



**Washington State
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January 10, 2014

Mr. Foroozan Labib
Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

Dear Mr. Foroozan:

Thank you for the opportunity to comment on your public review draft of 2014 WSDOT NPDES Municipal Stormwater Permit and Fact Sheet. Our suggested comments are included in the following package of attachments:

- A track-change version of the proposed *Washington State Department of Transportation National Pollutant Discharge Elimination System and State Waste Discharge Municipal Stormwater General Permit*
- A proposed 4th option, referenced in the comments to the permit, for the *Status and Trends* monitoring requirement
- A spreadsheet pertaining to the proposed *2014 Highway Runoff Manual*
- A track-change version of the *Fact Sheet*

We have provided electronic copies for each of the above mentioned documents in PDF as well as MSWord or Excel file formats.

Please note that most of the comments pertaining to the proposed *2014 Highway Runoff Manual* pertain to cleaning up typographical errors or inconsistencies that our staff found during the review process. However, there are a couple of items that we feel require Ecology's review and concurrence. We have highlighted those comments and proposed solutions in yellow for your convenience.

Please let me know if you have any questions or if you would like to discuss any of these comments.

Sincerely,

Megan White, P.E., Director
Environmental Services Office

MW:ls

Attachments

Permit Number: WAR043000A
Issuance Date: March 6, 2014
Effective Date: April 5, 2014
Expiration Date: April 5, 2019

**WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM AND STATE
WASTE DISCHARGE MUNICIPAL STORMWATER GENERAL PERMIT**

**State of Washington
Department of Ecology**
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified, or revoked, Permittee is authorized to discharge to waters of the state in accordance with the special and general conditions which follow.

Kelly Susewind, P.E., P.G.
Water Quality Program Manager
Washington State Department of Ecology

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APPENDIX 6: PERMIT APPLICATION 10-4

Comment [LS1]: Suggest making Sections 1-8 of Appendix 5 appear more like sub-sections by indenting or changing the font.

SPECIAL CONDITIONS

S1. PERMITEE AND PERMIT COVERAGE

A. PERMITEE

This permit regulates stormwater discharges from state highways and related facilities contributing to discharges from separate storm sewers owned or operated by the Washington State Department of Transportation (WSDOT).

B. PERMIT COVERAGE AREA

1. This permit covers stormwater discharges from municipal separate storm sewer systems (MS4s) owned or operated by WSDOT in areas covered by the Phase I Municipal Stormwater Permit, the Eastern Washington Phase II Municipal Stormwater Permit, and the Western Washington Phase II Municipal Stormwater permit, in effect as of August 1, 2013. Discharges covered include those from WSDOT's highways, ferry terminals, rest areas, park and ride lots, maintenance facilities, vector decant and street sweepings facilities, and winter chemical storage facilities when the discharges are conveyed through a municipal separate storm sewer system (MS4) owned or operated by WSDOT. Coverage excludes areas of federal and tribal lands.
2. This permit covers stormwater discharges from MS4s owned or operated by WSDOT to any water body in Washington State for which there is a U.S. Environmental Protection Agency (EPA) approved Total Maximum Daily Load (TMDL) with wasteload allocations and associated implementation documents specifying actions for WSDOT stormwater discharges. For TMDL areas that are not within the areas described in S1.B.1 above WSDOT shall, at a minimum, be responsible for the TMDL implementation actions found in Appendix 3.

Comment [LS2]: To reflect permits' effective date.

S2. AUTHORIZED DISCHARGES

- A. This permit authorizes the discharge of stormwater to surface waters and to ground waters of the state from MS4s owned or operated by WSDOT in the geographic area covered by this permit pursuant to S1.B. subject to the following limitations:
 1. Discharges to ground waters of the state through facilities regulated under the Underground Injection Control (UIC) program, chapter 173-218 Washington Administrative Code (WAC), are not authorized under this permit.
 2. Discharges to ground waters not subject to regulation under the federal Clean Water Act are authorized in this permit only under state authorities, chapter 90.48 Revised Code of Washington (RCW), Washington's Water Pollution Control Act.
- B. This permit authorizes discharges of non-stormwater flows to surface waters and ground waters of the state from MS4s owned or operated by WSDOT in the geographic area covered pursuant to S1.B. only under one or more of the following conditions:
 1. The discharge is authorized by a separate NPDES permit or State Waste Discharge permit.
 2. The discharge is from emergency firefighting activities.

3. The discharge is from another illicit or non-stormwater discharge that is managed by WSDOT as provided in Section 3 of WSDOT's Stormwater Management Program Plan ([SWMPP](#), Appendix 5).

These discharges are also subject to the limitations in S2.A.1 and 2 above.

- C. This permit does not relieve WSDOT from responsibilities and liabilities under state and federal laws and regulations pertaining to illicit discharges, including spills of oil or hazardous substances.
- D. Discharges from MS4s constructed after the effective date of this permit shall receive all applicable state and local permits and use authorizations, including compliance with chapter 43.21C RCW (the State Environmental Policy Act).
- E. This permit does not authorize discharges of stormwater to waters within Indian Country or to waters subject to water quality standards of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation, except where authority has been specifically delegated to the Department of Ecology (Ecology) by the EPA. The exclusion of such discharges from this permit does not waive any rights the State may have with respect to the regulation of the discharges.

S3. RESPONSIBILITIES OF PERMITTEE

- A. WSDOT shall comply with all of the conditions of this permit for the regulated MS4s it owns or operates within the geographic area covered pursuant to S1.B.
- B. WSDOT may rely on another entity to satisfy one or more of the requirements of this permit, if the other entity implements the permit conditions and agrees to implement the permit conditions on WSDOT's behalf. If WSDOT relies on another entity to satisfy one or more of its permit obligations, WSDOT remains responsible for permit compliance if the other entity fails to implement the permit conditions.

Where permit responsibilities are shared:

1. WSDOT shall submit, upon the Ecology's request, shared responsibilities statement(s) to Ecology that describes the permit requirements that will be implemented by other entities. All participating entities shall sign the statement.
2. WSDOT may amend its shared responsibilities statement(s) during the term of the permit to establish, terminate, or amend shared responsibilities. Upon request, WSDOT shall submit the amended statement(s) to Ecology.
- C. Unless otherwise noted, all appendices to this permit are incorporated by this reference as if set forth fully within this permit.

S4. COMPLIANCE WITH STANDARDS

- A. In accordance with chapter 90.48.520 RCW, 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.
- F. WSDOT remains in compliance with S4 despite any discharges prohibited by S4.A or S4.B when WSDOT undertakes the following response toward long-term water quality improvements.
 - 1. WSDOT shall notify Ecology in writing within 30 days of becoming aware, based on credible site-specific information that a discharge from the MS4 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 an MS4 owned or operated by WSDOT is causing or contributing to a violation of water quality standards in a receiving water, Ecology will notify WSDOT in writing that an adaptive management response outlined in S4.F.3 below is required, unless:
 - a. Ecology also determines that the violation of Water Quality Standards is already being addressed by a TMDL or other enforceable water quality cleanup plan; or
 - b. Ecology concludes the MS4 contribution to 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 Best Management Practices (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 basis 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. If modifications are required, Ecology will specify a reasonable time frame in which WSDOT shall submit and Ecology will review the revised report.
 - 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 chapter 173-201A-510(4) WAC and chapter 173-226-180 WAC or other enforcement orders as Ecology deems appropriate during the term of this permit.
 - e. A TMDL or other enforceable water quality cleanup plan that has been approved and is being implemented to address WSDOT MS4's contribution to the Water Quality Standards violation supersedes and terminates the S4.F.3 implementation plan.
 - f. 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.A or B above.
 - g. Whether the process in Section S4.F provides WSDOT a shield from liability under 42 U.S.C. 9601 et seq. or chapter 70.105D RCW 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 chapter 70.105D RCW.

- 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 Washington State AKART requirements.
 3. Control the discharge of toxicants to waters of Washington State.

S5. STORMWATER MANAGEMENT PROGRAM

A. General Requirements

1. WSDOT shall implement and enforce its Ecology approved Stormwater Management Program Plan (SWMPP). The SWMPP is incorporated as Appendix 5 of this permit.
2. WSDOT designed the SWMPP to:
 - a. Reduce the discharge of pollutants from all municipal MS4s and other conveyances owned or operated by WSDOT covered under this permit to the MEP.
 - b. Protect water quality and beneficial uses of waters of the State from impacts which cause or contribute to loss or impairment.
 - c. Satisfy appropriate requirements of the Clean Water Act (CWA).
3. WSDOT shall implement all components and requirements of its SWMPP including all performance indicators and milestones as enforceable conditions of this permit. See Appendix 2 for a list of the performance indicators.
 - a. ~~WSDOT shall apply the technical standards in the Washington State Highway Runoff Manual (HRM) for the planning, design, and operation and maintenance of stormwater facilities in Phase I, Phase II, and as applicable for TMDL areas covered under this permit. One year from the effective date of this permit (i.e., March 6, 2014), projects going to advertisement (AD) shall comply with the 2014 HRM except as follows:~~
 - i. ~~One year from the effective date of this permit (i.e., March 6, 2014), projects going to advertisement (AD) shall comply with the 2014 HRM.~~ 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 2014 HRM will not result in compliance with State Water Quality Standards.
 - ii. ~~WSDOT shall apply the 2014 version of the HRM for projects being advertised for construction contracts in the 2015-2017 Biennium, which starts July 1, 2015, except for pProjects that have already received Design Approval beforeas of July 1, 2014. 4- may use the 2011 HRM on the condition that the projects go to AD by June 30, 2017.~~
 - iii. ~~For projects going to AD after July 1st 2016, WSDOT shall apply the 2014 version of the HRM.~~

Comment [LS3]: The reason for this proposed change reflects the fact that the permit directing use of an Ecology-approved 2014 HRM has not been issued yet.

Comment [LS4]: This proposed change reflects policy contained in WSDOT's Design Manual which call for evaluating designs over three years to determine if the design meets the current standards. We think it is appropriate to apply the same approach here.

Comment [LS5]: Integrated into ii. above.

4. Watershed-scale stormwater planning
 - a. When WSDOT has all or part of its coverage area under this Permit in a watershed selected by a Phase I county for watershed-scale stormwater planning under condition S5.C.4.c of the *Phase I Municipal Stormwater General Permit* WSDOT shall participate with the watershed-scale stormwater planning process led by the Phase I county.¹ As needed and as appropriate, WSDOT shall:
 - i. Provide existing water quality and flow records.
 - ii. Provide monitoring locations.
 - b. WSDOT shall request adequate resources to maintain compliance with this permit in its proposed budget submittals to the Governor’s Office. WSDOT shall track the estimated cost of permit implementation of the permit and shall be included the cost estimate in the annual report as stipulated in S8.F.2 and S8.F.3.

B. Program Assessment and Evaluation

1. WSDOT shall meet the performance indicators provided in Appendix 2 to implement actions and construct, operate, and maintain facilities in accordance with this permit and the SWMPP. ~~WSDOT shall report on the performance indicators in Appendix 2 in its annual report.~~
2. WSDOT shall track the status of SWMPP implementation activities ~~and by documenting the implementation status of~~ performance indicators listed in Appendix 2 to fulfill the ~~Annual Stormwater Management Program Progress Reporting requirement stipulated in S8.F.14.~~

Comment [LS6]: Numbering formatting need correcting as this requirement does not pertain to the watershed related requirements above.
Proposed edits to improve readability and clarity.

Comment [LS7]: With the proposed changes to S5.B.2 below, we think this sentence becomes redundant.

Comment [LS8]: Proposed edits to improve readability and clarity.

S6. TOTAL MAXIMUM DAILY LOAD ALLOCATIONS

- A. This permit requires compliance with implementation actions assigned to WSDOT in applicable TMDLs. Applicable TMDLs are those which have been approved by EPA on or before the issuance date of this permit or subsequent permit modifications. Appendix 3 lists applicable TMDLs and the implementation actions assigned to WSDOT.
 1. WSDOT shall comply with implementation actions listed in Appendix 3.
 2. If a specific TMDL listed in Appendix 3 requires WSDOT to conduct water quality monitoring, ~~WSDOT shall develop and implement a TMDL monitoring Quality Assurance Project Plan (QAPP) using the most recent version of *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies*, (Ecology Publication #04-03-030), or the most recent version of *EPA’s Guidance for Quality Assurance Project Plans*, as additional guidance.~~ WSDOT shall meet the timeframes identified in either the TMDL or associated implementation documents.

Comment [LS9]: We suggest including this since EPA’s guidance contains further explanation about necessary QAPP components. The suggested edit is similar to language in S7.C.3 and S7.D.4 allowing the use of applicable EPA guidance for additional detail.
A date and publication number was not added because EPA is in the process of revising their guidance and future publication date and number will be changing.

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¹ For a description of the watershed-scale stormwater planning details, see Special Condition S5.C.5.c of the 2013 *Phase I Municipal Stormwater Permit*.

S7. MONITORING

A. Monitoring Objectives

WSDOT shall continue the monitoring program to establish baseline stormwater discharge information from its highway conveyances for ~~enewater~~ year 2014 ~~(ending September 30, 2014)~~. WSDOT shall implement a monitoring program to evaluate best management practice (BMP) effectiveness at facility monitoring sites, and continue a monitoring program to evaluate BMP effectiveness at highway monitoring sites. WSDOT shall design and implement the monitoring program to:

1. Produce scientifically credible and representative data;
2. Provide information that WSDOT can use for designing and implementing effective stormwater management strategies for WSDOT's highways and facilities; and
3. Provide information WSDOT can use to refine requirements, guidelines, and procedures contained in *Stormwater Pollution Prevention Plans (SWPPPs)* and the *Highway Runoff Manual (HRM)*.

B. Baseline Monitoring of WSDOT Highways

1. WSDOT shall continue collecting stormwater discharge quality and quantity data from the edge of pavement at the existing highway sites until September 30, 2014. WSDOT shall collect data to allow analysis of pollutant loads and prioritize parameters of concern. WSDOT shall collect samples at each site, at the frequencies and durations, and for the parameters specified in this section.

2. Baseline Monitoring Site Selection

WSDOT shall continue baseline highway runoff monitoring for ~~enewater~~ year 2014 (ending September 30, 2014) at its existing sites under the 2009 issued permit with the following annual average daily traffic (AADT):

- a. Two highly urbanized Western Washington sites ($\geq 100,000$ AADT)
- b. One urbanized Western Washington site ($\leq 100,000$ and $\geq 30,000$ AADT)
- c. One rural Western Washington site ($\leq 30,000$ AADT)
- d. One urbanized Eastern Washington site ($\leq 100,000$ and $\geq 30,000$ AADT)

3. Parameters to be Sampled and Analyzed

- a. WSDOT shall sample, analyze, and report the following parameters as indicated in order of priority if insufficient volume exists. Chemicals below method detection limits after two years of data analysis may be dropped from the list of parameters. Appendix 4 includes Pparameter details, analytical methods and reporting limits ~~are included in Appendix 4.~~

i. Total and dissolved metals: copper, zinc, cadmium and lead

ii. Hardness

~~ii.~~ iii. Polycyclic Aromatic Hydrocarbons (PAHs)

~~iii.~~ iv. Total suspended solids (TSS)

- iv-v. Chlorides
- v-vi. Phthalates
- vi-vii. Herbicides: Triclopyr (Ester formula only), 2,4-D, Clopyralid, Diuron, Dichlobenil, Picloram-, and Glyphosate (only if NON aquatic formula is used). Herbicides shall be sampled and analyzed only if applied near the monitoring site vicinity.
- vii-viii. Nutrients: Total phosphorus, orthophosphate

- b. Grab samples shall be collected as early in the runoff event as practical. If grab samples are not collected during qualifying storm events, non-qualifying sized storm events may be sampled. Grab samples shall be collected, analyzed and reported for the parameters listed below. The total number of grab samples collected shall be equal to the total number of storm events collected to meet the conditions in S7.B.56.a. ~~Appendix 4 includes Pparameter details, analytical methods and reporting limits are included in Appendix 4.~~
- i. Total Petroleum Hydrocarbons (TPH): NWTPH-Dx and NWTPH-Gx
- ii. Fecal coliform
- iii. Temperature (collected from runoff in-situ or as a grab sample)
- iv. Visible sheen observation

4. Sampling method

WSDOT shall use flow-weighted composite samplers to sample qualifying storm events, except where this permit specifies grab samples or other sampling methods. The automated sampler shall be programmed to begin sampling as early in the runoff event as practical. Each composite sample must consist of at least 10 aliquots. Composite samples with 7 to 9 aliquots are acceptable if they meet the other sampling criteria and help achieve a representative balance of storm events and storm sizes. WSDOT shall obtain samples from the edge of the pavement or from a location within a pipe conveyance system as long as in the latter case, the stormwater has not passed through a treatment BMP, a vegetated area, or the soil column.

5. Sample timing and frequency

WSDOT shall sample storm events as early in the storm event as practical and continue sampling past the longest estimated time of concentration for the contributing drainage area. For storm events lasting less than 24 hours, samples shall be collected for at least seventy-five percent of the storm event hydrograph. For storm events lasting longer than 24 hours, samples shall be collected for at least seventy-five percent of the hydrograph of the first 24 hours of the storm.

- a. WSDOT shall sample each stormwater monitoring site at the following frequency:

- i. Sixty-seven percent of the forecasted qualifying storms, which result in actual *qualifying* storm events up to a maximum of 14 storm events per water year. ~~Eleven of the 14 storm events are the required minimum must meet the qualifying storm event criteria defined in Section S7.B.6.b.~~
- ii. WSDOT may collect and report data from up to ~~20% of 3~~ storm events that were forecasted qualifying storms but which did not meet the qualifying storm event criteria for rainfall depth (0.15-inch minimum) ~~as defined in Section S7.B.5.b.~~ ~~These 3 non-qualifying storms events may be collected and counted as part of the 14 required storm events.~~
- iii. WSDOT shall ensure that storm samples are distributed throughout the year and approximately reflecting the distribution of rainfall between the wet and dry seasons. The goal for western Washington sites is to collect 60-80% of the samples during the wet season (October 1 through April 30) and 20-40% during the dry season (May 1 through September 30). For eastern Washington, the goal is to collect 80-90% of the samples in the wet season (October 1 through June 30) and 10-20% of the samples in the dry season (July 1 through September 30).

Comment [LS10]: According to the Fact Sheet, eleven storms are the required minimum and 14 storms are the required maximum. This is not clear from the text in this section. This needs to be made explicit here and in S7.B.5.a.ii below.

Comment [LS11]: Three storms is about 20 percent of the maximum 14 storms. Two storms is roughly 20 percent of the minimum 11 storms.

Comment [LS12]: If WSDOT is only able to capture the minimum number of storms (i.e., 11 storms), can 3 of these storms be non-qualifying?

b. Storm Event Criteria

- i. A qualifying storm event shall meet the following conditions:
 - 1) Rainfall depth: 0.15-inch minimum, no fixed maximum.
 - 2) Rainfall duration: Shortest acceptable duration one hour.
 - 3) ~~Storm start (Antecedent dry period):~~ 6 hours minimum with less than 0.04-inch of rain.
 - 4) ~~Storm end (Inter-event dry post storm period):~~ 6 hours minimum with less than 0.04-inch of rain.

Comment [LS13]: Suggested changes to make language consistent with 2011 TAPE.

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Comment [LS14]: Ibid.

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6. Baseline Sediment Testing

WSDOT shall trap and analyze sediments during a single sampling event in spring or summer 2014 at each highway sampling site.

- a. WSDOT shall sample, analyze, and report the following parameters in sediments, as indicated in order of priority if sufficient volume exists. Chemicals below method detection limits after two years of data analysis may be dropped from the list of parameters. ~~Appendix 4 lists the Pparameter details, analytical methods and reporting limits are listed in Appendix 4.~~

- i. Particle size (grain size)
- ii. Total organic carbon
- ~~i-iii.~~ Total metals: copper, zinc, cadmium and lead
- ~~ii-iv.~~ PAHs
- ~~iii-v.~~ TPH – NWTPH-Dx
- ~~iv-vi.~~ Phenolics

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vii. Herbicides: Dichlobenil, Triclopyr, Pircloram, and Clopyralid. Herbicides shall be sampled and analyzed only if applied in the monitoring site drainage area.

viii. Phthalates

ix. Total solids

7. Reporting for Baseline Monitoring of Highways

WSDOT shall prepare and submit a baseline monitoring of highway runoff report with each Annual Stormwater Report by October 31, as follows:

| Report Year | Data and Information Required |
|-------------|---|
| 2014 | <p>a. Provide a detailed report on Data collected from October 1, 2012 through September 30, 2013 for highway runoff monitoring sites in S7.B.2.</p> <p>b. The highway runoff monitoring report shall include The following information for each sampling event from each site:</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter including sediments; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of the storm's hietograph and hydrograph, with aliquot collection points spatially located throughout the hydrograph; the sampled time period (% of hydrograph sampled), total runoff time period and total runoff volume. <p>c. WSDOT shall include in each highway runoff report the following Information establishing the rainfall/runoff relationship using continuous flow records and precipitation data for each site:</p> <ul style="list-style-type: none"> i. Rainfall/runoff relationship established using continuous flow records and precipitation data; ii. For the 2014 highway runoff report, submit The following information for each parameter: <ul style="list-style-type: none"> 1) i. Mean and median Event mMean Concentrations (EMCs) only from sampled storm events; and 2) ii. Total annual pollutant load and seasonal pollutant load for the wet and dry seasons only from sampled storm events. 3) e. Proposed changes to the monitoring program that could affect future data results. |
| 2015 | <p>a. Provide a detailed report on Cumulative data collected from October 1, 20123 through September 30, 2014 for highway runoff monitoring sites in S7.B.2.</p> <p>b. The highway runoff monitoring report shall include The following information for each sampled storm event:</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter including sediments; |

Comment [LS15]: Suggested deletion to eliminate redundancy.

Comment [LS16]: Ibid.

Comment [LS17]: Ibid.

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Comment [LS18]: Integrated into the preceding sentence.

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Comment [LS19]: Suggested deletion to eliminate redundancy.

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Comment [LS20]: Ibid.

Comment [LS21]: Ibid.

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| | <p>iii. Antecedent dry period, inter-event period and total precipitation depth;</p> <p>iv. A graphical representation of the storm's hycetograph and hydrograph, with aliquot collection points spatially located throughout the hydrograph; the sampled time period (% of hydrograph sampled), total runoff time period and total runoff volume.</p> <p>c. For the 2015 highway runoff monitoring report, WSDOT shall submit The following for each parameter:</p> <p>i. Rainfall/runoff relationship established using continuous flow records and precipitation data;</p> <p>ii. Mean and median EMCs only from sampled storm events;</p> <p>iii.ii. Total annual pollutant load and the seasonal pollutant load for the wet and dry seasons for both sampled and estimated unsampled storm events;</p> <p>iv.iii. The method used to estimate loads for unsampled events shall be applied to previously submitted data.</p> <p>iv. WSDOT shall express loadings as total pounds and as pounds per acre.</p> <p>d. <u>An evaluation of each monitoring site.</u></p> <p>e. <u>Stormwater management actions taken or planned to reduce pollutants</u> The 2015 report shall include a cumulative summary of baseline highway runoff data collected through September 30, 2014.</p> <p>e-f. <u>An estimated cost for the highway runoff monitoring.</u></p> |
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Comment [LS22]: Ibid

Comment [LS23]: This is unnecessary as the 2014 report would satisfy this requirement.

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Comment [LS24]: Suggest deleting this redundancy as requirement "a" above already includes this as a requirement.

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Data in the highway runoff monitoring reports shall be submitted in the following formats:

- i. Excel format
- ii. Reports shall be submitted in both paper and electronic format.

C. Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs at Rest Areas, Maintenance Facilities, or Ferry Terminals

1. WSDOT shall develop and implement a monitoring program to evaluate the effectiveness of stormwater treatment and hydrologic management BMPs at rest areas, maintenance facilities, or ferry terminals.
2. Stormwater BMPs (operational or structural) selected for monitoring shall address concerns identified from water year 2012 (WY12) and WY13 rest area, maintenance facility, or ferry terminal monitoring data. WSDOT shall evaluate BMPs at three facilities:
 - a. two facilities in western Washington, and
 - b. one facility in eastern Washington.
3. For BMPs with short detention times, WSDOT shall use appropriate sections of the Ecology's 2011 or the most recent version of the Technical Guidance Manual for

Evaluating *Emerging Stormwater Treatment Technologies*; *Technology Assessment Protocol – Ecology* (2011 TAPE) ~~(Ecology 2011)~~ to prepare, implement, and report results.

<https://fortress.wa.gov/ecy/publications/summarypages/1110061.html>
<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

Comment [LS25]: Suggest revising to reflect the actual title of the document.

Comment [LS26]: Date added preceding the title, but citation removed since there is no references section in this permit.

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For operational BMPs and BMPs with long detention times, WSDOT shall work with Ecology to identify the portions of TAPE that would apply and/or define alternate monitoring methods.

WSDOT shall use USEPA’s 2009 or most recent version of the *Urban Stormwater BMP Performance Monitoring* (USEPA 2009) as additional guidance for preparing the BMP evaluation.

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Comment [LS27]: Ibid.

- 4. Site selections and QAPP approvals shall be completed by ~~October 1~~ March 6, 2016~~s~~. Full implementation of the effectiveness monitoring programs shall begin no later than October 1, 2016.

Comment [LS28]: Suggested edit need for consistency with language in S7.G.3 and to reflect the 24 month development process for both site selection and QAPP approval by Ecology.

- 5. Monitoring shall continue at the selected rest area, maintenance facility, or ferry terminal sites until statistical goals in *Ecology’s 2011 or most recent version of TAPE* (Ecology 2011) are met. At a minimum, 12 sampling events are needed for statistically significant performance data. Regardless of statistical significance, 35 sample events is the maximum sampling effort required as defined in the QAPP.

Comment [LS29]: Date added preceding the title, but citation removed since there is no references section in this permit.

Comment [LS30]: Suggest adding this text since what may or may not constitute a successful sampling effort might be subject to interpretation. This should be clearly defined in the QAPP.

- 6. Reporting requirements for BMP effectiveness monitoring at rest areas, maintenance facilities, or ferry terminals

WSDOT shall prepare and submit BMP effectiveness monitoring reports with each Annual Stormwater Report by October 31, as follows:

| Report Year | Data and Information Required |
|-------------|--|
| 2014 - 2017 | Provide a Status report on preparations for new monitoring sites in S7.C.2. |
| 2018 | <ul style="list-style-type: none"> a. Provide a detailed report on d Data collected from October 1, 2016 through September 30, 2017 for BMP effectiveness monitoring sites in S7.C.2. b. The BMP effectiveness monitoring report shall include: The following information for each sampling event from each site: <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of storm hyetograph and hydrograph for both the influent and effluent, with each aliquot collection point spatially located throughout the hydrograph; the sampling time period (percent of hydrograph sampled), total runoff period and total runoff volume, as appropriate. |

Comment [LS31]: Suggested deletion to eliminate redundancy.

Comment [LS32]: Ibid.

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| | <p>c. BMP effectiveness monitoring reports shall include The following information for each site:</p> <ul style="list-style-type: none"> i. Status of monitoring implementation and a description of the BMP monitoring programs still in progress at the end of the reporting year; ii. For treatment BMPs, cumulative (including previous years) performance data for each test site consistent with guidelines in appropriate sections of Ecology's 2011 TAPE (2011) and USEPA's 2009 <i>Urban Stormwater BMP Performance Monitoring (2009)</i> or the most recent version of these guidelines; iii. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site; iv. If applicable, status of performance data concerning flow reduction performance for any hydrologic reduction BMP; and v. Proposed changes to the monitoring that could affect future data results. <p>d. <u>d.</u> Specific recommendations regarding BMP design or operations.</p> <p>e. <u>e.</u> <i>Stormwater management actions taken or planned to reduce pollutants.</i></p> |
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| <p>Annually thereafter as long as the permit is in effect</p> | <p>a. Provide detailed reports on Data collected from October 1 through September 30 for BMP effectiveness monitoring sites (S7.B.1-4, as appropriate) including a status report on preparations for new monitoring sites in S7.C.2.</p> <p>a-b. Stormwater management actions taken or planned to reduce pollutants.</p> <p>b-c. The following information for each sampling event from each site:</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of storm hyetograph and hydrograph for both the influent and effluent, with each aliquot collection point spatially located throughout the hydrograph; the sampling time period (percent of hydrograph sampled), total runoff period and total runoff volume, as appropriate. <p>e-d. BMP effectiveness monitoring reports shall include The following information for each site:</p> <ul style="list-style-type: none"> i. Status of implementing the program and a description of the BMP monitoring programs still in progress at the end of the reporting year; ii. For treatment BMPs, cumulative (including previous years) performance data for each test site consistent with guidelines in appropriate sections of Ecology's 2011 TAPE (2011) and USEPA's 2009 Urban Stormwater BMP Performance Monitoring (2009) or the most recent version of these guidelines; iii. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site; iv. If applicable, status of performance data concerning flow reduction performance for any hydrologic reduction BMP; and v. Any proposed changes to the monitoring program that could affect future data results. |
| <p><u>Final report for each BMP</u></p> | <p>a. A final report on each BMP shall be submitted within 12 months once the monitoring statistical goals are met or the maximum 35 sample events have been achieved.</p> <p>b. The final report should include an analysis of the performance data collected on the BMPs as described in the appropriate sections of Ecology's 2011 TAPE (2011) or the most recent version of TAPE.</p> <p>c. Include an estimated cost of the BMP effectiveness monitoring.</p> |

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Data in stormwater monitoring reports shall be submitted in the following formats:

- i. Excel format
- ii. Reports shall be submitted in both paper and electronic format

D. Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs at Highway Monitoring Sites

1. WSDOT shall continue to evaluate the effectiveness of its vegetated filter strip (VFS) and modified-VFS stormwater treatment and hydrologic management BMPs for highway applications. BMP monitoring shall continue until statistical goals in ~~the Ecology's 2011 Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies; Technology Assessment Protocol – Ecology (2011 TAPE) (Ecology 2011)~~ or the most recent version of TAPE are met. At a minimum, 12 sampling events are needed for statistically significant performance data. Regardless of statistical significance, 35 sample events is the maximum sampling effort required as defined in the QAPP.

Comment [LS41]: Title revised to reflect the actual title of the document.

Comment [LS42]: Date added preceding the title, but citation removed since there is no references section in this permit.

2. Reporting requirements for VFS effectiveness monitoring

WSDOT shall prepare and submit BMP effectiveness monitoring reports with each Annual Stormwater Report by October 31, as follows:

| Report Year | Data and Information Required |
|-------------|--|
| 2014 | <p>a. Provide a detailed report on Data collected from October 1, 2012 through September 30, 2013 for VFS BMP effectiveness monitoring sites in S7.D.1.</p> <p>b. The VFS BMP effectiveness monitoring report shall include The following information for each sampling event from each site.</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of storm hyetograph and hydrograph for both the influent and effluent, with each aliquot collection point spatially located throughout the hydrograph; the sampling time period (percent of hydrograph sampled), total runoff period and total runoff volume, as appropriate. <p>c. VFS BMP effectiveness monitoring reports shall include The following information for each site:</p> <ul style="list-style-type: none"> i. Status of implementing the program and a description of the VFS BMP monitoring programs still in progress at the end of the reporting year; ii. Cumulative (including previous years) performance data for each treatment VFS BMP test site consistent with guidelines in appropriate sections of Ecology's 2011 TAPE (2011) and USEPA's 2011 Urban Stormwater BMP Performance Monitoring (2009) or the most recent version of these guidelines; iii. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site; iv. Status of performance data concerning flow reduction performance for any hydrologic reduction VFS BMP; and |

Comment [LS43]: Suggested deletion to eliminate redundancy.

Comment [LS44]: Ibid.

Comment [LS45]: Ibid.

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| | <p>v. Proposed changes to the monitoring program that could affect future data results.</p> <p><u>vi. Stormwater management actions taken or planned to reduce pollutants.</u></p> <p>vi. <u>vii.</u> Specific recommendations regarding VFS BMP design.</p> |
| <p>Annually thereafter as long as the permit is in effect or until studies are completed</p> | <p>a. Provide detailed reports on Data collected from October 1 through September 30 for VFS BMP effectiveness monitoring sites S7.D.1 including a status report.</p> <p>b. VFS BMP effectiveness monitoring reports shall include The following information for each sampling event from each site.</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of storm hyetograph and hydrograph for both the influent and effluent, with each aliquot collection point spatially located throughout the hydrograph; the sampling time period (percent of hydrograph sampled), total runoff period and total runoff volume, as appropriate. <p>c. VFS BMP effectiveness monitoring reports shall include The following information for each site:</p> <ul style="list-style-type: none"> i. Status of implementing the program and a description of the VFS BMP monitoring programs still in progress at the end of the reporting year; ii. Cumulative (including previous years) performance data for each treatment VFS BMP test site consistent with guidelines in appropriate sections of Ecology's <u>2011 TAPE (2011)</u> and <u>USEPA's Urban Stormwater BMP Performance Monitoring (2009)</u> or the most recent version of these guidelines; iii. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site; iv. Status of performance data concerning flow reduction performance for any hydrologic reduction VFS BMP; and v. Proposed changes to the monitoring program that could affect future data results. <p><u>vi. Stormwater management actions taken or planned to reduce pollutants.</u></p> <p>vi. <u>vii.</u> Specific recommendations regarding VFS BMP design, operations, and maintenance.</p> |

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Comment [LS47]: Ibid.

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Comment [LS49]: Ibid.

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| Final report for each BMP. | <p>a. A final report on each VFS BMP shall be submitted within 12 months once the monitoring statistical goals are met or the maximum 35 sample events have been achieved.</p> <p>b. The final report should include an analysis of the performance data collected on the VFS BMPs as described in the appropriate sections of Ecology's 2011 TAPE (2011) or the most recent version of TAPE.</p> <p>c. Include an estimated cost of the BMP effectiveness monitoring.</p> |
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Data in stormwater monitoring reports shall be submitted in the following formats:

- i. Excel format
 - ii. Reports shall be submitted in both paper and electronic format
3. Within one year following submittal of the VFS studies final monitoring report or no later than October 1, 2017, WSDOT in consultation with Ecology shall: 1) ~~identify~~, prepare and submit an **Ecology-approved** QAPP; and 2) begin implementing the next highway BMP effectiveness evaluation(s). The selection of highway BMP effectiveness studies shall be based on WSDOT's stormwater management research priorities, stormwater treatment needs of the agencies, and shall be the approximate same level of monitoring effort and cost as the previous VFS BMP effectiveness studies.
 4. For BMPs with short detention times, WSDOT shall use appropriate sections of **Ecology's 2011 TAPE (Ecology 2011, link below) or most recent version of TAPE** to prepare, implement, and report results.

<https://fortress.wa.gov/ecy/publications/summarypages/1110061.html>
<http://www.ecy.wa.gov/programs/wq/stormwater/newtech/index.html>

For operational BMPs and BMPs with long detention times, WSDOT shall work with Ecology to identify the portions of TAPE that would apply and/or define alternative monitoring protocols.

WSDOT shall use USEPA's **2009 Urban Stormwater BMP Performance Monitoring (USEPA 2009)** as additional guidance for preparing the BMP evaluation.

Comment [LS55]: Ibid.

5. Monitoring at highway BMP effectiveness ~~monitoring~~ sites shall continue until statistical goals in **2011 TAPE (2011) or most recent version of TAPE** are met. At a minimum, 12 sampling events are needed for statistically significant performance data. Regardless of statistical significance, 35 sample events is the maximum sampling effort required **as defined in the QAPP**.

Comment [LS56]: Ibid.

