Appendix C: Response to Comments on the Modified Phase I & Western Washington Phase II Municipal Stormwater Permits & the Stormwater Management Manual for Western Washington

National pollutant discharge elimination system (NPDES) and state waste discharge general permit for discharges from large and medium municipal separate stormwater sewers (The 2013 to 2018 Phase I Municipal Stormwater Permit)

NPDES and state waste discharge general permit for discharges from small municipal separate stormwater sewers in western Washington (The 2013 to 2018 Western Washington Phase II Municipal Stormwater Permit)

Washington State Department of Ecology

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Introduction

On August 6, 2014, Ecology filed a notice with the State Register to propose modifications to the following municipal stormwater general permits issued on August 1, 2012:

- Phase I Municipal Stormwater Permit for Discharges from Large and Medium Municipal Separate Storm Sewer Systems
- Western Washington Phase II Municipal Stormwater Permit for Discharges from Small Municipal Separate Storm Sewers

In addition, modifications to the Stormwater Management Manual for Western Washington (SWMMWW) were available for public review. Ecology invited public comment on the draft permit modifications, SWMMWW, additional supporting documents, and fact sheet (statement of basis). The public comment period ended at midnight on October 6, 2014.

Federal and state water quality laws require a permit for the discharge of stormwater (see Federal Water Pollution Control Act Title 33 United States Code, Section 1251 *et seq*., State Water Pollution Control Act RCW 90.48 and Washington Waste Discharge General Permit regulation WAC 173-226-130). The permits address these legal requirements and control the discharge of pollutants to protect surface water and ground water quality in Washington State. The permits require municipalities and secondary Permittees covered by the permit to develop and implement a stormwater management program to control stormwater runoff into and from their storm sewer system.

Organization of the Response to Comments

Ecology organized this Response to Comments according to permit sections, the Response to Comments on the SWMMWW are organized by volume and topic. Those who submitted comments during the public comment period from August 6 – October 6, 2014, are listed below by the commenter's organization with the corresponding response section.

Table 1: Index of Commenters and Responses

Commenter's Organization	Response Section
Arlington, City of	– Watershed - *financial obligations, collaboration & consensus* – Vol. V – *bioretention soil mix*
Bellevue, City of	– Compliance with Standards – Definitions – *rain garden* – Vol. I – *definitions, references* – Vol. II – Vol III – *infiltration testing* – Vol. V – *bioretention soil mix, bioretention & rain garden underdrains, criteria for muni. designation of geographic areas, rain gardens, competing needs*
Clark County	– Mapping – IDDE – Watershed – *collaboration & consensus* – Definitions - *conveyance systems, discharge points, outfall, receiving waters, SWMMWW* – Appendix 9 – Vol. III – *WWHM* – Vol. V - *bioretention & rain garden underdrains, permeable pavement*
Edmonds, City of	– Site & Subdivision Scale requirements
King County	– Legal Authority – Site & Subdivision Scale requirements – Watershed – *timing & schedules, collaboration & consensus, technical req.* – Definitions – *general* – Vol. I – *definitions* – Vol. V – *bioretention soil mix, BMP T5.13, competing needs*
Kitsap County	– Vol. V - *bioretention infiltration rate, bioretention & rain garden underdrains*
Longview, City of	– Mapping - *re Discharge Points* – Muni. Operations & Maintenance – Definitions – *discharge points*
Morgan, Larry and Cheryl (public)	– Definitions – *general*
Moon, Amy	– Vol. II
Northwest Biosolids Management Association	– Vol. V – *bioretention soil mix*
Oak Harbor, City of	– Vol. V - *bioretention & rain garden underdrains*

Pierce County	– Site & Subdivision Scale requirements – Watershed – *timing & schedules, collaboration & consensus* – RSMP – Definitions – *discharge points, outfall, receiving waters, waters of the state* – Vol. I – *Fig. 2.5.1* – Vol. IV
Redmond, City of	– Mapping - *re Discharge Points* – Watershed – *timing & schedules, collaboration & consensus* – RSMP – Vol. I – *references* – Vol. III – *content* – Vol. V – *bioretention soil mix, bioretention infiltration rate, bioretention & rain garden underdrains, BMP T5.13, maintenance standards, competing needs*
Tacoma, City of	– Mapping: re Discharge Points – Muni. Operations & Maintenance – Definitions - *discharge Points, outfall, receiving waters, SWMMWW* – Appendix 9 – Vol. III – *WWHM* – Vol. V - *criteria for muni. designation of geographic areas, competing needs, min. treatment facility size, pretreatment menu, references & format*
Thurston County	– Site & Subdivision Scale requirements – Muni. Operations & Maintenance – Definitions – *discharge points, outfall, receiving waters, SWMMWW* – Vol. V - *bioretention & rain garden underdrains, criteria for muni. designation of geographic areas, competing needs*
Sawdust Supply Co., INC.	– Vol. I – *definitions* – Vol. V – *bioretention soil mix*
Seattle, City of	– Site & Subdivision Scale requirements – LID code-related req. – Definitions - *discharge points, waters of the state* – Vol. I – *definitions* – Vol. III – *WWHM* – Vol. V - *bioretention infiltration rate, bioretention & rain garden underdrains, permeable pavement*
SGA Engineering, PLLC	– Vol. V – permeable pavement, competing needs
Shoreline, City of	– Definitions – discharge points

Snohomish County	– Watershed – *legal & regulatory req., financial obligations, timing & schedules, watershed selection, collaboration & consensus* – Definitions – *general* – Appendix 1 – Vol. I – *definitions, exemptions, Sec. 2.4* – Vol. III – *WWHM* – Vol. IV – Vol. V – *bioretention soil mix, bioretention infiltration rate, bioretention & rain garden underdrains, permeable pavement, references & format*
Washington State Dept. of Transportation	– Definitions - *waters of the state* – Vol. V - *bioretention & rain garden underdrains*
Washington Organic Recycling Council	– Vol. I – *definitions* – Vol. V – *bioretention soil mix*
Whatcom County	– Appendix 2
Woodinville, City of	– Watershed – *legal & regulatory req., financial obligations, timing & schedules, watershed selection, collaboration & consensus*
US Composting Council	– Vol. V – *bioretention soil mix, references & format*

Summary of the Permit Modifications

Ecology modified the Permits and SWMMWW to implement orders of the Pollution Control Hearings Board PCHB) and settlement agreements as outcomes of permit appeals. Ecology made additional changes to improve clarity and readability of the permits. Settlement agreements and PCHB Summary Judgments and Orders on the permits are available at: http://www.ecy.wa.gov/programs/wq/stormwater/municipal/2012appeals.html.

During the public comment period, Ecology held three informational public workshops and two public hearings. The workshops and public hearings were held September 24, 2014 in Vancouver, WA and October 1, 2014 in Edmonds, WA. Ecology held an additional workshop September 26, 2014 in Lacey, WA. Copies of the statement of basis, final permit modifications, comment letters, and public hearing testimony are on Ecology's website at: www.ecy.wa.gov/programs/wq/stormwater/municipal/permitMod2014.html.

The Fact Sheet (Appendix B: Statement of Basis, August 6, 2014) provides the proposed changes and rationale made to the draft permits that was available for public comment. The following changes are some of the more significant changes made between the draft and final permits**:**

Illicit Discharge Detection and Elimination

1. Clarified a mapping component to the Phase II Permit, due to the revisions of the definitions for outfall and discharge point. The revision added to the Phase II Permit (See S5.C.3.c.vi of the Phase II Permit) calls for Permittees to map connections between the MS4 owned or operated by the Permittee and other municipalities, or other public

entities. February 2, 2018 date was added to this section in the Phase II Permit to provide Permittees time to meet the mapping requirements.

Watershed based planning (Phase I: S5.C.5.c; Phase II: S5.C.4.g)

- These sections were significantly re-written based on comments received. The section was revised to allow each Permittee to have control of its own permit compliance – meaning a Permittee is not reliant on another to ensure that permit requirements are being achieved.
- The Permits now require a new submittal outlining how Permittees in a common watershed will coordinate sharing of work products and results.
- The revisions allow for Permittees in a common watershed to work together on a combined scope of work, or to develop independent scopes of work in which the work and process is coordinated in specific ways.
- The deadline for submittals was extended due to the delay in implementation because of the permit modifications.
- The Snohomish County watershed was reduced to include the portions of the watershed within Snohomish County.

Definitions

- Revised definitions for outfall, discharge point, and receiving waters based on comments received. Definitions revised as follows:
  - Discharge Point means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.
  - Outfall means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include 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).
  - Receiving waters means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or ground water to which a MS4 discharges.

Appendix 9

- Removed grain sized analysis in water samples.

Guidance Related to Draft Definitions

Ecology received numerous comments regarding the draft guidance (*Municipal Stormwater Permits – revised definitions explained*, dated 8.14.14) that was proposed in association with the definitions resulting from the Phase II Settlement Agreement and included with the draft modified Permits for public comment. Ecology requested comments on the guidance with the intent of updating and revising the guidance for clarity, or in order to address Permittees' questions and concerns. The revised definitions included in the final modified permits have been clarified sufficiently that Ecology believes the guidance document is no longer necessary. However, if questions arise in the future regarding the modified definitions, Ecology may issue guidance materials outside of a permit modification process.

Summary of Modifications to the Stormwater Management Manual for Western Washington

The Fact Sheet (Appendix B: Statement of Basis, August 6, 2014) provides the proposed changes and rationale made to the draft SWMMWW that was available for public comment. The following changes are some of the more significant changes made between the draft and final SWMMWW**:**

Definitions

- Updated the glossary definition of compost so that it includes use of biosolids. Composts containing biosolids allowed as an option to meet BMP T5.13. Biosolids are not allowed in composts used in certain treatment BMPs, including bioretention.
- Added definitions for biosolids and mulch. The biosolids definition is from WAC 173-308. The mulch definition is intended to include all the different types of materials that can be used for mulch. Different materials apply in different applications.

LID Infeasibility Criteria and Competing Need

- Revised the infeasibility criterion for permeable pavement in regard to the terms "very low traffic volume" and "very low truck traffic."
- Expanded the guidance in regard to allowing local governments' identification of geographic areas that meet infeasibility criteria and added additional examples.
- Added a Competing Need criterion in regard to a local code or rule adopted as part of a Wellhead Protection Program or to protect a Critical Aquifer Recharge Area.

Bioretention

- Included adjustments for the compost specifications in the bioretention soil mix.
- Increased the assumed initial infiltration rate of the default bioretention soil mix from 6 inches per hour to 12 inches per hour.
- Revised the bioretention text to allow the use of elevated underdrains in areas where the native soil infiltration rate tests between 0.3 and 0.6in/hr. See Volume V, Chapter 7 for additional details.
- Withdrew the proposal to have underdrained bioretention facilities modeled twice; once to estimate its ability to meet the treatment requirements of Minimum Requirement #6; and once (with a higher assumed infiltration rate) to estimate the impact on sizing downgradient flow control facilities to meet Minimum Requirement #7.

Response to Comments on the Permits

Compliance with Standards

Phase I/II S4

Commenter: City of Bellevue

Summary of Comments

1. Clarify municipalities' ability to be compliant with the Permit's Low Impact Development requirements (regarding soil mix and possible pollutant leaching) and, at the same time, be compliant with other permit requirements.

Response to Comments

1. Ecology assumes that the commenter is concerned about compliance with surface water quality standards, groundwater quality standards, and sediment management standards, including human-health based criteria. Ecology affirms the use of bioretention as a BMP intended to comply with these standards. Ecology includes restrictions on the use of bioretention where 1) it will be underdrained with an eventual surface discharge to a phosphorus-sensitive water, and 2) it will discharge to the ground within one-quarter mile of phosphorus-sensitive waterbodies if the underlying native soil does not meet the soil suitability criteria for treatment in Chapter 3 of Volume III. Other monitoring locations did not replicate the high nitrate seen in the first study done by the City of Redmond. The discharge of copper could be an issue if an outfall to a receiving water had a large percentage of its flow from underdrained bioretention systems. That would most likely be a rare situation in the near term. Even in that situation, for municipal stormwater permittees, water quality standards violations are measured in the receiving water, not in the MS4 itself. This small risk of a water quality standards violation may be further reduced by updated soil media guidance that should be available in 2015.

Legal Authority

Phase I S5.C.1.b.iv

Commenter: King County

Summary of Comment

1. "Co-applicant" is explained in the Statement of Basis, but nowhere in the permit. Please consider adding definition of clarification of the intent of this term within the permit itself.

Response to Comments

1. This modification returns the permit language to match the language used in the 2007 Permit, as remanded by the PCHB. This language stems from the Code of Federal Regulations, Section 122.26 and is used to identify an operator of a portion of the MS4 if a regional authority is coordinating the application for coverage. In the context of the permit, Co-applicants is used to specify that Permittees are not obligated to execute agreements with entities that are not bound by a State of Washington Municipal Stormwater Permit. Ecology disagrees that adding a definition is necessary. No addition to permit.

Mapping

Phase I S5.C.2
Western Washington Phase II S5.C.3.a: *Illicit Discharge Detection and Elimination*

Regarding Discharge Points

Commenters: City of Longview, Clark County, City of Redmond, City of Tacoma
Summary of Comments

1. For discharge points to the ground - please clarify if facilities that inadvertently infiltrate must be mapped and if Permittees must re-label currently mapped discharge points or outfalls now defined as discharge points. The *Draft Definition Guidance (8/14/14)* language conflicts with the permit terms. Ambiguous requirements provide the opportunity for misinterpretations and create liability.
2. Adding the newly-created discharge points to mapping requirements creates a new feature that would overlap with existing ditch mapping. Each ditch segment would be a discharge point to groundwater under the newly-defined feature. Adding a discharge point to already mapped ditches does not improve stormwater management. The permit language should clearly state that having a map inventory of features defined as discharge points meets the requirement to map discharge points to groundwater.
3. Maintaining records of land ownership and easements for mapped conveyance systems should be adequate to describe where pipes and ditches leave county ownership. Adding discharge points where conveyance systems change ownership will not significantly improve stormwater management.
4. How does mapping discharge points relate to mapping connections under S5.C.2.a.vi (Phase I permit)? Are some connections discharge points on top of being connections draining to another MS4? Can permittees change connections into discharge points rather than have points mapped on points? Please clarify.
5. In cases where county right-of-way drains to a private treatment/detention facility containing an outfall pipe, would there be a discharge point to the facility and no MS4 outfall? Please clarify.
6. This modification will result in jurisdictions mapping where conveyance systems cross jurisdictional boundaries. There is no benefit of mapping these discharge points given that the conveyance and other stormwater facilities are really required to be mapped. The added work associated with this modification to the mapping requirement will move focus and resources away from other activities that have a greater potential to protect surface waters. *Suggested modification:* Remove the requirement to map discharge points.
7. If stormwater runoff from an MS4 flows to a treatment facility and then to an UIC, is the treatment facility a discharge point, an outfall, or neither? *Suggested modification*: Please clarify and explain.

Response to Comments

1. Ecology is aware of the conflict between the draft guidance on the definitions and the draft permit terms. Ecology entered into a Stipulated and Agreed Order with appellants.

Terms of this agreement included proposing the definitions as included in the draft modified permits and providing guidance on the meaning of the proposed definitions. While analyzing the guidance as required by the settlement agreement, Ecology identified language that was inconsistent with previous permit requirements, noted these issues in the guidance, and requested public comment. See Definition section for changes made to the definitions proposed in the Draft Permits. The Phase II mapping section now includes a date (February 2, 2018) by which the features required to be mapped must be documented.

2. See Definition section for changes made to the definitions proposed in the Draft Permits.
3. Ecology disagrees that simply maintaining ownership and easement records adequately meets permit requirements as this information may not completely inform the location where a MS4 connects to another system. Information regarding interconnections with adjoining MS4s informs the IDDE programs, and especially spill response programs. These connection points are required to be mapped.
4. Ecology has clarified the Mapping requirements. See the Definitions section for additional information.
5. Ecology has clarified the Mapping requirements. See the Definitions section for additional information.
6. Ecology has clarified the Mapping requirements. See the Definitions section for additional information. The connection point where a Permittees MS4 ends and another MS4 continues is important to be mapped. See discussion above.
7. All contributing area that flows exclusively to an Underground Injection Control (UIC) well is regulated under the UIC program, not under the NPDES MS4 program. However, municipalities that are under an NPDES stormwater permit may also have stormwater discharges to UIC wells. The Stormwater Management Program required by the NPDES stormwater permit includes best management practices that also may be applied to stormwater discharges to UIC wells. To avoid duplication, municipalities that are under an NPDES stormwater permit may meet UIC program requirements by applying their Stormwater Management Program to areas served by UIC wells. See Chapter 173-218-090(1) WAC.

   Since the NPDES permit does not fulfill all the requirements of the UIC Program, the following must be added to the Stormwater Management Program (SWMP) and implemented:

   - UIC wells must be registered.
   - New UIC wells must be constructed according to the specifications in this guidance.
   - A well assessment must be completed for all existing wells.
   - Existing UIC wells that are determined to be a high threat to ground water must be retrofitted.

