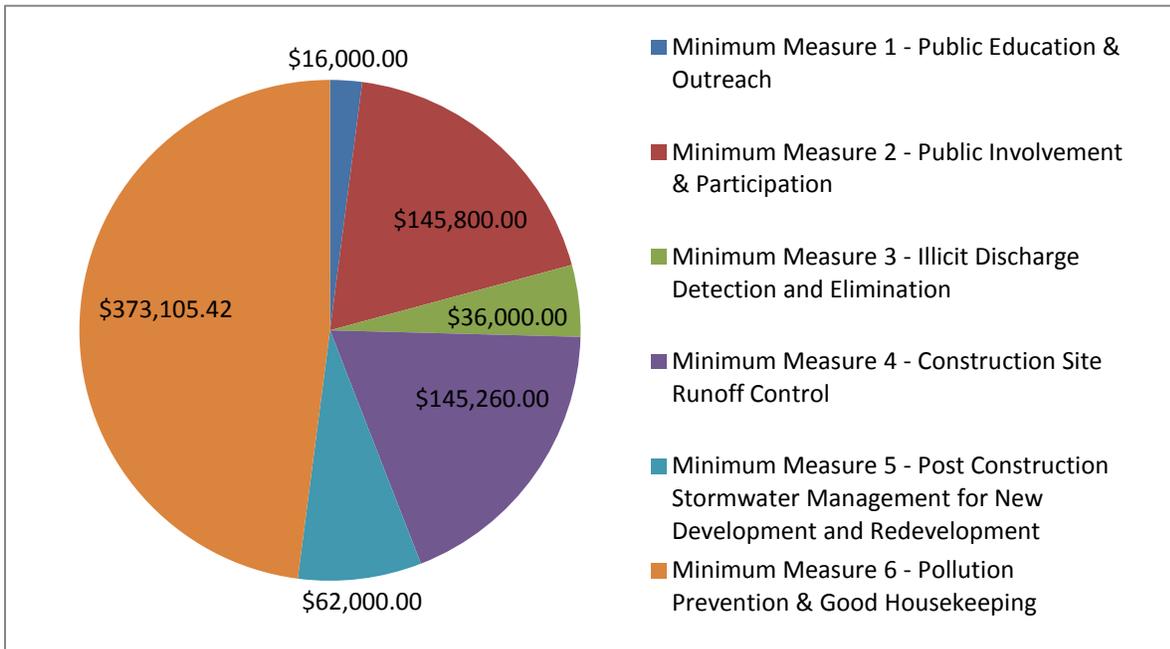


**2012 MS4 Annual Report**  
**Vermont Agency of Transportation**  
**April 2, 2013**

*General Permit 3-9014 National Pollutant Discharge Elimination System  
 Number VTR040000*

In 2012 the Vermont Agency of Transportation (VTrans) spent \$778,156.42 implementing the MS4 program. The following table and chart break out the cost per minimum measure:

Minimum Measure	Cost
Total Program Cost	\$ 778,156.42
Minimum Measure 1 - Public Education & Outreach	\$ 16,000.00
Minimum Measure 2 - Public Involvement & Participation	\$ 145,800.00
Minimum Measure 3 - Illicit Discharge Detection and Elimination	\$ 36,000.00
Minimum Measure 4 - Construction Site Runoff Control	\$ 145,260.00
Minimum Measure 5 - Post Construction Stormwater Management for New Development and Redevelopment	\$ 62,000.00
Minimum Measure 6 - Pollution Prevention & Good Housekeeping	\$ 373,105.42



## **Minimum Measure 1 – Public Education & Outreach**

### **BMP 1.A – Regional Stormwater Education Program**

**Activity:** VTrans continued its participation in the RSEP and paid the \$5,000 annual operating fee.

**Indicators:** See attached RSEP Annual Review Document (Attachment A)

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000(\$5000 + time for multiple staff)

### **BMP 1.B – VTrans Stormwater Website**

**Activity:** A new "VTrans Operations Stormwater" web site has been developed and activated by VTrans Operations Division, as responsibility for managing compliance with the MS4 GP has been transferred to Operations in November of 2007. The web site is updated.

**Indicators:** Went live with the new web site in 2009 and maintained the new web site during 2010 through 2012. The Agency has disabled the web hit counter for budget considerations and there were no public inquires reported.

**BMP Effectiveness:** This BMP has proven to be somewhat effective and will be continued thru the remainder of the Permit Term with minor modification. Due to the hit counter being disabled Agency-wide on all web sites, VTrans will no longer be reporting this

**Estimated Expenditures:** \$3,000(time for 2 staff)

### **BMP 1.C – Storm Drain Markers**

**Activity:** Storm drain markers were installed as structure maintenance was performed

**Indicators:** No replacement storm drain markers were installed.

**BMP Effectiveness:** This BMP has not proven to be very effective; it will not be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$0

### **BMP 1.D – VTrans Operations Division Environmental Coordinator (OEC) Position**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the MS4 GP and other Federal and State Stormwater Regulations and participated in all RSEP MCM#1 Meetings and Activities.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$3,000 (time devoted to this BMP not included in other BMPs)

## **Minimum Measure 2 – Public Involvement & Participation**

### **BMP 2.A – VTrans Stormwater Advisory Group (SWAG)**

**Activity:** VTrans SWAG replaced with VTrans Stormwater Steering Committee and moved to MCM #6.

**Indicators:** See MCM #6

**BMP Effectiveness:** This BMP has proven to be non-effective in addressing Public Involvement & Participation. It has however proven to be very effective as a Good Housekeeping BMP and will be continued thru the remainder of the Permit Term under its current form but will be moved to MCM#6. VTrans will make this adjustment in its SWMP for the reissued MS4 Permit.

