

Summary of Major Changes from 2014 to 2019 HRM

General Revisions Throughout the Manual

- Clarified WSDOT stormwater policies and design criteria to address Design-Build requirements versus options.

Chapter 1

- Clarified how WSDOT determines stormwater requirements with respect to local jurisdictions.
- Added language regarding the HRM training requirement and tells the Project Engineering Office (PEO) how to get the HRM training.

Chapter 2

- Updated Section 2-1.3.3 Environmental Documentation to clarify PEOs are responsible for any stormwater related environmental commitments made during the SEPA/NEPA process (and documents) and those commitments need to be input and tracked in the commitment tracking database. Added requirement for a Demonstrative Approach Team (DAT) approval for any environmental commitment that may result in less protection than HRM's Minimum Requirements.
- Added new Section 2-3.3 BMP Design and Project Timing that explains the project, stage, or phase needs to have its individual stormwater mitigation (BMPs) constructed and operational by the individual's project, stage, or phase construction close-out to meet HRM Minimum Requirements. A DAT submittal and approval is needed if this cannot be done. Also talks about providing stormwater mitigation for future projects on the current project and keeping the potential mitigation to a timeline that falls within the same NPDES Municipal Stormwater permit cycle (5 years max).
- Updated Section 2-4.2 303(d)-Listed Water Bodies and Approved TMDL Boundaries for clarity.

Chapter 3

- Updated Section 3-2.2 to add clarifications to project level exemptions; when a project only has to provide MR 2 Construction Stormwater Pollution Prevention.
- Updated Section 3-3.7 MR 7 Wetlands Protection and Section 4-6 Wetland Hydroperiods to provide instructions on how to perform the wetland hydroperiod analysis for projects rather than just referring to Ecology's manual.
- Updated Section 3-3.8 MR 8 Incorporating Approved Basin Plans into Stormwater Management by stating it must be an Ecology approved basin plan (currently only 3 of them).
- Updated Section 3-3.9 MR 9 Operations and Maintenance to add specific language and requirement for PEO to produce a BMP maintenance manual or BMP maintenance Plan for all proposed stormwater BMPs.
- Updated Section 3-4 Stormwater Retrofit Guidelines to provide clarity and to include full and partial retrofit discussion. Removed the offsite in-kind stormwater retrofit options for 1) replaced impervious, 2) replaced PGIS, and 3) the forested flow control standard since it was conceptual and implementing and tracking this concept may have fatal flaws.
- Added a new Section 3-5 Stormwater Adjustments and Deviations to the HRM.

Chapter 4

- Updated Section 4-3.5.4 and Section 4-3.5.5 to require the use of the flow control inputs tracking spreadsheet.

- Updated Section 4-5.1 Site Suitability Criteria (SSC) 2 only require the RHE and HQ Hazardous Materials Unit concurrence (and maybe HQ Geotech if the RHE thinks it is needed) when the PEO wants to use as an infiltration BMP on a site with suspected contamination.
- Updated Section 4-5.1 SSC 5 to clarify the maximum final infiltration rate is 3.0 inches per hour for runoff treatment infiltration BMPs and that Ecology's Default Bioretention Soil Mix meets SSC 5. The HRM doesn't use the "Simplified Approach" anymore and the "Detailed Approach" is now the WSDOT standard method for Ksat determination.
- Rewrote Section 4-5.3 Infiltration Rates, Saturated Hydraulic Conductivity, and Hydraulic Gradients to coincide with the complete rewrite of Appendix 4D.
 - Added disclaimer for using the Optimized Slichter method; Ecology only allows WSDOT to use it
- Updated 4-5.4 Underground Injection Wells to refer PEO to SWMMEW and SWMMWW for details since Ecology made a lot of changes to UIC and tracking them in the HRM was not possible.
- Updated Section 4-6 to include details on how to perform the wetland hydroperiod analysis for a project in eastern WA and a project in western WA.
- Moved Section 4-7 Closed Depression Analysis to the HRM Category I BMPs document to require the RHE and regional maintenance superintendent's approval if the PEO wanted to use this BMP.
- Complete re-write of Appendix 4D
 - New Optimized Slichter Method for Ksat determination on WSDOT projects to replace Massmann's Ksat equation
 - Rewrite for clarity and to establish roles and responsibilities for stormwater infiltration design between PEO, RHE, and RME/HQ Geotech office

Chapter 5

- Revised BMP Selection flow charts Figures 5-1, 5-2, and 5-3 for clarity.
- Moved IN.04 Infiltration Vault, IN.06 Permeable Pavement Surfaces, and Closed Depression BMPs out of the HRM and placed them in the Category I BMPs that require Region Hydraulics Engineer and Local Maintenance Superintendent Approvals before use on a WSDOT project.
- CAVFS RT.02 – updated CAVFS BMP design steps for western WA to reflect the recent Ksat determination method changes made in Appendix 4D.
- Biofiltration Swale RT.04 – clarified that the design flow rate Q_{biofil} is used for design of the bioswale AND that is the rate that should be sent to the bioswale too. Also eliminated the eastern WA bioswale design method so that WSDOT only uses one consistent bioswale design method.
- Natural Dispersion FC.01 - updated text and Figure 5-50b to show the gravel spreader is not a part of the Natural Dispersion Area
- Revised Section 5-4.3.6 Pipe Outlets and referred the PEO the Hydraulics Manual for almost all of the design criteria to minimize duplicated text in both manuals.

Glossary

- Updated Glossary to provided clarifications on gravel placements along the highway with respect to when they are considered impervious and PGIS that focused on slope break point, usable shoulder, and guardrail scenarios.