

Location	Source of Change	Change	Reasoning or Comments
<b>General</b>			
Inside cover page	Ecology	Added an Executive Summary	Summarized the reasons for the update, the uses of the manual and provided information on the public involvement process.
Cover page and all volumes	Olympia	Document name is "Drainage Design and Erosion Control Manual"	Consistent with previous manuals
All Volumes	Olympia	Replace term "Minimum Requirements" with "Core Requirements"	Staff felt "Core Requirements" is a more appropriate term
All Volumes	Olympia	Where appropriate, replace term "local government" and "local jurisdiction" with "City of Olympia"	
All Volumes	Olympia	Replace term "Stormwater Site Plan " with "Drainage Control Plan"	Staff felt "Drainage Control Plan" is a more appropriate term and may reduce confusion. Consistent with Pierce and Thurston Counties.
All Volumes	Olympia	Replace term "Operation and Maintenance Manual " with "Stormwater Facility Maintenance Program"	Consistent with Pierce and Thurston Counties.
All Volumes	Ecology/ Olympia	Renumbered Tables and Figures	Renumbered all tables and figures in all Volumes. The new numbers coordinate tables and figures to the section of the Volume where they are located. (Eg. Figure 2.4.2 is the second figure in Section 2.4, Table 4.1.3 is the third table in Section 4.1).
<b>Volume I Core Technical Requirements and Site Planning</b>			
<b>Chapter 1 - Introduction</b>			
Chapter 1 - Introduction	Ecology	Update incorrect or outdated code references.	Revised incorrect or outdated code references, such as the RCW and WAC.
Chapter 1 - Introduction	Ecology	Minor language changes.	Revised for clarity and removed outdated language in Sections 1.2, 1.4, 1.5.1, 1.6.10.
Section 1.5.4 Flow Control BMPs	Ecology	Minor language changes.	Revised language for changes made in <i>Appendix I-D Guidelines for Wetlands when Managing Stormwater</i> .
Section 1.5.5 On-site Stormwater Management BMPs	Ecology	Additional guidance provided.	Language added to categorize On-site Stormwater Management BMPs, including LID BMPs.
Section 1.6.4 The Puget Sound Action Agenda	Ecology	Significant revisions to remove outdated guidance and to add new guidance. Section renamed.	Removed references and guidance related to the Puget Sound Water Quality Management Plan and replaced with guidance on the Puget Sound Action Agenda.
Section 1.6.5 Phase I - NPDES and State Waste Discharge Stormwater Permits for Municipalities	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance referring Phase I Municipal Stormwater Permittees to Appendix 1 of the permit for more information on the requirements for their stormwater program requirements.
Section 1.6.6 Phase II - NPDES and State Waste Discharge Stormwater Permits for Municipalities	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance referring Phase II Municipal Stormwater Permittees to Appendix 1 of the permit for more information on the requirements for their stormwater program requirements.
Section 1.6.7 Municipalities Not Subject to the NPDES Stormwater Municipal Permits	Ecology	Guidance removed.	Removed outdated references to the Puget Sound Water Quality Management Plan. Section renamed.
Section 1.6.8 Industrial Stormwater General Permit	Ecology	Revised to coordinate with the current Industrial Stormwater General Permit	Revised to provide an overview of the requirements of the current Industrial Stormwater General Permit and their relationship to the BMPs in the manual.
Section 1.6.9 Construction Stormwater General Permit	Ecology	Revised to coordinate with the current Construction Stormwater General Permit	Revised to provide an overview of the requirements of the current Construction Stormwater General Permit and their relationship to the BMPs in the manual.
Section 1.6.15 Underground Injection Control Authorizations	Ecology	Significant revisions to add guidance.	Added language to refer to Ecology's website and to define UIC well.
<b>Chapter 2 - Core Requirements for New Development and Redevelopment</b>			
Chapter 2 - Core Requirements for New Development and Redevelopment	Ecology	Minor language changes.	Revised for clarity and removed outdated language in the introduction and in Sections 2.1, 2.2, 2.5.3, and 2.5.10.

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Chapter 2 - Core Requirements for New Development and Redevelopment	Ecology	Revised language.	Revised definitions, requirements, supplemental guidance, etc. to correspond to the changes in the Municipal Stormwater Permits and for new LID requirements.
Section 2.1 Relationship to the Puget Sound Action Agenda	Ecology	Added guidance. Section renamed.	Removed outdated references to the Puget Sound Water Quality Management Plan. Section renamed and focuses on relationship of the manual to the municipal stormwater permits.
Section 2.2 - Exemptions	Ecology	Deleted sentence: "They are considered redevelopment."	These practices are not restricted to redevelopment projects. The bullets that follow this sentence properly indicate that how the surfaces are considered within new or redevelopment projects.
Section 2.3 Definitions Related to Core Requirements	Ecology	Added and revised definitions.	Added definitions for a few terms used previously but not previously defined. Other terms have a revised definition or a new definition (hard surfaces, LID, converted vegetation) because of the new low impact development (LID) guidance and requirements in the Municipal Stormwater Permits.
Section 2.3 Definitions Related to Core Requirements	Ecology	definitions have been moved from section 2.3 to the Glossary	Definitions have been moved in an effort to consolidate and organize the SWMMWW Stormwater Permits.
Section 2.4 Applicability of the Core Requirements	Ecology	Revised the thresholds for determining which core requirements apply to new development and redevelopment. Revised supplemental guidelines.	Changes include: the replacement of "impervious" surfaces with "hard" surfaces, the application of core requirements #6 - #9 to replaced hard surfaces at new development sites, the deletion of the word "native" from the land conversion threshold.
Section 2.4.2 Redevelopment	Olympia	Added sentence to clarify that stormwater treatment and flow control facilities must be sized for the entire flow that is directed to them	Clarification
Section 2.4.2 Redevelopment	Olympia	Added sentence: When redevelopment modifies an existing flow control or treatment facility, the re-constructed facility must be designed to current standards	Clarification
Section 2.4.2 Redevelopment	Olympia	Modified the threshold for requiring complete stormwater retrofits for sites being redeveloped.	Olympia's redevelopment threshold has been and will continue to be more stringent than Ecology requirements. Ecology does not have a threshold over which all hard surfaces require retrofit. The percentage threshold for new and replaced hard surface was increased from 25% to 50%. 25% was found to be too restrictive and a deterrent to brown field development. The \$500,000 minimum project dollar value was problematic to track and enforce. No changes were made to roadway project thresholds (specific to Olympia).
Section 2.5.1 Core Requirement #1: Preparation of Drainage Control Plans	Ecology	Revised requirements and objective.	Added a new statement for the site plan to use site-appropriate development principles to retain native vegetation and minimize impervious surfaces to the extent feasible.
Section 2.5.1 Core Requirement #1: Preparation of Drainage Control Plans	Olympia	Added a sentence discussing when scoping meetings may be required	Provides guidance for a longstanding requirement
Section 2.5.3 Core Requirement #3: Source Control of Pollution			Remove this line?
Section 2.5.2 Core Requirement #2: Construction Stormwater Pollution Prevention (SWPP)	Olympia	Added demolition to projects requiring a C-SWPPP	Makes explicit the need for a C-SWPPP when demolition occurs. Sediment control associated with demolition is often problematic and overlooked.
Section 2.5.2 Core Requirement #2: Construction Stormwater Pollution Prevention (SWPP)	Olympia	Added sentence making it explicit that self-contained sites (those that discharge only to groundwater) must still comply with all elements with the exception of flow control	Because self contained sites are exempt from Ecology's construction general permit, they often erroneously neglect to implement erosion and sediment controls. This addition was made for clarification.