**Estimated Expenditures:** N/A

### **BMP 2.B – Regional Planning Coordination**

**Activity:** VTrans Policy and Planning Division continues to carry out the Vermont Transportation Planning Initiative (TPI), in coordination with the Chittenden County Metropolitan Planning Organization (CCMPO) and with the Chittenden County Regional Planning Commission (CCRPC). The VTrans Policy and Planning Division Regional Transportation Planning Coordinators worked directly with the CCMPO and indirectly (by way of the CCMPO) with CCRPC. The VTrans coordinators and these organizations solicited local input, identified needs, developed regional transportation plans and transportation improvement programs, and provided planning capacity to VTrans on an ongoing basis. The CCMPO and the CCRPC provided significant and in-depth public involvement and participation in transportation planning.

**Indicators:** VTrans has and will continue to work with the CCMPO and the CCRPC to ensure that the public is involved in transportation planning including stormwater management issues.

**BMP Effectiveness: Estimated Expenditures:** \$ 79,000 (estimated costs are spread agency wide and are difficult to break out as many VTrans project manager, designers, environmental permitting staff and consultants are involved)

## **BMP 2.C – Environmental Permitting Public Notice & Participation Requirements**

**Activity:** VTrans obtains environmental permits for most development projects. Several of these permit processes require public notice and allow for substantial public participation and input affecting the final development of transportation projects.

**Indicators:** Two Construction Stormwater permits were issued in 2012:

- Essex Town STP 5400(5)
- Burlington HES 5000(18)

One Stream Alt Title 19 Consultation in 2012:

- Colchester STP 5600 (12)

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$60,000 (estimated costs are spread agency wide and are difficult to break out as many VTrans project manager, designers, environmental permitting staff and consultants are involved)

## **BMP 2.D – Sponsor Low Impact Development (LID) Workshops and LID Project Development**

**Activity:** Conducting Educational Outreach Workshops on Low Impact Development (LID) Water Quality Treatment Practices (ie: Rain Garden Effectiveness and Design) is expected to reach a broad audience and may result in more community based spin-off activities following this concept at the local level. VTrans proposes to conduct workshops and construct pilot projects within the VTrans MS4 area and surrounding MS4 Municipalities to engage the public and solicit public involvement in a workshop setting. VTrans will further engage the public by providing opportunities to participate in the construction of pilot projects in these areas.

VTrans is partnering with the UVM Extension Service, the Winooski Natural Resource Conservation District (NRCD) and will seek partnerships with others to fund, design, and tap into local volunteers to implement LIDs in the VTrans MS4 or MS4 Municipalities.

**Indicators:** Adoption of the Chittenden County Stream Team (see attachment B)

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$1,800

## **BMP 2.E – VTrans Stormwater Website**

**Activity:** A new "VTrans Operations Stormwater" web site has been developed and activated by VTrans Operations Division, as responsibility for managing compliance with the MS4 GP has been transferred to

Operations in November of 2007. The web site is updated as needed and provides the opportunity to review all VTrans MS4 documents.

**Indicators:** Went live with the new web site in 2009 and maintained the new web site in 2010 through 2012. The Agency has disabled the web hit counter for budget considerations and there were no public inquires reported.

**BMP Effectiveness:** This BMP has proven to be somewhat effective and will be continued thru the remainder of the Permit Term with minor modification. Due to the hit counter being disabled Agency-wide on all web sites, VTrans will no longer be reporting this

**Estimated Expenditures:** time for 2 staff (see BMP 1.B for cost)

## **BMP 2.F – VTrans Operations Division Environmental Coordinator (OEC) Position**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the MS4 GP and other Federal and State Stormwater Regulations and manages all activities under MCM#2.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$5,000(time devoted to this BMP not included in other BMPs)

## **Minimum Measure 3 – Illicit Discharge Detection and Elimination**

### **BMP 3.A Maintain GPS and GIS Mapping Project to satisfy 4.2.3.1.2**

**Activity:** In 2010 completed a Map of State Owned Impervious Surfaces in Chittenden County MS4 Area and calculated area and percent of impervious per impaired watershed and per municipality (within MS4 designated limits). VTrans also initiated in 2009 and completed in 2010 an update to its 2008 MS4 Outfall Map Book based on 2009 IDDE field investigations and also updated its Outfall and Drop Inlet Counts by Impaired Watershed (making note of outfalls not found or mistakenly including Stevens and Rugg Brook data, and conversion of VT 15 in Essex Jct to Class I). Copies of all provided to ANR and CCRPC.

**Indicators:** none

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term. Specifically, any changes to current mapping will be reported to ANR and CCRPC.

*Estimated Expenditures:* N/A

### **BMP 3.B Develop and Implement an IDDE Testing & Monitoring Protocol to satisfy 4.2.3.14**

**Activity:** A plan and prohibition on illicit discharge are in place (see BMP 3.D). VTrans continues to work on an enhanced IDDE Policy & Procedure (BMP 3.F) and an IDDE Testing and Monitoring Protocol (BMP 3.B) to be formally adopted to detect and eliminate non-stormwater discharges into the VTrans stormwater systems in the VTrans MS4. In 2009 VTrans hired VBH-Pioneer to conduct a Phase I IDDE Outfall Screening, Assessment, and Field Investigation using the Center for Watershed Protection IDDE Guidance Manual (2009) as its testing and monitoring protocol. Under Phase I a total of 869 Mapped Outfalls were screened which resulted in field inspection of 833 outfalls, of which 45 suspect outfalls required further investigation and evaluation under Phase II. The Phase I Final Report was completed and results were reported under the 2009 Annual Report. VTrans contracted with VHB-Pioneer to conduct Phase II Field work and water quality testing at the end of October 2009, water quality sampling on 40 priority outfalls was conducted in 2009 and 2010. For VTrans, a non-traditional linear MS4, monitoring for and encounters with illicit discharges occurs at multiple levels. Monitoring for illicit discharges occurs as a standard operation procedure under the Permit. Encountering illicit discharges occurs during project development & design, right-of-way negotiation and acquisition, project construction, maintenance operations, Multi-Sector General Permit (MSGP) inspections, Hazardous Materials Spill Reporting Procedures, or from unsolicited reports from the general public. VTrans BMPs contributing to the testing and monitoring of Illicit Discharges are addressed under the 2008-2013 VTrans MS4 Stormwater Management Plan.

