Vermont Clean Water Initiative 2025 Performance Report

To: House Committee on Environment

From: Claire Madden & Sarah Coleman, VT Department of Environmental Conservation

Date: January 28, 2026

Vermont Clean Water Initiative 2025 Performance Report

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Clean Water Initiative Program | Water Investment Division

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Clean Water Initiative Program Mission

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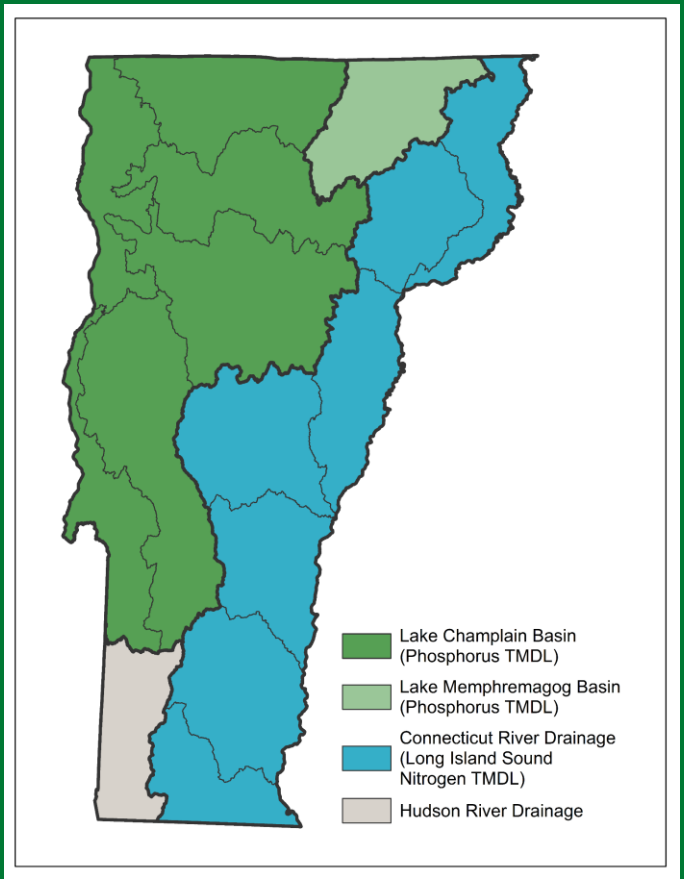
Water Quality in Vermont



- Vermont's waterways vary in quality
  - Many waters are of **exceptional quality** and require **protection**
  - Some waters suffer from **excess pollution** and require **restoration**
- Excess nutrient and sediment pollution can create imbalances that lead to water quality impacts, including cyanobacteria blooms.
- Clean water restoration plans — Total Maximum Daily Loads (TMDLs) — identify pollutant reductions required for an impaired waterbody to meet the State of Vermont's water quality standards.

