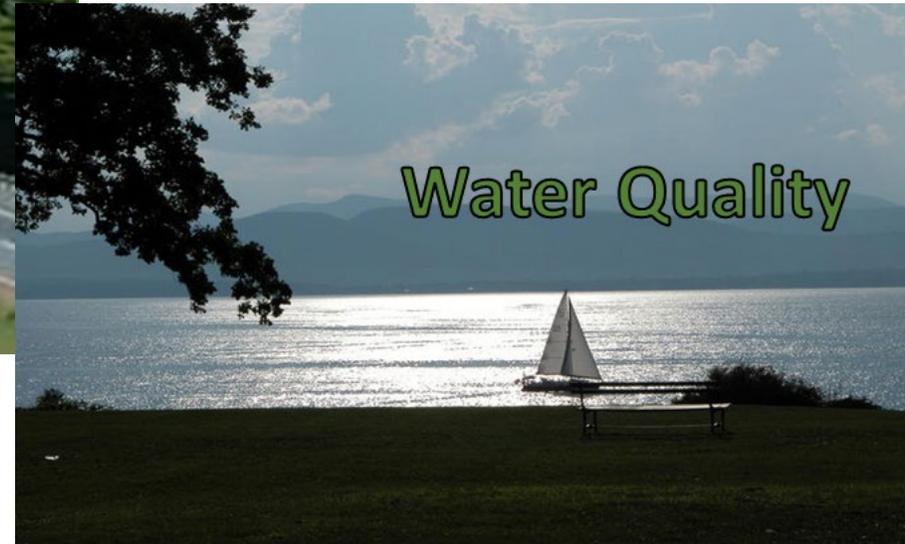


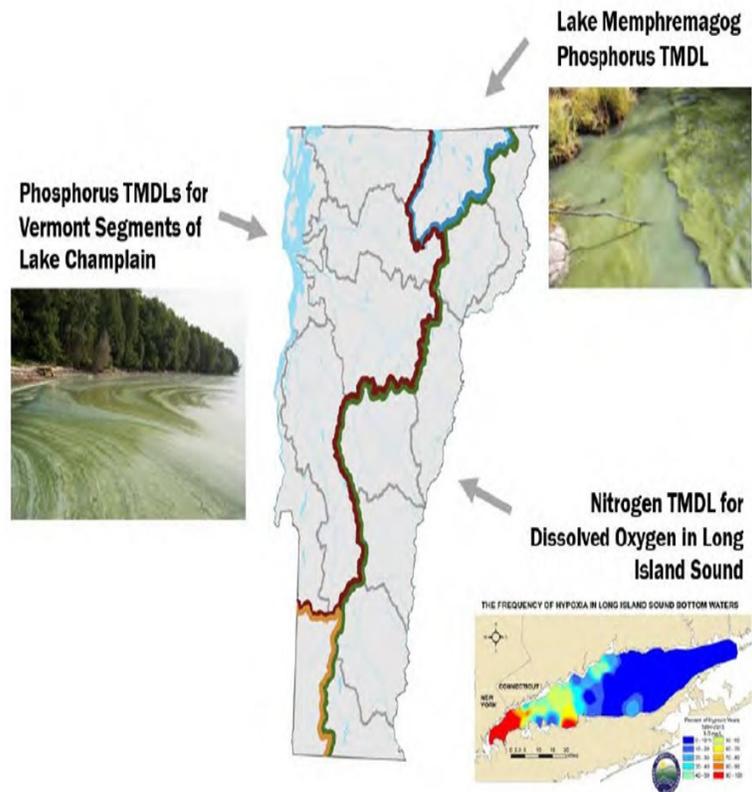
Summary of Clean Water Investment Report and Transportation - February 7, 2019



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What are Clean Water Projects?



Most of Vermont’s water quality problems are caused by nonpoint sources of pollution. Nonpoint source pollution includes nutrient and sediment pollution transported from the landscape to waterways by rain-runoff and snowmelt. TMDLs target nonpoint source pollutant reductions in addition to end-of-pipe (point source) reductions.

Most of the State of Vermont is covered by large TMDLs that require nutrient pollution reductions (i.e. phosphorus and nitrogen), shown in this map. Phosphorus TMDLs seek to address cyanobacteria (i.e. blue-green algae) and Nitrogen TMDLs seek to address low dissolved oxygen in the Long Island Sound. Other TMDLs include Stormwater Flow Reductions in MS4 Watersheds.

Clean Water Projects are intended to address a specific pollutant of concern in a watershed with an approved Clean Water Restoration Plan (i.e. Total Maximum Daily Load or TMDL).

