must issue a permit.

In 1987 the state legislature passed RCW 90.48.520 into law. When issuing or renewing state and federal wastewater discharge permits, Ecology must review an applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control toxicants in the applicant's wastewater. The discharge of toxicants which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria is prohibited. (RCW 90.48.520)

RCW 90.48.035 grants Ecology authority to adopt standards for the quality of waters of the state. Ecology has adopted the following standards: Ch. 173-200 WAC Ground Water Quality Standards; Chapter 173-201A WAC Water Quality Standards for Surface Waters; and Ch. 173-204 WAC, Sediment Management Standards. These standards generally require that permits issued by Ecology to ensure standards are not violated, or a compliance schedule be in place to bring discharges into compliance.

The State Waste Discharge General Permit Program regulation, Chapter 173-226 WAC, establishes a general permit program applicable to the discharge of pollutants, wastes, and other materials to waters of the state. WAC 173-226-110 requires the preparation of a draft permit and an accompanying fact sheet before Ecology can issue a general permit under the NPDES permit program.

#### IV. DIFFERENCES BETWEEN THE 1995 PERMITS AND THIS PERMIT

Ecology issued the first permits in 1995 on a watershed basis to cover discharges from large and medium municipal separate storm sewer systems. Ecology intended to set up a permitting framework that would encourage coordinated stormwater management throughout a watershed and anticipated integrating the MS4 permit into Ecology's watershed approach to water quality management.

However, Ecology did not have the resources to support watershed-based stormwater permitting. Ecology has not reissued watershed based permits.

The EPA stormwater rules for Phase I operators envisioned a process in which the permitting agency reviewed and approved municipal stormwater management programs before issuing permits. The 1995 permits established a definition of a stormwater management program, and set deadlines and compliance schedules for stormwater management program approvals during the term of the permit

This draft permit incorporates a Stormwater Management Program Plan developed by WSDOT and reviewed and approved for public review before final permit issuance by Ecology. This approach satisfies the public involvement requirements of both the federal and state clean water acts and ensures that the federal requirement to control pollutants to the maximum extent practicable is met.

The above approach provides an advantage to permittees and the public by identifying requirements at the time of permit issuance rather than determining the requirements later through iterative review and approval of individual stormwater management programs. WSDOT has updated their 1997 stormwater management program to meet current federal and state requirements and their SWMP is incorporated into the permit as Appendix 9.

#### V. RELATIONSHIP TO OTHER STORMWATER PERMITS

In addition to requiring this permit for discharges from conveyances owned or operated by WSDOT, EPA stormwater regulations establish permit requirements for large municipal separate storm sewers (Phase I), small municipal separate storm sewers (Phase II), industrial stormwater, and construction sites.

##### Phase I Municipal Stormwater Permit

The Phase I permit regulates discharges from municipal separate storm sewers owned or operated by Clark, King, Pierce and Snohomish Counties, and the cities of Seattle and Tacoma.

Wherever possible, Ecology has coordinated the requirements of this permit with the requirements of the Phase I Municipal Stormwater permit, and the Western Washington

and Eastern Washington Phase II permits. All permits include similar approaches to compliance with standards, TMDL implementation, and implementation of Ecology's applicable regional Stormwater Management Manual. Some elements of the stormwater management programs for the permits are similar. To successfully implement stormwater management programs in areas where conveyance systems are interconnected or discharges go to the same water body permittees will need to coordinate and collaborate. Ecology has established expectations in this permit, the Phase I permit, and the Phase II permit for future coordination of monitoring efforts. Ecology recommends that all municipal stormwater permittees, large, medium and small municipalities, jointly engage in basin planning in shared basins.

#### Small Municipal Stormwater (Phase II) Permit

Ecology issued the Eastern and Western Washington NPDES permit for small municipal separate storm sewer systems (MS4s) at the same time as the Phase I permit. Many of the Phase II municipalities lie within the counties regulated under the Phase I permit. They share basins with the permittees covered under the Phase I permit, have interconnected conveyance systems and discharge into many of the same water bodies.

#### Industrial Stormwater General Permit

The federal stormwater regulations envision that Ecology and the municipal permittees will cooperate to develop programs to monitor and control pollutants in stormwater discharges to municipal storm sewers from industrial facilities. A wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain an NPDES permit from Ecology if they discharge to surface waters or to municipal separate storm sewers which drain to surface waters. Under 40 CFR 122.26(d)(2)(iv)(C), municipal permittees must establish a program to monitor and control discharges from industrial facilities that contribute a substantial pollutant loading to municipal separate storm sewers. In the preamble to the federal Phase I stormwater regulations, EPA clearly states its position on the dual responsibility for controlling stormwater discharges associated with industrial activity:

"Although today's rule will require industrial discharges through municipal separate storm sewers to be covered by separate permit, EPA still believes that municipal operators of large and medium municipal systems have an important role in source identification, and the development of pollution controls for industries that discharge storm water through municipal separate storm sewer systems is appropriate. Under the CWA (*Clean Water Act*), large and medium municipalities are responsible for reducing pollutants in discharges from municipal separate storm sewers to the maximum extent practicable. Because stormwater from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop

controls for stormwater discharges associated with industrial activity through their system in their stormwater management program."<sup>8</sup>

### Construction Stormwater General Permit

Permittees must adopt and implement control discharges from construction sites into their MS4, including sites regulated under the construction stormwater general permit.

## VI. EXPLANATION OF PERMIT CONDITIONS

### Summary

This stormwater NPDES permit requires the implementation of a stormwater management program for municipal separate storm sewers owned or operated by WSDOT. Implementation of the stormwater management program required under this permit constitutes reduction of pollutants to the maximum extent practicable (MEP) during the life of the permit, as required in section 402(p)(3)(B) of the federal Clean Water Act.

The conditions defining the stormwater management program requirements are based on EPA regulations for the municipal stormwater permit program (Code of Federal Regulations (CFR) title 40, §122.26), the stormwater elements of the Puget Sound Water Quality Management Plan, the State Water Pollution Control Act, Chapter 90.48 RCW and the annual reports submitted by the permittees under the previous municipal stormwater permit.

Ecology is issuing this permit under joint federal and state authorities. Under the federal Clean Water Act permits are required for point source discharges of pollutants to waters of the United States. Under that State Water Pollution Control Act (Chapter 90.48 RCW) permits are required for the disposal of waste materials into waters of the State. Under chapter 90.48 RCW the definition of 'waters of the state' includes underground waters whereas the definition of waters of the United States does not.

### S1 – Permittee and Permit Coverage

This permit is solely for Washington State Department of Transportation. This section of the permit defines the area covered under this permit.

The permit covers discharges from WSDOT's Municipal Separate Storm Sewer Systems (MS4s), as defined by EPA at 40 CFR 122.26(b)(4) and (7), in all municipal stormwater Phase I, Phase II and areas covered by an applicable Total Maximum Daily Load

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<sup>8</sup> U.S. EPA, Federal Register, Vol.55, No. 222; November 16, 1990; p. 48090.

(TMDL) areas. Applicable TMDLs that have been developed by Ecology are found in Appendix A of this fact sheet.

To comply with the requirements of Ch. 173-226 WAC, the General Permit Rule, WSDOT submitted an application that contains the information specified in WAC 173-226-200. WSDOT submitted an application to Ecology on March 24, 2003, and later amended that application to coincide with the Phase I and Phase II boundary areas.

## S2 - Authorized Discharges

S2.A -- This section of the permit authorizes the discharge of stormwater from municipal separate storm sewers, owned or operated by WSDOT, to waters of the state, subject to certain limitations. Consistent with the federal rules, this permit does not cover direct discharges to surface waters from privately owned or operated storm drains. Discharges into and from municipal separate storm sewers owned or operated by WSDOT must comply with the terms and conditions of the permit.

This permit authorizes discharges from new municipal separate storm sewers, constructed by WSDOT after the issuance date of this permit provided those discharges have received all applicable state and local permits, including compliance with the State Environmental Policy Act (SEPA). The control measures required under the permits are area-wide and will apply to any future discharges from the municipal storm sewer systems regulated under this permit.

S2.A.1 -- In accordance with state law Ecology regulates both discharges to surface waters and discharges to ground waters. Discharges to ground water are covered under the permit because portions of the areas regulated under these permits may include discharges of stormwater to the ground from municipal separate storm sewers. Stormwater management programs required under these permits should apply area-wide, regardless of where water is discharged, and that measures are taken to reduce the discharge of pollutants to ground waters as well as surface waters. However, as stated in paragraph S2.A.3 of the permit, discharges to ground water regulated under the Underground Injection Control (UIC) program are not covered under this permit to avoid overlapping regulation of these discharges.

Stormwater may be discharged to ground water via infiltration or injection techniques. Injection facilities such as drywells that are classified as UIC facilities are covered under the UIC program (Chapter 173-218 WAC); this permit does not cover discharges, however stormwater management programs developed to comply with this permit may be used to satisfy some of the requirements of the UIC program. This permit covers many infiltration facilities, including infiltration basins and trenches and dispersion techniques that are not classified as UIC wells because State law requires that they be addressed.

S2.A.2 -- Clarifies that stormwater discharges to ground waters that are not subject to federal regulation are regulated only by state authority. EPA policy and case law support the regulation of stormwater discharging to groundwater where hydrologic connectivity exists with surface water. (See e.g., *Exxon Corp. v. Train*, 554 F.2d 1310, 1312, n.1 (5th Cir. 1977); *McClellan Ecological Seepage Situation v. Weinberger*, 707 F.Supp. 1182, 1195-96 (E.D. Cal. 1988); and *Washington Wilderness Coalition v. Hecla Mining*, case # CS 94-233 FVS). The best guidance on this issue comes from the United States District Court Eastern District of Washington (*Washington Wilderness Coalition v. Hecla Mining*, 870 F. Supp 983, 990). The court held that “since the goal of the CWA is to protect the quality of surface waters, any pollutant which enters such waters, whether directly or through groundwater, is subject to regulation by NPDES permit.” The court went on to hold, “[I]t is not sufficient to allege groundwater pollution, and then to assert a general hydrological connection between all waters. Rather, pollutants must be traced from their source to surface waters, in order to come within the purview of the CWA.” The decision on hydraulic continuity depends upon the pollutant (type and mobility in soils), the pollutant loading, the soils at the site, and the hydrology of the site.

S2.B.1 -- Since municipal separate storm sewers carry stormwater and other flows, this permit authorizes the discharge of stormwater commingled with other flows, under certain circumstances. Section 402(p)(3)(B)(ii) of the federal Clean Water Act clearly states that municipal permits must effectively prohibit non-stormwater discharges to the municipal separate storm sewer system. However, another NPDES permit may authorize such discharges to municipal separate storm sewers (other than this municipal stormwater permit). This permit does not authorize industrial process wastewater and non-process wastewater are non-stormwater discharges.

S2.B.2 – In accordance with 40 CFR 122.26(d)(2)(iv)(B)(1), this permit authorizes discharges from emergency fire fighting activities, in accordance with 40CFR122.26(d)(2)(iv)(B)(1). Training is not considered an emergency fire fighting activity. This permit does not authorize discharges from fire fighting training activities into the permittees MS4.

S2.B.3 – This permit requires all other non-stormwater discharges are to be addressed through the program to detect and remove illicit discharges and improper disposal as required under Appendix 9 of this permit.

S2.C – This permit does not authorize illicit discharges and other non-stormwater discharges except as allowed under the illicit discharge detection and elimination requirements of the stormwater management program required under Appendix 9 of this permit. Coverage under and compliance with this permit does not relieve WSDOT from compliance with other state and federal laws including but not limited to CERCLA (Superfund), and The Oil Pollution Act of 1990.

S2.D. – This permit authorizes the discharge of stormwater associated with industrial activities through municipal separate storm sewers. For further explanation of the reasons for the separate stormwater permit requirement, see the preamble to the amendments to 40 CFR parts 122, 123, and 124 published in the Federal Register, Friday, November 16, 1990.

### S3 - Responsibility of the Permittee

This section states that WSDOT is solely responsible for compliance with this permit, however, this permit allows WSDOT to rely on another entity to meet permit requirements. EPA regulations for large and small MS4s explicitly allow such an arrangement. Ecology allows the Phase I and Phase II municipalities to rely on other entities such as Health Districts or Conservation Districts to implement parts of their stormwater management programs and have included this provision. However, WSDOT retains ultimate responsibility for meeting all applicable permit conditions.

### S4 - Compliance with Standards

Ecology's permitting strategy for municipal stormwater discharges covered under this permit will:

- Require the adoption and implementation of a stormwater management program that meets federal requirements.
- Assess the effectiveness of those programs through monitoring and/or other evaluation efforts.
- Require in subsequent permits, implementation of more effective and/or more targeted stormwater best management practices if necessary to protect or restore water quality.
- Evolve towards eventual compliance with water quality standards through successive permit cycles

Consistent with Ecology's priority of preventing future impacts to water quality from municipal stormwater discharges, existing discharges were to meet the MEP standard by implementing the SWMP in Appendix 9 plus any TMDL requirements, and new discharges were not to cause or contribute to a violation of water quality standards.

S4.A – This condition prohibits the discharge of toxicants to waters of the State of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria. RCW 90.48.520 provides the basis for this condition as follows:

“In order to improve water quality by controlling toxicants in wastewater, the department of ecology shall in issuing and renewing state and federal wastewater discharge permits review the applicant's operations and incorporate permit conditions which require all known, available, and reasonable methods to control

toxicants in the applicant's wastewater. Such conditions may include, but are not limited to: (1) Limits on the discharge of specific chemicals, and (2) limits on the overall toxicity of the effluent. The toxicity of the effluent shall be determined by techniques such as chronic or acute bioassays. Such conditions shall be required regardless of the quality of receiving water and regardless of the minimum water quality standards. *In no event shall the discharge of toxicants be allowed that would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria.*” (Emphasis added)

Chapter 90.48 RCW does not define the term “toxicants” and there is no readily available legislative history which would help define which specific pollutants would be considered toxicants. Nor did the state water quality standards in existence at the time the legislature adopted RCW 90.48.520 include a definition for either toxicant or toxic pollutant.

At the time that RCW 90.48.520 was adopted, the federal Clean Water Act did contain a definition for toxic pollutant:

“The term "toxic pollutant" means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring.” (33 U.S.C. § 1362(13))

The federal Clean Water Act at that time included a list of toxic pollutants. (33 U.S.C. § 1317(a)(1)) The list of toxic pollutants comprises the priority pollutant list. Based on the absence of legislative history, for this permit Ecology assumes the term ‘toxicant’ has the same meaning as ‘toxic pollutant’ as defined by the federal Clean Water Act and EPA’s implementing regulations. This is similar to the term “toxic substance” which is used in the Water Quality Standards for Surface Waters of the State of Washington, Chapter 173-201A WAC.

S4.B -- This condition does not authorize a violation of Washington State surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (chapter 173-204 WAC), or human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, NO. 246, Dec. 22, 1992, pages 60848-60923).

This section does not require strict compliance with water quality standards for municipal stormwater discharges under § 1342(p)(3)(B) of the federal Clean Water Act. EPA distinguishes between the maximum extent practicable permitting standard for municipal stormwater permits and the requirement under 33 U.S.C. § 1311(b)(1)(C) that permits

include any more stringent limitation, including those necessary to meet water quality standards. In *Defenders of Wildlife v. Browner*, the Ninth Circuit Court determined:  
“...the text of 33 U.S.C. § 1342(p)(3)(B), the structure of the Water Quality Act as a whole, and this court's precedent all demonstrate that Congress did not require municipal storm-sewer discharges to comply strictly with 33 U.S.C. § 1311(b)(1)(C).”

*(Note to readers: 33 U.S.C. § 1311(b)(1)(C) is the part of the federal Clean Water Act requiring any more stringent effluent limitations necessary to meet water quality standards.)*

Although the Clean Water Act does not require municipal storm sewer discharges to comply strictly with U.S.C. § 1311(b)(1)(C), U.S.C. § 1342(p)(3)(B)(iii) states:  
*"[p]ermits for discharges from municipal storm sewers . . . shall require . . . such other provisions as the Administrator . . . determines appropriate for the control of such pollutants."* (Emphasis added.)

This provision gives Ecology discretion to determine whether strict compliance with U.S.C. § 1311(b)(1)(C) is appropriate. In this permit Ecology has adopted an interim BMP-based approach towards meeting the goals of the Clean Water Act and eventual compliance with water quality standards.

Consistent with the EPA permitting approach for municipal stormwater discharges, Ecology has not established numeric end-of-pipe effluent limits for the discharges covered under this permit. EPA policy, transmitted in 1996, explains an alternative approach to effluent limits that is appropriate for storm water permits:

“Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.

The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate.” (EPA policy, *Interim Permitting Approach for Water-Quality Based Effluent limits in Storm Water Permits*, 9/01/96.)

While the permit does not require strict compliance with state water quality standards for municipal stormwater discharges (except where compliance may be required by RCW 90.48.520), neither does Ecology intend the permit provide a categorical exemption from compliance with state water quality standards for municipal stormwater discharges.

Because compliance with the water quality standards is an eventual goal of this permit, it is appropriate to use the water quality standards as a measure of the effectiveness of WSDOT's Stormwater Management Plan (SWMP) and to help identify priorities.

Ecology acknowledges that WSDOT may need decades or longer to address the water quality impacts of existing municipal stormwater discharges. In part, this is because of the difficulty and challenges associated with reversing the water quality impacts of existing stormwater discharges. The focus of this permit is to prevent further water quality impairment due to new stormwater discharges and make reasonable progress in addressing existing sources of water quality impairment.

S4.C – This condition requires WSDOT to reduce the discharge of pollutants to the maximum extent practicable, based on U.S.C § 1342(p)(3)(B)(iii). Neither Congress nor EPA has defined "maximum extent practicable" (MEP), and they have instead left the determination of what constitutes MEP up to the individual permitting authorities. As a result, permit requirements established by Ecology must be tempered and limited by state law. For example, the application of post construction stormwater controls on new development and re-development required by this permit must be done within the context of state vesting laws. Similarly, the inspection requirements of this permit must be carried out in a manner that is consistent with the state constitution and state law.

In adopting both the Phase I and Phase II rules, EPA recognized that state law and at times local law may limit or restrict the scope of permit requirements (FR Vol. 55, No. 222, pg 48041) and (FR Vol. 64, No. 235, pg 68766).

Ecology has determined the development, implementation and enforcement of stormwater management programs required under this permit constitute the controls necessary to reduce the discharge of pollutants to the maximum extent practicable.

S4.D – This condition requires the use of all known, available, and reasonable methods of prevention, control, and treatment to prevent and control pollution of waters of the State of Washington, based on RCW 90.48.170 and RCW 90.48.520. Ecology has determined compliance with this permit including the development, implementation and enforcement of stormwater management programs required under this permit constitute the use of all known, available and reasonable methods of prevention, control, and treatment to prevent and control pollution.

S4.F – The language for this condition was taken in total from the municipal stormwater Phase I and Phase II permits issued in February 2007. Ecology acknowledges that this permit condition is under appeal from the Phase I and Phase II permittees and will comply and modify this permit if necessary when the final ruling is issued.

## S5 – Stormwater Management Program

S5.A. – This section of the permit establishes the requirements for WSDOT to implement its stormwater management program (SWMP). The SWMP forms the core requirement of this permit. The minimum requirements for the stormwater management program were established for the Phase 1 permit issued in January 2007. WSDOT met those minimum requirements and received Ecology approval of their SWMP as part of the permit development process. Ecology has appended the WSDOT SWMP to the draft permit as Appendix 9 for public review and comment.

S5.A.1 – Consistent with state and federal law, this section requires that WSDOT design the SWMP to reduce the discharge of pollutants to the MEP, and meet state AKART requirements. However, WSDOT can continue to implement existing stormwater management programs that go beyond what is required in this permit where they are necessary to reduce the discharge of pollutants to the MEP.

S5.A.2 – Ecology approved WSDOT’s SWMP during the permit development process. It is attached as Appendix 9 to the draft permit and is available for public review and comment.

S5.A.3 -- WSDOT must track the cost of implementation of the SWMP. 40 CFR 122.26 requires a fiscal analysis of the necessary capital and operations and maintenance expenditures to implement the SWMP; and 40 CFR 122.42(c) requires reporting of annual expenditures and proposed budgets. Ecology has deviated from the EPA requirement by requiring tracking of expenditures. The anticipated cost and resources available to implement the program are not part of the basis for deciding whether the SWMP meets the MEP standard for this permit. Tracking of expenditures is still necessary, however, to evaluate the MEP standard established in future permits.

S5.A.5 -- 40 CFR 122.42(c) requires permittees to track inspections, official enforcement actions and public education activities.

#### S5.B -- Stormwater Program Effectiveness Monitoring:

This part of the monitoring requirements requires WSDOT to evaluate the effectiveness of their stormwater management program. They are asked to evaluate the effectiveness of a specific action; and to evaluate the effectiveness of achieving a targeted environmental outcome. In both cases, monitoring of stormwater or receiving water characteristics is necessary. Monitoring of indirect measures of success such as improvements in regulatory processes, quality or timing or programmatic actions, or changes in behavior may also be accomplished as an indirect indicator of effectiveness.

During the SWMP development process, WSDOT identified key activities and performance indicators associated with each minimum required activity. Those performance indicators were combined into a separate table of performance measures that WSDOT will track and report on for each annual report. Appendix 2, Table of Performance Measures, is attached to the draft permit.

## Stormwater Management Program Components

During the development of the Phase I and Phase II permits issued in January 2007, Ecology used EPA guidance to create minimum performance measures necessary for effective Stormwater Management Plans. Ecology adopted those same performance measures for this permit.

This fact sheet describes each component of the SWMP and minimum performance measures required under 40 CFR 122.26. The SWMP includes administrative and legal components that WSDOT has in place to ensure program implementation, as well as components which should directly effect pollutant reductions and reduction of impacts.

### Legal Authority

This requirement is drawn directly from EPA regulations (40 CFR 122.26). However, the language requiring legal authority to prohibit illicit discharges, and carry out inspections and enforcement (within the limitations of state law) applies to discharges coming into the MS4 from another jurisdiction. As operator of an MS4, WSDOT receives, conveys, and discharges pollutants from third parties, and is responsible for those pollutants. By accepting discharges, whether passively or not, the operator of the MS4 accepts responsibility and the consequences of those discharges. These discharges may cause or contribute to a condition of contamination or exceedances of receiving water quality standards. WSDOT can control the contribution of pollutants into its system through a broad range of actions – source control inspections and follow-up; enforcement of local water quality ordinances; technical assistance programs; targeted inspection and maintenance programs; and cooperative agreements with adjoining municipalities or other public entities.