For more information on UIC program requirements and managing stormwater using UIC wells see Ecology's guidance at http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index.html.

Regarding Outfalls

Commenter: Clark County

Summary of Comments

1. Consider language that would retain existing outfall mapping.
2. The outfall definition explicitly includes "facilities designed to infiltrate stormwater" and could capture hundreds of existing facilities in Clark County that 1) are retention basins and 2) are stormwater detention facilities or wetlands having a design infiltration component. Clark County would need to review the designs of hundreds of facilities to determine if they are outfalls. The permit should clearly state that outfall points do not need to be mapped at mapped infiltration facilities.
3. Conveyance system mapping to outfalls and discharge points with a 24-inch diameter will be influenced by the designation of outfalls at infiltration facilities. What was once a single conveyance system to a greater than 24-inch outfall could become a number of conveyance systems with many outfalls less than 24 inches. If the permit requires conveyance mapping to outfalls 24 inches or larger in diameter and includes infiltration BMPs as outfalls, the requirement to map tributary conveyances will be reduced by the areas draining to infiltration BMPs with outfalls (BMP inlet pipes) less than 24 inches in diameter.

Response to Comments

1. See Definition section for changes made to the definitions proposed in the Draft Permits.
2. See Definition section for changes made to the definitions proposed in the Draft Permits. The outfall definition no longer includes "permittee's MS4 facilities/BMPs designed to infiltrate stormwater." Previous Permit requirements included mapping of structural stormwater treatment and flow control facilities/BMPs owned and operated by the Permittee. The current Permit requires mapping of the "stormwater treatment and flow control facilities/BMPs." These infiltration facilities should be mapped to meet permit requirements.
3. See Definition section for changes made to the definitions proposed in the Draft Permits. Outfall definition no longer includes "permittee's MS4 facilities/BMPs designed to infiltrate stormwater." However, the revised definition for Discharge Point does include "permittee's MS4 facilities/BMPs designed to infiltrate stormwater," and therefore the permit requires mapping of known MS4 discharge points and the tributary conveyances of discharge points with an inlet pipe with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems.

Illicit Discharge Detection and Elimination

Phase I S5.C.8.c.i.(1)

Investigations

Commenter: Clark County

Summary of Comments

1. While the permit clearly states that counties must complete screening within the urban/higher density rural sub-basins before August 2018, there is an opportunity for confusion in stating counties must "average 12 percent of the known conveyance systems each year." "Known conveyance systems" would include the entire rural area where screening is not required. Please change the wording to state counties must average, 12 percent of the conveyances in the urban/higher density rural basins each year.

Response to Comments

1. This issue was addressed during the appeal process. The field screening program needs to address the whole system, including areas outside of the urban/higher density rural sub-basins. All known outfalls are required to be mapped.

Controlling Runoff from New Development, Redevelopment, and Construction Sites

Site and subdivision scale requirements

Phase I S5.C.5.a./b.
Phase II S5.C.4.a

Commenters: City of Edmonds, City of Seattle, King County, Thurston County, Pierce County

Summary of Comments

1. There is no mention of the **Exemptions** in S5C.4.a.i, only the **Minimum Requirements** (Appx 1, Sections 3.2 though 3.5, and Section 4); **Thresholds** (Appx 1, Section 3.1); **Definitions** (Appx 1, Section 2) and **Adjustment and Variance (Exceptions) Criteria** (Appx 1, Section 5 & 6). Are Phase II Permittees to use the **Exemptions** in Appendix 1, Section 1, or the same in the SWMMWW, Vol. I, Section 2.2? (Permit Section includes subsection on Oil & Gas Field Activities or Operations).
2. Make the date to apply the code requirements consistent with the effective date of the code, which is June 30, 2015 (Phase I).

   "The local program adopted to meet the requirements of S5.C.5.a.i through ii shall apply to applications submitted **on or** after June 30, 2015 and shall apply to applications submitted **prior to** ~~no later than~~ June 30, 2015, which have not started construction **prior to** ~~by~~ June 30, 2020."
3. Header contains "0's" where it should cite permit section.
4. In the last sentence of the first paragraph appearing, we suggest adding the word "completed" prior to "applications submitted prior to January 1, 2017, which have not . .

. ."For consistency, these edits should also apply to the paragraphs pertaining to Lewis and Cowlitz Counties and the City of Aberdeen.

5. In *footnote 19*, we suggest adding the word "completed" prior to "applications submitted prior to January 1, 2018, which have not . . . ."
6. Permit Requirement S5.C.5.a.iv violates private property rights and won't protect water quality. Pierce County has serious concerns about section S5.C.5.a.iv of the Phase I Permit for a number of reasons. This section requires that the County establish the legal right to enter the property of a single family homeowner and perform maintenance inspections of stormwater facilities such as infiltration trenches and rain gardens. We believe that this requirement treads on the individual property rights of landowners and their rights to privacy. We believe this requirement is impractical and unrealistic. What are the chances that a local jurisdiction will ever have the resources to inspect and enforce stormwater facilities on an individual lot basis? Because we see this requirement as impractical and unrealistic we do not believe that it will be effective in protecting/improving water quality. We, therefore, question the value of applying the requirement to a single family residence. The creation of legal documents and the recording thereof will impact the permit process and cause additional costs to applicants for no added water quality benefit.

Response to Comments

1. Local governments may use the exemptions listed in the Permit and Manual or choose an alternative regulatory process if deemed appropriate. The Permit does not mention every section of Appendix 1 in the body of the permit. No changes made.
2. Ecology disagrees with the proposed changes and finds the language to be consistent with the intent of the requirement. The language is also functionally consistent with the Phase II permit.
3. This error has been corrected. Thank you.
4. See footnote #17 in the Phase II Permit and footnote #1 in the Phase I Permit which describes what is meant by “application” in the section referenced. Edits have been made to the following related paragraphs pertaining to Lewis & Cowlitz Counties and the City of Aberdeen – thank you.
5. Footnote #17 clarifies what is meant by “applications” and provides context for the section.
6. The proposed permit modifications do not change section S5.C.5.a.iv of the Phase I permit. This section is not subject to comment for the purposes of this modification process.

Low impact development code-related requirements

Phase I S5.C.5.a.iii

Commenter: City of Seattle

Summary of Comments

1. This section already provides that the deadline is changed when an alternative date is established by S5.C.5.a.iii. To add clarity, insert "automatically or otherwise" as follows:

   "No later than ~~July 1~~ June 30, 2015, or by an alternative date if established automatically or otherwise in accordance with S5.C.5.a.iii.

Response to Comments

1. Section S5.C.5.a.iii and S5.C.5.b both provide that the deadline is changed when an alternative date is established by S5.C.5.a.iii. No additional language is necessary as S5.C.5.a.iii explains that the required deadline for adoption of effective date of the local program will automatically extend by the number of calendar days that Ecology exceeds a 90-day period for a written response. This time extension, if necessary, applies to both the adoption and effective dates established in S5.C.5.a.iii (first paragraph).

Watershed-scale stormwater planning requirements

Phase I S5.C.5.c
Western Washington Phase II S5.C.4.g

Legal and Regulatory Basis

Commenters: Snohomish County, City of Woodinville

Summary of Comments

1. The regulatory language employed by Ecology in these proposed modifications is, in many instances, confusing and unclear. Ecology's use of passive voice in setting forth the roles and responsibilities of multiple permittees subject to multiple permits in a coordinated endeavor creates needless confusion and will only lead to delay and conflict. For example, stating that data quality and quantity must be compatible with other project data without stating which entity gets to make that determination and when in the process is problematic.
2. The singling out of selected counties and cities to meet extensive watershed scale stormwater planning process requirements is both arbitrary and capricious and contrary to the purpose of general permits. Specifically, only three Phase II communities are required to participate in watershed-scale planning.
3. For years, Ecology has held to the position that with the technology based treatment standard of AKART (All Known, Available, and Reasonable methods of prevention, control, and Treatment), water quality data from the receiving waters was irrelevant to determining the permit requirements for point source discharges. If permittees are required to implement all known, available, and reasonable methods of prevention, treatment and control, what is the need for this permit requirement? Watershed planning is related to receiving waters and is therefore not a technology based standard like AKART; hence watershed planning is an unreasonable, arbitrary, and capricious standard.

4. Snohomish County has consistently expressed its concerns regarding a permit obligation that requires it to perform actions in and conduct analysis and planning regarding geographic areas located outside of the County's jurisdictional boundaries, where the County's MS4 does not exist. The PCHB found this concern to be valid and ordered Ecology to ensure that each jurisdiction subject to an Ecology municipal stormwater permit be obligated to fully participate in the watershed-scale planning process for the portion of the watershed within its jurisdiction. Unfortunately, there are many aspects of the modified permits that do not appear to satisfy this full participation requirement.

Response to Comments

1. Much of the proposed language referenced by this comment has been removed. Permittees are expected to either develop a scope of work based on specific requirements laid out in the permit, or participate in a watershed-scale planning process as directed by an approved scope of work. Ecology intends for permittees under a shared scope of work to agree amongst themselves as to their roles and responsibilities.
2. The watershed-scale planning process was upheld by the Pollution Control Hearings Board (PCHB). Ecology developed criteria for the selection of watersheds with the specific goal of projecting the potential impact of development in watersheds of a certain size. Selection of watersheds was carried out by evaluating proposed selections against those criteria. Phase I counties were chosen as the lead entities because of their capacity to perform the work, and because of their unique role in integrating multiple land development concerns, including stormwater, under the Growth Management Act of Washington.

   Ecology recognizes that due to the PCHB decision requiring "full participation" in watershed-scale planning by Phase I and Phase II Permittees, the scope and scale of involvement by Phase II communities Redmond, Bothell, and Woodinville has expanded significantly. Woodinville in particular has significant jurisdictional area in two selected watersheds. The permit has been modified to limit the Little Bear Creek watershed-scale stormwater planning requirement to Snohomish County. This makes Woodinville's and Bothell's participation in the Little Bear Creek watershed-scale planning effort optional, rather than required by the permit. Under the revised language, Woodinville is still required to participate in the Bear Creek effort.
3. The permit as a whole represents the RCW 90.48 requirement that the permittee to 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 and the CWA § 402(p)(3)(B)(iii) requirement that the permittee reduce the discharge of pollutants to the maximum extent practicable (MEP). See section S4 of the Permit. The Low Impact Development and monitoring requirements, along with the watershed-scale planning, are part of a process of continually evaluating and updating permit language. This both helps refine the MEP standard and AKART requirements (which are not static but rather change as new technology is developed and the regulatory context changes) and meets other Clean Water Act and state regulatory requirements; see the section titled "5.0 Antidegradation" in the November 4, 2011 Fact Sheet for this permit for more information.

4. The PCHB decision states that "the Phase I permittees cannot be held solely responsible to collect new data on water quality conditions within other jurisdictions and evaluate stormwater management strategies within those jurisdictions." The remedy proposed by the PCHB is to require the "full participation" of permittees within selected watersheds. The modified permit allows permittees to either operate under their own scopes of work, or share the responsibility to collect new data and evaluate management strategies under a common scope of work. Permittees may choose to collaborate to reduce the overall cost of the work, but they are not obligated to collect data or perform other activities outside of their jurisdictions.

Financial Obligations

Commenters: City of Arlington, Snohomish County, City of Woodinville

Summary of Comments

1. Ecology should consider a financial ceiling either for combined or specific categories.
2. In lieu of proceeding with the inclusion of the proposed required watershed scale planning requirements for certain Phase I and Phase II permit holders, Ecology should offer a grant program and seek one or more volunteer counties and cities within the watershed basin(s) proposed for study.
3. Clarify that "pro rata share" means "pro rata share of costs" in multiple locations.
4. Rather than the proposed default cost distribution of percentage land area, a better cost basis is impervious area, which has a direct relation to stormwater runoff and pollution.
5. Is it Ecology's intention that all participating entities and the County permittee must be party to a single alternate scheme agreement? Better language would allow the County to enter into a different alternate scheme for each participating entity.
6. The proposed language does not acknowledge that the Phase I permittee must agree to perform the work before a Phase II permittee can "elect to fund a task…." rather than perform the work itself.
7. Woodinville is the smallest city affected by these basin studies and if financial participation is required, it will experience the highest per capita cost of any governmental agency in Western Washington – between $380,000 and $550,000 total expenditure over two years, or up to ½ of the City's total annual stormwater income of $1.2 million.
8. Modifications to the Phase II Permit require full participation, including financial participation in Phase I permit-required watershed planning. This expense has come to the attention of Phase II municipalities as a surprise, and arrived later then possible to budget for the expense. To allow watershed planning to be a success, the Phase II cost to fully participate needs to be funded by Washington Department of Ecology or all Phase II jurisdictions, rather than those Phase II jurisdictions identified by the Phase I jurisdictions during the watershed scale planning process.
9. The estimated cost of the four Phase I permittee watershed planning projects is estimated over $7,000,000. Over 80% of this cost is for new data collection and modeling. Suggested modification: Edit the watershed planning requirements/scope in

the Phase I permit to follow the USEPA *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (2009).

10. King County supports ECY pursuing funding for distribution to PH II permit holders impacted by the PCHB ruling requiring their "full participation".

Response to Comments

A number of these comments refer to proposed language that changed substantially based on the comments received. In a number of cases the comments are no longer applicable. In other cases the specific language has been revised but the substance of the language the comment was referring to remains; in those cases the response will discuss the revised language.

1. Ecology does not agree it is appropriate to include financial ceilings for permit conditions.
2. The watershed-scale planning requirements in the Phase I and Phase II permits were appealed to the PCHB and upheld. Moreover, the PCHB directed Ecology to expand the responsibility for watershed-scale planning in the permits to include full participation by Phase I and Phase II permittees. The revised permit language does include flexibility that allows permittees to meet the permit obligation either independently or under a common scope of work.
3. These sections of the proposed language have been removed.
4. Cost-sharing or operating under a common scope of work with another permittee is optional under the revised permit language. Permittees may negotiate amongst each other for whatever cost allocation they feel is appropriate.
5. The revised language makes it clear that there may be as many independent scopes of work as jurisdictions within the watershed (although Ecology encourages Permittees to work under a single scope of work). Furthermore, within a single scope of work Permittees may define whatever cost allocation they see fit.
6. The revised language provides a mechanism for Permittees to coordinate and cooperate on a single scope of work, or to coordinate the process through independent scopes of work.
7. Ecology agrees that Woodinville's share of the watershed-scale planning requirement is uniquely challenging. Therefore, the Phase II modified permit requires that Woodinville participate in the King County (Bear Creek) planning effort, but not in the Snohomish County (Little Bear Creek) planning effort.

   The Pollution Control Hearings Board (PCHB) required the "full participation" of Phase II Permittees in watershed-scale planning efforts, and ruled that planning should be conducted on a watershed basis, rather than a jurisdictional basis. Applying those two standards to Woodinville is inappropriate for the following reasons:

   a. The circumstances have changed since the PCHB hearing. Woodinville would have been required to participate in projects occurring two separate watersheds, and over an extensive geographic area in both watersheds. At the time the watersheds were selected, participation by Phase II communities was anticipated to be relatively modest.

b. Woodinville's anticipated costs, on a per-capita basis, far exceed those of other Phase II Permittees required to participate in watershed-scale planning. The level of expenditure may, as Woodinville has mentioned in their formal comments regarding this modification, make it difficult or impossible for them to comply with other conditions of the permit.

Ecology intends to address the legitimate equity concerns raised by Woodinville, while at the same time requiring full participation by all communities and maintaining watershed boundaries for planning efforts. Ecology met with the affected permittees four times over the course of the modification process and discussed several possible permit changes to balance these competing needs. Ecology has determined that the best course of action is to alter the boundary of a watershed to reduce the impact of the planning effort on Woodinville. Since it is better, from a hydrologic and scientific perspective, to remove downstream portions of a watershed rather than central or upstream portions, and Woodinville is downstream in the Little Bear Creek effort, but upstream in the Bear Creek effort, Ecology modified the Phase I permit language to eliminate all King County jurisdictional areas from the Little Bear Creek effort. This change removes all Woodinville and most Bothell jurisdictional area from the Little Bear Creek effort. This change addresses the cost and equity concerns raised by Woodinville, while maintaining boundaries that approximate a watershed, and still requires full participation by Woodinville in a watershed-scale planning effort.

With the removal of King County from the Little Bear Creek watershed, the remaining jurisdiction in Bothell that is subject to the permit requirement is approximately 4 acres of medium-density residential development on the edge of the watershed, not directly connected to any streams. The best professional judgment of Ecology is that such a catchment represents a negligible impact on a 13.3 square mile watershed. Ecology therefore modified the Phase II permit language to exclude Bothell from watershed-scale planning responsibilities in the Little Bear Creek watershed.