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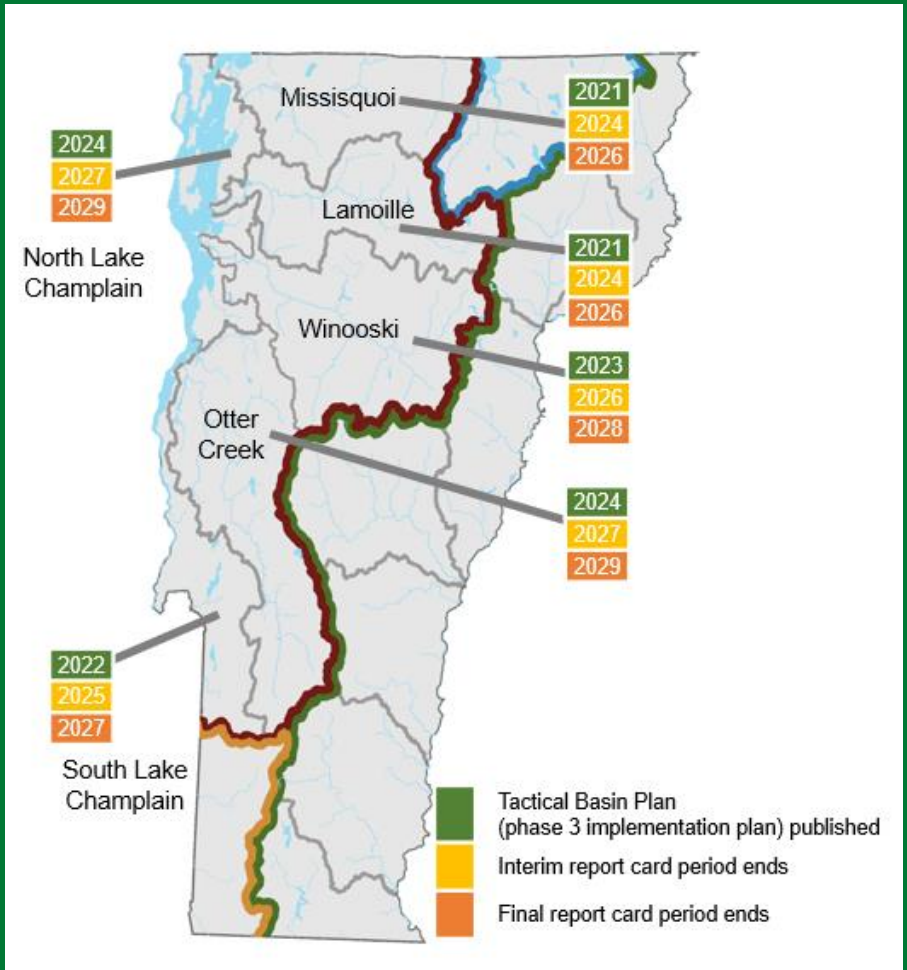

Lake Champlain TMDL Accountability Framework

TMDL establishes phosphorus targets

Tactical Basin Plans (TBP) I.D. five-year interim planning targets

EPA issues report cards by planning basin on five-year rotation

TBP I.D. priority actions to meet five-year planning targets

DEC measures progress against TMDL base load and targets

DEC tracks actions implemented via regulatory/funding programs

DEC estimates annual phosphorus load reductions

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Tracking, Accounting, and Reporting

- Accountability requirements established by Vermont Clean Water Act (Act 64 of 2015)
- Transparency on progress under the Clean Water Service Delivery Act (Act 76 of 2019)
- Basin specific reporting to show how Vermont's regulatory and non-regulatory programs are driving progress towards achieving the phosphorus reduction targets in the Lake Champlain and Lake Memphremagog TMDLs

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LAND USE SECTOR	PROJECT OBJECTIVES	EXAMPLE PROJECTS	PROJECT CO-BENEFITS
AGRICULTURE	Reduce pollution by slowing and controlling rain or snowmelt runoff and soil erosion from farm production areas and farm fields	 	• Cost-effective • Supports agricultural economy • Improves soil health, reduces erosion and runoff by increasing the water holding capacity of soils • Provides drought and flood resilience
STORMWATER	Reduce pollution by slowing and controlling rain or snowmelt runoff from developed lands, such as parking lots, sidewalks, and rooftops	 	• May enhance aesthetic appeal • Publicly visible educational opportunity • Adds green space in residential and commercial areas • Mitigates flash flooding by creating space for runoff to infiltrate during heavy rainfall events
NATURAL RESOURCES	Reduce pollution by restoring functions of natural infrastructure — river channels, floodplains, lakeshores, wetlands, and forests	 	• Cost-effective • Can add or augment habitat • May enhance recreational opportunity and improve public access • Increases capacity to store and infiltrate floodwater • Improves public safety through reduced flood hazard
TRANSPORTATION RELATED STORMWATER	Reduce pollution by slowing and controlling rain or snowmelt runoff and erosion from roads	 	• Reduces future road maintenance costs • Improves public safety • Reduces incidence and severity of erosion with high intensity precipitation events
WASTEWATER	Reduce pollution by improving wastewater infrastructure	 	• Protects public health and safety • Reduces the likelihood of sewer overflows • Can increase resilience through proper facility siting and design

Investment measures show how Vermont invests in clean water projects from identification and planning through design, implementation, and maintenance.