6. Reporting requirements for BMP effectiveness monitoring

WSDOT shall prepare and submit BMP effectiveness monitoring reports with each Annual Stormwater Report by October 31, as follows:

| Report Year | Data and Information Required |
|-------------|-------------------------------|
|-------------|-------------------------------|

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|----------------------------------|--|
| 2014 - 2017 | Provide a s Status report on preparations for new monitoring sites in S7.D.3. |
| 2018 | <p>a. As agreed in the Ecology-approved QAPP, provide either the status report on preparations for new monitoring sites or a detailed report on data collected from October 1, 2016 through September 30, 2017 for BMP effectiveness monitoring sites in S7.D.3.</p> <p>b. A detailed BMP effectiveness monitoring report shall includeThe following information for each sampling event from each site.</p> <ul style="list-style-type: none"> i. Sample event identification (date, time, location); ii. Tabular water quality data and summary results for each monitored parameter; iii. Antecedent dry period, inter-event period and total precipitation depth; iv. A graphical representation of storm heteoraph and hydrograph for both the influent and effluent, with each aliquot collection point spatially located throughout the hydrograph; the sampling time period (percent of hydrograph sampled), total runoff period and total runoff volume, as appropriate. <p>c. BMP effectiveness monitoring reports shall includeThe following information for each site:</p> <ul style="list-style-type: none"> i. Status of implementing the program and a description of the BMP monitoring programs still in progress at the end of the reporting year; ii. Cumulative (including previous years) performance data for each treatment BMP test site consistent with guidelines in appropriate sections of Ecology's 2011 TAPE (2011) and USEPA's 2009 Urban Stormwater BMP Performance Monitoring (2009) or the most recent versions of these guidelines; iii. Status of cumulative (including previous years) performance data in terms of statistical goals for each test site; iv. Status of performance data concerning flow reduction performance for any hydrologic reduction BMP; and v. Proposed changes to the monitoring program that could affect future data results. vi. Stormwater management actions taken or planned to reduce pollutants. vii. Specific recommendations regarding BMP design. |
| <u>Final report for each BMP</u> | <p>a. <u>Submit within 12 months once the monitoring statistical goals are met or the maximum 35 sample events have been achieved.</u></p> <p>b. <u>Include an analysis of the performance data collected on the BMPs as described in the appropriate sections of Ecology's 2011 TAPE or the most recent version of TAPE.</u></p> <p>c. <u>Include an estimated cost for the BMP effectiveness monitoring.</u></p> |

Comment [LS57]: Ibid.

Comment [LS58]: Ibid.

Comment [LS59]: Ibid.

Comment [LS60]: Ibid.

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Data in stormwater monitoring reports shall be submitted in the following formats:

- i. Excel format

ii. Reports shall be submitted in both paper and electronic format

E. Status and Trends Monitoring

WSDOT shall participate in the Puget Sound status and trends monitoring component of the Regional Stormwater Monitoring Program (RSMP) by one of the following options: ~~WSDOT shall notify Ecology as to which option it elects to follow no later than six months after the effective date of this permit. WSDOT shall choose a single option for the duration of the permit.~~

1. WSDOT shall pay into a collective fund to implement RSMP status and trends monitoring in Puget Sound. WSDOT's annual payment amount shall be \$27,000. WSDOT shall submit the first payment to Ecology on or before October 15, 2014. Subsequent payments shall be submitted on or before August 15 of each year for the duration of the permit.

- OR -

2. WSDOT shall, in coordination with RSMP implementation and following the Ecology-approved RSMP status and trends monitoring QAPP, collect and analyze the following samples at up to 1200 Puget Sound lowland small stream RSMP sites:

a. Dissolved organic carbon (DOC) in monthly water samples ~~in 2015~~ per the year specified in the Ecology-approved RSMP status and trends monitoring QAPP, and

b. Pesticides in sediment samples in summer 2015 during the year specified in the Ecology-approved RSMP status and trends monitoring QAPP. The following pesticides shall be ~~report~~ analyzed: 2,4-D, diclofenil, diuron, and triclopyr.

~~b.c.~~ Data and analyses shall be reported in accordance with the Ecology-approved RSMP QAPP.

- OR -

3. WSDOT shall, in coordination with RSMP implementation and following the Ecology-approved RSMP status and trends monitoring QAPP, monitor caged mussels at one site located within 300' of each of eight ferry terminals in Puget Sound in the two winter seasons 2015-2016 and again in winter 2017-2018 specified in the Ecology-approved RSMP status and trends monitoring QAPP.

a. Data and analyses shall be reported in accordance with the Ecology-approved RSMP QAPP.

- OR -

4. WSDOT shall, following an Ecology-approved QAPP, monitor the relevant heavy metals and asbestos concentrations and trends in WSDOT wet pond sediments in response to chapter 70.285 RCW mandating the phase out of the use of copper as well as asbestos, and several heavy metals in brake friction material sold or offered for sale in Washington State.

a. Within one year following submittal of WSDOT's notification to Ecology as to which option it elects or no later than March 6, 2016 shall: 1) prepare and submit an approved or final QAPP; and 2) begin implementing the status and trend evaluation.

Comment [LS62]: The multiple stressors that exist beyond municipal stormwater discharges makes it extremely difficult to develop a study design capable of ferreting out any stormwater-related cause and effect signal in the receiving water. Unlike effectiveness and source identification monitoring, the type of status and trends monitoring proposed in the RSMP will not generate the type of actionable information needed to direct adaptive management of our stormwater management programs. This was the view also shared to the Stormwater Work Group (SWG) by its very own Roads & Highways Subcommittee.

Given WSDOT's extensive monitoring obligations relative to other permittees, we consider the expenditure of additional resources for in-stream monitoring that will not result in any actionable information counterproductive. This view was shared by Ecology itself in its Publication No. 12-03-012:

The most important steps for controlling damage to streams from stormwater consist of reducing discharge volumes, eliminating surge flows, removing suspended solids, and controlling sources . . . not reduced by solids removal. Until these steps have been completed, monitoring to assess water quality is only a distraction from efforts to achieve good water quality.

Integrated Ambient Monitoring Pilot Report (January 2012); Washington State Department of Ecology, p. 58

Should Ecology insist on a status and trends component, WSDOT proposed an *Option 4* that, unlike the three proposed options, has a roads and highways- related testable nexus.

Comment [LS63]: To enhance readability, we suggest this language follow the list of options.

Comment [LS64]: Change to be consistent with western Washington large Phase II permittee's requirements per an Ecology agreement with WSDOT made on October 7, 2013.

Comment [LS65]: Suggested revision so as not to place WSDOT in permit compliance jeopardy should the RSMP experience delays in deploying its program.

Comment [LS66]: Prior to placing mussels cages near ferry terminals requires making sure Homeland Security distances and operational ferry lanes are kept clear.

Comment [LS67]: Suggested revision so as not to place WSDOT in permit compliance jeopardy should the RSMP experience delays in deploying its program.

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Comment [LS68]: If Ecology insists that WSDOT conduct status and trends monitoring, we feel that this proposal, unlike the preceding options, has a strongly WSDOT- related testable nexus. See details for this option in the attached proposal.

- b. ~~Status and trends monitoring shall continue throughout the remaining duration of the permit term.~~
- c. ~~WSDOT shall prepare and submit a status and trends monitoring report with each Annual Stormwater Report by October 31, per the Ecology-approved QAPP.~~

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WSDOT shall notify Ecology as to which option it elects to follow no later ~~September 5, 2014~~ than six months after the effective date of this permit. WSDOT shall choose a single option for the duration of the permit.

F. Quality Assurance Project Plans

1. WSDOT shall prepare Quality Assurance Project Plans (QAPP) in accordance with Ecology's *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* (Ecology ~~Publication #04-03-030 2004~~ for the most recent version of EPA's *Guidance for Quality Assurance Project Plans* as guidance). WSDOT shall prepare QAPPs, or ~~use updated QAPPs previously approved by~~ have Ecology-approved QAPPs already prepared, for all components of its monitoring program.
2. WSDOT may combine any required QAPPs if a single site is used to meet one or more permit monitoring requirements. The QAPPs and monitoring programs shall be developed by qualified staff or contractors with experience in writing QAPPs in accordance with Ecology's ~~or EPA~~ QAPP Guidelines.
3. WSDOT shall obtain Ecology approval letters for each QAPP prior to implementation.

Comment [LS69]: Publication number added, but citation removed since there is no references section in this permit.

Comment [LS70]: Suggested including this EPA guidance which contains further explanation about necessary QAPP components. The suggested edit is similar to language in S7.C.3 and S7.D.4 allowing the use of applicable EPA guidance for additional detail.
A date and publication number was not added because EPA is in the process of revising their guidance and future publication date and number will be changing.

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G. Collaborative and Independent Programs

WSDOT may independently develop any or all of the components of the monitoring program, conduct the monitoring, and report results; or WSDOT may choose to develop any or all of the components of the monitoring program, conduct the monitoring, and report results through an integrated, long-term, water quality monitoring program in collaboration with other entities. Collaborative ~~M~~ monitoring ~~P~~ programs may be developed by a third party (or parties) provided that WSDOT complies with the provisions of Special Condition S3.B and S7 (relying on another entity to meet permit requirements). WSDOT shall meet the schedule for the development of monitoring programs ~~depending on~~ whether the programs are independent or collaborative. Applicable deadlines get extended by the number of days by which Ecology exceeds 90 days for QAPP review.

Comment [LS71]: Language moved from 3. below.

~~Collaborative and independent monitoring programs:~~

1. If WSDOT intends to meet all or part of the monitoring requirements outlined in Section ~~S7.B~~ through a collaborative process with other entities, WSDOT shall submit a statement to Ecology explaining their commitment to the collaborative process.
2. For both independent and collaborative monitoring, WSDOT shall submit all required QAPPs to Ecology. WSDOT shall submit monitoring QAPPs in both paper and electronic form.

3. Approved or final QAPPs shall be completed for:

- a. BMP effectiveness monitoring at rest areas, maintenance facilities, or the ferry terminal no later than March 6, 2016.
- b. BMP effectiveness monitoring at highways within the one year following submittal of the VFS study final monitoring report or not later than October 1, 2017.
- c. If applicable, status and trends monitoring *Option 4* within one year of notification to Ecology as to which option WSDOT elects to follow or not later than March 6, 2016, provided that this deadline shall be extended by the number of days by which Ecology exceeds 90 days for QAPP review.

Comment [LS72]: Suggested edits to S7.G.3 & 4 are for consistency with S7.C & S7.D & S7.E.

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Comment [LS73]: Language moved to preceding paragraph.

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4. WSDOT shall begin full implementation of the:

- a. Facilities BMP effectiveness monitoring no later than October 1, 2016.
- b. Highway BMP effectiveness monitoring no later than October 1, 2017.
- c. If applicable, status and trends monitoring *Option 4* no later than March 6, 2016.

Comment [LS74]: Language below moved from S8 to consolidate all monitoring-related reporting requirements.

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Comment [LS75]: Corrects reference.

Comment [LS76]: Ibid.

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H. Stormwater Monitoring Reporting

- 1. A Stormwater Monitoring Report shall be prepared and submitted with each Annual Report by October 31 per S7.B.7, S7.C.56, S7.D.2, and S7.D.56, and S7.E.4 when applicable per S8.G.2.
- 2. WSDOT shall enter shall enter into Ecology's Environmental Information Management Database (EIM) and the International Stormwater BMP Database (<http://www.bmpdatabase.org/>) all relevant data collected pursuant to S7. Data entry into EIM and the International Stormwater BMP Database shall be completed in accordance with the Ecology-approved QAPPs no later than six months following WSDOT's receipt of the data. Data entry to the International Stormwater BMP Database shall be completed no later than the expiration date of this permit.

S8. REPORTING REQUIREMENTS

- A. WSDOT shall submit an annual report no later than October 31 of each year beginning in 2014. The reporting period shall cover the previous fiscal year (July 1 to June 30).
- B. The annual report serves as a compliance report to Ecology as well as a wider audience including policy makers (i.e., legislators and WSDOT management), public advocacy groups, and the general public.
 - 1. WSDOT shall submit two printed copies and an electronic (PDF) copy of the annual report to Ecology.
 - 2. All submittals shall be delivered to:
 - Department of Ecology
 - Water Quality Program
 - Municipal Stormwater Permits

PO Box 47696
Olympia, WA 98504-7696

- C. WSDOT shall keep all records related to this permit until three years after the permit is no longer in effect.
- D. WSDOT shall make all records related to this permit and the SWMPP available to the public according to Washington State public disclosure requirements. WSDOT shall provide a copy of the most recent annual report to any individual or entity, upon request.
 - 1. WSDOT may charge a reasonable amount for making photocopies of records.
 - 2. WSDOT may require reasonable advance notice of intent to review records related to this permit.
- E. WSDOT shall make an electronic copy of the most recent annual report available for downloading from their website.
- F. The annual report shall include the following for the reporting period:
 - 1. –Certifications and signatures as described in G19.C and notification of any changes to authorization as described in G19.B.
 - 2. –WSDOT’s proposed budget submittal to the Governor’s Office related to resources needed to comply with this permit.
 - 3. An estimate of how much WSDOT spent implementing the permit’s requirements.
 - 4. A summary of the status of compliance with each action item required by applicable TMDLs and listed in Appendix 3.
 - 5. A summary of any actions taken pursuant to S4.F, including the status of implementation and the results of monitoring, assessment, or evaluation efforts conducted as part of an adaptive management response.
 - 6. A summary of G3 notifications to Ecology regarding spills into an MS4 that WSDOT owns or operates which could have constituted a threat to human health, welfare, or the environment.
 - 7. A summary of G20 notifications to Ecology regarding noncompliance with permit terms and conditions.
 - 8. A summary of G21 notifications to Ecology regarding upsets.
 - 9. A summary of the status of inventorying and mapping the MS4 owned or operated by WSDOT, including any GIS layer updates related to its MS4 inventory. Summaries covering the period from March 6, 2016 and beyond should also report whether WSDOT met the pace defined for completing conveyance mapping of the MS4 WSDOT owns or operates.
 - 10. For retrofitting carried out pursuant to SWMPP Section 6.2 in which retrofitting all existing impervious areas was deemed either infeasible or not cost-effective, report the cost information developed in order to ensure compliance with the requirement, and describe where and how much retrofitting took place. In the event that the project met this obligation by transferring funds to finance high priority stand-alone retrofit projects, report the amount of funds transferred.

11. ~~If WSDOT increased the length of time between inspections for any catch basins or permanent stormwater BMPs, provide maintenance records or a written statement based on inspection and maintenance experience to demonstrate that WSDOT can meet the maintenance standards with the less frequent inspection schedule.~~
12. ~~If applicable, provide a prioritized list of permanent stormwater BMP deficiencies that require non-typical repairs over \$25,000 as well as a list of deficiencies that WSDOT repaired.~~
13. ~~A summary of Washington State Ferry's regular stormwater management related maintenance activities including sweeping terminals and inspecting and cleaning storm drain systems.~~
- 14.11. Descriptions of the implementation status for the performance indicators listed in Appendix 2 of this permit.

G. Stormwater Monitoring Report

1. ~~A Stormwater Monitoring Report shall be prepared and submitted with each Annual Report by October 31 per S7.B.7, S7.C.5, S7.D.2, and S7.D.5, and S7.E when applicable per S8.G.2.~~
2. ~~WSDOT is not required to provide descriptions of any monitoring, studies, or analyses conducted as part of the Regional Stormwater Management Program (RSMP) in annual reports (i.e., S7.E.1) unless WSDOT conducts the monitoring in accordance with requirements in S7.E.2, S7.E.3, or S7.E.4, in which case annual reporting of such monitoring must follow the requirements specified in that section.~~
3. ~~WSDOT shall enter into EIM and the International Stormwater BMP Database (<http://www.bmpdatabase.org/>) all relevant data collected pursuant to S7. Data entry into EIM shall be completed no later than six months following WSDOT's receipt of the data. Data entry to the International Stormwater BMP Database shall be completed no later than the expiration date of this permit.~~
- ~~Data and analyses shall be reported annually in accordance with the Ecology approved QAPPs.~~
4. ~~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 effective date. This report shall include all Stormwater Monitoring Report required information from S7 of this permit in addition to the following:~~
 - a. ~~An estimated cost for each monitoring program component;~~
 - b. ~~Stormwater management actions taken or planned to reduce pollutants from WSDOT land uses;~~
 - c. ~~A description of the monitoring programs still in progress;~~

Comment [LS77]: In the event that WSDOT should pursue this, we suggest handling this outside the annual report given the potential this has to generate a very large amount of information (e.g., supplying maintenance records for hundreds/thousands of catch basin would add significant volume to the annual report).

Comment [LS78]: Rather than specify it as part of S8, we feel that it would be more appropriate to integrate this reporting requirement into Appendix 2 and SWMPP Table 1 as a performance indicator as reflected by our suggested edits to those aspects of the permit.

Comment [LS79]: Propose replacing this with the following two performance indicators proposed to inclusion in Appendix 2 and in SWMPP Table 7-2:
 • Conduct 95% of planned inspections within the Phase I and II designated areas.
 • Annually summarize WSF's regular stormwater management-related maintenance activities including sweeping terminals and inspecting and cleaning storm drain systems.

Comment [LS80]: With the exception of S8.G.3, the requirements contained in S8.G are redundant with the requirements contained in S7. We propose moving S8.G.3 to S7 and eliminating the redundancy in S8.G.

Comment [LS81]: Suggest moving language to S7 to consolidate all monitoring-related reporting requirements.

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Comment [LS82]: Suggest deleting as it creates a redundancy with the reporting requirements in S8.

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Comment [LS83]: Suggest moving language to S7 to consolidate all monitoring-related reporting requirements.

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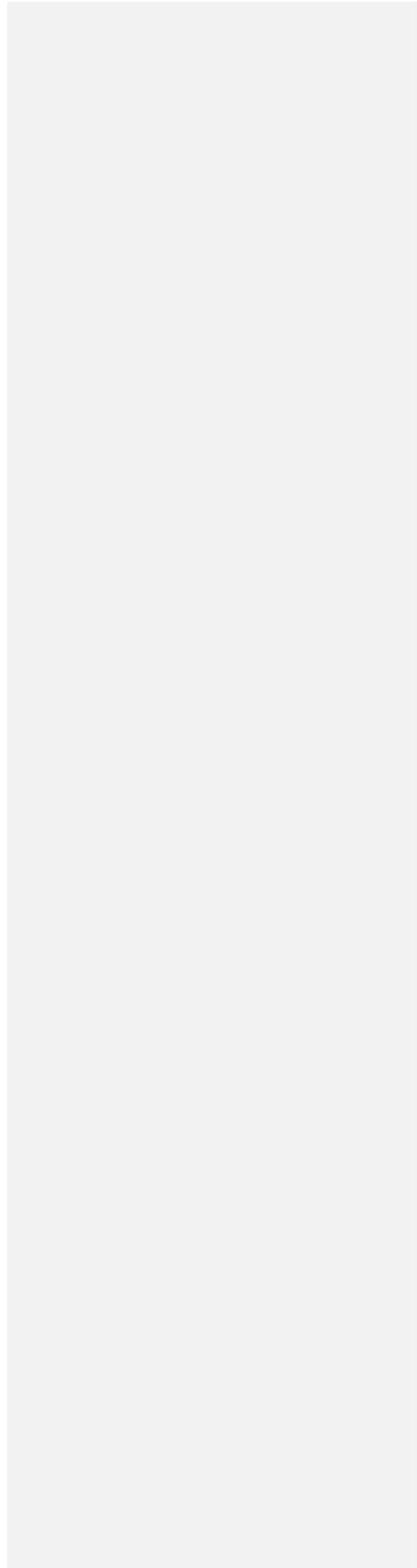
Comment [LS84]: Suggest deleting as it creates a redundancy with the reporting requirements in S8.

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- d. ~~A cumulative water quality and sediment quality results summary for each site;~~
- e. ~~An estimated water quality loading from highway runoff sites for each pollutant based on precipitation and runoff volume;~~
- f. ~~Evaluation of monitoring sites; and~~
- g. ~~A cumulative analysis of parameters of concern from each of WSDOT's land use monitoring sites;~~

Comment [LS85]: Suggested edits include moving all missing reporting requirements to the corresponding tables and text within S7 and deleted here.

Additionally, WSDOT proposes eliminating the Final Water Quality Monitoring Report since, WSDOT's permit coverage and subsequent reporting requirements are continuous. It is burdensome to prepare yet another set of additional monitoring reports so soon after October 31, 2018 and redundant with specified information to be contained in those reports. No similar Final Water Quality Monitoring Report requirement is contained in either the Phase 1 or 2 reissued municipal stormwater permits.



GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

G2. PROPER OPERATION AND MAINTENANCE

WSDOT shall at all times properly operate and maintain all facilities and systems of collection, treatment, and control (and related appurtenances) which are installed or used by WSDOT for pollution control to achieve compliance with the terms and conditions of this permit.

G3. NOTIFICATION OF SPILL

If WSDOT has knowledge of a spill into a municipal storm sewer which could constitute a threat to human health, welfare, or the environment, WSDOT shall:

- Take appropriate action to correct or minimize the threat to human health, welfare and/or the environment, and
- Notify the Ecology regional office and other appropriate spill response authorities immediately but in no case later than within 24 hours of obtaining that knowledge. For spills which might cause bacterial contamination of shellfish, such as might result from broken sewer lines, WSDOT shall report immediately to Ecology and the Department of Health's Shellfish Program.

Ecology's Regional Office 24-hour number is:

- Northwest Regional Office (425) 649-7000
- Southwest Regional Office (360) 407-6300
- Central Regional Office (509) 575-2490
- Eastern Regional Office (509) 329-3400

Department of Health's Shellfish 24-hour number is:

- Department of Health, Shellfish Program (360) 236-3330 during normal business hours and (360) 786-4183 outside of normal business hours.

Additional details on WSDOT's traffic-related spills notification and response procedures appears in Section 3 of the *Stormwater Management Program Plan* (i.e., Appendix 5). The procedures were developed with involvement from WSP, Ecology Spills Program and local governments.²

² WSDOT staff takes the emergency actions required to protect human life and property until the WSP gains control of the situation. WSDOT staff, who received training to do so, will take control actions when necessary and feasible to prevent the release of small quantities of petroleum products into surface waters. The WSP has the responsibility for carrying out safety measures and coordinating the clean-up of spilled substances. WSDOT personnel assist in managing traffic at the scene in support of the overall incident management effort. WSDOT

G4. BYPASS PROHIBITED

The intentional *bypass* of stormwater from all or any portion of a stormwater treatment BMP whenever the design capacity of the treatment BMP is not exceeded, is prohibited unless the following conditions are met:

- A. Bypass is: (1) unavoidable to prevent loss of life, personal injury, or severe property damage; or (2) necessary to perform construction or maintenance-related activities essential to meet the requirements of the Clean Water Act (CWA); and
- B. There are no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated stormwater, or maintenance during normal dry periods. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss.

G5. RIGHT OF ENTRY

WSDOT shall allow an authorized representative of Ecology, upon the presentation of credentials and such other documents as may be required by law at reasonable times:

- A. To enter upon WSDOT's premises where a discharge is located or where any records must be kept under the terms and conditions of this permit;
- B. To have access to, and copy at reasonable cost and at reasonable times, any records that must be kept under the terms of the permit;
- C. To inspect at reasonable times any monitoring equipment or method of monitoring required in the permit;
- D. To inspect at reasonable times any collection, treatment, pollution management, or discharge facilities; and
- E. To sample at reasonable times any discharge of pollutants.

G6. DUTY TO MITIGATE

WSDOT shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

G7. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

personnel shall also provide technical information (e.g., information on drainage system characteristics) in support of the incident.

G8. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in the permit shall be construed as excusing WSDOT from compliance with any other applicable federal, state, or local statutes, ordinances, or regulations.

G9. MONITORING

- A. Representative Sampling: Samples and measurements taken to meet the requirements of this permit shall be representative of the volume and nature of the monitored discharge, including representative sampling of any unusual discharge or discharge condition, including bypasses, upsets, and maintenance-related conditions affecting effluent quality.
- B. Records Retention: WSDOT shall retain records of all monitoring information, including all calibration and maintenance records and all original recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for the life of this permit plus three years. This period of retention shall be extended during the course of any unresolved litigation regarding the discharge of pollutants by WSDOT or when requested by Ecology. On request, WSDOT shall provide monitoring data to Ecology.
- C. Recording of Results: For each measurement or sample taken, WSDOT shall record the following information:
 - The date, exact place and time of sampling;
 - The individual who performed the sampling or measurement;
 - The dates the analyses were performed;
 - Who performed the analyses;
 - The analytical techniques or methods used; and
 - The results of all analyses.
- D. Test Procedures: All sampling and analytical methods used to meet the monitoring requirements specified in the approved stormwater management program shall conform to the Guidelines Establishing Test Procedures for the Analysis of Pollutants contained in 40 CFR Part 136, unless otherwise specified in this permit or approved in writing by Ecology.
- E. Lab Accreditation: Where data collection is required by other conditions of this permit, WSDOT shall ensure that all monitoring data, except for flow, temperature, conductivity, pH, total residual chlorine, and other exceptions approved by Ecology, shall be prepared by a laboratory registered or accredited under the provisions of, Accreditation of Environmental Laboratories, Chapter 173-50 WAC.
- F. Flow Measurement: Where flow measurements are required by other conditions of this permit, WSDOT shall select and use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. WSDOT shall install, calibrate, and maintain the devices to ensure that the accuracy of the measurements is consistent with the accepted industry standard for that type of device. WSDOT shall conform to the manufacturer's recommendations for calibration frequencies, or at a minimum frequency of at least one calibration per year. WSDOT shall retain calibration records for the life of this permit plus three years.

- G. Additional Monitoring: Ecology may establish specific monitoring requirements in addition to those contained in this permit by administrative order or permit modification.

G10. REMOVED SUBSTANCES

With the exception of decant from street waste vehicles, WSDOT must not allow collected screenings, grit, solids, sludge, filter backwash, or other pollutants removed in the course of treatment or control of stormwater to be resuspended or reintroduced to the storm sewer system or to waters of the state. Decant from street waste vehicles resulting from cleaning stormwater facilities may be reintroduced only when other practical means are not available.

G11. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G12. REVOCATION OF COVERAGE

The Director of the Department of Ecology (Director) may terminate coverage under this *General Permit* in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC. Cases where coverage may be terminated include, but are not limited to the following:

- A. Violation of any term or condition of this general permit;
- B. Obtaining coverage under this general permit by misrepresentation or failure to disclose fully all relevant facts;
- C. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;
- D. A determination that the permitted activity endangers human health or the environment, or contributes significantly to water quality standards violations;
- E. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090;
- F. Nonpayment of permit fees assessed pursuant to RCW 90.48.465;

Revocation of coverage under this general permit may be initiated by Ecology or requested by any interested person.

G13. TRANSFER OF COVERAGE

The director may require any discharger authorized by this general permit to apply for and obtain an individual permit in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC.

G14. GENERAL PERMIT MODIFICATION AND REVOCATION

This general permit may be modified, revoked and reissued, or terminated in accordance with the provisions of WAC 173-226-230. Grounds for modification, revocation and reissuance, or termination include, but are not limited to the following:

- A. A change occurs in the technology or practices for control or abatement of pollutants applicable to the category of dischargers covered under this general permit;
- B. Effluent limitation guidelines or standards are promulgated pursuant to the CWA or chapter 90.48RCW, for the category of dischargers covered under this general permit;
- C. A water quality management plan containing requirements applicable to the category of dischargers covered under this general permit is approved;
- D. Information is obtained which indicates that cumulative effects on the environment from dischargers covered under this general permit are unacceptable; or
- E. Changes made to State law reference this permit.

G15. REPORTING A CAUSE FOR MODIFICATION OR REVOCATION

If WSDOT knows or has reason to believe that any activity has occurred or will occur which would constitute cause for modification or revocation and reissuance under Condition G12, G14, or 40 CFR 122.62 WSDOT shall report such plans, or such information, to Ecology so Ecology can decide to modify, ~~revoke~~, or reissue this permit. Ecology may then require submission of a new or amended application. Submission of such application does not relieve WSDOT of the duty to comply with this permit until it is modified or reissued.

G16. APPEALS

- A. The terms and conditions of this general permit are subject to appeal within 30 days of issuance of this general permit, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.
- B. The terms and conditions of this general permit, as they apply to an individual discharger are subject to appeals, in accordance with Chapter 43.21B RCW, within thirty days of the effective date of coverage of that discharger. Consideration of an appeal of general permit coverage of an individual discharger is limited to the general permit's applicability or non-applicability to that individual discharger.
- C. The appeal of general permit coverage of an individual discharger does not affect any other dischargers covered under this general permit. If the terms and conditions of this general permit are found to be inapplicable to any individual discharger(s), the matter shall be remanded to Ecology for consideration of issuance of an individual permit or permits.
- D. Modifications of this permit are subject to appeals in accordance with Chapter 43.21B RCW and Chapter 173-226 WAC.

G17. PENALTIES

40 CFR 122.41(a)(2) and (3), 40 CFR 122.41(j)(5), and 40 CFR 122.41(k)(2) are hereby incorporated into this permit by reference.

G18. DUTY TO REAPPLY

WSDOT shall apply for permit renewal at least 180 days prior to the specified expiration date of this permit.

G19. CERTIFICATION AND SIGNATURE

WSDOT shall sign and certify all applications, reports, or information submitted to Ecology.

- A. All reports required by this permit and other information requested by Ecology shall be signed by the Secretary of Transportation or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - 1. The authorization is made in writing by a person described above and submitted to Ecology, and
 - 2. The authorization specifies either an individual or a position having responsibility for the overall development and implementation of the stormwater management program. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
- B. Changes to authorization. If an authorization under General Condition G19.A.2 is no longer accurate because a different individual or position has responsibility for the overall development and implementation of the stormwater management program, a new authorization satisfying the requirements of General Condition G19.A.2 must be submitted to Ecology prior to or together with any reports, information, or applications to be signed by an authorized representative.
- C. Certification. Any person signing a document under this permit must make the following certification:

"I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for willful violations."

G20. NON-COMPLIANCE NOTIFICATION

In the event that WSDOT is unable to comply with any of the terms and conditions of this permit, WSDOT must notify Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance and take appropriate action to stop or correct the

condition of noncompliance. The notification must include a description of the noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

G21. UPSETS

WSDOT shall meet the conditions of 40 CFR 122.41(n) regarding “Upsets,” as described below:

- A. Definition. “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.
- B. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of paragraph (C) of this condition are met. Any determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, will not constitute final administrative action subject to judicial review.
- C. Conditions necessary for demonstration of upset. If WSDOT wishes to establish the affirmative defense of upset, WSDOT shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
 - 1. An upset occurred and that WSDOT can identify the cause(s) of the upset;
 - 2. The permitted facility was at the time being properly operated; and
 - 3. WSDOT submitted notice of the upset as required in 40 CFR 122.41(l)(6)(ii)(B) (24-hour notice of noncompliance).
 - 4. WSDOT complied with any remedial measures required under 40 CFR 122.41(d) (Duty to Mitigate).
- D. Burden of proof. In any enforcement proceeding, WSDOT has the burden of proof to establish the occurrence of an upset.

DEFINITIONS AND ACRONYMS

“40 CFR” means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

“AADT” means “annual average daily traffic.”

“AD” means advertisement date.

“AKART” means All Known, Available and Reasonable methods of prevention, control and Treatment. See also State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.

“All Known, Available and Reasonable methods of prevention, control and Treatment” refers to the State Water Pollution Control Act, Chapter 90.48.010 and 90.48.520 RCW.

“Applicable TMDL” means a TMDL which has been approved by EPA on or before the issuance date of this permit coverage is granted, or prior to the date that Ecology issues coverage under this Permit, whichever is later.

Comment [LS86]: Suggest making these edits to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

“Beneficial Uses” means uses of waters of the state, which include but are not limited to: use for domestic, stock watering, industrial, commercial, agriculture, irrigation, mining, fish and wildlife maintenance and enhancement, recreation, generation of electric power and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.

“Best Management Practices” are the schedules of activities, prohibitions of practices, maintenance procedures, and structural and/or managerial practices approved by Ecology that, when used singly or in combination, prevent or reduce the release of pollutants and other adverse impacts to waters of Washington State.

“BMP” means Best Management Practice.

“Bypass” means the diversion of stormwater from any portion of a stormwater treatment facility.

“Circuit” means a portion of a MS4 discharging to a single point or serving a discrete area determined by traffic volumes, land use, topography, or the configuration of the MS4.

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Comment [LS87]: Suggest adding this definition to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

“Component” or “Program Component” means the elements described in the WSDOT Stormwater Management Program Plan appearing in Appendix 5 of this permit.

“CWA” means the federal Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub. L. 92-500, as

amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. 1251 et.seq).

“Director” means the Director of the Washington State Department of Ecology, or an authorized representative.

“Discharge” for the purpose of this permit, unless indicated otherwise, refers to discharges from municipal separate storm sewers. See also 40 CFR 122.2.

“Discharge point” means the location where a discharge leaves the permittee’s MS4 to another permittee’s MS4 or a private or public stormwater conveyance. “Discharge point” also includes the location where a discharge leaves the permittee’s MS4 and discharges to ground, except where such discharge occurs via an outfall.

“EIM” means Ecology’s Environmental Information Management Database

“Entity” means a governmental body or a public or private organization.

“EPA” means the U.S. Environmental Protection Agency.

“General Permit” means a permit which covers multiple dischargers of a point source category within a designated geographical area, in lieu of individual permits being issued to each discharger.

“Ground water” means water in a saturated zone or stratum beneath the surface of the land or below a surface water body. Refer to chapter 173-200 WAC.

“HRM” means the Highway Runoff Manual.

“Heavy equipment maintenance or storage yard” means an uncovered area where any heavy equipment, such as mowing equipment, excavators, dump trucks, backhoes, or bulldozers are washed or maintained, or where at least five pieces of heavy equipment are stored seasonally or year-round on a long term basis.

“Illicit connection” means any man-made conveyance to the MS4 that is not intended, connected to a municipal separate storm sewer without a permitted, or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this Permit (Appendix 5, SWMPP Section 3.2) excluding roof drains and other similar type connections. Examples include sanitary sewer connections, floor drains, channels, pipelines, conduits, inlets, or outlets that are connected directly to the MS4 municipal separate storm sewer system.

“Illicit discharge” means any discharge to a MS4 municipal separate storm sewer that is not composed entirely of storm water or non-stormwater except discharges allowed as specified in this Permit pursuant to a NPDES permit (other than the NPDES permit for discharges from the

Comment [LS88]: This definition is not included in the Phase 1 or 2 municipal stormwater permits. Is there any reason it is necessary in the WSDOT permit?

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Comment [LS89]: Suggested revisions (along with associated revisions to “outfall” and “receiving waters”) were developed in collaboration with Ecology staff and other permittees to improve clarity in regards to related permit requirements (e.g., stormwater features mapping, spill response, IDDE, etc.) that require a good deal of coordination amongst other municipal stormwater permittees.

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Comment [LS90]: Suggest adding this acronym to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

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Comment [LS91]: Suggest adding this definition to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

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Comment [LS92]: Suggest deleting as these references do not appear in the WSDOT permit so this definition seems unnecessary.

Comment [LS93]: If Ecology elects to keep this definition in the permit, we suggest making these edits for consistency with the Phase 1 and 2 municipal stormwater permits.

Comment [LS94]: Suggest making these edits to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

~~municipal separate storm sewer) and discharges resulting from fire fighting activities (Appendix 5, SWMPP Section 3.2).~~

Comment [LS95]: Ibid.

“Integrated vegetation management (IVM)” means a coordinated decision-making and action process that uses the most appropriate long-term vegetation management strategy on a site specific basis. Vegetation management involves caring for and/or controlling foliage within the highway right-of-way. If managed properly, roadside vegetation can become naturally self-sustaining over time and require less intervention from maintenance crews as it grows and matures.