Ecology recognizes controlling the contribution of pollutants from adjoining municipalities or permittees whose storm sewers interconnect with those of WSDOT may be difficult, particularly if the adjoining municipality is not covered under a municipal stormwater NPDES permit. However, as explained above, a permittee cannot passively accept pollutants into its MS4 from outside sources. Adequate control in these circumstances means, at minimum, having an established process and point of contact for working with the adjoining municipality or co-permittee to resolve problems.

### Municipal Separate Storm Sewer System Mapping and Documentation

This condition is a continuation of the requirement in the existing permit to gather and maintain adequate information to conduct planning, priority setting and program evaluation activities.

The previous Phase I permit requires permittees to map tributary areas from *major municipal separate storm sewer outfalls*. Except for land areas zoned industrial, the previous permit defined major municipal storm sewer outfalls as single pipes with an

inside diameter of 36 inches or greater. For pipes serving industrial areas the permit defined a major municipal storm sewer outfall as single pipe with an inside diameter of 12 inches or greater. This permit reduces the pipe size to 8 inches. Ecology intends the reduction to incrementally expand the portions of the permittees MS4 that are mapped.

As a second new requirement the permittee must initiate a program to map connections to municipal separate storm sewers. WSDOT must begin mapping new connections with the effective date of the permit. The permit established an implementation schedule for mapping existing connections over 8 inches in order to expand our knowledge of the system regulated under this permit.

#### Coordination

This permit requires WSDOT to establish a coordination mechanisms both internally and externally to aid in the implementation of the SWMP.

Internal coordination requires WSDOT establish communication and coordination mechanisms necessary to comply with the permit. The permit does not specify how the coordination will take place, allowing WSDOT the flexibility to design coordination systems to meet its.

For external coordination WSDOT must develop mechanisms to increase intergovernmental coordination as a necessary part of a SWMP since drainage basins seldom follow jurisdictional boundaries. This requirement is based on EPA regulations (40 CFR 122.26(d)(2)(iv)) calling for intergovernmental coordination, where necessary, to reduce the discharge of pollutants to the MEP. Ecology will accept coordination through watershed councils to fulfill this requirement. Note that Ecology encourages coordination with Tribes and others, but does not mandate it under this permit, because Tribes are not covered under an NPDES permit issued by Ecology.

#### Public Involvement and Participation

The EPA Phase II regulations require public involvement and participation as part of the SWMP. Ecology felt this was a reasonable expectation for Phase I permittees as well. Ecology expects that existing public involvement and participation opportunities conducted by WSDOT are likely sufficient to satisfy this requirement.

#### Controlling Runoff from New Development, Redevelopment, and Construction Sites

The EPA regulations require Phase I municipal stormwater permittees to “develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment” (40 CFR Part 122.26(d)(2)(iv)(A)(2)). The rules also require a program “to reduce pollutants in storm water runoff from construction sites.” (40 CFR Part 122.26(d)(2)(iv)(D)).

In the permit issued in 1995, Ecology required Phase I permittees’ programs to include: “ordinances (except WSDOT’s program), minimum requirements and best management

practices (BMP's) equivalent to those found in Volumes I – IV of Ecology's Stormwater Management Manual for the Puget Sound Basin (1992 edition, and as amended by its replacement), permits, inspections, and enforcement capability." The inclusion of the manual as a permit condition was consistent with the direction given by the Puget Sound Water Quality Management Plan of that time.

Although the 1995 permit directs permittees to implement requirements of updated stormwater manuals, Ecology chose not to enforce that provision when the updated stormwater manuals were published in 2001 and 2005. At the time of the 2001 and 2005 Stormwater Manual updates, Ecology informed Phase I permittees that it intended to require the permittees to update their local stormwater requirements to be consistent with Ecology's updated stormwater manuals. WSDOT's Highway Runoff Manual has been revised, reviewed, and approved for consistency with Ecology's manuals. The HRM will be appended to this permit for public review and comment.

In developing the content for this section of the reissued permit, Ecology also considered the requirements in more recently issued federal rules for the Phase II municipal stormwater permittees (40 CFR 122.34.(b)(4) and (5)).

The program for post-construction stormwater management in new development and redevelopment must:

- Develop and use strategies which include a combination of structural and/or non-structural BMP's that are appropriate for the community;
- Use an ordinance to address stormwater to the extent allowable under law;
- Ensure adequate long-term operation and maintenance of BMP's.

The HRM identifies maintenance standards for structural and non-structural BMPs. The standards are used for determining when maintenance actions are required for conditions identified through inspections. The inspections are part of post construction activities.

In light of the federal Phase II rules which apply to smaller municipalities, and the Phase I permits history, Ecology decided to proceed with its previously stated intent to require the Phase I permittees to update their stormwater requirements to be consistent with Ecology's updated Stormwater Management Manual for Western Washington. WSDOT has updated their HRM to be consistent with Ecology's manuals prior to the permit being issued.

How the Permit is Consistent with Federal Rules:

The most effective way to minimize the impacts of stormwater discharges from areas of new development and redevelopment (as called for in the federal rules) is to design developments using techniques that:

- 1) minimize the generation of stormwater runoff (low impact development);
- 2) reduce exposure of pollutants to precipitation and stormwater runoff (source control BMP's);
- 3) remove pollutants in stormwater runoff (treatment BMP's); and

- 4) control either the volumetric flow rate of stormwater discharged (for discharges to streams), or control the volume of water discharged (if discharging to a wetland).

The most recent editions of the Eastern and Western Washington stormwater manuals provide the latest technical guidance from the Department of Ecology on measures to control the quantity and quality of stormwater runoff from new development and redevelopment projects. The stormwater manuals, consistent with federal stormwater regulations, represent a generic, presumptive approach to meeting federal and state water quality requirements. The presumption is the procedures and best management practices outlined in the manual will generally result in compliance with the statutes.

This generic presumptive approach to meeting water pollution control laws is intended to handle the vast majority of new and redevelopment projects. There are literally thousands of those projects every year. There aren't sufficient human resources or time to do the type of site-by-site analysis that occurs with municipal sewage treatment and industrial wastewater discharges. In addition, a site-specific analysis is difficult to perform for stormwater because of its ephemeral nature and variable pollutant concentration over the course of a discharge event. So, EPA, some state water pollution control agencies, and some local governments have each published or adopted stormwater manuals that provide an established process for identifying appropriate prevention, treatment, and flow management practices.

However, there are instances where because of the size of a project or the sensitivity of a receiving water, or because of some other regulatory need to ensure compliance with standards (e.g., a certification under section 401 of the Clean Water Act that the discharge will comply with water quality standards), a site-specific stormwater analysis is necessary. In those instances, the appropriate level of treatment will be developed through a basin planning process and the treatment and control of stormwater runoff may be different from what is identified in the western Washington stormwater manual.

The permit allows the WSDOT to adopt alternative minimum requirements, thresholds, definitions, adjustment and variance criteria as compared to those in Appendix 1, if they have been approved by Ecology as equivalent. WSDOT must demonstrate to Ecology's satisfaction that its alternative provides equal protection of receiving waters and equal levels of pollutant control when compared to the provisions in Appendix 1. In addition, WSDOT may propose alternative site planning processes, and BMP selection and design criteria. WSDOT must demonstrate to Ecology's satisfaction that their alternative approaches will protect water quality, meet the "maximum extent practicable" requirement of federal statutes, and meet the all known, available and reasonable methods of prevention, control, and treatment requirements of the state's Water Pollution Control Act.

This condition requires that WSDOT establish legal authority to conduct inspections and enforce maintenance standards for all projects approved under the new development and

redevelopment provisions of this permit. This provision is included in response to case law in this state which limits a municipality's ability to gain access to private property without permission from the owner or tenant (City of Seattle v. McCready, 123 Wash. 2d 260, 868 P.2d 134 (Wa. 02/24/1994)).

Ecology established minimum performance measures for WSDOT to demonstrate capability to implement stormwater requirements. Those measures include: review of all stormwater site plans submitted prior to construction; records of performance of 95% of the required pre-project, active project, and completed project inspections. Pre-project inspections are required only for projects that have a high potential for sediment transport as identified by use of the criteria in Appendix 7 to the permit. That appendix was developed in conjunction with local government stormwater managers.

The permit does not include any specific minimum measures for WSDOT's enforcement strategies, however, Ecology expects WSDOT will establish clear thresholds for escalating levels of enforcement action in response to violations.

**Provisions for Adequate Recordkeeping and Training of Stormwater Staff:**  
To help organize, track, and document achievement of stormwater program implementation, the permit includes a requirement for WSDOT to maintain records for reviews, inspections, enforcement actions, training, and the staff trained. Ecology may use these records to evaluate WSDOT's compliance with permit requirements.

#### Structural Stormwater Controls

EPA rules in 40 CFR 122.26(b)(2) require a stormwater management program that includes, among other things, structural and source control measures, accompanied with an estimate of the expected reduction of pollutant loads and an implementation schedule. Ecology has not set a minimum expectation for the level of effort for this requirement. Ecology understands that it is not feasible to provide structural controls to mitigate the impacts of runoff from all existing development. WSDOT will set priorities and address the highest-ranked problems subject to the limitations of available resources.

WSDOT must include a list of planned individual projects that are scheduled for implementation during the term of the permit with the first year annual report. WSDOT must update the list with each annual report. Ecology will not approve the list

#### Source Control Program for Existing Development

EPA rules in 40 CFR 122.26(b)(2) require a stormwater management program that includes source control measures. The 2000 Puget Sound Water Quality Management Plan also calls for a source control program.

The permit requires WSDOT to identify sites which potentially generate pollutants. A complaint-based response program which WSDOT may combine with the requirement for a citizen complaints/reports telephone number for the illicit discharge detection and elimination program.

This condition also requires an inspection and enforcement program for identified sites. The permit calls for inspecting 100% of the sites over the 5 year term of the permit. WSDOT may prioritize sites, categories of land use or geographic areas. Those sites where the property owner denies entry and where WSDOT has no legal authority to inspect the site may be excluded from onsite inspection, however, WSDOT is still responsible for enforcement of applicable local laws related to pollution of evidence of an illicit or contaminated discharge can be documented without entering the property.

WSDOT may combine training for the source control program with training for the illicit discharge detection and elimination program and operation and maintenance programs.

#### Illicit Connections and Illicit Discharges Detection and Elimination (IDDE)

EPA requires a program to control illicit discharges and improper disposal in 40 CFR 122.26(d)(2). The requirements are based on the provision in the Clean Water Act that municipal stormwater NPDES permits include a requirement to effectively prohibit non-stormwater discharges into the storm sewers. This section requires continued implementation of an IDDE program with an implementation deadline concurrent with the effective date of this permit.

Ecology determined that the following types of non-stormwater discharges do not contribute significant sources of pollutants and therefore need not be addressed by the SWMP: diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, foundation drains, footing drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, and flows from riparian habitats and wetlands.

The requirement to conduct screening to detect illicit connections comes directly from the EPA rules [40 CFR 122.26(d)(2)(B).] Ecology has specified the screening methods in Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assistance, published by the Center for Watershed Protection in October 2004. The manual is available at <http://www.cwp.org/>. Ecology has reviewed this manual and finds it provides a comprehensive, understandable and reasonable methods to detect, trace, identify and fix illicit connections.

The permit specifies the timeframes for response to illicit discharges based on experience of Ecology field staff in conducting similar investigation and enforcement actions. Ecology encourages WSDOT to communicate and coordinate with Ecology regional office staff when investigating illicit discharges.

The requirements to prevent, respond to, and clean up spills and improper disposal into the MS4 comes directly from EPA rules [40 CFR 122.26(d)(2)(B).] The timeframes for investigating and responding are based on the Tri-County stormwater proposal. Additional information may be available at: <http://www.salmoninfo.org/TriCounty/tricounty.htm>.

### Operation and Maintenance Program

The permit also includes requirements to achieve adequate long-term operation and maintenance of stormwater facilities. WSDOT must implement maintenance standards that are at least as protective as those in the 2005 Western Washington Stormwater Management Manual. The maintenance schedules for stormwater facilities that are included in the permit were originally drafted with the participation of local government stormwater managers during the effort to develop the “Tri-County” stormwater proposal as part of a response to the Endangered Species Act listing of Chinook salmon. Those maintenance standards have been adopted into the HRM. Within one year, WSDOT must have a schedule to inspect all facilities regulated by the permit at least once during the permit term.

Within 2 years, the WSDOT must begin inspecting all facilities owned or operated by the them annually. Within 2 years, they are to conduct spot checks after major storms. These schedules allow WSDOT time to expand their inspection and maintenance programs if they are not already at the levels required by the permit. The inspection program should be designed to inspect all sites, and achieve at least a 95% inspection ratio.

The maintenance inspection frequencies may be changed where there are records or a formal affidavit attesting to maintenance experience. Ecology recognizes that facilities require maintenance at different frequencies depending circumstances such as surrounding land use, soils, type and age of facility.

This section requires annual inspection and maintenance of catchbasins to remove accumulated sediment, trash, oily residue and other materials captured by catchbasins. Two strategies for conducting inspections are allowed in the permit. In the first a subset of catch basins are inspected and based on that information all catchbasins in that conveyance are cleaned. An alternative method of inspecting all catchbasins and then cleaning individual basins as needed is also allowed.

The section also requires proper disposal of decant water in accordance with the requirements in Appendix 6. The street waste liquids or decant water is generated in the process of maintaining stormwater BMPs. The BMPs capture settleable solids from stormwater runoff and may also minimize the discharge of oily runoff by retaining floatable oils in the BMP. The settled solids typically have high concentrations of adsorbed metals, oils and grease. The agitation involved in removing the solids from catch basins results in the resuspension of the fine fraction of the sediments. The pretreatment and treatment requirements are designed to remove the fine sediment and sheen causing oils (if any), from the decant water before it reaches the receiving water.

In previous permits a Spill Control Catch Basin was specified as a pretreatment requirement to remove oil. Ecology has determined that such devices do not provide sufficient reliability to make the presumption that they will function reliably enough to

prevent oily sheens in receiving waters (see Volume V, page 11-1 of the Western Washington Stormwater Manual). WSDOT may use any BMP (e.g. spill control catch basin, or decant methods) that can be demonstrated to prevent the discharge of sheen causing oily discharges to eliminate the need for an approved oil water separator, as part of the treatment train.

The permit requires implementation of practices to reduce stormwater impacts associated with the permittee's parking lots, streets, roads and highways. Based on EPA rules in [40 CFR 122.26(d)(2)(iv)(3)]. WSDOT may use the following guidance documents to develop this program:

- Ecology guidance for street waste disposal (Appendix 6 to this permit for liquids and Volume IV of the 2005 Stormwater Management Manual for Western Washington for street waste solids).
- Regional Road Maintenance ESA Program Guidelines, developed by the Tri-County Road Maintenance Technical Working Group.
- The 2005 Stormwater Management Manual for Western Washington, Vol. II Construction Stormwater Pollution Prevention and Vol. IV Source Control.
- Recommendations on managing ditches for water quality benefit contained in the report titled A survey of Ditches along County Roads for their potential to affect Storm Runoff Water Quality, published by the Center for Water and Watershed Studies at the University of Washington.

As land owners, WSDOT has the ability to directly control the quality of stormwater runoff from their own practices. This section of the permit requires WSDOT to establish and implement policies and procedures to reduce pollutants from lands they own or maintain.

Of particular concern are the selection and application of insecticides and herbicides. US Geological Survey (USGS) has detected insecticides and herbicides (collectively termed pesticides) in all rivers, lakes and streams sampled across the United States. In King County researchers detected 23 pesticides in water from urban streams during rainstorms and the concentrations of five of these pesticides were at levels that pose danger to aquatic life. 22 20 U.S. EPA. November 2000. *Our Built and Natural Environments: A Technical Review of the Interactions between Land Use, Transportation and Environmental Quality* 21 May, Christopher W. 1996. *Assessment of Cumulative Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion: Implications for Salmonid Resource Management*. PhD Dissertation, University of Washington. 22 USGS Fact Sheet 097-99. April 1999.] Since pesticides are difficult or impossible to remove from water, Ecology is focusing on the use of integrated pest management plans as a way to reduce both the need and use of pesticides.

RCW 17.15 provides the definition for Integrated Pest Management (IPM) as:

“Integrated pest management” means a coordinated decision-making and action process that uses the most appropriate pest control methods and strategy in an

environmentally and economically sound manner to meet agency programmatic pest management objectives. The elements of integrated pest management include:

- (a) Preventing pest problems;
- (b) Monitoring for the presence of pests and pest damage;
- (c) Establishing the density of the pest population, that may be set at zero, that can be tolerated or correlated with a damage level sufficient to warrant treatment of the problem based on health, public safety, economic, or aesthetic thresholds;
- (d) Treating pest problems to reduce populations below those levels established by damage thresholds using strategies that may include biological, cultural, mechanical, and chemical control methods and that must consider human health, ecological impact, feasibility, and cost-effectiveness; and
- (e) Evaluating the effects and efficacy of pest treatments.

Reducing the use of pesticides will reduce the risk of the chemicals being carried to streams by stormwater. Many sectors of agriculture have adopted the methodology. IPM provides reasonable and prudent steps to use when applying chemicals designed to kill plant or animal life. Following them will minimize the risk of discharging pesticides into the MS4.

Excess nutrients entering water ways is also a large and significant urban source of pollution. An analogous plan to manage nutrients will ensure that nutrients are only used when necessary and in the amounts needed. At a minimum Ecology expects that WSDOT will apply fertilizer consistent with recommendation based on soil tests.

The routine practice of landscape maintenance, trash management and building cleaning can affect stormwater quality. Using relatively simple management techniques, WSDOT can minimize pollutants generated from these activities. BMPs for these activities are included in Volume IV of the 2005 Stormwater Management Manual for Western Washington.

Ecology has determined that activities at certain sites owned or operated by WSDOT are similar to activities at sites regulated under the Industrial Stormwater General Permit. For this reason, this provision of the permit calls for developing Stormwater Pollution Prevention Plans (SWPPPs) for these sites. A SWPPP documents measures to identify, prevent, and control the contamination of discharges of stormwater to surface or ground water. Ecology provides guidance for developing SWPPPs at <http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html#swppp>.

#### Public Education and Outreach

EPA rules for Phase I and Phase II municipal stormwater permit programs, and the 2000 Puget Sound Water Quality Management Plan require permittees to implement a public education program. WSDOT must implement its public education program to reduce or eliminate behaviors and practices that cause or contribute to adverse impacts of stormwater discharges on water bodies. To do this WSDOT must identify the steps that the public can take to reduce pollutants in storm water runoff. Ecology encourages WSDOT to target all audiences, however, the minimum measures require:

- Targeting all of listed audiences and actions no later than one year after the effective date of the permit.
- Measurable improvements in each target audience understanding of the problem and what they can do to solve it.
- Measurable improvements in the percentage of each target audience regularly carrying out the intended action or behavior change.
- Measure understanding and adoption of the targeted behaviors.

WSDOT may use storm water educational materials provided by Ecology, Tribes, EPA, environmental, public interest or trade organizations, or other MS4s. Many materials are available from Ecology online at:

<http://www.ecy.wa.gov/programs/wq/stormwater/index.html>

Ecology encourages WSDOT to tailor outreach programs to address the viewpoints and concerns of the communities they serve, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

#### S6 - Total Maximum Daily Load Allocations

When the water quality of a water body is impaired, the federal Clean Water Act requires states to set limits on the amount of pollutants that the water body receives from all sources. States may also set limits on pollutant loads when water bodies are threatened. These limits are known as Total Maximum Daily Loads (TMDLs). TMDLs differ from commonly used technology-based or water quality-based numeric limits for individual discharges. Ecology develops a TMDL through a defined process through which Ecology identifies the maximum amount of a pollutant that may be discharged from all sources to a water body without causing violations of water quality standards. Then with stakeholders, Ecology develops pollutant control strategies to keep pollutant loading below that level. The strategies include numeric Waste Load Allocations (WLAs) for NPDES permitted dischargers and Load Allocations (LAs) to control the loadings from nonpoint sources.

WSDOT must implement actions for stormwater discharges covered by this permit necessary to achieve the pollutant reductions called for in applicable TMDLs. Applicable TMDLs include only TMDLs which have been approved by the EPA before the issuance date of the permit. Appendix 3 lists of all applicable TMDLs. Information

on Ecology's TMDL program is available on Ecology's website at [www.ecy.wa.gov/programs/wq/tmdl](http://www.ecy.wa.gov/programs/wq/tmdl).

Ecology reviewed all TMDLs approved by EPA before July 1, 2008 to determine whether stormwater, including WSDOT stormwater sources, were identified. When Ecology developed most of these TMDLs, the agency considered municipal stormwater a subset of non-point dischargers, rather than a permitted discharge. As a result, very few TMDLs contain requirements for municipal stormwater sources. Only a few of the TMDLs completed to date have established load allocations or waste load allocations for the stormwater discharges covered under this permit.

Ecology interprets TMDL requirements as follows:

- For TMDLs where stormwater was not identified as a source of the pollutants of concern, or if all of the sources were defined in the TMDL, Ecology considers the MS4 not to be a significant contributor of pollutants.
- Where Ecology identified stormwater as a source of pollutants, the TMDL or implementation plans were developed to identify control measures. These may become permit requirements either through an actual loading allocation or through a narrative effluent limit. For example, a narrative effluent limit may state "compliance with the permit constitutes compliance with the TMDL".
- If stormwater was identified as a source of pollutants and specific WLAs, LAs or control measures were established, Ecology must develop effluent limits in addition to the other requirements of the permit. These effluent limits may be narrative or numeric depending on the control measures set by the TMDL or implementation plans.

When a TMDL requires monitoring, WSDOT must develop a quality assurance project plan (QAPPs) and submit it to Ecology for review and approval. For detailed guidance on writing QAPPs, see *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* (ECY Pub. No. 04-03-030) available on Ecology's website at <http://www.ecy.wa.gov/biblio/0403030.html>.