*Indicators:* None

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

*Estimated Expenditures:* N/A

### **BMP 3.C Coordinate efforts under this Minimum Control Measure with other MS4s in Vermont to satisfy 4.2.3.1.1 & 4.2.3.1.3, 4.2.3.1.4 & 4.2.3.1.5**

**Activity:** Many of the VTrans and other MS4 storm sewer systems are connected and stormwater flows across MS4 jurisdictional boundaries. VTrans representative(s) have participated in quarterly VANR/CCRPC hosted Phase 2 "Regional Stormwater Education Program" group meetings where MS4 Communities engage in discussions and share information related to MS4 compliance and initiatives (BMP 1.A). VTrans has coordinated with most MS4 Communities on proposed new private development projects (BMPs 2.A, 2.B, 2.C, and 2.F). The drainage infrastructure inventory / ArcGIS Personal Geo Data Base has been sent to the CCRPC and to the VANR-Stormwater Section and all MS4s, CCRPC, and ANR are working together on a mapping update standardization procedure (BMP 3.A).

VTrans Operations Environmental Coordinator (BMP 3.G) and Program Development Environmental Stormwater Engineer (BMP 5.B) continue to participate in the quarterly Regional Stormwater Education

Program, where data and information is shared between all MS4s. VTrans is also developing an enhanced IDDE Policy & Procedure (BMP 3.F) and an IDDE Testing and Monitoring Protocol (BMP 3.B) which will be developed in partnership with other MS4s in Vermont due to the interconnectivity of the MS4 storm sewer systems and lack of enforcement authority VTrans has over discharges from non-VTrans property. VTrans has coordinated with all involved MS4s in completing its 2009/2010 Phase I and II IDDE Assessment & Reporting (see BMP 3.B)

**Indicators:** No new activities for 2012

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

### **BMP 3.D Use VTrans Title 19, Section 1111 Access Management Program, Highway Permits, and Development Agreements to satisfy 4.2.3.1.1 & 4.2.3.1.3, 4.2.3.1.4, 4.2.3.1.5 & 4.2.3.1.6**

**Activity:** During the 2003-2008 Permit Term, the Standard Conditions of the Section 1111 were updated to effectively prohibit and regulate illicit discharges. This permitting program is reviewed annually, and where appropriate modified to add further constraints to prevent discharge of non-stormwater discharges or pollutants into the VTrans MS4. The goal of this effort is to ensure proper management of stormwater from non-VTrans projects prior to it entering the VTrans stormwater systems. VTrans Operations Division OEC and Districts and Program Development Stormwater Engineer review Section 1111 proposals and work with VTrans Utilities and Permitting staff and applicants to prohibit physical connections to the State stormwater management system where feasible, disconnect non-stormwater discharges, and to educate private property owners regarding on-site treatment practices available to them.

**Indicators:** VTrans Operations Division OEC and Districts and Program Development Stormwater Engineer review Section 1111 proposals and work with VTrans Utilities and Permitting staff and applicants to prohibit physical connections to the State stormwater management system where feasible, disconnect non-stormwater discharges and to educate private property owners regarding on-site treatment practices available to them. Of all the projects reviewed in the MS4 Coverage Area, no illicit connections were reported nor actions taken against to force disconnection.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000 (staff time)

### **BMP 3.E Inform public employees, businesses and the general public of hazards associated with illegal discharges and improper disposal of waste to satisfy 4.2.3.1.4 & 4.2.3.1.5**

**Activity:** VTrans has continued the various trainings for its District Maintenance Personnel on various topics, including stormwater and illicit discharges (BMPs 1.A through 1.D, 2.A, 2.D, 2.E, 2.F, 3.C through 3.H, 4.E, 4.I, 5.C, and 6.D). VTrans SWAG (now SWSC) and RSEP provide multiple opportunities to inform the public on this topic, as does the VTrans and RSEP Stormwater web sites (BMPs 1.A, 1.B, and 2.E). VTrans will continue to take advantage of activities under the 2008-2013 SWMP to the extent practicable to host as many forums as is practicable to meet the intent of this BMP.

**Indicators:** VTrans Operations has provided over 40 hours of spill response, waste disposal and Spill Prevention Containment and Countermeasure training to over 50 district personnel located within the MS4 during 2012.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$3,000 (staff time)

### **BMP 3.F Develop and Implement an Enhanced VTrans Non-traditional MS4s Illicit Discharge Detection and Elimination (IDDE) Policy & Procedure building upon the current prohibition of foreign non-stormwater conveyance systems and work with VTANR and other MS4s to develop and implement enforcement measures to satisfy 4.2.3.1.1, 4.2.3.1.3, 4.2.3.1.4, & 4.2.3.1.6**

**Activity:** A plan and prohibition on illicit discharge are in place (see BMP 3.D). VTrans continues to work on an enhanced IDDE Policy & Procedure (BMP 3.F) and an IDDE Testing and Monitoring Protocol (BMP 3.B) to be formally adopted and put into practice to detect and eliminate non-stormwater discharges into the VTrans stormwater systems in the VTrans MS4. VTrans is using the Center for Watershed Protection IDDE Guidance Manual (2009) as its current IDDE Procedure and will look to formalize the use of this in its 2011 SWMP update under the new MS4 Permit. For VTrans, a non-traditional linear MS4, monitoring for and encounters with illicit discharges occurs at multiple levels. Monitoring for illicit discharges occurs as a standard operation procedure under the Permit. Encountering illicit discharges occurs during project development & design, right-of-way negotiation and acquisition, project construction, maintenance operations, Multi-Sector General Permit (MSGP) inspections, Hazardous Materials Spill Reporting Procedures, or from unsolicited reports from the general public. VTrans BMPs contributing to the testing and monitoring of Illicit Discharges are addressed under the 2008-2013 VTrans MS4 Stormwater Management Plan.

