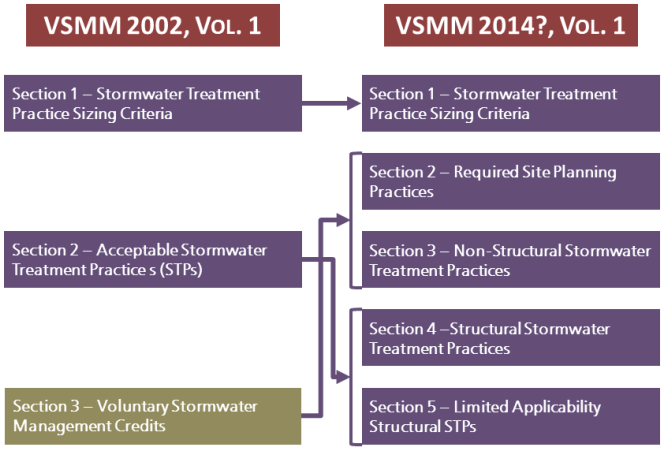
Draft Outline for Revised VSMM (March 10, 2014)

The draft table of contents (TOC) for the Vermont Stormwater Management Manual (VSMM) is the first effort to integrate the framework and standards discussed during previous stakeholder meetings into the structure of the existing manual. The draft TOC reflects key changes in the treatment standards that projects may be required to meet, including enhanced attention to the importance of site design and non-structural practices in minimizing stormwater runoff volumes. The draft continues to utilize significant portions of the 2002 VSMM that remain largely applicable, such as design criteria for acceptable structural STPs and water quantity sizing and treatment standards for higher-magnitude storms. The graphic below illustrates the proposed re-organization of Volume 1 of the revised VSMM. The full TOC is included on the last page of this fact sheet.



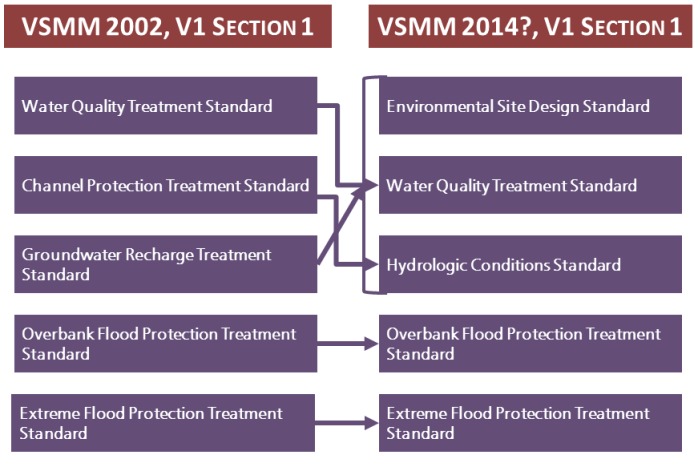
Proposed re-organization of VSMM, Volume 1.

The proposed structure of the revised manual includes several key additions and changes, outlined below.

Changes to Stormwater Treatment Practice Sizing Criteria

Proposed revisions to the Section 1 Stormwater Treatment Practice Sizing Criteria are graphically represented at the top of the next column, and include:

- A new Environmental Site Design Standard that encourages project layout and site design in an effort to avoid the impacts associated with stormwater runoff. The two key components of the proposed standard are:
  - Site Planning (natural area conservation, buffer / floodplain protection, and limited site clearing / grading)
  - Post-Construction Soil Depth and Quality (based on State of Washington's and other standards discussed at January 2014 stakeholder meeting)
- The Water Quality Treatment Standard is proposed to be based on a rainfall depth of 1.0 inch, rather than 0.9 inches. The WQv will be required to be managed using non-structural and structural GSI practices. This expanded WQv standard will meet the goals of and therefore subsume the existing Groundwater Recharge Treatment Standard.
- The Channel Protection Treatment Standard is proposed to be revised to a "Hydrologic Conditions Standard." If a combination of non-structural and structural GSI practices is used to demonstrate that the project's post-development runoff curve number (RCN) is equivalent to the pre-development woods/meadow in "good condition", then the equivalent of the current WQv and CPv requirements



Proposed changes to VSMM Stormwater Treatment Practice Sizing Criteria.

will be satisfied. If the woods/meadow in "good condition" target is not met following maximization of GSI practices, a reduced RCN reflecting the non-structural and structural GSI practices that will be implemented is applied to the calculations for CPv.

