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# VTrans Clean Water Program Phosphorus Control Plan Implementation

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SENATE COMMITTEE ON TRANSPORTATION, MARCH 10<sup>TH</sup>, 2022

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TRANSPORTATION

## FACT SHEET - VTRANS CLEAN WATER INITIATIVES & STORMWATER INVESTMENTS

Prepared for 2022 Legislative Session on behalf of Vermont Agency of Transportation  
by Jennifer Callahan, Water Quality Unit, Pollution Prevention & Compliance, VTrans Maintenance and Fleet Division

Specific to Water Quality Initiatives and Investments Targeting Regulatory Compliance for VTrans' Highways and Developed Lands

### How do roads impact stormwater?

- Impervious roadway surfaces can quickly convey polluted stormwater runoff to nearby waterways.
- VTrans is responsible for stormwater collection, conveyance, and treatment along its highways and at other transportation facilities (airports, maintenance yards, park & rides, welcome centers, gravel pits).
- Linear Transportation stormwater management differs from city, town, retail, and commercial entities:
  - Highways stretch for many miles, crossing multiple waterways, watersheds, and jurisdictions.
  - Transportation storm conveyance systems are linear and often discharge stormwater and associated pollutants that originate outside of the transportation right-of-way.

Photo: Road stormwater collector



### How is VTrans Implementing Vermont's Clean Water Act?

- Act 64 of 2015 – referred to as Vermont's Clean Water Act – laid the foundation for the protection and restoration of Vermont's waters by adopting a cross-sector "all in" approach, with a broad suite of programs and regulations addressing: agricultural practices, stormwater runoff from roads and non-road developed lands, and natural infrastructure (river corridors, wetlands and forest management).
- In addition, The U.S. Environmental Protection Agency, in June 2016, established Total Maximum Daily Loads (TMDLs) and reduction targets for phosphorus in the 12 lake segments of Lake Champlain Basin.
- As part of its Phase I Implementation Plan developed in response to the Lake Champlain Phosphorus TMDL, the Vermont ANR, in December 2016, issued the National Pollutant Discharge Elimination System (NPDES) General Permit 3-9007 for Stormwater Discharges from the State Transportation Separate Storm Sewer System (TS4) to VTrans. The permit was effective November 27, 2017.

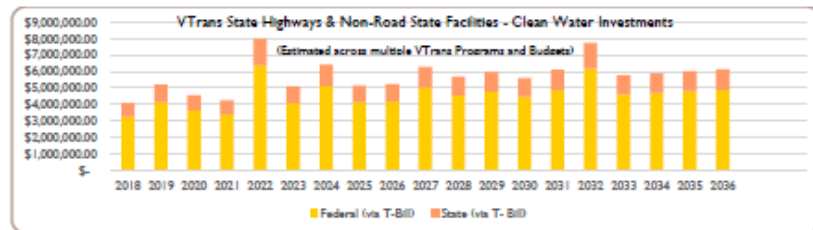
Photo: Algal Bloom



### How is VTrans implementing the TS4?

- The TS4 General Permit is the primary regulation ensuring that stormwater discharged from VTrans owned or controlled impervious surfaces is managed according to State water quality policy. It combines VTrans's compliance obligations from several permit programs, including the Municipal Separate Storm Sewer System (MS4) General Permit and its associated Flow Restoration Plan and Phosphorus Control Plan requirements, Multi-Sector General Permit (MSGP), and Operational (post-construction) Stormwater Permit. Refer to back page for Clean Water Programs and Regulations VTrans complies with and VTrans Report on Clean Water Projects Planning & Implementation.
- VTrans' Clean Water 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. See estimated costs below through SFY36 (the compliance date for the LC TMDL) which include Project Development, Construction, O&M and FTE for implementing the Agency's obligations under the TS4.