**Indicators:** A plan and prohibition on illicit discharge are in place (see BMP 3.D). VTrans continues to work on an enhanced IDDE Policy & Procedure (BMP 3.F) and an IDDE Testing and Monitoring Protocol (BMP 3.B) to be formally adopted to detect and eliminate non-stormwater discharges into the VTrans stormwater systems in the VTrans MS4.

**BMP Effectiveness:** Work under this BMP is moving along, but will prove to be very effective. Therefore it will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$3,000 (staff time)

### **BMP 3.G VTrans operations Division Environmental Coordinator Position to satisfy 4.2.3.1.1, 4.2.3.1.2, 4.2.3.1.3, 4.2.3.1**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the MS4 GP and other Federal and State Stormwater Regulations, and has coordinated all contracts and project management under MCM#3.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000 (staff time)

### **BMP 3.H – VTrans Operations Division Hazmat/Safety Coordinator Position**

**Activity:** This position was created and filled in 2006 and continues to be instrumental in providing oversight on a number of pollution prevention and good housekeeping measures (see BMP 6.F). The duties of this position support the IDDE Minimum Control Measure #3.

**Indicators:** The Vtrans Haz Mat Section conducted over 40 hours of spill response, waste disposal and Spill Prevention Containment and Countermeasure training to over 50 personnel in the MS4 area during 2012.

VTrans generated and disposed of roughly 1 ton of various waste streams in the MS4 area under the supervision of this position.

In addition, this position provides support and coordination for HazMat spill response and reporting. 8 spills were responded to and/or reported in the VTrans MS4 coverage area.

Also, this position is directly responsible for efforts underway to reduce underground storage tanks. No USTs remain in D5 and all large (2k gallon and over) ASTs have been removed. Only small (less than 2k gallon) remain for heating and used oil storage purposes only.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

*Estimated Expenditures:* \$10,000 including training time, waste disposal, spill response and pollution prevention equipment

## **Minimum Measure 4 – Construction Site Runoff Control**

### **BMP 4.A – Construction General Permit and Individual Permit Compliance**

*Activity:* VTrans continues to comply, and/or requires others working in our right-of-way under a Section 1111 Permit to comply, with ANR issued General Permit 3-9020 (2008) and/or Individual Permit regulating stormwater runoff from construction sites which result in land disturbance equal to or greater than one acres of land.

*Indicators:* VTrans continues to comply, and requiring others working in our right-of-way under a Section 1111 Permit to comply, with ANR issued General Permit 3-9020 (2008) and/or Individual Permit regulating stormwater runoff from construction sites which result in land disturbance equal to or greater than one acres of land.

VTrans projects in the MS4 area under construction during 2012 having coverage under an Individual General Permit-3-9020 for Construction include: NONE. Those with coverage under Low Risk under CGP 3-9020 include: ONE. We did not have any other projects in the MS4 that had Construction Permits or SP 652.

- South Burlington-Colchester IM CULV(23) (two sites covered under separate CGP 3-9020 Low Risk authorizations)

VTrans continues implementation of its EPSC Protocol developed in 2006. It sets guidelines for Consultant and in-house Designers and field staff for creating and implementing consistent Erosion Prevention and Sediment Control Plans that meet the requirements of the New CGP 3-9020 and for those projects disturbing less than 1 acre with any potential to impact resources. The guidelines include EPSC Plan Checklists, flowcharts, detail drawings, specifications and general guidance; all of which are posted on VTrans Environmental Section Webpage. ONE project was under construction in 2010 for which this protocol was applied:

- Colchester TCSP TCSE(9) (under 1 acre and No SP 652 so EPSC Plan under Std Spec 105)

*BMP Effectiveness:* This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

*Estimated Expenditures:* \$100,000

### **BMP 4.B – VTrans Construction Environmental Engineer (CEE) and Assistant Construction Environmental Engineer (ACEE) Positions**

*Activity:* The CEE and ACEE worked to ensure VTrans compliance with the Construction General Permits or Individual Permits, reviewed and updated construction erosion control details and specifications

(BMP 4.C), provided training (BMP 4.E) for VTrans Staff Statewide, Consultants and Contractors, and conducted construction site assurance visits (BMP 4.D).

**Indicators:** The CEE leads an EPSC Working Group that meets quarterly to discuss ongoing compliance under this Minimum Control Measure. Ongoing activities can be found on the VTrans Construction Web Site at <http://www.aot.state.vt.us/progdev/Sections/Construction/construct.htm> and on the Environmental Stormwater Web Site at <http://www.aot.state.vt.us/TechServices/EnvPermit/Stormwater04.htm>. Also see related MCM#4 BMPs for more information.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000

### **BMP 4.C – Erosion Prevention and Sediment Control Guidance Materials**

**Activity:** No revisions to the VTrans 2007 EPSC Protocol process were made during 2011. An Alternative EPSC Plan Process (one that is being studied for projects disturbing less than 1 acre) was implemented and evaluated for its third of a three year trial. No projects implementing the Alternative EPSC Protocol were active during the 2012 season. The Structures office has backed off using the Alternative EPSC Protocol during the 2012 season, but expressed a desire to expand its use in the future on a wider variety of projects. The Environmental Unit is interested in determining if a re-evaluation of the 2007 Protocol is due. The thought is to revisit the intent and ensure it is relevant and useful. The Alternative Protocol will be reviewed during 2013. Potential revisions to the VTrans EPSC Protocol will be based on the outcome of that analysis as well as the potential changes to the CGP; due for 2013.