~~“Impervious surface” means a non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A nonvegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or stormwater areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration of stormwater.~~

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~~“Large Municipal Separate Storm Sewer System (Large MS4)” means all municipal Separate Storm Sewers located in an incorporated place with a population of 250,000 or more, a County with unincorporated urbanized areas with a population of 250,000 or more according to the 1990 decennial census by the Bureau of Census. See also 40 CFR 122.26(b)(4).~~

Comment [LS96]: Suggest adding this definition to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

“Low Impact Development (LID)” means a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

Comment [LS97]: Suggest deleting as this reference does not appear in the WSDOT permit (nor does the definition existing in the Phase 1 or 2 municipal stormwater permits) so this definition seems unnecessary.

“Low Impact Development Best Management Practices” means distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration. LID BMPs include, but are not limited to, bioretention/rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, vegetated roofs, minimum excavation foundations, and water re-use.

~~“MBAS” means Methylene Blue Activated Substances.~~

Comment [LS98]: Ibid.

“Method Detection Limit (MDL)” is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, and is determined from analysis of a sample in a given matrix containing the analyte. Appendix A

contains the necessary equations for calculating method detection limits. (40 CFR part 136, Appendix B).

~~“Methylene Blue Activated Substances” are anionic surfactants, including linear alkylate sulfonate and alkyl sulfate, which react with a chemical called methylene blue to form a blue chloroform soluble complex; the intensity of color is proportional to concentration.~~

Comment [LS99]: Ibid.

~~“MEP” means Maximum Extent Practicable.~~

Comment [LS100]: Suggest moving to maintain alphabetical order of the definitions/acronyms.

“Maximum Extent Practicable (MEP)” refers to paragraph 402(p)(3)(B)(iii) of the federal Clean Water

Comment [LS101]: Suggest eliminating redundancy given that the acronym is defined below (this redundancy also does not appear in the Phase 1 & 2 stormwater permits).

Act which reads as follows: Permits for discharges from municipal storm sewers 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 other such provisions as the Administrator or the State determines appropriate for the control of such pollutants.

~~“MEP” means Maximum Extent Practicable.~~

Comment [LS102]: Suggest moving to maintain alphabetical order of the definitions/acronyms.

“MS4” means Municipal Separate Storm Sewer System.

“Municipal Separate Storm Sewer System (MS4)” means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains):

Comment [LS103]: Suggest eliminating redundancy given that the acronym is defined below (this redundancy also does not appear in the Phase 1 & 2 stormwater permits).

- (a) owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, storm water, or other wastes, 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 CWA that discharges to waters of the United States;
- (b) designed or used for collecting or conveying stormwater;
- (c) which is not a combined sewer; and
- (d) which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2
- (e) Which is defined as large” or “medium” or “small” or otherwise designated by Ecology pursuant to 40 CFR 122.26.

Comment [LS104]: Suggest making this edit to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

“National Pollutant Discharge Elimination System (NPDES)” means the national program for issuing, modifying, revoking, and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal

Comment [LS105]: Suggest eliminating redundancy given that the acronym is defined below (this redundancy also does not appear in the Phase 1 & 2 stormwater permits).

Clean Water Act, for the discharge of pollutants to surface waters of the state from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington State Department of Ecology.

“Notice of Intent” means the application for, or a request for coverage under a General NPDES Permit pursuant to WAC 173-226-200.

~~“NOI” means Notice of Intent.~~

“NPDES” means National Pollutant Discharge Elimination System.

~~“Outfall” means point source as defined by 40 CFR 122.2 at the point where a discharge leaves the permittee’s MS4 and discharges to enters a receiving waterbody or receiving waters of the State.~~

~~Outfall also does not include the permittee’s MS4 facilities/BMPs designed to infiltrate stormwater pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e.; culverts).~~

“PAH” means polycyclic aromatic hydrocarbons.

“Permittee” means the Washington State Department of Transportation (WSDOT) unless otherwise specifically stated otherwise for a particular section of this permit.

~~“Physically Interconnected” means that one municipal separate storm sewer is connected to a second municipal separate storm sewer in such a way that it allows for direct discharges to the second system. For example, the roads with drainage systems and municipal streets of one entity are physically connected directly to a municipal separate storm sewer belonging to another entity.~~

~~“QAPP” means Quality Assurance Project Plan.~~

“Qualified Personnel” means someone who has had professional training in the aspects of stormwater management for which they are responsible and are under the functional control of the Permittee. Qualified Personnel may be staff members, contractors, or volunteers.

~~“Quality Assurance Project Plan” means a document that describes the objectives of an environmental study and the procedures to be followed to achieve those objectives.~~

“RCW” means the Revised Code of Washington State.

Comment [LS106]: Suggest adding this acronym to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

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Comment [LS107]: Suggested revisions (along with associated revisions to "receiving waters" and the addition of the term "discharge point") were developed in collaboration with Ecology staff and other permittees to improve clarity in regards to related permit requirements (e.g., stormwater features mapping, spill response, IDDE, etc.) that require a good deal of coordination amongst other municipal stormwater permittees.

Comment [LS108]: Suggest deleting as this reference does not appear in the WSDOT permit so this definition seems unnecessary.

Comment [LS109]: Suggest adding this acronym to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

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Comment [LS110]: Suggest adding this definition to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

~~“Receiving waterbody” or “Receiving Waters” means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, of water or surface water systems to which surface runoff is discharged occurs via an outfall point source of stormwater or via sheet/dispersed flow. Receiving waters may also be include ground water to which a discharge occurs via facilities/BMPs designed to surface runoff is directed by infiltration stormwater.~~

~~“Regional Stormwater Monitoring Program” means for all of western Washington, a stormwater-focused monitoring and assessment program consisting of these components: status and trends monitoring in small streams and marine nearshore areas, stormwater management program effectiveness studies, and a source identification information repository (SIDIR). The priorities and scope for the RSMP are set by a formal stakeholder group. For this permit term, RSMP status and trends monitoring will be conducted in the Puget Sound basin only.~~

~~“RSMP” means Regional Stormwater Monitoring Program.~~

“Reporting Limit” means minimum concentration at which detection of an analyte is reported usually chosen by the laboratory and usually above an analyte’s method detection limit.

~~“Runoff” means is water that travels across the land surface, or laterally through the soil near the land surface, and discharges to water bodies either directly or through a collection and conveyance system. Runoff includes stormwater and water from other sources that travels across the land surface. See also “Stormwater.”~~

~~“Shared Waterbodies” means waterbodies, including downstream segments, lakes and estuaries that receive discharges from more than one permittee.~~

“Significant contributor” means a discharge contributes a loading of pollutants considered to be sufficient to cause or exacerbate the deterioration of receiving water quality or instream habitat conditions.

“Stormwater” means runoff during and following precipitation and snowmelt events, including surface runoff, drainage, and interflow.

~~“Stormwater Associated with Industrial and Construction Activity” means the discharge from any conveyance which is used for collecting and conveying stormwater, which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant, or associated with clearing grading and/or excavation, and is required to have an NPDES permit in accordance with 40 CFR 122.26.~~

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Comment [LS11.1]: Suggested revisions (along with associated revisions to “outfall” and the addition of the term “discharge point”) were developed in collaboration with Ecology staff and other permittees to improve clarity in regards to related permit requirements (e.g., stormwater features mapping, spill response, IDDE, etc.) that require a good deal of coordination amongst other municipal stormwater permittees.

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Comment [LS11.2]: Suggest adding this definition to maintain consistency with the Phase 1 and western Washington Phase 2 municipal stormwater permits.

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Comment [LS11.3]: Suggest adding this acronym to maintain consistency with the Phase 1 and western Washington Phase 2 municipal stormwater permits.

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Comment [LS11.4]: Suggest making these edits to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

Comment [LS11.5]: Suggest deleting as this reference does not appear in the WSDOT permit so this definition seems unnecessary.

Comment [LS11.6]: The permit’s definition for “stormwater” deviates from the definition of “stormwater,” found at 40 CFR 122.26(b)(13):

Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

However, unlike the definition appearing in CFR referenced above, the permit’s definition includes the term “interflow”. We understand “interflow” is contained in the definition of “stormwater” ... [1]

Comment [LS11.7]: Ibid.

“Stormwater Management Manual for Western Washington” means the 5-volume technical manual (Publication No 12-10-030) published by Ecology in August 2012.

“Stormwater Management Manual for Eastern Washington” means the 5-volume technical manual (Publication Number 04-10-076) published by Ecology in September 2004.

“Stormwater Management Program Plan (SWMP)” means the Ecology-approved plan containing a set of actions and activities designed to reduce the discharge of pollutants from the regulated small MS4 to the MEP maximum extent practicable and to protect water quality, and comprising the components listed in the WSDOT Stormwater Management Program Plan appearing in Appendix 5 of this permit and any additional actions necessary to meet the requirements of applicable TMDLs.

“SWMPP” means Stormwater Management Program Plan

“SWPPP” means stormwater pollution prevention plan.

“TAPE” means the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies: Technology Assessment Protocol – Ecology.

“TMDL” means Total Maximum Daily Load.

“Total Maximum Daily Load (TMDL)” means a water cleanup plan. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant’s sources. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the water body can be used for the purposes the state has designated. The calculation must also account for seasonable variation in water quality. Water quality standards are set by states, territories, and tribes. They identify the uses for each water body, for example, drinking water supply, contact recreation (swimming), and aquatic life support (fishing), and the scientific criteria to support that use. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

“TOC” means total organic carbon.

“TP” means total phosphorus.

“TPH” means total petroleum hydrocarbons.

“TSS” means total suspended solids.

“Urban Growth Area” means those areas designated by a county pursuant to RCW 36.70A.110.

“Vehicle Maintenance or Storage Facility” means an uncovered area where any vehicles are regularly washed or maintained, or where at least 10 vehicles are stored.

Comment [LS118]: Suggested edit to reflect the actual title of the referenced document in Appendix 5.

Comment [LS119]: Suggest eliminating redundancy given that the acronym is defined below (this redundancy also does not appear in the Phase 1 & 2 stormwater permits).

Comment [LS120]: Suggest making these edits to maintain consistency with the related definitions in the Phase 1 and 2 municipal stormwater permits.

Comment [LS121]: Suggest adding this acronym which appears in the permit.

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Comment [LS122]: Ibid.

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Comment [LS123]: Suggest eliminating redundancy given that the acronym is defined below (this redundancy also does not appear in the Phase 1 & 2 stormwater permits).

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Comment [LS124]: Suggest adding this definition to maintain consistency with the Phase 1 and Washington Phase 2 municipal stormwater permits (the acronym does not appear in the WSDOT permit).

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Comment [LS125]: Suggest deleting as this reference does not appear in the WSDOT permit so this definition seems unnecessary.

“VFS” means the vegetative filter strip.

“WAC” means Washington Administrative Code.

“Water Quality Standards” means Surface Water Quality Standards, Chapter 173-201A WAC, Ground Water Quality Standards, Chapter 173-200 WAC, and Sediment Management Standards, Chapter 173-204 WAC.

“Waters of the state” includes those waters as defined as "waters of the United States" in 40 CFR Subpart 122.2 within the geographic boundaries of Washington State and "waters of the state" as defined in Chapter 90.48 RCW which includes lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and water courses within the jurisdiction of the State of Washington.

“Waters of the United States” refers to the definition in 40 CFR 122.2.

“WY” means water year.

“WSDOT” means Washington State Department of Transportation.

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Comment [LS126]: Suggest adding this definition to maintain consistency with the Phase 1 and Phase 2 municipal stormwater permits.

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APPENDIX 1: HIGHWAY RUNOFF MANUAL (HRM)

The Department of Ecology completed its review of the 2014 *Highway Runoff Manuals* and found that it meets minimum design requirements and best management practices equivalent to those in Ecology's current Stormwater Management Manuals. The 2014 HRM can be found at:

<http://www.wsdot.wa.gov/publications/manuals/fulltext/M31-16/HighwayRunoff.pdf>

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**APPENDIX 2: REPORTABLE PERFORMANCE INDICATORS FROM
WSDOT'S STORMWATER MANAGEMENT PROGRAM PLAN**

| SWMPP Reference | Reportable Performance Indicators |
|-----------------|--|
| Table 2-1 | No later than two years from the effective date of the permit (i.e., March 6, 2016), establish an approach and pace for complete conveyance mapping of WSDOT's MS4. |
| | By the end of the permit term (i.e., March 6, 2019), develop a process for mapping drainage areas associated with WSDOT owned or operated stormwater <u>outfalls and</u> discharge points. |
| | Participate in watershed planning and TMDL development where WSDOT identifies itself as a key stakeholder. |
| | Annually document changes proposed to elements contained or referenced in the SWMPP. |
| | Map and document all newly constructed stormwater <u>outfalls</u> , discharge points, and stormwater treatment/control facilities as part of the project closeout into the <i>Stormwater Features Inventory Database</i> . |
| | Starting year three of the permit (i.e., March 6, 2017), meet pace defined by the first two years for MS4 conveyance and connection mapping. |
| Table 3-1 | Annually document the number of training courses (for first responder personnel on spill identification and notification procedures) held and the number of staff trained. |
| | Annually document <i>major</i> traffic collision-related spill response/remediation activities. |
| | Annually document the number of courses (for applicable staff and contractors on ID/IC identification and notification procedures) held and the number of staff trained. |
| | Annually document remediation activities for ID/IC. |
| Table 4-1 | Annually document the number of training courses (for WSDOT personnel involved in design or inspection of TESC plans on erosion control) held and the number of staff who received the training. |
| | Annually summarize findings from Fall Assessments. |
| Table 5-1 | Annually document the number of training courses (for staff, consultants, and contractors involved in stormwater facility design on the <i>Highway Runoff Manual</i>) held and the number of staff, consultants, and contractors who received the training. |
| | Document the number and types of stormwater treatment and flow control facilities built annually. |
| Table 6-2 | Annually document the number of stand-alone retrofits completed. |
| | Annually document the number of acres of existing impervious surface retrofitted or reverted to pervious surface through stand-alone, cleanup plan-triggered, project-triggered, and opportunity-based retrofits. |
| | Annually document the acreage of offsite project-driven retrofit obligations incurred |

| | |
|-----------|---|
| | and the acreage of alternative retrofit accomplished (this is a subset of the acreage documented in the preceding performance indicator). |
| Table 7-1 | Conduct 95% of planned inspections (of catch basins) within the Phase I and II designated areas and schedule noted deficiencies for correction. Document corrections fully achieved at six months and at one year from the date the deficiency was identified. |
| | Conduct 95% of planned inspections (for SWPPP implementation at maintenance facilities) within the Phase I and II designated areas. |
| | Annually document the number of training courses (for maintenance staff on stormwater-related maintenance activities) held and the number of staff who received the training. |
| | Conduct 95% of planned inspections (of all known permanent stormwater BMPs) within Phase I and II designated areas and schedule noted deficiencies for correction. Document corrections fully achieved within: 1) One year from the date the deficiency was identified for typical facility maintenance (except catch basins); and 2) two years for BMPs requiring non-typical maintenance amounting to less than \$25,000. <u>If applicable, provide a prioritized list of permanent stormwater BMP deficiencies that require non-typical repairs over \$25,000 as well as a list of these deficiencies that WSDOT repaired.</u> |
| Table 7-2 | Annually document the number of training courses (for WSF staff on SWPPP, procedures, and applicable regulations) held and the number of staff who received the training. |
| | Annually document the number of training courses (for WSF Terminal Supervisors on applicable stormwater topics) held and the number of Terminal Supervisors who received the training. |
| | <u>Conduct 95% of planned inspections within the Phase I and II designated areas.</u> |
| | <u>Annually summarize WSF's regular stormwater management-related maintenance activities including sweeping terminals and inspecting and cleaning storm drain systems.</u> |
| Table 8-1 | Provide support for public involvement programs such as <i>Adopt-a-Highway</i> , <i>Commute Trip Reduction</i> , and roadside anti-litter campaigns. |
| | Training-related indicators included in SWMPP Sections 3, 4, 5, and 7. |
| | Post most recent version of WSDOT's municipal NPDES annual progress report on WSDOT's internet site |
| | Make newly published stormwater-related research reports available for downloading for a 2-year period on WSDOT's internet site. |

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Comment [LS127]: This language moved from S8.F.12 and includes the added the word "these" to clarify that this list would only include the deficiency repairs over \$25,000.

Comment [LS128]: Proposed as part of the replacement for the language appearing in S8.F.14.

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Comment [LS129]: Ibid.

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APPENDIX 3: APPLICABLE TMDL REQUIREMENTS

This appendix identifies the action items for WSDOT associated with the applicable TMDLs. Where TMDLs have determined Waste Load Allocations (WLAs) for WSDOT stormwater discharges, compliance with the action items listed below constitutes compliance with the WLAs. This appendix lists the applicable TMDLs in two parts. Part 1 includes TMDLs that require action items above and beyond those required in the permit. Part 2 lists TMDLs that require WSDOT to implement the permit obligations that address the TMDL-listed pollutant in the TMDL areas.

Part 1 – For TMDLs listed in this part, in addition to applying the Highway Runoff Manual (HRM), compliance with the action items identified below shall constitute compliance with the TMDL WLAs.

1. Clarks Creek Dissolved Oxygen and Sediment TMDL (Ecology publication #1x-10-xxx – **NOTE:** *This TMDL is still under review and is expected to be final before the permit issuance date. This TMDL may be removed from the final NPDES permit if it is not approved by EPA at the time the NPDES permit is issued.*):
 - WSDOT will inventory highway stormwater discharge locations within the TMDL boundary. (Complete by December 2015)
 - Prepare inventory findings report. (Submit by December 2015)
2. Hangman Creek Fecal Coliform, Temperature and TSS/Turbidity TMDL (Ecology publication #11-10-012 and #09-10-030):
 - Prepare addendum to the initial inventory findings report. Include updates on potential TMDL concerns, and follow-up actions taken and/or notification to others where a concern has been identified but occurred outside WSDOT's right-of-way and control. (Submit 6 months after initial inventory findings report)
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution. (As needed)
 - To address TSS/turbidity, WSDOT will work to prevent sediment from entering area waterways along SR 27 (in upper watershed) and SR 195 right-of-ways. WSDOT will prioritize problem areas and work with individual property owners to prevent sediment from entering area waterways via WSDOT's MS4. (On-going)
3. Henderson Inlet Watershed Fecal Coliform TMDL (Ecology publication #08-10-040 and #06-10-058):
 - Update WSDOT stormwater facilities on Southbound I-5 at milepost 110 by 6/30/2017.
4. Issaquah Creek Basin Fecal Coliform TMDL (Ecology publication #04-10-055):

- If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
5. Little Bear Creek Watershed Fecal Coliform TMDL (Ecology publication #05-10-024):
- If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
6. Nisqually River Tributaries Fecal Coliform and Dissolved Oxygen TMDL (Ecology publication #07-10-016 and #05-10-040):
- Provide replacement bags at pet waste station on the dike at McAllister Creek or close public access to the dike.
(As needed)
 - Participate in adaptive management meetings.
(As needed)
7. Oakland Bay Tributaries/Hammersley Inlet Fecal Coliform and Temperature TMDL (Ecology publication No. 11-10-039, <http://www.ecy.wa.gov/biblio/1110039.html>):
- WSDOT will work with Ecology, Squaxin Island Tribe, and Mason County to determine potential sources of fecal coliform within WSDOT's right-of-way and control on a limited number of high priority Highway 3 stormwater discharge locations to Oakland bay. This work may include but is not limited to site visits, data review, and collaborative problem solving. If sources are identified within WSDOT's control, WSDOT will develop a plan and initiate efforts to apply best management practices from their SWMPP or perform remediation to correct the situations.
(On-going)
 - WSDOT will inventory highway stormwater discharge locations, implement pollutant source identification, and identification of illicit sources of bacteria to WSDOT's stormwater conveyance system at the following locations within the TMDL boundary:
 - SR 3 stormwater discharge locations to Oakland Bay and the stormwater conveyance system directly discharging to this receiving water.
 - SR 3 stream crossings and the stormwater conveyance system directly discharging to these receiving waters.
 - US 101 stream crossings and the stormwater conveyance system directly discharging to these receiving waters.
 (Complete implementation by December 2015)

- Prepare inventory findings report.
(Submit by December 2015)
 - Prepare addendum to the initial inventory findings report. Include updates on potential TMDL concerns, and follow-up actions taken and/or notification to others where a concern has been identified but occurred outside WSDOT's right-of-way and control.
(Submit 6 months after initial inventory findings report)
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
8. Palouse River Watershed Fecal Coliform TMDL (Ecology publication #10-10-067):
- WSDOT will implement its programmatic approach (see flow chart at the end of Appendix 3) within the Palouse River fecal coliform bacteria TMDL boundary. These efforts will focus identification of illicit sources of bacteria and sediment discharges to WSDOT's stormwater conveyance system. Prioritization of inventory, illicit discharge detection, and source identification efforts will occur in the following order:
 - Highway 26 and Highway 195 stormwater discharge locations to the Palouse River near Colfax and the stormwater conveyance ditches discharging to this receiving water.
 - Highway 26 stream crossing and stormwater discharges to the Palouse River at the Adams/Whitman County line.
 - Highway 195 stormwater discharge locations to Dry Creek and the stormwater conveyance ditches discharging to this receiving water.
 - Highway 26 steam crossings and stormwater discharge locations to Rebel Flat, Union Flat, and Willow creeks.
 - Highway 23 stormwater discharge locations and stormwater conveyance ditches discharging into receiving waters.
(Complete by March 2015)
 - Prepare inventory findings report.
(Submit by March 2015)
 - Prepare addendum to the initial inventory findings report. Include updates on potential TMDL concerns, and follow-up actions taken and/or notification to others where a concern has been identified but occurred outside WSDOT's right-of-way and control.
(Submit 6 months after initial inventory findings report)
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
9. Samish Bay Watershed Fecal Coliform TMDL (Ecology publication #09-10-019):

- Participate in TMDL adaptive management process.
(On-going)
10. South Fork Palouse River Fecal Coliform TMDL (Ecology publication #11-10-074 and #09-10-060):
- Prepare addendum to the initial inventory findings report. Include updates on potential TMDL concerns, and follow-up actions taken and/or notification to others where a concern has been identified but occurred outside WSDOT's right-of-way and control.
(Submit 6 months after initial inventory findings report)
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
 - WSDOT will annually inspect under the Highway 195 bridge in Colfax and take any necessary action to prevent pigeons from roosting there.
(Within 90 days of the annual inspection)
11. South Prairie Creek Watershed Fecal Coliform and Temperature TMDL (Ecology publication #06-10-018 and #03-10-055):
- If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
 - Participate in adaptive management meetings.
(As needed)
12. Spokane River Watershed Dissolved Oxygen TMDL (Ecology publication #07-10-073):
- Prepare addendum to the initial inventory findings report. Include updates on potential TMDL concerns, and follow-up actions taken and/or notification to others where a concern has been identified but occurred outside WSDOT's right-of-way and control.
(Submit 6 months after initial inventory findings report)
 - If stormwater discharges that transport phosphorus and ammonia over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct the situation. For run-on sources of phosphorus and ammonia identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)

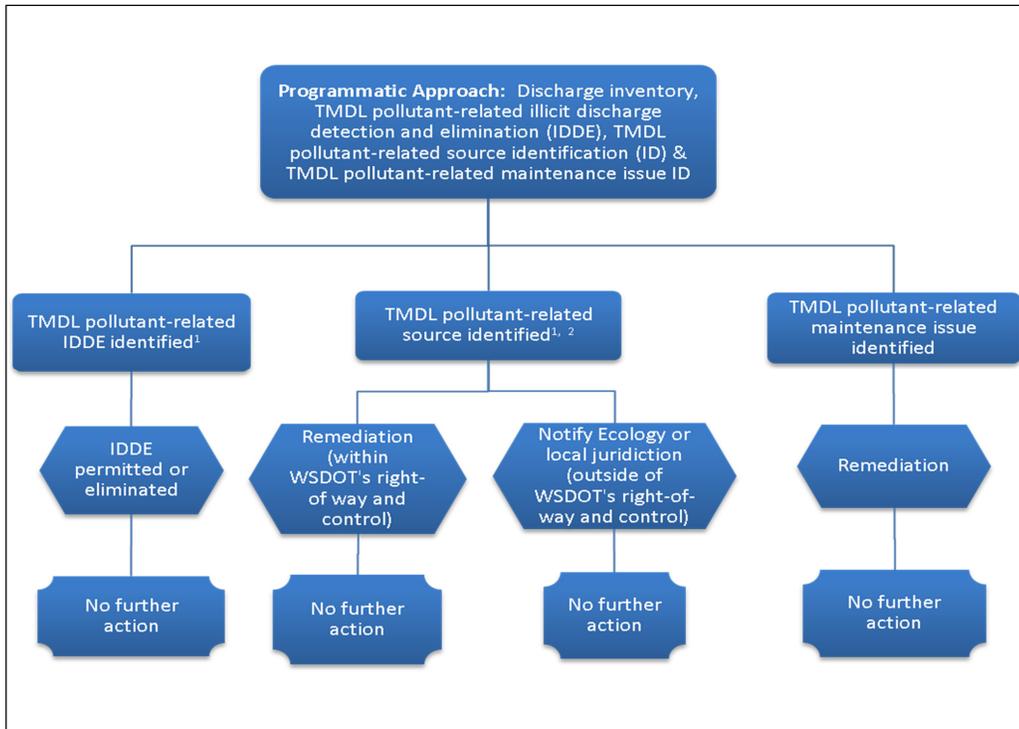
13. Stillaguamish River Watershed Fecal Coliform, Dissolved Oxygen, Turbidity, pH, Mercury, Arsenic and Temperature TMDL (Ecology publication #06-10-057):
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
 - Provide replacement bags and maintain educational signage at pet waste management stations at I-5 rest areas.
(As needed)
14. Swamp Creek Basin Fecal Coliform TMDL (Ecology publication #06-10-021):
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
15. Teanaway River Temperature TMDL (Ecology publication #03-10-025 and #01-10-019)
 - Maintain roads and roadside stormwater conveyance ditches to prevent entry of sediment into area waterways.
(On-going)
16. Totten, Eld and Skookum Inlets Tributaries Fecal Coliform and Temperature TMDL (Ecology publication #06-03-007):
 - If stormwater discharges that transport bacteria over natural background levels to listed receiving waters are found from sources within WSDOT's right-of-way and control, WSDOT will apply BMPs from their SWMPP or perform remediation to correct bacteria discharges. For run-on sources of bacteria identified by WSDOT that are from outside of WSDOT's right-of-way, WSDOT will notify Ecology and work cooperatively with Ecology, the local jurisdiction, and other parties involved for their resolution.
(As needed)
17. Tucannon River Watershed Temperature TMDL (Ecology publication #10-10-019):
 - Maintain roads and roadside stormwater conveyance ditches to prevent entry of sediment into area waterways.
(On-going)
18. Upper Yakima River Basin Suspended Sediment, Turbidity and Organochlorine Pesticide TMDL (Ecology publication #02-10-047 and #03-10-058):
 - Maintain roads and roadside stormwater conveyance ditches to prevent sediment from entering area waterways.
(On-going)

19. Walla Walla River Watershed Fecal Coliform, PCBs, Chlorinated Pesticide, Temperature, pH and Dissolved Oxygen TMDL (Ecology publication #06-10-074 (Bacteria), #05-10-079 (Toxics), #07-10-030 (Temperature), and #07-03-010 (DO and pH)):
 - The US 12 project will re-route 97 percent of the highway's traffic volume to the plateau located well above the Walla Walla River.
(Dependent on funding)
 - WSDOT will implement infiltration and/or dispersion to address the pollutants covered under this TMDL, where feasible.
(On-going)
 - WSDOT will follow the current Integrated Roadside Vegetation Management Plan (South Central Region, Area 4) within the Walla Walla TMDL boundary.
(On-going)

Part 2 – For the TMDLs listed in this part, in addition to applying the Highway Runoff Manual (HRM), compliance with permit obligations that address the TMDL-listed pollutants shall constitute compliance with these TMDLs and prescribed WLAs.

1. Bear-Evans Fecal Coliform, Dissolved Oxygen and Temperature TMDL (Ecology publication #08-10-026 and 08-10-058)
2. Green River Temperature TMDL (Ecology publication #11-10-046)
3. Liberty Bay Watershed Fecal Coliform Bacteria TMDL (Ecology publication # 13-10-014)
 - WSDOT's obligations apply to Phase II municipal stormwater permit areas only.
4. Newaukum Creek Temperature TMDL (Ecology publication #11-10-047)
5. Puyallup River Watershed Fecal Coliform TMDL (Ecology publication #11-10-040)
6. Salmon Creek Watershed Temperature TMDL (Ecology publication #11-10-044)
7. Sinclair and Dyes Inlets Fecal Coliform Bacteria TMDL (Ecology publication #11-10-051)
8. Snoqualmie River Temperature TMDL (Ecology publication #11-10-041)
9. Upper Naches River and Cowiche Creek Temperature TMDL(publication #10-10-068):
 - WSDOT's obligations apply to Phase II municipal stormwater permit areas only.
10. Whatcom, Squalicum, and Padden Creeks Temperature TMDL (Ecology publication #11-10-019)

WSDOT's Programmatic Approach flow chart



¹ Based on visual observation

² Only sources that enter a WSDOT conveyance and discharge to a surface water body included in the TMDL.

APPENDIX 4: LABORATORY METHODS

Unless alternative methods are approved by Ecology in WSDOT's QAPPs, WSDOT shall use the following analytical methods ~~shall be used by WSDOT~~ when analyzing stormwater and sediments ~~collected from stormwater discharges~~ as required by section S7 – *Monitoring* of this permit. For consideration of Ecology's approval, Any alternative method proposed by WSDOT must have similar reporting limits, or ~~must be justified as provide~~ adequate justification for the likely range of concentrations. WSDOT ~~is not guaranteed must receive Ecology approval of their~~ alternative methods or reporting limits prior to implementation.

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A. Methods for Water Samples

| Analyte (or surrogate) | Method in Water (SM=Standard Method, EPA=EPA Method) | Reporting Limit Target |
|--|---|-----------------------------------|
| Total s Suspended s Solids (TSS) | SM 2540B or SM 2540D | 1.0 mg/L |
| Total Chloride | EPA 300.0 <u>Rev. 2.1</u> , EPA 325.2 or SM 4110B | 0.2 mg/L |
| Particle Size Distribution (PSD) | ASTM D3977-97/TAPE; Coulter Counter, L aser diffraction; or comparable method - <i>see attached method</i> , or SM 2560B | NA |
| pH | EPA 150.2 or SM 4500H ⁺ B | 0.2 units |
| Hardness as CaCO ₃ | EPA 200.7, SM 2340B (ICP), SM 2340C (titration) or SM 3120B | 1.0 mg/L |
| | | |
| Fecal coliform | SM 9221E; SM 9222D | 2 min., 2E6 max <u>CFU/100 mL</u> |
| Total Phosphorus (TP) | EPA 365.3, EPA 365.4, SM 4500- P E, or SM 4500- <u>P</u> F | 0.01 mg <u>P</u> /L |
| Orthophosphate (OP) | EPA 365.1, 365.3, SM 4500- <u>P</u> E or SM 4500- <u>P</u> F, SM 4500- <u>P</u> G | 0.01 mg <u>P</u> /L |
| | | |
| | | |
| Total Recoverable Zinc | EPA 200.8 (ICP/MS), EPA 200.7 or SM 3125 (ICP/MS) | 5.0 ug/L |
| Dissolved Zinc | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 5.0 ug/L |

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|--------------------------|--|----------|
| Total Recoverable Lead | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 0.1 ug/L |
| Dissolved Lead | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 0.1 ug/L |
| Total Recoverable Copper | EPA 200.8 (ICP/MS) or SM 3125 | 0.1 ug/L |

| Analyte (or surrogate) | Method in Water (SM=Standard Method, EPA=EPA Method) (ICP/MS) | Reporting Limit Target |
|---|--|------------------------|
| Dissolved Copper | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 0.1 ug/L |
| Total Recoverable Cadmium | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 0.2 ug/L |
| Dissolved Cadmium | EPA 200.8 (ICP/MS) or SM 3125 (ICP/MS) | 0.1 ug/L |
| PAH Compounds* | EPA SW-846 8310 or 8270D | 0.1 ug/L |
| Phthalates** | EPA SW-846 8270D | 1.0 ug/L |
| Herbicides - Dichlobenil, 2,4-D, Clopyralid, Picloram, Triclopyr (Ester formula only) | EPA SW-846 Method 8270D or EPA SW-846 8151A | 0.01-1.0 ug/L |
| Herbicides - Diuron | EPS SW-846 Method 8270D, SW-846 Method 8321B, EPA SW-846 8151A | 0.01-1.0 ug/L |
| Herbicides – Glyphosate (non-aquatic formula) | EPA 547, EPA SW-846 Method 8270D, EPA SW-846 8151A | 25 ug/L |
| Total Petroleum Hydrocarbons-Diesel (NWTPH-Dx) | NWTPH-Dx - Ecology, 1997; (Publication No. 97-602) or EPA SW-846 Method 8015C(B) | 0.25 – 0.50 mg/L |
| Total Petroleum Hydrocarbons-Gasoline (NWTPH-Gx) | NWTPH-Gx - Ecology, 1997; (Publication No. 97-602) | 0.25 mg/L |

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B. Methods for Sediment Samples

| Analyte (or surrogate) | Method in Sediment | Reporting Limit Target |
|--|---|-----------------------------------|
| Total Solids (%) | SM 2540G; SM 2540B | N/A |
| Total Volatile solids | EPA 160.4 or SM 2540E | 0.1% |
| Total Organic Carbon (TOC) | Puget Sound Estuary Protocols: (PSEP 1997), SM 5310_C, SM 5310 D or EPA 9060 | 0.1% |
| Particle Size (grain size) | Ecology Method Sieve and Pipet (ASTM 1997), PSEP 1986/2003, ASTM F312-97 or ASTM D422 | N/A |
| Total Recoverable Zinc | EPA 200.8 (ICP/MS), EPA 200.7 (ICP), EPA SW-846 6010C, EPA SW-846 6020A or SM 3125 (ICP/MS) | 5.0 mg/kg dry |
| Total Recoverable Lead | EPA 200.8 (ICP/MS), EPA SW-846 6010C, EPA SW-846 6020A or SM 3125 (ICP/MS) | 0.1 mg/kg dry |
| Total Recoverable Copper | EPA 200.8 (ICP/MS), EPA SW-846 6010C, EPA SW-846 6020A or SM 3125 (ICP/MS) | 0.1 mg/kg dry |
| Total Recoverable Cadmium | EPA 200.8 (ICP/MS), EPA SW-846 6010C, EPA SW-846 6020A or SM 3125 (ICP/MS) | 0.1 mg/kg dry |
| Total Phosphorus (TP) | EPA 200.7, SW-846 6020 | 0.01 mg/kg dry |
| Herbicides Dichlobenil Triclopyr Picloram Clopyralid | EPA 8270D or EPA 8151 | 70 ug/Kg dry ADD to |
| PAH compounds* | EPA <u>SW-846 Method</u> 8270D | 70 ug/kg dry |
| Phthalates** | EPA <u>SW-846 Method</u> 8270D | 70 ug/kg dry |
| Phenolics*** | EPA <u>SW-846 Method</u> 8270D or PSEP | 70 ug/kg dry |
| Total Petroleum Hydrocarbons-Diesel (NWTPH-Dx) | Ecology, 1997 (Publication No. 97-602) or EPA SW-846 <u>mMethod</u> 8015C(B) | 25.0-100.0 mg/Kg dry |

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*PAH compounds including at a minimum, but not limited to: acenaphthene, acenaphthylene, anthracene, benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, benzo[ghi]perylene, benzo[a]pyrene, chrysene, dibenzo[a,h]anthracene, fluoranthene, fluorine, indeno[1,2,3-cd]pyrene, naphthalene, phenanthrene, and pyrene.