Ecology did not require automatic implementation of TMDLs completed after permit issuance because doing so would deny the opportunity to appeal additional permit requirements based on the new TMDL. For TMDLs that EPA approves after the permit is issued, Ecology may establish TMDL-related permit requirements through a formal permit modification or through the issuance of an appealable administrative order. Ecology will base any decision to enforce requirements of TMDLs completed after the issuance of the permit on the determination that implementation of actions, monitoring or reporting necessary to demonstrate reasonable further progress toward achieving TMDL waste load allocations, and other targets, are not occurring and must be implemented during the term of the permit. For this reason, Ecology encourages WSDOT to participate in development of TMDLs within their jurisdiction and to begin implementation where appropriate.

## S7. Monitoring

### Background

The federal stormwater rules require municipalities to propose a stormwater monitoring program for the term of the permit (40 CFR Part 122.26(d)(2)(iii)(D)). However, EPA provided few specific requirements of such programs. In the preamble to the federal rule (See pages 48049 - 48052 of the Federal Register, Volume 55, No. 222, November 16, 1990), EPA indicates that they favor ... "a permit scheme where the collection of representative data is primarily a task that will be accomplished through monitoring programs during the term of the permit." In the same text, they indicate that "an estimate of annual pollutant loading associated with discharges from municipal stormwater sewer systems is necessary to evaluate the magnitude and severity of the environmental impacts of such discharges and to evaluate the effectiveness of controls which are imposed at a later time."

In the first round of municipal stormwater permits issued in 1995, Ecology established four monitoring objectives:

- a) Estimate concentrations and loads from representative areas or basins to be used in evaluating overall program effectiveness.
- b) Evaluate the effectiveness of selected Best Management Practices.
- c) Identify specific sources of pollution; and
- d) Identify the degree to which stormwater discharges are impacting selected receiving waters and sediments.

At that time, Ecology thought that a monitoring program to adequately cover all four objectives in the first permit would overwhelm the permittees. Therefore, Ecology allowed WSDOT permittees to propose a monitoring program intended to achieve one or more of these objectives based upon priorities that they established for their programs.

Now, Ecology finds that all the above monitoring objectives remain applicable in the long run, regardless of WSDOT's initial priorities, and despite the results of WSDOT's monitoring to date. However, for this permit term, and under this permit condition, Ecology will require monitoring programs that focus on the first two objectives. Accomplishment of the third objective is partially met by an illicit detection and removal program. Ecology intends to rely on its own monitoring programs, as may be coordinated and supplemented by WSDOT, to accomplish the remaining portion of this objective.

The monitoring program will focus on a feedback loop for adaptive management of WSDOT's stormwater management program and permit conditions. Adaptive management will be implemented through future permits or permit modifications.

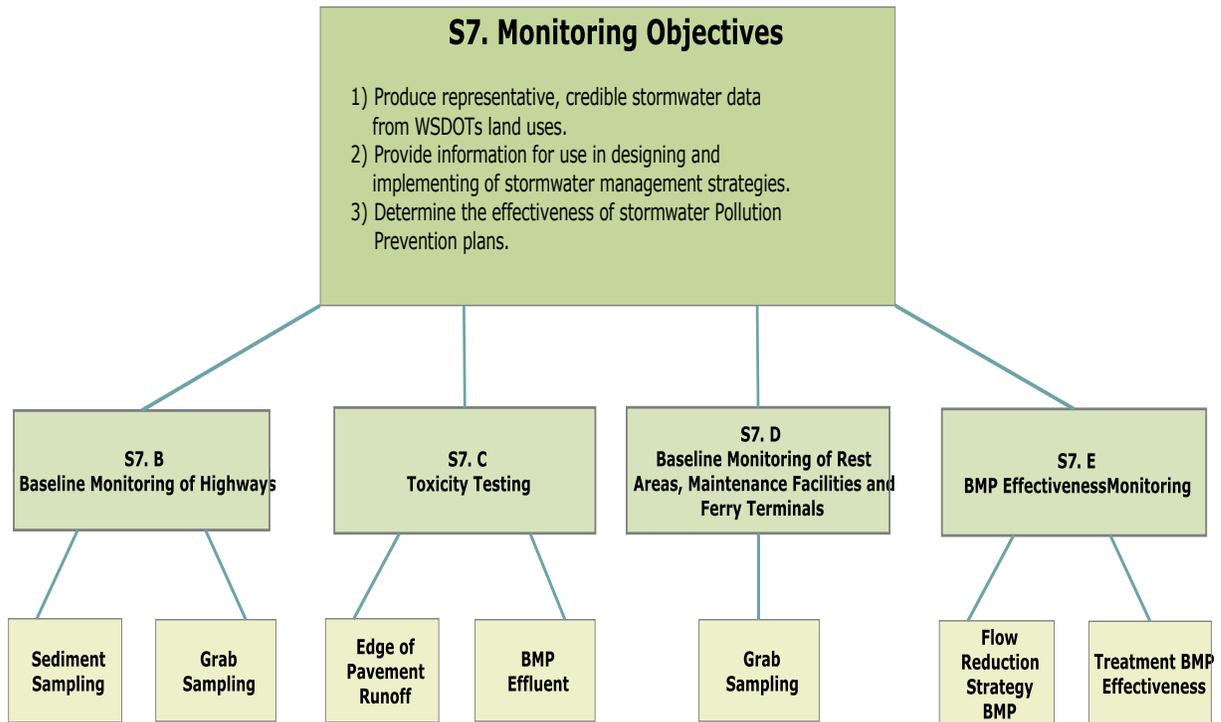
### S7.A Monitoring Objectives

Monitoring objectives for this permit were carefully evaluated to encompass the wide array of monitoring needs. The program was designed to address the following objectives:

- Produce scientifically credible data that represents discharges from WSDOTs various land uses;
- Provide information that can be used by WSDOT for designing and implementing effective stormwater management strategies
- Determine the long-term effectiveness of individual facility Stormwater Pollution Prevention Plans

*Monitoring Program Structure*

The following flow chart includes the monitoring framework used to implement the above-listed objectives. This flow chart is used to describe how the permit addresses a variety of sampling methods through WSDOTs land uses:



*Specific Parameters of Interest*

A special interest across the state exists for the below-indicated parameters. After careful examination of WSDOT land uses, potential sources, sampling capabilities and impacts, Ecology choose the following parameters to be pertinent to each WSDOT land use for monitoring under this permit:

Baseline Monitoring	Metals <sup>1</sup>	Phthlates	PAH's	TPH <sup>2</sup>	TSS	Pesticides <sup>3</sup>	MBAS	Chlorides	Nutrients	Fecal Coliform	Temperature
5 Highways (Selected Based on AADT)	√	√	√	√	√	√		√	√ (TP and Ortho-P only)	√	√
6 Regional Maintenance Facilities (1 Site Selected in each WSDOT Region)	√		√	√	√	√	√	√ (storage of deicers)	√ (TP, N/N, Ortho-P and TKN)		
1 Ferry Terminal (High-use)	√		√	√	√		√			√	√
2 Rest Areas (High-use)	√		√	√	√	√		√ (only if deicer is used)	√ (TP, N/N, Ortho-P and TKN)	√	√
	<b>Metals</b>	<b>Phthlates</b>	<b>PAH's</b>	<b>TPH<sup>2</sup></b>	<b>TSS</b>	<b>Pesticides<sup>3</sup></b>	<b>MBAS</b>	<b>Chlorides</b>	<b>Hardness</b>		
First Flush Toxicity-Chemical Analysis (3 Edge of Pavement, 3 w/same BMP type/ AADT)	√	√	√	√	√	√	√	√	√		
	<b>Metals</b>	<b>Phthlates</b>	<b>PAH's</b>	<b>TPH</b>	<b>Total solids</b>	<b>Pesticides<sup>3</sup></b>	<b>Particle size</b>	<b>Phenolics</b>	<b>Total Organic Carbon</b>		
5 Sediment (annually at each highway site)	√	√	√	√ Dx only	√	√	√	√	√		

Notes/Acronyms

TP = Total phosphorus

Ortho-P = Orthophosphorus

N/N = Nitrate/Nitrite

TKN = Total Kjeldahl nitrogen

PAH = Polycyclic aromatic hydrocarbons

Temp =

<sup>1</sup>Total and dissolved copper, zinc, cadmium and lead

<sup>2</sup>TPH=total petroleum hydrocarbons, Gx (gasoline) and Dx (diesel)

<sup>3</sup>Pesticide samples required only for those pesticides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site.

**Metals total and dissolved** -- The monitoring of total metals is required by Ecology of many discharge types. Stormwater under the Industrial Stormwater General Permit as well as NPDES point sources are reported as total metals. Although total metals are not directly related to water quality standards, they are useful for comparisons with these other discharge types. Total metals can be used to estimate dissolved metals with a metals translator.

**Metals in sediment** – The sediment management standards require arsenic, cadmium, chromium, copper, lead, mercury, and zinc.

**Hardness** – Hardness is defined as the sum of the calcium and magnesium concentrations. At sufficiently high concentrations hardness salts can precipitate. The impact of many metals on receiving waters is hardness-based. In cases where stormwater released to receiving waters is at relatively high flows, stormwater hardness is of particular interest. Hardness is an inexpensive analysis

**PAH's – Polycyclic Aromatic Hydrocarbons** should be monitored. It has been found in road dust. Asphalt sealants have been found to be a considerable source. PAHs are also products of combustion from common sources such as motor vehicles and other gas-burning engines. Many of these compounds are highly carcinogenic at relatively low levels.

**TPH** –Gx (gasoline range) and –Dx (diesel range) -- TPH is a mixture of many different compounds. Source of TPHGx includes gasoline spills, spilled oil on pavement, and chemicals used at home or work. Source of TPHDx includes spills or leaks from diesel engines, lube oils, heavy fuel oils and other semi volatile petroleum products. TPH has been found in at least 23 of the 1,467 National Priorities List sites identified by the Environmental Protection Agency (EPA).

**TSS** -- The USGS has been a proponent of the Suspended-Sediment Concentration (SSC) method, as in the paper, “Comparability of Suspended –Sediment Concentration and Total Suspended Solids Data”; wrir 00-4191; August 2000. The value of SSC as an indicator of the physical impact of sediments on river and stream beds may be of value for issues such as salmonid spawning. But SSC is a measurement of all solids including sediments, so that large, heavier particles influence the SSC value far more than finer sediments. Total Suspended Solids (TSS) is more appropriate for water quality indications as it represents the concentration of smaller solids with better correlation to the adsorption of metals and some organics to small solids in the water column

**Pesticides** -- Pesticides should only be analyzed in locations probable of picking up pesticides in runoff. For example, a high traffic area of a highway that is being monitoring may only contain runoff from pervious pavement with no potential for picking up pesticides in the runoff. This analysis will depend on location of the stormwater monitoring site and should be limited to those pesticides used by WSDOT.

**MBAS** -- MBAS is a surfactant (a surface-active substance) which dissociates in water and releases cations and anions. Examples of anionic surfactants are generally called fatty acid soaps and alkylsulfonic acid salts, which is the main component of synthetic detergent. MBAS is useful for estimating the anionic surfactant content of waters. Anionic surfactants have toxic effects on aquatic organisms and have been shown to affect fish behaviors based upon smell.

**Nutrients** -- [Nutrients, particularly ammonia to nitrate/nitrite may have a considerable oxygen demand. Nutrients are commonly monitored for runoff from highway facilities; see CALTRANS stormwater program document attached.

**Chlorides** – The chloride parameter should be retained as it is a direct indicator of any de-icer use during the time period up to the storm event. It is more reliable, and more direct than attempting to keep up with the history of de-icer use at any particular location. The chloride test is an inexpensive one.

**Fecal coliform** – FC are present in virtually all stormwater discharges. Sources include urban wildlife, domestic wildlife, animal hauling, and illegal cross-connections of sanitary sewers. Because roadways are impervious surfaces, defecation on those surfaces is quickly washed into the storm drainage systems.

**Temperature** – Discharge permits, total maximum daily loads (TMDLs), and other pollution control programs must be designed to meet all elements of the state's temperature standards (WAC 173-201A-200-210, and 600-612).

**Conductivity** -- is an inexpensive test which helps to estimate the amount of total dissolved salts and metals as the total amount of dissolved ions in the water.

**Phthlates** – Phthlates are ubiquitous in the environment, but very little data exists on its occurrence in stormwater runoff.

**Phenolics** – Phenolics are hydroxyl derivatives of benzene. This parameter will provide data on the presence of benzene is present in crude oil, the main source of a chemical which is used as a raw material for a wide range of products. Its one major downfall is its toxicity

**PCBs** -- Approximately 60 percent of PCBs were used in electrical applications, primarily in dielectric fluids for transformers and capacitors. PCBs also were used in hydraulic and heat transfer systems, lubricants, gasket sealers, paints, plasticizers, adhesives, carbonless copy paper, flame retardants, brake linings, and asphalt.

**Particle Size** – The objectives of a grain-size analysis are to accurately measure individual particle sizes or hydraulic equivalents, to determine their frequency distribution, and to calculate a statistical description that adequately characterizes the sample

**% Solids** – Analyzing percent solids normalizes concentrations on a dry weight basis.

**Total Organic Carbon** – The organic compound in water is composed of a variety of organic compounds in various oxidation states. TOC is a more convenient and direct expression of total organic content than either biological oxygen demand and chemical oxygen demand.

#### *Caltrans Studies*

The California Department of Transportation (Caltrans) conducted a study similar to the monitoring program described in this permit. The objectives from the 2003 Caltrans Discharge Characterization Study Report include:

- Monitoring to achieve compliance with California NPDES permit requirements;
- To produce scientifically credible data that represents runoff from Department-owned facilities; and
- To provide information useful to the Department for designing effective stormwater management strategies

The California study also included a three-year statewide stormwater characterization study to characterize runoff quality from the edge of pavement of highways, monitor sediment quality and characterize runoff toxicity. The purpose of the study was to use data to design and evaluate existing and/or potentially new BMPs and/or new BMP sites, to assess current stormwater management programs, provide a foundation for long-term management decisions and use the results to prioritize pollutants in runoff from Caltrans owned facilities.

The Caltrans study found the following criteria to have a significant impact on data results examined from edge of pavement of highways:

- AADT level,
- total event rainfall
- seasonal rainfall
- antecedent dry period

Caltrans found that pollutant concentrations increased with higher traffic levels on every pollutant analyzed, as seasonal precipitation increases, pollutant concentration decreased which indicated that dry season pollutants were more prominent due to the first flush theory and that first flush effect resulted in higher pollutant concentrations in runoff and lengthy build up of pollutants on surfaces such as highways resulted in a positive correlation between runoff and antecedent dry period.

Caltrans did not employ a receiving water quality study since the study objectives were not intended to apply directly to stormwater runoff discharges. Many constituents monitored did not have relevant water quality standards or objectives.

#### S7.B Baseline monitoring of Highways

WSDOT's 1995 stormwater discharge permit did not identify specific parameters or requirements for a long term monitoring program. Over the years WSDOT has performed some parameter monitoring to determine BMP effectiveness along highways at various Average Annual Daily Traffic (AADT) levels.

Ecology and WSDOT must have knowledge of pollutant loads from highways and average event mean concentrations to gauge the progress of WSDOT's comprehensive stormwater management program in reducing the amount of pollutants discharged and protecting water quality. Ecology intends this type of monitoring to continue beyond this permit term. The number of samples per year, 65% of qualifying events, up to a maximum of 14 events (11 required) will establish a sufficient data base from which to discern annual and seasonal loading trends over a long time period. Based upon discussions with the City of Tacoma and the City of Seattle, Ecology anticipates that WSDOT will readily achieve collection of data from 11 storm events per year.

S7.B includes collection of data at a variety of geographic locations, at various AADT levels, and storms.

#### *Highway runoff Monitoring*

Fossil fuel combustion, wear of tires, brake pads, bearings, bushings and other moving parts in engines, leaking lubricants and hydraulic fluids, and road deicing are processes that may contribute constituents of concern to highways. Limited monitoring of highway runoff has occurred under the previous NPDES permit. This permit will require monitoring numerous constituents, including:

- Metals (total and dissolved copper, zinc, cadmium and lead)
- Polycyclic aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPH-Dx and Gx)
- Total suspended solids (TSS)
- Chlorides
- Phthalates
- Fecal coliform
- Pesticides (only for those pesticides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Total phosphorus
- Ortho-phosphorus
- Temperature

Baseline monitoring for highways includes grab sampling for specific parameters (TPH and fecal coliform), because of the volatile nature of some of the compounds in this broad class of compounds. Fecal coliform bacteria, a pollutant presented in virtually all stormwater discharges. Fecal coliform bacteria are the most common reason for a surface water to be listed as not attaining water quality standards.

Ecology has developed a cost estimate (Appendix C of this Fact Sheet) for the field and laboratory work that will be necessary to meet this monitoring requirement.

#### *Baseline Sediment Testing*

The permit requires WSDOT to collect 1 sediment sample for each highway monitoring on an annual basis. The sediment sample is to be collected in sediment traps or using similar

methods in close proximity of the discharge location, in a place accessible by field staff. Ecology established the sediment parameters as those that have a history of association with stormwater discharges, are found in urban embayments, have a marine sediment quality standard or that provide necessary support information. The following parameters are required in the sediment analysis:

- Particle size (grain size)
- Total organic carbon
- Metals (total and dissolved copper, zinc, cadmium and lead)
- PAHs
- TPH
- Phenolics
- Pesticides (only for those pesticides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Phthalates
- Total solids

#### S7.C Toxicity Testing

The build-up of pollutants on the urban landscape during the dry season can result in higher concentrations and loads from discharge sites when compared to concentrations and loads from smaller, more frequent storms throughout the winter. Generally, receiving waters have less volume of water available for dilution of those pollutants during this time, and the water is at a warmer temperature. These receiving water conditions increase the potential for toxic conditions to the biota.

Various studies throughout the country, and locally, have documented stormwater toxicity to test organisms such as daphnids, amphipods, bacteria, and fish (reference). The causes of toxicity have included pesticides, metals, and polycyclic aromatic hydrocarbons (PAHs). Recent studies have confirmed higher rates of pre-spawn mortality of adult salmon returning to urban streams as compared to mortality rates in rural streams. Other studies have shown adverse effects on fish embryos from contaminants associated with urban storm water. Performing a toxicity test on the “seasonal first-flush storm” will provide an annual worst case scenario. The build-up of pollutants on the urban landscape during the dry season (July – Sept.) can result in higher concentrations and loads from discharge sites when compared to concentrations and loads from smaller, more frequent storms throughout the winter in western Washington. Generally, receiving waters have less volume of water available for dilution of those pollutants during late summer when the water is at a warmer temperature. These receiving water conditions increase the potential for toxic conditions to the biota.

Large impervious surfaces in urban areas increase the quantity and peak flows of runoff, which in turn cause hydrologic impacts such as scoured streambed channels, in-stream sedimentation and loss of habitat. Furthermore, because of the volume of runoff discharges, mass loads of pollutants in urban stormwater runoff can be significant. Impacts from the quality and quantity of stormwater runoff are highly site-specific and vary

geographically due to differences in local land use conditions, hydrologic conditions, and the type of receiving water.

Pacific Northwest fish populations are susceptible to the toxicity of urban storm water. Salmon spawn in urban streams. Forage fish on which salmon depend are exposed to storm water contaminants along urbanized shorelines during spawning in winter. Storm water commonly contains metals, PAHs, and pesticides. Copper is very bad for salmon and for the invertebrates on which they feed. Polycyclic aromatic hydrocarbons (PAHs) have very bad effects on fish eggs (embryos). Pesticides at low concentrations can have adverse effects on fish or invertebrates.

Biological monitoring can guide and justify the commitment of public resources for urban runoff control. The public will understand better the biological consequences of water quality degradation or improvement than numbers generated by physical or chemical measurements. Chemical analysis is inadequate by itself. Many toxic pollutants cannot easily be detected by chemical analysis. Little toxicity information is available for many chemicals. Mixtures of chemicals can have unknown combined effects. Biological monitoring does not have these disadvantages and has demonstrated its usefulness in assessments related to storm water.

A small set of biological monitoring techniques can identify pollutants in urban streams at levels of concern and direct efforts to reduce these pollutants in storm water. The approach would be cost-effective and also protect urban bays. The proposal describes using benthic invertebrate assessments, toxicity testing of salmonid embryos and fry, and daphnid or amphipod toxicity testing in an integrated system combining realistic environmental assessment with the ability to determine cause and effect relationships. The system is structured to protect salmon reproduction.

#### *Hyalella Testing*

*Hyalella azteca* is a crustacean found in lakes, ponds, and streams throughout North America. *Hyalella* are an important food source for fish including salmon and trout and various invertebrates. Pesticides in stormwater runoff have recently been discovered to kill *Hyalella*.

The objectives behind toxicity testing include:

- Determining if raw highway storm runoff is toxic; and
- Determining whether or not BMPs are producing or reducing toxicity associated with metals
- Designing adaptive management strategies to reduce pollution from BMP discharge points.

The toxicity testing in the permit is designed to give WSDOT flexibility for site selection to perform toxicity testing. The sites selected to meet requirements in S7.B and S7.E (Baseline Monitoring of Highways and Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs) can be used as toxicity monitoring sites if requirements in all sections are met. For instance, monitoring highway runoff chemistry

parameters requires using flow-weighted composite samplers while monitoring toxicity chemical parameters requires using either flow or time-weighted composite samplers; in order to meet conditions in S7.B and S7.C both sampling method a flow-weighted composite sampling must be used.

#### S7.D Baseline Monitoring of Rest Areas, Maintenance Facilities and Ferry Terminals

##### *Maintenance Facilities*

WSDOT's rest areas, maintenance facilities and ferry terminals are considered WSDOT land uses for purposes of this permit. WSDOT's Regional maintenance facilities are similar to industrial permitted properties in that they exhibit activities including vehicle and equipment cleaning, fueling, and repair, and may contribute various constituents to stormwater discharges from their sites, including synthetic organic compounds (e.g., from adhesives, cleaners, sealants, solvents) and petroleum hydrocarbons. Throughout the United States, heavy metals (namely chromium, copper, lead, nickel and zinc), oil and grease, nutrients and solvents have been associated with runoff from vehicle service/maintenance activities. In addition, eroded sediment, the primary source of suspended material, may be a site-specific concern at some maintenance yards. An early decision made between WSDOT and Ecology placed an agreement that maintenance facilities in particular would be covered under this permit instead of the industrial permit program.