They include structural stormwater treatment systems (detention ponds, underground treatment chambers, infiltration trenches and filters, gravel wetlands, and many more).

There are many non-structural practices being implemented that benefit water quality and do not result in the construction of a including street and lot sweeping/vacuuming, drop inlet sump vacuuming, erosion prevention and sediment controls and pollutant source control.



Why does stormwater matter and what is transportation nexus?

Road surfaces can carry both land-adjacent and road-vehicle pollutants including heavy metals from tires, brakes, and engine wear, and hydrocarbons from lubricating fluids.

If these pollutants are not properly controlled they can cause waters to become impaired, meaning they no longer meet state Water Quality Standards.

Transportation authorities are responsible for maintaining stormwater systems along streets, roads, highways and other transportation facilities (Airports, Maintenance Yards, Park & Rides, Welcome Centers, Gravel Pits, etc) by managing the quality and quantity of stormwater discharging to our nation's waters via those systems.

Transportation stormwater management differs in some ways from traditional regulated entities (cities, towns, retail, commercial). Some of the differences include:

- Linear transportation systems often stretch for many miles, and cross numerous waterways, watersheds, and jurisdictions.
- Transportation storm conveyance systems often discharge stormwater and associated pollutants that originate outside of the transportation right-of-way.



Act No. 64 of 2015

“An act relating to improving the quality of state waters” requires in §1389a that “beginning on January 15, 2017, and annually thereafter, the Clean Water Fund Board shall publish a clean water investment report. The report shall summarize all investments, including their cost-effectiveness, made by the Clean Water Fund Board and other state agencies for clean water restoration over the past calendar year. The report shall include expenditures from the Clean Water Fund, the General Fund, the Transportation Fund, and any other State expenditures for clean water restoration, regardless of funding source...”

Where do I find the report and what does it include/ not include for SFY18?

Can be found on the Department of Environmental Conservation's website at:

[https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2019-01-15%20Vermont%20Clean%20Water%20Investment%20Report%20SFY2018 Revised%202019-02-01.pdf](https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2019-01-15%20Vermont%20Clean%20Water%20Investment%20Report%20SFY2018%20Revised%202019-02-01.pdf)

Includes (starting on page 11) – “state agency investments in clean water projects through state grants, contracts, and loans awarded SFY 2016- 2018”, summary of outreach and technical assistance and results of clean water projects.

Doesn't include “VTrans' investments in clean water projects to comply with water quality regulations on state highways and VTrans non-road developed lands...”

How many miles of highway network are there in Vermont exclusive of Class IV town highways and how much is the responsibility of VTrans and the municipalities?

14,175 miles overall: VTrans responsible for 2709 miles (20%), and municipalities 11,466 miles (80%)

What is included in the Investment Report for VTrans?

- A summary of VTrans' outreach and technical assistance for each state fiscal year related to clean water
- An overview of how VTrans' grant programs - both in terms of what was funded in SFY18 and what water quality benefits there were for projects completed during SFY18.

How does VTrans provide outreach and technical assistance?

Primarily through site visits, workshops and trainings.

VTrans provided 1,489 hours of technical assistance from District staff, stormwater and environmental staff, and Municipal Assistance Bureau staff (page 24)

Vermont Local Roads hosted many workshops and organized road foreman meetings and trainings. (page 21 for summary of number of hours)

Technical Assistance Measures	2016	2017	2018	Total
Number of developed lands, roads, and wastewater projects reviewed by ANR Watershed Management Division staff	922	1,052	1,161	3,135
Approximate hours of technical assistance provided by DEC's Facilities and Engineering Division on municipal stormwater and wastewater projects	New in 2017	5,300	6,400	11,700
Hours of water quality municipal technical assistance provided by VTrans staff	New in 2017	1,483	1,489	2,972



What VTrans grant programs provide project information for the report?

- Better Roads Program
- Municipal Highway and Stormwater Mitigation Program
- Transportation Alternatives Program

What funding sources are used in these programs? Funding from the Transportation Bill - both state and Federal Highway Administration funding, the Clean Water Fund and the Capital Bill

What project phases are funded? Planning, scoping, design and construction

Who can apply for VTrans' grants? Municipalities

Is there a requirement for municipalities to match the grants? Yes, municipalities are required to contribute 20% of the project costs.

What sectors do these projects contribute to? Stormwater and Natural Resources: Municipal Roads General Permit (MRGP) inventories, MRGP implementation (linear road projects, catch basin outfall stabilization), stormwater treatment practices, natural resources restoration (floodplain/stream restoration, lake shore restoration, and in-stream culvert upgrades)

What Information is provided and to whom?