With regard to the Bear Creek watershed, the revised permit language gives Woodinville, and the other Permittees involved in the effort, multiple options for meeting permit obligations. Specifically, Woodinville may negotiate an agreement with one or more Permittees within the designated watershed, or elect to draft its own scope of work and execute its own watershed planning process. In addition to Capacity grants provided through Ecology, competitive grants are also available, including the National Estuary Program Watershed Protection and Restoration Grant http://www.ecy.wa.gov/puget_sound/grants_fed_watershed.html.

8. Ecology's interpretation of the "full participation" language in the PCHB decision is that it means both full input in the planning process and full financial obligations for that process, on par with Phase I entities. The proposed language gives Phase II permittees two options for meeting their watershed-scale planning requirements, as described above.
9. The watershed-scale planning effort described in the Phase I and Western Washington Phase II permits is designed to be a process that integrates local knowledge of Puget

Sound Lowland streams and derives a specific outcome. The USEPA *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (2009) is a general guide for creating a watershed plan. There are common elements between the two (information gathering, partnership building, data analysis, pollutant loading estimates), but the watershed-scale planning effort has a more specific goal (matching anticipated hydrologic metrics with B-IBI scores) than the US EPA approach, and therefore requires greater effort in specific areas.

10. Comment noted.

Timing and Schedules

Commenters: King County, Pierce County, Snohomish County, City of Woodinville, City of Redmond

Summary of Comments

1. In light of the PCHB ruling on watershed-scale planning, the entire process should be reset.
2. The revised watershed plan submittal date will need to be further extended to reach a consensus among the partners, possibly execute ILAs and IAAs, and revise the SOW for a re-submittal.
3. Foot note 3 asserts status of proposed and approved watersheds submitted under paragraph (i). This note should also state the status of the approved scopes of work submitted and approved by Ecology under the same section, paragraph (ii) on page 21.
4. Pierce County requests the following language be added to the permit: "On August 4, 2014, Ecology approved the scope of work and schedule required by subparagraph (ii) of this section submitted by Pierce County on its selected Spanaway Creek/Lake Watershed."
5. Changes of schedules contained in Ecology-approved scopes of work and schedules as of October 1, 2014, should not be considered permit violations provided the plan is submitted by September 1, 2017.
6. Extending the deadline to submit the final plan, as the proposed language does, implies that Ecology may expect a corresponding increase in the level of effort for watershed-scale planning. Permittees should not be required to conduct additional sampling or modeling that is not contained in an approved scope of work.
7. Because Snohomish County is ultimately responsible for the completion of the final Little Bear Creek watershed-scale planning project by the deadline in the Phase I Permit, Snohomish County objects to the need to coordinate a timeline with the participating entities. The participating entities will not be in violation of their Permit if the proposed 2017 deadline (or the current 2016 deadline) is not met, but Phase I permittees will. Accordingly, Phase I permittees must be fully empowered to establish a project timeline that Phase I permittees believe will ensure compliance with Phase I permit deadlines.
8. “The strategies and schedules for each permittee must be part of an integrated watershed-wide implementation plan.” As regulatory language, the purpose of this sentence is unclear. Is it intended to direct the Phase II permittees to submit the

implementation plan and schedules they develop to the Phase I lead entity? If so, the language should be modified to clearly state that requirement. Revise for clarity.

9. It is premature to define submittal deadlines related to scope and schedule as well as implementation plan until clear understanding of the planning process is attained.

Response to Comments

1. All four Phase I counties have made it clear that restarting the watershed-scale stormwater planning process, up to and including re-examining basin selection, would make delivery of a final watershed-scale plan before the end of the permit cycle very difficult. Additionally, Pierce and Clark Counties are relatively unaffected by the ruling. The Pierce, Clark, and Snohomish County final plan submittal timelines have been extended to September 6, 2017. The King County effort is subject to a new deliverable for coordination, due August 13, 2015, and the scope of work and final plan submittals dates have been extended to November 4, 2015 and April 4, 2018, respectively. Snohomish County's Scope of Work deadline has been revised to March 31, 2015. These changes give Permittees sufficient time to address the changes the PCHB decision has required in the permits, and allow for submittal of final implementation plans for all four watershed-scale stormwater planning efforts before the end of the permit cycle.
2. See revised dates above.
3. Watershed selection has been debated and raised as an issue by multiple permittees during the modification process, and has special public comment considerations (see "Watershed Selection", numbers 2 and 3, below). In contrast, Ecology's approval of the Clark and Pierce Counties' scopes of work has not been challenged. Ecology does not generally include approval of routine permit submittals in modified permit language.
4. As with comment 3 above, Ecology does not generally include approval of routine permit submittals in modified permit language. Both Pierce and Clark Counties have approved scopes of work, and are not required to submit revised scopes of work under the modified permit.
5. Any change to the work proposed under the approved scopes of work, including revision of schedules, should be discussed with the Permittee's permit manager beforehand to determine the appropriate course of action.
6. The anticipated level of effort for watershed-scale planning remains the same as that envisioned under the original permit language issued on August 1, 2012.
7. Ecology acknowledges that each Permittee must be in control of its ability to meet the permit requirements, and not rely on the approval of other local governments. At the same time, the watershed-scale planning process must include collaboration among all the involved jurisdictions to be successful. To strike that balance, the revised permit language allows Permittees to undertake independent scopes of work/efforts but requires them to include a plan for collaboration and information sharing among jurisdictions within the same watershed. It does not require that Permittees receive the approval of another jurisdiction on any part of their scope of work or final plan submittals. The modified permit language allows Permittees to either work under a common scope of work with other Permittees, or to lead their own efforts within their

jurisdiction. The intent behind the language quoted in the comment has been incorporated into the revised language.

8. The quoted language has been removed from the modified permit.
9. Scope of work and implementation plan deadlines in the permit are necessary to clarify what is and what is not required of Permittees.

Watershed Selection

Commenters: Snohomish County, City of Woodinville

Summary of Comments

1. Woodinville asks that Ecology rescind its arbitrary and capricious decision to allow Little Bear Creek Basin to be the subject of the Watershed Study and direct Snohomish County to choose one of the original specified basins or propose a new alternative basin as allowed. Woodinville expresses concern that the Little Bear Creek Basin does not meet the "significant population growth" criterion of section S5.C.5.c.i, as only 2,000 new residents are expected within the next several decades.
2. Phase II Permittees should have a say in alternative watershed selection.
3. Ecology's proposed modification in noting compliance with this particular Permit requirement (submittal and approval of a choice of watershed) and not others is arbitrary and confusing. Each Permittee submitted a scope of work and schedule by the April 1, 2014, deadline in current S5.C.5.c.ii, yet Ecology did not propose to modify the Permit to include a footnote memorializing that aspect of Permit compliance.
4. Footnote 3 (Phase I) is not accurate. Snohomish County did not propose the entirety of the Little Bear Creek watershed as its alternative, but only that portion of the Little Bear Creek watershed in Snohomish County.
5. Snohomish County proposed selection of the watershed within the boundaries of Snohomish County. Ecology's approval requires selection of the entire watershed including the small portion in King County and within the jurisdictional boundaries of the City of Woodinville on the basis that the stated objective of watershed-scale stormwater planning would not be achieved unless it includes the entire stream system. This decision again appears arbitrary and capricious in that as Ecology itself notes in proposed footnote 3 it has allowed King County and Pierce County to choose to do planning on subsets of watersheds listed in the Permit.
6. As a practical matter, Ecology's decision to modify the Permit with the addition of footnote 3 is likely to lead to challenges to Ecology's underlying decision regarding watershed approval, a decision that was made over one year ago and upon which Phase I Permittees have relied in crafting a scope of work to meet the April 1, 2014, deadline, as well as investing significant resources to date to meet the final watershed-scale stormwater plan deadline. Delete the proposed footnote.

Response to Comments

1. Ecology maintains that the Little Bear Creek watershed meets the criterion in Phase I Permit section S5.C.5.c.i (4) that requires that a watershed selected for planning must be "targeted to accept significant population growth and associated development, and

[be] partially, if not fully, within the urban growth area established under Chapter 36.70A RCW, or a potential future expansion of the urban growth area." It is undisputed that population growth and associated development is anticipated to occur in Little Bear Creek watershed, which includes both areas currently in the Urban Growth Area and areas adjacent to the Urban Growth Area that are currently experiencing development pressure, and is not yet developed to the full density permitted under current zoning. Considering the anticipated growth, Ecology believes that the original determination that the Little Bear Creek is "targeted to accept significant population growth and associated development" is accurate.

For reasons unrelated to the appropriateness of Little Bear Creek for watershed-scale planning, the modified Phase II permit no longer requires Woodinville or Bothell to participate in the Little Bear Creek effort.

2. Under the original permit language (effective August 1, 2013) the only permittees obliged to expend funds to meet the watershed-scale planning requirement were Phase I counties leading and convening a planning effort. The permit did not explicitly require notice of watershed selection to other permittees within the watershed, in part because their level of participation was expected to be minimal and in part because the Phase I county was expected to "convene and lead" the planning effort involving other jurisdictions as applicable. After PCHB decisions 12-093c/12-097c (issued on 3/21/2014), Ecology was directed to amend the permit language to require Phase II permittees to "fully participate" in the watershed planning process. At that time, watershed selection had already taken place (the Little Bear Creek watershed, specifically, was approved in a letter dated 7/30/2013). Inclusion of footnote 3 in the Phase I permit in this permit modification process is intended to provide affected parties a means to comment on the watershed selection without reopening the selection process, which Ecology believes would make completion of the planning process before the end of the permit term excessively challenging.
3. Ecology does not generally include approval of routine permit submittals in modified permit language. However, as noted in #2 above, it is appropriate to supply an avenue for public comment regarding watershed selection given the special circumstances around this permit requirement.
4. Footnote 3 has been revised to reflect Snohomish County's original proposal.
5. A watershed is defined by drainage to a common point. King and Pierce counties proposed alternative watersheds (with hydrologic boundaries) that met all four of the criteria in S5.C.5.c.i of the Phase I permit. Snohomish County's proposed unit of watershed planning was substantially defined by jurisdictional, rather than hydrologic, boundaries, and thus failed to meet the basic standard of being a "watershed" and reflecting the "stream system." However, Ecology acknowledges that the selection of the Little Bear Creek watershed created a disproportionate burden on Woodinville, and has therefore modified the Phase I and Phase II permits to limit the Little Bear Creek watershed-scale planning effort to the upper watershed area which is within Snohomish County, removing Woodinville and Bothell from the required planning area.

6. Thank you for your comment. Ecology modified footnote 3 to provide a clear description of its approval rationale. Ecology is not changing its determination of watershed suitability for any Phase I county.

Collaboration and Consensus Between Entities

Commenters: Clark County, King County, Pierce County, Snohomish County, City of Arlington, City of Redmond, City of Woodinville

Summary of Comments

1. If a local jurisdiction has already done modeling the lead agency should utilize that data if at all possible, or use it as a calibration tool.
2. Jurisdictions expected to pay a pro rata share should be included as a member of the integration team along with Ecology, and have opportunity to establish a consensus based strategy. Before investment is made we should confirm we are tackling the right problems where we can have an impact. People not familiar with the local conditions may seek unnecessary sampling.
3. Clearly state whether or not secondary permittees are required to participate in watershed scale stormwater planning. There are no requirements in S6 for secondary permittees to participate. Also, the permit should define participating entities as cities and counties covered by a phase I or phase II permit.
4. The requirement to address "any input received from participating entities on the scope of work, modeling exercise, and planning strategies" is overly broad. It could include almost anything. Also, a response to reject input would have to demonstrate the proposed change is infeasible, which is a very high bar. The proposed change could be less effective, more expensive, poor application science and so on but still be feasible.
5. Remove the language near the end of S5.C.5.c.ii requiring counties to invite governmental entities not subject to a municipal permit. There are two issues with this. The term governmental entity is vague and could lead to a county inadvertently overlook one or more “entity” and creating a permit violation. A governmental entity not subject to the municipal permit would not have an MS4 and no real need to conduct stormwater planning. Such entities are still free to comment on the draft plan. If there are specific agencies with a stake in the outcome of the plan, for example WDFW, perhaps list them as required invitees. The permit should list the municipal permittees and governmental entities that counties are required to coordinate with to avoid confusion and the potential for missing one.
6. The 2014 WSDOT permit does not clearly require participation in watershed scale stormwater planning beyond providing data upon request from the counties. Perhaps a statement in the permit to this effect be helpful for describing the level of WSDOT involvement.
7. Clarify that the requirements in S5.C.5.c.v and .vi only apply to the shared watersheds of King and Snohomish Counties and not to Clark County.
8. The 3rd bullet of S5.C.5.c.ii reads that the watershed plan needs to be managed by consensus. Does the documentation of how stakeholder's comments are accounted for need to be part of the watershed plan, or can they be part of the annual reporting?

9. Challenges and polarization have emerged surrounding this obligation, which could have been avoided if a different approach was taken to the permit development process. Thurston County, along with likeminded permittees, will soon take steps to advocate for an alternative approach that works to foster a setting where Ecology, permittees, and stakeholders can collectively explore options to achieve mutual gain during the development of the next round of municipal stormwater permits.
10. Ecology must not draft the permits in a manner that undermines a permittee's ability to comply with its assigned responsibilities. For example, the Phase I permittees bear the burden of meeting the final plan deadline in the Phase I permit. Neither the current Phase II permit, nor the proposed modifications to the Phase II permit, subject Phase II permittees to this deadline and the resultant permit violation if it is not met. Ecology cannot obligate Phase I jurisdictions to meet a deadline and then place outside of their control the ability to meet said deadline.
11. The proposed language requires only "Permittees subject to a Washington State municipal stormwater permit" for mandatory participation in the watershed-scale planning process. This limitation excludes other municipal stormwater permit holders that are subject to EPA permitting (e.g., federal facilities and discharges on Tribal Lands) and unpermitted stormwater dischargers, such as drainage districts, which Ecology has not issued permits to. This is a major limitation in the ability of County permittees' ability to meet the objectives of the permit requirement for use attainability. Pierce County urges Ecology to seek delegation for federal facilities and Tribal Lands permitting and to complete permitting of unpermitted discharges to fill these gaps and to cost share for the watershed scale planning as Phase II Permittees are in this modification.
12. The Phase I permit requirements in S5.C.5.c.ii (requiring the counties to convene and lead a documented watershed-scale stormwater planning process) and the Phase II permit requirements in S5.C.4.c.v (for participation of a Phase II permittee if all or part of its coverage area under the permit is in a watershed selected by a Phase I County) are inadequate to provide for a legal and knowing compliant process. They should be void for their vagueness. No requirement for interlocal agreements as contemplated by the PCHB in their March 2014 findings and conclusion is provided for in the regulations. Phase II permittees are given no opportunity to participate in alternative watershed selection evaluation. What if a phase I county and one or more Phase II permittees cannot agree on important study, modeling or other planning process issues requiring their cooperation? There is no dispute resolution mechanism. Just telling permittees to go play well with one another, is insufficient, vague and makes for unreasonable permit requirements.
13. Subparagraph S5.C.5.c.v is a totally different approach to meeting this requirement than was in the final permit, which itself, deviated significantly from the published draft permit. Requiring the resource and financial contributions of Phase II permittees is a major departure from the final permit which required only Phase I Counties to fund this work. Had Pierce County been given the opportunity of have Ecology require other Permit holders to pay a proportionate share of the sampling, modeling, and planning costs, we may have selected a different watershed. Ecology's process and schedules in

this permit, that required its approval of watershed selection and scopes of work, precluded that possibility.

14. The Phase I and Phase II permits are inconsistent in their presentation of participating entity obligations. The Phase II permit introduces the list of obligations as follows: "As needed and as appropriate, the permittee shall: …" In contrast, the proposed Phase I permit introduces the list of obligations as follows: "The permittee shall: …" Is Snohomish County held to a different standard of participation than Phase II participating entities in the Bear Creek effort? Second, who decides when an action is needed and appropriate is not stated, nor is there any further explanation of such a standard. Both permits should employ consistent language when consistent obligations are intended.
15. Phase I -S5.C.5.c.v(10): "The strategies and schedules for each permittee must be part of an integrated watershed-wide implementation plan." As regulatory language, the purpose of this sentence is unclear. Is it intended to direct the Phase I participating entity, Snohomish County, to submit the implementation plan and schedules it develops to the lead Phase I permittee, King County? If so, the language should be modified to clearly state that requirement.
16. Phase I - S5.C.5.c.v(1) – (11); Phase II - S5.C.4.g.1 – xi : "The list of watershed-scale planning activities, above, to which Phase II permittees (and Phase I permittees, where they are participating in but not leading a process) must contribute is intended both to obligate full participation by all entities, and to prevent Phase I counties from requiring participation in planning activities that are not required by the permit." Ecology appears to misapprehend the role of Phase I permittees in this watershed-scale planning process. Phase I permittees are not requiring Phase II permittees to conduct watershed-scale stormwater planning. Ecology is the responsible regulatory authority and should be setting forth clear requirements for this process in the appropriate permits. Further, Phase I permittees have no interest in "requiring participation in planning activities that are not required by the permit." Accordingly, there is no need for Ecology to suggest it needs to "prevent" them from doing that. The watershed-scale planning process is a creation of Ecology. Phase I permittees are interested in complying with their Phase I permit obligations.
17. Phase II - S5.C.4.g.i – iii: "Data quality and quantity must be compatible with the rest of the project data." It is unclear how this is determined or by whom. The approved scope of work will contain enough specificity for some of the data, but for other data the criteria for adequacy will only be determined after approval of the scope of work. Further, there is no specific schedule or set of deadlines by which the participating entities must provide adequate data. This has the potential to seriously undermine the ability of the lead County permittee to meet the final deadline imposed. Change the last sentence in S5.C.4.g.i - .iii to read: "Data must be provided according to the schedule set forth in the Ecology-approved Scope of Work for the watershed plan, and data quality and quantity must be adequate for the project as determined by the lead County Permittee."