**Phthalates including, at a minimum, but not limited to: bis(2-Ethylhexyl)phthalate, Butyl benzyl phthalate, Di-n-butyl phthalate, Diethyl phthalate, Dimethyl phthalate, and Di-n-octyl phthalate.

***Phenolics including, at a minimum, but not limited to: phenol, 2-methylphenol, 4-methylphenol, 2,4- dimethyphenol, pentachlorophenol, benzyl alcohol, and benzoic acid.

C. Wet Sieving Mass Measurement for Laser Diffraction Analysis

Sample Collection/Handling

Samples should be collected in HDPE or Teflon containers and held at 4 degrees C during the collection process. If organic compounds are being collected, the sample containers should be glass or Teflon.

Preservation/Holding Time

Samples should be stored at 4° C and must be analyzed within 7 days (EPA, 1998). Samples may not be frozen or dried prior to analysis, as either process may change the particle size distribution.

Sonication

Do not sonicate samples prior to analysis to preserve particle integrity and representativeness. Laboratories using laser diffraction will have to be notified not to sonicate these samples at any time during the analysis. It is recommended that this request also be written on the chain-of-custody form that the analytical laboratory receives in order to assure that sonication is omitted.

LABORATORY PROCEDURES

Equipment

- 2 Liters of stormwater sample water (total sample required for analysis (ASTM D 3977))
- Drying oven (90 degrees C \pm 2 degrees)
- Analytical balance (0.01 mg accuracy)
- Desiccator (large enough diameter to accommodate sieve)
- Standard sieves - larger than 2" diameter may be desirable
 - 500 um (Tyler 32, US Standard 35)
 - 250 um (Tyler 60, US Standard 60)
- Beakers - plastic (HDPE)
- Funnel (HDPE - Large enough diameter to accommodate sieve)
- Wash bottle
- Pre-measured reagent-grade water

Sample Processing

- Dry 250 um and 500 um mesh sieves in a drying oven to a constant weight at 90 ± 2 C.
- Cool the sieves to room temperature in a desiccator.
- Weigh each sieve to the nearest 0.01 mg.
- Record the initial weight of each dry sieve.
- Measure the volume of sample water and record.
- Pour the sample through a nested sieve stack (the 500 um sieve should be on the top and the sieve stack should be stabilized in a funnel and the funnel should be resting above/inside a collection beaker).
- Use some of the pre-measured reagent-grade water in wash bottle to thoroughly rinse all soil particles from sample container so that all soil particles are rinsed through the sieve.

- Thoroughly rinse the soil particles in the sieve using a pre-measured volume of reagent-grade water.
- The particles that pass through the sieve stack will be analyzed by laser diffraction Particle Size Distribution (PSD) analysis using the manufacturers recommended protocols (with the exception of no sonication).
- Particles retained on the sieve (>250 um) will not be analyzed with the laser diffraction PSD.
- Dry each sieve (500 um and 250 um) with the material it retained in a drying oven to a constant weight at 90 ± 2 C. The drying temperature should be less than 100 C to prevent boiling and potential loss of sample (PSEP, 1986).
- Cool the samples to room temperature in a desiccator.
- Weigh the cooled sample with each sieve to the nearest 0.01 mg.
- Subtract initial dry weight of each sieve from final dry weight of the sample and sieve together.
- Record weight of particles/debris separately for each size fraction (≥ 500 um and 499 - 250 um).
- Document the dominant types of particles/debris found in this each size fraction.

Laser Diffraction (PSD)

PSD results are reported in mg/L for each particle size range. Particle size gradations should match the Wentworth grade scale (Wentworth, 1922).

Mass Measurement

Equipment

- ___ Glass filter - 0.45 um (pore size) glass fiber filter disk (Standard Method D 3977) (larger diameter sized filter is preferable)
- ___ Drying oven (90 degrees C \pm 2 degrees)
- ___ Analytical balance (0.01 mg accuracy)
- ___ Wash bottle
- ___ Reagent-grade water

Procedure

- Dry glass filter in drying oven at 90 ± 2 C to a constant weight.
- Cool the glass filter to room temperature in a desiccator.
- Weigh the 0.45 um glass filter to the nearest 0.01mg.
- Record the initial weight of the glass filter.
- Slowly pour the laser diffraction sample water (after analysis) through the previously weighed 0.45 um glass filter and discard the water.
- Use reagent-grade water in wash bottle to rinse particles adhering to the analysis container onto glass filter
- Dry glass filter with particles in a drying oven at 90 ± 2 C to a constant weight.
- Cool the glass filter and dried particles to room temperature in a desiccator. Weigh the glass filter and particles to the nearest 0.01mg.
- Subtract the initial glass filter weight from the final glass filter and particle sample weight.

- Record the final sample weight for particles <250 um in size.

Quality Assurance

Dried samples should be cooled in a desiccator and held there until they are weighed. If a desiccator is not used, the particles will accumulate ambient moisture and the sample weight will be overestimated. A color-indicating desiccant is recommended so that spent desiccant can be detected easily. Also, the seal on the desiccator should be checked periodically, and, if necessary, the ground glass rims should be greased or the "O" rings should be replaced.

Handle sieves with clean gloves to avoid adding oils or other products that could increase the weight. The weighing room should not have fluctuating temperatures or changing humidity. Any conditions that could affect results such as doors opening and closing should be minimized as much as possible.

After the initial weight of the sieve is measured, the sieve should be kept covered and dust free. Duplicate samples should be analyzed on 10% of the samples for both wet sieving and mass measurements.

Reporting

Visual observations should be made on all wet sieved fractions and recorded. For example if the very coarse sand fraction (2,000-1,000 um) is composed primarily of beauty bark, or cigarette butts, or other organic debris this should be noted. An option might also be for a professional geologist to record the geological composition of the sediment as well.

REFERENCES

- ASTM. 1997. Standard test methods for determining sediment concentration in water samples. Method D 3977. American Society for Testing and Materials, Philadelphia, PA.
- PSEP. 1986. Recommended Protocols for measuring conventional sediment variables in Puget Sound. Prepared by Tetra Tech, Inc. for EPA and Puget Sound Water Quality Authority. Tetra Tech Inc., Bellevue, WA.
- EPA. 1998. Analysis of total suspended solids by EPA Method 160.2. Region 9, Revision 1. SOP 462. 12 pp
- Wentworth, C.K. 1922. A scale of grade and class terms for clastic sediments. *Journal of Geology*. 30:377-39

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APPENDIX 5: STORMWATER MANAGEMENT PROGRAM PLAN

**Washington State Department of
Transportation**

**Stormwater Management Program
Plan**

SECTION 1: BACKGROUND AND OVERVIEW

1.1 Introduction

The Washington State Department of Transportation's (WSDOT) National Pollutant Discharge Elimination System (NPDES) Municipal Stormwater and State Waste Discharge Permit requires WSDOT to develop and implement a stormwater management program plan (SWMPP).

WSDOT developed this SWMPP plan to fulfill that obligation and prescribe the procedures and practices used to reduce the discharge of pollutants in stormwater runoff from storm sewer systems owned or operated by WSDOT. This SWMPP-~~plan~~ reflects changes in regulations, advancements in stormwater management, and the evolution of WSDOT procedures and practices.

The methods used by WSDOT to manage stormwater runoff from its facilities evolved concurrently with changes required for core functions. Originally, WSDOT only managed highway stormwater to maintain safe-driving conditions, using engineering techniques designed to prevent stormwater from ponding on road surfaces.

Maintaining safe driving conditions continues to be essential for any functional highway drainage system. However, WSDOT also acknowledges the state's vital interests in protecting and preserving natural resources and other environmental assets as well as its citizens' health and safety. These interests have become integrated with other vital interests committed to WSDOT, including the cost-effective delivery and operation of transportation systems and services that meet public needs. Thus, WSDOT's stormwater management objectives have expanded to include:

1. Protecting the functions of the transportation facility; and
2. Protecting ecosystem functions and beneficial uses of Washington State receiving waters.

While WSDOT implements pollution prevention activities statewide, the SWMPP strategically targets resources to address priority stormwater management and water resource issues. It takes into consideration a number of circumstances or characteristics particular to WSDOT's facilities, operations, and approaches to addressing compliance under this Permit. Except where noted, this SWMPP applies to all discharge stormwater runoff from municipal separate storm sewer systems (MS4)³ serving the state highways, rest areas, ferry terminals, maintenance areas, and vector decant, ~~and~~ street sweepings facilities, ~~and winter chemical storage facilities~~ within the applicable areas requiring municipal permit coverage by Ecology. Elements of the SWMPP also apply to EPA-approved total maximum daily loads with waste load allocations and associated implementation documents specifying actions for WSDOT stormwater discharges.

Comment [LS130]: Suggest added to be consistent with the language reflected in S1.B.

³ *Municipal Separate Storm Sewer Systems (MS4s)* 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, county, city, town, or other public entity (created by or pursuant to state law) that discharges to waters of the state;
- 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)

1.2 Organization of the SWMP^P

Section 1: Background and Overview provides an introduction/overview of WSDOT's stormwater management program, the area and facilities that are affected, and the regulations that govern WSDOT operations. The remainder of this document describes the essential program elements.

Section 2: Stormwater Program Management Framework describes WSDOT's organizational framework and management responsibilities for overall permit compliance and program implementation. *Section 2* also describes interagency coordination, key WSDOT stormwater-related guidance and procedures, WSDOT's legal authority to control discharges into its storm drainage systems, program planning, and the SWMP^P revision process.

Section 3: Traffic Collision Related Spills, Illicit Discharges, and Illicit Connections describe the procedures and protocols related to responding to non-construction-related spills. This section also describes procedures to identify and eliminate illicit discharges and illegal connections to WSDOT's MS4.

Section 4: Construction Stormwater Pollution Prevention describes construction-related stormwater pollution prevention. These elements include WSDOT's erosion control program and its spill prevention, control and countermeasures.

Section 5: Stormwater Management for New Facilities describes post-construction stormwater management controls as prescribed by the *Highway Runoff Manual*.

Section 6: Stormwater Management for Existing Facilities describes stormwater BMP retrofit program to address existing impervious surfaces that do not have treatment or flow control, or for which treatment or flow control is substandard.

Section 7: Maintenance describes maintenance-related stormwater controls.

Section 8: Education/Training/Public Involvement Programs describes education programs for WSDOT employees and contractors, and the WSDOT permit's and SWMP^P's public involvement process.

SECTION 2: STORMWATER PROGRAM MANAGEMENT FRAMEWORK

2.1 Internal Coordination and Stormwater Management Responsibilities

The Department's Headquarter Offices, its Regions, Mega Projects, and Divisions get assigned functional responsibilities associated with the stormwater management program. The responsibility for initiation of SWMPP implementation directives lies with Headquarter Offices, in consultation with WSDOT's Stormwater Policy Committee (SPC).

WSDOT created the Stormwater Policy Committee (SPC) to provide assistance regarding stormwater management policy issues as well as provide a framework for communication, coordination, and cooperation in the development and implementation of the SWMPP. The SPC members include representatives from WSDOT Regional Offices, Mega Projects, WSF, and Headquarters Offices committing or expending resources related to stormwater management. SPC duties and responsibilities include:

1. Guiding WSDOT in conducting deliberations with permitting agencies and making decisions regarding stormwater management policy.
2. Providing recommendations to executive management on preferred approaches to meet regulatory obligations.
3. Guiding preparation of the ~~Stormwater Management Program (SWMPP)~~ and making recommendations regarding:
 - Funds, staffing, and other resources necessary to support their development and implementation.
 - The roles and responsibilities of all regions, transportation modes, and WSDOT offices essential for their successful implementation.
 - How WSDOT will carry out stormwater-related work or, if that is not possible, suggest priorities so as to understand the risks and downsides.
4. Promoting and providing ongoing evaluation of the SWMPP's effectiveness.
5. Improving communication among affected workgroups in regions, modes, and WSDOT offices required to commit or expend resources on stormwater.
6. Assisting in the resolution of stormwater-related problems and conflicts.

Headquarters' responsibilities include areas of program and policy development, oversight, technical assistance, research, monitoring, and reporting. The Environmental Services Office's (ESO) Stormwater and Watersheds Program maintains the overall responsibility for managing and coordinating the ~~stormwater management program (SWMPP)~~. These responsibilities include guiding and coordinating SWMPP program policy development, monitoring, reporting, and compliance with the NPDES stormwater permit obligations. The primary responsibilities of the Design Office's Hydraulics Branch include managing and updating the *Highway Runoff Manual* and providing technical support on hydraulics and hydrology issues to WSDOT headquarters and regional offices. Responsibilities of environmental support staff in the Maintenance and Operations Division include technical support and implementing stormwater-related maintenance activities, in coordination with the regions.

Responsibilities for the Washington State Ferries Division include all stormwater management activities at ferry terminals. The Region's primary stormwater management implementation responsibilities fall in the areas of meeting stormwater-related construction- and post-construction requirements including related ongoing operations and maintenance.

2.2 Intergovernmental Coordination

The following section describes how WSDOT coordinates with local governments (i.e., cities, counties, and tribes) and various groups in areas where highway and municipal separate storm system runoff commingle. Improved intergovernmental coordination helps identify areas for stormwater retrofit, maintenance, illicit connection removal, spill response, and education. As appropriate, WSDOT works with these groups to help coordinate the implementation of this SWMPP. In addition, WSDOT pays stormwater utility fees that help finance development and implementation of local government stormwater management programs.

2.2.1 Maintenance Coordination

WSDOT allocates maintenance responsibilities between WSDOT and Washington cities according to a memorandum of understanding (MOU) signed with the Association of Washington Cities (*City Streets as Part of State Highways Maintenance Guidelines*). The guidelines, general in nature, facilitate the allocation of maintenance responsibilities between WSDOT and Washington Cities pursuant to RCW 47.24.

Section 7 describes WSDOT's maintenance program and activities in greater detail.

2.2.2 Total Maximum Daily Load Processes

TMDL Development

WSDOT actively participates in the following TMDL development process where WSDOT facilities or operations are identified as contributing sources to the pollutant being characterized:

1. WSDOT develops an annual TMDL project list which contains information regarding:
 - The pollutant(s) to be addressed by each TMDL; and
 - Ecology contact information for each TMDL.
2. WSDOT establishes priorities and determines their level of involvement. WSDOT then notifies Ecology about its intent to participate and provides contact information for the WSDOT representative.
3. WSDOT participates as a member of Ecology's TMDL advisory committees for those TMDLs identified by WSDOT as priorities in *Step 2*.

TMDL Implementation

WSDOT implements assigned TMDL actions specified in Appendix 3 of the permit. WSDOT may participate in TMDL adaptive management meetings convened by Ecology to document implementation efforts assigned to WSDOT. Refer to S6. Total Maximum Daily Load Allocations and Appendix 3 – Applicable TMDL Requirements for the listing of WSDOT's permit-related TMDL permit obligations.

2.2.3 Storm Sewer Connections

WSDOT's *Utilities Manual* (i.e., Chapter 1, 120.05 – *Storm Drainage and Hydraulics*) includes procedures regarding discharges into WSDOT's municipal stormwater systems. This includes the conditions governing the acceptance of surface runoff discharged into WSDOT's drainage system. These conditions specify that discharges meet the requirements in the *Highway Runoff Manual*; comply with existing and future state and local requirements; and assume all costs and liabilities associated with the design, construction, maintenance, and operation of stormwater management facilities. WSDOT regional offices review utility permit applications to ensure they meet the required conditions.

WSDOT's *Highway Runoff Manual* includes procedures for seeking approval from a local jurisdiction when WSDOT wants to discharge stormwater into the municipality's storm sewer system and/or for projects in which a portion of the local system will be replaced and turned over to the local jurisdiction for operation and maintenance.

As described in *Section 3*, WSDOT coordinates directly with local jurisdictions and Ecology in the identification and elimination of *illicit discharges* and *illegal connections*.

2.3 Stormwater Facilities Inventory and Documentation

WSDOT inventories its stormwater-related facilities to document their location and aid in setting levels of maintenance service, identifying deficiencies and illicit discharges, and addressing deficiencies by prioritizing retrofits.

During the previous permit cycle, WSDOT:

- Developed and deployed its *Stormwater Features Inventory Database*;
- Mapped all known **outfalls**, discharge points, and stormwater treatment/control facilities (including UIC facilities); and
- Developed and initiated an ongoing program to map its MS4 which includes:
 - Maintaining existing inventory to include newly constructed, modified, and identified **outfalls**, discharge points, and stormwater treatment/control facilities;
 - Mapping connection points between MS4s owned or operated by WSDOT and other public entities (outside the city limits for managed access highways); and
 - Mapping associated drainage features conveying highway runoff to WSDOT **outfall and** discharge point locations.

WSDOT's on-going program to map its MS4 follows a staged approach:

Stage 1- Digitize individual features from geo-referenced contract plan sheets.

Concurrently perform field mapping in areas where no contract plan sheet information exists.

Stage 2- Field verify, updating as needed, the digitized collection of features from the contract plan sheets.

Stage 3- Maintain and update the inventory to reflect new construction and system modifications as they occur.

- No later than two years from the effective date of this permit (i.e., March 6, 2016) WSDOT will establish an approach and pace for complete conveyance mapping/verification of its MS4. During the first two years of the permit, WSDOT will conduct pilot inventory efforts utilizing existing stormwater features inventory staff resources to establish this approach and assess the pace. These staff resources include: three field staff; two office staff; and one program coordinator. This pace will establish the performance indicator for the remaining three years of the permit cycle. WSDOT will define its estimate in *centerline miles per year* and will establish a pace utilizing the current mapping resources, taking into consideration that these resources get tasked to meet WSDOT's other mapping-related obligations (e.g., IDDE, TMDL, legal requests). This estimate will not include conveyance inventory and mapping of highway segments that require road closure. Rather, inventory work requiring road closures will occur during a construction project that includes drainage work. WSDOT will develop and submit a report to Ecology describing the approach and pace, along with relevant and supporting background data, by March 6, 2016.

No later than five years from the effective date of this permit (i.e., March 6, 2019) WSDOT will develop a program to map drainage areas associated with known WSDOT owned or operated stormwater **outfalls and** discharge points.

To the extent consistent with national security laws and directives, WSDOT must make available to Ecology, upon request, available maps depicting the information required. The preferred format of submission will be an electronic format with fully described mapping standards.

To the extent appropriate, WSDOT must provide mapping information to municipal stormwater permittees and tribal governments upon request. This permit does not preclude WSDOT from recovering reasonable costs associated with fulfilling mapping information requests.

2.4 Legal Authority

Title 47 of the Revised Code of Washington, Public Highways and Transportation, provides the Department with legal authority adequate to meet the requirements of 40 CFR § 122.26(d)(1)(ii) to control discharges to municipal separate storm sewer systems WSDOT owns or operates. RCW 47.01.260 provides that:

The department of transportation shall exercise all powers and perform all duties necessary, convenient, or incidental to the planning, locating, designing, constructing, improving, repairing, operating, and maintaining state highways, including bridges and other structures, culverts, and drainage facilities and channel changes necessary for the protection of state highways....

RCW 47.04.040 vests in the State of Washington all right, title, and interest to the rights-of-way of state highways, including the roadway and ditches and existing drainage facilities, together with all appurtenances thereto.

WSDOT possesses the legal authority adequate to prohibit illicit discharges to its storm sewer system. Chapter 47.32 RCW empowers the WSDOT to operate state highways free from all obstructions, encroachments, occupancy, and public nuisances. RCW 47.32.010 authorizes WSDOT, upon due notice, to order obstructions, encroachments, structures, buildings, improvements, or other means of occupancy of any right-of-way to the state highway to be removed within ten days. Failure to so remove the offending property results in the property becoming unlawful property, which WSDOT may confiscate, remove, sell, or destroy.

RCW 47.32.130(1) provides:

Whenever there exists upon the right-of-way of any state highway or off the right-of-way thereof in sufficiently close proximity thereto, any structure, device, or natural or artificial thing that threatens or endangers the state highway or portion thereof, or that tends to endanger persons traveling thereon, or obstructs or tends to obstruct or constitutes a hazard to vehicles or persons traveling thereon, the structure, device, or natural or artificial thing is declared to be a public nuisance, and the department is empowered to take such action as may be necessary to effect its abatement. Any such structure, device, or natural or artificial thing considered by the department to be immediately or eminently dangerous to travel upon a state highway may be forthwith removed, and the removal in no event constitutes a breach of the peace or trespass.

Thus, illicit discharges to WSDOT's storm sewers would constitute encroachments that WSDOT can remove. Discharge of pollutants into the WSDOT's storm sewer system, even if emanating off the right-of-way if in sufficiently close proximity to jeopardize WSDOT's system, would constitute a public nuisance that WSDOT is empowered to abate.

The Washington State Patrol (WSP) has general authority for the administration and enforcement of traffic and other laws on state highways. RCW 46.48.170 authorizes the WSP to adopt and enforce regulations concerning the transportation of hazardous materials. Chapter 446-50 WAC contains these regulations, consistent with those promulgated by the United States Department of Transportation, Title 49 CFR parts 100 through 199, designed to protect persons and property from unreasonable risk of harm or danger. WSDOT can solicit WSP's authority to address spills, dumping, or disposal of materials other than stormwater on state highways.

WSDOT controls construction work through contract provisions. Standard provisions and specifications require that contractors comply with all applicable federal, state, and local regulations, including obtaining required permits and licenses. WSDOT requires contractors to submit and implement erosion and sediment control plans and spill prevention, control, and countermeasures plans.

WSDOT lacks general authority to regulate activities occurring outside its right-of-way. However, where a proposed development requires a utility permit or franchise from WSDOT or an access connection permit to the state highway, WSDOT may add conditions to the permit regarding stormwater flow and quality. WSDOT can also request the help of local and state agencies, which have legal enforcement authority to conduct inspections and investigations outside of the right-of-way, if necessary, to detect and eliminate illicit discharges.

Furthermore, WSDOT requires a utility permit and/or franchise for all stormwater drainage or utility connections from private and public property onto state highway right-of-way. WSDOT's *Utilities Manual* outlines procedures for obtaining such permits. Utilities or jurisdictions which have pipes, culverts, or ditches conveying sources other than stormwater or natural base flow will not be granted a utility permit or franchise for conveyances using WSDOT storm sewer systems, including roadside ditches. Those utilities or jurisdictions discharging to WSDOT storm sewer systems or natural base flow originating off the right-of-way must provide WSDOT water quantity and quality controls, including conveyances which conform with requirements and specifications in the *Highway Runoff Manual*; Department of Ecology requirements; or local rules, regulations, ordinances, and resolutions, whichever is more stringent.

2.5 SWMP_P Revision Process

In the process of compiling and evaluating information for the Annual Report, WSDOT may identify trends, common problems, or solutions that may spur the need to revise the SWMP_P and amend its NPDES municipal stormwater permit. Upon Ecology's approval, WSDOT would revise the SWMP_P as necessary to maintain an effective stormwater management program that reflects advancements in stormwater management and lessons learned. Ecology may also initiate NPDES municipal stormwater permit amendments and revisions to the SWMP_P.

2.6 Stormwater Program Management Framework Evaluation

Table 2.1 summarizes the key activities identified in the SWMP_P associated with this program section along with applicable performance indicators.

Table 2-1: Key Activities and applicable Performance Indicators Associated with the Stormwater Program Management Framework

| Key Activity | Performance Indicator |
|--|--|
| Program Development | |
| Develop approach and pace for complete conveyance mapping of WSDOT's MS4 | No later than two years from the effective date of the permit (i.e., March 6, 2016), establish an approach and pace for complete conveyance mapping of WSDOT's MS4 |
| Develop process for mapping drainage areas associated with WSDOT owned or operated stormwater <u>outfalls and</u> discharge points | By the end of the permit term (i.e., March 6, 2019), develop a process for mapping drainage areas associated with WSDOT owned or operated stormwater <u>outfall and</u> discharge points |
| Implementation | |
| Continue intergovernmental coordination associated with implementation of this SWMP <u>P</u> . | Participate in watershed planning and TMDL development where WSDOT identifies itself as a key stakeholder. |
| Continue to identify trends, common problems, or solutions that may spur the need to update and revise elements contained or referenced in the SWMP <u>P</u> . | Annually document changes proposed to elements contained or referenced in the SWMP <u>P</u> . |
| Document newly constructed stormwater <u>outfall and</u> discharge points and stormwater treatment/control facilities into the <i>Stormwater Features Inventory Database</i> . | Map and document all newly constructed stormwater <u>outfall and</u> discharge points and stormwater treatment/control facilities as part of the project closeout into the <i>Stormwater Features Inventory Database</i> |
| Map conveyances of WSDOT's MS4, including connections between WSDOT's MS4 and other entities | Starting year three of the permit (i.e., March 6, 2017), meet pace defined by the first two years for MS4 conveyance and connection mapping. |

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

Section 3: Traffic Collision Related Spills, Illicit Discharges, and Illicit Connections

WSDOT designed its illicit discharge and illicit connection detection and elimination (IDDE) program to: 1) Ensure consistent, timely notification and response to traffic collision related spills; and 2) To identify and work to eliminate illicit discharges and illicit connections (ID/IC) to WSDOT's MS4. *Section 3.1* addresses procedures for traffic collision related spills. *Section 3.2* addresses ID/ICs along WSDOT's highway right-of-way (ROW).

3.1 Traffic Collision Related Spills

WSDOT considers spills that can be cleaned, removed, or contained with resources readily available to the first responder (including cleanup capabilities of a responding Registered Tow Truck Operator) as *manageable*. To qualify as *manageable*, the spill must be non-hazardous and contained on an impervious roadway surface.⁴

WSDOT considers spills onto state highways as *major* when the first responder cannot manage (i.e., clean, remove, or contain) the spill with resources easily and readily available to them or the spill enters a MS4 or waterway. *Major* spills require the help of an outside agency to remediate (i.e., Ecology spill response, fire department, local jurisdiction, or remediation contractor). *Major* spills, given the potential to reach waterways, trigger the permit's G3 notification requirement.

3.1.1 Notification Procedures

First responders (i.e., WSP, WSDOT incident response) notify WSP that a traffic-related spill has occurred on WSDOT ROW. The notification procedures triggered depend on the severity of the spill.⁵

3.1.2 Response and Remediation

WSDOT staff receives instruction to only take the emergency actions required to protect human life and property until the WSP gains control of the situation. WSDOT staff, who received training to do so, will take control actions when necessary and feasible to prevent the release of small quantities of petroleum products into surface waters. WSDOT personnel assist in managing traffic at the scene in support of the overall incident management effort. WSDOT

⁴Under agreement with WSDOT and the Washington State Patrol (WSP), registered tow operators must complete the removal and clearance of all collision scene vehicles, cargo, debris and nonhazardous vehicle fluids, and open all travel lanes within 90 minutes after WSP and/or WSDOT authorized representative give the "Notice to Proceed".

⁵For manageable spills, WSP dispatch sends out a "memo" via email to all potentially affected jurisdictions. Manageable spills do not require Ecology notification. For major spills, WSP dispatch sends out a "memo" via email to all potentially affected jurisdictions, as well as Ecology and agencies that may be able to offer assistance (e.g., local fire department). Along with sending out a "memo", the first responder or the dispatch center will make the appropriate phone notifications required in G3.

personnel may also provide technical information (e.g., information on drainage system characteristics) in support of the incident response.⁶

3.1.3 Spills Tracking

WSDOT maintains a database on collisions and utilizes Ecology’s spill tracking information to assist in identifying high-risk spill locations on state routes. WSDOT employs these tools to target safety improvements at sites where frequent collisions occur with the aim of reducing collisions and in turn, reducing spills.

WSDOT’s efforts to track traffic collision related spills occur in conjunction with the WSP and/or the local law enforcement agency responding to the collision scene. The collision form records whether a *manageable* or *major* spill occurred and if a hazardous material was involved and, in the event of a spill, if a release occurred. In addition, WSDOT documents all known *manageable* and *major* spills.

3.1.4 Traffic Collision Spill Response Training

WSDOT first responder personnel (i.e., Incident Response staff) receive training to identify and distinguish *major* and *managed* spills. As WSDOT relies heavily on WSP for coordinating responses to traffic collision related spill, WSDOT incident response will also receive instruction on how to effectively communicate with WSP dispatch.

3.2 Illicit Discharges and Illicit Connections (ID/IC)

WSDOT designed its ID/IC detection and elimination program to identify and eliminate ID/IC to WSDOT’s MS4. ~~The permit defines an *illicit discharge* as any discharge of pollutants to the MS4 that is not composed entirely of stormwater or non-stormwater discharges allowed as specified in this Permit and not authorized under the NPDES permit.~~ Illicit discharges can include wash water, sediment, chemicals, or sewage discharges to the MS4. The permit defines an *illicit connection* as ~~any man-made a pipe or other conveyance to the MS4 that in not intended, permitted, or used for collecting and conveying stormwater or non-stormwater discharges allowed as specified in this Permit~~ ~~has illegally been connected to WSDOT’s MS4.~~ This section addresses procedures for hazardous and non-hazardous illicit discharges to WSDOT’s MS4 through a connection or overland flow.

Comment [LS131]: Suggest making these edits to maintain consistency with the Phase 1 and 2 municipal stormwater permits.

Comment [LS132]: Ibid.

Not all external discharges/connections to WSDOT’s MS4 and property are illicit. WSDOT’s *Accommodation of Stormwater Runoff onto Right of Way* (WSDOT Policy Statement P 2032.00) serves as a reference for employees on accommodation of stormwater discharges from adjacent properties onto WSDOT ROW. EPA regulations allow discharges from an NPDES-permitted source and discharges from emergency firefighting activities. Other non-stormwater discharges, conditionally allowed unless WSDOT identifies them as a significant contributor of pollutants to the MS4 include:

⁶The WSP has the responsibility for carrying out safety measures and coordinating the clean-up of spilled substances.

- Diverted stream flow
- Irrigation return flow
- Rising ground waters
- Uncontaminated ground water infiltration (as defined at 40 CFR § 35.2005(20))
- Uncontaminated pumped ground water
- Springs
- Flows from riparian habitats and wetlands
- Foundation drains
- Air conditioning condensation
- Uncontaminated water from crawl space pumps
- Footing drains
- Discharges from potable water sources, including water line flushing, hyperchlorinated water line flushing, fire hydrant system flushing, and pipeline hydrostatic test water. Planned discharges to a conveyance system or surface water will be de-chlorinated to a concentration of 0.1 ppm or less, pH-adjusted, if necessary, and volumetrically and velocity controlled to prevent re-suspension of sediments in the MS4.
- Discharges from lawn watering and other irrigation runoff. Minimize these discharges through, at a minimum, education activities for WSDOT maintenance staff and water conservation efforts.
- Street and sidewalk wash water, water used to control dust, and routine external building wash-down that does not use detergents. WSDOT will reduce these discharges through, at a minimum, education activities and/or water conservation efforts. To avoid washing pollutants into the MS4, WSDOT must minimize the amount of street wash and dust control water used. At active construction sites, WSDOT must perform street sweeping prior to washing the street.
- Other non-stormwater discharges. The discharges must comply with the requirements of the stormwater pollution prevention plan, reviewed by WSDOT, which addresses control of such discharges.

3.2.1 ID/IC Identification

While public reporting plays a role, the detection and identification of ID/IC on WSDOT properties relies primarily on field observations reported from trained maintenance, construction, and design staff as well as crews inventorying and documenting stormwater facilities and connection points. These ongoing efforts to identify and report ID/IC are an integral part of WSDOT's stormwater maintenance inspection and facilities mapping efforts.

WSDOT staff uses the following indicators in the field to detect and identify suspect illicit discharges:

- Visible signs of staining, residues, or oily substances in the water or detained within ditches, channels, catch basins, or surrounding pavement and soils
- Pungent odors coming from the drainage system (e.g., discharge smells like sewage, sulfide, petroleum/gas, rancid, etc.)
- Discoloration or oily substances in the water

- Abnormal water flow during the dry weather season
- Excessive sediment deposits or turbid waters, particularly near active off-site construction sites
- Floatables (e.g., discharge includes sewage, an oil sheen, suds, etc.)
- Broken concrete or other disturbances at or near junction structures.

For reporting purposes, WSDOT documents these observations along with the date, time, location of discharge, estimated quantity of the discharge, and any additional information describing the discharge into WSDOT's IDDE database.

In carrying out the SWMPP's stormwater facility mapping and documentation efforts, WSDOT determines whether stormwater drainages and connections emanating outside the right-of-way that discharge to WSDOT's MS4 or property possess a valid WSDOT utility permit and/or franchise authorizing the connection/discharge. Drainage or connections without a valid permit or franchise are directed to the appropriate WSDOT region utilities office for resolution.

3.2.2 Notification Procedures

WSDOT staff suspecting an ID/IC notifies the appropriate WSDOT region IDDE contact for remediation. The regional IDDE contact determines if the suspected ID/IC has been permitted and takes action upon identifying an ID/IC. WSDOT follows the G3 notification requirements for suspected hazardous illicit discharges or discharges that could constitute a threat to human health, welfare, or the environment. WSDOT will also notify other emergency response authorities as appropriate.

WSDOT includes the reporting hotline phone numbers listed in G3 on its internet site to facilitate public reporting of pollution sources they observe along WSDOT roadsides or facilities.

3.2.3 Response and Remediation

Where possible, WSDOT staff identifies the source of the ID/IC. For unknown sources originating outside of WSDOT right-of-way, staff contacts the local jurisdiction responsible for the area with the originating discharge. WSDOT seeks remediation and cleanup of ID/ICs by the responsible party, if known. If the responsible party is unknown or unresponsive to WSDOT's remediation requests, WSDOT solicits enforcement action by contacting the local governmental jurisdiction in the area where the ID/IC originates. In instances where the discharger or local jurisdiction fails to correct the discharge in a timely manner, WSDOT contacts Ecology to solicit enforcement action.

3.2.4 ID/IC Training

WSDOT trains staff who, as part of their normal job responsibilities, may come into contact with or otherwise observe an ID/IC to WSDOT's MS4 or property. This training includes the identification of an ID/IC as well as the proper procedures for reporting and responding. WSDOT provides refresher training as needed to address changes in procedures, techniques,

requirements, or staffing. WSDOT offers refresher training to all applicable WSDOT staff on a two-year cycle. This training cycle also allows WSDOT to evaluate and refine its training to enhance its effectiveness.

3.3 Traffic Collision Spill Response and IC/ID Elimination Program Evaluation

Table 3.1 summarizes the key activities identified in the SWMP associated with this section along with applicable performance indicators.

Table 3-1: Key Activities and Performance Indicators Associated with the Traffic Collision Spill Response and the IC/ID Elimination Programs

| Key Activity | Performance Indicator |
|--|---|
| Implementation | |
| Require training for WSDOT first responder personnel on spill identification and notification procedures. | Annually document the number of training courses held and the number of staff trained. |
| Track all <i>major</i> traffic collision related spills. | Annually document <i>major</i> traffic collision related spill response/remediation activities. |
| Train applicable staff and contractors on ID/IC identification and notification procedures. | Annually document the number of courses held and the number of staff trained. |
| Track all ID/IC confirmed by staff and contractors and seek remediation when necessary. Report unresolved problems to Ecology via the <i>Environmental Reporting and Tracking System</i> for further action. | Annually document remediation activities for ID/IC. |

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

SECTION 4: CONSTRUCTION STORMWATER POLLUTION PREVENTION

4.1 Erosion Control Program

The primary focus of construction stormwater planning aims to prevent sediment and other pollutants associated with construction activity from impacting soil, air, and water quality to comply with *NPDES Construction Stormwater General Permit* (CSWGP) requirements. The WSDOT Erosion Control Program maintains internal and external webpages providing information about training, technical assistance and compliance assurance.