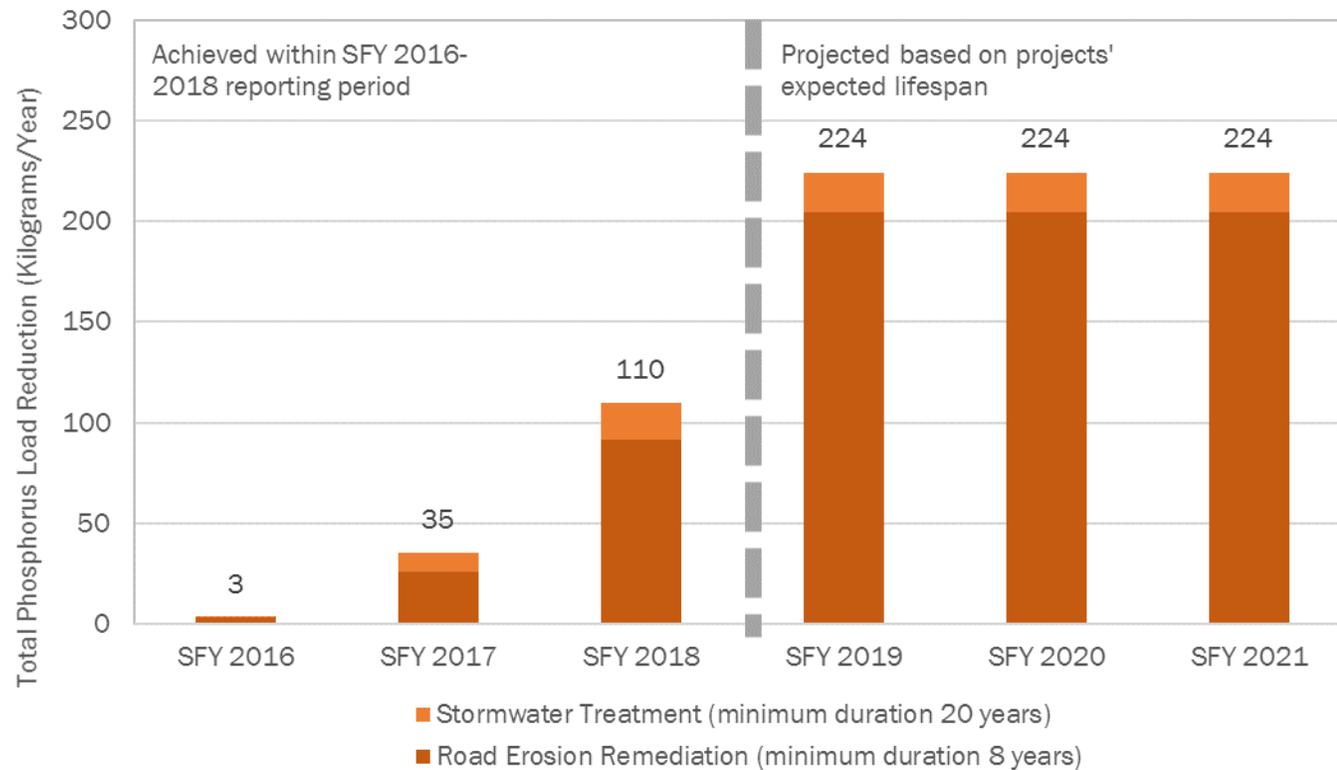
VTrans provides detailed information on projects completed within the applicable state fiscal year to the Department of Environmental Conservation (DEC) so that DEC can quantify the water quality benefits.

VTrans' contributions from projects funded through its grant programs are shown in the overall statewide summary for "Results of Developed Lands (Stormwater, Roads) Projects" shown on pages 30 – 32 within the "Results of Vermont's Clean Water Investments – What difference are the State of Vermont's investments making to improve clean water?" section of the report starting on page 26.

Project Output Measures	2016	2017	2018	Total
Acres of impervious surface treated by stormwater treatment practices	0.2	86	28	114
Miles of municipal road drainage and erosion control improvements	1	13	63	77
Number of municipal road drainage and stream culverts replaced	New in 2017	108	110	218
Cubic yards of municipal Class 4 road gully erosion remediated	New in 2018	New in 2018	260	260
Acres stabilized through use of hydroseeder/mulcher equipment per year	New in 2018	New in 2018	12	12

Developed Lands and Road Project Pollutant Reductions

Figure 1. Annual average estimated total phosphorus load reduction (kilograms per year) achieved by state-funded stormwater treatment and road erosion remediation projects implemented/constructed, SFY 2016-2018



What Information is provided and to whom?