18. The proposed requirements of the Permit are setting up a system that will lead to conflict between agencies about when, how, required level of effort, and approval process for the basin studies. The Permit does not identify a method to resolve conflicts if there are disagreements between the two parties involved with the basin studies. These requirements need to be thought through and redone to address these issues and how conflicts are to be resolved.

Response to Comments

1. Ecology encourages permittees to use all available resources for watershed-scale planning. Permittees may use an existing model for their obligations under S5.C.5.c.ii, so long as that model meets the requirements laid out in that section.
2. Ecology agrees that input from all participants in the watershed-scale planning process is essential for creating the best possible plan. The revised permit language gives permittees the flexibility to jointly agree on a way to meet the planning obligation, or operate under a separate scope of work and solicit input from other permittees. This should ensure that local expertise is utilized.
3. The watershed-scale stormwater planning requirement does not apply to secondary Permittees because it is not found in S6. Furthermore, there are currently no secondary permittees within the watersheds selected by Phase I counties. In addition, the "participating entities" phrase has been removed from the permit.
4. This requirement has been replaced with the options for permittees to collaborate under a single scope of work, or direct their own work independently. Permittees are still required to describe how they will solicit and respond to feedback.
5. The requirement to solicit input from governmental entities not subject to the permit has been moved to section S5.C.5.c.iv (7), for Phase I, and S5.C.4.g.ii.g, for Phase II. Governmental entities not subject to an MS4 permit may not have a need to conduct stormwater planning, but the proposed implementation plan may include capital projects, changes to code or zoning, or other actions that could affect them. Permittees are not required to comprehensively list all entities that will be invited to provide input; rather, their scope of work must explain how they will invite participation in their public process in a way that is likely to solicit broad input from a variety of parties. Examples include email or mailing lists and direct contacts with staff, in addition to the standard public notice processes of publishing a notice in a newspaper and on a website.
6. WSDOT is a governmental entity that may participate in a watershed-scale planning process led by a permittee. WSDOT permit obligations cannot be enumerated in any of the permits being issued at this time.
7. Sections S5.C.5.c.v and .vi of the Phase I permit have been removed. Sections S5.C.5.c.iii and .iv (Phase I), and S5.C.4.g.i and .ii (Phase II), have been modified to clarify how, and to whom, the watershed-scale planning requirement applies. Phase I S5.C.5.c.iii (1) and (2) and Phase II S5.C.4.g.i. (a) and (b) lay out the permittee's obligations to include in their scope of work an explanation of how all permittees under a single scope of work will work together, and mechanisms for coordinating planning efforts within a single watershed, respectively.

8. Phase I S5.C.5.c.ii has been revised to allow permittees to craft their own process for decision-making when working under a single scope of work. Any final plan submitted under a single scope of work must represent the opinions of all permittees who use that plan to meet their permit requirement. Documentation of the decision-making process may be one way of meeting that requirement.
9. Ecology welcomes suggestions on ways to improve the permit writing process.
10. Ecology agrees that permittees cannot be forced to rely on the actions of others to meet their permit obligations. The revised permit language requires permittees performing watershed-scale planning in watersheds with multiple scopes of work to submit a document that identifies the processes they will use to coordinate with other jurisdictions operating under independent scopes of work. The revised permit language does not require permittees to contract with one another, though it leaves that option open and it is Ecology's preferred approach. The permit does not require permittees to establish consensus with other permittees, or otherwise obtain approval from another entity, before their scope of work or implementation plan is approvable by Ecology.
11. Ecology acknowledges that federal and tribal lands within watersheds may complicate a permittee's ability to model conditions that meet water quality targets. Presumably this is one factor that permittees accounted for in selecting a watershed for analysis. Seeking delegation of EPA authority for federal and Tribal lands is outside the scope of this permit modification.
12. Ecology agrees that permittees cannot be forced to rely on the actions of others to meet their permit obligations. PCHB decisions 12-093c and 12-097c require "full participation" in watershed-scale planning from Phase II permittees, but provide no context for how that participation is intended to occur. The modified permit language gives Phase I and Phase II permittees identical levels of clarity for permit requirements. It does not require interlocal agreements, though such agreements may facilitate joint scopes of work and implementation of plan development. It does include provisions for dispute resolution. Phase I and Phase II permittees are required to submit a report describing a process for coordinating within shared scopes of work and for cooperating with activities performed under other scopes of work in the same watershed. Permittees are not required to obtain approval of that process from other Permittees submitting separate scopes of work.

    The revised permit language clarifies that each scope of work must clearly identify the jurisdiction(s) to which it applies, the data needs within that area, and how those data needs will be met, either by using existing data or collecting new data.
13. The permit was appealed by numerous permittees, including Pierce County, specifically with regard to watershed-scale planning. This permit requirement was not stayed. Therefore, while the appeal was underway, permittees were required to implement, and Ecology was required to enforce, the permit as written and adopted. Pierce County appears to be suggesting that, given the PCHB decision requiring full participation by all affected Phase I and Phase II permittees, Phase I counties should have the opportunity to choose a different watershed. Allowing for reselection of watersheds would be

incompatible with completing the watershed-scale planning in this permit term, which would be in opposition to the PCHB ruling. Additionally, the original criteria for watershed selection have not changed in this permit modification.

14. The modified permit language includes identical scope of work and implementation plan requirements for Phase I and Phase II permittees.
15. Phase I Section S5.C.5.c.v (10) is no longer in the modified permit language. Permittees conducting watershed-scale planning in a watershed with multiple scopes of work must describe their plan to coordinate their efforts with other permittees under S5.C.5.c.ii (2) for Phase I and S5.C.4.g.i (b) for Phase II.
16. Phase I Sections S5.C.5.c.v (1) – (11) are not in the modified permit. The modified language gives Phase II permittees the option to either conduct their own watershed-scale planning, or collaborate with other permittees under a single scope of work. Accordingly, Phase II permittees can decide for themselves whether a scope of work is insufficient, meets permit requirements, or goes above and beyond.
17. Phase II Sections S5.C.4.g.i-iii are not in the modified permit. The language that replaces them is identical to the equivalent language in the Phase I permit. Ecology agrees that permittees cannot be forced to rely on the actions of others (e.g., provision of data) to meet their permit obligations.
18. Ecology agrees that successful implementation of the watershed-scale planning permit requirement relies upon a robust mechanism for coordination between all of the permittees within a selected watershed. The proposed language allows permittees to either develop their own scopes of work or collaborate under a single scope of work, which should allow permittees to avoid scope of work-related conflicts. Permittees that choose to work under a single scope of work may use whatever coordination mechanism they see fit.

Technical Requirements

Commenter: King County

Summary of Comments

1. The feasibility of accurately monitoring continuous stream flow upstream and downstream of MS4s within Woodinville and Snohomish County is questionable. Since those two permittees have jurisdictional areas in the [Bear Creek] headwaters, those MS4s are considered the upstream condition of the watershed. SOW submitted by King County does not suggest or include flow gauges above MS4's in those headwaters.
2. It is unclear what is specifically being asked for in Phase I Section S5.C.5.c.ii.(4). It can be interpreted as saying to use the DeGasperi hydrologic metrics, but also it reads as if based on the journal's data set as well (i.e., 16 locations).
3. S5.C.5.c.v.(9) states: "...model predicts...conditions...fully support 'existing' and 'designated' uses throughout the stream system." This is a very absolute set of terms that may not be achievable-- especially "throughout" the system. This could potentially require individual modeling of every catchment, which would require significant financial resources. How is "fully support" defined in terms of quantifiable metrics?

4. S5.C.5.c.v.(3) states: "...establish correlations with flow data." It doesn't explicitly state a statistically significant correlation. Is this an intentional omission? If so, it seems like it would be difficult to impose a specific regression method if there is no significance. If Ecology requires more than High Pulse Count as a metric, the possibility of this situation occurring does go up.
5. The scope of work detailed in the modifications does not present a comprehensive, multidisciplinary watershed planning approach. Effective watershed planning requires a comprehensive planning effort that includes the knowledge and insights from numerous professional disciplines. A plan that relies too heavily on engineered solutions will not be effective at implementing land-use changes. Suggested modification: Reduce the costly requirement to collect data to run models that will result in costly engineered solutions, and consider options for non-engineered solutions to future impacts, in order to increase the likelihood of implementation.
6. S5.C.5.c.v(9): "Select stormwater management strategies and conduct an evaluation of the effectiveness of those strategies …. This could require multiple model runs." Ecology's proposed comment on multiple model runs is unnecessary. Delete the following sentence: "This could require multiple model runs."

Response to Comments

1. The details of monitoring feasibility are best addressed through the submittal approval process, rather than the permit modification process.
2. Permittees who choose to use the DeGasperi paper must use both the correlations between hydrologic metrics and the 16 locations from the paper. Permittees with additional location data in the Puget Sound Lowlands ecoregion may propose to include the additional data in their scope of work. Details of how to meet technical permit requirements should be discussed with your permit manager.
3. The permit language is intended to require modeling of predicted water quality scenarios in the main stem stream in the selected watershed, and in significant tributaries. The details of which catchments will need to be modeled should be discussed with your permit manager during the scope of work approval process.

   State Water Quality Standards define what it means to 'fully support' existing and designated uses in terms of water quality, specifically pollutant concentrations. The DeGasperi paper provides a means to quantify whether or not a stream meets aquatic habitat uses based on flow characteristics.
4. Phase I Section S5.C.5.c.v (3) has been removed from the permit. The original intent of this language was to clarify the Phase II requirement to establish B-IBI scores and cross-reference them to hydrologic metrics, similar to S5.C.5.c.iv (2) (c) of the Phase I permit.
5. Ecology agrees that effective watershed planning requires input from multiple disciplines and sources, and has included permit language to encourage a broad view. Engineered solutions are only one of a number of potential implementation strategies listed in S5.C.5.c.iv (5) for Phase I and S5.C.4.g.ii (e) for Phase II. This approach relies on correlating existing and anticipated hydrologic metrics with B-IBI scores, which requires enough data inputs for a robust model calibration. Evaluating the impact of either

engineered solutions or land-use changes on designated uses for waters requires the use of models.

6. Phase I Section S5.C.5.c.v (9) is no longer in the modified permit.

Municipal Operations and Maintenance

Phase I	S5.C.9.d
Phase II	S6.D.3.iii.d

Commenters: City of Tacoma, Thurston County, City of Longview

Summary of Comments

1. It is Ecology's stated intent that Permittees not map features or areas that provide inadvertent infiltration as discharge points. It is unclear if Ecology intends for the Permittee to inspect catch basins immediately upstream from features or areas that provide inadvertent infiltration as part of Permit Section S.5.C.9.d.i(2). Please clarify.
2. If the task of mapping features or areas is excluded for inadvertent infiltration, does this mean we would not need to map the "Discharge Points" but we would have to know where they are and inspect them as required in S5.C.9.d.ii (Secondary Permittees) and S5.C.9.d.i(2)?
3. We question how practical it is to visually inspect piped and subsurface *discharge points* for illicit discharges. As such, we suggest the visual inspection requirement only apply to surface *discharge points*.

Response to the range of Comments

1. Response to all comments: see Definition section for changes made to the definitions proposed in the Draft Permits. Features that inadvertently infiltrate do not need to be mapped or inspected.

Monitoring and Assessment

Phase I	S8
Western Washington Phase II	S8

Regional Stormwater Monitoring Program (RSMP)

Commenters: Pierce County, City of Redmond

Summary of Comments

1. This modification requires municipalities using Option #2 to begin monitoring by October 31, 2014. This date should be modified to coincide with monitoring by the Regional Stormwater Monitoring Program (RSMP) - January 2015.
2. The jurisdictions that have elected to self-conduct status and trends monitoring as part of the Puget Sound Regional Monitoring Program have made recommendations to Ecology to ensure the single, comprehensive Regional Monitoring Program is successful. The self-directed Option 1 program is creating differing start dates, parameters, and methodologies. Rather than a single quality assurance project plan for status and trends monitoring, they are developing four. These steps are incremental paths to separate

and distinct, rather that coordinated and consolidated monitoring and will ensure that the same data are not collected or comparable.

3. Pierce County supports the change in S8.B.1.b.i to start monitoring on the water year. Pierce County requests the following language or alternative language that meets the same objectives be added to the Permit: "All sampling parameters, frequencies and schedules shall be the same as those used by Option 1 status and trends monitoring." This change would ensure the success of the Puget Sound Regional Monitoring Program by ensuring compatibility and usefulness of stormwater monitoring between Option 1 and Option 2 participants.
4. The Permit lists a discrete set of parameters to be sampled for the Option 2 program. The Option 1 program has elected to vary from that list. Pierce County is willing to vary likewise to do the same parameters as the Option 1 program.
5. The laboratory methods required of Option 2 provides only one single laboratory, meaning existing contracts with other laboratories can't be used. Pierce County is willing to add new labs, but believes flexibility in lab selection is important.

Response to Comments

1. It is not possible to delay the start of option 2 monitoring until January to coincide with the RSMP start date. The start dates for both RSMP and option 2 monitoring were known when permittees decided which option to choose. Because October 31st falls in the middle of the permit modification, and the effective permit requirements are in place until the modified permit is adopted, changing the option 2 start date to January would conflict with the permit requirement to start monitoring in October. The requirement cannot be administratively changed in time to provide a compliance pathway.
2. In July 2013, Ecology posted scopes of work for both RSMP and option 2 to assist permittees in making informed choices as to which S8.B option to select. Since then, the RSMP scope of work has changed pursuant to stakeholder recommendations in light of revised budget estimates and other factors influencing regional priorities. The option 2 scope of work has been changed since July 2013 only to correct errors and provide clarity. The RSMP needs this flexibility to accomplish the best possible regional monitoring program, and the permittees need this certainty to successfully comply with permit requirements. With the exception of permittee-specific details, the QAPPs for the RSMP and option 2 are the same.
3. Changing the start date from October to January will make little to no difference with regard to option 2 data usability in the RSMP. The data collected using the water year under option 2 can and will be used to inform regional analyses. Ecology designed option 2 to provide a meaningful, stand-alone data set for permittees monitoring in their jurisdictional areas. All data collected via both options are collected using the same protocols. As the RSMP parameter list expands, methods are added to the RSMP QAPP. Ecology will not require additional parameters of option 2 permittees.
4. Ecology and the RSMP will use additional data that Pierce County and other option 2 permittees independently decide to collect and provide for the regional analyses.

However, it is not a permit requirement that option 2 permittees collect any additional data, whether or not collection of that data is planned for the RSMP.

5. Flexibility in laboratory selection is allowed for most parameters. Option 2 permittees may choose different laboratories than those used by the RSMP. Laboratories must be Ecology-accredited and are required to participate in an inter-laboratory comparison to ensure data comparability. The very few parameters for which laboratories were specified are specialty parameters for which few laboratories are certified.

Definitions

Phase I	Definitions/Appendix 1 Definitions
Western Washington Phase II	Definitions/Appendix 1 Definitions

General

Commenters: King County, Snohomish County, the Morgans

Summary of Comments

1. Support Ecology's decision to implement consistent definition changes in both the Phase I and Phase II permits.
2. Incorporate the document titled "Municipal Stormwater Permits – Revised definitions explained" into the official Fact Sheet for the modified permit.
3. Provide definition for "connections" as it is used for the mapping section of the permit
4. Because municipal stormwater is no longer in its natural condition, the written language of the permit should refer to municipal stormwater as a stormwater sewer.

Response to Comments

1. Comment noted. Thank you.
2. In general, it is not Ecology's practice to revise the Fact Sheet after it has been published. The Fact Sheet, draft permit, final permit, and response to comments provide the full history and rationale of the permit requirements. The *Definition Guidance* document referred to in the comment was provided as a term of the settlement agreement. Since the definitions have been revised and clarified, Ecology has determined that guidance is not necessary to explain the definitions.
3. "Connection" refers to any discrete point where stormwater enters or leaves the MS4 such as from ditches or pipes, it does not include sheet flows or roof drains.
4. The Municipal Stormwater Permit for Phase I and Phase II jurisdictions authorizes stormwater discharges from municipal separate storm sewer systems (MS4).

