DEPARTMENT OF ECOLOGY
State of Washington

Updating WWHM2012 Model and Numbering Releases/Versions

Model Updates

Ecology requires developments in western Washington to use EPA's Hydrologic Simulation Program – Fortran (HSPF) program for modeling hydrologic impacts of developments and for compliance determination with the requirements for development. The municipal stormwater permits and the Stormwater Management Manual for Western Washington (SMMWW) describe those requirements. From the adoption of the first SMMWW back in 2001 and through its subsequent revisions with the latest in 2014, Ecology provided WWHM as the HSPF-based tool for modeling and design of the BMPs in SMMWW. Since 2001, WWHM has gone through several iterations to keep up with the changes made to the stormwater manual such as adding capabilities that allow Low Impact Development (LID) modeling and design, and determining compliance with the LID standard.

Although the stormwater manual update in 2012 incorporated LID design requirements and standards, the modeling tool that was available at that time was WWHM3 which did not have the features needed to model LID Best Management Practices (BMPs) directly. So the 2012 manual provided guidance on how to represent the various LID BMP in WWHM3. WWHM2012 was developed later in 2012 and included features that enabled direct modeling of LID BMPs. Earlier versions of WWHM2012 were made available to the public in late 2012 (November) to aid with the modeling and design of LID BMPs in the 2012 stormwater manual. WWHM2012 also included other significant upgrades such as enabling WWHM to be installed on computers with Windows 7 and higher operating systems (due to WWHM3 compatibility issues), incorporating 10 more recent years of precipitation data for all gages, and the conversion of all precipitation data from hourly to 15-minute time steps.

Ecology welcomes feedback from users of WWHM2012. Over time, as more projects were modeled in WWHM2012, Ecology has received and will likely continue to receive feedback from the program users on errors and bugs discovered and suggestions for improving the various features of the model. With assistance from Clear Creek Solutions consultants (WWHM programmers), Ecology has provided WWHM2012 releases as frequently as necessary to address issues found and reported.

Ecology recommends the most recent release of WWHM2012 for modeling and design. However, access to WWHM2012 with earlier release dates are also provided on this web site, in case they are needed by the reviewers, for project submittals that may have used an earlier release date of WWHM2012. WWHM2012 versions that share the same major and minor number should give identical outputs in most, if not all, cases, despite having a different revision number. Municipalities that wish to require a specific version of WWHM2012 should consider specifying a major and minor version, and not specifying the revision (see below).

Version Numbering System for Updates to WWHM2012 (Version XX.YY.ZZ)

For WWHM2012 updates made after September 2015, Ecology uses a numbering system that signifies the changes as major, minor, or bug fixes. A description of the change will be included with the update.

Older versions of the program (created on or before September 2015), can be found by their release date at: http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/wwhm-old-versions.html

- Digits **XX** – Signify major updates such as changes to modeling algorithms and equations used to represent a BMP and policy changes that affect how various analyses are conducted and compliance is determined.
- Digits **YY** – Signify minor updates in response to calculation errors found such as errors in the equations used and program coding errors in representing those equations in the model.
- Digits **ZZ** – Signify updates in response to bugs and logical inconsistency in the program coding.