4.1.1 Technical Guidance and Standards

Highway Runoff Manual

WSDOT's comprehensive program to address stormwater runoff from construction activity occurs primarily through the ~~Highway Runoff Manual~~ *Temporary Erosion and Sediment Control Manual (TESCM)*. WSDOT's construction stormwater pollution prevention planning components consist of Spill Prevention, Control, and Countermeasures (SPCC) plans and Temporary Erosion and Sediment Control (TESC) plans. ~~Chapter 6 of the Highway Runoff Manual~~ *TESCM* provides guidelines for preparing TESC plans and for selecting appropriate erosion and sediment control best management practices (BMPs). The chapter includes installation and maintenance requirements for BMPs. ~~Chapter 6~~ *The TESCM* also provides guidance on water quality sampling and reporting procedures for WSDOT projects required to monitor discharge water quality during construction.

~~Appendix 6A of the Highway Runoff Manual~~ *The TESCM Appendix Highway Runoff Manual* includes BMP descriptions, references to applicable contract specifications and standards plans, design criteria and other pertinent information. Designers and construction inspectors use the guidelines contained in ~~Appendix 6A~~ *the TESCM Appendix* when selecting the best combination of erosion and sediment control BMPs for a given project.

Construction Manual

The *Construction Manual* provides guidelines as to the objectives, procedures, and methods for construction administration at WSDOT. *Section 8-1, Erosion Control*, addresses general requirements relating to erosion control and contractor work and payment.

Standard Specifications

Section 1-07 and *8-01* of the WSDOT's *Standard Specifications* includes the language used to enforce contractual erosion control and water quality protection requirements. The specifications include general construction requirements like: seasonal limits on clearing and grading, certification and site inspection requirements for contractor Erosion and Sediment Control (ESC) Leads, and detailed specifications for TESC BMPs. *Section 9-14* of the *Standard Specifications* contains TESC BMP material requirements.

Comment [LS133]: Proposed edits reflects that WSDOT created a stand-alone manual from Chapter 6 of the HRM.

Comment [LS134]: Ibid.

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Comment [LS135]: Ibid.

Comment [LS136]: Ibid.

Comment [LS137]: Ibid.

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Qualified Products List

The Qualified Products List (QPL) contains approved erosion and sediment control products available to WSDOT engineers. However, the final selection of the product(s) used in field must take into consideration site conditions and constraints. WSDOT's internet site provides further information on the QPL.

4.1.2 Site Inspections

WSDOT is ultimately responsible for all erosion and sediment control activities on projects with WSDOT owned CSWGP. WSDOT may utilize contractor staff for completing CSWGP compliance related activities such as site inspections. For example, WSDOT may contract an Erosion Sediment Control (ESC) Lead to perform site inspections per *Standard Specification 8-01.3(1)B*. The ESC Lead *Standard Specification 8-01.3(1)B* requires all individuals performing CSWGP required site inspections to have a current Erosion and Sediment Control Lead (CESCL) certification. WSDOT confirms CESCL certification status as a condition of authorizing construction contracts to proceed. WSDOT also verifies that required contractor CESCL certifications remain current in the *Statewide Erosion Plan Implementation and Effectiveness Assessment*. **Contractor staff seeking CESCL certification to perform CSWGP related site inspections or discharge sampling activities must receive training from an Ecology-approved training provider.**

Comment [LS138]: Use of the bold font appears unnecessary. Did Ecology intend this sentence to appear as bold font?

WSDOT requires that contractors perform site inspections in accordance with the CSWGP. *Section 8-01.3(1)B* of the *Standard Specifications* outlines these inspection requirements. WSDOT uses a standardized Erosion and Sediment Control Inspection Form to ensure compliance with the CSWGP requirements. Contractor CESCLs (ESC Leads, as defined by *Standard Specification 8-01.3(1)B*), must complete this form and provide it to the Project Engineer. Projects keep a copy of each inspection report on-site in the site logbook or have them available on-site electronically.

4.1.3 Information Management

Training Tracking

The Erosion Control Program provides statewide training annually and tracks WSDOT employee attendance. WSDOT's Human Resource Office's Staff Development Program maintains a training matrix and database to track training needs and accomplishments.

Statewide Erosion Plan Implementation and Effectiveness Assessment

Each fall season WSDOT's Erosion Control Program performs a *Statewide Erosion Control Plan Implementation and Effectiveness Assessment* (Fall Assessments) for all active construction projects with moderate to high-risk of erosion, as defined in ~~Chapter 6 of the Highway Runoff Manual~~ **TESCM**. Performance measures evaluated include: thoroughness of original erosion control plans, implementation of the erosion control plan elements, responsiveness to changing field conditions, and BMP effectiveness. The Fall Assessments consist of a site documentation and field assessment. WSDOT combines Fall Assessment findings into a project summary report which project management teams use to better prepare for the wet season work. Each project management team must address the concerns identified in the project summary report and submit a written response within 10 days of the assessment. The Erosion Control Program

Comment [LS139]: Proposed edits reflects that WSDOT created a stand-alone manual from Chapter 6 of the HRM.

assessor analyzes statewide findings and identifies trends or policy gaps requiring attention at the headquarters' level. The Fall Assessment process provides an internal mechanism to help continually improve and enhance the effectiveness of the Erosion Control Program and TESC Planning at the project management level.

4.1.4 Construction Stormwater Pollution Prevention Training

WSDOT requires personnel responsible for designing or inspecting a TESC plan and consultant personnel designing these plans to take WSDOT's Construction Site Erosion and Sediment Control course. WSDOT's Erosion Control Program webpage contains more information on these and other training programs. WSDOT contractor staff responsible for performing CESCL activities, such as site inspections, must receive training from an Ecology-approved training provider prior to performing these duties.

4.2 Spill Prevention, Control, and Countermeasures

WSDOT requires contractors to prepare a Spill Prevention Control and Countermeasures (SPCC) plan for all construction projects. SPCC plans must meet the requirements prescribed in *WSDOT Standard Specifications 1-07.15(1)*. SPCC plans are reviewed and accepted by the WSDOT project engineer prior to beginning construction. **Guidelines and templates** to assist contractors in developing a site-specific SPCC Plan are **available on the WSDOT Hazardous Materials webpage**.

Comment [LS140]: Use of the bold font appears unnecessary. Did Ecology intend these words to appear as bold font?

4.2.1 Technical Guidance and Standards

Highway Runoff Manual

~~Chapter 6 of the~~ *Highway Runoff Manual* **TESCM** provides internal guidelines for reviewing and accepting SPCC plans. Additional guidelines and resources are available on the WSDOT Hazardous Materials Program webpage.

Comment [LS141]: Proposed edits reflects that WSDOT created a stand-alone manual from Chapter 6 of the HRM.

Standard Specifications

Section 1-07.15(1) of the WSDOT's *Standard Specifications* includes the language used to enforce contractual obligations to prepare and implement the SPCC plans. The specifications also require the contractor to submit the plan to the Engineer prior to the commencement of any on-site construction activities; maintain a copy of the plan on site; and when encountering hazardous materials, do everything possible to control and contain the material until appropriate measures can be taken. WSDOT's Hazardous Materials Program developed a number of documents and guidelines to assist contractors in developing a SPCC Plan to satisfy the requirements of *Standard Specification 1-07.15(1)*.

4.2.2 Spill Prevention, Control, and Counter Measures Training

The Construction Site Erosion and Sediment Control course, discussed in *Section 4.1.4*, includes information about spill prevention and countermeasures. WSDOT also provides on-line educational programs for employees that review and enforce SPCC plans. Information about training can be found on the Hazardous Materials Program webpage.

4.3 Construction Stormwater Pollution Prevention Program Evaluation

Table 4.1 summarizes the key activities identified in the SWMP associated with this program section along with applicable performance indicators. In addition to these indicators, WSDOT does comply with the NPDES CSWGP requirements.

Table 4-1: Key Activities and Performance Indicators Associated with the Construction Stormwater Pollution Prevention Program

| Key Activity | Performance Indicator |
|--|--|
| Implementation | |
| Continue to require training for WSDOT personnel involved in design or inspection of TESC plans. | Annually document the number of training courses held and the number of staff who received the training. |
| Continue Fall Assessment of all moderate to high-risk construction sites. | Annually summarize findings. |

Appendix 2. Table of Performance Indicators of the *WSDOT NPDES Municipal Stormwater Permit* incorporates these key activities and performance indicators as reporting elements for the permit.

SECTION 5: STORMWATER MANAGEMENT FOR NEW FACILITIES

5.1 Stormwater Controls for New Facilities

This section of the SWMP focuses on post-construction stormwater management controls. Maintenance-related stormwater controls described in *Section 7* are used to manage post-construction sites.

5.1.1 Highway Runoff Manual

The *Highway Runoff Manual* (HRM), available on WSDOT's internet site, directs the planning and design of WSDOT stormwater management facilities. This manual meets the level of stormwater management established by the Washington Department of Ecology's stormwater management manuals. The HRM establishes minimum requirements and provides uniform technical guidelines for avoiding and mitigating impacts to water resources associated with the development of state-owned and operated transportation infrastructure systems, and for reducing and minimizing water resource impacts associated with the redevelopment of those facilities.

The HRM receives periodic updates (subject to review and approval by Ecology) to enhance content clarity as well as reflect changes in regulations, advancements in stormwater management, and improvements in design tools. WSDOT provides information on post-publication updates on its internet site as well as instructions on how to receive emails announcing HRM updates, training opportunities, and improvement in design tools.

5.1.2 Hydraulics Manual

WSDOT uses the *Hydraulics Manual*, available on WSDOT's internet site, in conjunction with the *Highway Runoff Manual* for analysis and design of stormwater facilities. This manual describes the preparation of project Hydraulic Reports as well as provides detailed information on hydraulic and hydrologic analysis related to drainage collection and conveyance systems, culverts, drainage outfalls, and a variety of other hydraulic features of highway design.

5.2 Stormwater Controls for New Facilities Training

Training for hydrologic analysis and hydraulic modeling as well as other aspects supporting effective implementation of the *Highway Runoff Manual* (HRM) are incorporated into the Hydraulics Branch's curriculum. WSDOT also provides HRM-related training to WSDOT's consultants as well as local jurisdictions (including their consultants and contractors) who use the HRM. WSDOT requires all consultants, contractors, and design engineers to have this training prior to working on new facilities. As a condition of final approval, Hydraulic Reports must include the name(s) and HRM Training Certificate number(s) of the person(s) responsible for developing the stormwater design portion of the report.

5.3 New Facilities Stormwater Management Program Evaluation

Table 5.1 summarizes key activities identified in the SWMPP along with applicable performance indicators for this program section.

Table 5.1: Key Activities and Performance Indicators Associated with the New Facilities Stormwater Management Program

| Key Activity | Performance Indicator |
|---|---|
| Implementation | |
| Require <i>Highway Runoff Manual</i> training for staff, consultants, and contractors involved in stormwater facility design. | Annually document the number of training courses held and the number of staff, consultants, and contractors who received the training |
| Track the number and type of stormwater treatment and flow control facilities built. | Document the number and type of stormwater treatment and flow control facilities built annually. |

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

SECTION 6: STORMWATER BMP RETROFIT FOR EXISTING FACILITIES

WSDOT's stormwater facilities retrofit program consists of the following four elements:

1. *Stand-alone*: The amount the State Legislature appropriates for stand-alone stormwater retrofits.
2. *Cleanup Plan-triggered*: TMDL-related stormwater retrofit obligations prescribed in WSDOT's municipal stormwater permit. Similarly, superfund site remediation may also prescribe retrofit obligations to prevent recontamination.
3. *Project-triggered*: Stormwater retrofit to existing and replaced pavement as part of transportation improvement projects per requirement triggers prescribed in the *Highway Runoff Manual*.
4. *Opportunity-based*: Stormwater retrofit of existing and replaced pavement that occurs as part of transportation improvement projects when WSDOT determines that it is cost-effective to provide retrofits beyond those required to comply with the project-triggered retrofits requirements prescribed in the *Highway Runoff Manual*.

6.1 Stand-alone Stormwater Retrofits

WSDOT's departmental budget structure includes a specific category for retrofitting existing impervious surfaces in order to meet one of the requirements of Washington Administrative Code (WAC) 173-270-060. WSDOT accomplishes the construction of stand-alone BMP retrofits with specific allocations through the Washington State Legislature and with dollars transferred from projects within the Puget Sound basin as described in *Section 6.3* below. Selection of individual stand-alone retrofit projects is identified through WSDOT's stormwater retrofit prioritization process, described in *Section 6.5* below.

6.2 Cleanup Plan-triggered Stormwater Retrofits

TMDL water cleanup plans may prescribe stormwater retrofit obligations as an action item in instances where evidence exist tying WSDOT's stormwater discharges as source of the pollutant of concern. WSDOT's municipal stormwater permit would document the obligation along with the timeline for implementation. Similarly, superfund site remediation may also prescribe retrofit obligations to prevent recontamination.

6.3 Stormwater Retrofit Requirements in the Puget Sound Basin

Highway projects in the Puget Sound basin that add new impervious surfaces and exceed the threshold to comply with stormwater management requirements (per the *Highway Runoff Manual*) must either:

- Retrofit, at a minimum, the amount of existing impervious surface within the project limits that equates to 20% of the cost to meet stormwater requirements for the new impervious surfaces (i.e., *20% cost obligation*);

- Transfer an amount of money equal to the *20% cost obligation* to fund stand-alone stormwater retrofit projects; or
- Meet the *20% cost obligation* within the project site to the extent feasible⁷ and transfer funds equivalent to the unmet balance to fund stand-alone stormwater retrofit projects.

Highway projects with *high priority* retrofit locations falling within their project boundaries cannot use *Option ii*.

6.4 Opportunity-based Retrofits

WSDOT established guidelines when making decisions about adding the stormwater retrofits of existing impervious surfaces into new improvement and preservation projects. In general, most preservation projects do not add any new impervious surface and therefore the guidelines generally have minimal impact for this category of projects. However, if a stormwater outfall deficiency falls within the limits of a preservation project, the WSDOT may develop a companion project proposal as a stand-alone stormwater retrofit if they consider the deficiency a priority. These retrofit project proposals get folded into the prioritization process along with the other stormwater retrofit needs already identified.

Comment [LS142]: We feel this is a redundancy that can be eliminated.

6.5 Project-triggered Stormwater Improvements

In the context of highway projects, the project retrofit triggers contained in Ecology’s stormwater management manuals give rise to transportation deficiencies acting as the driving force to initiate stormwater retrofits, rather than environmental priorities. The alternative options described in the *Highway Runoff Manual* aim to amplify environmental benefits while improving highway project delivery by targeting project-driven stormwater retrofit investments based on environmental priorities by providing guidelines to assess whether project-driven stormwater retrofit obligations can be met off-site by retrofitting state highway segments in targeted environmental priority locations.

6.5.1 Mechanics

The alternative options differ from the Ecology manuals’ project-driven retrofit approach by directing stormwater retrofit investments programmatically based on environmental driven priorities identified through a prioritization scheme. Stormwater retrofit priorities⁸ located within project boundaries must be retrofitted as part of that highway project. Otherwise, the sequence for selecting alternative offsite environmental priority locations takes place as follows, looking:

1. Within the same sub-*Water Resource Inventory Area* (WRIA) basin as where the project obligation was incurred.
2. Within the same WRIA as where the project obligation was incurred.

⁷Feasible means there are no physical site limitations such as geographic or geologic constraints, steep slopes, soil instability, proximity to water bodies, presence of significant cultural resources, or shallow water tables (or other applicable factors contained in *Appendix 2A* of the *Highway Runoff Manual – Engineering and Economic Feasibility for Construction of Stormwater Management Facilities*).

⁸ Identified by WSDOT Headquarters using the criteria contained in *SWMP Table 6-1: Stormwater Retrofit Prioritization Scheme*.

3. Within the same region as where the project obligation was incurred.⁹

The highway project proponents must develop and fund project-triggered retrofits regardless of whether they occurred within the project limits or outside the project's boundary.

6.5.2 Accounting and Reporting

Implementation of this approach requires an accounting and reporting system to track the amount of retrofit obligation accrued as well as accomplished. Similarly, WSDOT tracks the location and extent of the alternative retrofitted sites.

6.5.3 Legacy Retrofit Deficiencies

In regard to those project sites in western Washington designing flow control facilities based on actual pre-project land cover conditions (rather than historic land cover conditions), use of this aspect of the alternative option results in highway sections considered deficient by Ecology with respect to the western Washington flow duration (i.e., *historic condition*) standard. WSDOT keeps records of such deficiencies by state route number and milepost.

6.6 Stormwater Retrofit Prioritization Process

WSDOT's stormwater retrofit prioritization scheme (*Table 6-1*) involves a qualitative process for assigning a retrofit priority value to specific road segment locations. The stormwater retrofit prioritization scheme:

1. Focuses data collection on areas with the greatest stormwater retrofit needs;
2. Targets urban fringe areas before costs escalate;
3. Reduces costs by identifying opportunities to combine stormwater retrofits with construction projects; and
4. Maximizes immediate benefits by first targeting areas with highest environmental benefits relative to cost.

Table 6-1 describes the criteria and rationale for each prioritization factor encompassed in this approach. The first stage in the prioritization process involves screening the entire state using Geographical Information Systems (GIS) map tools. This screening identifies highway segments having predefined conditions known to present greater than average risks for highway stormwater impacts. Stage 2 of the prioritization process involves a site-specific reconnaissance of high scoring Stage 1 retrofit candidate sites (i.e., highway segments receiving scores of 8 to 16) to identify those with closed conveyance systems; known high habitat value; and known or observable erosion, pollution, or flooding problems. The third and final prioritization stage involves collecting detailed site information to determine drainage areas and estimate retrofit costs. The results of Stage 3 allow WSDOT to readily evaluate whether: 1) It makes sense to package nearby retrofit segments (and the gaps between those projects) into a single stand-alone retrofit project; and 2) If the potential exists to bundle any of the retrofit priorities with

⁹ For implementation purposes, the state is divided into the following three regions: eastern Washington, the Puget Sound Basin, and the rest of western Washington outside the Puget Sound Basin.

programmed highway projects rather than advancing them as separate stand-alone retrofit projects. Those priorities not falling within a programmed highway project boundary will get completed in order of their priority ranking score for each of the three regions of the state as stand-alone retrofits.

WSDOT updates stormwater retrofit prioritization scores to reflect new information and changing conditions brought to our attention.

Table 6-1: Stormwater Retrofit Prioritization Scheme

| Prioritization Factor | Criteria | Rationale | Point Weighting |
|--|--|---|-----------------|
| Stage 1: GIS Screen | | | |
| Large, frequently traveled highways | Traffic level >30,000 annual average daily traffic (AADT). | For a variety of reasons, larger, frequently traveled highways are associated with greater pollutant generating potential. | 1 |
| Drinking water supply source | Mapped wellhead protection zones, sole sources aquifers, and drinking water source-protected watersheds. | Protect drinking water supplies. | 2 |
| Fish bearing streams | Waters identified by the Department of Fish and Wildlife as <i>fish bearing</i> . | Protect fish resources. | 2 |
| Summer spawning areas | Waters identified in state water quality standards as summer spawning areas. | Summer spawning areas provide critically important habitat for summer chum and summer steelhead. | 2 |
| Small streams | Waters with mean annual flows less than 20 cubic feet per second (i.e., waters that are not shorelines of the state) | Small streams are less able to assimilate runoff and more vulnerable to changes in flow. | 3 |
| High quality <u>surface</u> receiving waters | Waters identified in State water quality standards as <i>Char</i> and <i>Core salmon spawning and rearing</i> . | High quality streams provide important habitat | 3 |
| Urban fringe | Urban fringe areas within designated <i>Urban Growth Areas</i> . | More economical to retrofit prior to development which significantly reduces stormwater management options and increases capital and operational costs. | 3 |
| Stage 2: Reconnaissance | | | |
| Untreated closed, curbed, and/or impervious-lined conveyance systems | Untreated runoff primarily conveyed by curbs, culverts, impervious-lined conveyances, and/or pipes to a receiving water body. | Closed, curbed, and impervious-lined conveyance systems have greater pollutant discharge potential than open drainage systems which have treatment and flow attenuation properties. | 2 |
| WSDOT observed erosion, pollution, or flooding problems | Eroded channels, embankments, excess sediment buildup/loading in stormwater infrastructure, visual observation of water pollution, or flood prone areas. | Gives consideration for known problems. | 2 |
| Discharges to 303(d) listed water bodies for certain pollutants of concern | 303(d) listed water bodies for: PAH, metals (zinc and copper), turbidity, and herbicides used by WSDOT. | Gives consideration to known receiving water problems that could be exacerbated by discharges of untreated highway runoff. | 2 |
| Locally identified erosion, pollution, or flooding problems | Consult local basin plans, recovery plans, and associated TMDL implementation documents for identified stormwater runoff-related problems and/or retrofit priorities. | Factors in well-informed local knowledge. | 3 |
| Habitat suitability and value | Waters identified by the WDFW area habitat and Tribal biologist as important small stream habitat <u>as well as highway segments with fish passages identified by WSDOT as high retrofit priorities.</u> | Factors in well-informed local knowledge. | 3 |
| Stage 3: Detail Site Assessment | | | |
| Stage 2 synthesis | Highway segments receiving a <i>Stage 2 Reconnaissance</i> score of 8 to 12. | Gives higher priority to factors evaluated in Stage 2. | 1 |
| Large highway drainage area | Draining area > 5 acres of impervious surface. | Larger drainage areas generate more runoff. | 1 |

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Comment [LS143]: Since these areas provide access to high value habitat.

6.7 Stormwater BMP Retrofit Program Evaluation

Table 6.2 summarizes key activities identified in the SWMP along with applicable performance indicators for this program section.

Table 6-2: Key Activities and Performance Indicators Associated with the Stormwater BMP Retrofit Program

| Key Activity | Performance Indicator |
|---|--|
| Implementation | |
| Implement <i>Capital Improvement Plan</i> for stand-alone retrofits. | Annually document number of stand-alone retrofits completed. |
| Track acres of existing impervious surface retrofitted or reverted to pervious surface through stand-alone, cleanup plan-triggered, project-triggered, and opportunity-based retrofits. | Annually document the number of acres of existing impervious surface retrofitted or reverted to pervious surface through stand-alone, cleanup plan-triggered, project-triggered, and opportunity-based retrofits. |
| Track the amount of offsite retrofit obligation accrued and location and extent of the alternative retrofits accomplished in order to verify that retrofit obligations incurred were satisfied. | Annually document the acreage of offsite project-driven retrofit obligation incurred and the acreage of alternative retrofit accomplished (this is a subset of the acreage reported in the preceding performance indicator). |

Appendix 2. *Table of Performance Indicators* of the *WSDOT NPDES Municipal Stormwater Permit* incorporates these key activities and performance indicators as reporting elements for the permit.

SECTION 7: MAINTENANCE

7.1 Technical Guidance and Standards

The following sections summarize the technical guidance, manuals, and standards used by WSDOT's Maintenance program that support implementation of WSDOT's municipal NPDES Stormwater Permit.

7.1.1 Maintenance Manual

The *Maintenance Manual* provides maintenance personnel with guidance on how to conduct and perform a wide variety of maintenance activities. The manual focuses on equipment, materials, techniques, and other information needed to properly carry out basic maintenance activities such as patching a pothole or removing snow from a roadway. The *Maintenance Manual* was developed as a guide for maintenance activities, but does not establish absolute standards. The primary activities described that are related to stormwater concerns are roadside maintenance, drainage facilities (e.g., ditches, dry wells, culverts and detention ponds), snow and ice control, and pavement repair.

7.1.2 Highway Runoff Manual

The *Highway Runoff Manual* directs the planning and design of stormwater management facilities for existing and new Washington State highways, rest areas, park-and-ride lots, ferry terminals, and highway maintenance facilities throughout the state. *Section 5-5* of the *Highway Runoff Manual* describes BMP-specific maintenance standards used during inspections to determine when maintenance actions are required.

7.1.3 Regional Road Maintenance Endangered Species Act Program Guidelines

WSDOT developed the *Regional Road Maintenance ESA Program Guidelines* (RRMP) in response to the listing of several species of salmon under the Endangered Species Act (ESA). Implementation of the RRMP exempts the prohibition of take for threatened species under the 4(d) Rule (NMFS, 7/10/00, 65 FR 42422). The RRMP requires the use of a field checklist titled *The Best Management Practices Field Guide for ESA Section 4 (d) Habitat Protection* which prescribes the use of BMPs to achieve environmental outcomes. This field checklist includes stormwater source control BMPs for routine maintenance activities.

7.2 Maintenance Practices for Operating Highways

The following sections describe procedures within the Maintenance and Operations program related to implementing stormwater management activities related to highways.

7.2.1 Road Operation and Maintenance BMPs

Street Sweeping

WSDOT conducts sweeping operations to keep road surface clean and remove sediment, leaves, litter, and other debris before it enters the storm drain systems or surface waters. Debris accumulation may require sweeping to occur as frequently as twice a month. The extent of debris accumulation and ~~funding provided~~ **the level of service prescribed** by the State Legislature dictates scheduling.

Comment [LS144]: The propose language more accurately reflects how this currently occurs as the "level of service" is a legacy reference.

WSDOT manages collected street sweepings in a two-step process: 1) interim, and 2) final reuse. For the interim, WSDOT stores sweepings on its property. WSDOT manages sweepings placement so as to not risk impact to watercourses or drinking water sources. WSDOT also does not locate sweepings in areas of designated geologic sensitivity. Final reuse may involve the screening of sweepings at the management facility. WSDOT gives highest priority to recycling, reuse, and permanent solutions rather than landfill disposal. WSDOT identifies its methods of storing sweepings and vector material in its *Sweepings and Vector Material Management Storage Plan* or the appropriate operations plan required by local health departments. WSDOT considers the following areas as inappropriate sites for street sweeping reuse:

- Within 100 feet of a private drinking water well
- Within stormwater drainage areas

Snow and Ice Control

WSDOT's *Snow and Ice Plan* provides guidance and specific goals for WSDOT Maintenance's snow and ice control program. This plan includes anti-icing chemical application guidelines. WSDOT only uses anti-icing products on the approved *Pacific Northwest Snowfighters (PNS) Association's* list of approved products. The PNS evaluates and establishes specifications for products used in winter maintenance that emphasize safety, environmental preservation, infrastructure protection, cost-effectiveness and performance. WSDOT employs BMPs as part of maintaining storage of snow and ice control products such as salt, sand and liquid deicers. These include proper containment, handling, and clean up related to using these materials.

Catch Basin and Inlet Maintenance

~~Currently, catch basin and inlet maintenance is dictated by debris accumulation and level of service prescribed by the State Legislature. The *Maintenance Manual* dictates inspection of the highway drainage systems at least twice per year. This process includes inspection of catch basins and inlets. Known problem areas are inspected and cleaned more often.~~

Comment [LS145]: This paragraph does not accurately reflect the language in the current *Maintenance Manual* which was changed to refer to the inspection and cleaning requirements specified in the permit and the applicable standards contained in the HRM.

Compliance with the inspection requirements for catch basins in Phase I and II designated areas shall be determined by the presence of an established inspection program designed to annually inspect all features using *Highway Runoff Manual* maintenance standards. Compliance shall be determined by achieving an annual rate of at least 95% of inspections.

- Inspections may be conducted on a *circuit basis* whereby a sampling of 25% of catch basins within each circuit is inspected to identify maintenance needs. Included in the sampling is an inspection of the catch basin immediately upstream of any system outfall.

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All catch basins within a given circuit will be cleaned if the inspection indicates cleaning is needed.

- WSDOT may clean all stormwater pipes, ditches, catch basins, and inlets within a circuit once during the permit term. Circuits selected for this alternative must drain to a single point.
- As an alternative to inspecting catch basins on a *circuit basis*, WSDOT may inspect all catch basins, and clean only catch basins where cleaning is needed to comply with maintenance standards.
- The length of time between catch basin inspections may be increased as long as *Highway Runoff Manual* catch basin maintenance standards are being met. This catch basin inspection schedule change must be based on maintenance records of double the length of time of the proposed inspection frequency. For example, if Maintenance wants to inspect a catch basin only once every three years then maintenance records for six consecutive years must be available showing that maintenance standards can be met with this less frequent inspection schedule. In the absence of maintenance records for catch basins, WSDOT Maintenance may substitute a written statement. Written statements must be based on actual inspection and maintenance experience.

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Refer to Section 7.4 for Stormwater conveyance liquids disposal procedures.

Unless circumstances exist beyond WSDOT's control, WSDOT will aim to resolve catch basins maintenance deficiencies within 6 months. Examples of the circumstances beyond WSDOT's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. Compliance constitutes achieving an annual deficiency correction rate of at least 95% within 6 months and 100% within one year. In the event of an exceedance, WSDOT shall document the circumstances and how they were beyond WSDOT's control.

7.2.2 Maintenance of Stormwater Treatment and Flow Control BMPs

WSDOT will annually inspect permanent stormwater BMPs in Phase I and II areas using *Highway Runoff Manual* maintenance standards. WSDOT can reduce the annual inspection requirement based on supporting inspection records. Changing the inspection frequency to less frequently than annually must be based on maintenance records of double the length of time of the proposed inspection frequency. In the absence of maintenance records, WSDOT may substitute written statements to document a specific less frequent inspection schedule.

Compliance requires annual inspection of at least 95% of all permanent stormwater BMP sites.

WSDOT shall correct stormwater BMP deficiencies as discovered. Unless there are circumstances beyond WSDOT's control, when an inspection identifies an exceedance of the maintenance standard, maintenance shall be performed:

- Within 1 year for typical maintenance of facilities, except catch basins; and
- Within 2 years for BMPs requiring non-typical maintenance amounting to less than \$25,000.
- Repairs over \$25,000 get prioritized and addressed as funding becomes available.

Circumstances beyond WSDOT's control include denial or delay of access by property owners, denial or delay of necessary permit approvals, and unexpected reallocations of maintenance staff to perform emergency work. In the event of an exceedance, WSDOT shall document the circumstances and how they were beyond WSDOT's control.

WSDOT will continue to request new funding for the maintenance of stormwater ponds and underground detention vaults based on a five year sediment removal cycle. If inspections determine that more than 20% of these structures require sediment removal to meet maintenance standards, then WSDOT will prioritize the cleaning of these structures. A few older stormwater BMPs constructed without sufficient maintenance access may require the construction of maintenance access roads. WSDOT Maintenance will request additional funding to build access roads as needed. Stormwater features built without access roads may defer maintenance until access roads are in place. WSDOT will notify Ecology in cases where it is not possible to maintain specific stormwater BMPs due to the manner in which they were constructed.

7.2.3 Stormwater Pollution Prevention Plans

WSDOT has individual stormwater pollution prevention plans (SWPPPs) in Phase I and II areas covered by the permit for Road maintenance facilities (with stormwater conveyance systems) that store equipment, fuel vehicles, and conduct heavy equipment and vehicle repair.

These SWPPPs:

- Identify measures to prevent and control the contamination of discharges of stormwater to surface and groundwater.
- Include a site map showing significant features, stormwater drainage, sources of possible stormwater pollutant, and locations of stormwater off site discharge.
- Apply applicable source control BMPs listed in Ecology's stormwater management manuals, or equivalent manual.
- Identify necessary capital structural control and treatment BMPs for each facility. These capital improvements and treatment BMPs will be ranked and constructed on a priority basis.
- Include a spill prevention and response plan that identifies spill prevention BMPs, spill response procedures, and appropriate emergency contacts.

WSDOT will:

- Provide refresher training for maintenance crews for each facility. WSDOT will document and maintain records of training.
- Perform site inspections twice a year by facility staff to ensure implementation, which can include visual inspection of facility discharges to evaluate effectiveness of the program. WSDOT will periodically conduct site inspections to verify implementation of the plan.
- Keep each SWPPP on site or within reasonable access to the site.

7.2.4 Vegetation Management

WSDOT developed locally-based roadside vegetation management plans to facilitate the use of Integrated Vegetation Management (IVM) by the local area maintenance crews. These plans include an inventory of routine maintenance activities, weed infestations, and sensitive areas together with prescriptions for the most effective methods for consistent and low-cost roadside vegetation management. They also include the use of a record keeping system to document site-specific IVM methods for control of weeds, together with a follow-up evaluation of treatments and ongoing control measures in succeeding years.

7.2.4 Road Operation and Maintenance Training

WSDOT maintenance program personnel receive training on how to comply with the NPDES Municipal Stormwater Permit and how to implement -BMPs for a variety of maintenance activities. WSDOT requires all new maintenance program staff to attend a classroom course on how to implement the ESA 4(d) Regional Road Maintenance Program (RRMP). This course provides the foundation upon which other activity-specific training is built upon. Maintenance staff also attend an 8 hour field course that covers how to install BMPs to meet environmental outcomes, including spill response. Other environmental training courses maintenance personnel attend in connection with their individual job duties include:

Training for Bridge Maintenance – Provides hands-on training on the proper use of approved materials and BMPs employed during routine maintenance activities on or near bridges that pass over rivers, streams, and other waterways.

Field BMP Training for in Water Work – Provides employees with field experience in applying in-water BMPs to a variety of maintenance situations. Participants learn how to conduct maintenance activities in and around streams and ditches with minimum impacts to the aquatic environment.

Emergency Response – Training to differentiate between emergency and unscheduled routine road maintenance and the BMPs and environmental procedures that apply for these activities.

Stormwater BMP Maintenance – Covers the inspection of stormwater features at facilities and NPDES permit requirements for maintenance of highway stormwater BMPs.

SWPPP Training – Covers maintaining facilities under SWPPP plans.

Environmental Compliance Update – This reoccurring training, provided at the maintenance area level, focuses on updating field staff on current environmental compliance issues specific to their maintenance area. This may include use of field checklist, communication procedures, implementing operational and field BMPs, reporting, and understanding regulatory jurisdiction.

Integrated Vegetation Management (IVM) Plans – WSDOT delivers ongoing IVM training to field crews which cover use of herbicides and control of invasive species.

7.3 Maintenance Practices for Operating Washington State Ferries Division Terminals

Washington State Ferries Division (WSF) developed an *Environmental Management System (EMS)* that is integrated with the WSF Safety Management System (SMS). The SMS currently describes WSF environmental policy, procedures, roles and responsibilities, the management review process, internal and external communications, documentation, tracking, corrective actions, training, and system audits. In addition, the SMS documentation describes the following activities related to stormwater management:

- Spill prevention and containment,
- Stormwater system maintenance,
- Deicing,
- Sweeping,
- Vegetation and landscape maintenance, and
- Inspections.

7.3.1 Spill Prevention and Containment

WSF developed a generic Stormwater Pollution Prevention Plan (SWPPP) for system's ferry terminals covered under the WSDOT Municipal Stormwater Permit. WSF uses the SMS/EMS as the vehicle to implement the SWPPP procedures and best management practices system wide. WSF integrated the requirements of the SWPPP into a Stormwater Pollution Prevention Procedure. This procedure addresses spill response, cleanup, illicit discharges, and potential discharges of hazardous materials.

The EMS receives internal and external auditing on an annual basis. Procedures get updated as corrective actions get entered into the system, audits uncover a nonconformity, and/or changes emerge in regulatory/permit requirements. The EMS includes a Stormwater Pollution Prevention procedure. The SWPPP and stormwater procedures get updated to reflect findings from program evaluations.

7.3.2 Stormwater BMP Facility Maintenance

Preventative maintenance schedules involve inspecting the storm drain system annually as well as cleaning oil-water separators and catch basins with inserts. The inspections may generate work orders that involve the cleaning of other stormwater features or the performance of other corrective maintenance work.