Conveyance Systems

Commenter: Clark County

Summary of Comments

1. The definition of a conveyance system does not lend itself well to the describing the performance measure goal for conveyance system screening. The definition does not define what the terminus of a conveyance system is, making it challenging to define the number of conveyance systems. If each infiltration facility becomes an outfall and the

terminus of a conveyance system, almost all of our conveyance system mapping will need to be revised to get a proper count on the number of conveyance systems. The conveyance system definition should be written to keep the concept of a network of pipes and ditches leading to a single outlet or connection point (but including both areas draining to ground water and areas draining to surface water).

2. The definition of a conveyance system does not include stormwater facilities not owned or operated by the MS4 permittee that receive and treat stormwater from the MS4. If these facilities are not part of the MS4 conveyance system, there is no permit requirement to inspect and maintain them. Please clarify.
3. Structure the definitions of conveyance system and outfall to produce one conveyance system the ends in an outfall to surface water or a discharge point where the MS4 ends but not where there may be multiple smaller conveyance systems within a storm drainage catchment ultimately leading to a single MS4 surface water outfall or otherMS4 termination point.
4. In situations where the county MS4 enters a private stormwater control facility with a privately owned outfall, the MS4 terminates in a discharge point at the upstream end of the private facility, and it is no longer part of the MS4. This leaves the permittee free from inspection requirements.
5. The definition for **"conveyance system"** states: "means that portion of the municipal separate storm sewer system designed or used for conveying stormwater". Page 6 of the Draft Municipal Stormwater Permits – Revised definition explained states, "Stormwater conveyance is broadly used to indicate private or public stormwater infrastructure." The intent document appears to contradict the definition (municipal in definition – private and public in intent). In addition, it appears that the definition of MS4 encompasses only the conveyance system and does not encompass any stormwater facilities such as stormwater treatment and flow control facilities. Please clarify all definitions and intent.

Response to Comments

1. The definition of conveyance system is not intended to provide a means of dividing an MS4 into discrete "systems", but rather to distinguish between the parts of the system that are used for the transportation of stormwater from all other parts. The definition has no impact on the 12% annual screening obligation. Ecology disagrees that the definition for conveyance system should describe the terminus of such a system as the term is used to describe the means through which stormwater is transported.
2. There may be cases when the Permittee must inspect and maintain facilities not owned by the Permittee. The term conveyance system does not change Permit requirements. See the definition for "stormwater facilities regulated by the Permittee" and Permit requirements in section S5.C.9.b for maintenance of stormwater facilities regulated by the Permittee.
3. See comments above.
4. See Definition section for changes made to the definitions proposed in the Draft Permits.

5. Conveyance system definition in the permit is intended to apply to the Permittee's MS4. The MS4 definition clarifies the type of system, use, and ownership or authorized operators; this definition helps to clarify how, where, and why the permit applies. The reference in the *Draft Definition Guidance (8/14/14)* to "stormwater conveyance" is not the same term as "conveyance system" used in the Permits. As stated in the guidance the term "stormwater conveyance" is intended to clarify the intent of those words in the definition of Discharge Points, and is not intended as an additional definition for use in interpreting permit language.

Discharge points

Commenters: Clark County, City of Tacoma, City of Seattle, Thurston County, City of Shoreline, City of Longview, Pierce County

Summary of Comments

1. Recommend modifying the definition of a discharge point to also include all discharges to ground water, removing designed infiltration facilities from the outfall definition.
2. Provide a definition for "ground" as it relates to the definition for discharge point ("discharges to ground"). Clarify if "ground" is intended to mean "ground water." This may help clarify Ecology's mapping intent.
3. Stormwater facilities/BMPs, and conveyances, that inadvertently infiltrate such as ditches and swales should not be considered "discharge points" and should be excluded in each definition and explanation in the Permit, Statement of Basis and Definitions Guidance. Inclusion is not mandated by federal or state law. Revise as follows: "Discharge point also includes the location where a discharge leaves the permittee's MS4 and discharges to ground, except for stormwater facilities/BMPs, or conveyances, that inadvertently infiltrate such as ditches and swales or where such a discharge occurs via an outfall."
4. We encourage Ecology to tighten the definition of "discharge point" and clarify the Definition Guidance to **exclude** ditches in all cases (not just for mapping purposes) from the definition of a discharge point to ground.

   1) Typically, ditches are part of the conveyance system, not a facility or BMP (as specified in the guidance noted above).

   2) The use of "Inadvertent infiltration" is arbitrary.

   3) "Infiltration to ground" should be based on the design intent of the feature. Ditches are typically designed as part of the conveyance system, not infiltration, unless specifically designed otherwise.
5. What extent does this new term relate to roadside ditches and construction dewatering discharges during MS4 repair or replacement?
6. If inadvertent infiltration to ground is not removed from discharge points, common discharge points that inadvertently infiltrate to the ground, such as roadside ditches, could simply be referenced as such versus mapping every single location. Roadside ditches are already considered a "conveyance" requiring mapping, however additional inspection and mapping for these discharge points could be excluded.

7. The proposed language adds a new definition of "discharge points" which is not required by the PCHB ruling and includes "dispersion" which is decidedly not a "point". This addition increases the number and location of mapping, inspection and compliance activities and overall expands the reach of the Permit. Please delete this definition from the permit.

Response to all Comments

1. Based on the comments received, Ecology has modified the proposed definition as follows: ***Discharge Point*** *means the location where a discharge leaves the Permittee's MS4 through the Permittee's MS4 facilities/BMPs designed to infiltrate.*

   This definition pertains specifically to facilities/BMPs designed to infiltrate that are owned or operated by the Permittee. Locations that inadvertently infiltrate are not included in this definition. In locations where Discharge Points overlap with other features that are required to be mapped (such as stormwater treatment and flow control BMPs/facilities) both features should be mapped and distinguishable - as permit requirements relate to the features differently. For example, Discharge Point would be used for an infiltration BMP designed as a retrofit project, whereas a stormwater treatment and flow control BMP/facility is used to meet Minimum Requirements in Appendix 1 and has specific inspection and maintenance requirements contained elsewhere in the Permit. As a result, it will be important for O&M section compliance purposes to know where these latter features are located.

   The definition proposed in the Draft Permit also pertained to locations in the MS4 where a discharge leaves one permittee's system and goes into a public or private system. Both Phase I and Phase II Permits require the mapping of connection points. Although the Phase II mapping requirements are slightly different from the Phase I Permit, for consistency and clarity, the requirement to map connections between the MS4 owned or operated by the Permittee and other municipalities or other public entities is added to the Phase II Permit (See S5.C.3.c.vi of the Phase II Permit). February 2, 2018 date was added to this section in the Phase II Permit to provide Permittees time to meet the mapping requirements.

Outfall

Commenters: Clark County, City of Tacoma, Thurston County, Pierce County

Summary of Comments

1. To avoid confusion, we suggest the term *outfall* only apply to discharges from MS4s entering a surface receiving water body or receiving waters.
2. Including non-surface water discharge points (infiltration BMPs) as outfalls creates confusion about what an outfall is. A stormwater treatment/retention facility, bioretention facility, or permeable pavement is not an outfall under federal rules and should be designated a discharge to groundwater.
3. Add an "a" at the beginning of the sentence: "a point source…"Capitalize the "p" in "Permittee."

4. The proposed language changes the definition of "outfall" which is not required by the PCHB, already defined under EPA regulations and increases the likelihood of inconsistent federal and state compliance oversight of NPDES permittees in Washington. It also confuses and penalizes permittees who have already mapped outfalls as required under previous permits. Pierce County requests this definition be deleted from the permit.

Response to Comments

1. Based on the comments received, Ecology has modified the proposed definition as follows: "***Outfall*** *means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include 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).*" This definition clearly refers to a discharge to surface receiving waters.
2. See definition as revised above at #1. See also response to Discharge Point comments in this *Definition*s section.
3. Ecology agrees with these edits and has incorporated them into the permits.
4. As stated in the Statement of Basis and during the public workshops on the modifications, the definitions were a result of a settlement agreement with appellants – the definitions are incorporated into the Phase I and WWA Phase II permits for consistency as it is important that those in the same region use a common vocabulary which will aid in coordination and comprehension of permit requirements.

Rain Garden

Appendix 1 Definitions

Commenter: City of Bellevue

Summary of Comment

1. In Volume 1 Appendix G of the SWMMWW, the definition for Rain Gardens is different than the definition given in Appendix 1 of the Permit. Recommend that the Volume 1 Appendix G definition be used in the Manual and the Permit.

Response to comment

1. The definition for Rain Garden in Appendix 1 of the Permits has been modified to match the definition within the SWMMWW. Thank you for your comment.

Receiving waters or Receiving water bodies

Commenters: Clark County, Thurston County, City of Tacoma, Pierce County

Summary of Comments

1. If the proposed definition for outfall stands, revise the definition of receiving waters to include outfalls as the last word of the last sentence: "…Receiving waters also include groundwater to which a discharge occurs via facilities/BMPs designed to infiltrate stormwater <u>via an *outfall.*</u>"

2. Provide definitions for: discharge, facilities, dispersed flow, naturally occurring or reconstructed surface waterbodies. These terms are used in the newly modified definitions of outfall and/or receiving waterbody but not specifically defined.
3. The proposed language adds a new definition of "receiving waters" which is not required by the PCHB ruling and adds compliance threads to objects in addition to already adopted Waters of the United States and Waters of the State. This addition expands the reach of the Permit. Pierce County requests this definition be deleted from the permit.
4. Ecology should consider going to the legislature to change RCW 90.48 to change the pollutant discharge standard for municipal stormwater discharges from effluent criteria to the federal MEP (maximum extent practicable) pollutant reduction standard.

Response to Comments

1. Based on the comments received for the proposed definitions of outfall, discharge point, and receiving waters provided in the Draft Permits, Ecology has modified Receiving Water definition as follows: "***Receiving waters*** *means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or groundwater, to which a MS4 discharges*."
2. Ecology disagrees that each of the terms identified need a specific definition, as the context of the section where the terms are used, as well as the common dictionary definitions, provide sufficient explanation. Some of these terms mentioned are no longer used; see revised definitions in the corresponding sections above.
3. The proposed definitions resulted from a settlement agreement during the appeal process. The definitions are included in both the Phase I and Western Washington Phase II permits for consistency. Receiving waters is intended as a sub-set of waters of the state, no expansion of permit terms are created nor intended. Thus, discussion of waters of the state and waters of the U.S. in this comment is irrelevant.
4. Comment noted.

Stormwater Management Manual for Western Washington (SWMMWW)

Commenters: Clark County, Thurston County, City of Tacoma

Summary of Comments

1. Revise language to state "Stormwater Management Manual for Western Washington" means the May 2014 Stormwater Management Manual.
2. Add SWMMWW means the Stormwater Management Manual for Western Washington.

Response to Comments

1. The SWMMWW manual is referenced appropriately, the August 2012 date will remain, with the addition that the manual was amended in 2014.
2. This reference is included in the definitions section.

Waters of the state*

*Comments received on waters of the state were in reference to the *Draft Definition Guidance (8/14/14)* that was provided during the public comment period. No change to the definition in the permits was proposed, however Ecology deemed it appropriate to address those comments within this section.

Commenters: City of Seattle, WSDOT, Pierce County

Summary of Comments

1. Ecology has expanded the meaning of the term *waters of the state* to include stormwater found in municipal stormwater systems. Remove all references to stormwater as a water of the state.
2. If stormwater in road ditches were defined as "waters of the state", it would lay the foundation for an unmanageable situation in which the stormwater treatment point of compliance would change to requiring treatment prior to stormwater reaching the road ditch.

Response to Comments

1. Ecology has not expanded or modified the meaning of the term waters of the state. The Washington State Water Pollution Control Act defines (RCW 90.48.020) *waters of the state* as follows:

   > *Waters of the state shall be construed to include lakes, rivers, ponds, streams, inland waters, underground waters, salt waters and all other surface waters and watercourses within the jurisdiction of the state of Washington.*

   This broad definition has been interpreted by the state to include "any body of water that is either underground, or salt water, or above ground and either flowing like a stream or bigger than a puddle" (*Building Industries Association of WA, et al. v. City of Lacey, et al.*; *Thurston County Case No. 91-2-02895-5 (1993)*). The Attorney General's opinion from 1969 concludes that water in canals, drains, wasteways, and reservoirs of irrigation and drainage systems are waters of the state (AGO 1969 No. 4). Furthermore, numerous Pollution Control Hearing Board decisions have also concluded that water in irrigation wasteways, or stormwater/unnamed ditches are waters of the state (See PCHB decisions: 83-11 (1983); 84-182 & 85-66 (1985); 83-13 (1985); and 86-232 (1988)).

   These interpretations establish the basis of Ecology's understanding that stormwater within municipal stormwater systems is considered waters of the state.
2. Water within road ditches is considered waters of the state, see response above. For the purposes of the Municipal Stormwater Permits, discharges which are likely to cause or contribute to a water quality standards violation to *receiving waters*, not waters of the state, must be reported and addressed through section S4.F of the Permits. Municipal stormwater may need to be treated prior to discharge to *receiving waters*. When you report a water quality standards violation, and as long as you comply with the prescribed process under S4.F, Ecology considers the Permittee to be in compliance with conditions S4.A and B of the permit. The Municipal Stormwater Permits are

programmatic permits, there is no one "point of compliance" as the permit requires numerous tasks and programs to be conducted or established.

Appendix 1

Phase I	Section 1
Western Washington Phase II	Section 1

General

Commenter: Snohomish County

Summary of Comments

1. Regarding "Pavement Maintenance" the three pavement activities are within the road prism/footprint and all three should be considered redevelopment. Retain the sentence proposed to be deleted: <u>They are considered redevelopment</u>."

Response to Comments

1. This sentence is removed for clarity. Although it may not be common, some of the situations described may be new development. One example is if a paved surface is removed and replaced to base course or lower on a site that has less than 35% existing impervious surface.

Appendix 2

TMDL Development

Commenter: Whatcom County

Summary of Comments

1. While the proposed modifications do not directly relate to the forthcoming TMDL for total phosphorus for Lake Whatcom, we understand that the TMDL requirements from the eventual final TMDL will be incorporated into the next NPDES Phase II permit for Whatcom County. With that linkage in mind, Whatcom County offers the following comments. These comments are the same as the comments provided to Ecology in November 2013. We are providing them again at this time as we have not heard from Ecology since our previous comments were submitted and want to ensure that Ecology is aware that these issues remain. Issues raised include concern regarding:
   a. Ability to retrofit existing development to the level proposed
   b. Assumptions and projections associated with the model
   c. Infiltration concerns
   d. Ability to achieve compliance

Response to Comments

1. Thank you for your comments – Ecology staff has forwarded the comments to the TMDL writer. This section is not proposed to be modified at this time and is therefore not subject to comment in this modification process.

Appendix 9

Phase I	Appendix 9
Western Washington Phase II	Appendix 9

Protocols and Parameters

Commenters: Clark County, City of Tacoma

Summary of Comments

1. The permit requires grab samples from qualifying storms. Grab samples represent a single point in time during a storm and therefore do not need to be from a qualifying storm. The permit should set a predicted minimum depth and antecedent dry period for grab samples. The permit should state that grab samples must be collected during storm events that are predicted to meet qualifying storm criteria at the beginning of the event. If the storm subsequently fails to qualify because the rainfall depth falls short of 0.20 inches, the grab sample will still be considered valid.
2. The section discussing flow-weighted composite samples should note that these parameters are for stormwater characterization conducted under S8.B.2. and S8.C.2. Adding this language makes it clear that the monitoring is for a specific permit requirement and not all composite stormwater sampling that could be used to meet a permit requirement.
3. While pH is a conventional parameter, it should not be added to composite stormwater parameters, and should be removed. The inclusion of pH in Table A9-2 reflects the need to include all composite storm parameter lab methods.
4. Remove grain size as a parameter for stormwater sampling for outfall characterization. Grain size analysis is appropriate only for sediment monitoring, and was only included in the 2007 permit for BMP effectiveness studies. Grain size analysis for water samples would require a significant volume of water and would not provide any additional valuable information for stormwater outfall characterization. Total suspended solids is adequate to characterize land use runoff.
5. The list of individual PAHs for stormwater and sediment analysis are not consistent:
   a Revise the stormwater analyte list in the bullet on page 4/14 by adding 2-methylnaphthalene and replacing benzo(b)fluoranthene and benzo(k)fluoranthene with benzo(b,k)fluoranthenes; and
   b Revise the sediment analyte list in the bullet on page 5/14 by adding acenaphthene, acenaphthylene, anthracene, benzo(b,k)fluoranthenes, dibenz(a,h)anthracene, fluorene, and indeno(1,2,3c-d)pyrene, and removing benzo(b)fluoranthene and 2-6 dimethylnaphthalene.