Education measures summarize outreach and technical assistance to support, identify, develop, and maintain clean water projects.

Project output measures quantify the results of clean water projects.

Pollutant reduction measures are estimated nutrient load reductions achieved by clean water projects.

State Investments by Sector

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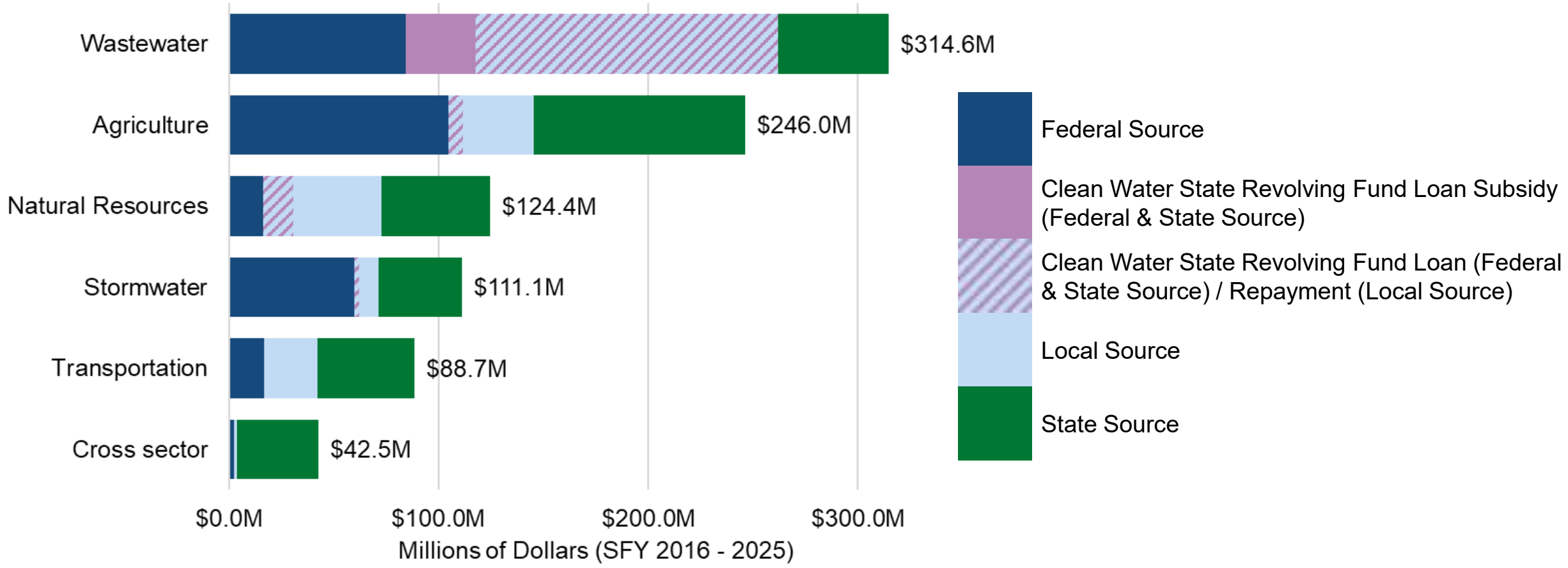
Investments by Funding Source



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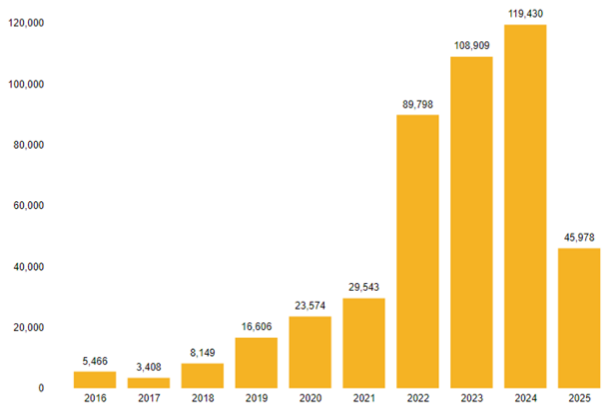
Project Outputs SFY 2016 - 2025