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Section 2.5.2 Core Requirement #2: Construction Stormwater Pollution Prevention (SWPP)	Ecology	Reorganized and revisions to: thresholds, general requirements, construction SWPPP elements, objective, and supplemental guidelines.	Changes include: revisions to the construction SWPPP elements to correspond with the Construction Stormwater General Permit, the addition of element #13 that requires the protection of LID Best Management Practices, and revision of element #12 to include responsibilities for an inspector or CESCL depending on the size of the project.
Section 2.5.3 Core Requirement #3: Source Control of Pollution	Olympia	Added guidance and direction for Pollution Source Control Programs	Clarification
Section 2.5.4 Core Requirement #4: Preservation of Natural Drainage Systems and Outfalls	Ecology	Minor additions.	Added clarification for peak discharges using 15 minute time steps.
Section 2.5.4 Core Requirement #4: Preservation of Natural Drainage Systems and Outfalls	Olympia	Provide guidance specific to the Chambers Basin R-4CB zone	Consistent with Ordinance 6594
Section 2.5.4 Core Requirement #4: Preservation of Natural Drainage Systems and Outfalls	Olympia	Added guidance for evaluating and managing off-site drainage.	Clarification
Section 2.5.4 Core Requirement #4: Preservation of Natural Drainage Systems and Outfalls	Olympia	Added requirements for demonstrating that reasonable effort is made to obtain off-site drainage easements.	Clarification for problematic regulation
Section 2.5.5 Core Requirement #5: On-site Stormwater Management	Ecology	Multiple revisions for new low impact development (LID) requirements.	Changes include: the new LID performance standard and list options based on project size and location. The lists are divided into three land use types: lawn and landscaped areas; roofs, and other hard surfaces. Projects implementing the list option must select the first feasible BMP for each land use type. Some of the BMPs included in the lists are: rain gardens, permeable pavements, bioretention, soil quality and depth, full and partial dispersion methods, full downspout infiltration and perforated stub-outs.
Section 2.5.5 Core Requirement #5: On-site Stormwater Management	Olympia	Added reference to EDDS for Green Cove and Chambers Basin zoning districts	
Section 2.5.5 Core Requirement #5: On-site Stormwater Management	Olympia	Modified Table 2.5.1 to refer to city limits rather than UGA	Clarification
Section 2.5.5 Core Requirement #5: On-site Stormwater Management	Olympia	Modified Table 2.5.1 and Figure 2.5.1 to require roadway development and redevelopment meet the LID performance standard using infiltration (BMP T5.13 and BMP T7.10 or BMP T7.20 or BMP T7.30) rather than permeable pavement (BMP T5.15). BMP T5.15 shall be used only for sidewalks.	Based on uncertain life span and durability, past experience with permeable pavements and added maintenance requirements, the Public Works Transportation line of business considers the use of permeable pavement for public streets to be too risky at this time. Roadway projects will meet LID requirements (CR#5) using bioretention swales per the standards provided in the EDDS. We anticipate future increased use of permeable pavements as their durability becomes better understood.
Section 2.5.6 Core Requirement #6: Runoff Treatment	Ecology	Revisions to the thresholds, Water Quality Design Flow Rate, and supplemental guidelines.	Revisions made to acknowledge the use of permeable pavements and the related new definitions. The intent is to continue to capture the same size and types of projects as previously. More accurate definitions for water quality design storm volume and flow rate.
Section 2.5.6 Core Requirement #6: Runoff Treatment	Olympia	Added objective of preserving and protecting the water quality of the underlying drinking water aquifer and receiving surface waters	Consistent with Drinking Water Plan
Section 2.5.6 Core Requirement #6: Runoff Treatment	Olympia	Added requirement to use most current Thurston County precipitation data	Compared with other jurisdictions, Thurston County maintains more extensive precipitation databases. In some hydrologic models, this data must be entered separate from the application.
Section 2.5.6 Core Requirement #6: Runoff Treatment	Olympia	Added the requirement for phosphorus control for projects that, directly or via a conveyance system, discharge to Capitol Lake or Woodard Creek	Consistent with the City's MS4 permit and the Deschutes River TMDL

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Section 2.5.7 Core Requirement #7: Runoff Flow Control	Ecology	Revisions to the thresholds and supplemental guidelines.	Revisions to acknowledge the use of permeable pavements and the related new definitions. Clarifications about the surfaces that the requirement applies to, and the use of the 0.10 /0.15 cfs threshold. The intent is to capture the same size and types of projects as previously.
Section 2.5.7 Core Requirement #7: Runoff Flow Control	Olympia	Figure 2.5.2 and the narrative make explicit those locations that are exempt from flow control	Provides a simpler interpretation and eliminates confusion and difficulty of having to wade through the list of all Western Washington locations.
Section 2.5.8 Core Requirement #8: Wetlands Protection	Ecology	Revisions to the applicability, thresholds, standard requirement, additional requirements, and supplemental guidelines.	Revisions correspond to the significantly revised <i>Appendix I-D Guidelines for Wetlands when Managing Stormwater</i> .
Section 2.6 Additional Requirements	Olympia	Changed chapter title from "Optional Guidance" to "Additional Requirements"	When applicable, Olympia makes financial liability and off-site analysis and mitigation requirements for development. Ecology recommends these measures, but does not make them a requirement.
Section 2.6.1 Financial Liability	Olympia	Added guidance for financial guarantees for stormwater facility performance.	Financial guarantees for performance have been a requirement for infiltration facilities in Olympia since 2005. The language added provides guidance for the City's expectation.
Section 2.8 Exceptions	Olympia	Maintained Olympia's terms for exceptions.	
Section 2.8 Exceptions/Variances	Ecology	Additional guidance provided.	Changed and added language to be consistent with the requirements in Appendix 1 of the 2007 municipal stormwater permits.
<b>Chapter 3 - Drainage Control Plan Submittal Requirements</b>			
Chapter 3 - Drainage Control Plan Submittal Requirements	Olympia	Significant changes and clarifications for preparation of Drainage Control Plans and Abbreviated Drainage Plans	Staff feels preparation of stormwater designs and associated reports and plans has long been a source of confusion in previous Ecology manuals. Revisions to this chapter make clear the submittal requirements for projects. Revisions are consistent with submittal requirements and terminology from Pierce and Thurston County drainage manuals. Olympia specific guidance has been added to cover all components of Drainage Control Plan preparation and redundant language removed.
Chapter 3 - Drainage Control Plan Submittal Requirements	Ecology	Significant changes to incorporate procedures necessary for LID implementation.	Revised for clarity and removed outdate language in the introduction and in section 3.4.
Section 3.4.1 Step 1 - Collect and Analyze Information on Existing Conditions	Ecology	Additional guidance provided and outdated guidance removed.	Additional guidance details the information necessary for site analysis, and in particular for LID site design. Split into subsections based on whether Core Requirements 1 - 5 apply, or Core Requirements 1 - 9 apply.
Sections 3.4.2 to 3.4.4	Ecology	Guidance added.	References to on-site BMPs added and preliminary determination of applicable core requirements.
Section 3.4.5 Step 5 - Prepare Site Development Drawings and Drainage Design Report	Ecology/ Olympia	Revisions to clarify preparation of Site Development Drawings and Drainage Design Reports. Removed all references to Permanent Stormwater Control Plans and Stormwater Site Plans.	Ecology revised this section (Formerly 'Step 5 - Prepare Permanent Stormwater Control Plan') to include significant changes describing how to prepare plans and reports that incorporates LID features, and added separate guidance for projects subject to Core Requirements 1 - 5 and projects subject to Core Requirements 1 - 9. This information and guidance from Ecology was moved to Section 3.3.2 and 3.3.3 to eliminate confusion when preparing a Drainage Control Plans, Site Development Drawings, and Drainage Design Reports.
Section 3.4.6 Step 6 - Prepare a Construction Stormwater Pollution Prevention Plan	Ecology	Minor language changes.	Changes for clarification and to remove repetitive language.
Section 3.4.7 Step 7 - Prepare Stormwater Site Management Plan	Olympia	Step 7 from Ecology manual replaced with Olympia specific guidance for preparation of a permanent Stormwater Site Management Plan	This section in Ecology's manual previously referred to the preparation of a Stormwater Site Plan (a term no longer used in Olympia). Ecology guidance for plan and report preparation was moved to Volume I, Section 3.3. This step has been revised to direct the preparation of a permanent Stormwater Site Management Plan for long term operation and maintenance of a site that has stormwater facilities.