   The final analyte list for both stormwater and sediment samples should include the following PAH compounds: 2-methylnaphthalene, acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(b,k)fluoranthenes, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

6. Table A9-2 lists the analytical procedures for outfall discharge monitoring for stormwater characterization. Particle size distribution should be removed from the list. Particle size distribution is appropriate only to BMP monitoring for treatment system evaluation. With the removal of particle size distribution, the added attached method for Wet Sieving and Mass Measurement For Laser Diffraction Analysis should also be eliminated from Appendix 9.

Response to Comments

1. The grab sample requirement has not changed in this permit modification, and is therefore not open for comment at this time. Permittees are welcome to discuss the details of, and possible changes to, their monitoring programs with their permit manager. Ecology's position is that grab samples should be taken from events that meet the same qualifying criteria as composite samples.
2. The composite sample requirement has not changed in this permit modification, and is therefore not open for comment at this time. Permittees are welcome to discuss the applicability of permit language to their monitoring programs with their permit manager.
3. pH is a fundamental water quality parameter that is straightforward to measure and provides valuable data. Ecology does not agree that it should be removed from stormwater monitoring. This requirement has not changed from the 2007 permits.
4. Ecology agrees that grain size analysis is not necessary to characterize water samples, and has removed it as a required water parameter from Appendix 9. Grain size remains a required parameter for sediment samples.
5. The list of PAHs has not changed in this permit modification, and is therefore not open for comment at this time. Ecology agrees that the list should be revised as stated, and will consider revisions for the 2018 permit cycle. Permittees should follow their Ecology-approved QAPPs for monitoring (which may, in certain cases, provide more specific guidance than the permit language).
6. Ecology agrees that particle size distribution (PSD) is primarily of interest in characterizing flows from best management practices. The modified language includes a footnote stating that PSD is required only for flows from BMPs.

Appendix 12

Phase I Appendix 12

Wording and Phrasing

After the comment period was closed it was brought to Ecology's attention that the wording of Question 37 did not match the intent of the section it referenced (S5.C.7.b.iii). The proposed revision requires that permittees report the total number of inspections, rather than the number of sites inspected.

Response to Comments on the 2014 Update to the Stormwater Management Manual for Western Washington

Volume I

Topic: Definitions

Commenters: Bellevue, King County, Sawdust Supply, Seattle, Snohomish County, Washington Organic Recycling Council

Comments:

1. Definition for rain gardens is not the same as appears in Appendix 1 of the Phase I and II municipal permits. Prefer proposed definition in the manual.
2. Add "compost" to the definition of "composted material" because they are used interchangeably in the manual.
3. Replace "compost" definition with the definition for "composted materials," as amended to delete "solid waste," and adding reference to biosolids. Replace "composted materials" with "compost" in the BMP texts. Agree with elimination of "composted mulch" in definitions and the BMP texts. Use "mulch" or "coarse compost" as appropriate.
4. Add reference to use of biosolids in making compost.
5. Definition of composted material should be changed to allow "…. Decomposition at a permitted facility in compliance with the requirements of Chapter 173-350 WAC or 173-308 WAC.
6. Add definitions for mulch and biosolids. Make sure the mulch definition includes all of the options allowed for various uses in the manual.
7. "Underdrains" should replace "under-drains" in the entire manual text.
8. The definitions for "commercial agriculture" and "converted vegetation areas" appear twice in the glossary.
9. Change the definition of "conveyance system" to that used in the municipal stormwater permits.
10. The proposed definition for "freeboard" references "the crest of the facility." Please define "crest." Either provide a figure or show the location of crest in figure 3.2.2 "Typical detention pond sections," and provide a reference to the figure in the definition of freeboard.

Response:

1. The definition in the permit has been changed to be consistent with the manual.
2. The glossary defines compost. "Composted Material" is a term defined in Chapter 173-350 WAC. Composts containing biosolids are not included in the definition of "composted material" in Chapter 173-350 WAC.
3. Agreed. The manual incorporates the suggested changes.

4. Agreed. Added a note in the definition that alerts the reader to restrictions or prohibitions on use of biosolids in various BMPs.
5. See Response to #3 and #4.
6. Agree to add definitions for biosolids and mulch. The biosolids definition is from WAC 173-308. The mulch definition is intended to include all the different types of materials that can be used for mulch. Different materials apply in different applications.
7. Agreed.
8. Duplication deleted.
9. Do not agree. The definition in the permits is appropriate for the term's use in the permits only. The definition of conveyance system in the manual is appropriate for how the term is used in the manual. The manual is used by more than municipal stormwater permittees.
10. The "crest" of a facility varies with BMP type. Rather than try to identify crests for all facilities, Ecology has identified the "top of the pond embankment" as the crest for a pond design.

Topic: References

Commenter: Bellevue, Redmond

Comments:

1. Replace references to 2012 SWMMWW.
2. Remove references to the LID Technical Guidance Manual for Puget Sound in Figure 2.5.1.
3. Update reference to the Puget Sound Partnership's Action Agenda.

Responses:

1. All appropriate references are changed. Some references are appropriate to retain for historical purposes, e.g. credits for the 2012 update.
2. Agree to remove reference to the LID Manual in Figure 2.5.1.
3. The reference and text are updated.

Topic: Exemptions

Commenter: Snohomish County

Comment:

1. Disagree with the elimination of the sentence that identifies the listed pavement maintenance practices as redevelopment.

Response:

1. The sentence was removed because it was inaccurate. Some of the situations described in this paragraph may be considered part of new development rather than redevelopment. An example is removing and replacing a paved surface to base course or lower on a site that has less than 35% existing impervious surface.

Topic: Section 2.4 Applicability of Minimum Requirements

Commenter: Snohomish County

Comment:

1. In the second paragraph, revise the statement concerning the timing for the determination of applicable minimum requirements to: "The Minimum Requirements must be determined during the permit application review process."

Responses:

1. Ecology has decided to retain the text in the 2012 stormwater manual. This text will remain the same as the corresponding text in Appendix 1 of the Phase I and II Municipal Stormwater Permits for Western Washington.

   The intent is that a project proposal must include an assessment of the applicable Minimum Requirements at the time of permit application. The local government with jurisdiction is required to review the application for accuracy in determining the applicable Minimum Requirements. Special Condition S5 of the Phase I and II Municipal Stormwater Permits require the municipal permittees to have a permitting process that includes site plan review.

Topic: Figure 2.5.1

Commenters: Pierce County

Comments:

1. The footnote to Figure 2.5.1 in regard to use of BMP T5.13 is confusing. Please clarify.
2. Ecology needs to specify who is responsible for granting an exception/variance.

Responses:

1. The box in the lower left corner of the figure applies to projects that have to – or choose to – meet the LID Performance Standard. The text for Minimum Requirement (M.R.) #5 indicates that BMP T5.13 is necessary for projects triggering M.R. #1 - #9. The text for M.R. #5 does not require the use of BMP T5.13 for projects choosing to meet the LID Performance Standard though triggering application of only M.R. #1 - #5. This was an inadvertent omission. Therefore, the footnote indicates that Ecology recommends applying BMP T5.13 to these smaller projects, but does not require it. Municipal stormwater permittees who want to require the use of BMP T5.13 for small projects (triggering only M.R. #1 - #5) choosing to use the LID Performance Standard, should add that to M.R. #5. Please note that small projects using the list approach, i.e., List #1, must use BMP T5.13 for all lawn and landscaped areas.
2. Project-specific design exceptions/variances are granted by the local government with jurisdiction. See Section 2.8 in Volume 1 of the manual, and Section 6 of Appendix 1 in the Phase 1 Municipal Permit or the Western Washington Phase II Municipal Stormwater Permit. Please note that Figure 2.5.1 is offered under a "Supplemental Guidelines" section in the SWMMWW. It is not incorporated into Appendix 1 of the municipal stormwater permits. It is offered to local governments to clarify Minimum Requirement #5. Local governments can choose to incorporate the flow chart into their local codes or manuals or not.

Volume II

Topic: Construction Site Erosion Control Elements and BMPs

Commenters: Bellevue, Pierce County

Comments:

1. On page 3-24, indicate that documenting BMP implementation and maintenance in a site log book applies only to sites larger than 1 acre.
2. The proposed modifications to BMPs C151 and C154 seem too restrictive. It seems odd that washout is not allowed in formed area that is ready for concrete.
3. Update Table 4.1.1 to reference sodding and plastic covering as BMPs for element #6, protecting slopes.

Responses:

1. The reference has been changed to indicate that the site log book update applies only to sites covered under the Construction Stormwater General Permit. The Construction Stormwater General Permit applies to sites under an acre that meet certain conditions.
2. Washout of concrete involves adding water. The resulting process wastewater does not have the same properties as concrete that is being poured for a foundation and designed to cure. The text of these BMPs has been changed to be in conformance with requirements of the Construction Stormwater General Permit. Washing out concrete truck chutes, etc into a formed area is not in compliance with that permit.
3. Agreed. Corresponding text in Section 3.3.3 is also updated to include those BMPs.

Volume III

Topic: Content

Commenter: Redmond

Comment:

1. Add BMPs T5.11 and T5.12 to this Volume because they assist with flow control.
2. Add Tree Retention and Planting (BMP T5.16) and Dispersion to Volume III.

Response:

1. BMPs T5.11 and T5.12 were not included in Volume III dating back to the 2001 manual because they generally serve pollution-generating surfaces. Volume V originally provided BMPs just for pollution-generating surfaces. Ecology acknowledges that BMPs T5.11 and T5.12 provide flow control benefit through the "Runoff Modeling" subsection of the text for the BMPs.
2. All of the On-site Stormwater Management BMPs are now included in Chapter 5 of Volume V either expressly or by reference. All of the On-site Stormwater Management BMPs have a flow control benefit. To reduce duplication in the manual, details for each BMP are included just once, either in Chapter 5 of Volume V, or Chapter 3 of Volume III. Ecology will consider reorganizing the next edition of the manual to reduce confusion caused by the current structure.

Topic: Infiltration testing:

Commenter: Bellevue

Comment:

1. Ecology's minimum native soil infiltration rate for bioretention, rain garden, and permeable pavement feasibility is 0.3 in/hr. The manual text does not indicate that the testing should be conducted between December 1 and April 1 though Ecology staff have indicated that. Requiring such a test for small projects is problematic because such projects don't usually employ (and the SWMMWW doesn't require) a professional engineer.

Response:

1. The 2012 SWMMWW includes a statement in Section 3.4 of Volume III on page 3-103 regarding infiltration testing between December 1 and April 1 for bioretention and permeable pavement. The 2013 Rain Garden Handbook is referenced in M.R. #5 for projects designing rain gardens. That handbook directs the reader to its Appendix C for soil testing of sites subject to M.R. #1 - #5. Appendix C references Section 3.4 of Volume III, as well as the Site Planning Guidance in Chapter 3 of Volume I, and infiltration testing procedures in Section 3.3.6 of Volume III of the SWMMWW.

   To reinforce the guidance for infiltration rate testing between December 1 and April 1, Ecology has added those dates into the site planning guidance on page 3-3 of Volume 1. Ecology also has added those dates to Section 3.3.4 of Volume III. That section generally applies to the design of larger-scale infiltration facilities. Note that the infiltration testing should be conducted by a professional with expertise, not necessarily a professional engineer. See page 3-3 in Volume 1 for Ecology's guidance.

Topic: Western Washington Hydrology Model

Commenters: Clark County, Seattle, Snohomish County, Tacoma

Comments:

1. The WWHM is not AKART because it doesn't represent non-Puget Sound soils well. Ecology should use existing data and calibrations done in Clark County to modify the WWHM to include two soil types found in Clark County.
2. The proposed changes in the modeling requirements on pages C-3 & 4 are unclear.
3. A gravel trench with 25 foot minimum flow path should receive the same modeling credit as a splashblock with a 50 foot minimum flow path. Both should (have the tributary area) be modeled as landscaped. This should be incorporated into BMP T5.10B, T5.11, T5.12, and Appendix C of Volume III.
4. Direct the user to input acres of outwash (A/B), till (C), and saturated/wetland soils for the site conditions.
5. The modeling guidance for dispersion BMPs T5.11 and T5.12 is confusing because there are no flow control requirements for dispersion. Explain that the guidance provides options based on site parameters.

6. The SWMMWW appears to provide a preference to single point discharge dispersion systems (dispersion trenches and splashblocks) over sheet flow dispersion. Provide a basis for the new criteria.

Responses:

1. The Western Washington Hydrology Model (WWHM) can be calibrated to many soil types occurring in Western Washington. If a local government does not think the few soil categories in the default WWHM apply well to the soil types in their area, they can perform the work necessary to propose more accurate calibrations. This is described on page 2-3 of Volume III of the manual. Such proposals must receive Ecology approval before they can be incorporated into the WWHM and be available for general use. Local governments should consult with Ecology when scoping the field work necessary to propose a recalibration. Ecology has been working with Clark County on providing sufficient data necessary to verify calibrations for additional soil types in Clark County.
2. Additional guidance has been added. Without specific recommendations, it is difficult to know whether the commenters' concerns are addressed.
3. Ecology disagrees. A 50-foot flow path has been used in the stormwater manual since 2004 as the length needed to allow the tributary area to be modeled as landscape for runoff modeling purposes. In this update, Ecology has added a partial credit for flow paths of 25 – 50 foot length. But because of the shortened length, it is mandating the dispersion technique that is more likely to spread the flow adequately. Ecology also notes that these runoff credits are more generous than is achieved by using the "lateral flow" option in WWHM 2012. Therefore, without field measurements to verify the accuracy of these assumptions, Ecology is not inclined to grant additional flow reduction credit.
4. The guidance at page 2-6 and Appendix III-B is modified to indicate input of A/B, C, or saturated soils.
5. BMPs T5.11 and T5.12 do require modeling guidance. They are BMPs that partially disperse stormwater. They are not the same as BMP T5.30 – Full Dispersion. Only Full Dispersion does not require modeling guidance.
6. The new guidance is restricted to giving a modeling credit (i.e., model the roof as 50% impervious, 50% landscape) where a downspout dispersion trench built in accordance with the guidance in BMP 5.10B is used and the vegetated flow path length is 25 to 50 feet. The guidance for BMPs T5.11 and T5.12 does not require as large of a dispersion trench (2 feet X 3 feet versus 2 feet X 10 feet). Therefore, a corresponding credit, where only 25 to 50 feet of flow path is available, does not seem appropriate. A local government may provide the same modeling credits for BMP T5.11 and T5.12 as for BMP T5.10B if they require use of the 2 feet X 10 feet dispersion trench for the surfaces described by BMPs T5.11 and T5.12 (e.g., driveways, walks).

Volume IV

Commenters: Pierce County, Snohomish County

Comments:

1. BMP S431 text conflicts with the referenced guidance manual WQ-95-056 Vehicle and Equipment Washwater Discharges/BMP Manual, November 2012. That guidance manual indicates discharges to ground must be permitted. BMP S431 does not indicate that. The guidance manual is confusing on this issue, and BMP S431 adds to the confusion.
2. The proposed modification of BMP S411 is unclear, self-contradictory, and adds a regulatory layer which the County would be responsible to enforce. Pesticide use is adequately regulated by federal and state laws. Modify this requirement to "The use of pesticides must be in accordance with all applicable regulations and manufacturers' requirements."

Responses:

1. The "Vehicle and Equipment Washwater Discharges – Best Management Practices Manual (Publication No. WQ-R-95-056)" indicates that there are instances where discharges of vehicle washwater must be permitted through a State Waste Discharge Permit. However, the guidance document discusses some instances where a State Waste Discharge Permit may not be required and encourages the reader to consult with their local Ecology office. Therefore, there is no conflict between BMP S431 and the "Vehicle and Equipment Washwater Discharges – Best Management Practices Manual (Publication No. WQ-R-95-056)".
2. Ecology agrees that the draft wording could be seen as contradictory. The intent is to provide extra awareness that there may be additional restrictions on pesticide use in specific areas (e.g., around water bodies) beyond those that are on the pesticide product label. Ecology has modified the language to provide clarity.

Volume V

Topic: Bioretention Soil Mix

Commenters: Arlington, Bellevue, US Composting Council, King County, Northwest Biosolids Management Association, Redmond, Sawdust Supply, Snohomish County, Washington Organic Recycling Council

Comments:

1. The Bioretention soil mix leaches dissolved copper, nitrates, and phosphorus. Ecology should not require its use.
2. We support the use of compost for green stormwater infrastructure, including rain gardens and bioretention.
3. The Pollution Control Hearings Board directed Ecology to consider the results of additional sampling data and, if necessary, refine the prescribed soil mix before its usage is required. Ecology should address the pollutant export issue by prescribing a new soil mix that eliminates the increased discharge of pollutants.