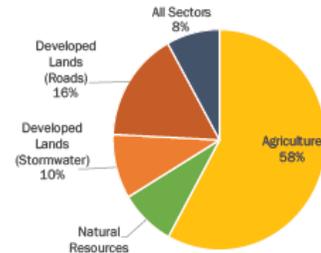
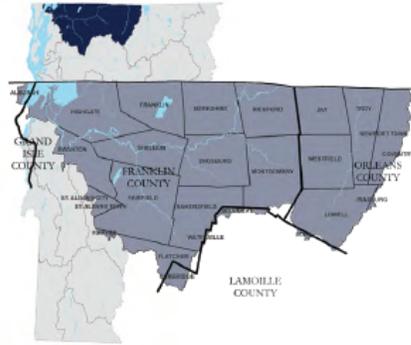
Annually, VTrans provides information to DEC on new grant project awards. This includes details on what the project will accomplish, where it is located and how much the grant award it.

All of this data is quantified and summarized in Appendix A by watershed. Each watershed goes through a planning process on a 5-year cycle; VTrans checks in with DEC to determine if projects are identified in basin plans when evaluating project applications. Appendix A starts on page 43 of the report and runs through page 96, and includes projects funded by all state agencies.





Missisquoi Bay Watershed Summary



State funding awarded in the Missisquoi Bay watershed, SFY 2016-2018, by sector
Total: \$8,162,429

STATE FUNDS AWARDED IN SFY 2016-2018

RESULTS OF PROJECTS COMPLETED, SFY 2016-2018

Results of projects completed, SFY 2016-2018, by sector, in the Missisquoi Bay watershed.

AGRICULTURE PROJECT RESULTS	
Kilograms of total phosphorus reduced annually	519.1
Acres of agricultural land treated by conservation practices	3,765
Acres of land treated by forested buffers	182
Acres of pasture with livestock excluded from surface waters	144
Number of barnyard and production area practices installed	64
Acres of water quality protections within newly conserved agricultural lands	39
Estimated acres of agricultural land treated through innovative equipment	730

NATURAL RESOURCES PROJECT RESULTS	
Kilograms of total phosphorus reduced annually	13
Acres of forested riparian buffer restored through buffer planting	12
Acres of river corridor conserved through easements	89
Acres of floodplain restored	-
Stream miles reconnected for stream equilibrium/aquatic organism passage	-
Acres of wetland restored	-
Acres of forest conserved with special water quality protection	-
Number of stream crossings improved	1

DEVELOPED LANDS STORMWATER PROJECT RESULTS	
Kilograms of total phosphorus reduced annually	3.4
Acres of impervious surface treated	20

DEVELOPED LANDS ROAD PROJECT RESULTS	
Kilograms of total phosphorus reduced annually	11.7
Miles of municipal road drainage and erosion control improvements	6
Number of municipal road drainage and stream culverts replaced	18
Cubic yards of municipal Class 4 road gully erosion remediated	-
Acres stabilized through use of hydroseeder/mulcher equipment per year	-

WASTEWATER PROJECT RESULTS	
Kilograms of total phosphorus reduced annually	-
Number of combined sewer overflow abatement completed	-
Number of sewer extensions completed	-
Number of wastewater collection systems refurbished	-
Number of wastewater treatment facility refurbished	-
Number of wastewater treatment facility upgrades completed	-

Missisquoi Bay Watershed Projects

Clean water projects funded by state agencies in SFY 2018 in the Missisquoi Bay watershed.