7.3.3 Sweeping

Sweeping at ferry terminals occurs on a quarterly basis or more frequently as determined through adaptive management.

7.3.4 Training and Education

WSF utilizes multiple venues to inform, train, and educate WSF employees. These venues include, but are not limited to: fleet advisories, new employee orientation, annual operational staff training, on-site fleet and terminal training, applicable WSDOT training/educational materials, and third party professional training. All terminal employees receive training on SWPPP and procedures. Terminal Supervisors receive annual training as applicable to stormwater. Other staff receives training by supervisors and stormwater inspectors. SMS training covers compliance of applicable stormwater-related laws and regulations and procedures. WSF creates and provides training as newly created and revised procedures emerge.

7.3.5 Audits and Corrective Actions

An internal and external auditing process, integral to the SMS, identifies what works and what needs improvement within the system. WSF and the external auditor conduct these audits annually. Weaknesses identified in the system undergo evaluation to determine the appropriate corrective action(s). Corrective actions could include additional training, changes to procedures, and/or changes to materials or equipment.

7.4 Stormwater Conveyance Liquids Disposal

7.4.1 General Procedures

1. Stormwater conveyance system cleaning should emphasize retention of solids in preference to liquids. Solids removal, the principal objective in the maintenance of stormwater conveyance systems, are substantially easier to store and treat than liquids.
2. Liquids removed from catch basins require treatment before their discharge. Catch basin liquids usually contain high amounts of suspended and total solids and adsorbed metals. Treatment requirements depend on the discharge location.
3. Discharges to sanitary sewer and storm sewer systems must receive approval by the entity responsible for operation and maintenance of the system. Ecology will not generally require waste discharge permits for discharge of stormwater decant to sanitary sewers or to stormwater treatment BMPs constructed and maintained in accordance with Ecology's stormwater management manuals or Ecology-approved equivalent manuals such as the *Highway Runoff Manual*.

7.4.2 Order of Preference for Disposal

Disposal of catch basin decant liquids and water removed from stormwater treatment facilities must occur in the following order of preference:

1. The preferred disposal options involves discharge of catch basin decant liquids to a municipal sanitary sewer connected to a Public Owned Treatment Works (POTW). Discharge to a municipal sanitary sewer requires the approval of the sewer authority. Conditions for discharge approval to a POTW will likely contain pretreatment, quantity, and location conditions to protect the POTW.

2. Discharge of catch basin decant liquids may be allowed into a *Basic* or *Enhanced* stormwater treatment BMP if *option 1* is not available. Discharge of decant liquid collected from cleaning catch basins and stormwater treatment wet vaults back into the storm sewer system may occur under the following conditions:

- The preferred disposal option of discharge to sanitary sewer is not reasonably available; and
- The discharge goes to a *Basic* or *Enhanced* stormwater treatment facility. If pretreatment does not remove visible sheen from oils, the treatment facility must prevent the discharge of oils causing a visible sheen; and
- Discharge occurs as close to the treatment facility as practical to minimize contamination or recontamination of the collection system; and
- The storm sewer system owner/operator has granted approval and has determined that the treatment facility will accommodate the increased loading. The owner/operator can issue pretreatment conditions to protect the treatment BMP as part of the approval process.
- Flocculants for the pretreatment of catch basin decant liquids must be non-toxic under the circumstances of use and require approval in advance by Ecology.

WSDOT will determine the reasonable availability of sanitary sewer discharge by evaluating such factors as distance, time of travel, load restrictions, and capacity of the stormwater treatment facility.

3. Water removed from stormwater ponds, vaults and oversized catch basins may be returned to the storm sewer system. Stormwater ponds, vaults, and oversized catch basins contain substantial amounts of liquid which hampers the collection of solids and pose problems if the removed materials must be hauled away from the site. Water removed from these facilities may be discharged back into the pond, vault or catch basin provided:

- Clear water removed from a stormwater treatment structure may be discharged directly to a down gradient cell of a treatment pond or into the storm sewer system.
- Turbid water may be discharged back into the structure it was removed from if:
 - a) The removed water has been stored in a clean container (eductor truck, Baker tank, or other appropriate container used specifically for handling stormwater or clean water); and
 - b) There will be no discharge from the treatment structure for at least 24 hours.
- The storm sewer system owner/operator approves the discharge.

7.5 Maintenance Program Evaluation

| Tables 7-1 and 7-2 summarize key activities identified in the SWMPP along with applicable performance indicators for this program section. Table 7-1 pertains to the highway maintenance and Table 7-2 pertains to the ferry terminal maintenance.

Table 7-1: Key Activities and Performance Indicators Associated with Highway Maintenance

| Key Activity | Performance Indicator |
|---|--|
| Implementation | |
| Carry out annual catch basin inspection and maintenance program. | Conduct 95% of planned inspections within the Phase I and II designated areas and schedule noted deficiencies for correction. Document corrections fully achieved at 6 months and at one year from the date the deficiency was identified. |
| Complete SWPPP inspections for <u>all permit covered</u> maintenance facilities. | Conduct 95% of planned inspections within the Phase I and II designated areas. |
| Train all maintenance staff on stormwater related maintenance activities. | Annually document the number of training courses held and the number of staff who received the training. |
| Annually inspect and maintain all known permanent stormwater BMPs and correct deficiencies as applicable. | Conduct 95% of planned inspections within Phase I and II designated areas and schedule noted deficiencies for correction. Document corrections fully achieved within: 1) One year from the date the deficiency was identified for typical facility maintenance (except catch basins); and 2) two years for BMPs requiring non-typical maintenance amounting to less than \$25,000. <u>If applicable, provide a prioritized list of permanent stormwater BMP deficiencies that require non-typical repairs over \$25,000 as well as a list of these deficiencies that WSDOT repaired.</u> |

Comment [LS146]: This language moved from S8.F.12 and includes the added the word “these” to clarify that this list would only include the deficiency repairs over \$25,000.

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

Table 7-2: Key Activities and Performance Indicators associated with Ferry Terminal Maintenance

| Key Activity | Performance Indicator |
|---|---|
| Implementation | |
| Train staff on SWPPP, procedures, and applicable regulations. | Annually document the number of training courses held and the number of staff who received the training. |
| <u>Train Terminal Supervisors on applicable stormwater topics.</u> | <u>Annually document the number of training courses (for WSF Terminal Supervisors on applicable stormwater topics) held and the number of Terminal Supervisors who received the training.</u> |
| <u>Complete SWPPP inspections for all permit covered Ferry Terminals.</u> | <u>Conduct 95% of planned inspections within the Phase I and II designated areas.</u> |
| <u>Implement SWPPP at permit covered WSF terminals.</u> | <u>Annually summarize WSF’s regular stormwater management-related maintenance activities including sweeping terminals and inspecting and cleaning storm drain systems.</u> |

Comment [LS147]: This appears in Appendix 2, but apparently was inadvertently left out in this table.

Comment [LS148]: Proposed as a replacement for the language appearing in S8.F.14.

Comment [LS149]: Ibid.

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

SECTION 8: EDUCATION/TRAINING/PUBLIC INVOLVEMENT PROGRAMS

8.1 Education and Public Involvement Programs

WSDOT utilizes a variety of programs to educate the public, consultants, contractors, and WSDOT personnel on stormwater issues. Several of the major education efforts include the Adopt-A-Highway Program, WSDOT's Internet web pages, and *Highway Runoff Manual*-related training curriculum.

8.1.1 Adopt-A-Highway Program and Litter Prevention Campaign

Litter and debris deposited on WSDOT right-of-way can become a stormwater pollutant during wet weather events and clog drainage and stormwater management facilities. WSDOT's Adopt-A-Highway Program, an anti-litter and roadside enhancement campaign, partners with Ecology's litter prevention campaign. The Adopt-A-Highway Program encourages individuals and organized groups to agree to help take care of an "adopted" section of state highway. WSDOT personnel pick up the bags of litter collected by any group working on state roadways. These groups primarily include the Ecology Youth Corps, Department of Corrections, Adopt-a-Highway groups, and some Community Litter Cleanup Program crews.

8.1.2 Commute Trip Reduction Program

The Commute Trip Reduction (CTR) program aims to reduce traffic congestion, reduce air pollution, and petroleum consumption through employer-based programs that decrease the number of commute trips made by people driving alone. The CTR program provides water quality benefits through source control.

The CTR program achieves results through collaboration between local jurisdictions, employers, and WSDOT. WSDOT provides technical assistance to jurisdictions and employers to help implement the program. WSDOT also staffs the CTR Task Force.

8.1.3 WSDOT's Internet Site

WSDOT's Internet sites disseminates information regarding the various elements of WSDOT's water quality protection and stormwater management programs. In addition, the Internet sites provides information for contacting WSDOT staff regarding water quality and stormwater inquiries.

Information available on the sites includes a list of the NPDES municipal stormwater permits WSDOT operates under as well as a downloadable version of its most recent NPDES annual progress report. WSDOT's sites also provides access to stormwater-related guidance manuals, procedures, design tools, and related resources. WSDOT provides downloadable versions of its newly published stormwater-related research reports for two years. After two years, WSDOT lists the reports on the website as bibliographic entries and makes them available upon request.

Comment [LS150]: We suggest using this reference for consistency throughout the permit and SWMPP.

8.1.4 Knowledge and Technology Transfer

As a recognized leader in stormwater management among state and local transportation agencies, WSDOT's expertise is continually sought at the national, state, and local levels by many government agencies as well as non-profit organizations and areas of the private sector.

WSDOT develops and improves stormwater management techniques, guidance manuals, training, and design tools. Municipal transportation organizations around the state often adopt WSDOT's manuals, standard specifications, and general contracting provisions. WSDOT promotes these and other stormwater-related innovations through a variety of venues including: research reports and publications; ad hoc presentations and web telecasts; and participation in various committees.

8.1.5 Employee, Consultant, and Contractor Training and Education

WSDOT provides education and training to ensure that its employees (and its consultants and contractors) possess the knowledge and skills necessary to perform their functions effectively and efficiently. WSDOT offers many courses covering updates to its manuals. WSDOT develops and presents employee-training programs with curricula and materials tailored to specific topics and personnel levels. WSDOT evaluates and refines these programs periodically to ensure the educational messages remain current and effective.

WSDOT's education and training activities reach beyond in-house personnel and include attendees from the private sector as well as other state and local agencies. A main goal of WSDOT's stormwater-related training supports the effective implementation of its *Highway Runoff Manual* (HRM) and BMP's related to maintenance activities to protect environmental quality. Other sections of this SWMP plan provide more detailed information on WSDOT's various training programs.

8.2 Public Involvement in Permit/Program Development

8.2.1 Transportation Projects

WSDOT regularly holds public meetings and hearings for specific transportation projects. Combined with project-specific advisory groups and open houses, these meetings provide the public opportunities for early, continuous, and meaningful involvement in projects in their local area. The public also has an opportunity to review environmental impact statements or environmental assessments that are developed for projects, which include water quality discipline reports that describe alternatives for stormwater management.

8.3 Education/Outreach/Involvement Program Evaluation

Table 8-1 summarizes key activities identified in the SWMP along with applicable performance indicators for this program section.

Table 8-1: Key Activities and Performance Indicators Associated with the Education/Outreach/Involvement Program

| Key Activity | Performance Indicator |
|----------------|-----------------------|
| Implementation | |

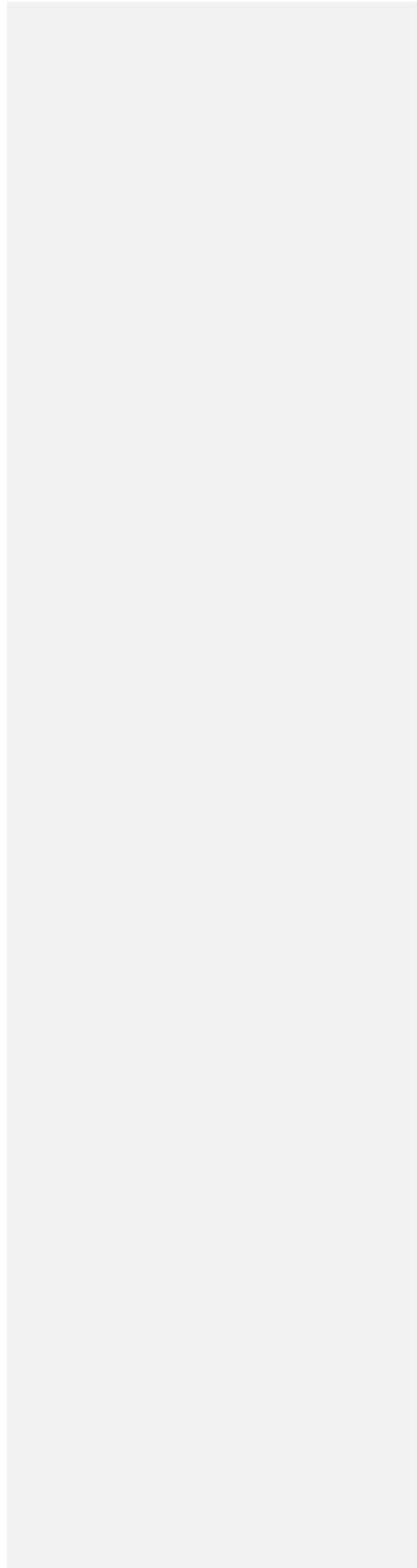
| | |
|--|--|
| Provide public involvement opportunities in support of WSDOT's source control objectives. | Provide support for public involvement programs such as <i>Adopt-a-Highway</i> , <i>Commute Trip Reduction</i> , and roadside anti-litter campaigns. |
| Continue to provide stormwater management-related training. | Training-related indicators included in <i>Sections 3, 4, 5, and 7</i> . |
| Maintain WSDOT's internet sites to disseminate information regarding implementation of WSDOT's SWMP. | Post most recent version of WSDOT's municipal NPDES annual progress report. |
| Continue to support knowledge and technology transfer related to stormwater management | Make newly published stormwater-related research reports available for downloading for a 2-year period. |

Comment [LS151]: We suggest using this reference for consistency throughout the permit and SWMPP.

Appendix 2. Table of Performance Indicators of the WSDOT NPDES Municipal Stormwater Permit incorporates these key activities and performance indicators as reporting elements for the permit.

APPENDIX 6: PERMIT APPLICATION

At least 180 days prior to the expiration date of this permit, WSDOT shall apply for permit renewal. The following form is provided for use at permit renewal.





**Notice Of Intent (NOI) For Coverage Under a Washington State
Department Of Transportation National Pollutant Discharge
Elimination System And State Waste Discharge Municipal
Stormwater General Permit**

| | | |
|----------------------------|--|---|
| Permit Number: WAR 043000A | <input type="checkbox"/> New Application | <input checked="" type="checkbox"/> Renewal Application |
|----------------------------|--|---|

1. MS4 Operator

Washington State Department of Transportation Headquarters Office
 Street Address: 310 Maple Park Avenue S.E.
 City, State, Zip: Olympia, WA 98504

2. Staff contact (person responsible for program implementation and coordination):

Name: _____ Phone: _____

Title: _____ E-mail: _____

Are there regional WSDOT staff contacts? If yes, please list names and contact information. Yes / No

| Name | Region | Title | Phone | Email |
|------|--------|-------|-------|-------|
| | | | | |

| 3 Description of Storm Sewer System | |
|--|--|
| A. Areas served by your MS4. (Update where information is available within coverage area) | |
| Miles of State Highway | |
| Number of Maintenance Facilities* | |
| Number of Ferry Terminals | |
| Number of Rest Areas* | |
| Number of Weigh Stations | |
| Number of Park and Ride Lots | |

Comment [LS152]: Not applicable since these facilities are non-WSDOT facilities owned by Washington State Patrol.

| | | | |
|--|--|----------------------------|-----------------|
| * Only facilities with municipal separate storm sewer systems (MS4) | | | |
| B. Storm Drainage Infrastructure (Update where information is available within coverage area) | | | |
| Please provide estimates, using the most accurate information available at this time, for the following storm drainage infrastructure features owned or operated by WSDOT. | | | |
| Conveyance system: | | Comments | |
| Open ditches (miles or feet) | | | |
| Storm sewers (miles or feet) | | | |
| Outfalls (estimate number) | | | |
| Catch basins (estimate number) | | | |
| Flow Control system Facilities: | | Regional Facilities | Comments |
| Detention and Retention facilities (Estimate number operated by MS4) | | | |
| Others | | | |
| Treatment Facilities: | | Regional Facilities | Comments |
| Estimate number operated by MS4. | | | |
| Combined Treatment and Flow Control Facilities: | | Region Facilities | Comments |
| Estimate number operated by MS4 | | | |
| 4. Map Requirements: | | | |

- Formatted:** No underline
- Comment [LS153]:** We feel this suggested wording better reflects the nature of the information request that follows.
- Comment [LS154]:** With suggested edits above, this no longer would be necessary.
- Formatted:** No underline
- Comment [LS155]:** Suggested revisions reflect adjustments made to recent WSDOT permit reissuance submittal.
- Formatted:** Font: Bold, Not Superscript/ Subscript
- Formatted:** Font: 12 pt
- Comment [LS156]:** Ibid.

Include maps of each WSDOT Region that identify:

- State right-of-ways
 - AADT – <10K
 - 10 – 50K
 - 50 – 100K
 - >100K
- Rest Areas
- ~~Weigh Stations (Not applicable. Washington State Patrol designs, builds, and owns these facilities)~~
- Ferry Terminals
- Maintenance Facilities
- Park and Ride Lots
- 303(d)-listed Receiving W water bodies that receive stormwater from WSDOT outfalls
- ~~303(d) listings (Shown on the “Inventoried Stormwater Outfall” map)~~
- Counties
- Phase I & II municipalities (as of August 2013 the most recently issued permits, where available)
- Urbanized area
- Indian Reservations

Include a map (or maps) showing areas of the state where WSDOT has mapped outfalls. The intent is to show the extent of outfall mapping, and where mapping is needed.

Please assure that information is clearly readable. Submit GIS maps if available, in 300dpi .jpg format. Use print formatting when exporting to adobe acrobat. Maps must be of the same page size.

Comment [LS157]: Given that this is not applicable, this bullet does not appear necessary.

Formatted: Numbered + Level: 1 + Numbering Style: Bullet + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5", Tab stops: 0.5", Left

Formatted: Tab stops: 1", Left

Comment [LS158]: As WSDOT discussed with Ecology during the recent reissuance application process, this aspect does not add to the understanding for permit coverage areas particular since Ecology establishes the geographic scope of the Phase 1 and 2 municipal permits.

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Comment [LS159]: Since WSDOT's existing permit requires us to completed this mapping by the end of the permit term, would Ecology still need this information other than than for the puposes of showing where we have outfalls to 303(d)-list water bodies as requested in the bulleted list above?

5. Certification :

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations

Print or type name of responsible official or representative **Title**

/ /

Signature of responsible official or representative **Date**

The permit's definition for "stormwater" deviates from the definition of "stormwater," found at 40 CFR 122.26(b)(13):

Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

However, unlike the definition appearing in CFR referenced above, the permit's definition includes the term "interflow". We understand "interflow" is contained the in the definition of "stormwater" appearing in WAC 173-201A-020. However, the inclusion of "interflow" in the definition becomes problematic for permittees in that it is extremely difficult, if not impossible, to discern the source of interflow. For example, interflow may emerge from sources other than rainfall such as groundwater, adjacent surface waters, and non-stormwater discharges (surface and/or subsurface).

While we are aware of Ecology's reluctance to drop the "interflow" reference in this permit definition given its mention in the WAC, we would welcome the opportunity to work collaboratively with Ecology and other permittees to amend the WAC in such a way that distinguishes stormwater versus non-stormwater inputs to interflow so as to accurately characterize the nature of the permittee's responsibility.

Status and Trends Monitoring Proposal Option #4

1. RESEARCH PURPOSE STATEMENT

To determine the baseline and monitor the trends of copper, lead, mercury, cadmium, asbestos and hexavalent chromium concentrations in Washington State Department of Transportation (WSDOT) wet pond sediments in the aftermath of the *2010 Better Brakes Law* initiating planned reductions and/or phase outs of these constituents in vehicle brake pads.

2. RESEARCH PROBLEM DESCRIPTION

In 2010, Washington State passed a law (i.e., *2010 Better Brakes Law*) reducing the use of toxic materials in vehicle brake pads and shoes. This law restricts the use of asbestos, hexavalent chromium, mercury, cadmium, and lead beginning in 2015, and provides for a phase out of copper over the next 15 to 20 years.

As brake pads wear down, these pollutants or constituents of concern (COC) may find their way onto roadways and nearby land surfaces where they can enter municipal stormwater sewer systems and discharge into receiving waters. Some of these COCs may also find their way into receiving waters through atmospheric deposition.

Monitoring the status and trends of COCs in roadway and highway runoff is important in assessing the long-term trends of this policy's effectiveness in reducing the COC.

3. RESEARCH OBJECTIVES

- 1) Assess the efficacy of the 2010 Better Brakes Law as its elements get phased in over time;
- 2) Determine if additional steps need to be taken to reduce COC from vehicle brake pads and shoes in highway runoff ; and
- 3) Determine the persistence of COCs in the environment after removal of continuous source loading.

Findings from this research are expected to be utilized by the State Legislature, the Washington State Department of Ecology, brake and vehicle manufacturers, environmental advocacy organizations, WSDOT, and other interested stakeholders in evaluating and/or refining strategies to reduce COC loads into receiving waters from brake pads and shoes.

4. LITERATURE SEARCH AND RESEARCH IN PROGRESS SYNOPSIS

Numerous studies show that measurable and ecologically significant amounts of COCs can deposit in receiving water sediments through runoff and atmospheric deposition. Research on COC deposition often involves collecting sediment core samples. In addition to providing measurements of COC concentrations, sediment core samples provide a timeline of COC deposition occurring in water bodies over time. Historically, the phasing out of leaded gasoline in the 1970s correlated with significant reductions of lead concentrations in receiving water sediments. If the phasing out of COCs in brake pads and shoes proves successful in reducing COC inputs into the environment, then similar to lead, we would expect to see over time the reduction of COC measurements in stormwater wet pond sediments (and in turn receiving waters) in correlation with implementation of the *2010 Better Brakes Law*.

Previous studies that examined COCs in receiving water sediments include:

Bennett, J. and J. Cabbage. 1992. Copper in sediments from Steilacoom Lake, Pierce County, Washington. Washington State Dept. of Ecology WA-12-9080: 37 pgs.

Bloom, N.S. and E.A. Crecelius, 1987. Distribution of Silver, Mercury, Lead, Copper and Cadmium in Central Puget Sound Sediments. Marine Chemistry Vol.21:377-390.

Serdar, D., Johnson, A., Davis, D. Jan. 18, 2004. Survey of chemical contaminants in ten Washington lakes. Electronic internet document available at: <http://www.ecy.wa.gov/pubs/94154.pdf>.

Van Metre, P.C., Wilson, J.T., Fuller, C.C., Callender, Edward, and Mahler, B.J., 2004, Collection, analysis, and agedating of sediment cores from 56 U.S. lakes and reservoirs sampled by the U.S. Geological Survey, 1992–2001: U.S. Geological Survey Scientific Investigations Report 2004–5184, 180 p.

Yake, B. 2001. The Use of Sediment Cores to Track Persistent Pollutants in Washington State: A Review. Publication No. 01-03-001 Environmental Assessment Program Olympia, Washington 98504-7710 electronic internet document available at: <https://fortress.wa.gov/ecy/publications/publications/0103001.pdf>

Researchers at the University of Washington Tacoma (UWT) are currently studying metals deposition in receiving water sediments. WSDOT has contacted UWT staff regarding possible research collaboration opportunities related to this proposal.

5. Conceptual Research Approach

Collect annual sediment samples from WSDOT highway runoff wet ponds and submit these samples for COC analysis. The initial sediment sample will involve taking a core sample following established pond/lake sediment sample collection practices. The core samples will determine baseline COC concentrations (i.e., current status) as well as track the history of COC deposition in the pond (i.e., past trends). Subsequent sediment samples collected will involve an in-bed sediment trap located on the bottom of the wet pond to collect sediment deposition from the water column over the course of the year. Collecting sediment in this fashion provides a clearer measurement of annual sediment inputs, and hence COC inputs, than annual core sampling. Sediment samples will be submitted for laboratory analysis.

Conducting this project will entail:

- Site evaluation procedures for determining the wet pond representativeness, thus guarding against outliers;
- Setting up appropriate traffic control and procedures necessary for worksite safety;
- Coordination of sediment sample analysis with an accredited laboratory;
- Data submittal and proper Quality Assurance/Quality Control procedures; and
- Timely submittal of reports detailing the project's findings.

WSDOTs Comments Regarding the Proposed 2014 Highway Runoff Manual and TESC Manual (formally Chapter 6)

| Number | Page # | Section # | Comment | Proposed Resolution |
|-----------|--------|-------------|---|--|
| | 2-2 | 2-1.2.1 | Since we hope to have the Stormwater Features data inventory up and running by then it should be in the list. | Add stormwater features database/GIS to data sources |
| | 2-3 | 2-1.2.1 | Infiltration rates should be a general or anticipated rate based on either soil surveys or ???. Typically No geotechnical done at this time. Although this is addressed further in section 2-1.2.2 | Preliminary Infiltration Rates (see section 2-1.2.2 below) |
| | 2-10 | 2-4.1.2 | Should we address treatment facilities within floodplains such as filterstrips, dispersion or bio-filtrationswales. All could be located within certain areas of the floodplain depending on Velocities and flow depth. Also conveyance of 100 year flood is an issue besides storage. | Some treatment facilities such as filterstrips, dispersion areas or bio-filtration swales may be located within some parts of a floodplain. Contact regional or HQ hydraulics for guidance. |
| | 2-15 | 2-4.8 | Should some of the verbiage in footnote 4 be added to the language in Step 2 such as was added in Step 1. | The design team also consults with Region and HQ to provide the alternative design and shows how it achieves the intent of the HRM policy or guidance. Added language to #2. Consult with the Region Hydraulics Office and the Headquarters Hydraulics office for assistance on possible alternative designs. |
| | 2A-1 | Opening PPs | In bulleted section describing the three parts add a phrase recommending consultation with Regional Hydraulics and HQ HRM to first two bullets. | I consultation with Regional hydraulics and HQ HRM team use the EFF...Added language prior to bulleted list: Consult with the Region Hydraulics Engineer and the Headquarters Hydraulics Unit prior to starting the EEF process for additional guidance regarding scope and documentation. |
| | 2A-2 | 2A-2 | Process not Checklist | Change title to ...Process |
| | 2A-2.1 | 2A-3 | After title and above list of "site data" add a sentence that says. | Depending on complexity of the project and or site some of the data listed below may not be required. Added language: Depending on the complexity of the project or site conditions, some of the data listed below may not be required. Consult with the Region Hydraulics Engineer to determine applicable items. |
| | 2A-4 | 2A-2.2 | And infrastructure or something else to utility lines. On the NSC project we had to avoid a major switching building | ...or major utility lines/infrastructure. Added "infrastructure" |
| | 2A-5 | 2A-2.5 | #1 should include mobilizing Haz mat also. | Add phase to end of sentence in () infiltration of stormwater may mobilize or accentuate the migration of hazardous material located below the facility even if soils at the surface or near the surface are clean or removed. |
| | 2A-5 | 2A-2.5 | #4 just because there is a 100 year flood plain does not mean that some type stormwater facilities can not be used. Should not be a blanket out. | Added a sentence: (Determine if it is feasible to install stormwater control facilities within the flood plain.) |
| Chapter 3 | | | | |
| | 3-3 | 3-2.2 | Paving projects over BST are still subject to Min Req. 2. | Move first Bullet to list subject to MR 2. Delete last sentence in first pp. Added a footnote to state that the MR2 exemption applies to maintenance projects only. |
| | 3-4 | Fig 3-1 | IN yes box for step 3 add (WW only) behind TDA | Delineate Threshold Discharge Areas (TDA) for the project (Western Washington only). |
| | 3-8 | 3-3.1.3 | Should directions for instructions in first sentence direct users to the TESC manual not chapter 6? | |
| | 3-12 | 3-3.5.2 | second square bullet under first bullet. We should again say this is only applicable to WSDOT facilities | |
| | 3-12 | 3-3.5.2 | In the UIC bullet it may be more correct to say that Vadose Zone treatment may meet treatment rather than they are exempt from treatment. | Will propose to change paragraph to read "... (UIC) facilities may be exempt from not require basic runoff treatment requirements if the..." |
| | 3-13 | 3-3.5.4 | Add that preferred philosophy is LID in first pp. below number 3 | ...where feasible, through the dispersal and infiltration of runoff (Low Impact Development (LID) practices. added: "using low impact development (LID) practices" after runoff |
| | 3-17 | Table 3-4 | Remove reference to TDA. Proposed recommendation is for all facility types. Just different event. And as a matter of clarification the reference to TDA in ww is not correct either because many times there are more then one facility in a TDA so the "criteria for sizing" applicable to the facility (BMP) not the TDA. | Size facility using the runoff volume predicted for the 6-month, long-duration" storm event under post developed conditions. added "or facilities" to WW guidance. |
| | 3-18 | 3-3.6.2 | In the flow splitting discussion qualify the required use of "continuous hydrologic modeling" to WW. | Added "western Washington only" after analysis |
| | 3-20 | 3-3.6.3 | Net new applies to project level in EW. | Application of the "net-new impervious surface" concept only applies to Minimum Requirement 6 at the TDA level in Western Washington (Figure 3-3, Step 8). added, " in western Washington and at the project level in eastern Washington" |

| | | | | |
|-----------|------|-----------|---|--|
| | 3-24 | 3-3.6.4 | Add dispersion to preferred method statement | Infiltration or dispersion is the preferred method to control flow. If infiltration or dispersion cannot... Added dispersion. |
| | 3-25 | 3-3.6.4 | first pp. at and add | Added, The Region Hydraulics and Environmental offices will also coordinate with the appropriate state, local, tribal, and federal agencies to ensure adequate protection of all natural resources and obtain required permits. |
| | 3-27 | Table 3-7 | Reverse the order (infiltration before detention) to reinforce emphasis on infiltration. Put that row first. and change infiltration criteria to emphasize infiltrating all the water | Added Infiltrate the entire runoff volume. Or size facility to infiltrate sufficient runoff volumes that the overflow does not exceed the 25-year peak flow requirement. Check the 100-year peak flow to estimate the potential for downstream property damage. |
| | 3-27 | 3-3.6.4 | change bulleted items to reflect change above in reference to row #. Also there is a unneeded "and" at the beginning of line 2 of the first bullet. | Changed to read: If the 2-year post developed outflow volume discharged to a surface water is less than or equal to the 2-year predeveloped outflow volume, then the post developed 2-year flow rate must be less than or equal to the 2-year predeveloped flow rates. The flows for the 25- and 100-year events must meet the criteria in Table 3-7, row 2. |
| | 3-29 | 3-3.8.3 | Should we add fed and state to first bullet? Just to make sure all is all? I thought they had to be approved by EPA and DOE before they were a requirement. At least if it is a TMDL. | I checked with the SWMMWW and changed our language to more closely match it. So I added, ", comply with state and federal statutes, and be approved by the regulatory agencies responsible for implementing those statutes" and deleted "with implementation responsibilities under the plan." |
| | 3-31 | 3-4 | add cost effective to # 1 | Where WSDOT can cost effectively retrofit existing impervious surfaces. |
| Chapter 4 | | | | |
| | 4-3 | 4-2.4 | Add stormwater features database/GIS. | Added reference to database and workbench |
| | 4-3 | 4-2.5 | Add note that TDA are for WW only but basin delineation is applicable to both WW and EW. | In Western Washington the final part of determining the site's hydrologic characteristics is mapping the threshold discharge areas (TDAs). In Eastern Washington generally the basin delineation process below is sufficient. |
| | 4-4 | Fig4-2a | Can we move A1 and A3 into the appropriate area. To be consistent with the rest of the figures | Moved A1 and A3 |
| | 4-6 | 4.2-5 | Add language to clarify the use of TDAs in eastern Washington | Changed to read: For eastern Washington regions, with the approval of the WSDOT hydraulics office contact, the project may be considered as one TDA in certain instances based on site conditions. |
| | 4-6 | 4-2.6 | Seems like the discussion for outfalls should be elsewhere not here. This is preliminary work and no final outfall locations have been established yet. And why are we providing outfall locations to local agencies?? Need specific direction on when or why this is required. | Delete paragraph on outfalls and add to chapter 2. |
| | 4-21 | 4-4 | Remove reference to TDA (typical all but for now in third sentence of first pp. | Changed to read: The input required for a single-event hydrograph method includes pervious and impervious areas; times of concentration; pervious and impervious curve numbers; design storm precipitation; and a design storm hyetograph. |
| | 4-22 | 4-4.2 | Add "to surface waters" to last sentence | Changed to read: Stormwater discharges to surface waters must match developed peak flows... |
| | 4-22 | 4-4.5 | We list steps for detention and flow based but not infiltration facilities which are the most common in EW. | Changed number 1 on page 4-22 to "(1) design retention/detention/infiltration flow control facilities". The example list in Appendix 4D will also lead the designer to infiltration pond design. We also need to update all Stormshed and MGSFlood examples since the Chapter 4 references don't match now. |
| | 4-23 | 4-4.5#1 | Add GIS system to determine rainfall depth | Chaged to read: Determine rainfall depths for the site (see Appendix 4A) or use WSDOT GIS system. |
| | 4-23 | 4-4.5#3 | Even if TDAs are required in EW this is confusing. One TDAs are based on predeveloped drainage patterns. Also as a general comment we do not design BMPs for a TDA we design BMPs for a contributing basin (both WW and EW). A TDA may have more than 1 BMP in it. | Change bullet #3 to read: Determine predeveloped and postdeveloped pervious and impervious area (in acres) contributing to the BMP (see Section 4-2.5 for more details). |
| | 4-23 | 4-4.5#7 | Again we do not design for a TDA we design for a BMP. | Changed bullet #7 to read: For each BMP, input the data obtained above into the computer model for each predeveloped and postdeveloped storm event. |
| | 4-24 | 4-4.5#10 | We should have a link like in other steps to where the exemptions are. Although I do not think there is an exemption for any increase since we should have already looked to see if receiving water is exempt | Delete the 2nd sentence starting with, "Compare the increases..." Exemptions would have been found earlier in the design process. |