**Indicators:** None to report

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** see BMP 4.B

### **BMP 4.D – Erosion Prevention and Sediment control Assurance Visits**

**Activity:** This BMP has evolved with the hiring of the VTrans Construction Environmental Engineer and Assistant Construction Environmental Engineer (refer to BMP 4.B). The primary purpose of Erosion Prevention and Sediment Control Assurance Visits is to ensure that VTrans protects natural resources and complies with state and federal regulations through implementation of project Erosion Prevention and Sediment Control Plans and compliance with environmental permit conditions. The CEE and ACEE visit VTrans contracted construction projects to provide input, training, support, and resources relative to erosion prevention and sediment control.

**Indicators:** The CEE and ACEE conducted multiple assurance visits to every VTrans managed construction project statewide. At which time they ensure permit compliance and recommend

corrective actions to maintain water quality standards. In the VTrans MS4, there were only 2 projects under construction totaling 10 inspections.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$7,260 (staff time)

## **BMP 4.E – Stormwater Management – Erosion Prevention & Sediment control Training**

**Activity:** VTrans offers a broad range of formal training on erosion and sediment control and stormwater management design to agency staff. These training classes are instructed by VTrans and non-VTrans subject experts from around the country.

**Indicators:** For each project that goes out to contract that has environmental impacts the CEE and ACEE meet with each contractor and VTrans field staff to ensure there is a clear understanding of expectations. The CEE and ACEE work with both the Contractor and VTrans field staff to help them better understand how to avoid non-compliance issues. The CEE and ACEE also provide plan review comments that help educate people throughout the Agency and Contracting and Consulting communities.

Several professional trainings were attended to hone the skills of the Construction Environmental Engineers as well as to further the understanding of some of the challenges they have in the field. Estimated total of 326 training hours (hours x participants) including:

- Erosion Control Field Day, Implementing Good Erosion Control, Gilford, NH, 8/21/12
  - a) 2- attended with a class size of about 50 people. 6 PDUs x 2 = 12 hrs
- Stormwater, A Water Quality Course, Burlington, VT, 10/3/12
  - a) Bill and Andrea were Coordinators for an all day conference for about 68 attendees. 6 PDUs x 2 = 12 hrs
  - b) 13 additional VTrans Employees attended. 6 PDUs x 13 = 78 hrs
- Field Description of Soil Properties and Estimating Seasonal Water Table, Lincoln, VT, 11/9/12
  - a) 2- attended with a total class size of about 20 people 6 PDUs x 2 = 12 hrs
- VTrans Rivers and Roads Training, Tier 2 Reading the River, Berlin, VT, 11/14/12- 11/16/12
  - a) 2- attended with a total class size of about 30 people. 18 PDUs x 2 = 36 hrs
- VTrans Construction Closeout Meetings December. Discussed overall 2012 year with Resident Engineers for 30 min. x 3 closeout meetings. Say 1 PDU x 2 = 2 hrs
- Andrea and I are board members on the NE International Erosion Control Association which meets 4 times a year.
- For each project that goes out to contract that has environmental impacts we meet with each contractor and VTrans field staff to ensure there is a clear understanding of expectations. Bill and Andrea work with both the Contractor and VTrans field staff to help them better understand how to avoid non-compliance issues. We also provide plan reviews comments that help educate people throughout the Agency and Contracting and Consulting communities.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000 (staff time)

#### **BMP 4.F – Certified Professionals in Erosion and Sediment Control (CPESC) and Certified Professionals in Stormwater Quality (CPSWQ)**

**Activity:** Certified Professionals in Erosion and Sediment Control (CPESC) and Certified Professionals in Stormwater Quality (CPSWQ) is an internationally recognized professional certification in the stormwater management field <http://www.cpesc.net/>. VTrans employees paid for annual dues to maintain CPESCs and CPSWQs and VTrans provided opportunities for others interested in pursuing CPESC or CPSWQ training and certification. The membership provides access to up-to-date information on erosion prevention and sediment control, Stormwater Quality, and training opportunities.

**Indicators:** VTrans has 3 CPESCS and 0 CPSWQ.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$0 (VTrans no longer pays)

#### **BMP 4.G – Report Erosion Prevention & Sediment Control noncompliance for non-VTrans projects**

**Activity:** VTrans is using the existing VTrans Access Management Program, Highway Permits, and Development Agreements (Title 19 Section 1111 Permit) to Manage EPSC Activities of non-VTrans Projects that need access to our right-of-way. The Section 1111 Permit Standard Conditions was updated during the 2003-2008 Permit Term and resulted in the writing and adopting of Stormwater Conditions for all VTrans Access Permits. These conditions improve VTrans' control over discharge into the VTrans MS4s of stormwater generated by non-VTrans property owners. This implementation has been done Statewide. The condition also better informs the applicants and others of the responsibilities and requirements for managing stormwater.

VTrans Maintenance District personnel responsible for the State Highways in the Phase 2 Communities, have been educated on the importance of identifying EPSC problems suspected to originate outside of the VTrans right-of-way. This stormwater may originate from non-VTrans property, causing a nuisance by discharging eroding material and sediment in stormwater runoff from non-VTrans projects into the VTrans Stormwater Management System. All reports of alleged non-compliance will be made by the DTA or the OEC directly to ANR Enforcement Division.

**Indicators:** None reported. There were no non-VTrans projects that contributed to non-compliance in the vicinity of VTrans projects within the MS4. There were also no alleged violations on VTrans projects within the MS4.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

### **BMP 4.H – Continue implementation of Erosion Prevention & Sediment Control Review Protocol for all VTrans Construction Projects going through the VTrans Contract Administration Process (jurisdictional and non-jurisdictional projects)**

**Activity:** The VTrans EPSC Protocol was developed in late Fall 2006. The protocol replaces the MOA drafted in 2004 and sets guidelines for Consultants, VTrans Designers, VTrans Construction Management Staff and District field staff for creating and implementing consistent Erosion Prevention and Sediment Control Plans that meet the requirements of the New Construction General Permit CGP 3-9020 (2008) and for those non-jurisdictional projects disturbing less than 1 acre with any potential to impact resources. The guidelines include EPSC Plan Checklists, flowcharts, detail drawings, specifications and general guidance; all of which are posted on the VTrans Environmental Webpage at <http://www.aot.state.vt.us/TechServices/EnvPermit/erosionpreventionandsedimentcontrol.htm>.