TOWN	AGENCY	PARTNER	SUMMARY TITLE	SECTOR	FUNDING SOURCE	AMOUNT
St. Albans Town	AAFM	Manning Dairy LLC	Cover Crop - Drill	Ag	Other	\$7,190
Swanton	AAFM	Friends of Northern Lake Champlain	Education and Outreach	Other	Other	\$1,000
Swanton	AAFM	Friends of Northern Lake Champlain	Education and Outreach	Other	Other	\$1,000
Troy	VHCB	J and L Dairy	Rivers - J and L Dairy - FY18 WQ Grant	Ag	Capital	\$40,000
Westfield	VHCB	Breezy Valley Farm	Burkewitz - Breezy Valley Farm - FY18 WQ Grant	Ag	Capital	\$34,375
Westfield	AAFM	Breezy Valley Farm	Heavy Use Area Protection	Ag	Capital	\$47,622
Westfield	AAFM	Butterworks Farm LLC	No-Till Grain Drill	Ag	Capital	\$39,393
Westfield	AAFM	Missisquoi Valley Farm LLC	Aeration Tillage	Ag	Other	\$1,200
Westfield	AAFM	Missisquoi Valley Farm LLC	Heavy use area protection	Ag	Capital	\$91,046
Westfield	AAFM	Missisquoi Valley Farm LLC	Waste Transfer	Ag	Capital	\$2,526
Westfield	VHCB	O'Donnell Farm	O'Donnell-O'Donnell Farm-FY18 WQ Grant	Ag	Capital	\$14,040
Westfield	AAFM	O'Donnell, Patrick & Karen	Access Road	Ag	Capital	\$10,576
Westfield	AAFM	O'Donnell, Patrick & Karen	Waste Storage Structure	Ag	Capital	\$33,854
Westfield	AAFM	O'Donnell, Patrick & Karen	Waste Storage Structure	Ag	Capital	\$44,344
Westfield	AAFM	O'Donnell, Patrick & Karen	Waste Transfer	Ag	Capital	\$10,662

Clean water projects funded by the VTrans Better Roads Program in SFY 2017 with SFY 2018 dollars in the Missisquoi Bay watershed.

TOWN	AGENCY	PARTNER	SUMMARY TITLE	SECTOR	FUNDING SOURCE	AMOUNT
Berkshire	VTrans	Northwest Regional Planning Commission	Townwide road erosion and culvert inventory	Roads	FTF	\$7,406
Castleton	VTrans	Castleton	Townwide road erosion and culvert inventory	Roads	FTF	\$8,000
Enosburgh	VTrans	Enosburgh	TH 1 Tyler Branch Rd	NR	CWF	\$16,322
Enosburgh	VTrans	Enosburgh	TH 30 Bogue Road	NR	CWF	\$28,317
Fairfield	VTrans	Fairfield	TH 14 Pumpkin Village Rd	Roads	VTF	\$15,148
Fairfield	VTrans	Fairfield	TH 26 Barry Rd	NR	Capital	\$40,000
Franklin	VTrans	Franklin	TH 21 Webster Rd	Roads	VTF	\$6,328
Highgate	VTrans	Highgate	TH 64 Mill Hill Rd	NR	CWF	\$34,367
Lowell	VTrans	Lowell	Townwide road erosion inventory	Roads	FTF	\$6,400
Montgomery	VTrans	Northwest Regional Planning Commission	Townwide road erosion and culvert inventory	Roads	FTF	\$8,000
Sheldon	VTrans	Northwest Regional Planning Commission	Townwide road erosion and culvert inventory	Roads	FTF	\$8,000
Sheldon	VTrans	Sheldon	TH 17 Swamp Rd	Roads	VTF	\$20,000
Sheldon	VTrans	Sheldon	TH 2 Pleasant St	NR	CWF	\$31,045
Westfield	VTrans	Westfield	TH 19 Buck Hill Rd	Roads	CWF	\$16,256

Questions about what is included?



What is not included in the Investment Report, but is expected to be?

Doesn't include "VTrans' investments in clean water projects to comply with water quality regulations on state highways and VTrans non-road developed lands..."