| | | | | |
|--|------|----------|--|---|
| | 4-24 | 4-4.5#11 | Which design storm? Pre, post or difference between the two? | These are post developed volumes. Revise bullet 11 to say, "post developed" |
| | 4-25 | #6 | Again we do not design for a TDA we design for a BMP. | Deleted "TDA" from bullet #6. |
| | 4-26 | 4-4.7 | Short duration storms do not always generate highest peak flows. Although for BMP design for small impervious basins in is true. Change text to reflect. | Changed text to read: The short-duration storm generally generates the greatest peak discharges from small impervious basins and should be used to design flow-based BMPs. |
| | 4-26 | 4-4.7 | 4 regions in EW not statewide | Changed text to read: When using the long-duration storm, it should be noted that Eastern Washington has been divided into the following four climatic regions: |
| | 4-29 | 4-5 | Not sure all "vaults" are surface BMPs depends on size also infiltration trenches with pipe even if just collecting sheet flow are UICs (I think). Also last sentence is misleading suggest changing to: | Changed text to read: As a result, subsurface infiltration BMPs are known as underground injection facilities and designed dependent on the treatment capacity of the subsurface soil conditions or have treatment BMPs pretreat the stormwater prior to injection. OR something like that. |
| | 4-30 | SSC-2 | IF bio-infiltration soil depth is 6" per SSC-7 and sidewall should only be 6" also. | Changed text to read: ...or with the same depth of treatment soil as on the bottom of the pond, to prevent seepage... |
| | 4-31 | SSC-6 | In the DOE EW manual drawdown time is only applied to the Water Quality design event. | Changed to limit draw down time for eastern WA to runoff treatment facilities. |
| | 4-32 | SSC-7 | The reference to "local jurisdiction" should be removed from the last bullet and we should define for ourselves what the acceptable Field performance criteria is or better define the testing procedure for engineered soils. | Changed text to read: Engineered soils may be used to meet the design criteria in this chapter and the runoff treatment targets in Table 3-1. (See Soil Amendments in Chapter 5.) |
| | 4-34 | Fig 4-12 | SSC 1 Says consider additional setbacks for deicers. It does not mandate them. | Remove box that says site not suitable after NO. Also change 20 foot to 5 feet in setback from property line after first No (last row) Changed flow chart to reflect comment. |
| | 4-36 | Fig 4-14 | Change 2.4 in/hr. to 9 in/hr. and the whole process is confusing. Should add a box in the now direction below "do soil characteristics meet SSC 7" to ask if soils can be amended or soil added to meet SSC7 and if yes then ok for treatment. | Revised flow chart per comment |
| | 4-37 | Fig 4-15 | again 6" depth ok for "bio-infiltration" per SSC 7 text. | Revise per flow chart per comment to be consistent with SSC 7 |
| | 4-38 | 4-5.2 | After first sentence of second PP add link to where the LID requirement is in Chapt 3. | The following criteria describe conditions that make LID BMPs infeasible to meet the LID requirement. Add hyper link here. Added text, "infeasible to meet the LID requirement per the BMP selection process in Chapter 5-3". |
| | 4-38 | 4-5.2 | Third bullet change TDA to "area". | Changed text to read: Are there houses or buildings in the project area that may have basements that might be threatened by infiltrating stormwater from the area. |
| | 4-40 | 4-5.2 | Does the 2nd to the last bullet violate SSC 4 if one is using a infiltration facility such as a pond as an LID BMP? | The bullet referred to states, " A minimum vertical separation of 1 foot is required between the seasonal high water table, bedrock, or other impervious layer to the bottom of the LID BMP that would serve a drainage area that is: (1) less than 5,000 sq. ft. of pollution-generating impervious surface, and (2) less than 10,000 sq. ft. of impervious surface, and (3) less than ¼ acres of pervious surface. Are there any problems achieving this separation?" and SSC 4 states that the minimum separation is 3 feet. The Ecology criteria is for site design where the drainage areas are likely to be below 5000 sf; however, in a highway setting this is rarely the case. Delete the last two bullets in 4-5.2 and rely on SSC 4 for this infeasibility criteria. |
| | 4-40 | 4-5.3.1 | What following equations change to process in App 4 D | Changed text to read: In those cases where the Ksat is not provided, the designer can use the gradation information from the geotechnical investigation and the process in Appendix 4-D to compute the Ksat value. |
| | 4-41 | 4-5.3.1 | Add Bio-infiltration ponds (BMP IN.01) to the list | Changed per suggestion |
| | 4-41 | 4-5.4 | Under the detailed approach add Ksat to the list of things the designer considers. | Changed text to read": A detailed analysis that allows the designer to consider the Ksat of the underlying soil; the type of hydrograph used (continuous or single-event); the depth to the groundwater table; the site-specific hydraulic gradient for the facility; and the facility geometry. |

| | | | | |
|----------------------------------|--------|--------------|--|---|
| | 4-41 | 4-5.4 | I still think there is a lot of confusions/contradictions about this between SSC 7 the section in chapter 5 on soil amendments and the section is chapter 5 on treatment liners. I think we need more clarification on "Engineered Soils" but not smart enough to figure it out myself. But think we should change the name of number 3 to refer to "Engineered Soils" not soil amendments because we are concerned with the properties of the resulting soil mixture not just the amendment | Change 4-5.3 #3 to Determining Infiltration Rates for Soil Amendmnet BMPs to match appendix 4D |
| | Apr-41 | 4-5.4 | What about the approved Bio-retention soil do we have to test it or can we use with a infiltration rate of 9? | The infiltration rate should be based on the contact time with the soil. Based on the WSU paper on bioretention soils, a 18" thick layer of treatment soil with a maximum infiltration rate of 12" per hour results in a 1.5 hour contact time. Reducing the maximum infiltration rate to 9" per hour and retaining the 18" of soil results in a contact time of 2 hours. Therefore we propose to change SSC 5 to state that a maximum infiltration rate of 9" per hour is allowable with adequete treatment soils that meet SSC 7. The BMP would be designed using the long term infiltration rate as determined by either the Detailed or the Simplified approach. |
| Chapter 5 | | | | |
| | 118 | BMP RT.08 | Effective life is identified as 5 - 20 years, but a table in the beginning of this chapter identified effective life as 5-12 years. | Change Table 5.3.1 to 5-20 years since the PS LID manual says the soils should last for at least 20 years. |
| | 222 | IN.06 | Since the 303d listed table identifies this BMP to treat phosphorus, then the BMP function table should reflect the same | Change the BMP cover sheet to be consistent |
| TESC Manual (formerly Chapter 6) | | | | |
| 1 | iii | Foreword | The foreword needs to be updated | <p>It should be updated to say:The Temporary Erosion and Sediment Control Manual (TESCM) replaces Chapter 6 of the Washington State Department of Transportation (WSDOT) Highway Runoff Manual. It outlines WSDOT's policies for meeting the NPDES Construction Stormwater General Permit requirements and the requirements in Volume II of the Stormwater Management Manuals published by the Washington State Department of Ecology.</p> <p>The TESCM is intended for use during the design, permitting, and construction phases of transportation construction projects. It covers:</p> <ul style="list-style-type: none"> <input type="checkbox"/> TESC plan design and implementation <input type="checkbox"/> TESC BMP application and installation <input type="checkbox"/> SPCC plans <input type="checkbox"/> Discharge sampling and reporting <input type="checkbox"/> Site management and documentation <input type="checkbox"/> Compliance related issues <p>For further information, contact the Erosion Control section of WSDOT's Environmental Services Office, Stormwater and Watersheds program: <input type="checkbox"/> http://www.wsdot.wa.gov/environment/waterquality/erosioncontrol.htm</p> |
| 2 | V | Contents | bookmark error at 2-1.1.10 needs to be fixed | Fix bookmark |
| 3 | 1 | Introduction | Change "methods" to "BMPs on erodible soils" in second to last paragraph. | change wording |
| 4 | 1 | Introduction | Change "minimize" to "dissipate" in last paragraph | change wording |
| 5 | 1 | Introduction | Change "minimize" to "manage" in last paragraph | change wording |
| 6 | 2 | Introduction | Third paragraph change "erosion-related impacts are" to "Construction site stormwater runoff is" | change wording |
| 7 | 2 | Introduction | Add some regulatory detail | After the second sentence in the third paragraph add the following sentences "As defined in Chapter 90.48 RCW, Ecology has been delegated the authority to administer the NPDES permit program in Washington State. In addition, many local governments within Washington State have established their own additional permits. Permittees should check with local jurisdictions about additional requirements related to construction stormwater." |

| | | | | |
|----|---------|--------------|--|--|
| 8 | 2 | Introduction | Fifth paragraph - how these thresholds are to be used is confusing (they don't seem to actually trigger anything because, per the last sentence in Appendix 1, Section 4 of the phase 1 permit, an abbreviated SWPPP is required for all projects less than an acre). As written, this paragraph would be less confusing if the threshold values were removed and the planning requirements were simply clarified for projects not covered by a CSWGP. | rewrite paragraph fifth paragraph to say "A TESC plan must be prepared if the construction project is covered by a CSWGP, or if one is required by Ecology or a local permitting authority. Projects that disturb soil but are not covered by a CSWGP must develop an abbreviated TESC plan. An abbreviated TESC plan must include all TESC planning elements that pertain to the project and the BMPs that will be used to control sources of pollution and maintain compliance with the water quality standards for surface waters as defined in the Washington Administrative Code (WAC) 173-201A." |
| 9 | 3 | 1-1.1 | Add sentence to the first bullet to clarify requirement - "The disturbed area of the entire common plan must be used in determining permit requirements." | add sentence |
| 10 | 3 | 1-1.1 | Change wording of second bullet to say, "Projects that are deemed by Ecology to be a significant contributor of pollutants or that Ecology reasonably expects to cause a violation of any water quality standards must also apply for coverage." | change wording |
| 11 | 3 | 1-1.1 | Third paragraph, second sentence, add the word "exception" before the word "defined". | add word |
| 12 | 3 | 1-1.1 | The Erosion Control program wants to be aware of all NOI submitted. | Last sentence on page, delete "to Ecology" |
| 13 | 4 | 2-1 | The first paragraph after the bullets could be improved. | Move the first sentence to the end of the following paragraph. Replace it with two sentences that says, "This section provides guidelines for creating a TESC plan narrative. A TESC plan narrative template and checklist are available on the Erosion Control program sharepoint." |
| 14 | 4 | 2-1 | Add another bullet to list for "On-site CESCL contact information" | add another bullet to the TESC plan narrative requirements list. |
| 15 | 4 | 2-1 | Split the first check mark bullet into separate bullets. | First check bullet should say "A project description and overview that includes information about the nature and purpose of the projects, total area, disturbed acreage, and location." Second check bullet should say, "Information about existing site conditions and factors that affect erodibility (e.g., topography, precipitation, drainage, soil type, etc.; refer to Section 2-1.1)." |
| 16 | 6 | 2-1.1.1 | Add some detail to the soil type paragraphs | The first sentence in the soil type section should read, "The proportion and arrangement of sand, silt, clay, and organic matter determines soil texture." |
| 17 | 6 | 2-1.1.1 | Add some detail to the soil type paragraphs | After the word "characteristics" in the second paragraph and some examples in parenthesis "(e.g., texture, particle size, organic matter, and permeability)." |
| 18 | 6 | 2-1.1.1 | Add some detail to the soil type paragraphs | Change the word "texture" in the third paragraph to "characteristics". |
| 19 | 10 | 2-1.1.7 | Second paragraph, add a sentence after the first sentence. | new sentence should read: Known pre-existing site contamination should be identified in the TESC plan narrative and relevant contract documents used to manage the contaminated materials should be referenced (e.g., contract language or the SPCC plan). |
| 20 | 10 | 2-1.1.7 | second paragraph, second sentence should include groundwater | add "and groundwater" |
| 21 | 11 | 2-1.2 | Add sentence at beginning of first paragraph | add sentence, "BMPs include practices such as creating schedules, prohibitions, maintenance procedures, treatment systems, operating procedures, structural controls, and practices that control, manage and minimize impacts." |
| 22 | 12 | 2-1.2.1 | Should be clarified that 2010 CSWGP does not include 13 elements | In first paragraph after CSWGP add in parenthesis (the 2010 CSWGP only includes 12 elements) |
| 23 | 20 | 2-1.2.1 | Add another bullet to the end of the list | New bulleted item should say: "Pre-existing site contamination must be handled in accordance with the contract documents." |
| 24 | 20 | 2-1.2.1 | In "control pollutant in the TESC plan" subsection delete the word "authorized" because it is confusing. | delete word |
| 25 | 22 | 2-1.2.1 | In Element 12 first bullet add "at one time" after "a request should be submitted to open a larger" | Add wording to clarify |
| 26 | general | general | There are several mentions of durations (in days) for procedures, required responses, etc. in the manual. I didn't see where it clarifies whether it is referring to calendar or working days. | Clarify "calendar" on pp 3, 36, 39, 41, 42 |
| 27 | 27 | 3-1 | After all the bullets and before "Additional SPCC guidance..." add some language about HazMat Program services. | Add "General Special Provisions (GSPs) may be included in a contract for project specific pollution prevention requirements (e.g., removal, containment, testing, and disposal requirements for contaminated soils or underground storage tanks (USTs)." |

| | | | | |
|----|----|------------------|---|--|
| 28 | 30 | 4-1.2 | End of second paragraph needs to clarify how compliance is presumed. | Add sentences at the end of the second paragraph, "In accordance with Chapter 90.48 RCW, compliance with water quality standards is presumed, unless monitoring data or other information demonstrates otherwise, when the permittee fully complies with all CSWGP requirements." |
| 29 | 30 | 4-1.2 | awkward last sentence of first paragraph in step 1 | Change sentence to read, "However, before construction begins, permitted projects must report on the expected start date." |
| 30 | 31 | 4-1.2 | Add "personal protective equipment" to last box in first table. | Add wording |
| 31 | 32 | 4-1.2 | Add another bullet to the list. | new bullet "Do not expose equipment to extreme temperatures." |
| 32 | 38 | 4-1.3 | clarify second bullet | change "the" to "high" and then add "stormwater or authorized non-stormwater" after pH. |
| 33 | 41 | 4-1.6.5 | There appears to be a conflict in order when determining final site stabilization. In 4-1.6.4 it says "Sites have not reached final stabilization until all non-biodegradable temporary BMPs have been removed" and in 4-1.6.5 it says "Remove temporary BMPs no later than 30 days after final stabilization is achieved". | Change the first sentence in 4-1.6.5 to read "Final stabilization is achieved when construction is complete, all temporary BMPs have been removed, and the site is fully stabilized with permanent BMPs (e.g., vegetation, riprap, concrete) which work to prevent erosion." Also add the word "must" to last sentence of paragraph |
| 34 | 43 | need new section | Should include detail in Ecology's SWMM Vol II pp 2-6 regarding ESA and other applicable regulations | Add new section (4-1.6.10) called Other Applicable Regulations. The section should read, "The Endangered Species Act (ESA) is of concern for construction sites because of the potential adverse impacts to habitat. Such impacts could be determined to be a "take" under ESA. The stranding of listed species behind erosion and sediment control BMPs could also be considered a "take" under ESA. (new paragraph) Other regulatory or agency conditions and permits may require implementing BMPs to control pollutants during construction, such as: (bullets) - Total Maximum Daily Load (TMDLs) or Water Clean Up Plans. - Hydraulic Project Approval Permits. - Remediation agreements for contaminated sites (such as Model Toxics Control Act or Voluntary Cleanup Program sites). - Local permits and approvals, such as clearing and grading permits." |
| 35 | 44 | 5-1 | Improve clarity in third paragraph on how experimental BMPs can be used. | Third sentence of third paragraph should be changed to read, "Experimental BMPs must be approved by Ecology before being used and the technical basis (e.g., scientific studies, reasoning, or modeling) for using experimental practices must be documented in the on-site TESC plan or site log book." |
| 36 | 52 | Table | Edit the Compost Remark | The compost remarks should read, "A "compost blanket" is often used to protect soils at final grades until permanent vegetation is planted because it can be directly seeded or tilled into soils as an amendment. Compost applied too thickly (over 3") on slopes may slide down as it becomes heavy when it absorbs water. If slopes are composted, it is best to till in the first lift or leave the soil surface rough by cat-tracking or other means. Compost should not be applied in areas where water will sit for long periods of time because it will create a compost leachate that can elevate turbidity readings and nutrient levels. Do not use compost near wetlands or nutrient-impaired waters." |
| 37 | 88 | 5-1.1.42 | Add detail to make consistent with Ecology BMP C205 | Add detail to make consistent with Ecology BMP C205 |

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

November 6, 2013

Comment [LS1]: As a general comment, we feel that a corresponding *References* section corresponding with the citations should be included as part of the document. Without complete documentation of citations, it becomes difficult for information presented to be verified by the reader. Also, given the purpose of the document, we feel that more documentation and citations to support the information and conclusions contained in the document (e.g., *Background – The Stormwater Problem and Characterization of Stormwater* as well as, *S7.A Monitoring Objectives – Specific Parameters of Interest*) would be helpful.

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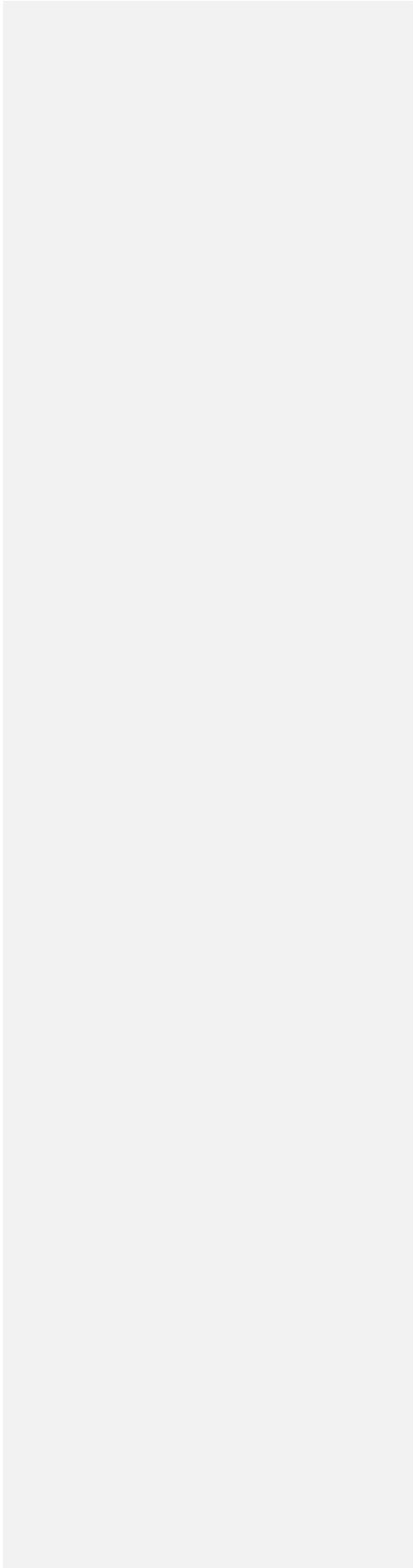


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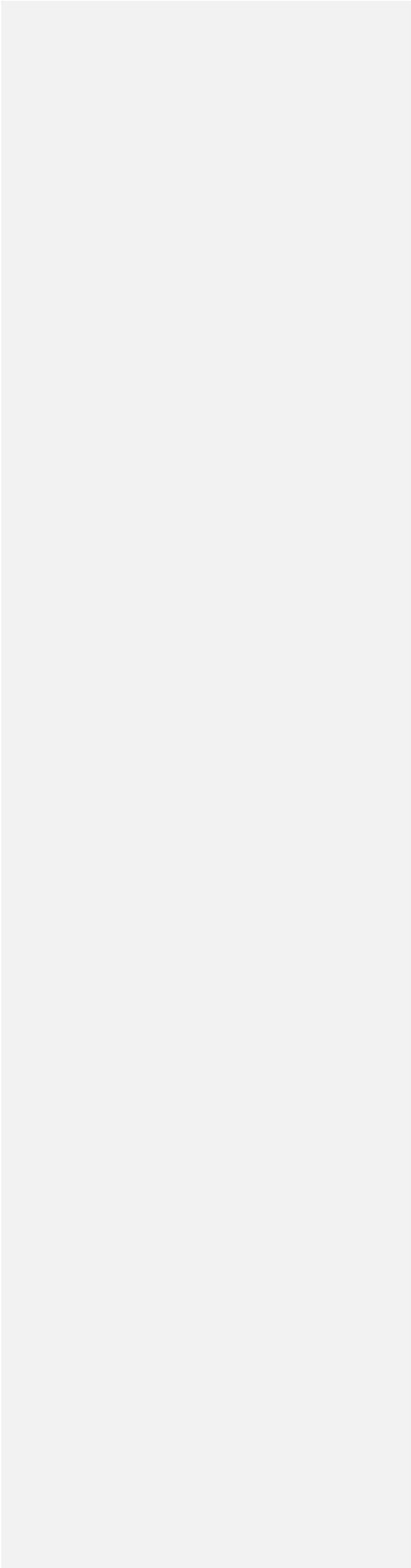
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I. INTRODUCTION

This Fact Sheet accompanies the *Draft Washington State Department of Transportation NPDES and State Waste Discharge Permit for Municipal Stormwater, November 6, 2013*. The Fact Sheet serves as the documentation of the legal, technical, and administrative decisions the Washington State 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.

The 2009 permit went through three major modifications in May 2009, May 2010, and March 2012. The expiration date for the 2009 permit is March 6, 2014.

II. PUBLIC INVOLVEMENT OPPORTUNITIES

Public Comment Period

Ecology is soliciting public comment on the Draft Permit, Fact Sheet and Appendices from November 6, 2013 until 5:00 p.m. on January 10, 2014. 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.

Comment [LS2]: For consistency with the language in the proposed permit, park and ride lots, vector decant and street sweeping facilities, and winter chemical storage facilities should be added to this sentence.

Send electronic comments to foroozan.labib@ecy.wa.gov, or written comments to:

Foroozan Labib
Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

Ecology will host a public workshop followed by a public hearing on the Draft Permit during the public comment period at:

Wednesday, January 8, 2014 at 1:30pm
Department of Ecology
300 Desmond Drive SE
Lacey, WA 98503
(360) 407-6000

The purpose of the workshop is to explain how this draft of the permit has changed from the 2012 modified permit and to answer questions. Ecology will accept formal oral testimony or comments on the Draft Permit or Fact Sheet at public hearing following the public workshop.

Ecology will issue the final permit after receiving and considering all public comments. Ecology expects to issue the final permit in March 2014 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 comments.

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 a copy of the draft permit and fact sheet at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/wsdot.html>. You may request copies of the draft permit or fact sheet from the Water Quality Program reception at (360) 407-6600.

Please direct questions about the **Draft Permit** or **Fact Sheet** to Foroozan Labib at foroozan.labib@ecy.wa.gov, or (360) 407-6439.

As part of the 2014 permit reissuance, WSDOT has updated [its](#) HRM to be equivalent to Ecology stormwater manuals. The updates include adding Low Impact Development (LID) design guidelines for WSDOT projects.

Ecology recognizes that [the](#) HRM is used by many public works departments at local governments for their road projects. Ecology agreed that WSDOT can use their LID BMP selection process as described in HRM Section 5-3.3 to meet the LID performance standard on WSDOT arterial and collector roads and highways. Local governments using [the](#) HRM for their road projects, can choose to require meeting the LID performance standard or use WSDOT's LID BMP selection process as for their arterial and collector road projects. The following WSDOT web links provide clarification on a map of the arterial and collector roads.

- WSDOT Highways, Roads, and Streets functional classifications:
<http://www.wsdot.wa.gov/mapsdata/travel/hpms/functionalclass.htm>
- Interactive functional classification map showing classification designations for the entire state, including at the local level:
<http://www.wsdot.wa.gov/MapsData/Tools/FunctionalClass/>.

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.

Comment [LS3]: Table 1 appears to be absent from the document.

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 Impervious 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.
- **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.

Comment [LS4]: It's more than just paved surfaces that influence this.

Comment [LS5]: Suggested edit to recognize the role of interflow.

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.¹ In general, the wet season's first flush rains carry the most pollutants to receiving waters, the wettest months are October through May.

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.

¹ Pitt et al 2004, *The National Stormwater Quality Database*, <http://www.cwp.org>

Table 2: Common Pollutants in Stormwater and Some Potential Sources²

| Pollutant | Potential Sources |
|---------------------------|---|
| Lead | Motor Oil, Transmission Bearings, Gasoline ³ |
| 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 and Wild 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, Sanding Operations |
| Nutrients | Sediments, Fertilizers, Domestic and Wild Animals, Septic Systems, Vegetative Matter |
| Heat | Pavement Runoff, Loss of Shading Along Streams |
| Oxygen Demanding Organics | Vegetative Matter, Petroleum Products |
| PAHs | http://www.dot.ca.gov/hq/env/stormwater/publicat/newsflash/10_02_06.pdf Motor oil, tire wear, vehicle exhaust, coal-tar based sealants |

Comment [LS6]: How about other galvanized sources?

Oregon has collected and characterized data² on the quality of stormwater discharges. The rainfall patterns and land cover characteristics in Oregon are sufficiently similar to 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.⁴ The EMC is defined as

² 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.

³ 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.

⁴ 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.

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

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

The National Stormwater Quality Database (NSQD)⁵ 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.
- 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..

⁵ Pitt et al 2004, *The National Stormwater Quality Database*, http://www.cwp.org/NPDES_research_report.pdf

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+N03 (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 |
| Ni, filtered (ug/L) | 4 | 2 | 3 | 5 | 4 | ND |
| Zn, total (ug/L) | 116 | 73 | 150 | 210 | 200 | 39 |
| Zn, filtered (ug/L) | 52 | 33 | 59 | 112 | 51 | ND |

ND = not detected, or insufficient data to present as a median value.

Table 5: Summary of Selected Organic Information

| | Methylene - chloride (ug/L) | Bis (2- ethylhexyl) phthalate (ug/L) | Di-n- butyl phthalate (ug/L) | Fluor- anthene (ug/L) | Phen- anthrene (ug/L) | Pyrene (ug/L) | Diazinon (ug/L) | 2, 4-D (ug/L) |
|-------------------------------------|--------------------------------------|---|---------------------------------------|-----------------------------|-----------------------------|------------------|--------------------|------------------|
| Number of observations | 251 | 250 | 93 | 259 | 233 | 249 | 79 | 101 |
| % of samples above detection | 36 | 30 | 16 | 19 | 13 | 14 | 22 | 35 |
| Median of detected values | 11.2 | 9.5 | 0.8 | 6 | 3.95 | 5.2 | 0.06 | 3 |
| Coefficient of variation | 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 prevent [ing](#) stormwater contamination. Source control BMPs include diverse activities [such](#) as:

- changing vehicle and equipment maintenance activities to prevent the leaking of oil or other fluids;
- design, install[ing](#), 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.

Comment [LS7]: For consistency with the language in the proposed permit, park and ride lots, vector decant and street sweeping facilities, and winter chemical storage facilities should be added to this sentence.

Recent Regional Efforts

Over time, Ecology intends to inform and improve the stormwater management programs required in the permits by evaluating regional data to better understand the sources and pathways of pollutants and target effective management approaches. In recent years, four major regional efforts briefly discussed in this section have contributed to an understanding of stormwater impacts on the beneficial uses of Washington waters:

- A Stormwater Monitoring Work Group worked for several years to develop recommendations for a comprehensive stormwater monitoring program in Puget Sound. Information on the work group is at: <http://www.ecy.wa.gov/programs/wq/psmonitoring/swworkgroup.html>
- Ecology and others issued a 2010 report, *Toxics in Surface Runoff to Puget Sound*⁶, Phase 3 of a study to estimate toxic chemical loadings from surface runoff in the Puget Sound Basin. The studies began in 2006 and included a multi-partner steering committee of federal, state, and local government agencies, consultants, and reviewers. The report and additional information are at: <http://www.ecy.wa.gov/programs/wq/pstoxics/index.html>
- Phase I cities and counties and the ports of Tacoma and Seattle conducted stormwater outfall monitoring as required by the Phase I Municipal Stormwater General Permit and submitted the preliminary data to Ecology. Information on the monitoring program is at: <http://www.ecy.wa.gov/programs/wq/stormwater/municipal/strmH2Omonitoring.html>
- A Sediment Phthalates Work Group evaluated information to better understand how phthalates are reaching Puget Sound. The work group identified data gaps and made recommendations in a 2007 report, *Sediment Phthalates Work Group: Summary of Findings and Recommendations*, prepared by the City of Tacoma, the City of Seattle, King County, EPA, and Ecology. More information is at: http://www.ecy.wa.gov/programs/tcp/smu/phthalates/phthalates_hp.htm

Stormwater Monitoring Work Group

The Stormwater Monitoring Work Group brought together many of the region's stormwater experts to review previous work and evaluate the direct and indirect effects of stormwater on the Puget Sound ecosystem, and the various pathways by which those effects are transmitted. The primary task of the Stormwater Monitoring Work Group was to develop the monitoring approach proposed in the Phase I and Western Washington Phase II draft permits for the Puget Sound region. However, in the process of coming to a consensus on monitoring from a broad range of expertise and technical backgrounds, the work group members formulated a conceptual model of the factors driving the stormwater-related impairment of water quality and habitat in our region. [Figure 1](#), below, shows the types of stressors that should be considered, the pathways by which those stressors are transmitted, and how the outcomes of our management efforts should be assessed, using a Driver-Pressure-State Impact-Response (DPSIR) conceptual model approach.⁷

⁶ Herrera Environmental Consultants, Inc. 2011. *Toxics in Surface Runoff to Puget Sound, Phase 3 Data and Load Estimates*, Washington State Department of Ecology, Olympia, WA.

⁷ Puget Sound Stormwater Work Group. 2010. *Stormwater Monitoring and Assessment Strategy for the Puget Sound Region, Volume 1: Scientific Framework*, Washington State Department of Ecology, Olympia, WA.

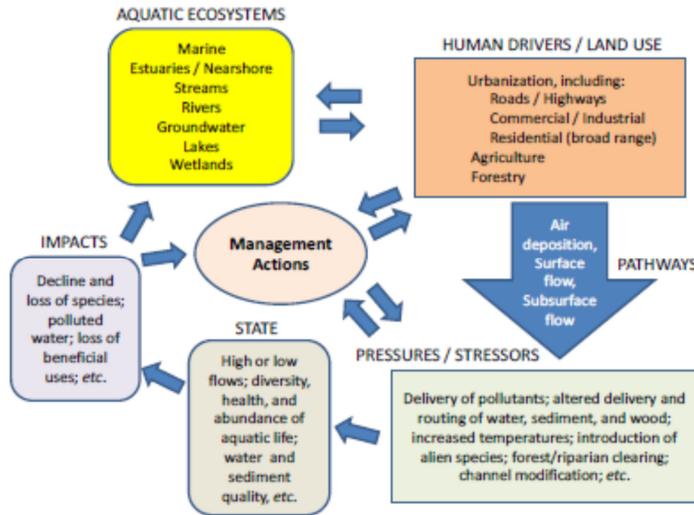


Figure 1: Stormwater Stressors and Pathways

Comment [LS8]: This figure does not make much sense to us. For example, why does it not show management actions as having direct feedback loops to *Ecosystems* or *Impacts*?

The conceptual model identifies land use as the driver for impacts to aquatic systems. Ecology is applying the DPSIR approach illustrated in this conceptual model to organize ecosystem recovery efforts and use monitoring information for adaptive management.

Toxic Loading Study for Puget Sound

As part of Phase 3 of its toxics loading study, Ecology collected water quality samples of surface runoff during eight storm or baseflow events from 16 distinct sub-basins, each representative of one of four land covers (Commercial/Industrial, Residential, Agricultural, and undeveloped Forest/Field/Other). Analyses of the samples employed much lower detection limits than typically used to produce pollutant concentration and loading data. No other study in Washington has quantified pollutant loads for so many constituents at this scale. Although this data represents surface runoff in the sampled sub-basins and is not directly representative of regulated stormwater discharges, some of the findings are generally in agreement with those from the 2005 analysis of the National Stormwater Quality Database. The pollutant loading estimates were based on data collected from small streams, where pollutant concentrations had likely been reduced by attenuation, degradation, deposition, and/or dilution. Therefore, the loading estimates might have been greater if they had been based on outfalls from stormwater conveyance systems.

The study found the following:

- Surface water runoff, particularly from commercial and industrial areas, did not meet water quality or human health criteria for the following parameters: dissolved copper, lead, and zinc; total mercury; total polychlorinated biphenyls

(PCBs); several carcinogenic polycyclicaromatic hydrocarbons (PAHs); and DDT-related compounds.

- Organic pollutants and metals were generally detected more frequently and at greater concentrations in surface runoff from commercial and industrial areas than from other land uses. Runoff from residential and agricultural land had higher frequency of detection for most parameters than runoff from undeveloped/forested land, but generally less than runoff from commercial land. Greater detection frequencies occurred during storm events than during baseflow across all land cover types.
- During storm events, surface runoff from areas of Forested and Commercial land covers were chemically distinct from each other and from the other land cover types. Forested lands produced runoff with smaller concentrations of nitrate+nitrite nitrogen, total phosphorus, and total arsenic, copper, mercury, and suspended solids. Commercial land areas produced runoff with relatively greater concentrations of total lead, zinc, PBDEs, and PCBs.
- At the local scale, pollutant loading rates via small streams were substantially greater during storm events than during baseflow. The rain-induced surface runoff during storm events caused higher streamflow rates. These higher flow rates coupled with increased pollutant concentrations to produce substantially greater loading rates for storm events than for baseflow. This result suggested that the greatest opportunity for transport of toxic chemicals occurs during storm events.

III. 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 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

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 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 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. RELATIONSHIP TO OTHER STORMWATER PERMITS

EPA stormwater regulations establish NPDES permit requirements for stormwater discharges from industrial facilities, construction sites, **small municipal storm sewer systems (Phase II)**, and the Washington State Department of Transportation.

Industrial Stormwater General Permit

The federal stormwater regulations envision a cooperative relationship between industrial stormwater permittees that discharge to municipal separate storm sewer systems (MS4s) and those municipal permittees. A wide range of industrial facilities listed at 40 CFR 122.26(b)(14) must obtain NPDES permits from Ecology to authorize discharges to surface waters or to MS4s that discharge to surface waters. In Washington State, Ecology has also issued several industry-specific permits that authorize stormwater discharges from those facilities, including the Sand and Gravel General Permit and the General Permit for Boat Building and Repair Facilities.

Under 40 CFR 122.26(d)(2)(iv)(C), Phase I municipal permittees must establish a program to address stormwater discharges from industrial facilities that the Permittees determine are contributing a substantial pollutant loading to the MS4. EPA describes this dual responsibility in the preamble to the Phase I stormwater regulations:

Comment [LS9]: Suggest including reference to the large & medium municipal storm sewer systems (i.e., Phase 1).

Although today's rule will require industrial discharges through municipal separate storm sewers to be covered by separate permit, EPA still believes the 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 stormwater through the 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. (EPA, Federal Register, Vol. 55, No. 222; November 16, 1990, p.48090).

Construction Stormwater General Permit

Under this permit, WSDOT must adopt and implement measures to prevent sediment and other pollutants associated with construction activity from impacting water quality and to comply with *NPDES Construction Stormwater General Permit (CSWGP)*. The construction stormwater permit is issued to individual construction site operators for projects of one acre or more or for projects of less than one acre that are part of a larger, common plan of development or sale. Construction site operators that are covered under and operating in compliance with the construction stormwater general permit issued by Ecology will be in compliance with the construction site runoff control requirements of the municipal stormwater permit.

Large and Medium (Phase I) Municipal Stormwater General Permits

Ecology issued the first Phase I Municipal Stormwater Permits in 1995 and most recently reissued a general permit in 2013 to cover the cities of Seattle and Tacoma, and Snohomish, King, Pierce, and Clark counties. The Phase I federal rule established the list of Phase I jurisdictions, and no new jurisdictions will be added to this list.

Phase I and Phase II permittees share basins, have interconnected conveyance systems, and discharge into many of the same water bodies. During the current (2013) permit cycle, Phase I and Phase II communities in western Washington cooperated in a number of permit programs and grant projects, and worked together through coordination groups.

Wherever possible, Ecology coordinates the requirements of the municipal stormwater permits. All permits include similar approaches to compliance with standards, TMDL implementation, and the use of a regional stormwater manual. Programs for illicit discharge detection and elimination and controlling stormwater from construction sites are also similar. In areas where conveyance systems are interconnected or discharges go to the same water body, successful implementation of stormwater management programs requires coordination between WSDOT and local jurisdictions. Ecology has established expectations in this permit for regional coordination in monitoring efforts and in

proposed requirements for watershed-based stormwater planning for western Washington Permittees.

Western and Eastern Washington Phase II Municipal Stormwater General Permits

Ecology issued the Eastern and Western Washington Phase II Municipal Stormwater General Permits at the same time as the Phase I permit to cover small municipal storm sewer systems. Small MS4s are part of EPA's NPDES regulatory program for stormwater discharges to surface waters.