4. How can a Phase II municipality comply with S4A. S4B. and S4F concerning compliance with standards, if it complies with Minimum Requirement #5, which includes the use of bioretention? Similarly, how does a permittee affected by the Watershed Planning requirement (S5.C.4.g – Phase II, S5.C.5.c – Phase I), or permittees subject to a Total Maximum Daily Load requirement for copper, phosphorus, or nitrate comply?
5. The default Bioretention soil mix results in an illicit discharge into the municipal separate storm sewer system.
6. Adjust the compost specification as follows:
    a. Omit the statement allowing pH modification of compost using chemical addition. Adjusting the pH with chemicals would only mask maturity/stability problems. Stable, mature compost typically achieves the required pH range.
    b. Agree with proposed physical contaminant limit.
    c. For clarity, add "EC," or Electrical Conductivity Value" after soluble salt content. Reporting as mmhos/cm is OK, but the generally accepted unit of measure is dS/m.
    d. Maturity: change to "Maturity indicators from a cucumber bioassay (TMECC 05.05-A "Seedling Emergence and Relative Growth") must be greater than 80% for both emergence and vigor." (Another commenter indicated that the categories are maturity and vigor)
    e. Stability: Add units. Suggest mg CO2/g OM/day.
    f. C to N ratio: Change the reference of "Total Kjeldahl Nitrogen" to "Total Nitrogen by Oxidation" to accurately reflect the referenced test. Another commenter indicated that the C:N ratio should reference "Method 05.02-A Carbon to Nitrogen Ratio"
    g. The minimum 40% organic matter content for the compost is unrealistic unless it includes wood fragments as part of the organic matter. 30% would be more appropriate. Note that loss on ignition organic matter is supposed to be determined on the fraction of a compost that is less than 9.6 mm.
7. The regulation of feedstocks for the compost should be an interim standard. Compost is highly variable, resulting in variable treatment effectiveness and leachate quality. Ecology should pursue (conduct or sponsor research to collect data for) scientifically supported numeric performance criteria/specifications (i.e., quantitative parameters for potential pollutants of concern) for compost and leachate used in bioretention. The long-term standard should be protective of surface and groundwater and the aquatic environment. It should not cause or contribute to violations of water quality standards, and not add pollutants to stormwater.
8. Disagree with restricting feedstocks for the compost used for the bioretention soil mix. Regulating the feedstock is a poor indicator of the chemical and biologic parameters of compost quality. There are no studies indicating that exclusion of manure and biosolids from a compost mix will yield a better performing compost in bioretention, rain gardens, and other similar BMPs. Eliminating manures and biosolids will make these BMPs infeasible due to unavailability of product in some locations. This restriction unfairly selects for yard and food waste composts made in the Seattle and Tacoma

areas. Composting facilities aren't often able to eliminate a particular feedstock altogether. Setting a performance standard allows composters to create specialty products.

9. The 85% compaction statement in Figure 7.4.1 may cause over-compaction. Suggest changing to a description concerning soil placement to avoid over-compaction.
10. There should be some flexibility in regard to the gradation of compost since there will be greater demand for soil amendments. The permittee should be allowed to approve equivalent materials.
11. All composts should be available for use in general landscape amendment under BMP T5.13. Additional feedstock or pollutant-of-concern testing should apply only to bioretention soil mixes and related BMPs designed for treatment of concentrated flows, with high compost percent in mix and high flow-through volumes.
12. Better to put a rapidly evolving specification such as those for bioretention soil (both aggregate and compost specs) in a reference document separate from the stormwater manual. Then it could be updated more frequently than the lengthy update process used for the manual.

Responses:

1. In a decision issued last year, the PCHB ruled in favor of retaining the bioretention-related requirements and the current soil specification. As directed by the PCHB, Ecology will consider the results of ongoing testing and, if necessary, refine the prescribed soil mix. Ecology cannot consider such action until the ongoing studies that it has funded have data of sufficient quality.
2. Noted.
3. See #1 above.
4. Ecology assumes that the commenter is concerned about compliance with surface water quality standards, groundwater quality standards, sediment management standards, including human-health based criteria. Ecology affirms the use of bioretention as a BMP intended to comply with these standards. Ecology has already included restrictions on the use of bioretention where 1) it will be underdrained with an eventual surface discharge to a phosphorus-sensitive water, and 2) it will discharge to the ground within one-quarter mile of phosphorus-sensitive waterbodies if the underlying native soil does not meet the soil suitability criteria for treatment in Chapter 3 of Volume III. The degree of the potential nitrate concern is not yet clear. Other monitoring locations did not replicate the high nitrate seen in the first study done by the City of Redmond. The discharge of copper could be an issue if an outfall to a receiving water had a large percentage of its flow from underdrained bioretention systems. That would seem not a very common situation in the near term. Even in that situation, for municipal stormwater permittees, water quality standards violations are measured in the receiving water, not in the MS4 itself. This small risk of a water quality standards violation may be further reduced by updated soil media guidance that should be available next year.

   In regard to TMDL compliance, the default approaches of the manual can be superseded by stormwater treatment strategies required by a TMDL, and included in Appendix 2 of

the municipal stormwater permits or other enforceable mechanism. In regard to the watershed planning requirement of the permit, assumptions for treatment levels by various BMPs don't have to be set until long after updated soil specifications should be available.

5. The effluent from a Bioretention system constructed and maintained in accordance with the municipal stormwater permits is not considered an illicit discharge.
6. Recommendations a. through d. are incorporated. Recommendations e. and f. have been included as part of the revised text based on other comments. Recommendation g. is rejected. The 40% organic content requirement has not been identified as a problem in other local and state guidance and requirements.
7. Given the current state of knowledge, restricting the feedstock source is the most practical way to proceed. Certainly, testing of easily replicable and consistent soil source materials for compliance with the TAPE performance standards, as well as for evaluating the effluent for a broader range of pollutants, would be a desirable way to proceed. But compost materials, including biosolids, are somewhat variable. Ecology has restricted the feedstock source to plant waste and food waste because:
    a. Relative consistency in low levels of metals from sources that do not include biosolids
    b. Biosolids contain much higher concentrations of metals
8. The lack of studies gives Ecology caution. Manures are higher in nutrients. Biosolids are higher in metals. We need to reduce the loss of those pollutants from the bioretention soil mix. Starting with higher levels of those pollutants in the media would make the task more difficult.
9. The text within the sub-section titled "Soil Placement" indicates that the compaction requirement can be met by "boot packing."
10. The gradation is Ecology's recommendation. The reason for the recommendation includes achieving consistent infiltration rates close to the default range, and the pollutant removal capability of the mix. A permittee wanting to approve another gradation size should follow the guidelines for making a "custom soil mix." The text for those guidelines has been changed to allow for other gradations.
11. The manual does not restrict compost feedstocks when used to comply with BMP T5.13.
12. There is not an alternative to the current approach. Ecology will consider new data and recommend an updated soil specification, if necessary. Local governments may choose to use the updated specification or continue to use the default in the 2014 manual.

Topic: Bioretention Infiltration Rate

Commenters: Kitsap County, Seattle, Redmond, Snohomish County

Comments:

1. Ecology's guidance doesn't actually change with the proposed modifications. Based on monitoring of full scale bioretention facilities, and observed performance of bioretention mesocosm data, we recommend a long-term design infiltration rate of 6 inches per hour for the default soil mix. No correction factor should be applied. Alternatively, identify the initial infiltration rate as 12 inches per hour and a Ksat safety factor of 2. For custom soil mixes, retain the correction factor guidance.
2. Disagree with the use of two different assumed infiltration rate for underdrained bioretention systems; one for water quality and one for flow control. The modeled infiltration rate should match the rate of the media, not the function of the media. This guidance conflicts with statements on page 7-12. Use 6 inches per hour for both. A pre-settling requirement should address fouling concerns for treatment. Change Appendix C in Volume III to be consistent.

Responses:

1. Ecology has considered the additional testing information submitted by the City of Seattle. Based on those data, Ecology is revising the estimated initial infiltration rate of the default soil mix to 12 inches per hour. Ecology continues to recommend infiltration rate safety factors of 2 or 4 depending upon the size of the drainage area. However, the text now indicates that bioretention preceded by a pretreatment device for solids removal may also use a safety factor of 2.
2. The Ecology proposal was based on current state of knowledge about the "rate of the media," not the "function of the media." The data submitted by the City of Seattle indicate some variability in the infiltration rate of the default soil mix – even if it meets the specification. There are also varied opinions about whether the initial infiltration rate will decrease, increase, or stay about the same. These rates are generally not as critical when the bioretention system is not underdrained. When the system is underdrained, with the underdrain directed to surface drainage, Ecology was concerned that the assumed rate of infiltration through the soil profile could have a significant effect on what is necessary to meet Minimum Requirement #7 – Flow Control. If the bioretention soil infiltration rate is under-estimated, the bioretention facility's effect in reducing surface discharge rates is over-estimated. If the bioretention infiltration rate is over-estimated, the facility's effect in reducing surface discharge rates is under-estimated. These inaccuracies affect the sizing of downgradient retention/detention facilities that are often necessary to demonstrate compliance with Minimum Requirement #7. Undersized facilities mean greater risk of accelerated stream channel erosion and habitat degradation.

   To investigate the impact of assumed infiltration rates through the bioretention soil profile on the sizing of downgradient retention/detention, Ecology ran project scenarios using bioretention soil infiltration rates of 12 inches per hour and 3 inches per hour. The underlying native soil infiltration rates were assumed to be 0.3 inches per hour with a safety factor of 0.5 applied (i.e., a functional infiltration rate of 0.15 inches per hour).

The bioretention facilities were modeled with an underdrain elevated 6 inches above the bottom of the aggregate bedding layer. The modeling indicated that varying the bioretention infiltration rate between 3 and 12 inches per hour had an inconsequential effect on the size of downgradient retention/detention facilities necessary to meet Minimum Requirement #7. Therefore, Ecology is withdrawing the proposal to have underdrained bioretention facilities be modeled twice; once to estimate its ability to meet treatment volume requirements, and once (with a higher assumed infiltration rate) to estimate downgradient flow rates.

Topic: Bioretention and Rain Garden Underdrains

Commenters: Thurston County, Bellevue, Clark County, Kitsap County, Seattle, Oak Harbor, Redmond, Snohomish County, Washington Dept. of Transportation

Comments:

1. Allow elevated underdrains incorporated for overflow purposes to satisfy Minimum Requirement #5.
2. Require underdrains for a certain range of infiltration rates to minimize failure risk, improve performance, and improve long-term operation and maintenance. Support Seattle's proposal to require underdrains where the measured (initial) infiltration rate is between 0.3 and 0.6 in/hr.
3. Allow the use of elevated underdrains for bioretention facilities where soils approach 0.3 in/hr. This facilitates bioretention use in marginal areas while still providing infiltration. This will result in more use of bioretention and less failures.
4. Allow use of elevated underdrains in soils with measured rates greater than or equal to 0.3 and less than 0.6 inches per hour. Moderate to high flow reduction is still achievable based on monitoring High Point and Ballard systems. Eliminating this option reduces the potential for use of bioretention in dense urban areas where potential for stormwater migration along utility corridors and other unintended consequences is too high of a risk.
5. Is slotted, thick-walled plastic pipe required or just recommended? Disagree with the premise that perforated PVC and flexible, slotted HDPE pipe cannot be cleaned with root-cutting equipment and pressurized water. Lack of availability and expense make it undesirable when more readily available products should suffice. Where soils aren't very permeable, products such as "Infiltrator chambers" could be used under bioretention.
6. Make Type 26 aggregate gravel backfill a requirement rather than a guideline. Other gradations have poor outcomes.
7. The proposed exclusion of underdrained Bioretention systems on page 7-6 is not supportable. Underdrained Bioretention should still be allowed to help meet the LID Performance Standard.
8. The capacity of the system to detain water and qualify as an LID BMP is based on the outlet elevation of the underdrain. Provide the ability to install underdrains as overflows, based on outlet elevations and still satisfy, MR #5.

9. Modeling of bioretention systems with: a 15:1 ratio of tributary impervious area to bioretention area; a 0.3 inch/hour infiltration to the native soil; 3.2 inches of storage (8 inches of gravel at 40% porosity); and pre-development condition of till forest and outwash forest, resulted in meeting the LID flow duration standard - except for high precipitation areas trying to achieve the outwash standard. So, an elevated underdrain above a gravel base should be considered an LID option.

Responses:

1. Ecology has revised the manual to allow use of elevated underdrains in areas where the native soil infiltration rate tests between 0.3 and 0.6 in/hr. Ecology is concerned that without a standard design specification for an elevated underdrain, there will be too much variability from municipality to municipality. Those with only slightly elevated underdrains will not accrue nearly the benefit that would have been achieved had no underdrain been used. Therefore, Ecology is setting an elevation of 6 inches above the bottom of the aggregate bedding layer. Based on model runs for a near worst case scenario (5% ponded area compared to impervious drainage area, 3.6 inches ponding depth, native soil infiltration rate of 0.30 in/hr, a safety factor of 0.5 on the native soil infiltration rate, 22 inches of Type 26 mineral aggregate (assume 40% voids)), bioretention facilities with 6 inches of aggregate below the underdrain and for the entire bottom width of the bioretention facility will infiltrate a high percentage (80% plus) of the amount infiltrated in a similarly placed bioretention facility without an underdrain. Thus, the function of bioretention to meet the intent of Minimum Requirement #5 is still being achieved. And, its placement in the hierarchical list approach is still appropriate.

   Ecology has added criteria that underdrained bioretention facilities must meet if they are being used to satisfy list #2 of Minimum Requirement #5. The criteria are intended to make more certain that the facilities retain the potential to infiltrate significant amounts of water, and to minimize the instances that the underdrain feature will increase the potential for the facilities to be determined infeasible.

   Ecology has added figures depicting bioretention without an underdrain; bioretention with an underdrain, and bioretention with an underdrain and impermeable liner. A bioretention design with an impermeable liner is not considered LID because infiltration into the ground is prevented.
2. See Response #1.
3. See Response #1.
4. See Response #1.
5. Ecology disagrees. The recommendations for pipe materials are based on research and experience. A local government may choose to allow other pipe materials, but will likely encounter increased long-term maintenance issues.
6. Using the word “requirement” rather than “guideline” does not change the regulatory status in regard to what municipalities may adopt in local codes. The permit allows municipalities to deviate from detailed design criteria if they consider the deviation will still protect water quality, reduce the discharge of pollutants to the maximum extent practicable, and satisfy State requirements to apply all known, available and reasonable

treatment. A municipality may choose to designate the aggregate specification as a requirement in their local stormwater manual.

7. See response to 1 – 4 above. Underdrained Bioretention, with the underdrain elevated or not, is allowed under the Performance Standard option. Please enter into the approved computer model correctly.
8. LID BMPs are intended to reduce surface runoff. Detaining water for subsequent release to surface water is not a prime objective. Standard designs assume gravity flow through the underdrain. So the elevation of the slots in the underdrain pipe determine the maximum depth of ponding, and thus temporary storage, in the gravel bedding. Municipalities may allow underdrains with a negative slope, and thus increased storage capacity. However, Ecology advises against extended saturation of the bioretention soil media. The underdrain's overflow elevation should be sufficiently below the bottom of the bioretention soil media that head losses will not cause standing water in the bioretention soil media.
9. See response to 1-4 above.

Topic: Criteria for Municipal Designation of Geographic Areas as Infeasible for Bioretention, Rain Gardens, and Permeable Pavement

Commenters: Bellevue, Tacoma, Thurston County

Comment:

1. Recommend allowing municipalities to map such areas using all of the infeasibility criteria.
2. Recommend extending the option of designating areas as infeasible for all BMPs that rely on infiltration.

Response:

1. Most criteria require detailed site knowledge that is not easily mapped. Some criteria require professional judgment and so cannot be mapped. Some criteria can be mapped, including:
   - Where land for bioretention, rain garden, or permeable pavement is within area designated by the local government as an erosion hazard, or landslide hazard.
   - Within 50 feet from the top of slopes that are greater than 20% and over 10 feet vertical relief
   - Within 100 feet of a closed or active landfill

   Ecology will expand the manual statements to incorporate these criteria. Municipalities can map areas meeting other specific criteria if they have the documentation.
2. The concept of designating more BMP types as infeasible on a geographic basis is acceptable. However, minimum design and infeasibility criteria in regard to depth the groundwater and infiltration rates vary with the BMP type. For instance, various dispersion options, which are relied upon for infiltrating some amount of water, are implementable in areas with higher groundwater and with slower draining soils than are necessary for bioretention. So, using one set of criterion for all BMPs would be inappropriate.

Topic: Rain Gardens

Commenters: Bellevue

Comments:

1. What is the regulatory status of the Rain Garden Handbook (2013)?
2. Identify who is responsible for maintenance in BMP T5.14A.