- The Overbank and Extreme Flood Protection Treatment Standards remain unchanged, but a reduced RCN reflecting the non-structural and structural GSI practices that will be implemented is applied to the calculations for Q10 and Q100.

Integration of the "Runoff Reduction" Strawman into VSMM

The proposed organization of Volume 1 in the revised manual will follow a site planning and design process that is substantially equivalent to the "strawman" proposal presented and discussed at the January 2014 stakeholder meeting. The flowchart to the right illustrates the order in which site planning and design principles are proposed to be applied. If, at the end of any step in the process, all relevant treatment standards are met, the project does not need to progress to the next "step" but can instead proceed to design.

Desired Outcomes

The Stormwater Program strongly supports better integrating LID and GSI approaches into the VSMM. The draft manual is a next step in ensuring that practices such as disconnection, bioretention, and infiltration are applied on sites to the maximum extent practicable by adopting an approach that leads designers through a predictable process: minimize impervious surfaces, ensure adequate soil depth and quality post-construction, preferentially treat runoff from impervious surfaces with sheetflow, and use structural practices as a last resort.

The draft manual attempts to strike a balance – it establishes a standard for site design but does not build in a requirement for the Program to review the project-level decision making process. Rather, we hope to achieve this goal by establishing a RCN-based requirement, creating incentives to maximize infiltration, and establishing a complete range of approved runoff reduction practices for designers. Information sharing and training can serve to further this goal.

For More Information

All information regarding the Vermont Stormwater Management Manual Update process is available at:
http://www.vtwaterquality.org/stormwater/htm/sw_manualrevision.htm.

VOLUME 1 – STORMWATER TREATMENT STANDARDS, WORKING OUTLINE (March 10, 2014)

1.0 Stormwater Treatment Practice Sizing Criteria
- 1.1 Introduction / Overview
- 1.2 Site Design and Treatment Standards
  - 1.2.1 Environmental Site Design Standard
  - 1.2.2 Water Quality Treatment Standard – first inch
  - 1.2.3 Hydrologic Conditions Standard
    - 1.2.3.1 Woods or Meadow in "Good Condition" or CPv w/ Adjusted CN
  - 1.2.4 Overbank Flood Protection Treatment Standard, w/ Adjusted CN
  - 1.2.5 Extreme Flood Protection Treatment Standard, w/ Adjusted CN
- 1.3 Downstream Analysis for Qp10 and Qp100
- 1.4 Redevelopment and Retrofit Standards

2.0 Required Site Planning Practices
- 2.1 Site Planning
  - 2.1.1 Natural Area Conservation
  - 2.1.2 Buffer/Floodplain Protection
  - 2.1.3 Limit Site Clearing/Grading
- 2.2 Post-Construction Soil Depth and Quality

3.0 Non-Structural Stormwater Treatment Practices
- 3.1 Reforestation
- 3.2 Disconnection of Rooftop Runoff
- 3.3 Disconnection of Non-Rooftop Runoff
- 3.4 Filter Strips and Vegetated Buffers

4.0 Structural Stormwater Treatment Practices
  - 4.1.1 Pre-treatment Practices
- 4.2 Alternative Surfaces
  - 4.2.1 Green Roofs
  - 4.2.2 Permeable Pavements
  - 4.2.3 Reinforced Turf
- 4.3 Rainwater Harvesting
- 4.4 Stormwater Treatment Wetlands
  - 4.4.1 Submerged Gravel Wetlands
- 4.5 Bioretention Areas and Rain Gardens
- 4.6 Grass Swales and Bio-swales
- 4.7 Infiltration Trenches/Basins

5.0 Limited Applicability Structural Stormwater Treatment Practices
- 5.1 Pre-treatment Practices
- 5.2 Practices that Meet the Water Quality Treatment Standard
- 5.3 Practices that Meet Water Quantity Requirements
- 5.4 Proprietary and Alternative Stormwater Treatment Practice Designs