WSDOT and Ecology recognize the potential pollutants that may runoff from these maintenance facilities and other land uses including rest areas and ferry terminals; therefore, have developed an appropriate monitoring program to evaluate the level of pollutants discharged from these sites and to improve Stormwater Pollution Prevention Plans and/or Stormwater Management Programs that currently exist for these sites. This section of the permit will require monitoring numerous constituents, including:

- TSS
- TPH
- PAHs
- Pesticides (only for those pesticides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Metals (total and dissolved copper, zinc, cadmium and lead)
- Methylene Blue Activated Substances (MBAS)
- Chlorides

For a more statewide application, the permit requires WSDOT to select one Regional maintenance facility for monitoring from each Region shown in Figure 1 below:



Figure 1. Map of WSDOT’s Management Regions throughout the State of Washington.

*Rest Areas*

Petroleum products, metals, sediment, bacteria, and trash and debris may be present in stormwater runoff from rest areas. Coliform (Total and Fecal) bacteria may be present in runoff at varying concentrations. This permit will require monitoring numerous constituents, including:

- TPH
- Metals (total and dissolved copper, zinc, cadmium and lead)
- PAHs
- TSS
- Pesticides (only for those pesticides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Nutrients
- Fecal coliform
- Temperature
- Chlorides

*Ferry Terminals*

Petroleum products, metals, sediment, bacteria, and trash and debris may be present in stormwater runoff from ferry terminals. Coliform (Total and Fecal) bacteria may be present in runoff at varying concentrations. This permit will require monitoring numerous constituents, including:

- PAHs
- TPH
- Metals (total and dissolved copper, zinc, cadmium and lead)
- MBAS
- TSS
- Fecal coliform
- Temperature

### S7.E. Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Best Management Practices

#### *Treatment Monitoring*

On a smaller scale, Ecology also needs to determine the effectiveness of specific treatment BMPs in reducing pollutant discharges

Ecology's stormwater manuals and WSDOT's Highway Runoff Manual include lists of treatment BMPs that WSDOT may apply in new development and re-development projects. Though most of these treatment types have been recommended and in common use for many years, Ecology has incomplete information about the BMP pollutant removal capabilities. Ecology has some confidence that they are based on sound engineering concepts, but does not know how well they perform in relation to one another. Without a feedback loop of performance, Ecology cannot confirm which BMP's perform best for certain pollutants. Ecology also needs this information to estimate pollutant loadings that is necessary to implement TMDL's. Without the feedback loop, Ecology has no good basis for altering design criteria in order to improve their performance.

Researchers have conducted few studies in the maritime Pacific Northwest climate on facilities constructed using design criteria in the stormwater manuals. Ecology has general performance information on categories of treatment BMP's (e.g., wet ponds, dry ponds, biofiltration swales) from data collected around the country. But the collectors of that data acknowledge its limitations because of the broad range of design criteria used around the country and because of regional variations in rainfall patterns and soil types. We are overdue to perform studies to firm-up our knowledge of the capabilities and limitations of the "best management practices" that permittees have used to reduce the pollutant impacts of developments.

The permit allows WSDOT to select 2 treatment bmp types that are standard technologies in their manuals, for detailed performance monitoring. Since other Phase I permittees have the same permit conditions, Ecology hopes to get useful performance information on different BMP types. If necessary, Ecology will work with the permittees to coordinate monitoring to avoid duplication and so that the widest range of BMP types can be assessed.

The statistical goal for treatment BMP effectiveness monitoring is to determine mean effluent concentrations and mean percent removals with 95% confidence and 80% power. Those are the goals in the "Technology Assessment Protocol – Ecology" (TAPE). They

are commonly used statistical goals. Based on expected coefficients of variation for stormwater pollutant parameters, it is likely that these statistical goals can be reached with between 12 to 35 sample pairs. However, in the event of a large coefficient of variation, a maximum of 35 sample pairs will suffice, and the confidence and power will be identified. WSDOT is required to meet statistical goals for the required parameters for each BMP type based on treatment level, as listed on page 19 of TAPE Guidance.

The cost estimation for this effort in Appendix C to this Fact Sheet assumed 28 sample pairs would be necessary for all parameters of interest.

The influent particle size distribution can have a significant effect on the pollutant removal performance of treatment BMP's. Prior to, or early in the sampling effort at a particular treatment BMP site, WSDOT will analyze the influent particle distribution to see if it falls within a range that is typical for the BMP's application and meets the requirements of the TAPE.

WSDOT may choose to conduct toxicity testing at BMP effluent stations selected under S7.E Monitoring the Effectiveness of Stormwater Treatment BMPs. If a metals removal BMP is chosen for analysis under both requirements:

- The additional parameters listed as required for toxicity chemical parameters must be analyzed,
- Flow-weighted composite samplers must be used, and
- A targeted first flush sample must be attempted from the end of the BMP (August or September sample with a one-week antecedent dry period).

WSDOT must use appropriate sections of *Guidance for Evaluating Emerging Stormwater Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE)* (Publication Number 02-10-037), or its updated version if published before the issuance date of this permit, for preparing, implementing, and reporting on the results of the BMP evaluation program. Because these efforts have significant costs, Ecology recommends that WSDOT submit a QAPP for review and approval before implementing the monitoring program. This will reduce time and cost wasted on monitoring activities that Ecology will not accept or deem useful.

Ecology is also proposing that WSDOT collect additional data, consistent with the recommendations in the "National Stormwater BMP Data Base Requirements." Additional data may help the national data base improve to the point that it can provide constructive observations and recommendations to modify Washington's designs, goals, and monitoring methods.

#### *Hydrology Monitoring*

Much interest has arisen in using various low impact development (LID) practices for new developments and for retrofitting into existing developments. Ecology needs to establish a feedback loop for documenting designs that have promise for long-term functionality, and for documenting the extent to which they can reduce surface water runoff volumes and flow rates. No commonly accepted field monitoring protocols exist for measuring LID

project functionality and effectiveness. Seattle has a surface water monitoring effort for its Broadview/Green Grid project and a surface and groundwater monitoring effort for its High Point project. The Washington State University Cooperative Extension Office in Tacoma is monitoring surface and groundwater flows at a site near the Pierce/King County line.

A one-size fits all monitoring protocol does not seem a likely approach. Ecology will accept suggestions for minimum field and statistical requirements for hydrologic monitoring. In all cases, it is likely that a long-term monitoring station is necessary to record flows and water surface elevations over an extended range of precipitation and soil moisture conditions. Ecology and WSDOT's monitoring results may be used to improve the methods by which LID features are represented in predictive runoff models for determining treatment and flow control needs.

#### *Collaboration and Multi-purpose Monitoring Site*

Ecology will allow WSDOT to collaborate on monitoring programs. It could involve hiring the same third party to perform some part or all of the monitoring efforts. It could entail sharing staff and equipment, standard operating procedures, laboratory facilities or contracts, or monitoring sites with other agencies?.

WSDOT may also identify a monitoring site that can be used to meet more than one permit requirement. For instance, it may be possible to identify an influent monitoring station for a treatment BMP that could also double as a site for monitoring stormwater quality. Ecology will review the sampling protocol to assure both monitoring requirements are met. in a

In another example, WSDOT may identify a highway monitoring site used to capture a flow-weighted sample during storm events that could also be used to collect toxicity chemistry data. In this instance, the more stringent requirements from both sections (S7.B and S7.C) shall apply to the sample:

- A flow weighted sample must be collected and can be counted toward toxicity, toxicity chemistry and baseline highway runoff
- A sample attempt should be made to meet the qualifying storm conditions of 0.2" of rainfall volume
- The sample must be a first-flush sample collected between August 1<sup>st</sup> and September 30<sup>th</sup> with a one-week antecedent dry period
  - If unsuccessful during this time period, a sample can be collected in October but meeting the required antecedent dry period for baseline highway runoff samples collected during the wet season (less than 0.02-inch rain or no surface runoff in the previous 24 hours)

#### S7.F Quality Assurance Project Plans

WSDOT is required to submit Quality Assurance Project Plans (QAPPs) in accordance with Ecology's Guidelines for Preparing Quality Assurance Project Plans for

Environmental Studies (2004). The permit will require the following QAPPs to be submitted to Ecology for review and approval:

- S7.B QAPP for Baseline Monitoring of Highways
  - Includes sediment sampling, grab sampling and toxicity testing (if applicable)
- S7.C First Flush Toxicity Testing
- S7.D Baseline Monitoring of Rest Areas, Maintenance Facilities and Ferry Terminals
- S7.E Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs – Selected Treatment BMPs
- S7.E Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs – *Flow Reduction Strategy*

#### Site Selection and Regional Framework

Facility Type	Number of Monitoring Sites	Events Monitored	Site Selection Based on AADT Level?	Seasonal First Flush Event Monitored?	Regional Application
Maintenance Facilities	6	7	NA	Yes	1 site in each WSDOT Region <sup>1</sup>
Rest Areas	2	7	High Use	Yes	High Use Dependent
Ferry Terminals	1	7	High Use	Yes	Western Washington
Highways	5	11 - 14 <sup>2</sup>	Yes	No	AADT Dependent
Toxicity Sites	6	1	Yes	Yes	AADT and BMP Dependent
BMP Sites	2	BMP dependent	No	No	BMP Dependent

<sup>1</sup>See Figure 1 for a map of WSDOT regions

<sup>2</sup>11 events are required up to a maximum of 14 events per year.

The timeline for submittal will include a required submittal date for each QAPP, an Ecology 90-day review and comment period, and a required approval and finalization date. Monitoring implementation will depend upon the type of program selected (collaborative or independent) as indicated in Section S7.G.

#### S8 – Reporting Requirements

- A. The federal stormwater rules at [40 CFR 122.42(c)] requires municipal stormwater permittees to submit an annual report. Ecology included the annual reporting requirement in the WSDOT permit, and clarified reporting requirements consistent with other provisions in the permit.

- B. Ecology modified items for inclusion in the annual report from the federal requirements for the following reasons:
- Ecology provides additional clarification about requirements in the portion of the report on the status of implementing the components of the stormwater management program. WSDOT must address compliance with the performance standards.
  - The EPA rules require reporting on annual expenditures. Ecology has provided clarification on what kind of information is required in the portion of the report on annual expenditures. The instructions for the reporting form include clarification on the tracking and reporting of expenditures.
  - Ecology deleted the federal requirement for information on revisions to the assessment of controls from the annual report. The purpose of the federal requirement is to predict the effectiveness of Stormwater Management Plans in reducing pollutants discharged. Except for qualitative observations, it is not possible to estimate pollutant reductions annually without extensive monitoring. Ecology prefers the broader monitoring program outlined in S7 to estimate concentrations and loads from representative areas or basins, evaluate management actions and evaluate the effectiveness of selected Best Management Practices.
  - Ecology retained the EPA requirements to provide a summary of monitoring data as a separate monitoring report under Special Condition S7. In addition, Ecology has requested a description of any other stormwater monitoring programs.
- C. Ecology does not want the annual reporting requirement to unnecessarily take resources away from program implementation. Also, Ecology does not have staff resources to respond to voluminous annual reports. However, it is necessary to have enough information to evaluate compliance with permit requirements and prepare the next permit.

### **General Conditions:**

General Conditions are based directly on state and federal law and regulations and have been standardized for all NPDES permits issued by the Ecology. Some of these conditions were developed for different types of discharges. Although Ecology is required by federal regulation to include them in the permit, they may not be strictly applicable.

- G1 Requires discharges and activities authorized by the draft permit to be consistent with the terms and conditions of the permit in accordance with 40 CFR 122.41.
- G2. Requires WSDOT to operate and maintain all stormwater pollution control facilities and system with terms and condition of this Permit.
- G3. Require WSDOT to notify Ecology immediately of all spills that may threaten human health and environment within 24 hours. In addition, spills that may cause

- bacterial contamination of shell fish must also reported to the State, Department of Health shellfish program.
- G4. This Permit prohibits bypass unless certain conditions exist in accordance with 40 CFR 122.41(m).
  - G5. Require WSDOT to allow Ecology to access the facilities and conduct inspections of the facilities and records related to this Permit in accordance with 40 CFR 122.41(i), Chapter 90.48.090 RCW, and WAC 173-220-150(1)(e).
  - G6. For discharges with reasonable likelihood of adversely affecting human health or the environment, this Permit requires WSDOT take all reasonable steps to minimize or prevent any discharge in violation of this Permit.
  - G7. Specifies that the Permit does not convey property rights in accordance with 40 CFR 122.41(g).
  - G8. Prohibits WSDOT from using the Permit as a basis for violating any laws, statutes or regulations in accordance with 40 CFR 122.5(c).
  - G9. This Permit contains certain sets of monitoring requirements to insure compliance. The monitoring shall be based on representative samples of the discharge that must also include the actual flow. The samples shall be tested by an accredited laboratory based on certain pre-prescribed procedures and the results shall be retained by WSDOT for five years, or longer in case of enforcement or other litigations.
  - G10. Prohibits the reintroduction of removed substances back into the storm sewer system or to waters of the state in accordance with 40 CFR 125.3(g), Chapter 90.48.010 RCW, Chapter 90.48.080 RCW, WAC 173-220-130, and WAC 173-201A-040.
  - G11. Invokes severability of permit provisions in accordance with Chapter 90.48.904 RCW.
  - G12. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.
  - G13. Identifies the requirements for transfer of permit coverage in accordance with 40 CFR 122.41(l)(3) and WAC 173-220-200.
  - G14. Identifies conditions for revoking coverage under the general permit in accordance with 40 CFR 122.62, 40 CFR 124.5, WAC 173-226-240, WAC 173-220-150(1)(d), and WAC 173-220-190.
  - G15. Requires WSDOT to notify Ecology when facility changes may require modification or revocation of permit coverage in accordance with 40 CFR 122.62(a), 40 CFR 122.41(l), WAC 173-220-150(1)(b), and WAC 173-201A-060(5)(b).
  - G16. Defines appeal options for the terms and conditions of the general permit and of coverage under the Permit by an individual discharger in accordance with Chapter 43.21B RCW and WAC 173-226-190.
  - G17. Any person who is found guilty of willfully violating the terms and conditions of this Permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to ten thousand dollars (\$10,000) and costs of prosecution, or by imprisonment in the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation. Any person who violates the terms and conditions of a waste discharge permit shall incur, in

addition to any other penalty as provided by law, a civil penalty in the amount of up to ten thousand dollars (\$10,000) for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation. Describes the penalties for violating permit conditions in accordance with 40 CFR 122.41(a)(2).

- G18. Requires WSDOT to reapply for coverage 180 prior to the expiration date of this General Permit in accordance with 40 CFR 122.21(d), 40 CFR 122.41(b), and WAC 183-220-180(2). An expired permit continues in force and effect until a new permit is issued or until Ecology cancels the Permit. Only Permittees who have reapplied for coverage under this Permit are covered under the continued permit. This section is derived from Chapter 90.48.170 RCW.
- G19. Requires responsible officials or their designated representatives to sign submittals to Ecology in accordance with 40 CFR 122.22, 40 CFR 122.22(d), WAC 173-220-210(3)(b), and WAC 173-220-040(5).
- G20. Require WSDOT to notify Ecology in the event that they are unable to comply with the permit or is out of compliance with the permit.
- G21. Require WSDOT shall meet the conditions of 40 CFR 122.41(n) regarding "Upsets." "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of WSDOT. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Appendix A  
Applicable TMDLs

Water Body Name	WBID *	Parameter	Approval Date
<a href="#">Stillaguamish River &amp; Portage Creek</a>	WA-05-1020	FC, Dissolved Oxygen, Turbidity, pH, Mercury, Arsenic	21-June-05
		Temperature	11-Sep-06
<a href="#">Issaquah Creek Basin</a>	WA-08-1010	Fecal Coliform	01-Oct-04
<a href="#">Little Bear Creek</a> <ul style="list-style-type: none"> <li>• Trout Stream</li> <li>• Great Dane Creek</li> <li>• Cutthroat Creek</li> </ul>	WA-08-1085	Fecal Coliform	01-July-05
<a href="#">Swamp Creek</a>	WA-08-1060	Fecal Coliform	16-Aug-06
<a href="#">South Prairie Creek</a> <ul style="list-style-type: none"> <li>• Wilkeson/Gale Creek</li> </ul>	WA-10-1085 WA-10-1085 WA-10-1087	Temperature Fecal Coliform Temperature	06-Aug-03
<a href="#">Nisqually Watershed</a> <ul style="list-style-type: none"> <li>• McAllister Creek</li> <li>• Ohop Creek</li> <li>• Red Salmon Creek</li> <li>• Lynch Creek</li> <li>• Wash Creek</li> <li>• Unnamed Tributary to West Red Salmon Creek</li> <li>• Little McAllister Creek</li> <li>• Medicine Creek mouth</li> </ul>	WA-11-1010 WA-11-2000	Fecal Coliform Dissolved Oxygen	05-Aug-05
<a href="#">Totten/Eld Inlets Tributaries</a>	WA-14-1100 WA-14-1190 WA-14-1195 WA-14-1200 WA-14-1400	Fecal Coliform Temperature	21-June-06
<a href="#">Walla Walla</a>	WA-32-1010 WA-32-1020 WA-32-1060	Chlorinated Pesticide PCBs	09-May-06
<a href="#">Yakima, Upper</a>	WA-39-1010	DDT, Dieldrin, Suspended Sediments, Turbidity	13-Sep-02

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**Appendix B**  
**Annual Estimated FY07 Cost for WSDOT S7. Stormwater Monitoring Sampling**  
**Does not include BMP Sampling**

**Cost is ANNUAL Cost , Based on 11 sampling sites/yr with toxicity at 3 sites/yr**

<b>Field Equipment and Expenses</b>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
ISCO - 6712 Composite Sampler	11	2,795.00	30,745.00
Automated Flow Module - Bubble730	11	1,845.00	20,295.00
Rechargeable Battery	15	50.00	750.00
Disposable field equipment (gloves, deionized water, detergents) 11 sites 15x/yr	11	500.00	5,500.00
Reusable field equipment (5-gallon buckets, spray bottles, coolers, field notebooks) 15x/yr	1	2,000.00	2,000.00
Strainer	11	45.00	495.00
Mounting equipment	11	300.00	3,300.00
ISCO FlowLink5 Software	1	1,000.00	1,000.00
Data Transfer Unit (DTU)	1	1,000.00	1,000.00
Grab sampling equipment extention pole	1	50.00	50.00
<i>Subtotal field equipment and expenses</i>			\$ 65,135.00
<b>Sediment Sampling</b>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Sediment traps - 4 per site	44	165.00	7,260.00
Sediment trap mount	11	300.00	3,300.00
Sediment trap installation and recovery (sampling) - 11 sites, 2hrs each site, 2x year)*	2 employees	\$35/hr	1,540.00
<i>Subtotal sediment sampling + equipment</i>			\$ 12,100.00
<b>Stormwater Monitoring</b>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Storm event sampling (composite and grab) - 11 sites 12 hrs/storm (15x/year)	6 employees	\$35/hr	37,800.00
Equipment installation and break down, training staff and confined space entry (if needed) 16 hours	6 employees	\$35/hr	3,360.00
Confined space entry equipment (if needed)	1	800.00	800.00
Storm forecasting and decision-making - 5hrs/week - 52.14 weeks	1 employee	\$35/hr	9,124.50
Records management - analytical data, annual reporting, data sheet checks (5hr/week) govt employee rate	1 employee	\$35/hr	9,124.50
Data verification and validation (upon analytical data receipt) 10hr/month - govt employee rate	1 employee	\$35/hr	4,200.00

<b><i>Subtotal Stormwater Monitoring</i></b>			\$ 64,409.00
*Sediment trap installation cost worked into equipment set-up if confined space entry is required			
<b>Toxicity Sampling</b>	<b><i>Qty</i></b>	<b><i>Cost</i></b>	<b><i>Total Cost</i></b>
Refrigerated Sampler Rental - 1/yr - one week rental	1	1,000.00	1,000.00
Equipment installation and break down, confined space entry (if needed) 16 hours	2 employees	\$35/hr	2,240.00
Storm event sampling including chemistry sampling (cost includes 2 event, 12 hours per event)	2 employees	\$35/hr	1,680.00
Reusable and disposable equipment	1	250.00	250.00
<b><i>Subtotal Toxicity Sampling</i></b>			\$ 5,170.00
<b>Laboratory Analytical Costs</b>			
<b><i>Stormwater Monitoring General Chemistry - Based on 11 Sites - 14 events per year</i></b>	<b><i>Qty</i></b>	<b><i>Cost</i></b>	<b><i>Total Cost</i></b>
TSS	154	18.00	2,772.00
Chloride	154	20.00	3,080.00
temperature	154	20.00	3,080.00
nitrate nitrite	154	25.00	3,850.00
total phosphorus	154	30.00	4,620.00
TKN	154	32.00	4,928.00
ortho phosphorus	154	20.00	3,080.00
MBAS	154	175.00	26,950.00
metals (total and dissolved zinc, lead, copper and cadmium)	154	80.00	12,320.00
PAHs	154	260.00	40,040.00
Phthalates	154	315.00	48,510.00
Pesticides	154	400.00	61,600.00
Fecal coliform	154	42.00	6,468.00
TPH Dx and Gx	154	170.00	26,180.00
<b><i>Subtotal Analytical for Stormwater Monitoring</i></b>			\$ 247,478.00
<b><i>Toxicity Analysis and Chemical Analysis- 3 sites once per year</i></b>	<b><i>Qty</i></b>	<b><i>Cost</i></b>	<b><i>Total Cost</i></b>
Conductivity	3	10.00	30.00
Chloride	3	20.00	60.00
Hardness	3	18.00	54.00
Methylene blue activating substances	3	175.00	525.00

Total phosphorus	3	30.00	90.00
Orthophosphorus	3	20.00	60.00
Nitrate/Nitrite	3	25.00	75.00
Total Kjeldahl nitrogen	3	32.00	96.00
Metals (Zn, pb, cu, cd and mercury)	3	110.00	330.00
Polyaromatic hydrocarbons	3	260.00	780.00
TPH including Dx and Gx	3	170.00	510.00
Pesticides (which ones?)	3	400.00	1,200.00
Phthalates	3	315.00	945.00
7-day test	3	650.00	1,950.00
Egg/yolk testing			
<i>Subtotal Analytical for Chemical Analysis as Part of Toxicity Testing</i>			\$ 6,705.00
<b>Quality Control Samples</b>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
QC samples (duplicates only) from stormwater monitoring (11 sites, 15x/yr) using average of each cost above.	165	114.00	18,810.00
QC samples (equipment blanks only) collected 2x/year and analyzed for all above parameters	4	1,607.00	6,428.00
<i>Subtotal Quality Control Samples</i>			<u>\$ 25,238.00</u>
<b>Sediment Samples</b>	<i>Qty</i>	<i>Cost</i>	<i>Total Cost</i>
Percent Solids	11	10.00	110.00
Phenolics	11	56.00	616.00
Total metals (Cd, Cu, Pb, Zn)	11	80.00	880.00
Mercury (requires prep)	11	40.00	440.00
PCBs and Pesticides	11	515.00	5,665.00
Pesticides, phthalates	11	325.00	3,575.00
Particle size distribution	11	75.00	825.00
Total organic carbon	11	50.00	550.00
NWTPH-Dx and Gx	11	170.00	1,870.00
Field/Lab QA/QC (additional 20% for metals and organics)	11	147.00	147.00
<i>subtotal Sediment Samples</i>			<u>\$ 14,678.00</u>
<b>Grand Total</b>			<b>\$ 440,913.00</b>

\* Some parameters such as temperature, pH, conductivity can be measured in the field using field instruments rather having the laboratory run analysis on them.