Responses:

1. The Rain Garden Handbook is a guidance document that does not have any regulatory status on its own. S5.C.4.ii. of the Phase II permit, and S5.C.5.a.ii of the Phase I permit, require the permittee to have local requirements that, when used to implement the minimum requirements in Appendix 1, include BMP design criteria that will protect water quality, reduce the discharge of pollutants to the Maximum Extent Practicable, and satisfy the State requirement to apply all known, available, and reasonable methods of treatment prior to discharge. Minimum Requirement #5 in Appendix 1 of the Phase I and II municipal stormwater permits for Western Washington refers to BMP T5.14A – Rain Gardens in Volume V. The text for BMP T5.14A refers the reader to the 2013 Rain Garden Handbook for BMP design criteria. Therefore, permittees who choose to use the Stormwater Manual for Western Washington (and by reference the BMP design criteria in the Rain Garden Handbook) may cite these guidance documents as their documentation to meet S5.C.4.ii. of the Phase II Permit (S5.C.5.a.ii of the Phase I Permit). Otherwise, permittees must document how their local design criteria will meet the requirements in S5.C.4.ii or S5.C.5.a.ii.
2. None of the On-site BMP descriptions identify who is responsible for maintenance. So, it is not appropriate to add that into the text. However, maintenance guidance for all On-site BMPs is available within the "Guidance Document (for) Western Washington Low Impact Development (LID) Operation and Maintenance (O&M)" published in 2013. So, it is appropriate to reference that guidance in each of the On-site BMP descriptions.

Topic: Permeable Pavement

Commenters: Clark County, Seattle, SGA Engineering, Snohomish County

Comments:

1. 10 inches per hour is too high as the standard for triggering maintenance. Local rain intensity rates are much lower and should be used to set a trigger, such as 2 inches per hour.
2. An infiltration test should not be required if permeable pavement receives only direct rainfall and is proposed for use under the List Approach.
3. Can Ecology add statements that allow regular pavement with runoff collection inlets with a settling basin, and a distribution manifold into a drain rock section below as an alternative to permeable pavement? Also, consider an option of permeable shoulders, or a combination of the above. These could be alternatives where maintenance and wear of permeable pavement is a concern.

4. The capacity of an underdrained permeable pavement to detain water, and thus function as an LID BMP, is determined by the outlet elevation of the underdrain not the elevation of the underdrain in the subgrade. Revise the language and add a figure.

Responses:

1. The trigger for maintenance was set based not only to be higher than short time interval rainfall intensities but also in regard to the ability to regenerate and maintain long-term adequate infiltration rates using the recommended procedures. A pavement which is performing at only 10 inches per hour is significantly clogged. Allowing the rate to drop further means that there is less chance that the recommended cleaning methods will maintain adequate infiltration rates in the long-term.
2. Disagree. There should be a test to document infiltration feasibility and so that computer modeling can be used to arrive at designs that are safe for the roadway.
3. Local governments can allow the described options. Ecology has indicated that in a response to comments on the 2012 manual and permits.
4. See response to a similar statement under bioretention.

Topic: BMP T5.13 Minimum Soil Quality and Depth:

Commenters: King County, Redmond

Comments:

1. Delete reference to a maximum organic content of 65% for the compost. Use the same reference to a minimum organic content of 40% as is used for the compost in the bioretention soil mix.
2. Please add a statement that designers must check with the local jurisdiction before specifying compost with manure or biosolids.

Responses:

1. The 65% guidance has been in the stormwater manual since 2005. It also appears in guidance published by the Washington Organic Recycling Council.
2. Ecology disagrees. This type of statement could be added after virtually every design criterion in the manual. Designers should always be aware of local codes that may be more restrictive than the guidance in the stormwater manual.

Topic: Maintenance Standards Consolidation

Commenter: Redmond

Comment:

1. Consolidate the maintenance standards into one location in the SWMMWW. There are separate maintenance tables for detention ponds and vaults/tanks in Volume III and V.

Response:

1. Ecology will delete the maintenance tables in Volume III for detention ponds, vaults, and tanks. The tables in Chapter 4 of Volume V are referenced in the municipal stormwater permits, so those must remain. Ecology will consider further consolidation in future stormwater manuals.

Topic: Maintenance Standards for Bioretention and Permeable Pavement

Commenters: Pierce County, Snohomish County

Comments:

1. The inspection and routine maintenance frequencies cannot not supersede or replace the municipal stormwater permit requirements for inspection frequency required of permittees for "stormwater treatment and flow control facilities."
2. The maintenance standards for all other BMPs do not specify inspection frequencies, presumably in recognition of the requirements set forth in S5.C.9.c (phase I permit). The inspection frequencies are not needed and in some cases conflict with those in the permit. Delete all inspection frequency information from Section 4.6.
3. The "Ab" and "S" frequencies should be avoided as Ab is too difficult to schedule and S is redundant with elsewhere in the permit.
4. It is too restrictive to not allow use of pesticides or Bti where extended ponding times have resulted in mosquitoes. Pesticide use for mosquito control is allowed in other facilities such as catch basins and detention ponds. Modify to allow the use of pesticides in accordance with all applicable regulations and manufacturers' requirements.
5. The descriptions of maintenance actions needed for earthen side slopes and berms could be simplified using language from the tables for maintenance of Ponds. There are other instances for multiple BMPs where existing language for similar defects could replace the proposed language for bioretention.
6. Ecology should develop a method for testing pavement permeability that does not require purchase of an ASTM C1701 hard copy of a pdf that can't be shared.
7. The procedures for corrective maintenance do not say what to do, if anything, if the permeable pavement surface remains clogged after following the recommendations.
8. The procedure for cleaning moss from sidewalks only indicates removing moss with a stiff broom. Is this the only method allowed since there are no other options available?
9. The maintenance for permeable pavement says to replace with in-kind where feasible. What is considered feasible? Does the direction to fill potholes or small cracks with patching mixes mean that regular asphalt with tack and crack seal with tack can be used.
10. Remove direction for inlets/outlets/pipes. Maintenance for pipes and catch basins aren't covered for Ponds. Why pavement?

Responses:

1. It is not clear if the commenter intended the double negative in the comment. In any case, the proposed tables have a statement in the heading that indicate that the inspection and routine maintenance frequencies do not supersede or replace the municipal permit requirements for municipalities to inspect "stormwater treatment and flow control facilities."
2. The inspection frequencies in the table were developed without regard to whom would be performing the inspections. They are the best professional judgments and recommendations of the consultants who prepared the tables. Ecology considers them

as recommendations to municipalities and owners of these systems. If followed, they should help achieve proper functioning of the BMPs. It would not be appropriate or helpful to those wanting maintenance guidance for Ecology to censor these recommendations.

3. Please see responses #1 and #2 above. The recommendations are guidance to owners/operators who are interested in maintaining high BMP function.
4. Bioretention facilities should not have water ponding for extended time periods that can facilitate mosquito breeding. Where it does happen, the recommended actions are as indicated in the table for solving ponded water. Only after pursuing those fixes, and only as a temporary measure, should use of pesticides be considered. If a discharge (overflow) to a surface will occur within 2 weeks, apply for coverage under the NPDES permit for Aquatic Mosquito Control. Ecology has changed the table to indicate the above.
5. The proposed language for bioretention facilities is generally more descriptive than the statements for other BMPs. These facilities are a new BMP option, so more direction seems appropriate. In addition, depending upon the municipality's maintenance strategy, these BMPs are more likely to be maintained by owners or third parties. So, the more detailed descriptions are appropriate.
6. Ecology disagrees. The cited test is the industry standard. Purchase of appropriate testing materials is a reasonable expectation for municipal stormwater maintenance operations.
7. The text lists three methods to clean clogged pavement. If one method does not work, the others should be tried. If those methods yield an infiltration rate less than ten inches per hour, the municipality will have to decide upon a long-term course of action. If the infiltration rate is below 10 but still above most rainfall intensities so that it infiltrates most rainfall, it may be an acceptable condition. But ongoing intensive maintenance would be needed to maintain the reduced infiltration rate. If infiltration rates are very low, e.g., the permeable pavement is a failed facility, pavement replacement may be necessary. If the pavement was placed as part of a new development or redevelopment project's strategy to meet treatment (Minimum Requirement #6) and/or flow control (Minimum Requirement #7), the functions used to meet the Minimum Requirements must be restored. That could mean removing and replacing the pavement surface.
8. A local government can specify and can allow alternative methods for moss removal that it thinks will remove moss. There are smaller scale vacuum machines coming on the market to handle smaller areas such as sidewalks.
9. It is preferable to replace with in-kind material. Such material may not be available in the time frames or the small quantity needed for the job. This is more likely to be the case in the early years of permeable pavement implementation until suppliers become more numerous. Municipalities performing their own maintenance jobs should prepare to make permeable mixes more available for their crews. It is acceptable to do small patching with standard asphalt. The function of the facility used to meet Minimum

Requirements must be considered. Where the maintenance jeopardizes the facilities ability to continue to meet the Minimum Requirements, additional measures may be required.

10. There are maintenance procedures for inlets, outlets, and pipes for some other BMPs. So, it is not unusual to have recommendations here. The recommendations are appropriate for the proper functioning of those elements that can be part of a permeable pavement design.

Topic: Competing Needs and Infeasibility Criteria

Commenters: Bellevue, Redmond, SGA Engineering, King County, Tacoma, Thurston County
Comments:

1. Consider raising the minimum infiltration rate for bioretention, rain gardens and permeable pavement to 0.6 in/hr, and continue to recommend but not link the rate with an appropriate testing time period.
2. Federal and State regulations require Redmond to implement its Wellhead Protection Program. The program establishes a Critical Aquifer Recharge Area that may limit or prohibit infiltration of stormwater under certain conditions. Ecology should resolve conflicts between the Federal Clean Water Act and the Federal Safe Drinking Water Act, and acknowledge a local jurisdiction's authority to regulate stormwater infiltration as deemed necessary to protect its drinking water supply through the following modifications:
    a. Revise the Competing Need for "public health and safety standards" to read "public health and safety standards, including Critical Aquifer Recharge Area requirements."
    b. Under BMP T5.15, revise an infeasibility criterion to: "Within 100 feet of a drinking water well, or a spring used for drinking water supply, or within a Critical Aquifer Recharge Area in which infiltration is prohibited, if the pavement is a pollution-generating surface.
    c. Under BMP T7.30, revise the infeasibility criterion to: "Within 100 feet of a drinking water well, or a spring used for drinking water supply, or within a Critical Aquifer Recharge Area in which infiltration from pollution-generating surfaces is prohibited.
3. Delete "Residential access roads generally receive only very low traffic volume and very low truck traffic." It is not substantiated by evidence presented to the Pollution Control Hearings Board (PCHB). It is gratuitous. It is not called for or required by the PCHB decision. It creates an unwarranted presumption, and is overly broad.
4. Provide a definition for "roads and areas that bear very low traffic volumes or very low truck traffic." The proposed text gives a general direction but leaves it open for interpretation that will result in unequal application of the infeasibility criteria.
5. An AASHTO manual on uses less than 400 average daily trips (ADT) to define very low volume roads. This may be a good definition for the feasibility criteria for permeable pavement. This would be consistent with other guidance manuals. The criterion should be written to not prohibit the use of permeable pavement on higher volume roads, if appropriate.

6. We support an approach that allows local jurisdictions to define "very low traffic volumes or low truck traffic."

Responses:

1. Ecology is maintaining the minimum recommended infiltration rate at 0.3 inches per hour. Significant additional information was not provided as a basis to have Ecology change the recommended rate that was upheld by the Pollution Control Hearings Board. Ecology's guidance has been that the infiltration rate testing should occur between December 1 and April 1 (see Volume III, page 3-103).
2. Ecology acknowledges a local government's responsibilities to meet Federal Safe Drinking Water Act requirements, and its authority and responsibility to implement Wellhead Protection Programs under that Act. Ecology also understands that local governments must adopt local codes to protect Critical Aquifer Recharge Areas under the State's Growth Management Act. A local government should base any LID restrictions in these local codes on sound science. Because the scope and type of restrictions - beyond what is already established through the default provisions of the stormwater manual - are likely to be specific to the local situation, it seems appropriate to add a statement within the Competing Needs category rather than to try craft statements for the infeasibility criteria. Ecology has added a Competing Needs criterion.
3. Ecology has withdrawn the proposed statement.
4. Ecology concurs with the approach of defining the terms "very low traffic volume" and "very low truck traffic" for consistency in intent and implementation. See revised text.
5. Ecology concurs with the suggestion and has incorporated the American Association of State Highway and Transportation Officials guidance ("Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT $\leq$ 400)") of defining low-volume roads as those with an average daily traffic volume of 400 vehicles or less. The referenced guidance applies to "Local" roads. However, other guidance indicates that other types of roads may also have annual average daily traffic below 400. See the Federal Highway Administration's Highway Function Classification: Concepts, Criteria, and Procedures, 2013 edition.

   Ecology could not find an established definition for "areas with very low truck traffic." Ecology did find reference to a level of 4 to 5 heavy vehicles (includes buses, single units with six or more tires, and multi-trailer trucks) per day as a minimum traffic level for use of a National Cooperative Highway Research Program guide for design of "Low-Volume Roads." Ecology opted for a practical description of areas that have truck volumes typical of very low volume residential roads and commercial parking lots.

   The infeasibility criterion text indicates that the criterion "make permeable pavement not required." Permeable pavement may still be used on higher ADT roads if it is determined appropriate and allowed by the local government with jurisdiction.
6. Ecology does not concur with the regulatory approach of providing no guidance to local governments concerning "very low traffic volumes or areas with very low truck traffic." See Responses #4 and #5 above and the revised manual text.

Topic: Minimum Treatment Facility Size

Commenter: Tacoma

Comment:

1. Provide the basis for the minimum sizes of conventional treatment systems. Define conventional treatment systems. The recommendation seems to increase the size LID BMPs which contradicts the LID principle to be small and dispersed. Remove the recommendation or provide additional language.
2. If the recommendation is maintained revise for grammar and clarity.

Response:

1. Ecology used the computer model to estimate water quality design flow rates for the minimum areas that require treatment (i.e., 5,000 sq ft. of impervious, ¾ acres of lawn/landscaping) for an average West. Washington rainfall site (Seattle). The guidance to increase the capacity of the LID BMPs doesn't violate the principle of dispersed BMPs. Yes, they will be somewhat larger, but that would be necessary to meet the treatment requirement. The adjective, "conventional," has been struck from the proposed text. The reader should assume use of treatment BMPs that either appear in Volume V of the manual or are indicated as approved for use at the TAPE website.
2. Some wording has been changed. Without a more specific comment it is difficult to know if the changes address the commenter's concern.

Topic: Pretreatment Menu

Commenter: Tacoma

Comment:

1. The Pretreatment menu is very limited. Add guidance that any BMP can be used for pretreatment at a portion of its water quality design size. This allows facilities that can more closely mimic the overall design aesthetic of the system.

Response:

1. Ecology disagrees. It is not correct to assume that all treatment BMPs can be an effective pretreatment option at a portion of its water quality design size.

Topic: References & Format

Commenters: Snohomish County, Tacoma, US Composting Council

Comments:

1. A reference is made to a supporting document (Smith 2011) on page 5-28. Add to the reference list.
2. The subheaders describing the modeling guidance are not consistent among BMPs T5.10A & B, T5.11, and T5.12. Please make consistent.
3. TMECC stands for "Test Method for the Examination of Composting and Compost."

Response:

1. The recommended changes are incorporated.

Additional Changes Made by Ecology (due to informal questions and comments made after publication of the draft document)

1. Volume 1, page 2-32: Added "A" after "BMP T5.10" to make the reference accurate and consistent with Appendix 1 of the municipal stormwater permits.
2. Volume 1, page G-28: Changed "low permeable liner" to "low permeability liner" and added concrete to the definition. Both changes are for consistency with Chapter 4 of Volume V.
3. Volume III, page 3-106: The following text is added.

   > For bioretention with slide slopes of 3H:1V or flatter, infiltration through the side slope areas can be significant. Where side slopes are 3H:1V or flatter, bioretention can be modeled allowing infiltration through the side slope areas to the native soil. In WWHM, modeling of infiltration through the side slope areas is accomplished by switching the default setting for "Use Wetted Surface Area (sidewalls): from "NO" to "YES."

   Explanation: When allowing the wetted surface area to be modeled as infiltrating, the model uses the sidewall surface as if it were a horizontal infiltrating surface. This over-estimates the infiltration capability. At a 3H:1V slope, the error is of less consequence as compared to potential errors due to other assumptions and design elements that affect performance.
4. Volume V, page 3-5: The listing of project sites is brought out to the left hand margin so that it does not appear to apply only to #2 above.

   Explanation: The reading of the text indicates that it applies to #1 and #2. This reformatting reduces the potential for misreading the text, and makes the text consistent with Appendix 1 of the municipal stormwater permits for Western Washington.
5. Volume V, page 5-28: Added a reference to the maintenance table in Chapter 4 of Volume V.
6. Volume V, page 11-10: The definition for Q, as proposed on page 11-9, is also applied on page 11-10.

   Explanation: The definitions should be consistent between these BMP types so that they have a similar design basis.