Many of the Phase II Permittees in western Washington are located in counties regulated by Phase I permit. WSDOT shares basins with Phase I and Phase II permittees, have interconnected conveyance systems, and discharges into many of the same water bodies. In areas where conveyance systems are interconnected or discharges go to the same water body, successful implementation of stormwater management programs requires coordination between WSDOT and local jurisdictions. Ecology has established expectations in this permit for coordination with local jurisdictions in implementing the various elements of its stormwater management program plan.

V. ANTIDegradation

Background

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 purpose of the antidegradation program is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

The federally mandated program establishes three tiers of protection for water quality. Tier I ensures the maintenance and protection of existing and designated uses. Tier I applies to all waters and all sources of pollution. Tier II prevents the degradation of waters that are of a higher quality than the criteria assigned, except where such lowering of water quality is shown to be necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

This permit addresses antidegradation of Tier I, Tier II and Tier III waters.

Formal Adaptive Process to Comply with WAC 173-201A-320(6)

Washington's Tier II requirements for general permits are outlined in WAC 173-201a-320(6):

- a) *Individual activities covered under these general permits or programs will not require a Tier II analysis.*
- b) *The department will describe in writing how the general permit or control program meets the antidegradation requirements of this section.*
- c) *The department recognizes that many water quality protection 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 the information will be obtained and used to ensure full compliance with this chapter. The plan must be developed and documented in advance of the permit or program approved under this section.*
- d) *All authorizations under this section must still comply with the provisions of Tier I (WAC 173-210A-310).*

How the WSDOT Stormwater Permit Meets the Antidegradation Requirement

Ecology's process for reissuance of WSDOT's stormwater general permit includes a formal process to select, develop, adopt, and refine control practices for protecting water quality and meeting the intent of WAC 173-201A-310. The permit is issued for a fixed term of five years. Each time Ecology reissues the general permit, it evaluates the permit conditions to determine if additional or more stringent requirements should be incorporated.

Ecology's evaluation of the WSDOT stormwater permit includes an ongoing review of information on new pollution prevention and treatment practices for storm water discharges. Sources of such information include:

1. Comments on draft permits. Ecology will review and use public comment and testimony from public hearings during the public comment period on the draft 2014 permit to develop the final permits.
2. Ecology's Stormwater Management Manuals. Ecology periodically updates the stormwater management manuals based on new information and science. The update process includes a public involvement element. WSDOT also updates the Highway Runoff Manual periodically to make sure it is functionally equivalent to Ecology manuals. This improves the effectiveness of stormwater controls for protecting water quality and meeting the intent of the antidegradation provisions of the water quality standards.
3. Technology Assessment Protocol – Ecology (TAPE) process. This formal process reviews and tests emerging treatment technologies for eventual adoption in Ecology's stormwater management manuals. The TAPE review process stimulates the development and use of innovative stormwater technologies used at construction sites and in new and redevelopment projects. Ecology funded the Washington Stormwater Center to revise the protocols and the TAPE guidance manual and re-opened the revised program in 2010 after a two-year suspension.
4. Washington Stormwater Center research. Ecology helped establish and fund the Stormwater Center and affiliated Low Impact Development research program to conduct stormwater technical research. The Center works in partnership with state academic institutions partners including Washington State University Puyallup Campus and the University of Washington Urban Waters Program in Tacoma. The Center disseminates information on current research and training opportunities to municipalities and businesses, and is compiling an interactive stormwater BMP toolbox.
5. WSDOT compliance reports. Each year, WSDOT submits to Ecology an annual report describing, among other requirements, the status of their stormwater management program plan implementation. Also annually, WSDOT submits the results of their research and monitoring studies. Ecology staff review and act on annual reports to address compliance issues and provide technical assistance. A statewide Ecology municipal stormwater permit team produces written guidance and permittee training opportunities to disseminate information on improved BMPs.

The low impact development requirements in the WSDOT stormwater permit is a part of the adaptive process to improve stormwater management and protect surface waters from degradation. Low impact development stormwater management is a nationally recognized innovative land use and stormwater management approach. Ecology is funding an update to the Western Washington Hydrologic Model to address LID BMPs, as well as a project to develop guidance and training on maintenance of LID BMPs. In eastern Washington, Ecology is using incremental steps toward eventual broad implementation of LID as appropriate to the climate, soils, and geology of that region. These statewide requirements will support a fundamental shift to LID stormwater design

Comment [LS10]: Is this word necessary?

Comment [LS11]: Does this pertain at all to the proposed WSDOT permit?

and management in new and redevelopment that help meet the antidegradation requirements of WAC 172-203A-320(6).

The monitoring proposal in the draft permit also helps satisfy the anti-degradation requirements for adaptive management. The draft permit would require monitoring studies to evaluate the effectiveness of individual BMPs and/or elements of stormwater programs. A repository of information for Source Identification and Diagnostic Monitoring proposed for western Washington would benefit WSDOT and other stormwater permittees statewide in improving programs to eliminate pollution sources. The proposal for monitoring status and trends in Puget Sound receiving waters would provide information to evaluate water quality changes in urban areas where programs are being implemented. The proposed permit requires WSDOT participation in the planned status and trend monitoring studies in Puget Sound.

Comment [LS12]: Given the multiple sources of pollutant contributors beyond WSDOT's MS4 discharges, WSDOT would find it helpful if the Fact Sheet could elaborate on how such monitoring would generate the type of actionable information needed to direct adaptive management of WSDOT's stormwater management program.

VI. EXPLANATION OF PERMIT REVISIONS

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 WSDOT. 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 and Phase II areas. This permit also covers stormwater discharges to any water body for which there is a U.S. Environmental Protection Agency (EPA) approved Total Maximum Daily Load (TMDL) with wasteload allocations and associated implementation documents specifying actions for WSDOT stormwater discharges. For TMDL areas that are not within the Phase I and Phase II areas, WSDOT shall, at a minimum, be responsible for the TMDL implementation actions found in Appendix 3 of the permit.

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.

S1 Revisions:

S1.B.1 was revised to add vector decant and street sweepings facilities and winter chemical storage facilities among the other WSDOT owned or operated facilities. The permit coverage area was also updated to correspond with the coverage areas in Phase I and II permits in effect as of August 2013.

S1.B.2 revisions intended to make the paragraph more clear.

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 §2.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 UIC 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

Comment [LS13]: We suspect this refers to S2.A.1 as S2.A.3 does not exist in the proposed permit.

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 ~~as~~ 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 5 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 5 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, November 16, 1990.

S2 Revisions:

Minor typo and clarification edits made to S2.A, S2.B, S2.D, and S2.E.

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~~ WSDOT 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.

S3 Revisions:

S3.A revisions are made for more clarity.

S3.B revisions provide more clarity. S3.B.2 was renumbered to S3.C and a new paragraph was inserted in S3.B.2 which clarifies WSDOT may amend the terms of its shared responsibilities during the ~~the~~ permit.

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 5 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, December 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, September 1, 1996.)

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 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 – In a 2009 ruling, the Pollution Control hearing Board (PCHB) clarified that “*..when a Permittee follows the notification process in S4.F, the Permittee remains in compliance with permit conditions S4.A and S4.B prohibiting discharges that violate water quality standards*”

S4 Revisions:

Minor typo and clarification edits made to S4.A, S4.B, S4.F, S4.F.1, S4.F.2, S4.F.3.a.i, S4.F.3.a.ii, S4.F.3.b, S4.F.3.d. and S4.G.

New TMDL language is inserted in S4.F.3.e which explains that a TMDL or other approved enforceable cleanup plan supersedes and terminates S4.F.3 implementation plan. Subsequently old paragraph S4.F.3.e is renumbered to S4.F.3.f and S4.F.3.f is renumbered to S4.F.3.g with a minor typo made to S4.F.3.g.

S5 – Stormwater Management Program

S5.A – This section of the permit establishes the requirements for WSDOT to implement its stormwater management program (SWMP) described in Appendix 5. The SWMP forms the core requirements of this permit.

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 updates during the permit development process. It is attached as Appendix 5 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.

Comment [LS14]: This appears to be an incorrect reference as the explanation that follows does not pertain to the corresponding section in the proposed permit. However, the explanation appears to pertain to S5.A.4.b.

S5.B – Stormwater Program Assessment and Evaluation

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 indicators that WSDOT will track and report on for each annual report. Appendix 2, Table of Performance Indicators, is attached to the draft permit.

S5 Revisions:

Minor clarification and name change edits are made to S5.A.3, S5.A.4, and **S5.A.6**. These include reference to the updated HRM incorporating LID implementation

Comment [LS15]: No such reference exists in the proposed permit.

guidelines, various HRM implementation dates, and the compliance costs and budgeting. S5.A.5 language on LID was removed since LID is incorporated in HRM. The new language in S5.A.5 requires WSDOT to participate in the water-scale stormwater planning led by the Phase I county carrying out the planning.

Comment [LS16]: Appears to be an incorrect reference as this requirement appears in S5.A.4.

In S5.B “performance measures” are renamed more appropriately to “performance indicators.”

Stormwater Management Program Plan (SWMPP) Components (Appendix 5)

This fact sheet describes each SWMPP components of the SWMP and minimum performance indicators required under 40 CFR 122.26. The SWMP needs to include 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.

Comment [LS17]: Suggested edits to reflect the actual title of the document contained in Appendix 5.

Comment [LS18]: Suggested edit to add clarity that the Fact sheets describes the components that WSDOT is required to include in its SWMPP as opposed to the actual sections in the SWMPP.

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; coordination with entities having the legal authority to enforce local water quality ordinances and cooperative agreements with adjoining municipalities or other public entities.

Comment [LS19]: Suggested edit reflects that the proposed permit recognizes that WSDOT itself has no legal enforcement authority.

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.

Coordination

This permit requires WSDOT to establish 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.

Comment [LS20]: Incomplete sentence.

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)).

Ecology requires the permittees to update their 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.

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 are not 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 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 Highway Runoff 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 Chapter 6 of the HRM, Appendix 1 to the permit. That Chapter 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~~

Comment [LS21]: This should be edited to reflect that this information is now contained in the WSDOT Temporary Erosion and Sediment Control Manual (TESCM).

Comment [LS22]: This requirement does not appear in the proposed permit or SWMPP

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 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 e~~vidence of an illicit or contaminated discharge can be documented without entering the property.

Comment [LS23]: Suggested edit to reflect that the permit recognizes that WSDOT has legal enforcement authority.

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).]

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 2012 Western Washington Stormwater Management Manual in western Washington and those in the 2004 Stormwater Management Manual for Eastern Washington for eastern Washington. 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.~~

WSDOT must continue inspecting all facilities owned or operated by the them annually. ~~They are to conduct spot checks after major storms.~~ 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 the Ecology stormwater manuals. 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

Comment [LS24]: This sentence does not reflect the language contained in the permit. However, the sentence that follows does reflect the language contained in the proposed permit.

Comment [LS25]: This is not reflective of language contained in the proposed permit.

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 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 (2012 Stormwater Management Manual for Western Washington for street waste solids).
- The 2012 Stormwater Management Manual for Western Washington, Vol. II Construction Stormwater Pollution Prevention and Vol. IV Source Control.

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. *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

Comment [LS26]: Perhaps this is a holdover from previous fact sheets but we suggest removing or updating it. WSDOT been practicing IPM for many years now and we have IPM plans for all our roadsides. While we see no harm including it here, one could falsely conclude from this section that WSDOT has not been doing it and Ecology thinks that we should be.

pest management objectives. The elements of integrated pest management include:

- 1) Preventing pest problems;
- 2) Monitoring for the presence of pests and pest damage;
- 3) 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;
- 4) 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
- 5) 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 2012 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/guidance.html>.

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

Comment [LS27]: This section would probably benefit from a revision to more accurately reflect the orientation at reflected in the proposed WSDOT permit as described in Appendix 5, SWMPP Section 8.

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 stormwater 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.

Summary of Revisions to Stormwater Management Program Components (Appendix 5)

Section 1: Background and Overview

Section 1 provides an introduction/overview of WSDOT's stormwater management program, the area and facilities that are affected, and the regulations that govern WSDOT operations. This section explains that WSDOT permit requires WSDOT to develop and implement a stormwater management program (SWMP) plan to reduce discharge of pollutants in stormwater runoff from MS4 owned or operated by WSDOT. This section has been shortened by reducing background information on the permit and eliminating sections on the applicable laws and regulations. However, clarification is made on the facilities that are affected by specifically adding vector decant and street sweepings facilities to Section 1.

Section 2: Stormwater Program Management Framework

WSDOT's organizational framework and management responsibilities for overall permit compliance and program implementation. Section 2 also describes interagency coordination, key WSDOT stormwater-related guidance and procedures, WSDOT's legal authority to control discharges into its storm drainage systems, program planning, and the SWMP revision process. Revisions include changes to WSDOT internal organizational structure, deleting reporting requirements due to redundancy as reporting is in permit section S8, formatting and clarification. This section also establishes WSDOT approach and pace for conveyance mapping and verification of its MS4.

Comment [LS28]: Suggest adding winter chemical storage sites too to reflect the language in the proposed permit.

Section 3: Traffic Accident Related Spills, Illicit Discharges, and Illicit Connections describe the procedures and protocols related to responding to non-construction-related spills. This section also describes procedures to identify and eliminate illicit discharges and illegal connections to WSDOT's MS4. Revisions to this section include the addition of the procedure for traffic accident related spills and notification. This spills cleanup and notification procedure was developed and tested with involvement from Washington State Patrol, Ecology, WSDOT, King County, and City of Seattle. Other revisions include clarification on WSDOT's activities related to illicit discharge and illicit connection (ID/IC) identification, procedures for responding and reporting ID/IC, and ID/IC training.

Section 4: Construction Stormwater Pollution Prevention

This section describes construction-related stormwater pollution prevention. These elements include WSDOT's erosion control program and its spill prevention, control and countermeasures. Revisions include clarification that WSDOT is ultimately responsible for all erosion and sediment control activities and compliance with the construction general permit requirements on WSDOT construction projects. WSDOT will confirm Erosion and Sediment Control Lead (CESCL) certification as a condition of authorizing construction contracts and require personnel responsible for designing or inspecting a Temporary Erosion and Sediment Control (TESC) plan and consultant personnel designing these plans to take WSDOT's Construction Site Erosion and Sediment Control course. Each fall season WSDOT's Erosion Control Program performs a *Statewide Erosion Control Plan Implementation and Effectiveness Assessment* (Fall Assessments) for all active construction projects with moderate to high-risk of erosion, WSDOT combines Fall Assessment findings into a project summary report which project management teams use to better prepare for the wet season work. A summary of the Fall Assessment findings will be included in WSDOT's annual report.

Section 5: Stormwater Management for New Facilities

This section describes post-construction stormwater management controls as prescribed by the Highway Runoff Manual (HRM). The HRM meets the level of stormwater management established by the Washington Department of Ecology's stormwater management manuals. The HRM receives periodic updates (subject to review and approval by Ecology) to enhance content clarity as well as reflect changes in regulations, advancements in stormwater management, and improvements in design tools. The revisions to HRM include design guidelines for incorporating low impact development (LID) best management practices (BMPs) in WSDOT road projects.

Section 6: Stormwater Management for Existing Facilities

This section describes stormwater BMP retrofit program to address existing impervious surfaces that do not have treatment or flow control, or for which treatment or flow control is substandard. The major revision to Section 6 is the inclusion of the "Cleanup Plan-triggered" element as the fourth element in the WSDOT's stormwater facilities retrofit program. This element includes the TMDL-related retrofit obligations in the permit

section S6 and the retrofit obligations associated with the superfund site remediation to prevent recontamination.

Section 7: Maintenance

This section describes maintenance-related technical guidance, manuals, and standards used by WSDOT. Revisions include clarification on the various maintenance procedures including compliance with the inspection requirements and cleaning of catch basins, conducting maintenance of stormwater treatment and flow control BMPs and correcting deficiencies discovered, and providing and tracking training for maintenance staff.

Section 8: Research and Monitoring

The research and monitoring requirements are now covered in section S7 of the 2014 permit.

Re-numbered Section 9 to Section 8: Education/Training/Public Involvement Programs

This section describes education programs for WSDOT employees and contractors, and the WSDOT permit's and SWMP's public involvement process. Revisions to this section reflect WSDOT activities to provide training and education to the professionals, to disseminate its research reports through publications and presentations, and to participate in public meetings and hearings on transportation projects.

Section 10: Program Assessment and Reporting

This section is eliminated as the requirements for program assessment and reporting are contained in the Section S8 of the permit.

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). 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.

Ecology reviewed all TMDLs approved by EPA before November 6, 2013 to determine whether WSDOT stormwater sources were identified.

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.

Revisions to Section S6 of the permit are intended to provide clarity on the TMDLs applicable to WSDOT and to provide specificity on the actions required of WSDOT to comply with the TMDL requirements. Applicable TMDLs and their associated action items for WSDOT are described in “Appendix 3 – Applicable TMDL Requirements”. Appendix 3 has been revised to reflect WSDOT progress in implementing the required action items under the TMDLs listed in Appendix 3. Appendix 3 is also revised to incorporate new TMDLs and their associated action items.

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."*

S7.A Monitoring Objectives

WSDOT did not complete all of the monitoring studies that were required under the 2009 permit. WSDOT completed the seasonal first flush toxicity testing required in the 2009 permit. WSDOT also completed 2 years of sampling under the required baseline monitoring of rest areas, maintenance facilities, and ferry terminals in 2009 permit. However, as of the issuance of the 2014 draft permit, the final report for the baseline monitoring has not been completed and will not be due until within one month of the 2009 permit expiration on March 6, 2014.

Specific Parameters of Interest

Comment [LS29]: Baseline highway runoff and BMP effectiveness monitoring elements are ongoing. However, these elements are not mentioned in the narrative that follows, but we think they should.

The narrative in this introductory paragraph may leave the reader with the false impression that only the final report for baseline monitoring remains to be completed.

For clarification and completeness, consider including the ongoing monitoring elements.

Comment [LS30]: We think it might be helpful to include the basis for why first flush toxicity testing will no longer be necessary (e.g., based on results from toxicity testing under the 2009 WSDOT permit and the Phase 1 permit.).

Some readers may wonder why Ecology “believes information gained from further testing would be minimal.” Ecology provides some limited explanation in S7.C below, but not much detail. A more detailed explanation/justification may be useful.

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 chose the following parameters to be pertinent to each WSDOT land use for monitoring under the 2009 permit and will continue in the proposed 2014 permit, where applicable:

Comment [LS31]: There is no mention in the narrative for the table provided below and the table is not identified by number. For format consistency and clarity, we suggest providing a table number and in-text reference. In this case, the table would be Table 6.

| Baseline Monitoring | Metals¹ | Phthlates | PAH's | TPH² | TSS | PestHerbicides³ | MBAS | Chlorides | Nutrients | Fecal Coliform | Temperature |
|---|---------------------------|------------------|--------------|------------------------|---------------------|-----------------------------------|----------------------|-------------------------------|---------------------------------|-----------------------|--------------------|
| 5 Highways (Selected Based on AADT) | √ | √ | √ | √ | √ | √ | | √ | √ (TP and Orth-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) | √ | √ |
| | Metals | Phthlates | PAH's | TPH² | TSS | PestHerbicides³ | MBAS | Chlorides | Hardness | | |
| First Flush Toxicity- Chemical Analysis (3 Edge of Pavement, 3 w/same BMP type/ AADT) | √ | √ | √ | √ | √ | √ | √ | √ | √ | | |
| | Metals | Phthlates | PAH's | TPH | Total solids | PestHerbicides³ | Particle size | Phenolics | Total Organic Carbon | | |
| 5 Sediment (annually at each highway site) | √ | √ | √ | √ Dx only | √ | √ | √ | √ | √ | | |

Comment [LS32]: The ongoing and "applicable" monitoring elements are listed in the first and last rows of the table, only. Information in rows 2-5 is no longer applicable.

The table may leave the impression more monitoring programs are ongoing. Instead of the table, there may be a better way to present the applicable information. Consider an alternative to the table.

Notes/Acronyms

TP = Total phosphorus

Ortho-P = Orthophosphorus

N/N = Nitrate/Nitrite

TKN = Total Kjeldahl nitrogen

PAH = Polycyclic aromatic hydrocarbons

MBAS = ?????

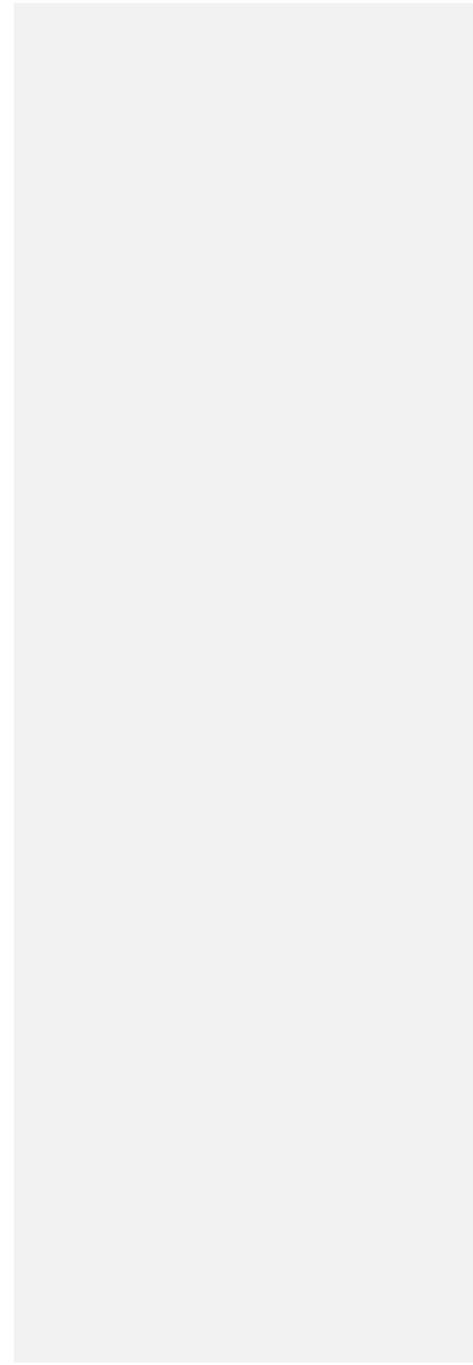
Temp = Temperature

¹Total and dissolved copper, zinc, cadmium and lead

Comment [LS33]: An undefined acronym.

²TPH=total petroleum hydrocarbons, Gx (gasoline) and Dx (diesel)

³[Pest/Herb](#)icide samples required only for those [pest/herb](#)icides 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.

Comment [LS34]: Arsenic, chromium, and mercury are not permit-required parameters.

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

Comment [LS35]: Hardness is not listed as a parameter of interest for highway runoff monitoring. However, because hardness affects the bioavailability of metals in solution, WSDOT has been collecting hardness data.

In WSDOT comments to the draft 2014 permit, we suggest including hardness in the list of parameters for highway runoff monitoring.

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.

Comment [LS36]: Optional? It's included as a parameter in the above table.

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

PestHerbicides – PestHerbicides should only be analyzed in locations probable of picking up pestherbicides 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 pestherbicides in the runoff. This analysis will depend on location of the stormwater monitoring site and should be limited to those pestherbicides used by WSDOT.

Comment [LS37]:
The permit requires sampling for the following herbicides:
Triclopyr (ester formula only)
Clopyralid
Diuron
Dichlobenil
Picloram
Glyphosphate (only if non-aquatic formula is used)

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.]

Comment [LS38]: Appears to be a missing attachment.

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.

Comment [LS39]: Given the technology WSDOT has, this may be an erroneous statement now. Also, it is not clear the nature of Ecology's concerns regarding chlorides.

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.

Comment [LS40]: Suggest deleting as conductivity is not a proposed permit-required parameter.

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.

Comment [LS41]: Suggest deleting as PCBs are not a proposed permit-required parameter.

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 (TOC) – 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~~ 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.

Comment [LS42]: WSDOT questions the relevance of these studies. Factors that may affect transportation facilities monitoring results are much different in California than Washington State. These factors include differences in traffic volumes, traffic flows, regional weather patterns, microclimates, antecedent dry periods, rainfall volumes and intensities, patterns of land use, and many other factors.

Suggest deleting the discussion of Caltrans studies.

Comment [LS43]: A University of California study (Kayhanian et al., 2003) based on what appears to be the same set of Caltrans data, comes to a slightly different conclusion. They conclude, "In general, pollutant concentrations from urban highways were higher than those found from non-urban highways. For a limited number of pollutants, however, the concentrations from non-urban highways were found to be higher than the concentrations from urban highways." The report continues to state, "No direct linear correlation was found between highway runoff pollutant event mean concentrations (EMCs) and AADT. However, through multiple regression analyses, it was shown that AADT has an influence on most highway runoff concentrations, in conjunction with factors associated with watershed characteristics and pollutant build-up and wash off."

Many factors affect edge of pavement highway runoff data including drainage area, traffic flow, microclimate conditions, maximum rain intensity, land use, etc. These factors are well documented in the literature.

Citation:

Kayhanian, M., A. Singh, C. Suverkrupp, and S. Borroum. 2003. Impact of Annual Average Daily Traffic on Highway Runoff Pollutant Concentrations. *Journal of Environmental Engineering*, 129 (11): 975-990.

Comment [LS44]: Findings are in conflict with Kayhanian et al. (2003).

S7.B Baseline Monitoring of Highways

S7.B requires WSDOT to continue their monitoring program under the 2009 permit to establish baseline stormwater discharge information from its highways through September 30, 2014 to obtain 2 years of data.

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, 67.5% 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
- ~~Pest~~Herbicides (only for those ~~pest~~herbicides 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

Comment [LS45]: As proposed, S7.B.6.a.i requires 67 percent of forecast qualifying storms, not 65 percent.

Wording in the proposed permit (S7.B.6.a.i) is slightly different, "...up to a maximum of 14 storm events per water year. 11 of the 14 storm events must meet the qualifying storm event criteria defined in Section S7.B.6.b." It is not clear from the proposed permit text that the required minimum is 11 storms. This should be made explicit in the permit text.

Comment [LS46]: WSDOT suggests removing or changing this sentence as we think it may be overstating the sufficiency of the sample size to discern broad annual and seasonal loading trends "over a long time period."

Comment [LS47]: We suggest deleting this language since the cities only have experience and perspective with implementing their own permit monitoring requirements which, differ significantly in scope and scale of effort in comparison to WSDOT's permit. Instead, we feel this explanation should reflect the experiences and nuances of WSDOT's monitoring efforts and requirements.

Comment [LS48]: The permit requires sampling for the following herbicides:
Triclopyr (ester formula only)
Clopyralid
Diuron
Dichlobenil
Picloram
Glyphosate (only if non-aquatic formula is used)

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.

Baseline Sediment Testing

The permit requires WSDOT to collect 1 sediment sample for each highway monitoring site 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
- ~~Pest~~Herbicides (only for those ~~pest~~herbicides that WSDOT applies on-site, stores on-site or applies by vehicles parked on-site)
- Phthalates
- Total solids

S7.C Toxicity Testing in the 2009 permit is eliminated

S7.C Toxicity Testing in the 2009 permit is proposed to be eliminated in the 2014 permit. WSDOT completed the 2009 toxicity testing and, after reviewing the test results, Ecology believes information to be gained from further testing would be minimal.

S7.C Monitoring the Effectiveness of Stormwater Treatment and Hydrologic Management BMPs at Rest Areas, Maintenance Facilities, or Ferry Terminals

S7.C in the proposed 2014 permit requires WSDOT to develop and implement a monitoring program to evaluate the effectiveness of stormwater treatment and hydrologic management BMPs at rest areas, maintenance facilities, or ferry terminals. These BMPs address concerns identified from water year 2012 (WY12) and WY13 rest area, maintenance facility, and or ferry terminal monitoring data. WSDOT shall evaluate BMPs at three facilities:

two facilities in western Washington, and
one facility in eastern Washington.

Comment [LS49]: Text no longer relevant. WSDOT does not collect samples from in-line sediment traps. An alternative method of sediment sample collection was evaluated and approved during the QAPP approval process in 2011.

Comment [LS50]: Replaces the old S7.C Seasonal First Flush Toxicity Testing. There are two S7.Cs on this page. This reference may be confusing to some readers without additional explanation.

Background

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:

Comment [LS51]: The proposed 2014 permit transitions from baseline monitoring to BMP effectiveness at rest areas, maintenance facilities, and ferry terminals. Under the proposed permit, WSDOT will use guidance from TAPE to conduct monitoring.

PAHs, herbicides, MBAS, and chlorides are not required parameters in TAPE. Also, depending on the type of BMP selected for monitoring (e.g., basic, enhanced or dissolved metals, oil control), the parameter list may change.

While WSDOT may choose to sample additional parameters not on the TAPE-required list, the selection of these additional parameters should be made in consultation with Ecology and only after BMPs have been selected for monitoring, probably during the QAPP approval process.

This text and parameter list should be changed, accordingly. Consider eliminating the parameter list, and include text that captures the information above.

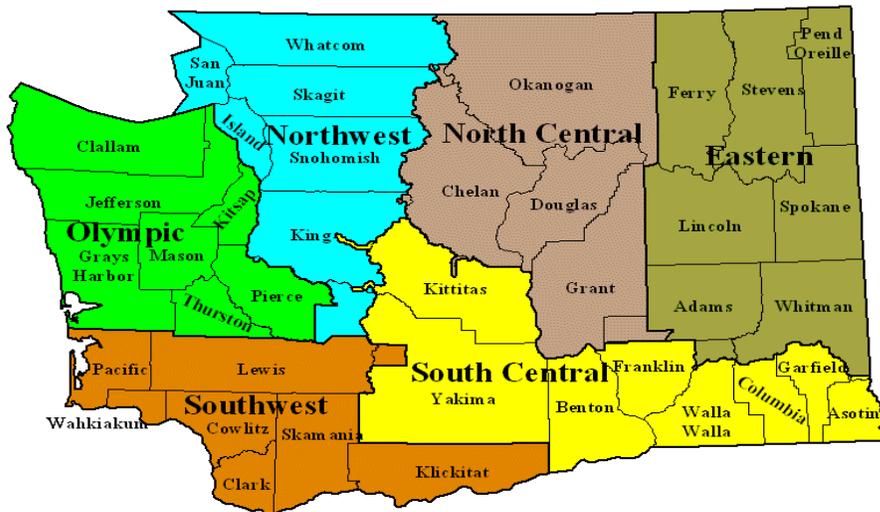


Figure 1. Map of WSDOT's Management Regions throughout the State of Washington.

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

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

Comment [LS52]: Suggest deleting text and graphic because this is no longer in alignment with the proposed permit requirements.

Comment [LS53]: The proposed 2014 permit transitions from baseline monitoring to BMP effectiveness at rest areas, maintenance facilities, and ferry terminals. Under the proposed permit, WSDOT will use guidance from TAPE to conduct monitoring.

PAHs, herbicides, MBAS, and chlorides are not required parameters in TAPE. Also, depending on the type of BMP selected for monitoring (e.g., basic, enhanced or dissolved metals, oil control), the parameter list may change.

While WSDOT may choose to sample additional parameters not on the TAPE-required list, the selection of these additional parameters should be made in consultation with Ecology and only after BMPs have been selected for monitoring, probably during the QAPP approval process.

This text and parameter list should be changed, accordingly. Consider eliminating the parameter list, and include text that captures the information above.

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

Comment [LS54]: Ibid.

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

S7.D in the proposed 2014 permit requires WSDOT to continue their monitoring of the effectiveness of stormwater treatment and hydrologic management best management practices (BMPs) at highway monitoring sites. This monitoring will continue until statistical goals in Ecology's 2011 or most recent version of the *Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies; Technology Assessment Protocol - Ecology* (TAPE) (~~Ecology 2011~~) are met. At a minimum, 12 sampling events are needed for statistically significant performance data. Regardless of statistical significance, the permit limits the required maximum sampling effort to 35 sample events as defined in the QAPP.

Comment [LS55]: Suggested edits to reflect the actual title of the document. Also, as share in our comments regarding the permit, WSDOT would like to have the option to use the most recent version of TAPE.

Comment [LS56]: What may or may not constitute a successful sampling effort may be subject to interpretation. This should be clearly defined in the QAPP.

Following the completion and conclusion of the existing BMP effectiveness study, S7.D requires WSDOT to develop and begin implementation of the next highway BMP effectiveness studies at approximately the same level of effort and cost as the pervious vegetative filter strip (VFS) BMP effectiveness studies.

Background

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 (Pub. No. 11-10-061).

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 must use appropriate sections of *Ecology's 2011 Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies; Technology Assessment Protocol - Ecology (TAPE) (Ecology 2011)*, 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.

Comment [LS57]: WSDOT is monitoring VFSs (a standard technology) and compost-blanket or modified-VFSs (experimental technology) at its BMP effectiveness study sites. Is this text relevant to the current studies?

Comment [LS58]: This text does not seem relevant to the proposed 2014 permit. There seems to be a disconnect between this text and the background information needed for the monitoring sections in the proposed 2014 permit.

Comment [LS59]: Suggested edits to reflect the actual title of the document.

Comment [LS60]: Under S7.D.3, the proposed permit requires submitting a QAPP and implementing the next highway BMP effectiveness evaluations not later than October 1, 2017. However, in S7.f.4 "WSDOT shall obtain Ecology approval for each QAPP prior to implementation." So this is more than a recommendation, it's a proposed requirement.

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.

Comment [LS61]: If this is not an obligation in the proposed permit, this explanation should be taken out of the fact sheet.

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.

Comment [LS62]: This should be compared to what is expected to occur per the design.

S7.E Status and Trends Monitoring

S7.E is added to the proposed 2014 permit and requires WSDOT to participate in the Puget Sound status and trends monitoring component of the Regional Stormwater Monitoring Program (RSMP) through one of three options available.

Comment [LS63]: WSDOT questions the relevance of this text to this section of the fact sheet.

S7.F Quality Assurance Project Plans

WSDOT is required to submit Quality Assurance Project Plans (QAPPs) using the most recent versions of in accordance with Ecology’s Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (Publication #04-03-030)2004) or EPA’s Guidance for Quality Assurance Project Plans as additional guidance.

Comment [LS64]: WSDOT feels that the work and recommendations of the Stormwater Work Group’s Roads and Highways Subgroup should be captured here. Particularly that the Subgroup felt that RSMP status and trends monitoring will not generate the type of actionable information needed to direct adaptive management of our stormwater management programs. Ecology staff participated in this Subgroup process and was party to this recommendation so it would be helpful to understand the basis for their deviation from the Subgroup’s recommendation. WSDOT thinks that it is important to note that the Stormwater Work Group did not provide a technical basis for its rejection of their own Subgroup’s recommendation either.

S7.G Collaborative and Multi-purpose Monitoring Site Independent Monitoring Programs

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.

Comment [LS65]: Would like to be able to use the most recent versions of these documents. The Ecology guidance is now 10 years old.

EPA’s guidance contains additional QAPP guidance and explanation. A date and publication number was not added because EPA is in the process of revising their guidance and the future publication date and number will be changing.

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.

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. However, it is necessary to have enough information to evaluate compliance with permit requirements and prepare the next permit.

Comment [LS66]: Should this be “indicators”?

Comment [LS67]: There is no reporting form in the proposed WSDOT permit. We are also not sure what “clarification” refers to here since the proposed requirements states that WSDOT is to report “an estimate of how much WSDOT spent implementing the permit’s requirements.”

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. G3 is revised in the proposed permit to include notification and response procedures for traffic-related spills.
- 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 the life of the permit plus three 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).

Comment [LS68]: G9.B in the proposed 2014 permit requires records retention for the life of the permit plus 3 years.

- 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 6 contains an application form for the next permit issuance.