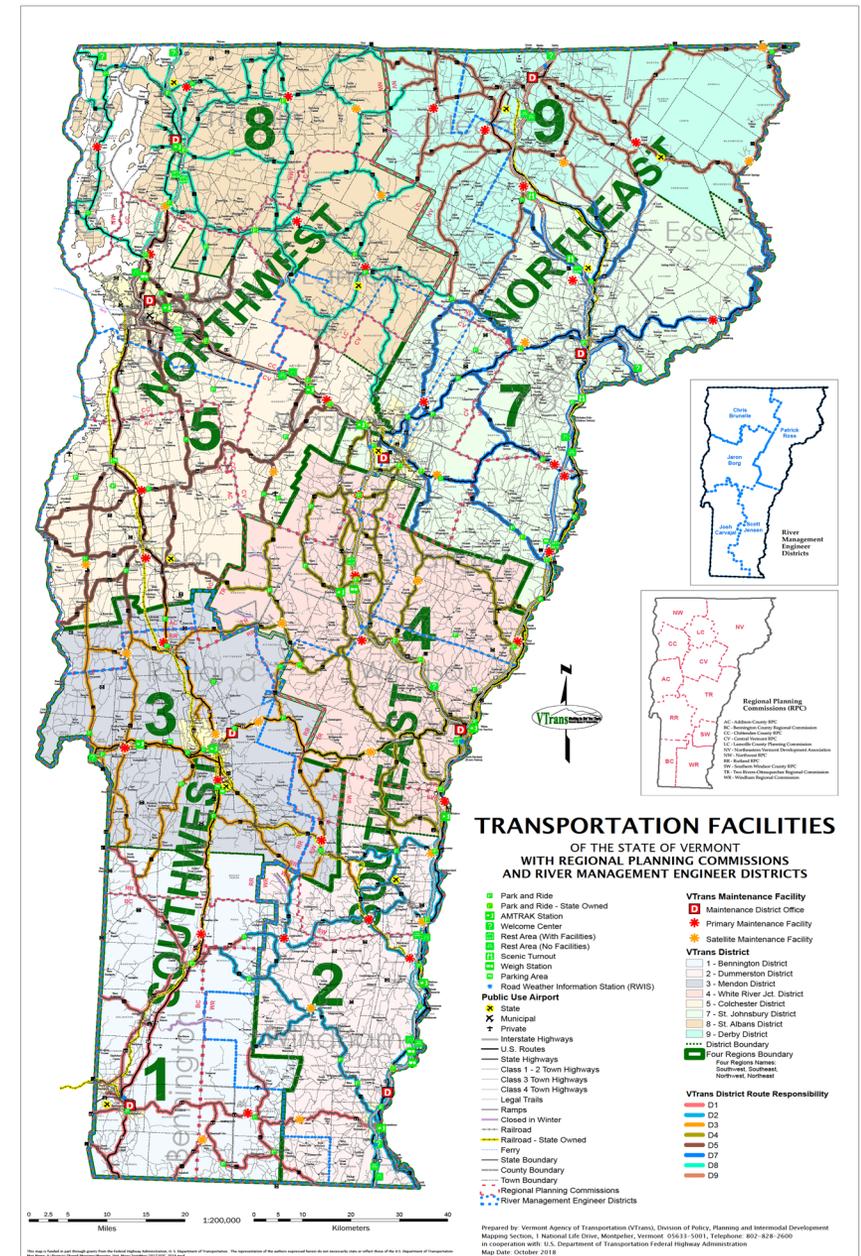
2,709 State Highway System Miles
(378 Interstate + 2,331 State Highway)

30 State-Owned Park & Ride Lots

64 State Maintenance facilities

10 State-Owned Airports

3 State-Owned Gravel Pits





What is the regulatory framework VTrans is subject to?

VTrans has a role to play under Vermont’s Act 64 “Clean Water Act” and under pre-Act 64 regulations addressing stormwater from its highways and non-road developed lands.

➤ **Transportation Separate Storm Sewer System (TS4 - since 2018) General Permit** (VTrans specific statewide permit allowing several stormwater programs to be rolled into one comprehensive regulatory program), includes:

Municipal Separate Storm Sewer System General Permit (MS4 – since 2003) – a MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains). In addition to TMDL implementation, requires compliance with six minimum control measures including:

Public Education & Outreach	Illicit (non-stormwater) Discharge Elimination	Post-Construction Runoff Control
Public Participation & Involvement	Construction Site Runoff Control	Pollution Prevention & Good Housekeeping

Multi-Sector Industrial General Permit (since 2007) – regulates discharges of stormwater from industrial facilities which conduct activities and use materials that have the potential to impact the quality of Vermont’s waters (applies to State Airports and Gravel Pits)

State Operational Stormwater Discharges (since pre-2002) – regulates stormwater runoff from the construction, expansion, and redevelopment of impervious surfaces pursuant to the permit threshold triggers established in Vermont Statutes (average 10 projects per year obtaining coverage and building treatment)

Total Maximum Daily Load (pre and post Act 64) - establishes reduction targets for specific pollutants (e.g. stormwater flow, phosphorus, E. coli, etc.) to attain water quality standards

➤ **State Construction Stormwater General Permit (since 2003)** – Not under TS4 - regulates discharge of stormwater runoff from construction activities with average 30 projects per year complying with this permit during construction.

Refer to VTrans Fact Sheet for more detailed information on Clean Water Programs and Regulations VTrans must comply.

How is VTrans Responding to Clean Water Regulations?

Integration of stormwater across the Agency and fostering a new way of thinking in the Agency

New programs, initiatives and focus across the Agency:

- Integration of stormwater concerns early in project delivery process (resource identification and scoping)

- Greater focus on Asset Management (inventory, mapping, GIS) and Asset Maintenance (street sweeping, catch basin cleaning, repair, etc)

- TMDL Planning and Implementation

- Enhanced education, outreach and awareness

- Improved internal coordination

Enhanced partnerships and collaboration with Municipalities, Watershed Groups and State and Federal Agencies looking to gain efficiencies, raise public awareness and address surface water quality issues

New and reallocated positions

Committed funding program for clean water projects averaging 7 million a year over the next 5 years.