**Indicators:** VTrans continues to comply, and requiring others working in our right-of-way under a Section 1111 Permit to comply, with ANR issued General Permit 3-9020 (2008) and/or Individual Permit regulating stormwater runoff from construction sites which result in land disturbance equal to or greater than one acres of land.

VTrans projects in the MS4 area under construction during 2012 having coverage under an Individual General Permit-3-9020 for Construction include: NONE. Those with coverage under Low Risk under CGP 3-9020 include: ONE. We did not have any other projects in the MS4 that had Construction Permits or SP 652.

- South Burlington-Colchester IM CULV(23) (two sites covered under separate CGP 3-9020 Low Risk authorizations)

VTrans continues implementation of its EPSC Protocol developed in 2006. It sets guidelines for Consultant and in-house Designers and field staff for creating and implementing consistent Erosion Prevention and Sediment Control Plans that meet the requirements of the New CGP 3-9020 and for those projects disturbing less than 1 acre with any potential to impact resources. The guidelines include EPSC Plan Checklists, flowcharts, detail drawings, specifications and general guidance; all of which are posted on VTrans Environmental Section Webpage. ONE project was under construction in 2010 for which this protocol was applied:

- Colchester TCSP TCSE(9) (under 1 acre and No SP 652 so EPSC Plan under Std Spec 105)

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$8,000 (costs are spread agency wide and are difficult to break out)

## **BMP 4.I – VTrans Operations Division Environmental Coordinator Position**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the MS4 GP and other Federal and State Stormwater Regulations. The OEC also worked with District Staff on Water Quality Enhancement Projects focused on reducing sediment load to receiving waters by stabilizing roadside gullies and other related activities. The total cost for any maintenance work completed which corrected roadside gullies, outfall erosion, or other sources of erosion causing sediment to enter waterways in the VTrans MS4 coverage area included:

- Corrected erosion issues at the LaPlatte River Bridget on RT. 7 in Shelburne. Fixed a level spreader and erosion issues on the north and south sides of the abutment.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000 (staff time to coordinate plus project costs)

## **Minimum Measure 5 – Post-Construction Stormwater Management for New Development and Redevelopment**

### **BMP 5.A – Maintain Post-Construction Stormwater Management Compliance for VTrans Projects and Implement VTrans internal “Permit Jurisdictional Threshold Gap Procedure” for VTrans Projects not subject to VTANR Post Construction Stormwater Discharge Permitting**

**Activity:** VTrans is complying with the requirements of ANR permit “Stormwater Discharges from New Development and Redevelopment to non-WIP Waters General Permit 3-9015.” VTrans has also developed an internal procedure to address the permit jurisdictional threshold gap between the VANR GP-3-9015 jurisdictional thresholds and the EPA one acre of land disturbance permit threshold. The goal of this internal procedure is to protect water quality by designing post-construction stormwater management systems on all new and redeveloped VTrans projects in the VTrans MS4 to comply with the Vermont Stormwater Management Manual to the extent that is practical.

**Indicators:** No Operational Stormwater Permits for 2011.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

## **BMP 5.B – VTrans Stormwater Management Engineer Position**

**Activity:** The VTrans Stormwater Management Engineer's primary duty is to provide engineering support on the design and retrofitting of VTrans stormwater management systems. The tasks related to this duty include but are not be limited to:

Stormwater management system engineering assistance to VTrans project managers, designers, and others:

- Review of stormwater management system plans of projects that have been developed both in house and by consultants as part of the environmental permitting process
- Design stormwater management systems for VTrans projects
- Assist in VTrans compliance with state issued General Permit 3-9010, General Permit 3-9015, National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) General Permit, and other permits that involve long-term stormwater management
- Assist VTrans on changes in design and treatment needs for long-term stormwater management systems.

**Indicators:** The activities of this position support other BMPs under the VTrans SWMP [refer to other BMPs for more information]. VTrans continues to work under the "VTrans Project Post Construction (Operational) Stormwater Protocol", a guidance document compiled with input Agency wide and intended to facilitate the typical Program Development Projects' stormwater processes during the various stages of project development carrying forward into operation and maintenance. The Stormwater Management Engineer lead this effort and the Protocol was adopted in December 2008.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$35,000 (Env'l SW Eng. Time)

## **BMP 5.C – Stormwater Management and Erosion and Sediment Control Training**

**Activity:** See BMP 4.E

**Indicators:** See BMP 4.E In addition, the following Stormwater Management Trainings were provided:

- Porous concrete discussion (3staff) 2 hrs
- VTrans Climate Collaborative Lectures (5 staff) 2.5hrs
- VT EPSCoR Watershed Project Spring Emposium (2 staff) 5hrs
- VT Rivers Workshop –Capitol plaza (8 staff) 5hrs
- AASHTO DOT Stormwater Practitioners Meeting (1 staff) 3 days
- AASHTO Climate Change Adaptation Webinar (6 staff) 2hrs
- IECA Stormwater – A water quality protection course (6 staff) 6.5 hrs
- HydroCAD training workshop (4 staff) 7.5 hrs
- VTrans spring contractor workshop –PDD Stormwater protocol (6 staff) 2hrs
- TRB NCHRP Stormwater Research Panel (1 staff) 1.5days

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$15,000 (see BMP 4.E plus additional costs associated with Stormwater related trainings)

### **BMP 5.D – Report noncompliance of non-VTrans projects**

**Activity:** VTrans is using the existing VTrans Access Management Program, Highway Permits, and Development Agreements (Title 19 Section 1111 Permit) to Manage Post-Construction Stormwater Activities of non-VTrans Projects that need access to our right-of-way. The Section 1111 Permit Standard Conditions was updated during the 2003-2008 Permit Term and resulted in the writing and adopting of Stormwater Conditions for all VTrans Access Permits. These conditions improve VTrans' control over discharge into the VTrans MS4s of stormwater generated by non-VTrans property owners. This implementation has been done Statewide. The condition also better informs the applicants and others of the responsibilities and requirements for managing stormwater.