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Ecology Section 3.2.2 Final Corrected Plan Submittal	Olympia	Deleted	Plan submittal requirements are covered in Volume I, Section 3.3. As-built and record drawing requirements are covered by Chapter 3.065 of the City of Olympia Engineering Design and Development Standards.
<b>Chapter 4 - BMP and Facility Selection Process for Permanent Stormwater Control Plans</b>			
Section 4.2 BMP and Facility Selection Process	Ecology	Revised language, proposed replacing the language in <i>Step V: Select Treatment Facilities</i> with a reference to Chapter 2 of Volume V.	Revisions and new language especially in Step III for guidance on modeling threshold discharge areas. Minor revisions to correspond with the changes in the Municipal Stormwater Permits and for new LID requirements. Ecology replaced the language in <i>Step V: Select Treatment Facilities</i> with a reference to Chapter 2 of Volume V.
<b>Appendix I-A Guidance for Altering the Core Requirements Through Basin Planning</b>			
Appendix I-A Guidance for Altering the Core Requirements Through Basin Planning	Ecology	Additional guidance provided.	Added language for clarity on use of Basin Planning for addressing retrofit needs and for developing an alternative flow control strategy.
<b>Appendix I-B Rainfall Amounts and Statistics</b>			
Appendix I-B Rainfall Amounts and Statistics	Ecology	Removed introductory language and background information on the Water Quality Design Storm and Water Quality Design Flow Rate.	Removed background and outdated information for brevity. Renamed the appendix and retained the rainfall tables.
<b>Appendix I-C Basic Treatment Receiving Waters</b>			
Appendix I-C Basic Treatment Receiving Waters	Olympia	Deleted	There are no basic treatment receiving waters within Olympia's jurisdiction. Appendix deleted to avoid confusion.
<b>Appendix I-D Guidelines for Wetlands when Managing Stormwater</b>			
Appendix I-D Guidelines for Wetlands when Managing Stormwater	Ecology	Multiple revisions for the use and/or the protection of Wetlands when managing stormwater.	Rewritten to remove outdated information, clarify concepts, and approach the protection and use of wetlands through controlling discharges to wetlands. Total discharges to wetlands must not deviate by more than 20% on a single event basis, and must not deviate by more than 15% on a monthly basis.
<b>Appendix I-E Flow Control-Exempt Surface Waters</b>			
Appendix I-E Flow Control-Exempt Surface Waters	Olympia	Deleted list of flow control exempt waters throughout Western Washington	Flow control exempt waters (Capitol Lake and Budd Inlet) were added to Volume I, Section 2.5.7
Appendix I-E Fee-in-Lieu Information (Olympia only)	Olympia	Replaced deleted appendix with fee-in-lieu information	Map does not extend into Olympia's jurisdiction. Figure 2.5.2 and the narrative make explicit those locations that are exempt from flow control. Appendix deleted to avoid confusion.
<b>Appendix I-F Feasibility Criteria for Selected Low Impact Development Best Management Practices</b>			
Appendix I-F Basins with 40% or more total impervious area since 1985	Olympia	Deleted map	Map shows basins which potentially qualify for use of existing land cover as the pre-developed land cover for flow control purposes. See reference in Core Requirement #7.
<b>Appendix I-G Glossary and Notations</b>			
Glossary and Notations	Ecology/ Olympia	Added and revised definitions.	There are a few terms, used previously but not defined, for which a definition has been added. A handful of other terms have a revised definition, and there are new terms, because of the new low impact development (LID) guidance and requirements in the Municipal Stormwater Permits. Olympia specific definitions have been added in regard to stormwater facility operation and maintenance.
<b>Volume II Construction Stormwater Pollution Prevention</b>			
<b>Chapter 1 - Introduction Construction Stormwater Pollution Prevention</b>			
Chapter 1 - Introduction Construction Stormwater Pollution Prevention	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language.
Section 1.3 How to Use This Volume	Ecology	This section was removed. The information in this section is now included in Sections 1.2.	Removed this section by combining it with Section 1.2 to eliminate duplicate language.

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Section 1.3 Thirteen Elements of Construction Stormwater Pollution Prevention	Ecology	Renamed.	Revised to incorporate a new element, Protect Low Impact Development BMPs.
Figure 1.5.1	Ecology	Replaced.	Replaced older figure with an updated one.
<b>Chapter 2 - Regulatory Requirements</b>			
Chapter 2 - Regulatory Requirements	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language. Information covered in Volume I, Section 1.6 Relationship of the Manual to Federal, State, and Local Regulatory Requirements was removed.
Chapter 2 - Regulatory Requirements	Ecology	Multiple revisions to coordinate the manual to the Washington State General Stormwater Permits.	Revised this chapter to update this information for revisions to the Stormwater General Permits (including the Municipal, Construction, and Industrial Permits).
Section 2.1 and Section 2.2	Ecology	Section 2.1 The Construction Stormwater General Permit and Section 2.2 Construction Stormwater Pollution Prevention Plans now replace the previous Sections 2.1 and 2.2.	Replaced these sections to remove invalid information or duplicate information. Sections 2.1 and 2.2 now go into detail about the relationship of Volume II to the Construction Stormwater General Permit and the requirements for a Stormwater Site Pollution Prevention Plan.
<b>Chapter 3 - Planning</b>			
Chapter 3 - Planning	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language. Information covered in Volume I, Section 1.6 Relationship of the Manual to Federal, State, and Local Regulatory Requirements was removed.
Section 3.2 and Section 3.3	Ecology	Previous Sections 3.2 and 3.3 have been reversed.	Moved The Construction SWPPP Requirements, previously in Section 3.3 to Section 3.2 for clarity. The Step-By-Step Procedure now follows in Section 3.3. Please note that the Construction Stormwater Pollution Prevention Plan Checklist is still located in Section 3.3.
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Olympia	Added sentence: "Even if a site is self-contained (discharges only to groundwater), all elements, with the exception of Element #3 Control Flow Rates, shall apply and be implemented throughout construction."	Because self contained sites are exempt from Ecology's construction general permit, they often erroneously neglect to implement erosion and sediment controls. This addition was made for clarification.
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Olympia	Added additional guidance under Element #5 for managing stockpiles and linear construction projects.	Linear construction projects (typically utilities) and stock piles are some of the issues most frequently requiring enforcement. Additional guidance seems appropriate.
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Olympia	Added additional guidance under Element #12 for when a CESCL is required.	A certified erosion and sediment control lead is required and has been required for all projects required to have a construction stormwater pollution prevention plan.
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Olympia	Added requirement for lot-specific grading plans per the EDDS.	Lot-specific plans are often overlooked by designers. LID makes clearing, grading and infiltration facilities of greater importance.
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Olympia	Language added to clarify seasonal work limitations.	
Section 3.3.3 (Previously Section 3.2.3) Step 3 - Construction SWPPP Development and Implementation	Ecology	Multiple revisions to the Construction SWPPP Elements.	Revised The Construction SWPPP Elements, described in Section 3.3.3 to coordinate with the Construction Stormwater General Permit, Municipal Stormwater Permits, and the Construction BMPs in Chapter 4. Each element now contains an Additional Guidance section that has information not required by the permits. Added Element #13 Protect Low Impact Development BMPs.
<b>Chapter 4 - Best Management Practices Standards and Specifications</b>			
Chapter 4 - Best Management Practices Standards and Specifications	Ecology	Added approved equivalent BMPs Sections.	Refers to Ecology's website for BMPs that have been approved as equivalent.
Section 4.1 Source Control BMPs	Ecology	Added Table 4.1 Source Control BMPs by SWPPP Element	Ecology added Table 4.1 Source Control BMPs by SWPPP Element to show how the BMPs listed in Section 4.1 relate to the SWPPP Elements.

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BMP C103: High Visibility Fence	Ecology	This BMP now includes high visibility silt fence. Multiple revisions for plain language, clarity, and brevity.	Added high visibility silt fence because it meets the intent of BMP C103. Ecology revised this chapter to use simpler and clearer language.
BMP C104: Stake and Wire Fence	Ecology	This BMP was removed.	Removed this BMP because BMP C103: High Visibility Fence meets the intent of this BMP in a safer and more commonly used manner.
BMP C105: Stabilized Construction Entrance / Exit	Ecology	Additional guidance provided and outdated guidance removed.	Added and removed guidance for this BMP based on comments received and field experience.
BMP C106: Wheel Wash	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance to clarify that wheel wash wastewater shall not discharge to surface or ground water.
Figure 4.1.2 - Wheel Wash	Ecology	Figure was updated	Updated figure to provide more details of a typical Wheel Wash.
BMP C120: Temporary and Permanent Seeding	Ecology	Multiple revisions for plain language, clarity, and brevity. Additional guidance provided and removed.	Revised and reorganized this BMP to use simpler and clearer language. Moved some guidance to BMP C121: Mulching or BMP C125: Top soiling. Ecology added and removed additional guidance for this BMP based on comments received and field experience.
BMP C121: Mulching	Ecology	Additional guidance provided.	Added minimum mulch thickness based on field experience and comments. Ecology added guidance previously found in BMP C120: Temporary and Permanent Seeding to this BMP.
Table 4.1.8	Ecology	Additional guidance provided.	Added Wood Straw and Wood Straw Mulch to the table.
BMP C122: Nets and Blankets	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this BMP to use simpler and clearer language.
BMP C123: Plastic Covering	Ecology	Additional guidance provided and outdated guidance removed.	Removed the use of plastic sheeting over seeded areas because other coverings (such as compost and straw) are preferable. Ecology added and removed guidance for this BMP based on comments received and field experience.
BMP C124: Sodding	Ecology	Additional guidance provided and outdated guidance removed.	Provided a link to composting guidance and removed old reference to compost specification.
BMP C125: Top soiling / Composting	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance previously found in BMP C120: Temporary and Permanent Seeding to this BMP. Ecology added and removed guidance for this BMP based on comments received and field experience.
BMP C150: Materials on Hand	Ecology	Suggested measures and quantities removed.	Removed measures and quantities because measures and quantities should be based on the size of the construction site.
BMP C151: Concrete Handling and BMP C152: Sawcutting and Surface Pollution Prevention	Ecology	Additional guidance provided.	Added guidance to coordinate this BMP with the requirements of the Construction Stormwater General Permit and to make it clear that Concrete spillage or concrete discard to surface waters of the State is prohibited.
BMP C154: Concrete Washout Area	Ecology	Added this BMP.	Added this BMP to provide additional guidance for concrete washout areas.
BMP C160: Certified Erosion and Sediment Control Lead	Ecology	Additional guidance provided and outdated guidance removed.	Core Requirements for ESC Training and Certification Courses has been removed. Ecology plans on issuing separate, updated guidance in the near future.
BMP C161: Payment of Erosion Control Work	Ecology	This BMP was removed.	Removed this BMP because it is not applicable to the full range of projects needing to perform Erosion and Sediment Control Work.
BMP C180: Small Project Construction Stormwater Pollution Prevention	Ecology	This BMP was removed.	Removed this BMP because of changes in threshold requirements in both the Municipal Stormwater General Permits and Construction Stormwater General Permit.
Section 4.2 Runoff Conveyance and Treatment BMPs	Ecology	Added Table 4.2 Runoff Conveyance Treatment BMPs by SWPPP Element	Added Table 4.2 Runoff Conveyance Treatment BMPs by SWPPP Element to show how the BMPs listed in Section 4.2 relate to the SWPPP Elements.
BMP C207: Check Dams	Ecology	Additional guidance provided.	Added guidance for this BMP based on comments received and field experience.
BMP C220: Storm Drain Inlet Protection	Ecology	Additional guidance provided.	Added guidance for inlet protection of lawn and yard drains and based on comment received and field experience.
BMP C230: Straw Bale Barrier	Ecology	This BMP was removed.	Removed this BMP because this BMP has been proven to be ineffective.