Photo: St. Albans I-89 Median Stormwater Retrofit



## VTRANS' STORMWATER REGULATORY REQUIREMENTS

PERMIT PROGRAMS	COVERAGE AND APPLICABILITY	COMPLIANCE ACTIVITIES (as of end of 2021 calendar year)
<b>TS4 GP</b> Transportation Separate Storm Sewer System General Permit  <b>TS4 GP ENCOMPASSES:</b>	<ul style="list-style-type: none"> <li>Permit effective on 11/29/2017 -the upcoming year will be the last year of the current general permit</li> <li>Regulates stormwater discharges from the Statewide VTrans TS4 (including road and non-road developed lands)</li> <li>Specific to the unique linear nature of VTrans' infrastructure</li> <li>Allows several stormwater programs to be rolled into one comprehensive regulatory program (4 programs listed below)</li> </ul>	<ul style="list-style-type: none"> <li>Requires development of a Stormwater Management Plan addressing all of the requirements set forth in the TS4 GP</li> <li>Requires, at a minimum, compliance with all of the regulatory standards of those programs rolled into the TS4 GP</li> <li>Requires VTrans to develop a Phosphorus Control Plan (PCP) in the Lake Champlain Basin for all of its land within the TS4</li> <li>View the <a href="#">TS4 annual report</a>.</li> </ul>
<b>MS4 -&gt;</b> Municipal Separate Storm Sewer System	<ul style="list-style-type: none"> <li>Includes VTrans highways and non-road developed lands in 12 MS4 communities including Burlington, Colchester, Essex, Essex Junction, Milton, Rutland Town, Shelburne, South Burlington, St. Albans City and Town, Williston, Winooski</li> <li>Regulates discharge of stormwater runoff from construction activities</li> <li>Construct temporary stormwater management and treatment practices designed to control erosion and prevent sediment transport</li> </ul>	<ul style="list-style-type: none"> <li>Public Education &amp; Participation, Training &amp; Education</li> <li>Compliance with State Stormwater Regulations and TMDLs</li> <li>Asset Mapping, Inventory, and management</li> <li>Spill Prevention and Stormwater Pollution Source Control</li> <li>28 of the 80 active construction projects required Construction Stormwater Permit coverage and implemented erosion prevention and sediment controls, with a total of 233 compliance visits by agency staff</li> </ul>
<b>TMDL -&gt;</b> Total Maximum Daily Load	<ul style="list-style-type: none"> <li>Establishes reduction targets for specific pollutants (e.g. stormwater flow, phosphorus, E. coli, etc.) to attain water quality standards</li> <li>Applies to watersheds with identified impairments for which a TMDL has been issued by ANR and approved by EPA</li> <li>Phosphorus Control Plans (PCP) in the Lake Champlain Basin</li> </ul>	<ul style="list-style-type: none"> <li>58 practices identified, 20 designed, and 17 constructed to meet the agency's Flow Restoration Reduction Targets across 10 stormwater impaired watersheds</li> <li>Completed the VTrans generalized PCP and first 4-year implementation plan.</li> <li>As of 10/1/21 – VTrans has implemented BMPs to reduce P by 93.3 kg/yr which is 5.8% of the 1605 kg/yr target</li> </ul>
<b>MSGP -&gt;</b> Multi-Sector Industrial Stormwater	<ul style="list-style-type: none"> <li>Covers discharges of stormwater from industrial facilities which conduct activities and use materials that have the potential to impact the quality of Vermont's waters</li> <li>Regulated VTrans facilities including 9 State Airports and 3 State Gravel Pits</li> <li>Facilities are required to examine potential sources of pollution, implement measures to reduce the risk of stormwater contamination, and test stormwater discharges for sources of pollution</li> </ul>	<ul style="list-style-type: none"> <li>VTrans develops and maintains Stormwater Pollution Prevention Plans (SWPPPs) at each facility that include training and education, stormwater management, asset management, erosion control, spill prevention, and stormwater pollution source control</li> <li>35 Stormwater Pollution Prevention Plans (SWPPPs) for VTrans maintenance facilities, airports, and gravel pits being maintained</li> </ul>
<b>State OSW -&gt;</b> Operational Stormwater Discharges	<ul style="list-style-type: none"> <li>Coverage under the general permit is required for discharges of regulated stormwater runoff from the construction, expansion, and redevelopment of impervious surfaces pursuant to the permit threshold triggers established in Vermont Statutes</li> </ul>	<ul style="list-style-type: none"> <li>6 projects in the project development process were designed pursuant to, applied for, and obtained permit coverage under the State Operational (post-construction) Stormwater Program</li> <li>13 new projects constructing new stormwater treatment practices</li> <li>88 previously constructed projects with stormwater treatment practices were inspected and maintained</li> </ul>