VTrans uses its Construction Environmental Engineer (CEE) and Assistant Construction Environmental Engineer (ACEE) Positions (see BMP 4.B) and Stormwater Engineer Position (BMP 5.B) to ensure compliance. While on-site or traveling through the State, they are in a position to report suspect activity in or near VTrans right-of-way for enforcement or suggest corrective action on the spot.

VTrans Maintenance District personnel responsible for the State Highways in the Phase 2 Communities, are educated on the importance of identifying suspect stormwater flowing into our right-of-way.

**Indicators:** None Reported

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

### **BMP 5.E – Use the existing VTrans (Title 19 Section 1111) Access Management Program, Highway Permits, and Development Agreements to Manage Access to the VTrans Stormwater Management System by Non-VTrans Properties**

**Activity:** VTrans is using the existing VTrans Access Management Program, Highway Permits, and Development Agreements (Title 19 Section 1111 Permit) to Manage Post-Construction Stormwater Activities of non-VTrans Projects that need access to our right-of-way. The Section 1111 Permit Standard Conditions was updated during the 2003-2008 Permit Term and resulted in the writing and adopting of Stormwater Conditions for all VTrans Access Permits. These conditions improve VTrans' control over discharge into the VTrans MS4s of stormwater generated by non-VTrans property owners. This implementation has been done Statewide. The condition also better informs the applicants and others of the responsibilities and requirements for managing stormwater.

VTrans also uses the Section 1111 Permit process to ensure that there is no increase in peak discharge at the design storm event from pre to post construction conditions prior to issuing the Section 1111.

**Indicators:** None Reported

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

## **BMP 5.F – VTrans Operations Division Environmental Coordinator Position**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the 9010/9015 SWDP Program, MS4 GP and other Federal and State Stormwater Regulations. A considerable portion of time is spent on reviewing new construction projects by VTrans and by Non-VTrans entities and making sure each project does not affect compliance with post construction stormwater permitting program or the requirements of other federal and state stormwater permitting programs. The OEC also reviews and comments on Title 19, Section 1111 Permit Applications for impacts to the VTrans Stormwater System and for compliance under MS4.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$12,000(staff time)

## **Minimum Measure 6 – Pollution Prevention & Good Housekeeping**

### **BMP 6.A – Enhance VTrans MS4 related Maintenance & Best Management Activities**

**Activity:** VTrans continued with this ongoing effort. See Indicators & Accomplishments.

**Indicators:** Catch Basins Cleaned: both # of basins and cubic feet of material collected in the VTrans MS4 coverage area = Cleaned 67 basins or 31 c.y.

Street Sweeping: approximately 40 miles of road collecting 38 cubic yards of material collected in the VTrans MS4 coverage

Green-up # tons of trash disposed of all of in the VTrans MS4 coverage area = 126.49 tons.

Hazardous Waste Disposed of in # tons including all of D-5 sites in Chittenden County VTrans generated and disposed of roughly 1 ton of various waste streams in the MS4 area under the supervision of this position. In addition, 8 spills were responded to and/or reported in the VTrans MS4 coverage area.( See BMP 3.H).

# of VTrans Culvert Outfalls Inspected/Surveyed in the VTrans MS4 coverage area = 60

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$303,105.42(includes payment to South Burlington under MOU as well as District and staff time – some costs carried under BMP 3.B)

## **BMP 6.B – Erosion and Sediment Control Guidance Materials**

**Activity:** None to report

**Indicators:** None to report

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** N/A

## **BMP 6.C – Erosion and Sediment Control Assurance Visits**

**Activity:** See BMP 4D

**Indicators:** See BMP 4D

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** See BMP 4D

## **BMP 6.D – Stormwater Management and Erosion and Sediment Control Trainings**

**Activity:** See BMP 4.E and 5.C

**Indicators:** See BMP 4.E and 5.C

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** See BMP 4.E and 5.C

## **BMP 6.E – Continue Implementation of the VTrans Compliance Plan with the General Permit 3-9003 Multi-Sector General Permit For Stormwater Discharges Associated With Industrial Activity**

**Activity:** The Multi-Sector General Permit 3-9003 (MSGP) for Stormwater Discharges Associated with Industrial Activity was issued by ANR Aug 4, 2011. Exempt from coverage under the MSGP are facilities classified as Municipal and Highway Garages. In the VTrans MS4 area, the District 5 Maintenance Facility in Colchester does not require MSGP coverage; however, VTrans has developed Stormwater Management Plan/Pollution Prevention Plan (SWMP/SWPPP) for this facility. It is up to date and undergoing periodic inspections and audits supervised by the VANR Environmental Assistance Office (EAO). Due to the facility being under construction no EAO inspection was conducted in 2012, the last EAO supervised audit was conducted on July 15, 2010. However, the facility's SWPPP was updated in 2012 to reflect the changes that have been made at the site. This program is managed by the VTrans Operations Hazardous Materials/Safety Coordinator Position (refer to BMP 6.F for more information). The VTrans Operations Hazmat/Safety Coordinator position was created and filled in 2006 and continues to be instrumental in providing oversight on a number of pollution prevention and good housekeeping measures including trainings, prepared Stormwater Management Plans and Pollution Prevention Plans. This position was part of the Stormwater Work Group (SWWG) and was focused heavily on pollution prevention and stormwater management in the VTrans MS4.