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BMP C233: Silt Fence	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised and reorganized this BMP to use simpler and clearer language.
BMP C235: Wattles	Ecology	Renamed from Straw Wattles.	Renamed this BMP to include wattles made from compost or other materials.
BMP C236: Vegetated Spray Fields	Ecology	Added this BMP.	Added this new BMP for dewatering, Construction SWPPP Element #10.
BMP C250: Construction Stormwater Chemical Treatment	Ecology	Additional guidance provided.	Added guidance for this BMP, previously available online, to coordinate with the Chemical Technology Assessment Protocol (CTAPE) program.
BMP C251: Construction Stormwater Filtration	Ecology	Additional guidance provided.	Added sizing criteria for this BMP, previously available online.
BMP C252: High pH Neutralization Using CO2	Ecology	Added this BMP.	Added this BMP, previously available online, to provide guidance on neutralizing high pH through the use of CO2.
BMP C253: pH Control for High pH Water	Ecology	Added this BMP.	Added this BMP, previously available online, to provide additional guidance for neutralizing high pH.
Appendix II-B Background Information on Chemical Treatment	Ecology	Multiple revisions to coordinate with BMP C252 and BMP C53.	Revised this appendix to coordinate with the new information provided in BMP C252 and in BMP C253.
<b>Appendix II-A Recommended Standard Notes for Erosion Control Plans</b>			
Appendix II-A Recommended Standard Notes for Erosion Control Plans	Olympia	Inserted Olympia-specific erosion and sediment control notes	Olympia has developed its own required erosion and sediment control notes that are inclusive of those recommended by Ecology
<b>Volume III Hydrologic Analysis and Flow Control Design / BMPs</b>			
<b>Chapter 2 - Hydrologic Analysis</b>			
Chapter 2 - Hydrologic Analysis	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language. Outdated guidance was replaced.
Section 2.2 Western Washington Hydrology Model	Ecology	Section 2.2 split into multiple subsections.	Section 2.2 split into multiple subsections for clarity and for referencing purposes.
Section 2.2 Western Washington Hydrology Model	Ecology	Additional guidance provided.	Added guidance on upcoming Western Washington Hydrology Model (WWHM) changes.
Section 2.2.2 Assumptions made in creating the WWHM	Ecology	Additional guidance provided.	Added guidance on precipitation data and upcoming WWHM changes.
Section 2.2.3 Guidance for flow-related standards	Ecology	Additional guidance provided and outdated guidance removed for Core Requirements (CR).	Added guidance for CR #5 which now includes an LID Performance Standard. Revised the guidance for CR#8 to reflect the changes made in Volume I, Appendix 1-D.
<b>Chapter 3 - Flow Control Design</b>			
Chapter 3 - Flow Control Design	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language.
Chapter 3 - Flow Control Design	Ecology	Update text for consistency with revised Core Requirement #5 and LID	Added references to Core Requirement #5, bioretention and permeable pavements in introductory section.
Chapter 3 - Flow Control Design	Olympia	Added language stating that runoff from private property must be managed on private property	This is consistent with the Comprehensive Plan policy ensuring new development projects pay for their own utility infrastructure.
Section 3.1 Roof Downspout Controls	Ecology	Update text & figure for consistency with revised Core Requirement #5	Text and figures updated to indicate priorities for handling roof runoff.
Section 3.1 Roof Downspout Controls	Ecology	Update text for consistency with revised Core Requirement #5	Updated references to revised roof downspout BMPs and Rain Gardens in the introductory section.



Location	Source of Change	Change	Reasoning or Comments
Section 3.1.1 Roof Downspout Full Infiltration (BMP T5.10A)	Ecology	Update text for consistency with revised Core Requirement #5	Text changes for consistency with new priority lists in Core Requirement #5 and feasibility criteria. Needed better clarity in design guidance
Section 3.1.1 Roof Downspout Full Infiltration (BMP T5.10A)	Olympia	Added prescriptive design guidelines for roof downspout controls for single family residences based on soil types.	To simplify design for single family residences, the City performed the hydrologic design for various soils and created a prescriptive method for downspout infiltration systems. This method was added to the EDDS in 2005. Commercial buildings must be designed as infiltration trenches.
Section 3.1.1 Roof Downspout Full Infiltration (BMP T5.10A)	Olympia	Added setback requirements for downspout infiltration systems.	Ecology makes suggestions for setbacks, but leaves requirements to local jurisdictions.
Section 3.1.2 Downspout Dispersion Systems	Ecology	Update text for consistency with revised Core Requirement #5	Text changes for consistency with new priority lists in Core Requirement #5 and feasibility criteria. Improved clarify in design guidance and computer modeling. Added guidance for design criteria for dispersion trenches and splashblocks.
Section 3.1.3 Perforated Stub-out Connections	Ecology	Update text for consistency with revised Core Requirement #5	Text changes for consistency with new priority lists in Core Requirement #5 and feasibility criteria. Updated design guidance.
Section 3.2 Detention Facilities	Ecology	Multiple revisions for plain language, clarity, and brevity.	Revised this chapter to use simpler and clearer language.
Section 3.2 Detention Facilities	Ecology	Updated references.	Updated Maintenance narrative to refer to Appendix IV-G Management of Street Wastes in Volume IV.
Section 3.2 Detention Ponds	Olympia	Added language requiring one foot of dead storage below outlets to allow for sediment build up.	This has been a requirement in Olympia since 2005. It is recommended by Ecology, but not required.
Section 3.2 Detention Ponds	Olympia	Added language requiring a 5-foot wide bench between ponds and the right-of-way to allow for vegetated screening.	Ponds are frequently located along right-of-way to separate residences from roadways. This revision was added to help improve the aesthetics of those ponds.
Section 3.2 Detention Ponds	Olympia	Added language restricting the use of walls in ponds and identifying design requirements for walls.	These requirements were included in Olympia's 2009 manual. The objective is to eliminate the possibility of ponds surrounded by high walls as have been proposed on numerous occasions. Concerns are with safety, aesthetics and pond function (solar access).
Section 3.2 Detention Ponds	Olympia	Added language requiring ponds be landscaped.	Ecology encourages landscaping, but does not make it a requirement.
Section 3.2.3 Detention Vaults	Olympia	Added language requiring one foot of dead storage below outlets to allow for sediment build up.	This has been a requirement in Olympia since 2005.
Section 3.3 Infiltration Facilities for Flow Control and Treatment	Ecology	Section significantly rewritten.	Made significant changes to all sub-sections. Section pertains primarily to design of centralized infiltration facilities. Certain sections also apply to distributed bioretention facilities as indicated in text.
Section 3.3.1 Purpose	Ecology	Revised guidance and reference LID.	Expanded purpose statement and clarified in regard to the types of facilities covered in Section 3.3. Added references to Bioretention and Permeable Pavement sections.
Section 3.3.2 Description	Ecology	Additional guidance provided including Core Requirement #5.	Made clarifications and added language for complying with CR#5. Added guidance for oil control and pre-treatment facilities.
Section 3.3.3 Applications	Ecology	Additional guidance provided.	Minor text change
Section 3.3.4 Steps for Design of Infiltration Facilities	Ecology	Revised several steps for new infiltration rate guidance and the new LID performance standard.	Revised Step 2 to include guidance for meeting CR#5. Significantly revised Step 5 for the new guidance provided in section 3.3.6. Revised Step 6 for clarity and for meeting CR#5. Revised Step 7 for clarity.
Section 3.3.4 Steps for Design of Infiltration Facilities	Olympia	Added language requiring infiltration rates for facilities designed to achieve CR#7 (Flow Control) be determined using grain size analysis methods	This is the method the City has required since 2005. The City has found the grain size analysis method to be more conservative. PIT test methods frequently underestimate infiltration rates leading to redesign and reconstruction.