Prepared for 2022 Legislative Session on behalf of Vermont Agency of Transportation

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# Major Elements of the TS4 Permit

## Municipal Separate Storm Sewer System (MS4)

- Public Education & Participation, Training & Education
- Asset Mapping, Inventory, and management
- Spill Prevention and Stormwater Pollution Source Control

## Multi-Sector General Permit (MSGP)

- Covers discharges of stormwater from industrial facilities which conduct activities that have the potential to impact the quality of Vermont's waters
- Regulated VTrans facilities - 9 State Airports and 3 State Gravel Pits

## State Operational Stormwater Discharges

- Discharges of regulated stormwater runoff from the construction, expansion, and redevelopment of impervious surfaces greater than 1 acre

## Total Maximum Daily Load (TMDL)

- Establishes reduction targets for specific pollutants (e.g. stormwater flow, phosphorus, E. coli, etc.) to attain water quality standards
- Lake Champlain Phosphorus TMDL



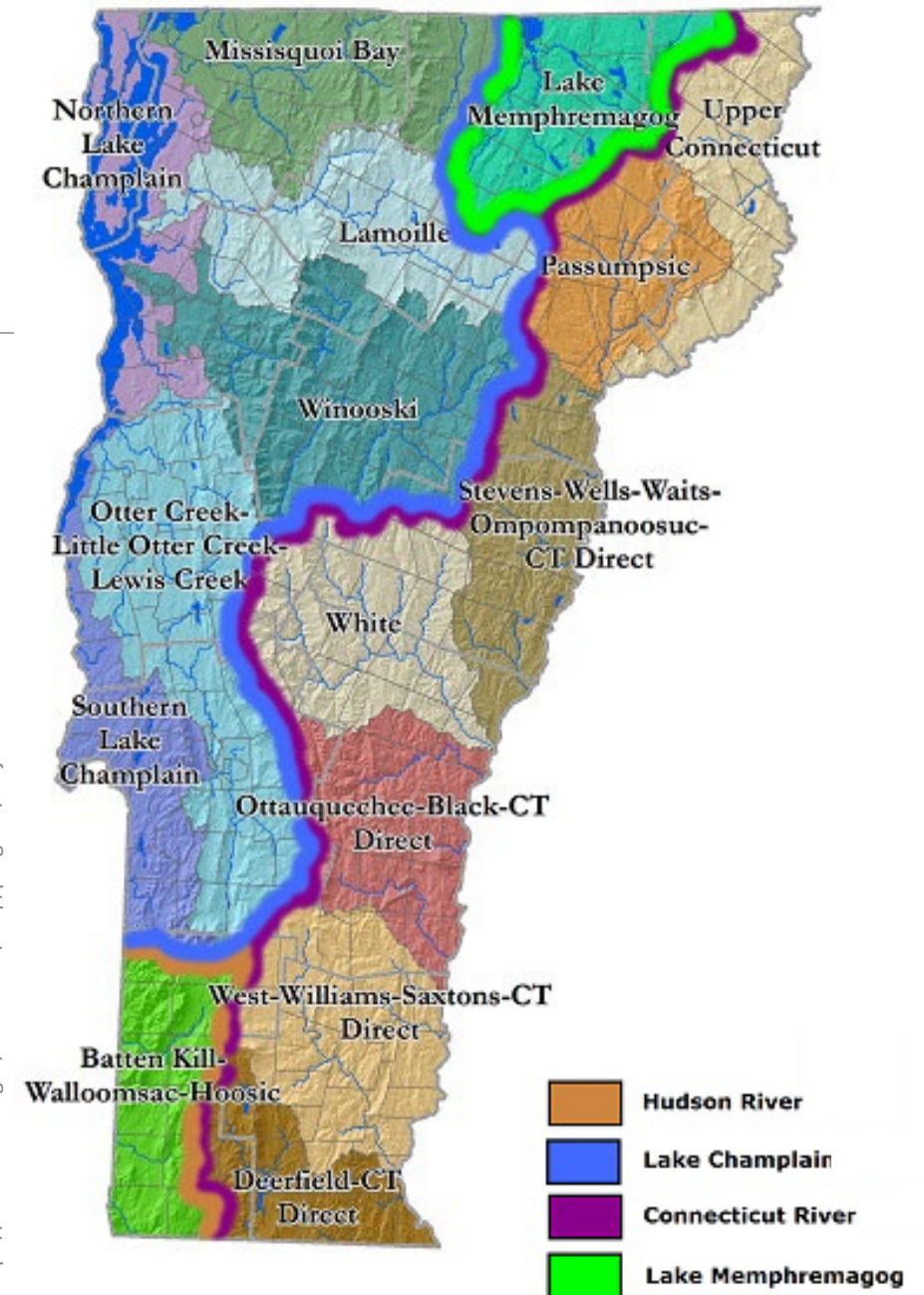


# TS4 Phosphorus Control Plan Requirements

VTrans is required to reduce phosphorus (P) loading from roads, rights-of-way, and facilities it owns or controls by over 20% (a total reduction of 1,606 kg/yr) **by June 17, 2036**.

What VTrans “owns and controls” in 12 of the 13 Lake segments includes

- 1,374 miles (~5,900 acres) of paved highways,
- 417 acres of impervious surface at its parcel-based facilities,



# Phosphorus Control Planning (PCP)

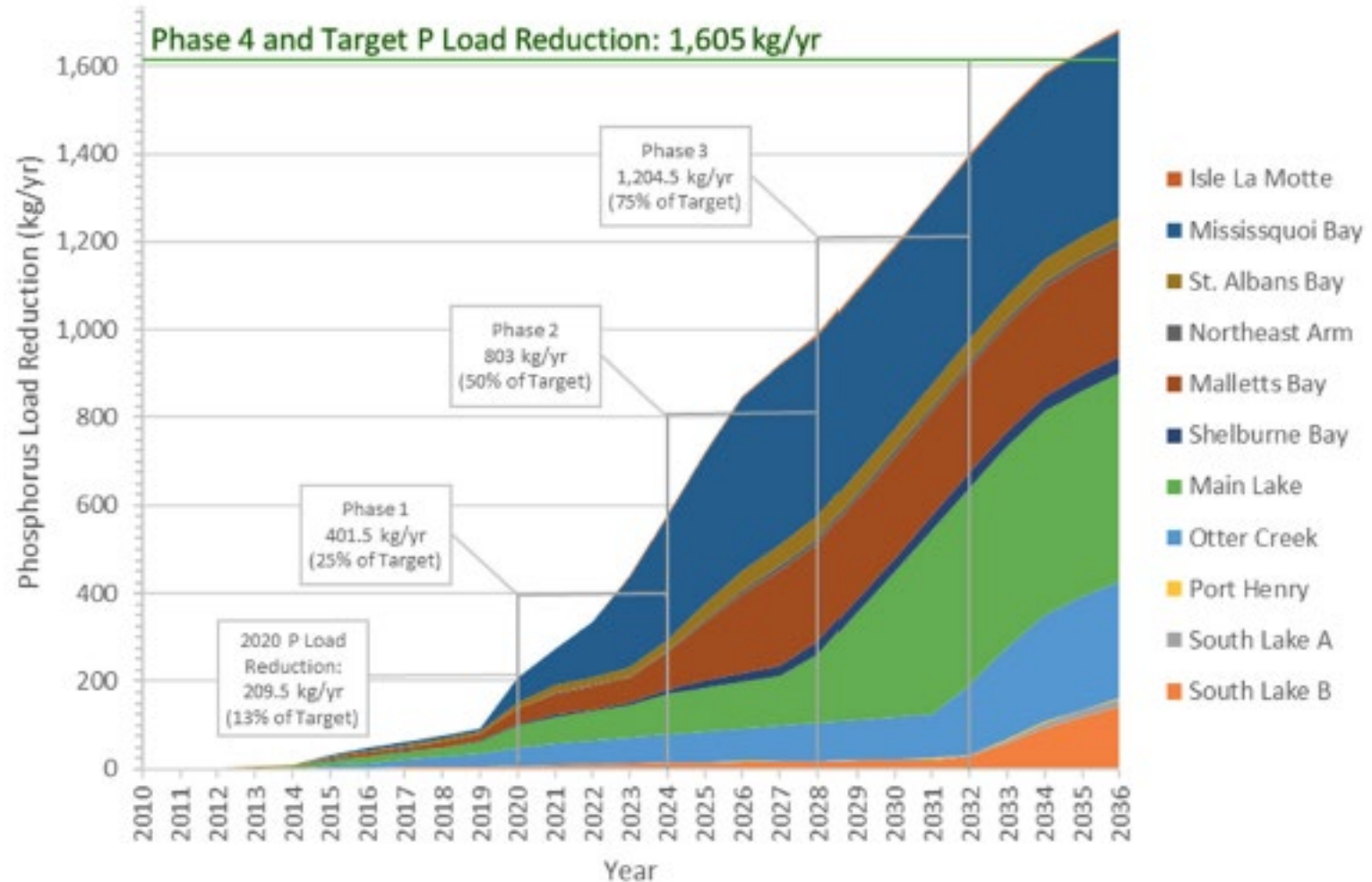
Implementation schedule as outlined in the TS4 permit