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**Appendix C**

**RESPONSE TO COMMENTS  
ON THE  
Washington State Department of Transportation  
MUNICIPAL STORMWATER GENERAL PERMIT**

**National pollutant discharge elimination system (NPDES) and state waste discharge general permit for discharges from Washington State Department of Transportation owned or operated separate stormwater sewers.**

February 4, 2009

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## INTRODUCTION

On May 21, 2008 Ecology filed a notice with the State Register to reissue the Washington State Department of Transportation (WSDOT's) NPDES and State Waste Discharge General Permit for their Municipal Separate Storm Sewers (MS4s). Ecology invited public comment on the draft permit and fact sheet, WSDOT's revised *Highway Runoff Manual* (HRM), (included in the permit as Appendix 1), WSDOT's Stormwater Management Program Plan (included in the permit as Appendix 9) and the Implementing Agreement between Ecology and WSDOT regarding the statewide application of the HRM. The public comment period ended June 24, 2008.

WSDOT updated its 1997 Stormwater Management Program (SWMP) to meet the new minimum performance measures during permit development. Ecology tentatively approved and incorporated WSDOT's 2008 SWMP plan into its new stormwater permit as an appendix for public review. For more information on the SWMP go to: [www.ecy.wa.gov/pubs/0810045.pdf](http://www.ecy.wa.gov/pubs/0810045.pdf). WSDOT also updated the HRM for consistency with Ecology's stormwater runoff manual with respect to (WSDOT) operations. Ecology approved the HRM august 20, 2008, and WSDOT agreed to continue applying their HRM guidelines statewide, with the revised HRM coming into effect when the final permit is issued. Statewide application of the HRM is formalized through an implementing agreement between Ecology and WSDOT.

## SUMMARY OF CHANGES TO THE DRAFT PERMIT

Ecology made numerous changes to improve clarity and readability of the permit.

Changes were also made in response to recent Pollution Control Hearings Board (PCHB) rulings on the Phase I and Phase II Municipal Stormwater General Permits, which were issued January 17, 2007. (PCHB Findings, Conclusions and Orders on the permits are available at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/appeals.html>). WSDOT petitioned to intervene in the appeals because its storm drain system is regulated under the same Clean Water Act NPDES permit program as the other municipal permits and its permit contains many provisions substantially similar or even identical to those in the other municipal permits.

The state Pollution Control Hearings Board issued two significant and comprehensive rulings with bearing on this permit. The first ruling clarifies the legal standard for municipal stormwater permits and how that standard is implemented. Overall the Board affirmed the standard and the approach required by Ecology's permits. The Board directed Ecology to make changes to the compliance with standards language to provide more clarity and predictability. Changes have been made to section S4 of the permit to reflect the board's ruling.

The second ruling issued by the Board is a ruling on the consolidated appeals of the Phase I municipal stormwater permit. Again the Board's ruling largely affirmed Ecology's Phase I permit, with some changes. The Board's major change was to require greater use of low-impact

development (LID) techniques where feasible. Accordingly, Ecology made changes to section S5 and Appendix 7 of this permit, requiring the use of LID, where feasible.

Finally, changes were made in response to comments received by the fourteen entities that commented on the draft permit. In particular, changes were made to the monitoring program, to the TMDL requirements and to reporting requirements. Where particular comments led to changes in the permit, those modifications are noted in the response.

### ORGANIZATION OF THE RESPONSE TO COMMENTS

Ecology organized this Response to Comments into three parts. Part I addresses changes made as a result of the PCHB rulings on the Phase I and II Municipal Stormwater general Permits, Part II contains general comments, and Part III lists comments pertinent to specific sections of the permit followed by Ecology's responses. The comments received are enumerated for ease of reference. Those who commented are listed below. Their comments can be read in full on our website at:

[http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot/public\\_comments/Final2allCOMMENTS.pdf](http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot/public_comments/Final2allCOMMENTS.pdf)

### LIST OF COMMENTERS

Thomas Holz – Civil Engineer (TH)  
Bob Yoder – private citizen (BY)  
Michael Fagin – West Coast Weather (WCW)  
Lorna Mauren, P.E. -- City of Tacoma (Tacoma)  
Bruce Wulkan—Puget Sound Partnership (PSP)  
Mark Toy – WA State Department of Health (DOH)  
Lionel Klickoff – WA State Department of Natural Resources (DNR)  
Mary Ann Rempel-Hester, Ph.D. -- Nautilus Environmental (NE)  
Char Naylor -- Puyallup Tribe of Indians (Puyallup Tribe)  
Richard A. Smith -- Puget Soundkeeper Alliance (PSA)  
Heather Trim – People for Puget Sound PPS)  
Luanne Coachman – King County (KC)  
Washington State Department of Transportation (WSDOT)  
Karen Walter – Muckleshoot Indian Tribe (Muckleshoots)

PART I

THE POLLUTION CONTROL HEARINGS BOARD (PCHB) RULINGS

PCHB Nos. 07-021, 07-026, 07-027, 07-028, 07-029, 07-030, 07-037 and 07-022, 07-023

Findings of Fact, Conclusions of Law, signed August 7, 2008, concluded that S4.F as written is invalid and remanded the Phase I and Phase II permits to Ecology to make modifications. For reasons of consistency, Ecology modified S4 in the WSDOT permit as well.

S4. COMPLIANCE WITH STANDARDS, AS MODIFIED, CONSISTENT WITH THE BOARD'S RULING:

- A. In accordance with RCW 90.48.520, the discharge of toxicants to waters of the state of Washington which would violate any water quality standard, including toxicant standards, sediment criteria, and dilution zone criteria is prohibited. The required response to such discharges is defined in Section S4.F., below.
- B. This permit does not authorize a discharge which would be a violation of Washington State surface water quality standards (Chapter 173-201A WAC), ground water quality standards (Chapter 173-200 WAC), sediment management standards (Chapter 173-204 WAC), or human health-based criteria in the national Toxics Rule (Federal Register, Vol. 57, NO. 246, Dec. 22, 1992, pages 60848-60923). The required response to such discharges is defined in Section S4.F below.
- C. WSDOT shall reduce the discharge of pollutants to the maximum extent practicable (MEP).
- D. WSDOT shall use all known, available, and reasonable methods of prevention, control and treatment (AKART) to prevent and control pollution of waters of the State of Washington.
- E. WSDOT shall comply with all of the applicable requirements of this permit as defined in Section S3, Responsibilities of Permittee in order to meet the goals of the Clean Water Act, and comply with S4.A through S4.D.
  - 1. WSDOT remains in compliance with S4 despite any discharges prohibited by S4A or S4.B when WSDOT undertakes the following response toward long-term water quality improvements. WSDOT shall notify Ecology in writing within 30 days of becoming aware, based on credible site-specific

information that a discharge from the municipal separate storm sewer owned or operated by WSDOT is causing or contributing to a known or likely violation of Water Quality Standards in the receiving water. Written notification provided under this subsection shall, at a minimum, identify the source of the site-specific information, describe the nature and extent of the known or likely violation in the receiving water and explain the reasons why the MS4 discharge is believed to be causing or contributing to the problem. For ongoing or continuing violations, a single written notification to Ecology will fulfill this requirement.

2. In the event that Ecology determines, based on a notification provided under S4.F.1 or through any other means, that a discharge from a municipal separate storm sewer owned or operated by WSDOT Ecology will notify WSDOT in writing that an adaptive management response outlined in S4.F.3 below is required, unless Ecology also determines that (a) the violation of Water Quality Standards is already being addressed by a Total Maximum Daily Load or other enforceable water quality cleanup plan; or (b) Ecology concludes the violation will be eliminated through implementation of other permit requirements.
3. Adaptive Management Response.
  - a. WSDOT shall review its Stormwater Management Program and submit a report to Ecology within 60 days of receiving the notification under S4.F.2, or by an alternative date established by Ecology. The report shall include:
    - i. A description of the operational and/or structural BMPs that are currently being implemented to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards and a qualitative assessment of the effectiveness of each BMP.
    - ii. A description of potential additional operational and/or structural BMPs that will or may be implemented in order to apply AKART on

- a site-specific bases to prevent or reduce any pollutants that are causing or contributing to the violation of Water Quality Standards.
- iii. A description of the potential monitoring or other assessment and evaluation efforts that will or may be implemented to monitor, assess, or evaluate the effectiveness of the additional BMPs.
  - iv. A schedule for implementing the additional BMPs including, as appropriate: funding, training, purchasing, construction, monitoring, and other assessment and evaluation components of implementation.
- b. Ecology will, in writing, acknowledge receipt of the report within a reasonable time and notify WSDOT when it expects to complete its review of the report. Ecology will either approve the additional BMPs and implementation schedule or require WSDOT to modify the report as needed to meet AKART on a site-specific basis. Ecology will specify a reasonable time frame in which WSDOT shall submit a revised report to Ecology if modifications are required.
  - c. WSDOT shall implement the additional BMPs, pursuant to the schedule approved by Ecology, beginning immediately upon receipt of written notification of approval.
  - d. WSDOT shall include with each subsequent annual report a summary of the status of implementation, and the results of any monitoring, assessment or evaluation efforts conducted during the reporting period. If, based on the information provided under this subsection, Ecology determines that modification of the BMPs or implementation schedule is necessary to meet AKART on a site-specific basis, WSDOT shall make such modifications as Ecology directs. In the event there are on-going violations of water quality standards despite the implementation of the BMP approach of this section, WSDOT may be subject to compliance schedules to eliminate the violation under WAC 173-201A-510(4) and WAC 173-226-180 or other enforcement orders as Ecology deems appropriate during the term of this permit.

- e. Provided WSDOT is implementing the approved adaptive management response under this section, WSDOT remains in compliance with Condition S4, despite any on-going violations of Water Quality Standards identified under S4.F.A or B above.
  - f. Whether the process in Section S4.F provides WSDOT a shield from liability under 42 U.S.C. et seq. or RCW 70.105.D is a matter of state and federal law which Ecology does not intend to alter. The adaptive management process provided under section S4.F is not intended to create a shield for WSDOT from any liability it may face under 42 U.S.C. 9601 et seq. or RCW 70.105D.
- G. Ecology may modify or revoke and reissue this General Permit in accordance with G14 *General Permit Modification and Revocation* if Ecology becomes aware of additional control measures, management practices or other actions beyond that required in this permit, that are necessary to:
1. Reduce the discharge of pollutants to the MEP;
  2. Comply with the state AKART requirements; or
  3. Control the discharge of toxicants to waters of the State of Washington.

PCHB Nos. 07-021, 07-026, 07-027, 07-028, 07-029, 07-030 and 07-037 Final Order, dated August 7, 2008, concluded that the Phase I Permit fails to require that the municipalities control stormwater discharges to the maximum extent possible (MEP) and does not require application of all known, available, and reasonable methods to prevent and control pollution (AKART), because it fails to require more extensive use of low impact development (LID) techniques. To remedy the problem, the Board directed Ecology to make specific changes to some provisions in the permit to require use of LID where feasible, as it is necessary to meet the MEP and AKART standards of federal and state law respectively.

Special conditions S5 and S8 are therefore amended with the following additions:

S5.A.6. is added:

WSDOT's SWMP shall require non-structural preventative actions and source reduction approaches including Low Impact Development Techniques (LID), to minimize the creation of impervious surfaces, and measures to minimize the disturbance of soils and vegetation where feasible.

S8. E.3. is added:

WSDOT shall identify barriers to implementation of LID and, in each annual report, identify actions taken to remove barriers identified and report progress on LID feasibility required in S5.A.6.

## PART II

### GENERAL COMMENTS ON THE PERMIT

- **A number of comments regarded the lack of Low Impact Development requirements. A few commenters pointed out that LID should be considered AKART.**

#### **Response to the range of comments:**

*Ecology was waiting for the PCHB ruling before incorporating certain changes to this draft permit. One of the rulings was on LID. (See responses to PCHB rulings of August 7, 2008 above).*

*AKART is not limited to low impact development practices, but it certainly includes them. The permit, through the required development and implementation of the Stormwater Management Program, is designed to reduce pollutants to the maximum extent practicable and to make progress toward compliance with water quality standards by meeting state AKART requirements. In addition, Special conditions S5 and S8 are amended to require the use of LID where feasible (See responses to PCHB rulings above).*

*We added the language from the recent PCHB order for the Phase I (see Part I) permit that requires WSDOT to complete a feasibility study for LID and to identify barriers to implementing LID. We placed required language in both S5 of the permit and in WSDOT's Stormwater Management Program, Appendix 7 of the permit. The technical guidance for LID is contained in section 2-5.2 of the Highway Runoff Manual.*

- **There were several comments on antidegradation and discharges to 303(d) waters. It was suggested that the permit allows the discharge of polluted runoff into 303(d) listed waters. In addition, comments were made that anti-degradation requirements were not considered in the permit.**

#### **Response to the range of comments:**

*This permit covers stormwater runoff from WSDOT's various land uses, but doesn't allow "additional pollutants" into listed waters. Where there are TMDLs, WSDOT is required to implement source controls; if a listed water doesn't have a TMDL yet, then WSDOT is bound by 90.48 RCW.*

*Federal regulations (40 CFR 131.12) and the Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A-300, 310, 320, 330) establish a water quality antidegradation program. The federally mandated program establishes three tiers of protection for water quality. These three tiers function to protect existing and designated in-stream uses, to limit the conditions under which water of a quality higher than the state standards can be degraded, and to provide a means to set the very best waters of the state aside from future sources of degradation entirely.*

*WAC 173-201A-320 contains the Tier II antidegradation provisions for the state's surface water quality standards. Consistent with the federal water quality antidegradation regulations,*

*Washington's Tier II program functions as a pollution prevention program to provide an extra measure of protection for water quality.*

*A Tier II analysis consists of an evaluation of whether or not the degradation of water quality that would be associated with a proposed action would be both necessary and in the overriding public interest. All three of the following conditions must be met before an activity would be required to go through a Tier II analysis:*

- 1) it must be a new or expanded action,*
- 2) it must be an action that is regulated by Ecology, and*
- 3) the action must have the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.*

*Only new or expanded actions are potentially eligible for a Tier II analysis. "New" means facilities that are just being built or actions first initiated. "Expanded" means:*

- 1) A physical expansion of the facility (production or wastewater system expansions with a potential to allow an increase the volume of wastewater or the amount of pollution) or activity;*
- 2) An increase (either monthly average or annual average) to an existing permitted concentration or permitted effluent mass limit (loading) to a waterbody greater than 10%; or*
- 3) The act of re-rating the capacity of an existing plant greater than 10%.*

*Times when production and wastewater systems are being redesigned or expanded are often key points of opportunity for applying new less polluting technology and for re-evaluating long-term plans for wastewater controls.*

*General permit and water pollution control programs are developed for a category of dischargers that have similar processes and pollutants. New or reissued general permits or other water pollution control programs authorized, implemented, or administered by the department will undergo an analysis under Tier II at the time the department develops and approves the general permit or program.*

*The department recognizes that stormwater management programs and their associated control technologies are in a continual state of improvement and development. As a result, information regarding the existence, effectiveness, or costs of control practices for reducing pollution and meeting the water quality standards may be incomplete. In these instances, the antidegradation requirements of this section can be considered met for general permits and programs that have a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of this section. This adaptive process must:*

- (i) Ensure that information is developed and used expeditiously to revise permit or program requirements;*
- (ii) Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance; and*
- (iii) Include a plan that describes how information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of permit or program approval under this section.*

*Ecology believes it has met the intent of the antidegradation section for the WSDOT Stormwater general permit in accordance with WAC 173-201A-320(6). The water quality standards at WAC 173-201A-320(6) describe how Ecology should conduct an antidegradation Tier II analysis when it reissues NPDES general permits. This section of the rule requires Ecology to:*

- *Use the information we collect as a result of the permit to revise permit or program requirements.*
- *Review and refine management and control programs in cycles not to exceed five years or the period of permit reissuance.*
- *Include a plan that describes how Ecology will obtain and use information to ensure full compliance with water quality standards. Ecology must develop and document the plan in advance of permit or program approval.*

*Ecology has made improvements with each WSDOT stormwater permit reissuance to ensure compliance with AKART and water quality standards. Ecology will assess effectiveness by evaluating program effectiveness described in annual reports, monitoring data and other information obtained as a result of the 2008 permit. Ecology expects to gather data, through its monitoring program, to help correlate effluent quality to site BMP implementation. Ecology will track this information and attempt to correlate it with effluent quality at the next permit issuance. As WSDOT continues to improve their selection and implementation of BMPs stormwater quality will also improve. Ecology believes the adaptive management response outlined in S4.F.3 demonstrates how it met the antidegradation requirements with the issuance of the WSDOT.*

*The antidegradation regulations for general permits state that individual actions covered under a general permit do not need to go through independent Tier II reviews.*

### PART III

#### S1 PERMIT COVERAGE AREA AND PERMITTEES

- **There were a number of comments questioning Ecology’s decision to issue this permit only in Phase I, Phase II, and TMDL areas of the state instead of statewide coverage.**

#### **Response to the range of comments:**

*Ecology made the decision to permit WSDOT only in existing Phase I, Phase II, and TMDL areas because of the opportunities to both coordinate with other permitted communities and to implement existing water quality plans.*

*Ecology recognized that implementing this stormwater discharge permit will not be an easy task even with coverage as is, and if we were to require statewide coverage then the task will be even more formidable. Thus we developed the proposal to implement the Highway Runoff Manual statewide in lieu of a statewide permit. The benefit is that the state will get statewide stormwater controls through the HRM. That proposal came with a requirement for WSDOT to amend their HRM to equivalency with relevant sections of Ecology’s stormwater manuals. WSDOT agreed and assured Ecology that they will not have two sets of design standards (an equivalent HRM and one that is not equivalent). We formalized the proposal by developing an implementing agreement that is signed by the Director of Ecology and the Secretary of Transportation.*

- **There was also concern about coverage for WSDOT’s maintenance facilities and the potential overlap with the Industrial Stormwater General Permit.**

#### **Response to the range of comments:**

*Municipally owned/operated road maintenance facilities and heavy equipment maintenance and storage areas will be covered under the municipal stormwater permits and NOT under the industrial stormwater general permit. Coverage of road maintenance facilities and heavy equipment maintenance and storage areas under the municipal stormwater permits is consistent with Ecology’s approach under the previous phase I permit, earlier versions of the ISWGP, and the current draft ISWGP.*

*After some additional review, it was realized the ISTEPA exemption is not relevant for municipally owned/operated road maintenance facilities and heavy equipment maintenance and storage areas. These areas are not one of the EPA listed SIC codes for facilities generating stormwater associated with industrial activities (see 40 CFR 122.26(b)(14)). The closest SIC codes under which road maintenance facilities/heavy equipment maintenance and storage facilities would fit is “Heavy Construction other than building construction” – SIC 1611, 1622, 1623 and 1629. These SIC codes are not among the listed SIC codes in 40 CFR 122.26 (b)(14) which require permit coverage under the industrial stormwater general permit.*

*The 2002 ISWGP Appendix 1 lists SIC codes which were required to have permit coverage. Road maintenance facilities/heavy equipment maintenance and storage areas were not included under either the SIC codes or explicitly. The current ISWGP and the current draft proposed ISWGP do include vehicle maintenance areas associated with the following transportation related SIC codes: 40 (railroads), 41 (Local and suburban transit and interurban highway transportation), 42 (Motor Freight transportation and warehousing), 43 (United States Postal Service), 44 (Water transportation), 45 (air transportation), 5171 (Petroleum bulk stations and terminals). This is consistent with EPA rules (see 40 CFR 122.26(b)(14)(viii)). None of these fit road maintenance facilities or heavy equipment maintenance and storage areas.*

Changes to S1 included removing the word “segment” from S1B.2 because Ecology is no longer managing water segments, rather manage waterbodies.

## **S2. AUTHORIZED DISCHARGES**

- **There were comments questioning the “allowance” of stormwater discharges to ground water and the “authorizing” of illicit and non-stormwater discharges managed by WSDOT and their compliance with water quality standards.**

### **Response to the range of comments:**

*Condition S2.A.2 does not attempt to remove groundwater discharges from potential jurisdiction of the federal courts. Discharges to ground water are covered because the permit must satisfy both federal and state law. Under state law, Chapter 90.48 RCW, Ecology is required to address discharges to “waters of the state” which include ground water.*

*In Section 3.2 of the SWMP, Notification Procedures, the section states that “In all instances, illicit discharges shall be immediately reported to Ecology...”*

*Ecology has concluded the following types of non-stormwater discharges are not likely significant sources of pollutants and therefore need not be addressed by WSDOT’s SWMP: diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated pumped ground water, foundation drains, footing drains, air conditioning condensation, springs, water from crawl space pumps, footing drains, and flows from riparian habitats and wetlands. Ecology decided to also include in this list of non-stormwater discharges (that do not need to be addressed by the SWMP) irrigation water from agricultural sources that is commingled with urban stormwater, because in some areas of Washington, agricultural irrigation infrastructure has become part of the MS4 and it would be unreasonably burdensome (and not beneficial to water quality) to separate out these discharges.*

No changes were made to S2.

## **S4. COMPLIANCE WITH STANDARDS**

- **Ecology received numerous comments on S4, Compliance with Standards.**

**Response to the range of comments:**

In addition to the responses below, see changes due to PCHB rulings in Part I.