What Clean Water Projects is VTrans investing in?

St. Albans Park & Ride Gravel Wetland Retrofit (2010)

Eliminated direct discharge to stream, reduce flow, promote infiltration and phosphorus reduction



St. Albans I-89 Exit 19 & 20 Median Infiltration Trenches (2012)

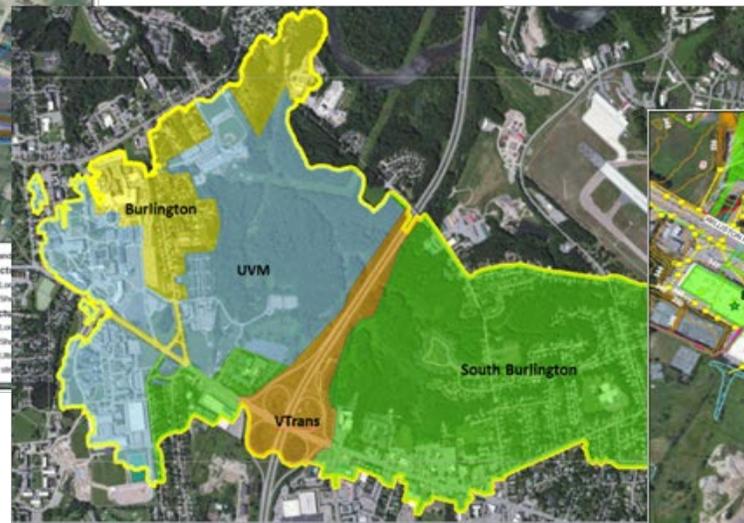
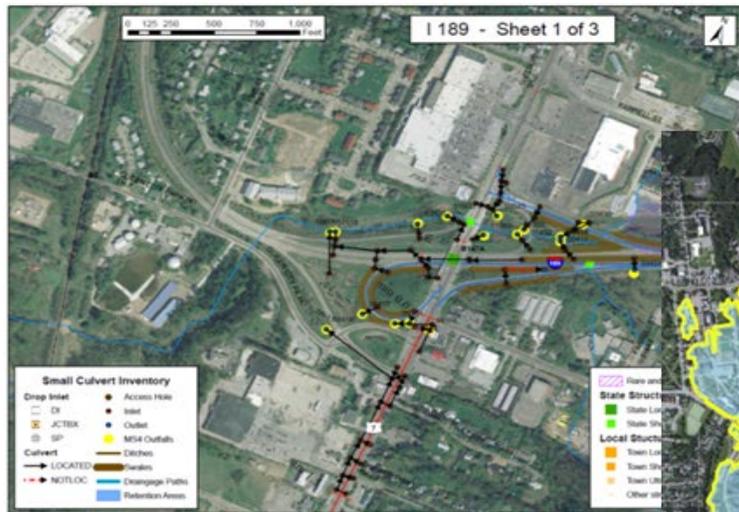
Modified grass swale to reduce flow, promote infiltration and phosphorus reduction



How does VTrans build its Clean Water Action Plan?

→ stormwater asset mapping → flow patterns → partnerships → impervious surface → sub-watershed scale calculating & modeling → treatment practice identification → ANR review & approval → design & construction →

repeat → over less than 20 years for 12 Stormwater Impaired Watersheds and 12 Lake Champlain Phosphorus Impaired Lake Segments (sub-watersheds)





What are other VTrans Clean Water accomplishments in 2018?

VTrans had 30 projects undergoing stormwater design and permitting and 12 projects constructing new stormwater treatment practices.

Inspected and maintained stormwater treatment practices previously constructed on 82 projects across the state.

During the construction season, 29 of the 77 active construction projects under construction had Construction Stormwater Permit coverage requiring erosion prevention and sediment controls and 134 compliance visits by VTrans staff.

Submitted to ANR a Flow Restoration Plan (FRP) calling out 58 structural stormwater treatment practices addressing stormwater flow reduction targets in the VTrans designated MS4 (TS4) to be constructed over seven phases between 2018 and 2032 to comply with our TMDL flow reduction targets in the 10 stormwater impaired streams. Of the 58 practices 16 have been fully designed and 4 have been constructed.

Undertaking Flow Restoration planning and design and initiated project programming to undertake final design and initiate construction of Flow Restoration Projects (aka Clean Water Projects) which could result in up to 13 new clean water practices constructed in the upcoming years.