- April 2020 – submitted generalized statewide PCP
- October 2020 – submitted 1<sup>st</sup> 4-year phosphorus control implementation plan (PCIP)
- October 2024 – submit 2<sup>nd</sup> 4-year PCIP
- October 2028 – submit 3<sup>rd</sup> 4-year PCIP
- October 2032 – submit 4<sup>th</sup> 4-year PCIP
- No later than June 17, 2036 – complete implementation of PCP

# Phase 1 PCP Implementation Plan (PICP): Oct. 2020-2024

- Documents how VTrans will work to advance first phase
- Missisquoi River/Bay focus
- 25% of target P reduction (401 kg/yr) must be achieved Basin-wide by Oct. 2024





# Suite of Stormwater Best Management Practices





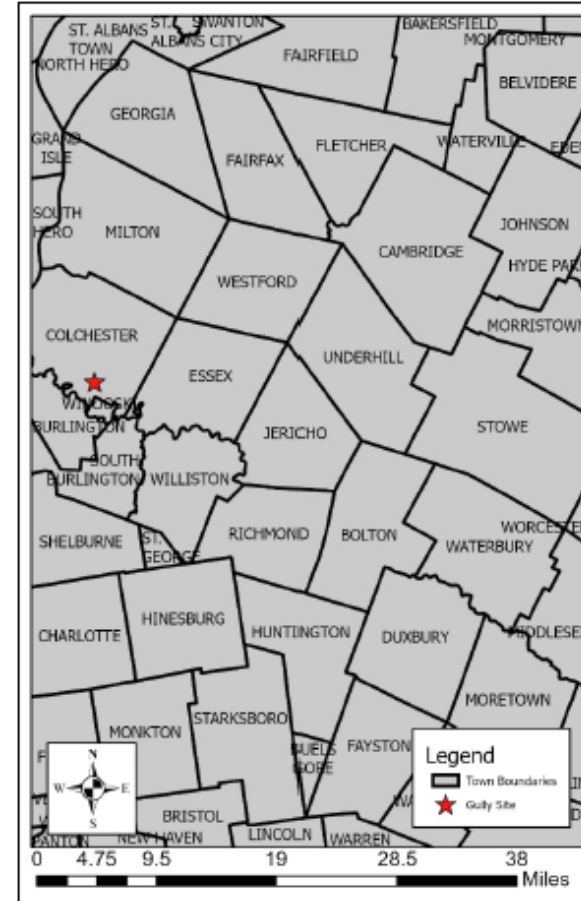
# ST. ALBANS-HIGHGATE PCIP(1) 21D241

I-89 corridor in the Missisquoi Bay Lake segment chosen as pilot (St. Albans Town to US–Canada border)

\$3M directed to culvert repairs, swale restoration, and localized erosion mitigation primarily at culvert outlets

Structural stormwater treatment practices may be strategically incorporated

Construction anticipated in 2023-4



*Erosion mitigation at culvert outlet on I-89 in Colchester, October 2020 as part of VTrans Research Project VTRC019-002 -*

[https://vtrans.vermont.gov/sites/aot/files/Final\\_Report-19-02\\_Erosion\\_Remediation\\_-\\_508.pdf](https://vtrans.vermont.gov/sites/aot/files/Final_Report-19-02_Erosion_Remediation_-_508.pdf)