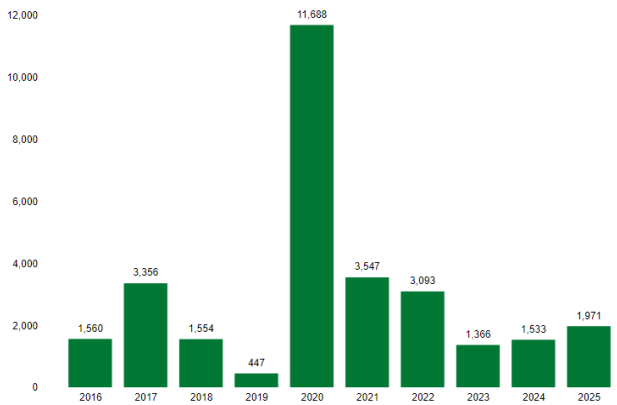
450,861
Acres of agricultural conservation practices implemented

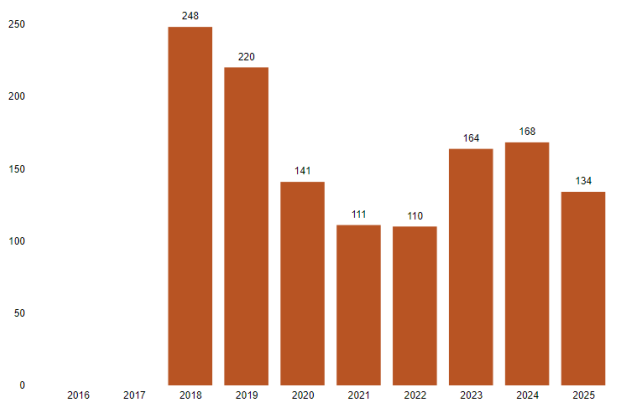
30,114
Acres of land conserved with natural resources protections

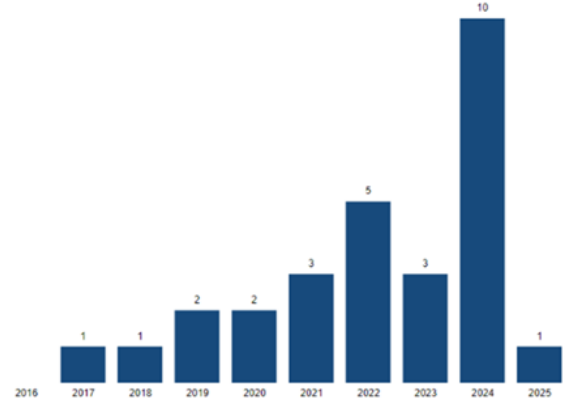
2,756
Acres of existing impervious surface treated by stormwater treatment practices under stormwater permits