Location	Source of Change	Change	Reasoning or Comments
Section 3.3.5 Site Characterization Criteria	Ecology	Revised guidance on subsurface characterization, soil testing, and infiltration receptor. Removed guidance for hydrogeologic investigation and figure 3.27, USDA Textural Triangle.	Multiple changes to subsurface characterization include added guidance on groundwater monitoring wells and the use of grain size analysis method for estimating infiltration rates. Deleted infiltration rate determination sub-section due to redundancy with next section.
Section 3.3.6 Design Saturated Hydraulic Conductivity - Guidelines and Criteria	Ecology	Revisions for determining the saturated hydraulic conductivity (infiltration rate). Section renamed.	Replaced "Infiltration Rate" with "Saturated Hydraulic Conductivity" throughout section. Updated the guidelines and criteria for determining saturated hydraulic conductivity. Added guidance on pilot infiltration testing (PIT), and soil grain size analysis. Revised correction factors for PIT results and soil grain size method. Removed options based on USDA Soil Texture Classification and D10 grain size.
Section 3.3.6 Design Saturated Hydraulic Conductivity - Guidelines and Criteria	Olympia	Added language requiring infiltration rates for facilities designed to achieve CR#7 (Flow Control) be determined using grain size analysis methods. Revised equations to eliminate "log" function. Revised correction factors consistent with Ecology.	This is the method the City has required since 2005. The City has found the grain size analysis method to be more conservative. PIT test methods frequently underestimate infiltration rates leading to redesign and reconstruction.
Section 3.3.7 Site Suitability Criteria (SSC)	Ecology	Additional guidance provided and outdated guidance removed.	Updated references, removed unneeded guidance, revised limits on infiltration rates, added a minimum organic content for treatment, amended drawdown guidance, and verification testing.
Section 3.3.7 Site Suitability Criteria (SSC)	Olympia	Added language requiring contingency planning and verification testing for infiltration facilities.	These have been requirements in Olympia since 2005. Infiltration rates are often underestimated and soils can become compacted in the construction process. These requirements provide insurance that an infiltration facilities that do not perform as designed can be remedied.
Section 3.3.8 Steps for Designing Infiltration Facilities - Detailed Approach	Ecology	Multiple revisions. Previous steps 1-4 removed. Multiple steps revised. Added groundwater mounding analysis step.	Removed steps to select location, estimate volume of stormwater, develop a trial infiltration facility geometry, conduct a geotechnical investigation, and determine the saturated hydraulic conductivity; instead refers to steps 1-5 in section 3.3.4. Revised Figure 3.27 for updated guidance. Revised guidance for adjusting the preliminary design infiltration rate. Added a step for groundwater mounding analysis. Added guidance for conducting performance testing.
Section 3.3.9 General Design, Maintenance, and Construction Criteria for Infiltration Facilities	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance for sizing for flow control, pretreatment design criteria, and maintenance. Made wording clarifications to guidance.
Section 3.4 Site Procedures for Bioretention and Permeable Pavement Use	Ecology	Added this section for bioretention and permeable pavement.	Added guidance re field tests, computer modeling, and implementation for bioretention / rain gardens and permeable pavement.
Section 3.4.2 Description	Olympia	Added language requiring infiltration rates for facilities designed to achieve CR#7 (Flow Control) be determined using grain size analysis methods	This is the method the City has required since 2005. The City has found the grain size analysis method to be more conservative. PIT test methods frequently underestimate infiltration rates leading to redesign and reconstruction.
<b>Appendix III-A Isopluvial Maps for Design Storms</b>			
Appendix III-A Isopluvial Maps for Design Storms	Ecology	Added link to website.	Added a link to a website where isopluvial maps are available.
<b>Appendix III-B Western Washington Hydrology Model - Information, Assumptions, and Computation Steps</b>			
Appendix III-B Western Washington Hydrology Model - Information, Assumptions, and Computation Steps	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance on current and upcoming versions of WWHM. Added guidance for the modeling on LID elements and wetlands. Removed outdated computation steps.
<b>Appendix III-C Washington State Department of Ecology Low Impact Development Design and Flow Modeling Guidance</b>			
Appendix III-C Washington State Department of Ecology Low Impact Development Flow Modeling Guidance	Ecology	Additional guidance provided and outdated guidance removed.	Text in regard to design guidance removed. All design guidance moved to Volume V. Two sets of modeling guidance provided. One for WWHM 3, and one for upcoming WWHM 2012.
<b>Appendix III-D Procedure for Conducting a Pilot Infiltration Test</b>			

Location	Source of Change	Change	Reasoning or Comments
Appendix III-D Procedure for Conducting a Pilot Infiltration Test	Ecology	Appendix removed.	Procedures for conducting the PIT have been included within the proposed text on "Design Infiltration Rate Determination" in sections 3.3.6.
<b>Volume IV Permanent Stormwater Site Management</b>			
Entire Volume	Olympia	Removed guidance for the ISWGP, BGP, and ISGP permits and redirect users to Ecology manual.	Holders of these permits are required to fulfill the requirements from Ecology and must follow the guidance in Ecology's manual. References throughout now refer users to Ecology's manual for specific guidance on those permits.
Entire Volume	Olympia	Volume IV reorganized and amended to better address long term management of stormwater facilities on project sites.	Volume IV previously contained only guidance for stormwater pollution source control consistent with Ecology's manual. Pollution source control guidance has been retained, but moved to Chapter 3 of this Volume. The entire volume is now focused on source control, operation, inspection, and maintenance of stormwater management BMPs. Maintenance standards and practices formerly found in other volumes are now centrally located in Volume IV. New guidance and language has been added throughout to facilitate proper operation and maintenance of stormwater facilities and establish responsibilities for maintenance.
<b>Chapter 1 - Introduction</b>			
Chapter 1 - Introduction	Ecology	Minor language changes.	Revised for clarity and removed outdated language.
Section 1.2 Content and Organization of this Volume	Olympia	Language added or revised.	Section updated to reflect changes throughout Volume.
Section 1.3 How to Use this Volume	Ecology/ Olympia	Additional guidance provided and outdated guidance removed.	Ecology references to ISWGP, BGP, and S&GP removed. Staff revised section to reflect Volume wide content changes.
Ecology Section 1.5 Treatment BMPs for Specific Pollutant Sources	Ecology	Additional guidance provided and outdated guidance removed. Section moved to Chapter 3 Section 3.3	Added new guidance clarifying the requirements regarding treatment BMPs for facilities covered under the ISWGP (or other General Stormwater Permits).
Section 1.6.2 Recommended BMPs	Ecology	Additional guidance provided.	Added guidance regarding facilities covered under the ISWGP that trigger a corrective action.
<b>Chapter 2 - Stormwater Site Management Plans</b>			
Entire Chapter	Olympia	New chapter added to describe the requirement and purpose of permanent Stormwater Site Management Plans.	Chapter was added to explain the purpose and content of a Stormwater Site Management Plan for sites with stormwater facilities, LID features, and Soil and Vegetation Protection Areas. Outlines plan content, format, requirements, and maintenance responsibilities.
<b>Chapter 3 - Stormwater Pollution Source Control</b>			
Ecology Volume IV, Chapter 2 - Selection of Operational and Structural Source Control BMPs	Ecology/ Olympia	Removed. Information moved to Section 3.6	Olympia staff has moved information regarding the preparation of Pollution Source Control Programs and the selection of appropriate BMPs to Section 3.6 of Volume IV.
Section 3.1 Source Control of Pollution	Olympia	Section added.	Language added identifying when a Pollution Source Control Program is required and responsibilities for implementing the program.
Section 3.1.1 Pollutants Targeted	Olympia	Section added.	Information moved from appendix.
Section 3.4.1 Applicable (Mandatory) BMPs	Ecology/ Olympia	Additional guidance provided and outdated guidance removed. Section moved from Chapter 1 to Section 3.4.1	Added new guidance describing the use of applicable (mandatory) BMPs in regards to the ISWGP, BGP, and S&GP. Section renamed to make it clearer that applicable BMPs are Mandatory for permittees under the ISWGP and BGP.
Section 3.6.1 Steps for Preparing a Pollution Source Control Program	Olympia	Section added to provide specific steps and guidance for preparing a site specific pollution source control program	Olympia staff feels the guidance from Ecology's manual lacks guidance for users in developing their own site specific Pollution Source Control Program.

