VERMONT

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Agency of Natural Resources

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Response Summary
Standard Operating Procedures for Tracking & Accounting of Developed Lands Regulatory Projects & Non-Regulatory Clean Water Projects
Standard Operating Procedures for Tracking & Accounting of Natural Resources Restoration Projects

The Vermont Agency of Natural Resources, Department of Environmental Conservation (Department or DEC) proposes to adopt Standard Operating Procedures (SOPs) for phosphorus tracking and accounting. The Department placed three SOP documents for Agricultural Conservation Practices, Developed Lands Regulatory & Non-Regulatory Clean Water Projects, and Natural Resources Restoration Projects on public notice from March 30, 2022 through May 2, 2022. A public meeting was held on April 15th, 2022.

The Department received written comments on the draft SOPs for Developed Lands Regulatory Projects & Non-Regulatory Clean Water Projects and Natural Resource Restoration Projects. A summary of the comments received and the Department's responses can be found below. No comments were received for the Agricultural Conservation Practices SOPs.

Standard Operating Procedures for Tracking & Accounting of Developed Lands Regulatory Projects & Non-Regulatory Clean Water Projects

Vermont Agency of Transportation (VTrans) Comments:

1. Page 9, Road Erosion Remediation on Paved State Roads:
   Area Treated Definition, Road Segment Length should be 80 meters. VTrans standardized its hydrologically-connected road segment length in the PCP Area to 0.05 miles/~80 meters to correspond with the Linear Reference System (LRS).

   Response: This change has been made to the document.

2. Page 12-13, description of the TS4 General Permit:
   This section does not mention VTrans' Flow Restoration Plan submittals or compliance responsibilities. Suggest adding language similar to what is included in the MS4 Permit section above.

   Response: This change has been made to the document.

3. Page ~~13~~ 17, Anticipated Future Improvements: Second paragraph – Correct a typo (correct "liner" to "linear") and specify that linear loading rate development is for roadway impervious cover.

   Response: These changes have been made in the document.

4. Will DEC develop linear loading rates for all roadways (TS4, municipal, public lands, public roads, and private roads/forest roads)? VTrans is willing to continue collaboration on this topic.

Response: There are two sets of linear loading rates presented in the document. Table E-1 and E-2 in Appendix E are generalized loading rates based on lake drainage area and road surface that apply to all road types in Lake Champlain and Lake Memphremagog respectively. Tables F-1, F-2, and F-3 in Appendix F offer more detailed loading rates for municipal roadways in the Lake Champlain Basin based on surface type, slope, hydrologic connectivity, and compliance with municipal road standards. Road projects in the Lake Memphremagog basin may use the generalized road loading rates until better data is available.

- TS4/State Highways - VTrans has already developed their own loading rates as part of the phosphorus control plan, which are linked in the SOP and summarized in Appendix G.
- Forest Roads - Methodology and loading rates for forest roads are outlined in the Natural Resources Standard Operating Procedure document.
- Private roads, and other categories of roads, etc. – The development of more refined road loading rates will be considered based on need from anticipated projects and the availability of better datasets.

5. Page 17, Fourth paragraph – it is good that DEC acknowledges crediting opportunities for practices implemented near rivers and streams that positively affect connectivity (such as gully stabilization) remain to be determined/vetted. VTrans stands ready to support continued partner and inter-agency collaboration on this topic.

Response: DEC acknowledges and appreciates the continued support of VTrans.

6. Page 33, Road Erosion Remediation on VTrans (State) Roads:
   First sentence, Table 6 text reference links to Table 8; Table 8 is correct.

Response: This change has been made to the document.

7. Page 36-37, erosion volume measurement:
   Guidance on measuring erosion volume is much improved. Is it possible to add guidance about assumed rill or gully erosion geometry (V-shaped, U-shaped, etc.)? The present length x width x depth calculation likely over-estimates actual erosion volume.