*The intent of implementing permit requirements S4.C and D is primarily for WSDOT to demonstrate compliance with S5 and their SWMP. The SWMP was designed to reduce pollutants to the maximum extent practicable and to make progress toward compliance with WQS. The permit also requires the SWMP to be modified to address WQS violations to which stormwater is found to contribute. The municipal stormwater permitting program is based on adaptive management. WSDOT must judge the effectiveness and appropriateness of the BMPs they have selected and implemented and make changes where appropriate. (See response to PCHB rulings in Part I.). See also responses in Part I on S4 modifications and to Comment 5 on antidegradation.*

- Ecology made changes to S4 to comply with the PCHB rulings from the Phase I hearings.
  - Ecology made minor clarification to S4.B and deleted the compliance statement in S4.E.
  - Ecology added language clarifying WSDOT liability in S4.F.3.f
- S5. STORMWATER MANAGEMENT PROGRAM**
- **Since WSDOT developed their Stormwater Management Program prior to the permit being issued, many commenters thought it was not stringent enough nor did it contain sufficient mandatory language. Since there wasn't the strong mandatory language that commenter's would have liked to see, there was concern that implementation timeframes would be meaningless, especially for items such as mapping and IDDE identification.**
  - **There was concern that the SWMP would not suffice as AKART.**
  - **Additional comments on the SWMP revolved around the role of WSDOT's Highway Runoff Manual and the concern that it wouldn't be effective enough in meeting stormwater runoff standards.**
  - **Also, some commenter's questioned why the permit requires WSDOT to request adequate resources to implement the permit and SWMP. There was concern that this was not an appropriate permit requirement.**

**Response to the range of comments:**

*HRM -- The reason we are giving WSDOT one year after the effective date of the permit to comply with the 2008 HRM has to do with training and design standards. WSDOT will be spending the first six months of that year training consultants and staff on the new design standards. Starting in the seventh month any new projects going out to AD will require designs according to the 2008 HRM. Project being installed one year after the effective date must be built according to the new design standards. Ecology recognizes the time it takes to develop the site designs, project management, and funding scenarios. We cannot expect WSDOT to implement the new design standards immediately. Projects being built now have been on the books for, in some cases, years.*

*The 2008 HRM is effectively being implemented immediately when you consider training, design, and management of new projects going to AD. We clarified our intent in this section. What we meant is that during the first year of the permit, while WSDOT is ramping up their training and design templates for highway projects, WSDOT is still required to use Ecology manuals on 401 certification projects. There is no grace period on 401 certifications, however, once staff is trained on the HRM and designs that go to AD meet HRM requirements, then WSDOT has the opportunity to design according to the HRM.*

*Section 1.4.2 of the SWMP describes WSDOT's implementation of section 7 requirements. In that section WSDOT describes the guidance in their Highway Runoff Manual that supports ESA requirements. Thus, consider the HRM as AKART and MEP since NOAA has approved WSDOT's Maintenance application for LIMIT 10 under the 4(d) rule.*

*Funding -- This permit condition is based on the EPA requirements at 40 CFR 122.26 calling for a fiscal analysis of the necessary capital and operations and maintenance expenditures to implement the SWMP, and at 40 CFR 122.42(c) for reporting of annual expenditures and proposed budgets. The regulations require the implementation of best management practices (BMPs) to meet the MEP standard. BMPs include both source control and treatment measures. Documenting program costs is necessary to evaluate practicability and demonstrate meaningful progress toward MEP compliance. It also helps Ecology estimate the cost of permit compliance statewide. Since WSDOT's budget is dependent on legislative funding Ecology requires that WSDOT apply to the Legislature for adequate resources to maintain compliance with the permit.*

*Ecology placed in S5.A.6 language that required WSDOT request from the legislature adequate funding to implement this permit. WSDOT must take all appropriate steps and processes to request both biennial and supplemental funding if required. Ecology also requires annual report on funding, cost of implementation, and cost of program development.*

*Implementation timeframes -- We have listed at the end of each section of the SWMP performance indicators that will inform us whether the SWMP is being implemented as required. If it is, then we will have an opportunity to determine whether the SWMP is achieving the goal of meeting water quality standards, or not. If not, then we will adapt the SWMP for the next permit cycle.*

*Mandatory language – We increased the use of mandatory language in the SWMP. Unlike Phase I and Phase II permits, Ecology has approved WSDOT's SWMP prior to the permit being issued. In order to do that we reviewed draft versions using federal and state guidance. It is now part of the permit and it's implementation is a permit requirement.*

- Ecology made changes to S5.A.2.c by deleting flow management language flow is addressed in the approved Highway Runoff Manual.

- Ecology clarified the meaning of AD (advertisement) in S5.A.4 and also clarified that 401 certification projects must comply with HRM or more stringent requirements that Ecology deems necessary.
- Ecology added language to S5.A.5 allowing the use of Ecology technical standards.
- Ecology added low impact development requirements as directed by PCHB in S5.A.6.

#### S6. TOTAL MAXIMUM LOAD ALLOCATIONS

- **Ecology received several comments on how this permit will require compliance with applicable TMDLs. It was pointed out that most TMDLs do not identify WSDOT by name, thus there was uncertainty whether WSDOT would be required to implement anything.**
- **In addition, since Ecology does not place the actual loading allocation in the permit, what guarantees are there that WSDOT would comply with applicable TMDLs?**

#### **Response to the range of comments:**

*Ecology has spent considerable time discussing TMDLs and the requirements to implement under municipal stormwater permits. All TMDLs approved prior to a permit being issued are applicable TMDLs. To require permit coverage for TMDLs that are in development or approved after the permit is issued would require a permit modification.*

*In order to solve this problem, Ecology and WSDOT have agreed to cooperate with TMDL development in a manner that requires WSDOT's active participation. Section 2.2.2 of WSDOT's SWMP, page 2-2, outlines the process. In addition, part of the annual report requires WSDOT to detail TMDL implementation activities, and activities that they will engage in for the subsequent year. If this process works out as envisioned, permit modifications will not be necessary.*

*Instead of listing numeric allocations in the permit, with guidance from EPA, Ecology will be using non-numeric water quality based effluent limits. These will be expressed as a best management practice. Compliance with the permit infers that the permittee is in compliance with the permit by being in compliance with the BMP requirement identified in Appendix 3 of this permit. As in the case with WSDOT, they are required to implement BMPs assigned to them in a detailed implementation plan.*

*In most cases Ecology TMDL leads will require WSDOT to focus implementation of their SWMP in specific locations. WSDOT's SWMP contains requirements to implement their HRM as necessary. However, our TMDL program reserves the right to require implementation of BMPs where needed to meet waste load and load allocations.*

*We revised the language to require compliance (S6.A) and changed language to describe the requirement to meet timelines in either the TMDL or DIP (S6.A.2).*

- Ecology added language in S6.A2 requiring WSDOT to meet **applicable** TMDL and detailed implementation plan timelines.

## S7. MONITORING

**There were more comments on this section than any other. The range of comments and responses are organized congruent with the permit.**

### **Monitoring Objectives**

- **Why spend money on monitoring when funding BMPs is more important;**
- **WSDOT’s monitoring investments can be better spent elsewhere than attempting to further characterize “baseline” of highway edge-of pavement runoff conditions (an already well-documented highly variable phenomenon), or the significant challenges of assessing the long-term effectiveness of individual facility stormwater pollution prevention plans via water quality monitoring;**
- **Ecology needs to increase monitoring stations in this permit in order to better quantify pollutant loadings from WSDOT’s highways. Six monitoring locations are not enough**

### **Response to the range of comments:**

*Ecology believes that the required monitoring program will meet the monitoring objectives:*

- *Produce scientifically credible data;*
- *Provide information that can be used by WSDOT for designing and implement effective strategies;*
- *Determine the long-term effectiveness of SWPPPs.*

*This proposed monitoring program is more extensive than other Phase I permittees. Stormwater sampling is very cost prohibitive and monitoring sites must be prioritized. The idea of sampling various land uses is to use the data to make assumptions for other similar land uses that are not monitored. Characterization is also needed to evaluate the effectiveness of source control actions and other efforts in WSDOT’s Stormwater Management Program. We will use the monitoring information gained from this permit cycle to determine our monitoring needs for the next permit cycle.*

*This proposed monitoring program is also more comprehensive than WSDOTs current monitoring of BMPs. The other monitoring objectives are needed to improve source control efforts by WSDOT’s Stormwater management Programs.*

*Similar to the Phase I municipal stormwater permits, Ecology decided not to require receiving water monitoring during this permit term. Monitoring of receiving water impacts requires a broader effort than can be employed through the WSDOT permit. See the Phase I municipal stormwater permit fact sheet and response to comments for more details.*

*However, for this permit term, Ecology is requiring WSDOT to contribute to accomplishing a more modest goal – to evaluate the capabilities of a few of the handful of engineered stormwater BMP’s that are available to WSDOT engineers when designing new, expanded, or rehabilitated highways. This requirement is similar to the BMP monitoring requirements that the other six Phase I municipal stormwater permittees are undertaking.*

*In meeting this requirement, WSDOT can propose monitoring any of the approved treatment BMPs in the HRM, including those that involve dispersion and infiltration.*

*In regard to toxicity evaluations, WSDOT has far more discharges that have not passed through an approved treatment BMP, than discharges that have. Therefore, Ecology thinks it is appropriate to collect toxicity information on untreated discharges.*

### **Monitoring Baseline Conditions**

- **How do you analyze observations, draw conclusions, or modify management strategies for substances with no standards, treatment goals, or health criteria.**
- **There are insufficient numbers of stations proposed in the permit to get a representative picture of the problem;**
- **The monitoring should be for the full term of the permit, including any permit extensions. Three years is not adequate;**
- **The required sampling frequency and storm criteria will result in a monitoring effort that produces misleading information (e.g., not representative of the conditions needed to accurately quantify pollutant loads or pollutant concentration ranges).**
- **We heard both sides of the parameter argument: add more parameters—take parameters off the required list. Chlorides, herbicides, phthalates, temperature, fecal coliform, and TPH are the ones in question.**
- **Site selection that is based on AADT (average annual daily trips) will give misleading conclusions;**

### **Response to the range of comments:**

*Ecology's regulatory mandate requires a clear indication whether there are water quality improvements, not just on established facilities, but as a characterization of the whole highway system and the impact that system has on water. The baseline monitoring program provides a feedback loop into WSDOT's Stormwater Management Program. This permit requires a robust analysis of several parameters and asks for WSDOT to use their SWMPs to target pollutants in highway runoff. There are many studies that characterize road runoff, but not for Washington State and no analysis has been done to evaluate the effectiveness of WSDOT SWMP.*

*The CWA requires “no discharge of toxics in toxic amounts” – even if we don't have water quality or human health-based standards for the toxic. An example is anionic surfactants. We don't have an adopted water quality standard for anionic surfactants. However, we do know that they are very toxic to fish. So, we require the locals to have programs to reduce their introduction into surface waters. Washington's Water Pollution Control Act requires all known, available, and reasonable methods to reduce the discharge of pollutants. That statutory requirement isn't restricted only to those pollutants for which the state has adopted water quality standards. The state has authority to require dischargers to verify what pollutants are in their discharges; and to require reasonable methods to reduce the discharge of those pollutants.*

*Baseline Monitoring -- The purpose of this program is to collect samples for baseline information to analyze which contaminants are transported from various sites in stormwater. Additionally, the monitoring data should be able to demonstrate a reduction of pollutants over time as Stormwater Management Plans or Stormwater Pollution Prevention Plans are implemented and updated. Using the data will help WSDOT determine the source and remove potential sources of pollution or install appropriate BMPs to reduce pollutants.*

*When we talk about baseline conditions, it doesn't necessarily mean prior to any other monitoring. Rather it means a starting point—which is a standard definition for this term. The purpose of the use of the term is to have a point of reference for water quality monitoring of WSDOT's facilities under this permit. We recognize that WSDOT has done prior monitoring, however, the permit requirements are above and beyond what has been accomplished prior. We changed the concept from characterization monitoring to baseline to alleviate any misunderstandings.*

*Establishing rainfall/runoff relationships -- The purpose of the language “to establish a rainfall/runoff relationship” is to provide a basis for calculating pollutant loads. Ecology expects WSDOT to develop a rainfall/runoff relationship using a regression equation to estimate runoff volume based on precipitation level for years 2 and 3 of monitoring. This rainfall/runoff relationship should be used for estimating loads for unsampled storm events after the one year continuous flow records are completed.*

*Edge of pavement sampling refers to measuring runoff directly from the impervious surface of a highway without prior treatment (possible treatment from grassy road shoulders and soils). This baseline data will be comparable to WSDOT highways that are not sampled. For example, some DOT bridges and roads discharge directly into receiving waters. Collection of baseline data will give us a good idea of the pollutants running off highways.*

*AADT -- Ecology does not presume that pollutant loads are correlated solely by AADT, nor that AADT defines the intensity of the adjacent land use. There is adequate basis in the literature to conclude that, in general, increasing levels of AADT produce increasing stormwater pollutant loads. Certainly, the literature also points to a number of other factors that influence pollutant loading. According to a WSDOT White Paper – *Untreated Highway Runoff in Western Washington*, May 16, 2007 by Herrera Environmental Consultants - a study by Kayhanian found that annual ADT, in conjunction with factors associated with pollutant buildup and wash off (antecedent dry period) does correlate with most highway runoff pollutants. In Washington, studies have shown that the number of vehicles during a storm may be a more important influence.*

**Responses to parameter specific comments:**

**Herbicides**--Ecology replaced the term “pesticide” with herbicide throughout the permit. Ecology included the statement “only for those that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site in S7.D2 and did not include this statement for highway monitoring. For highway right of ways, WSDOT is required to sample for the list of herbicides included in the permit regardless of use per location. This prioritized list is

*intended to be used for herbicide requirements in S7.D.2 as well. Ecology has evaluated WSDOT's list of used herbicides and prioritized this list based on concerns for adverse impacts on water quality in particular effects on fish and insects. From WSDOT's current list, only those listed below are concerns for water quality/toxicity to fish and insects:*

- *Triclopyr - Ester formula only*
- *2,4-D*
- *Clopyralid*
- *Diuron*
- *Dichlobenil*
- *Picloram*
- *Glyphosate (only if the non-aquatic formula is used)*

*For sediments:*

- *Dichlobenil*
- *Triclopyr*
- *Picloram*
- *Clopyralid*

**Phthalates**—*Phthalates come from many sources and are often ubiquitous in the environment. However, phthalates interfere with aquatic food chains. According to the Phthalate Source Study Phase I report-May 2003 (City of Tacoma), Ecology has reason to believe that phthalates are a significant source in stormwater runoff from parking lots of high use. Since the permit requires monitoring of high use rest areas, high use ferry terminals, and maintenance facilities which all contain parking lots and vehicle idling, phthalates may result as a prominent source contaminant in stormwater discharges from these areas.*

**Chlorides**—*Since de-icing salt application varies seasonally from location to location throughout the year, this requirement may be difficult to meet since it is solely based on the intercommunication between the maintenance staff and stormwater sampling staff. In addition, de-icing salts are not the only source for chlorides that could be present in stormwater discharges.*

**Temperature**-- *Temperature is a very inexpensive parameter that can be evaluated in the field as a grab sample, and does not have to be analyzed by an accredited laboratory. High temperature loading is a concern in discharges because they can increase the temperature in receiving water. Also, Ecology reports recommend inclusion of temperature monitoring in NPDES permits.*

**Fecal coliform**--*Ecology did not choose parameters for this section based on BMP specific removal data. Other BMPs (non-structural) can be used to address fecal coliform such as improving programs such as maintenance of shoulders, waste pick up programs and sweeping*

**TPH (only if oil sheen is present)**--*Ecology does not agree that for untreated stormwater discharges, a visible sheen will correlate with TPH results. In a well-mixed stormwater discharge, TPH may be present in the discharge with no apparent sheen observed. Ecology added language to include collection of visual sheen observations where TPH samples are collected to help further evaluate this scenario (S7.B.4). The intent of this*

*addition is to do a visual analysis during field visits, not an oil sheen laboratory analysis. This will hopefully provide a data link in the reporting between untreated stormwater discharges and presence and absence of sheen and TPH results.*

### **Sediment Sampling**

*The purpose of the sediment sampling program is to evaluate multiple parameters where sediments are deposited from highway runoff. Ecology does not anticipate sediment quality to change much with a year's time; therefore, we do not see a reason to intensify the sampling at a particular location. This program is designed similar to that of the Phase I Municipal Stormwater Permit sediment sampling program; however, adjusted to highways.*

*The permit allows WSDOT to propose to Ecology alternative methods for collecting sediment samples as stated in S7.B.7. In-line sediment traps have been proven to work well for source control means.*

*The sediment monitoring portion of the permit is not intended to gather sediment loading information. To accurately reflect sediment loads, the permit would require a different method of sample collection and analysis. In order to get adequate sediment volume to analyze all required parameters in the permit, WSDOT must obtain approximately 60 ounces of sediment. The permit lists the minimum requirement WSDOT must collect and analyze without compromising WSDOT's ability to collect adequate volume*

### **First Flush Toxicity**

- **The overall intent of toxicity testing requirements might be better served by conducting a study of biological condition in the receiving environment. With only a single annual toxicity testing period, it is difficult to determine the value of these data.**

### **Response to the range of comments:**

*The intent of the "first flush" sample is to collect a seasonal first flush, which describes the event that occurs during the dry season when pollutants have had time to "build up" on land/roadway surfaces. This sample should not be weighted toward the beginning of the event and spread to represent at least 75% of the storm's hydrograph. Ecology recognizes that the earlier portion of the storm event may produce more pollutants, however, Ecology is interested in looking at the correlation between pollutants and the storm event to produce a loading. This portion of the permit is flexible to allow WSDOT to analyze the chemistry sample to count toward a qualifying storm event for baseline monitoring of highways (if a flow-weighted sample is collected instead of a time-weighted sample is collected) if inadequate volume is collected for toxicity.*

*We chose 24-hour acute toxicity testing for monitoring highway runoff because 24 hours is a common test duration and provides a close match to typical highway runoff duration. A standard test duration is preferred because it allows comparisons to existing chemical toxicity data to aid in toxicant identification. Chemical toxicity data derived from 48 hour*

*tests is close enough to a 24-hour duration to also be useful in spotting candidate toxicants and will add considerably to the data available for this task. The toxicity test results will only be used to shed light on potential toxicants, their sources, and the effect of BMPs. The test results are not intended to characterize discharges or predict receiving water effects. The test results are solely intended to contribute to improvements in knowledge and management for highway runoff.*

*The WSDOT permit requires testing with *Hyaella azteca* to account for the toxicity of metals, pesticides, and other pollutants in highway runoff. A *Hyaella* test uses small volumes of sample, which is important because highways are relatively small drainage areas and often provide little sample. We chose a test duration of 24 hours because it matches well the usual runoff duration for highways, does not demand extra sample for test solution renewal, and allows a toxicity identification evaluation (TIE) to begin quickly using the original sample before it exceeds holding times. Otherwise, WSDOT will need to wait until the next rain event to sample for a TIE and hope that the same toxicity is present then as was found in the original sample from the seasonal first flush. The uncertainty over the identity and concentration of storm water toxicants between runoff events also means that repeat testing to confirm the presence of toxicity before initiating a TIE does not make sense.*

*Because of their ecological importance and because they are very sensitive to metals and pesticides, the American Society for Testing and Materials (ASTM) has published an acute toxicity test using *Hyaella* and the EPA manual for acute toxicity testing of effluents and receiving waters includes them in the list in Appendix B of supplemental test species. *Hyaella* work equally well for either water or sediment toxicity testing. California for several years has included acute toxicity testing with *Hyaella* in storm water permits such as the Riverside County and San Diego County permits.*

**Hyaella azteca* is a 1/8- to 1/4-inch long crustacean commonly found in lakes, ponds, and streams throughout North America. They are an important link in the aquatic food chain and a food source for small fish and other invertebrates. In addition to being an important food source for young salmon and trout, *Hyaella* feed on dead plant and animal matter which helps recycle nutrients and keep aquatic environments clean.*

**Hyaella azteca* is a common freshwater amphipod found all over North America. Amphipods are small crustacean animals similar to shrimps, crabs, and daphnids. Scientists have identified over 7,000 species of amphipods around the world. Because they are so common in most marine and freshwater habitats, amphipods form a key link in the food chain. Because amphipods are generally intolerant of pollution and are common only in healthy freshwater habitats, they are one of the standard organisms used as an environmental indicator in bioassessments like the benthic index of biological integrity (B-IBI). Daphnids are not enumerated in B-IBI assessments so toxicity tests with daphnids will not help as much in B-IBI interpretation. We also prefer an amphipod for storm water monitoring for this reason.*

*Acute toxicity testing with *Hyaella azteca*, the Environment Canada early lifestage toxicity tests for rainbow trout, and B-IBI assessments are a good combination of methods for protecting our waters, especially regarding salmonid reproduction. We do not have the resources to implement all of these methods in all storm water permits at the same time, but by including each of them in those storm water permits where they initially fit best, we will make reasonable progress to the goal of healthy state waters.*

## **Monitoring Maintenance Facilities, Rest Areas, Park and Ride Lots, and Ferry Terminals**

- **Rest areas, maintenance facilities and ferry terminals make up a very small percentage of the land base of the state's transportation system, yet would require an inordinate amount of monitoring resources to comply with the draft permit as written.**

### **Response to the range of comments:**

*A small land base may contribute a large amount of potential pollutants. Significant pollution can come from the smallest of facilities. Developing monitoring data and associated SWPPPs will go a long way in adding to the state's knowledge base about these different land use types. This program is also designed as a feedback loop into WSDOT's SWPPPs; this program will help to improve those programs*

### **BMP Effectiveness Monitoring**

- **It is unclear how these weakly defined monitoring locations may be used to assess performance of BMPs affecting the discharge of pollutants or to meet water or sediment standards. In addition, the data obtained at the various sites are likely to be of little value for comparative purposes;**
- **Please clarify the rationale behind requiring WSDOT to analyze substances for which there are no state standards or associated BMP performance goals, or identified treatment strategies (e.g., PAHs, Phthalates, ortho phosphate, Phenolics, MBAS)**
- **The language in this section appears to be consolidated and abridged language from Ecology's TAPE guidance. However, as written, the concepts governing *summary statistics* and *statistical tests* are misapplied**
- **TAPE itself only requires influent monitoring for particle size distribution data (which we think is the actual intent here, rather than particle size). The November 2006 Revision of Ecology's TAPE guidance states, "In Western Washington, field data show most TSS particles are smaller than 125 microns". If particle size distribution is already known, then WSDOT is interested in learning what other research question particle size distribution data will be used to answer.**
- **It is necessary to have an assessment of the particle size distribution at the test site to know whether it has a significant distribution of smaller particles. Ecology uses Sil-Co-Sil 106 as a stormwater surrogate in laboratory tests. More than three-quarters of its particles are less than 45 microns. For an acceptable stormwater BMP monitoring site, Ecology wants almost all of the**

**distribution to be below 125 microns, with a majority of particle sizes around 50 microns or smaller.**

**Response to the range of comments:**

*There are many problem pollutants in the environment for which Ecology does not have BMP performance goals or water quality standards. This does not mean that the pollutant is not a problem for the environment. Ecology is working on a continual effort looking at various pollutants and BMP removal capabilities but more information is needed. Stormwater permits can inform Ecology on various pollutants in the environment that need targeting and prioritizing.*

*As explained in the response to comments on the Phase I municipal stormwater permit, Ecology is requiring this monitoring because we have very little performance information on the BMP's that are included in the HRM and the Ecology manuals. The decisions concerning which treatment BMP's, and design criteria for those treatment BMP's, to include in the Ecology manual and the HRM were based (for most treatment BMP types) upon best professional judgment using scant quantitative performance information. After 13 years of allowing use of treatment devices, whose performance is unsubstantiated, for meeting the technology and water quality based treatment requirements of state and federal law, we are overdue for such a quantitative assessment. It is reasonable for Ecology, as the regulatory agency, to require that WSDOT – the discharger seeking permission to discharge pollutants to waters of the state and the U.S. – assume some responsibility (as shared with other municipal dischargers) for determining the pollutant removal effectiveness of the BMP's that it will use to meet the requirements of state and federal water quality laws*

*It is for this reason, and in conjunction with the BMP effectiveness monitoring being conducted by the Phase I permittees, that WSDOT's monitoring will help evaluate the removal of pollutants by many of the commonly-used treatment methods. The monitoring is intended to help advance the design, treatment functions and applications of appropriate treatment technologies. This is a key portion of identifying MEP for this and future.*

*The condition has been changed to indicate that WSDOT shall determine mean and median effluent concentrations, and shall determine percent removals with a goal of achieving 90-95% confidence and 70 – 75% power. The monitoring shall be initially designed to achieve those goals within the three-year period. But the initial QAPP shall be geared to collecting at least 12 influent and 12 effluent samples per year. These changes are intended to acknowledge that achieving the statistical goals may not be achievable within the permit term; and to establish a minimum level of effort in data collection.*

*However, as indicated in the TAPE and in response to the comment on S7.E.2, if the statistical goals are achieved with a lesser amount of data for a target pollutant (but a minimum of 12 paired samples), the monitoring requirement shall be considered fulfilled.*

- Ecology made substantial changes to S7 to meet monitoring objectives.
- Ecology adjusted timelines for QAPP development and monitoring reports.