Location	Source of Change	Change	Reasoning or Comments
Section 3.6.2 Applicable (Mandatory) Operational Source Control BMPs	Ecology/Olympia	Additional guidance provided and outdated guidance removed.	Revised wording to clarify where this Section applies. Revised several BMPs for clarity. References to ISWGP removed or redirect user to Ecology manual. Significant changes include the addition of vacuum sweeping and pressure washing, spill prevention and cleanup, visual inspections and record keeping.
Section 3.6.3 Pollutant Source Specific BMPs	Ecology/Olympia	Additional guidance provided and outdated guidance removed. Minor formatting revisions.	Revised wording to clarify where this Section applies. Added new text on ISWGP requirements. Revised section directing ISWGP, BGP, and S&GP permit holders to reference Ecology's manual to meet those permit requirements. Changed the title format for the BMPs to match the other volumes and added a numbering system to the BMPs.
S401 BMPs for the Building, Repair, and Maintenance of Boats and Ships	Ecology	Additional guidance provided and several BMPs clarified.	Clarified guidance describing the requirements under the BGP and ISGP regarding boatyard activities. Revised BMPs to use simpler and clearer language.
S402 BMPs for Commercial Animal Handling Areas	Ecology	Minor revisions for plain language, clarity, and brevity.	Revised BMPs to use simpler and clearer language.
S403 BMPs for Commercial Composting	Ecology	Additional guidance provided and outdated guidance removed.	Revised language because solid waste regulations prohibit discharge of compost leachate. Revised BMPs to use simpler and clearer language, and removed outdated references.
S405 BMPs for Deicing and Anti-Icing Operations - Airports and Streets	Ecology	Additional guidance provided and outdated guidance removed.	Revised language to coordinate with the ISGP. Removed outdated references.
S414 BMPs for Maintenance and Repair of Vehicles and Equipment	Ecology	Revision for consistency with the ISGP	Updated "applicable BMP" guidance for handling of liquids in scrap vehicles to align with ISGP.
S416 BMPs for Maintenance of Roadside Ditches	Ecology	Additional guidance provided and updated references.	Additional guidance provided for the handling of ditch cleanings.
S423 BMPs for Recyclers and Scrap Yards	Ecology	Updated reference to guidance.	Updated the reference to guidance for Vehicle Recyclers.
S424 BMPs for Roof/Building Drains at Manufacturing and Commercial Buildings	Ecology	Added reference to guidance.	Added a references to Volume V and Ecology publications for BMPs.
S426 BMPs for Spills of Oil and Hazardous Substances	Ecology	Additional guidance provided and outdated guidance removed.	Revised several BMPs for clarity and to coordinate with the ISWGP.
S430 BMPs for Urban Streets	Ecology	Additional guidance provided.	Clarified that facilities not under the ISWGP may consider some water use in street cleaning.
S431 BMPs for Washing and Steam Cleaning Vehicles / Equipment / Building Structures	Ecology	Additional guidance provided and outdated guidance removed.	Added guidance to clarify that the ISWGP prohibits the discharge of process wastewater to ground water or surface water. Removed outdated guidance.
Figure 2.15 - Uncovered Wash Area	Ecology	Figure Deleted	Figure was unclear and the existing text provided a better description of the required controls.
S432 BMPs for Wood Treatment Areas	Ecology	Additional guidance provided and several BMPs clarified.	Clarified guidance describing which NPDES permit(s) regulate wood treatment areas. Revised BMPs to use simpler and clearer language.
S433 BMPs for Pools, Spas, Hot Tubs and Fountains	Ecology	Additional guidance provided.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S434 BMPs for Cleaning or Washing of Tools, Engines, and Manufacturing Equipment	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S435 BMPs for Cleaning or Washing of Cooking Equipment	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.

Location	Source of Change	Change	Reasoning or Comments
S436 BMPs for Collection and Disposal of Wastewater in Mobile Interior Washing Operations	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S437 BMPs for Concrete and Asphalt Mixing and Production at Stationary Sites	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S438 BMPs for Concrete Pouring, Concrete Cutting, and Asphalt Application at Temporary Sites	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S439 BMPs for Manufacturing and Post-processing of Metal Products	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S440 BMPs for Painting, Finishing, and Coating of Vehicles, Boats, Buildings, and Equipment	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S441 BMPs for Agricultural Crop Production	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S442 BMPs for Application of Pesticides, Herbicides, Fungicides, and Rodenticides for Purposes other than Landscaping	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S443 BMPs for Storage and Treatment of Contaminated Soils	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S444 BMPs for Temporary Storage or Processing of Fruits or Vegetables	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S445 BMPs for Storage of Solid Wastes and Food Wastes	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S446 BMPs for Treatment, Storage, or Disposal of Dangerous Wastes	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S447 BMPs for Storage of Pesticides, Fertilizers, or Other Products that can Leach Pollutants	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S448 BMPs for Demolition of Buildings	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S449 BMPs for Building Repair, Remodeling, Painting, and Construction	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S450 BMPs for Logging	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
S451 BMPs for Mining and Quarrying of Sand, Gravel, Rock, Minerals, Peat, Clay, and Other Materials	Olympia	BMP Added.	Added this BMP to provide further guidance consistent with BMPs within this volume.
Section 3.6.4 General Source Control Best Management Practices	Olympia	Section Added.	Section added to cover several general BMPs that are common to multiple source control BMPs in Section 3.6.3.
Section 3.6.5 Best Management Practices for Single-Family Residences	Olympia	Section Added.	Section added to cover several operational source control BMPs specific to single-family residences. Language was adopted from the Thurston County DDECM.
<b>Chapter 4 - Maintenance Standards for Stormwater Facilities</b>			
Entire Chapter	Olympia	New chapter added to describe the minimum standards for inspection and maintenance of stormwater facilities.	Chapter was added to centralize BMP maintenance information formerly found in Volumes III, IV, and V. New section created that provides guidance for users in preparation of site specific Stormwater Facility Maintenance Programs.
<b>Appendix IV-A Urban Land Uses and Pollutant Generating Sources</b>			

Location	Source of Change	Change	Reasoning or Comments
Appendix IV-A Urban Land Uses and Pollutant Generating Sources	Ecology	Minor language changes.	Edits for clarity and to replace and revise guidance documents and WAC references.
Commercial Composting - SIC 2875	Ecology	Additional guidance provided	Added "Potential Pollutant Generating Sources"
<b>Appendix IV-B Stormwater Pollutants and Their Adverse Impact</b>			
Ecology Appendix IV-B Stormwater Pollutants and Their Adverse Impact	Ecology/Olympia	Minor language changes. Removed Table. Information moved to Volume IV, Section 3.1.1	Minor language changes for clarity. Removed the outdated Table in Appendix IV-B. Olympia Staff has moved this information from Ecology's manual to the main body of Chapter 3 and replaced this appendix with guidance for preparing a pollution source control program.
<b>Appendix IV-B Pollution Source Control Templates</b>			
Olympia Appendix IV-B1 and IV-B2	Olympia	Addition of Pollution Source Control Program templates for residential and commercial sites.	Olympia staff felt it necessary to provide standard boiler plate language and templates for manual users who are preparing Pollution Source Control Programs for sites in the City. Past submittals of Pollution Source Control Programs by applicants have been widely variable and often times substandard. Templates and language are consistent with Thurston and Pierce Counties.
<b>Appendix IV-C Recycling/Disposal of Vehicle Fluids/Other Wastes</b>			
Appendix IV-C Recycling/Disposal of Vehicle Fluids/Other Wastes	Ecology	Minor language changes.	Minor language changes for clarity.
<b>Appendix IV-D Regulatory Requirements That Impact Stormwater Programs</b>			
Appendix IV-D Regulatory Requirements That Impact Stormwater Programs	Ecology	Minor language changes.	Edits for clarity and to replace and revise guidance documents and WAC references.
<b>Appendix IV-E NPDES Stormwater Discharge Permits</b>			
Appendix IV-E NPDES Stormwater Discharge Permits	Ecology	Additional guidance provided and outdated guidance removed.	Edits to make guidance consistent with the most recent industrial and municipal stormwater permits.
<b>Appendix IV-G Recommendations for Management of Street Wastes</b>			
Appendix IV-G Recommendations for Management of Street Wastes	Ecology	Multiple revisions for plain language, clarity, and brevity. Additional guidance provided and outdated guidance removed.	Removed outdated guidance and added new guidance in the contamination in Street Waste Solids subsection. Reorganized the disposal of street waste liquids subsection, no major content changes. Minor revisions to the Site Evaluation subsection.
<b>Appendix IV-H Agreement to Maintain Stormwater Facilities Template</b>			
Appendix IV-H Agreement to Maintain Stormwater Facilities Template	Olympia	Standard City of Olympia legal agreement revised and new language added.	<i>Changes Pending Legal Review:</i> Language change from 'local government' to 'City of Olympia' throughout. Elimination of separate residential and commercial agreement forms. Language added regarding the protection of stormwater facilities from modification. Language added regarding the maintenance responsibility for bioretention located in City right-of-way.
<b>Appendix IV-J Stormwater Facility Descriptions and Checklists</b>			
Appendix IV-J Stormwater Facility Descriptions and Checklists	Olympia	Relocation and update of stormwater facility maintenance checklists.	Permanent stormwater inspection/maintenance standards and checklists have been pulled from various locations throughout the previous manual and Ecology's manual to be centrally located in Volume IV. Checklists updated to most current versions from Ecology's manual. Additional checklists pulled from Ecology publication LID O&M Maintenance Manual.
<b>Volume V Runoff Treatment BMPs</b>			
<b>Chapter 1 - Introduction</b>			