Initiated Phosphorus Control Planning efforts in the Missisquoi Bay Watershed to address Lake Champlain TMDL and VTrans' phosphorus reduction targets.

Developed 8 new Stormwater Pollution Prevention Plans (SWPPPs) for VTrans Maintenance Facilities. This is in addition to the existing 12 SWPPPs in place for other VTrans District Facilities, Airports and Gravel Pits.

Expended approximately \$5 million on clean water program and compliance costs including planning, design, construction, Operation & Maintenance, and staff time.

Refer to VTrans Fact Sheet for more detailed information on Clean Water Programs and Regulations VTrans must comply.

What is the budget and funding source associated with that five-year plan?

TMDL planning and implementation is estimated at an annual average of \$7 million over the next 5 years (includes 4 million current programming plus new TMDL compliance).

VTrans' 5 year TMDL compliance plan (an 18 to 20 year commitment) is included in our Fiscal Year Transportation Program Projects Book submitted to the General Assembly each legislative session for authorization under Act 38. For FFY 20 refer to:

Page 15 "St. Albans IM SWFR(2)"

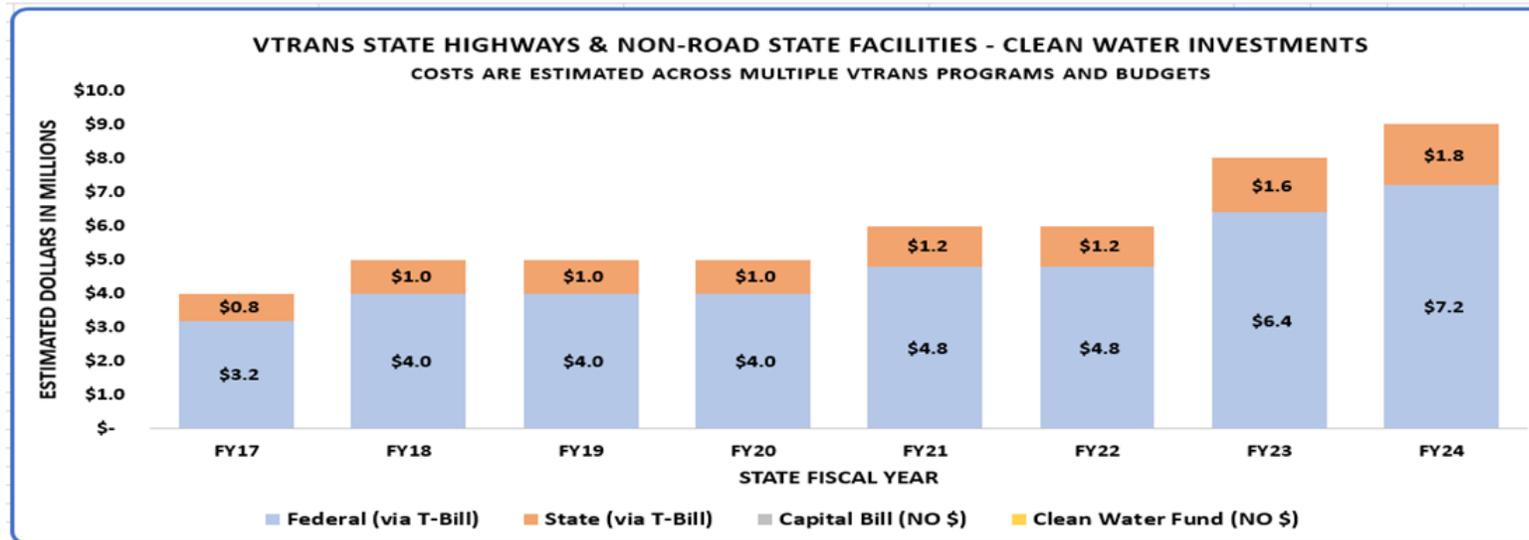
Page 18 "Statewide SWFR ()"

Page 17 "Statewide PCPM ()"

Page 23 "Williston IM SWFR (1)"

All of the funding is Federal or State (Transportation Funds) VTrans' Clean Water Initiatives and Stormwater Regulatory Compliance Investments for the State Highway System and VTrans non-road developed lands are anticipated to be covered by the Transportation Bill and Federal Funds where eligible and does not include "Capital Dollars".

See estimated costs below through SFY24 which include Project Development, Construction, O&M and FTE across multiple VTrans Programs & Budgets.



Questions about what is not included but expected to be?