28
Number of wastewater collection systems refurbished









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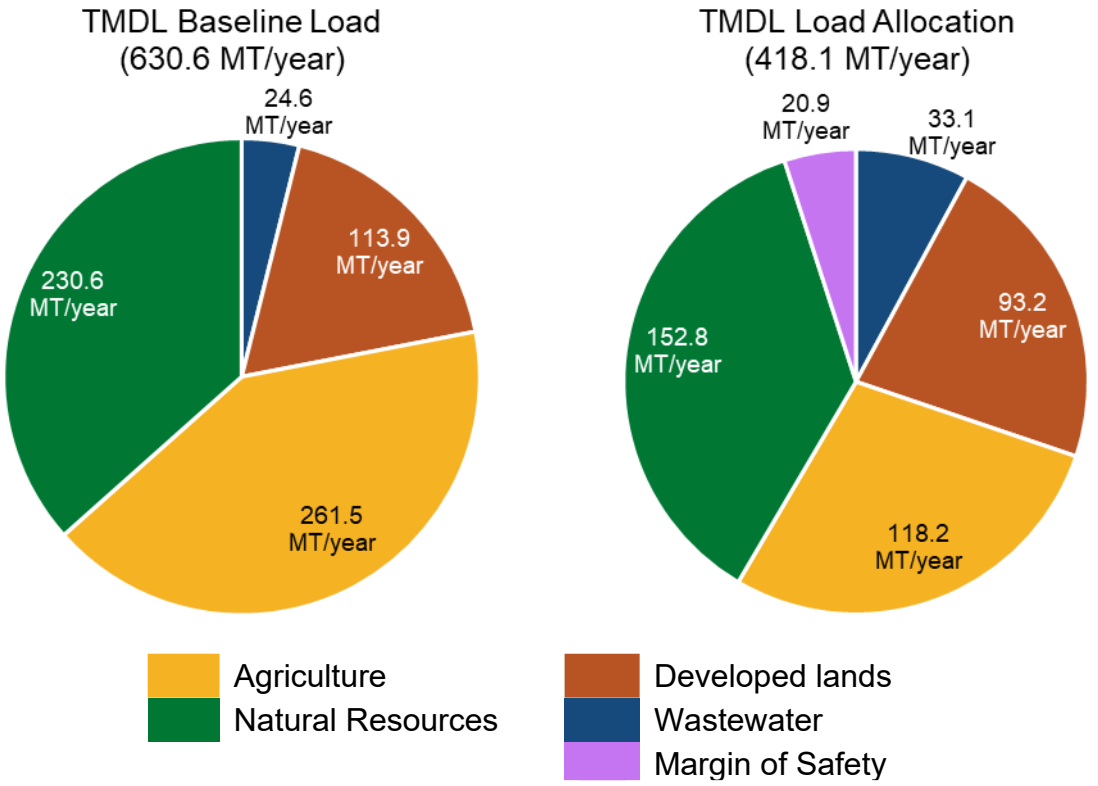
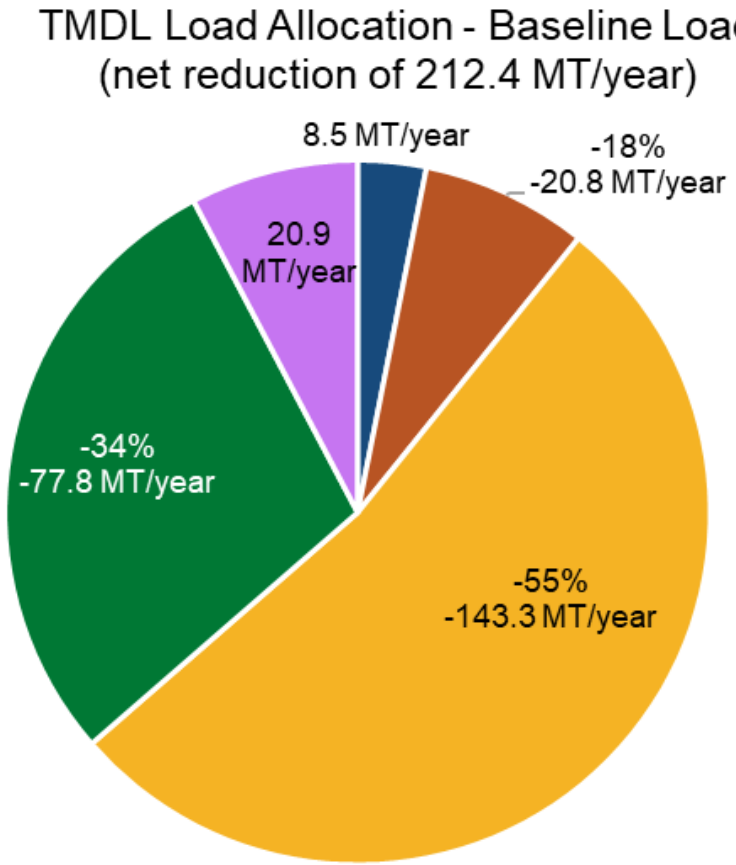
Lake Champlain TMDL