**Indicators:** Due to the facility being under construction no EAO inspection was conducted in 2012, the last EAO supervised audit was conducted on July 15, 2010. However, the facility's SWPPP was updated in 2012 to reflect the changes that have been made at the site

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$9,000

## **BMP 6.F – VTrans Operations Division Hazmat/Safety Coordinator Position**

**Activity:** This position was created and filled in 2006 and continues to be instrumental in providing oversight on a number of pollution prevention and good housekeeping measures (see BMP 6.F). The duties of this position support the IDDE Minimum Control Measure #3.

**Indicators:** The Vtrans Haz Mat Section conducted over 40 hours of spill response, waste disposal and Spill Prevention Containment and Countermeasure training to over 50 personnel in the MS4 area during 2012.

VTrans generated and disposed of roughly 1 ton of various waste streams in the MS4 area under the supervision of this position.

In addition, this position provides support and coordination for HazMat spill response and reporting. 8 spills were responded to and/or reported in the VTrans MS4 coverage area.

Also, this position is directly responsible for efforts underway to reduce underground storage tanks. No USTs remain in D5 and all large (2k gallon and over) ASTs have been removed. Only small (less than 2k gallon) remain for heating and used oil storage purposes only.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** See BMP 3.H

### **BMP 6.G – VTrans Operations Division Environmental Coordinator Position**

**Activity:** The former VTrans Environmental Coordinator position was transferred from the VTrans Program Development-Environmental Section to the VTrans Operations Division and the Operations Environmental Coordinator (OEC) position was filled in November 2007. The primary duty of the OEC is to provide regulatory compliance and support on permitting and compliance with a specific emphasis on State and Federal Stormwater Regulations.

**Indicators:** The OEC provided support activities associated with managing compliance with the MS4 GP and other Federal and State Stormwater Regulations. The OEC works with the Districts, HazMat Coordinator and Vegetation Management Coordinator to facilitate efforts under MCM#6.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$10,000 (staff time)

### **BMP 6.H – Use the existing VTrans Title 19 Section 1111 Access Management Program, Highway Permits, and Development Agreements**

**Activity:** VTrans is using the existing VTrans Access Management Program, Highway Permits, and Development Agreements (Title 19 Section 1111 Permit) to Manage Post-Construction Stormwater Activities of non-VTrans Projects that need access to our right-of-way. The Section 1111 Permit Standard Conditions was updated during the 2003-2008 Permit Term and resulted in the writing and adopting of Stormwater Conditions for all VTrans Access Permits. These conditions improve VTrans' control over discharge into the VTrans MS4s of stormwater generated by non-VTrans property owners. This implementation has been done Statewide. The condition also better informs the applicants and others of the responsibilities and requirements for managing stormwater.

VTrans also uses the Section 1111 Permit process to ensure that there is no increase in peak discharge at the design storm event from pre to post construction conditions prior to issuing the Section 1111.

**Indicators:** See BMP 5.E

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** See BMP 5.E

## **Additional Best Management Practices under Minimum Control Measure #6 – Pollution Prevention & Good Housekeeping**

### **MOVE BMP 2.A VTrans Stormwater Steering Committee (SWSC) (formerly Stormwater Advisory Group) UNDER MCM #6**

**Activity:** VTrans SWSC met to discuss MS4 SWMP development and to disseminate information about stormwater regulations, permit programs, policy & procedures, and BMPs through VTrans. This advances integration of the BMPs into design of transportation projects, the acquisition of environmental permits, operation and maintenance activities, and transportation planning

**Indicators:** The SWSC meets quarterly in order to respond to policy and planning needs, rule review, legislative actions, and to disseminate information about stormwater regulations, permit programs, policy and procedures within VTrans.

**BMP Effectiveness:** This BMP has proven to be non-effective in addressing Public Involvement & Participation. It has however proven to be very effective as a Good Housekeeping BMP and will be continued thru the remainder of the Permit Term under its current form but will be moved to MCM#6.

**Estimated Expenditures:** \$5,000 (staff time)

### **BMP Activities related to Lake Champlain Phosphorus TMDL**

**Activity:** Sand reduction, phosphorus reduction and roadside bank stabilization projects including riparian corridor restoration/bank stabilization/buffer enhancement

**Indicators:** VTrans highway traction sand use = NONE in Chittenden County;

Slope/Ditch repair work at 1 site (see BMP 4.I).

Fertilizer Use:

Fertilizers are not tracked in MATS. Only invoices are available to determine how much was purchased and possibly used. Fertilizing is used primarily for turf establishment, typically for ditches, slopes and around culverts. It is more common that the Districts do not use any. No effort is under way to reduce fertilizers. When they do apply them, usually it is a 10-10-10 formula with no specific rate of application. Contractors establishing turf for the Districts, generally hydro seed using a liquid 19-19-19 fertilizer.

No effort to reduce phosphorous. No indication that it is being misused. House bill passed in 2011 primarily addressing turf maintenance. This bill requires use of only low or no phosphorous fertilizers unless a soil test is taken to require more. VTrans does not use any fertilizer for turf management.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term. More work with Fertilizers may be needed.

**Estimated Expenditures:** \$40,000 (staff time and resources in support of this BMP are carried here. Project costs for the side slope project is covered under BMP 4.I)

## **BMP Activities related to Herbicide Use**

**Activity:** Manage and reduce Herbicide use, provide appropriate training, certifications, license and permits.

**Indicators:** Herbicide Use = 45 Gallons of Rodeo and 29 pounds of OUST XP were used in Chittenden County in 2012

Training = Eight hour of instruction for fifteen people was conducted for pesticide training. 24 hours of individual training conducted for pesticides throughout the year.

**BMP Effectiveness:** This BMP has proven to be very effective and will be continued thru the remainder of the Permit Term.

**Estimated Expenditures:** \$6,000 (staff time to manage and apply)