## S8. REPORTING REQUIREMENTS

- **There are a number of reporting requirements in the permit. Commenter's pointed out the confusions that existed in the draft permits on dates, timeframes, and requirements.**

*There are four separate reports required under this permit:*

1. *Annual SWMP progress report*
  2. *Annual Stormwater Monitoring Report*
  3. *Final Stormwater Monitoring Report*
  4. *Annual Report for BMP Evaluation Monitoring*
- Ecology clarified both reporting requirements and timeframes in the permit.
  - Ecology made changes to the time required to keep permit records, and we made a more direct interface with the reporting requirements from Appendix 2. Table of Reportable Performance Measures from WSDOT's Stormwater Management Plan.

## GENERAL CONDITIONS

- **We received a couple of comments asking to change the content of the General Conditions**

### **Response to the range of comments:**

*General Conditions are based directly on state and federal law and regulations and have been standardized for all NPDES permits issued by Ecology. The general conditions in Ecology's waste discharge permits are the minimum conditions that must be met but could be superseded by a more specific condition.*

- Unless there were editorial corrections, Ecology did not make any changes to the general conditions.

## DEFINITIONS

- **There were several requests to add definitions or clarify existing ones. We made all appropriate changes.**

## APPENDIX 1 – HIGHWAY RUNOFF MANUAL

- **Ecology approved the HRM as a manual equivalent to Ecology's stormwater manuals in August 2008.**
- **Commenter's were concerned that the manual should more explicitly address source control, including management of driver behavior and traffic flow and loading.**
- **Continued concern about the flow control requirements;**
- **Continued concern about treatment options**

**Response to the range of Comments:**

*Source control – The combination of the HRM and the SWMP emphasizes source control options. The SWMP includes a public education component that includes the commuter trip reduction program – a significant effort at source control. The proposed SWMP does not include an effort at educating drivers concerning techniques they can use while behind the wheel, and in car maintenance, that can reduce pollutant loading from their vehicle. Education topic areas include: moderate acceleration, deceleration, and braking; purchase of high mileage tires; keeping tires inflated properly; regular maintenance and leak checks; advantages of high mileage vehicles. Since all of the Phase I and II NPDES municipal stormwater permit holders must have public education components; and since a significant portion of the pollutant loading in each permitted municipality comes from vehicles; the municipal stormwater permittees public education programs may include efforts on the topics listed above and more.*

*WSDOTs SWMP and Highway Runoff Manual are permit requirements; they are not substitutes. The strategy in the Phase I and Phase II permits was the development of a stormwater management program for municipalities which became the major requirements of those permits. We adopted the same strategy for this one. Appendix 2 of this permit, Table of Reportable Performance Measures comes directly from WSDOTs SWMP*

*Advanced Treatment -- A presumption for advanced treatment in all discharge situations would not always be necessary. In regard to “new facilities” (see section 5 of the SWMP), the thresholds in the HRM will be used to identify treatment levels unless site specific information is available and indicates a different level or type of treatment is advisable. The default treatment assumptions in the HRM will likely be used in retrofit situations for which site-specific receiving water information, that can influence treatment options, is not available. The Stormwater Retrofit Prioritization Scheme (Table 6.1 in the SWMP) tends to favor surface waters with high environmental sensitivity. In those situations, enhanced treatment options are likely to be the default approach.*

*Ecology set its thresholds for application of Enhanced Treatment based on data collected from highways in California, Oregon, and Washington. A road’s potential to be a source of metals and TSS is correlated (although not linearly) with its average traffic load, and the characteristics of traffic flow (i.e. Is traffic primarily unimpeded, straight ahead flow, or is it stop and go with lots of turning).*

*Ecology set AADT thresholds for Enhanced Treatment where it had sufficient reason to believe that there was a significant difference in metals concentrations as compared to residential sites.*

*The data from lower level AADT roads does not indicate such a difference from residential areas that applying Enhanced Treatment would be warranted.*

*The thresholds for application of Enhanced Treatment in the WSDOT manual are the same as the thresholds in the Ecology stormwater manual for western Washington, and the*

*thresholds in the municipal stormwater permits. Ecology will not impose more stringent requirements on WSDOT than Ecology's current guidance and other permits specify.*

*Ecology set its thresholds for application of Enhanced Treatment based on data collected from highways in California, Oregon, and Washington. A road's potential to be a source of metals and TSS is correlated (although not linearly) with its average traffic load, and the characteristics of traffic flow (i.e. Is traffic primarily unimpeded, straight ahead flow, or is it stop and go with lots of turning).*

*Ecology set AADT thresholds for Enhanced Treatment where it had sufficient reason to believe that there was a significant difference in metals concentrations as compared to residential sites.*

*Flow Control Requirements -- The flow control requirement is related only to erosion and channel stability. The list of exempt waters is based upon analyses of land cover projections and a relationship of observed stream stability with loss of forest cover and impervious surface creation. The table lists those waters where application of the generic flow control requirement is considered unnecessary for channel stability.*

*Whether one of the listed waters has other features which would make flow control advisable for all discharges to that water was not considered. Local governments, federal and state agencies, and tribes could have other reasons for requiring flow control for direct discharges to these waters. Ecology's perspective is that the amount of land area along one of these major rivers that could potentially qualify for a flow control exemption will not make a discernible difference in large flood flows.*

*The lack of adequate margin habitat in some river systems is an issue that needs to be addressed separately from this direct discharge exemption.*

*AADT -- The data from lower level AADT roads does not indicate such a difference from residential areas that applying Enhanced Treatment would be warranted*

#### APPENDIX 5 – STREET WASTE DISPOSAL

- Ecology deleted Appendix 5 because it was no longer needed.

#### APPENDIX 6 – CONSTRUCTION SITE SEDIMENT DAMAGE POTENTIAL

- Ecology deleted Appendix 6 because it was no longer needed.

#### APPENDIX 7 – LABORATORY METHODS

- **There was concern that the methods need to be current and appropriate because once placed in the permit would be the mandatory methods even though outdated or not appropriate.**

#### **Response to the range of comments:**

*The methods listed in Appendix 7 are the most current as of this permit. We decided not to publish the list of Washington laboratories because it may be construed as an endorsement. A list of certified labs can be found at <http://www.ecy.wa.gov/programs/eap/labs/search.html>*

- Appendix 7 is now Appendix 5. No changes were made.

## APPENDIX 8 – TOXICITY GUIDANCE

- **There was concern that the methods need to be current and appropriate because once placed in the permit would be the mandatory methods even though outdated or not appropriate.**

### **Response to the range of comments:**

*The methods listed in Appendix 8 are the most current as of this permit. We decided not to publish the list of Washington laboratories because it may be construed as an endorsement. A list of certified labs can be found at*

*<http://www.ecy.wa.gov/programs/eap/labs/search.html>*

- Appendix 8 is now Appendix 6. No changes were made.

## APPENDIX 9 – STORMWATER MANAGEMENT PROGRAM PLAN

### **Range of comments include:**

- **How does implementation of the SWMP constitute MEP and AKART since it allows WSDOT to do less than is practicable or even reasonable?**
- **Why does the SWMP lack mandatory language in so many instances?**
- **Another concern with the approval of the SWMP and its incorporation by reference into the permit is that the SWMP itself incorporates only by reference numerous WSDOT manuals that are not otherwise part of the permit.**
- **Strengthen Intergovernmental Coordination section by requiring that WSDOT coordinate with counties as well as cities in areas where highway and municipal separate storm system runoff commingle.**

### **Response to the range of comments:**

*We consider the permit and SWMP as MEP and AKART. Appendix 2, Table of Reportable Performance Measures list key activities and performance indicators. This table will be reported on every year by WSDOT. If indicators are met but water quality is not improved (via the monitoring results), then we will adjust the permit requirements during the next permit cycle. If the BMPs deficiencies that are corrected show improvement in water quality, then we will continue along this path. Time will tell whether BMP corrections have worked or not. The majority of the preliminary budget developed by WSDOT to implement this permit is for retrofit and maintenance of existing BMPs.*

*WSDOT identifies its use of the Hydraulics Manual in their SWMP. Once Ecology approved the SWMP as meeting federal and state requirements under this permit, and once the permit is issued, then the use of the manuals become a requirement.*

*If a manual or other documents is listed and WSDOT says that implementing it is the way they do business, and we place it in the permit, then two things can be assured: one, we agree that the way they run a program meets state and federal requirements; and two, it becomes a permit requirement that they continue to implement.*

*We strengthened this section requiring WSDOT coordinate with phase I and II permittees. We changed the language on page 2.9 to require WSDOT to provide outfall mapping information to Phase I, Phase II, and **tribal governments** upon request.*

## **Section 2**

- Ecology added language to strengthen coordination requirements with other Phase I, Phase II, and tribal governments.
- Ecology added language to require LID feasibility studies through the application of the HRM.

## **Section 5**

- Ecology added language requiring LID studies through the application of the HRM

## **Section 6**

- **There were a number of concerns about the stand-alone retrofit program, most of them having to do with making sure WSDOT did not abrogate responsibility in areas where local programs, plans, TMDLs, or tribal interest required retrofits.**
- **There was also concern about methodology and accounting;**
- **We also received comments and requests to make sure no new harm would happen in project sites.**
- **Section 6.2 also incorporates by reference certain sections of the HRM. What is the procedure for modification of these sections of the HRM and the HRM in general and how does this procedure satisfy requirements for permit modifications?**
- **The idea that project-driven stormwater retrofit obligations can be met off-site by retrofitting an equivalent area of state highway in targeted environmental priority locations will serve to channel available funding disproportionately into pristine watersheds at WSDOTs choosing**

### **Response to the range of comments:**

*The common question and concern that has arisen in many forums, including the joint meeting with Ecology and the Services and the Stakeholder meetings, was about making sure no new harm happened at the project level. WSDOT is required to address all water quality problems from all of their roadways, no matter where the problem occurs. Ecology recognized though, that there is not enough money in the state budget to do that. Thus we concurred with this project in so far that it addresses the highest environmental priorities first, then over time will address all problems. The list of retrofit projects will not go away until they are treated to standards.*

*The alternative retrofit methodology has 3 criteria screens. We added new criteria in Phase 2 Field Reconnaissance. The new criteria requires WSDOT to consult with local governments and to meet local requirements when implementing this program. We added this language to the SWMP; **“Retrofit priorities identified in local basin plans,***

***comprehensive plans, and applicable TMDLs areas and will not be considered in making these alternative retrofit site selection decisions.”***

*Ecology, with review and comment from NMFS and USFWS, approved the methodology and criteria found in Section 6.3 (x 6.2). As part of the annual reporting requirement, WSDOT must report on the offsite acres mitigated, and at the end of the permit must meet all retrofit obligations. Both the annual reports and final report will be certified as correct. If they are not, then WSDOT will not be in compliance with their permit.*

*We landed on the 1:1 ratio because we had no other data that suggested otherwise. It is easy to make a claim that alternative site mitigation should be 3:1 or 6:1, but unless we had hard data, it would be a call we could not defend. Other than that, the 1:1 ratio will also be used to for accounting.*

*Since this permit does not cover federal or tribal lands, this priority retrofit proposal would not apply to reservation lands. For projects that affect trust lands, WSDOT shall consult with area, tribal, or local biologists.*

## **Section 7**

**Ecology received many comments on Section 7. Section 7 of the SWMP outlines operation and maintenance activities throughout the WSDOT system. Some of the particular concerns include:**

- Correcting stormwater BMPs deficiencies**
- Catch basin maintenance**
- Street sweepings**
- Use of de-icing agents**
- Meeting Local Standards.**
- SWPPP development**

### **Response to the range of comments:**

*We changed the language that requires WSDOT to correct BMP deficiencies as they are discovered. However, we left language in that also requires WSDOT to request funding in the event their budget does not allow for correction of all BMPs that need so.*

*We have been told by WSDOT Maintenance that it will be two years until the Road Side Inventory team has a catch basin inventory to use. Until that inventory is complete, catch basins that are inspected are the ones that will be current in the system. Two vector trucks are in the budget request. If funding is received for them it will take a year to take receipt. Without these additional vector trucks, WSDOT cannot maintain the catch basins as quickly as they would like. Only 12 of the 24 maintenance areas are currently meeting MAP performance levels, so they are already in a hole.*

*For WSDOT's street sweeping program, they have identified and marked ESA sensitive area (water) with a 300' buffer. Within these buffer areas Maintenance implements Regional Road Maintenance Endangered Species Act program. This program has been*

*approved by NOAA National Marine Fisheries. It is not appropriate to deposit potential contaminants (including sources of sediment) within this 300' buffer area. WSDOT Maintenance must have a good reason to even place clean soil in this buffer area.*

*WSDOT is required to implement their Roadside Integrated Vegetation Management Program. At face value it seems there is nothing to implement, however, their RIVM is more than just a description, it is a program for maintaining roadside vegetation using an integrated pest management approach. The program now has the force of an NPDES permit behind it. When Ecology reviewed the program, it met the AKART and MEP test required of all our permits.*

*Wherever WSDOT facilities drain into the King County MS4, or any other local MS4 that has been issued coverage under a municipal stormwater permit, WSDOT is subject to the local stormwater ordinances and rules. This is stated in the WSDOT Stormwater Management Program in Section 1.5.1:*

*“In addition, WSDOT needs to comply with local jurisdiction stormwater standards when WSDOT elects, and is granted permission, to discharge stormwater runoff into a municipality’s stormwater system through utility agreements and permits.”*

*While Ecology acknowledges the local governments’ authority, Ecology will not make compliance with local ordinances a requirement of WSDOT’s NPDES permit. Local governments must use their own authorities to gain compliance.*

*Where WSDOT discharges stormwater from its MS4 directly into a receiving water, without passing through a local MS4, Ecology requires WSDOT to comply with its NPDES permit requirements, i.e., application of the HRM. In addition, Ecology reserves the right to require additional or alternative treatment, flow control, or source control of any project based upon a more specific consideration of the factors involved. If a local government has adopted stormwater discharge requirements that go beyond the State’s requirements for that receiving water, Ecology will not use WSDOT’s NPDES permit to enforce the local requirements.*

*Chapter 6 of the Snow and Ice Plan describes the application guidelines developed from federal guidance and national highway research program. However there is no discussion of how the application rates impacts water quality. Your concern raises an issue that we struggle with, that is, how road maintenance guidelines developed for public safety impact the environment.*

*We clarified in the SWMP that maintenance facilities and rest areas need facility specific SWPPPs. That seems to make more sense, and thank you for your comment about that. We did leave in language that allows WSDOT to develop generic SWPPPs for park and ride lots.*

*However, SWPPP funding and implementation has to occur within a state funding cycle. Hopefully WSDOT can ramp up their program sooner, but one person with statewide responsibility to accomplish this task among others tasks is daunting.*

- Ecology removed any language making the SWPPP implementation dependent upon funding.
- Language was added authorizing the use of the HRM design standards and BMP construction.

## APPENDIX D

### Washington State Department of Transportation Municipal Stormwater Permit April 9, 2009 Errata Sheet

This Errata Sheet accompanies the Washington State Department of Transportation Stormwater Permit, issued February 4 and effective on March 6, 2009. A red-lined version is available on-line along with a clean copy of the corrected permit.

The Errata Sheet serves as documentation of corrections made to the permit. Ecology issues these Errata with agreement from the Washington State Department of Transportation.

#### Explanation of Corrections

Several minor, non-substantive errors were found after permit issuance that Ecology intends to correct. Corrections include a clarification of a reference to the Implementation Agreement, alignment and clarification of reporting submittal deadlines inconsistent with implementation timelines and correction of typographical errors. Concerns with the permit language and corrections made to the permit are explained below.

#### 1. Correction of reference to the Implementing Agreement in S5.A.4

The current language suggests that the permit is the Implementing Agreement.

Correction to S5.A.4:

WSDOT shall apply the technical standards from the June 2008 version of the Washington State Highway Runoff Manual (HRM) for the planning, design, and operation and maintenance of stormwater facilities in Phase I, Phase II, and TMDL areas covered under this permit. One year from the effective date of this permit, projects going to advertisement (AD) shall comply with the June 2008 HRM. The exception is that projects requiring an individual Section 401 Water Quality Certification must comply with the June 2008 HRM consistent with the February 4, 2009 Implementing Agreement between the Washington State Department of Ecology and the Washington State Department of Transportation regarding the implementation of the Highway Runoff Manual. Furthermore, projects requiring an individual Section 401 Water Quality Certification may be subject to additional stormwater requirements if, based on site specific information, the use of the June 2008 HRM will not result in compliance with State Water Quality Standards.

#### 2. Correction/Clarification of Report Submittal Dates in S7, S8 and Appendix 4

A. Special Condition S8.A (and corresponding language in Appendix 4) currently states:

WSDOT shall submit a SWMP Progress Report no later than September 1 of each year beginning in 2010. The reporting period for the first annual report shall begin

on the effective date of this permit and end September 1. The reporting period for all subsequent annual reports shall be the previous fiscal year.

This conflicts with annual Stormwater Management Program (SWMP) Progress Report deadlines in Appendix 7, Section 10.2., which state:

Per conditions in S8 of the *WSDOT Municipal Stormwater Permit*, WSDOT submits and Annual Report to Ecology by October 31 each year . . . .

Correction: The SWMP Progress Report deadline language in S8.A and Appendix 4 will be corrected to October 31, as appears in Appendix 7, Section 10.2:

WSDOT shall submit a SWMP Progress Report no later than October 31 of each year beginning in 2010. The reporting period for the first annual report shall begin on the effective date of this permit and end June 30, 2010. The reporting period for all subsequent annual reports shall be the previous fiscal year.

B. Special Conditions S7.A, S7.B.8, S7.C.8, S7.D.5, S7.E.7, S7.E.8 and S8.F require the annual reports to include monitoring data not collected until after the second report due date.

The September 1, 2011 annual monitoring reporting start date is inconsistent with QAPP development and subsequent monitoring implementation deadlines as stated in S7.G.1.d & S7.G.2.c, which specify monitoring to begin “no later than 30 months after the effective date of this permit,” and thus would start September 4, 2011. However, there would be no monitoring data or analyses to report (as specified in S7.B.8, S7.C.8, S7.D.6, and S7.E.7) on September 1, 2011 if WSDOT literally followed the monitoring implementation timeline language stated in S7.G.

In addition, the September 1, 2011 date is inconsistent with monitoring implementation timelines and the corresponding annual monitoring report deadlines, which call for reporting to follow after the first full year of monitoring implementation (as specified in S7.B.8, S7.B.8.d, S7.C.8, S7.C.8.a, S7.D.5, S7.D.6, and S7.E.7).

Corrections:

Special Condition S7.A, S7.B.8, S7.C.8, S7.D.5, S7.E.7 and S7.E.8 reporting requirements are corrected to refer to S8.F Stormwater Monitoring Report, below:

Special Condition S8.F will be corrected to read:

Monitoring results will be presented in an annual report due October 31, as follows:

Report year	Data required
2010	Status report on preparations to meet requirements S7.A through S7.E
2011	Status report on preparations to meet requirements S7.A through S7.E
2012	Status report on preparations to meet requirements S7.A through S7.E
2013	Detailed report on data collected from October 1, 2011 – September 30, 2012 described in S7.B, S7.C, S7.D and S7.E.
Annually thereafter	Detailed report on data collected from October 1 – September 30 described in S7.B, S7.C, S7.D and S7.E.