Response: The current erosion volume methodology is based on the way information was collected from the Road Erosion Inventories for the Municipal Roads General Permit. The document includes minimum measurement standards based on the size of the gully. DEC will also accept more accurate measurements made by engineering survey.

8. Page 37, Total Phosphorus Load Reduction Efficiency:
   Last paragraph - though discussed and offered, the draft SOP does not include flexibility for proposing alternative crediting mechanisms for regulatory or non-regulatory projects. Suggested language: "Alternate methods for calculating phosphorus load reduction efficiencies may be proposed by MS4 or TS4 permittees, but shall not be applied until they are reviewed and accepted by the Stormwater Program."

Response: DEC would like to keep accounting of all practices types the same across all programs to facilitate consistent and accurate accounting and reporting to meet requirements of the Lake Champlain and Lake Memphremagog TMDLs. The SOP documents will be updated as new methodologies for tracking and accounting become available, and any updates will be applied to a project type across all programs. DEC acknowledges that VTrans reporting may in some cases be unique and will work with VTrans to develop appropriate systems for tracking and accounting as VTrans further develops their reporting.

City of South Burlington Comments:

9. The State should reexamine the 10% Total Phosphorus reduction efficiency proposed for hydrodynamic separators. It appears that the State of Vermont is largely following a policy decision made by the Chesapeake Bay Program (CBP), where the CBP lowered the TP reduction efficiency for hydrodynamic separators so as to not encourage the use of this practice over other urban stormwater practices that provide other benefits.

   This SOP for Tracking & Accounting of Developed Lands Regulatory Projects & Non-Regulatory Clean Water Projects should contain phosphorus removal rates that most accurately reflect the science. This document should not add additional layers of policy. If hydrodynamic separators can achieve a higher amount of phosphorus removal, then it is likely that they could become a cost-effective tool in meeting the Lake Champlain P TMDL, particularly for sites only subject to the "3-Acre" rule.

   While a 10% phosphorus reduction efficiency may encourage the use of other urban stormwater practices that provide other benefits, there may also be unintended consequences where a permittee forgoes treating a small area of their site due to space constraints and choses to pay an impact fee instead - resulting in no stormwater treatment for that area.

   The State should take another look at its analysis, including how confident they are in the findings of these studies. It appears that some of the studies used are from 20 years ago. Also the study from UNHSC shows a 0% TP removal - perhaps that study should be examined further to see if their study took something into account that the other studies missed. The State should also look at the 42% reduction efficiency that the CBP found in their literature review.

Response: Similar to the Chesapeake Bay Program literature review, DEC sourced studies from the International Stormwater BMP Database. The Department chose to only consider seven of the 15 studies retrieved from the database, focusing on sites have a similar climate to Vermont, and excluding studies from southern states that do not experience cold winters and snowfall. This is consistent with the Stormwater Program's approach to approving alternative treatment practices per the 2017 Vermont Stormwater Management Manual. The Chesapeake Bay Program literature review included several studies outside of the desired study area. In addition, the Department was unable to confirm some of the efficiencies from studies referenced in the Chesapeake literature review. The Department has revised the description of its methodology in the SOP document as well as revised the table of studies included in its analysis, as only four of the seven analyzed were included in the draft. The mean and median phosphorus reduction from those seven studies was 11 percent. The results of the Department's literature review, in addition to the efficiency assigned by other jurisdictions lead to the assignment of a 10 percent phosphorus reduction.

Technology	Location	Removal (%)	
		TSS	TP
Stormceptor	Madison, WI	21	19
Vortechs	Lake George, NY	65	0
Vortechs	Milwaukee, WI	42	16
Stormceptor	Seatac, WA	87	11
Unknown	UNH	75	0
Unknown	UNH	21	0
Stormceptor	Como Park, MN	76	32
		Median	**11**
		Mean	**11.1**

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Vermont Agency of Transportation

10. Page 33, Project Type Tracking Mechanisms, second sentence: Add that VTrans and the TS4 “may occasionally implement floodplain restoration projects to help meet PCP requirements…”

Response: This change has been made to the document.