Location	Source of Change	Change	Reasoning or Comments
Chapter 1 - Introduction	Ecology	Minor revisions for plain language, clarity, and brevity.	Revised BMPs to use simpler and clearer language, and removed outdated references.
Section 1.4.2 Maintenance	Olympia	Added language stating that runoff from private property must be managed on private property	This is consistent with the Comprehensive Plan policy ensuring new development projects pay for their own utility infrastructure.
Section 1.4.2 Maintenance	Olympia	Added language cautioning against installation of high maintenance stormwater treatment facilities	Stormwater treatment facilities that require difficult, costly or frequent maintenance which are more likely to fail and require enforcement to maintain their function.
Section 1.4.3 Treatment Methods	Ecology	Additional guidance provided and outdated guidance removed.	Revised guidance for oil/water separation, pretreatment, infiltration, infiltration, emerging technologies, and on-line systems. Added Bioretention as a treatment method.
<b>Chapter 2 - Treatment Facility Selection Process</b>			
Chapter 2 - Treatment Facility Selection Process	Ecology	Additional guidance provided.	Added paragraph on emerging technology options.
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Ecology	Minor revisions to the steps. Revised description of surface waters triggering enhanced treatment.	Revised selection process steps for clarity and to remove outdated information. Revised the Treatment Facility Selection Flow Chart for revised guidance throughout Volume V. Revised description of surface waters triggering enhanced treatment for accuracy.
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Added language to make explicit that phosphorus control is required for flows to Capitol Lake and Woodard Creek	Consistent with the City's MS4 permit and the Deschutes River TMDL
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Added language to extend the requirement for enhanced treatment to all development within the designated shoreline boundaries established in the City of Olympia Shoreline Master Program.	This was a requirement established in the City of Olympia Shoreline Master Program.
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Added language to extend the requirement for enhanced treatment to all industrial, commercial and multi-family development regardless of the proximity to fish-bearing streams	This has been a requirement in Olympia since 2005
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Eliminated language referring to treatment requirements for areas outside of the UGA	The language was not applicable to Olympia and was eliminated to avoid confusion.
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Added the following sentence "To the extent feasible, at sites located within shoreline designated boundaries, low impact development best management practices shall be used to achieve enhanced treatment."	This was a requirement established in the City of Olympia Shoreline Master Program.
Section 2.1 Step-by-Step Selection Process for Treatment Facilities	Olympia	Eliminated language referring to basic treatment receiving waters	The language was not applicable to Olympia and was eliminated to avoid confusion.
Figure 2.1.1	Ecology	Revised list of options.	Some treatment BMP options removed, emerging technologies added, one BMP renamed. Added a note for Phosphorous facilities that require Enhanced Treatment.
Section 2.2 Other Treatment Facility Selection Factors	Ecology	Removed the subsection on Pollutants of Concern, the Suggested Treatment Options Table, and Ability of Treatment Facilities Table.	Removed the Suggested Treatment Options Table and Ability of Treatment Facilities Table because they provided limited usefulness and removed the associated subsection, Pollutants of Concern.
<b>Chapter 3 - Treatment Facility Menus</b>			
Chapter Introduction Paragraph	Ecology	Additional guidance provided.	Added paragraph on emerging technology options.
Section 3.2 Oil Control Menu	Ecology	Revised list of options.	Removed catch basin inserts and added emerging stormwater treatment technologies. To date, no catch basin inserts have been approved though the TAPE process but Ecology has approved one emerging technology. Deleted the "Where Applied" section since it was duplicated from Chapter 2.

Location	Source of Change	Change	Reasoning or Comments
Section 3.3 Phosphorous Treatment Menu	Ecology	Revised list of options.	Removed amended sand filter (no design criteria have been developed for this treatment), and media filter, added emerging stormwater treatment technologies. Deleted the "Where Applied" section since it was duplicated from Chapter 2.
Section 3.3 Phosphorous Treatment Menu	Olympia	Added language to make explicit that phosphorus control is required for flows to Capitol Lake and Woodard Creek	Consistent with the City's MS4 permit and the Deschutes River TMDL
Section 3.4 Enhanced Treatment Menu	Ecology	Multiple revisions to remove outdated guidance and to provide new guidance. Revised list of options. Revised waters triggering enhanced treatment consistent with Chapter 2.	Revised the performance goal for dissolved metals. Removed Amended Sand Filter. Added "vegetated" to "Compost Amended "Vegetated" Filter Strip. Removed "rain garden" for consistency with proposal to distinguish between "bioretention" and "rain gardens." Replaced "Ecology Embankment" with "Media Filter Drain." Added emerging technologies. Deleted the "Where Applied" section since it was duplicated from Chapter 2.
Section 3.4 Enhanced Treatment Menu	Olympia	Added language to extend the requirement for enhanced treatment to all industrial, commercial and multi-family development regardless of the proximity to fish-bearing streams	This has been a requirement in Olympia since 2005
Section 3.4 Enhanced Treatment Menu	Olympia	Added language to extend the requirement for enhanced treatment to all sites that infiltrate within wellhead protection areas.	Consistent with the Drinking Water Plan.
Section 3.5 Basic Treatment Menu	Ecology	Minor language changes for clarity. Revised list of options.	Removed "rain garden" for consistency with proposal to distinguish between "bioretention" and "rain gardens." Replaced "Ecology Embankment" with "Media Filter Drain". Added Compost-amended Vegetated Filter Strip. Removed Bio-infiltration Swale. Added emerging technologies. Deleted the "Where Applied" section since it was duplicated from Chapter 2.
<b>Chapter 4 - General Requirements for Stormwater Facilities</b>			
Section 4.1.1 Water Quality Design Storm Volume	Ecology	Inserted updated modeling guidance.	New guidance more accurately describes how volume is determined by computer models.
Section 4.1.2 Water Quality Design Flow Rate	Ecology	Minor language changes for clarity.	Revised language for clarity.
Section 4.1.3 flows Requiring Treatment	Ecology	Minor language changes for clarity. Changes to incorporate new terms.	Replaced "impervious" surfaces with "hard" surfaces in coordination with general changes in terminology. Added guidance regarding pollution- generating hard surfaces, pollution-generating impervious surfaces, and pollution-generating pervious surfaces.
Section 4.1.4 Minimum Treatment Facility Size	Ecology	New section re minimum treatment facility size	Additional guidance provided on the minimum treatment facility size.
	Olympia	Changed language to make Ecology's suggested setbacks be required setbacks	Intended to help avoid conflicts.
Section 4.6 Maintenance Standards for Drainage Facilities	Olympia	Moved this section to Volume IV, Chapter 4	Move was made to consolidate all maintenance requirements and guidelines in a single location.
<b>Chapter 5 - On-Site Stormwater Management</b>			
Section 5.1 Purpose	Ecology	Additional guidance provided.	Add reference to expanded BMP options and LID Manual to acknowledge the expansion of Chapter 5 and source of additional design details (LID Manual).
Section 5.2 Application	Ecology	Additional guidance provided.	Revised application to refer specifically to Core Requirements #5, #6, and #7.
Section 5.3 Best Management Practices for On-Site Stormwater Management	Ecology	Additional clarifying guidance provided. Full list of BMPs provided.	Expanded the list of BMPs in sections 5.3.1 and 5.3.2. Revised language and references for clarity.