To add clarity and correspond to report years specified in the S8.F table, specific years were added in the following places in S7:

S7.B.6.b.iii: “For the 2013 Annual Stormwater Monitoring Report, submit the following:”

S7.B.6.b.iv: “Annually thereafter beyond the 2013 Stormwater Monitoring Report, submit the following:”

S7.C.8.a: “Toxicity reports shall be included in each Annual Stormwater Monitoring Report beginning in 2013 with the following information:”

S7.D.5.a: “WSDOT shall submit an Annual Stormwater Monitoring Report with the following information for each sampled storm event beginning in 2013:”

S7.E.7: “Beginning with the 2013 Stormwater Monitoring Report, WSDOT shall include the following information for each sampling event from each site:”

S7.E.8: “Beginning with the 2013 Stormwater Monitoring Report and annually thereafter until monitoring statistical goals are met, WSDOT shall include the following information:”

C. Special Condition S7.E.9 was added to clarify the final report requirements for BMPs referenced in S7.E.4. The final report must include appropriate sections of a technical evaluation report (TER) as described in Ecology’s TAPE guidance. S8.G was deleted because it was replaced with this new condition.

D. In S7.G.1 and 2, QAPP submittal dates were converted from “months after the effective date of this permit” to the corresponding specific date for clarity. The phrase “provided that this deadline shall be extended by the number of days by which

Ecology exceeds 90 days for QAPP review” was added because Ecology often takes longer than the 90 days to review QAPPS.

- a. If WSDOT intends to meet all or part of the monitoring requirements outlined in Sections S7.B, S7.C, S7.D and S7.E, through a collaborative process with other entities, WSDOT shall submit a statement to Ecology explaining their commitment to the collaborative process no later than September 6, 2009.
- b. WSDOT shall submit all required QAPPS to Ecology no later than September 6, 2010 WSDOT shall submit the monitoring program in both paper and electronic form.
- c. Approved or final QAPPS shall be completed no later than March 6, 2011, provided that this deadline shall be extended by the number of days that Ecology exceeds 90 days for QAPP review.
- d. WSDOT shall begin full implementation of the monitoring program no later than September 6, 2011.

S7.G.2: Independently-developed monitoring programs.

- a. WSDOT shall submit required QAPPS, to Ecology no later than September 6, 2010. WSDOT shall submit the monitoring program in both paper and electronic form.
- b. Approved or final QAPPS shall be completed no later than March 6, 2011, provided that this deadline shall be extended by the number of days by which Ecology exceeds 90 days for QAPP review.
- c. WSDOT shall begin full implementation of the monitoring program no later than September 6, 2011.

### **3. Correction of Typographical Errors/Clarifications**

Permit cover page: The effective date of the permit is thirty days after issuance, March 6, 2009, not March 4, 2009. Consequently, the expiration date of the permit is March 6, 2014. Both dates were corrected. The permit number WAR043000A was also added.

Special Condition S3.B.1:

- (3<sup>rd</sup> line) "or" is changed to "of" (...one or more of its permit obligations.)
- (B.1. 3<sup>rd</sup> line) "document" is changed to "statement" (All participating entities shall sign the statement.)

Special Condition S7.B.3 and Definitions and Acronyms:

- The first use of the acronym AADT is preceded by “annual average daily traffic”.
- “AADT” is added to the parenthetical in S7.B.3.d.
- “AADT” added to Definitions and Acronyms: “AADT” means “annual average daily traffic.”

Special Condition S7.B.4.b: The term "other sized" is vague and was reworded to "non-qualifying" storm event.

“TAPE” added to Definitions and Acronyms: “TAPE” refers to Ecology publication 02-10-037, *Guidance for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol – Ecology*, revised January 2008.

Appendix E

RESPONSE TO COMMENTS  
ON THE  
WASHINGTON STATE DEPARTMENT OF TRANSPORTATION  
MUNICIPAL STORMWATER GENERAL PERMIT  
MAJOR MODIFICATION

May 5, 2010

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## INTRODUCTION

Ecology issued a permit to WSDOT on February 4, 2009 that covers discharges from its municipal separate storm sewer system (MS4). MS4s are conveyances or a system of conveyances including roads with drainage systems, streets, catch basins, ditches, man-made channels, and storm drains. The effective date of the permit was March 6, 2009. The permit was appealed by Puget Sound Keeper Alliance within the 30-day post-issuance period. In January 2010, Ecology, WSDOT and the appellant settled on proposed language to modify the permit, resolving the permit appeal. This Response to Comments provides Ecology's responses to comments received during the public notice period of the permit modification.

## PUBLIC REVIEW OF PROPOSED CHANGES TO THE PERMIT

On February 3, 2010, Ecology filed a notice with the State Register to modify WSDOT's NPDES and State Waste Discharge Permit for Municipal Stormwater. Ecology invited public comment on the modified permit and accepted written and oral comments on the proposed changes to the permit until 5 p.m., March 31, 2010.

Ecology held a hearing at Ecology Headquarters in Lacey, Washington on March 29, 2010 at 3pm. The purpose of the hearing was to provide an opportunity for formal oral testimony and comments on the proposed permit.

## SUMMARY OF CHANGES TO THE DRAFT PERMIT MODIFICATION

The permit modification implements the settlement agreement. The appeal documents can be viewed at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot.html>

The proposed modification adds substantive language to the permit. Ecology also made numerous changes to improve clarity and readability of the permit. Permit sections modified include: S6.C, S7. E.2.d., S8.E., Appendix 7, Stormwater Management Program Plan, Sections 3 and 3.1, 5.4, 6.2, and Appendix 3, Applicable TMDL Requirements.

## LIST OF COMMENTERS

Those who commented are listed below. Their comments can be read in full on our website at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/WSDOTpermitdocs.html>

Washington State Department of Natural Resources  
Washington state Depart of Transportation

## THE RESPONSE TO COMMENTS

Each page of comments received has been copied below and is followed by Ecology's responses.

### COMMENTS FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES (DNR)

DNR comments, page 1:



WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**  
Peter Goldmark - Commissioner of Public Lands

Caring for  
your natural resources  
... now and forever

DEPARTMENT OF ECOLOGY

MAR 19 2010  
WATER QUALITY PROGRAM

March 16, 2010

Kathleen Emmett  
Washington State Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

Subject: Comments on the Draft Washington State Department of Transportation Municipal Stormwater Permit, March 2010.

Dear Ms. Emmett:

The Department of Natural Resources (DNR) as steward of State Owned Lands has the obligation to manage and protect those lands for present and future citizens of the state to sustain ecosystems and economic viability. The management of sustainable resources is based upon sound science in a transparent manner with the full benefit of public understanding.

The DNR finds that the new draft Washington State Department of Transportation Municipal Permit (Permit) is a considerable improvement over the last draft permit and represents a step in the right direction. The attention to receiving waters exceeding water quality standards is to be commended. However, DNR continues to be concerned with some aspects of the permit.

DNR finds that the following points have not been effectively resolved:

- The permit by requiring reduction to the "maximum extent practical" does not clearly prohibit discharges that may exceed water quality standards.
- Implementation of AKART as statutorily required is not clearly developed for stormwater. If AKART is already present as required statutorily how is possible for additional measures to result in AKART?
- Ecology must devote appropriate resources to resolution of source control in those waters where TMDLs have been created. The discharge of additional contaminants to receiving water already in excess of that water quality standard must not be allowed as a long term policy.
- The few sites that are monitored will assist in the development of stormwater policies, but it is only a snapshot in time and provides only an opening into the complexities of the issues. Unfortunately the data gathered from this study will be used to develop generalities that may or may not have little applicability except to those sites.

AQUATIC RESOURCES DIVISION ■ 1111 WASHINGTON ST SE ■ MS 47027 ■ OLYMPIA, WA 98504-7027  
TEL (360) 902-1100 ■ FAX (360) 902-1786 ■ TTY (360) 902-1125 ■ TRS 711 ■ WWW.DNR.WA.GOV  
EQUAL OPPORTUNITY EMPLOYER

RECYCLED PAPER ♻️

Response to DNR comments, page 1:

1. Thank you for your comments. Permit requirements regarding the use of the Water Quality Standards and AKART were not subject to the appeal but had been commented on when the permit was issued. Ecology's response to comments on sections outside of the appeal can be found in Appendix C of this Fact Sheet.
2. Regarding the bulleted comment on TMDLs, the permit is directed at managing discharges from WSDOT's MS4 rather than Ecology's source control activities.
3. Thank you for your comments on monitoring.

## DNR comments, page 2:

Kathleen Emmett  
March 16, 2010  
Page 2 of 2

### Specific Comments:

1. Page 8 S4F1. Is it possible to be excused from notification to Ecology with a single notification?
2. Page 9 S4F3d. Ecology is to be complemented on the development of a compliance schedules or other enforcement orders if implementation of Best Management Practices continues to result in violation of water quality standards.
3. Page 10 S4F3f Ecology is to be complemented that this permit does not provide a shield to Washington State Department of Transportation (WSDOT) for liability resulting from the discharges.
4. Page 10 S5A2 WSDOT designed the SWMP. Did they write it?
5. Page 11 S5 A5 DNR supports the requirement that WSDOT be required to evaluate Low Impact Development for all projects as an alternative.
6. Page 12. S6 The overall approach to Total Maximum Daily Load issues is good, but it suffers from the lack of responsibility of Ecology to resolve source control issues in TMDL waters.
7. Page 13 S7 "Time of concentration" is used several times without definition.
8. Page 18 S7C1 and 3 DNR applauds the use of toxicity testing for the first flush. P.20 S77 The wording is extremely awkward: If necessary to produce knowledge....

The Permit only begins to resolve long term issues associated with stormwater runoff from the state highway system. Much work needs to be done to address major stormwater issues in the high density urban areas of Washington. Ecology is to be complemented on a major step forward. It is hoped that the full implications of this permit are part of long range planning and ongoing commitment of necessary resources at Ecology to the resolution of stormwater issues.

Sincerely,



Lionel Klikoff PhD  
Sediment Quality Unit Supervisor

cc: Naki Stevens, Natural Resources Administrations Assistant  
Kristin Swenddal, Aquatic Resources Division Manager

## Response to DNR comments, page 2, specific comments:

1. This response applies to comments 1-3 above, which refer to pages 8-10 of the permit regarding subsections of Special Condition S4. Special Condition S4 was not subject to the appeal. Ecology's response to comments on sections outside of the appeal can be found in Appendix C of this Fact Sheet.
2. Response to comment 4: Yes, WSDOT wrote their SWMP. Ecology reviewed and approved it and added it as an appendix to the permit.
3. Response to comment 5: Thank you for your comment.
4. Response to comment 6: The permit is a legal tool used to manage discharges from WSDOT's MS4, it is not used to manage Ecology's source control activities.
5. Response to comment 7: The "time of concentration" is calculated as the time taken for runoff to flow from the most hydraulically remote point of the drainage area to the point under investigation.
6. Response to comment 8 and the following paragraph: Thank you for your comments.

COMMENTS FROM THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

WSDOT comments, page 1:

**WSDOT Comments on the  
WSDOT Municipal Stormwater Permit Modification**  
March 2010

Page 1

Since the geographic scope of the permit also includes Phase 2 designated areas, the front page of permit should read:

*National Pollutant Discharge Elimination System and  
State Waste Discharge General Permit for  
Large, and Medium, and Small Municipal Separate Storm Sewer Systems*

Page 12, S6.A.2.

To maintain consistency with the language clarification made in S6 regarding the use of the term *Detailed Implementation Plan*, we suggest the following revision:

*WSDOT shall meet the timeframes identified in either the TMDL or Detailed  
Implementation-Plan associated implementation documents.*

Page 17, S7.B.8.a.iii

The word "Phenolics" should appear as a separate parameter (i.e., *S7.B.8.a.vi. Phenolics*). Then correct corresponding numbering of the remaining parameters that follow.

Page 18, S7.B.8.b.iii.3) – 6)

Numbering typographical errors need correcting. Number sequencing should read "1)" through "4)" rather than "3)" through "6)".

Page 26, S7.E.7.c

This sentence has a typographical error which should be corrected as follows:

*Antecedent dry period, einter-event period and total precipitation depth.*

WSDOT Comments on Draft WSDOT Municipal Stormwater Permit Modification

1

Response to WSDOT comments, page 1:

1. Comment on page 1, regarding the name of the permit: Ecology has edited the name of the permit to read, "WASHINGTON STATE DEPARTMENT OF TRANSPORTATION NATIONAL POLLUTANT DISCHARGE AND ELIMINATION SYSTEM AND STATE WASTE DISCHARGE PERMIT FOR MUNICIPAL STORMWATER".
2. Comment on page 12 regarding TMDL implementation documents: Ecology agrees and has modified the permit accordingly.
3. Comment on page 17 regarding the word "Phenolics". Ecology agrees and has modified the permit accordingly.
4. Comment on page 18 regarding a numbering typographical error. Ecology agrees and has modified the permit accordingly.
5. Comment on page 26 regarding a typographical error. Ecology agrees and has modified the permit accordingly.

WSDOT comments, page 2:

Page 27, S7.E.9

The requirement for a final report for each BMP monitored did not appear in the original permit issued on February 4, 2009. Rather it appeared as part of the May 1, 2009 modification. While WSDOT did not have the opportunity to comment on this change, we recognize that an evaluation of the data could be beneficial for WSDOT. However, since Ecology's TAPE relates to testing and evaluating new stormwater treatment technologies rather than Ecology-approved BMPs, we recommend revising the last sentence to read:

*The final report shall include an analysis of the performance data collected on the BMP's as described in the appropriate sections of Ecology's TAPE (available on Ecology's website).*

Or the permit should identify and list the appropriate sections of TAPE that are being referred to.

Page 30, S8.E.3

S5.A.6 is referencing the wrong permit section. The correct reference should be S5.A.5

Appendix 7, Table of Contents

The following hyperlinks imbedded in the table of contents need to be established or fixed:

- 3.1 Illicit Discharge Identification (*missing hyperlink*)
- 3.2 Notification Procedures (*links to wrong section*)
- 5.4 Consultation with the Services (*missing hyperlink and page number reference*)
- 6.2 Requirements for Stormwater Retrofit in Puget Sound Basin (*missing hyperlink and typographical error*)
- 6.3 Opportunity-based Retrofits Outside of the Puget Sound Basin (*missing hyperlink*)
- 8.3 Information Management (*missing hyperlink*)

The following section reference needs to be added to the table of contents:

- 6.4 Project-triggered Stormwater Improvements

The following sections have incorrect section number references:

- 6.4~~5~~ Stormwater Retrofit Prioritization Process
- 6.5~~6~~ Stormwater BMP Retrofit Program Evaluation

Response to WSDOT comments, page 2:

1. Response to comment on page 27, regarding reporting requirements: Neither a final BMP report nor a report that follows the guidelines in TAPE was new in the February 4, 2009 permit.

Special Condition S8.E.2 of the February 4, 2009 permit (and previously in S8.G of the final draft dated 12/1/08) required:

“A Final Water Quality Monitoring Report for *each* monitoring program outlined in S7 shall be submitted within one month prior to the end of the permit expiration date.”

The BMP monitoring program outlined in S7.E.8 (S7.E.7 of the 12/1/08 redlined draft permit) of the original permit stated:

Beginning with the first annual monitoring annual report (due September 1, 2011), WSDOT shall include in each Annual Report for BMP Evaluation Monitoring the following information for each *site*:

- a. Status of implementing the monitoring program and a description of Stormwater Treatment and Hydrologic Management BMP Evaluation Monitoring programs that are still in progress at the end of the reporting year
- b. WSDOT shall compute and report cumulative (including previous years) performance data for each treatment BMP test site, and for both sites of the same treatment BMP type, consistent with the guidelines in appropriate sections of Ecology's guidance for "*Evaluation of Emerging Stormwater Treatment Technologies*" and USEPA publication number 821-B-02-001, "*Urban Stormwater BMP Performance Monitoring*," including information pertinent to fulfilling the "*National Stormwater BMP Data Base Requirements*" in section 3.4.3. of that document.
- c. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site and for both test sites of the same treatment BMP type;
- d. Status of performance data concerning flow reduction performance for the hydrologic reduction BMP; and
- e. Any proposed changes to the monitoring program that could affect future data results.

The addition of S7.E.9 in the redlined errata version of concern was added to clarify these existing requirements. However, Ecology does make the assumption that WSDOT will be able to perform an analysis of the performance data collected. If WSDOT's statistical goals are NOT met at this time WSDOT will still have to submit a "final" status report, due one month prior to the expiration of the permit. A final BMP report, a report that follows the guidelines of the TAPE protocol and EPA guidance, was always required.

S7.E.8 quoted above requires WSDOT to compute and report performance data for each treatment BMP test site and for both sites of the same treatment BMP type, consistent with the guidelines which are: "guidelines in appropriate sections of Ecology's guidance for "*Evaluation of Emerging Stormwater Treatment Technologies*" and USEPA publication number 821-B-02-001, "*Urban Stormwater BMP Performance Monitoring*," including information pertinent to fulfilling the "*National Stormwater BMP Data Base Requirements*" in section 3.4.3 of that document."

The language from the appropriate sections of the Revised January 2008 TAPE requires a report that includes:

- A statement of the QAPP objectives
- All deliverables specified in the QAPP
- A thorough description of the technology, including sizing methodology, flow diagrams and appropriate illustrations.
- All relevant performance test results, statistical analyses, factors other than performance, and operating and maintenance activities including all the information requested in any prior PULD or CULD.
- Any available non-standard data (data not collected per the TAPE, such as laboratory testing, out-of-state testing not indicative of the Pacific Northwest, or field performance testing with real storms not meeting protocol guidelines).

- Conclusions and recommendations including the technology's development level, recommended operating and maintenance (O&M) procedures and frequency, pretreatment requirements, and use limitations.
- Capital and projected annual costs, including O&M costs.
- An executive summary.
- Additional testing recommendations, if needed.

These guidelines must be used for reporting monitoring data *regardless* of whether a GULD has been obtained. This has always been required. We repeat this requirement to use the TAPE guidelines and EPA guidance in S7.E.4 and S7.E.8.

This is an excerpt from the EPA document referenced:

**EPA-821-B-02-001; April 2002, 3.4.3 Report Results**

The results of your monitoring program should be presented in one or more reports. The appropriate report frequency and content depends on your monitoring program objectives and your audience. If you are monitoring to comply with a permit, the permit will generally specify the minimum frequency and content of the reports.

*Most monitoring programs involve two types of reports: status (or progress) reports and final reports.* To determine the appropriate frequency of status reports, consider your monitoring frequency and objectives, particularly any permit requirements. Many programs produce status reports on a quarterly or semi-annual basis. *A typical status report may contain the following information:*

- Summary of work accomplished during the reporting period
- Summary of findings
- Summaries of contacts with representatives of the local community, public interest groups, or state federal agencies
- Changes in key project personnel
- Projected work for the next reporting period

*You should prepare more comprehensive reports at the end of the monitoring program (for short-term programs) or at the end of each year (for multi-year programs). Consider including the above-listed information and the following information in your annual or final report:*

- Executive summary
- Monitoring program background and objectives
- Monitoring station descriptions, analytical parameters, analytical methods, and method reporting limits
- Summary descriptions of the conditions and stations, equipment inspections and calibrations, etc.
- Sample collection, precipitation, and flow measurement methods

Flow, precipitation, and water quality results and data validation information Qualitative and statistical data evaluations/hypothesis testing as required for your specific program objectives (see Section 3.4.2 and Appendix I)

- Summary and conclusions, including any caveats or qualifying statements that will help the reader understand and use the reported information in the appropriate context
- Recommendations regarding management actions (e.g., changes in monitoring program, implementation of BMPs)

..... several tables follow.

To clarify then, S7.E.9 summarizes the requirement that WSDOT submit BMP performance data and analysis collected at each site. This is due when statistical goals are met for BMPs. S8 requires a final report at the end of the permit term. If the statistical goals are met in the very last year of the permit cycle, and it is highly unlikely that the statistical goals will be met before the last year of the permit term, Ecology will accept one report which covers requirements in S7.E.9 and S8.F.2.

S7.E.9 clarifies that in order to comply fully with S7.E.4 (*WSDOT shall use appropriate sections of Ecology's TAPE for preparing, implementing, and reporting the results of the BMP evaluation program*), WSDOT would have to submit performance data.

If the statistical goals are NOT met by the last month of the permit term WSDOT will have to submit one final report without this information. The report due date for the report analysis required in S7.E.9 is really dependent upon when goals are met. This report may be requested in the next permit term.

In sum, thank you for your comment, no change to the permit.

Response to WSDOT comments on page 2 continued:

2. Comment on page 30 regarding a reference to the wrong permit section. Ecology agrees and has modified the permit accordingly.
3. Comment on Appendix 7, Table of Contents. The hyperlinks have not been restored due to lack of Ecology support resources. The numbering and typographical errors have been corrected.

(Page 3 of comments received from WSDOT continue on the following page.)

Appendix 7, Page 2-3, Section 2.2.2

To maintain consistency with the language clarification made in S6 regarding the use of the term *Detailed Implementation Plan*, we suggest the following revisions:

3. *WSDOT participates as a member of Ecology's TMDL advisory committees for those TMDL Water Quality Improvement Plans and associated TMDL implementation documents Water Quality Implementation Plans identified by WSDOT as priorities in Step 2.*
4. *WSDOT may participate when invited in adaptive management meetings convened to document implementation efforts in those areas where TMDL Detailed Implementation Plan actions have been assigned to WSDOT.*

Appendix 7, Page 6-5, Table 6-1

To improve readability, we suggest adding a page break so that Table 6-1 appears all on one page.

Appendix 7, Page 6-6, Table 6-1

To maintain consistency with the language clarification made in S6, we suggest the following revision:

Locally identified erosion or pollution problems	Consult local basin plans, recovery plans, and associated TMDL implementation documents water clean up plans for identified problems associated with stormwater runoff	Factors in well informed local knowledge	3
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To improve clarity, we suggest the following revision:

Phase 2 synthesis	Sites received Phase 2 score of 8 to 12 are high priority, and those with 7 are medium priority, then those with next phase 2 highest score are with the next priorities ranked in descending order based upon their Phase 2 Field Reconnaissance score.	Gives higher priority to factors evaluated in Phase 2	1
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Response to WSDOT comments, page 3:

1. Comment on Appendix 7, pages 2-3 language changes: Ecology agrees and has modified the permit accordingly.
2. Comment on Appendix 7, page 6-5, page break: Ecology agrees and has modified the permit accordingly.
3. Comment on Appendix 7, page 6-6, language clarifications: Ecology agrees with the first clarification and has modified the permit accordingly. Ecology reworded the second proposed revision for clarity. It now reads, "Sites receiving a Phase 2 score of 8 to 12 are high priority. Those with a score of 7 are medium priority, and those with next Phase 2 highest score are the next priorities."