Location	Source of Change	Change	Reasoning or Comments
Section 5.3.1 On-site Stormwater Management BMPs	Ecology	Amend existing BMP's add new BMP's	Downspout infiltration moved to Volume III. Revised BMP T5.11 Concentrated Flow Dispersion and BMP T5.12 Sheet Flow Dispersion. Updated figures. Added BMP T5.14A Rain Gardens and BMP T5.14B Bioretention but details are in Volume V of Chapter 7. Added BMP T5.15 Permeable Pavements, BMP T5.16 Tree Retention and Tree Planting, BMP T5.16 Vegetated Roofs, BMP T5.18 Reverse Slope Sidewalks, BMP T5.19 Minimal Excavation Foundations, BMP T5.20 Rainwater Harvesting. Revised BMP T5.30 Full Dispersion by incorporating details from previous Appendix III-C.
Section 5.3.2 Site Design BMPs	Ecology	Deleted Full Dispersion and section 5.3.3 <i>Other Practices</i>	Moved Full Dispersion into Section 5.3.1 because the Municipal Stormwater Permits make it a necessary option in CR #5. Clarifying statement added in BMP T5.40.
<b>Chapter 6 - Pretreatment</b>			
Section 6.1 Purpose		Minor language changes.	Removed "and media filtration" in first bullet for clarity.
Section 6.2 Application	Ecology	Additional guidance provided.	Added discussion that there are emerging technologies approved for pretreatment.
Section 6.3 Best Management Practices (BMPs) for Pretreatment	Ecology	Additional guidance provided.	Added reference to Chapter 12.
<b>Chapter 7 - Infiltration and Bioretention Treatment Facilities</b>			
Section 7.1 Purpose	Ecology	Changed bioinfiltration to bioretention.	Updated listed BMPs and made minor revisions to text.
Sections 7.2 General Considerations	Ecology	Additional guidance provided.	Renamed this Section and added information regarding Bioretention and Rain Gardens.
Sections 7.3 Applications	Ecology	Additional guidance provided.	Renamed this Section and added information for the BMPs discussed in this chapter.
Sections 7.3 Applications	Olympia	Removed guidance for local governments for designation of geographic boundaries within which bioretention cells, swales, or planters may be designated as infeasible	Language is applicable to the jurisdiction, not development. The City has mapping for critical areas that make bioretention infeasible.
Section 7.4 and BMPs 7.10 & 7.20	Ecology	Updated references to Volume III	Design details for these BMPs remain in Volume III.
Section 7.4 and BMP 7.30	Olympia	Added language requiring infiltration rates for facilities designed to achieve CR#7 (Flow Control) be determined using grain size analysis methods	This is the method the City has required since 2005. The City has found the grain size analysis method to be more conservative. PIT test methods frequently underestimate infiltration rates leading to redesign and reconstruction.
Section 7.4 and BMP 7.30	Olympia	Added language requiring infiltration rate verification testing for facilities designed to achieve CR#7 (Flow Control).	This has been a requirement in Olympia since 2005. It insures that facilities perform as they were designed.
BMP T 7.30 Bioretention Cells, Swales, and Planter Boxes	Ecology	Replaced Bio-infiltration Swale with Bioretention Cells, Swales, and Planter Boxes.	Added detailed guidance, design criteria, infeasibility criteria and figures for Bioretention Cells, Swales, and Planter Boxes.
BMP T7.40 Compost-amended Vegetated Filter Strips (CAVFS)	Ecology	Transferred this BMP from Chapter 9.	Added guidance and design criteria for Compost-Amended Vegetated Filter Strips. Treatment via infiltration through amended soils.
<b>Chapter 8 - Sand Filtration Treatment Facilities</b>			
Chapter 8 - Filtration Treatment Facilities	Olympia	Added language strongly discouraging the use of sand filters.	The City's experience with sand filters (both city-owned and privately-owned) is that they require frequent, costly maintenance. As a result, sand filters typically fail. Sand filters are favored by developers because they take up less space than alternatives, but developers often play no role in facility maintenance.
Chapter 8 - Filtration Treatment Facilities	Ecology	Changed title and introduced minor language changes for clarity.	Revised name from Sand Filtration to just Filtration.
8.1 Purpose	Ecology	Revised guidance.	Revised the purpose to apply to both sand and media filtration facilities.
8.2 Description	Ecology	Additional guidance provided.	Added reference to Media Filter Drain to description.

Location	Source of Change	Change	Reasoning or Comments
Section 8.3 Performance Objectives	Ecology	Included new technologies	Added Media Filter Drain to list of approved technologies. Clarified objective for sand filters.
Section 8.4 Applications and Limitations	Ecology	Revised guidance.	Revised to include media filter drains.
Section 8.5 Best Management Practices (BMPs) for Sand Filtration / BMP T8.10 Sand Filter Basin	Ecology	Renamed and reorganized section. Additional guidance provided.	Added design criteria for sand filter basins. reorganized section so that previous sections 8.5, 8.6, 8.7, & 8.8 become subsections under BMP T8.10.
BMP T8.11 Large Sand Filter Basin	Ecology	Separated out BMP previously reference within BMP T8.10	BMP T8.11 Large Sand Filter Basin was described in the prior manual under BMP T8.10 Sand Filter Basin. The Large Sand Filter was given a separate BMP for clarity.
BMP T8.20 Sand Filter Vault	Ecology	Additional guidance provided.	Added design criteria, construction criteria, and maintenance criteria for sand filter vault.
BMP T8.40 Media Filter Drain	Ecology	Added this BMP.	Added design criteria for new Media Filter Drain (MFD) option (previously referred to as Ecology Embankment). Text matches WSDOT Highway Runoff Manual.
<b>Chapter 9 - Biofiltration Treatment Facilities</b>			
Chapter 9 - Biofiltration Treatment Facilities	Ecology	Minor language changes for clarity.	Minor language changes for clarity throughout the chapter.
Section 9.4 Best Management Practices	Ecology	Additional guidance provided and outdated guidance removed.	Revised list of BMPs. Revised Sizing Criteria table for clarity.
BMP T9.50 Narrow Area Filter Strip	Ecology	Removed this BMP.	No design criteria exists for this BMP to validate basic treatment. Designers should refer to Basic Filter Strip.
<b>Chapter 10- Wetpool Facilities</b>			
BMP T10.10 Wet Pond	Ecology	Minor language changes for clarity.	First cell must be lined to be consistent with liner requirements in Chapter 4. Added cell requirements for consistency with design criteria for 2-cell ponds. Definition of WQ Design Storm Volume amended.
<b>Chapter 11 - Oil and Water Separators</b>			
BMP T11.10 API (Baffle type) Separator Bay	Ecology	Corrected formula.	Corrected Stokes Law equation for rise rate.
BMP T11.11 Coalescing Plate (CP) Separator Bay	Ecology	Corrected formula.	Corrected the equation to calculated the projected (horizontal) surface area of plates.
<b>Chapter 12 - Emerging Technologies</b>			
Chapter 12 - Emerging Technologies	Ecology	Replaced sections 12.1 through 12.5 with new guidance.	Replaced sections 12.1 through 12.5 to provide new guidance on the Technology Assessment Protocol (TAPE) review and approval process.
Section 12.6 Examples of Emerging Technologies for Stormwater Treatment and Control	Ecology	Removed examples of emerging technologies.	Removed examples of emerging technologies. Added some examples previously listed throughout this volume.
<b>Appendix V-B Recommended Procedures for ASTM D 2434</b>			
Appendix V-B Recommended Modifications to ASTM D 2434 When Measuring Hydraulic Conductivity for Bioretention Soil Mixes.	Ecology	Additional guidance provided.	Added Recommended Modifications to ASTM D 2434. The results of this test for saturated hydraulic conductivity can be influenced by how the general procedures in the ASTM method are implemented. This appendix lays out more specific procedures to help with consistency in evaluating soils used for bioretention.
<b>Appendix V-C Geotextile Specifications</b>			
Appendix V-C Geotextile Specifications	Ecology	Revised Guidance.	Corrected several test procedures and geotextile property requirements.
<b>Appendix V-E Recommended Bioretention Plant Species</b>			
Appendix V-E Recommended Newly Planted Tree Species	Ecology	New appendix pertinent to BMP T5.16	Lists of species from City of Seattle guidance.