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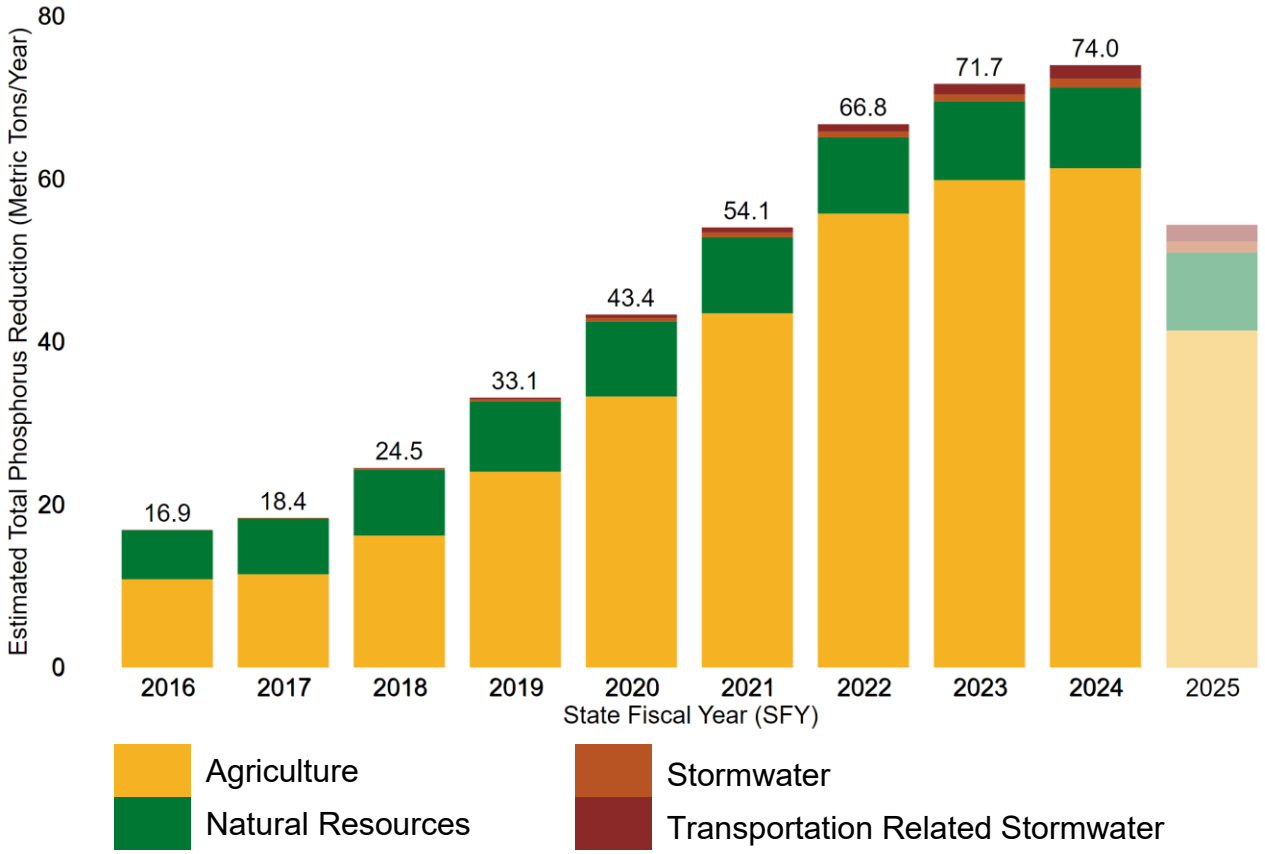
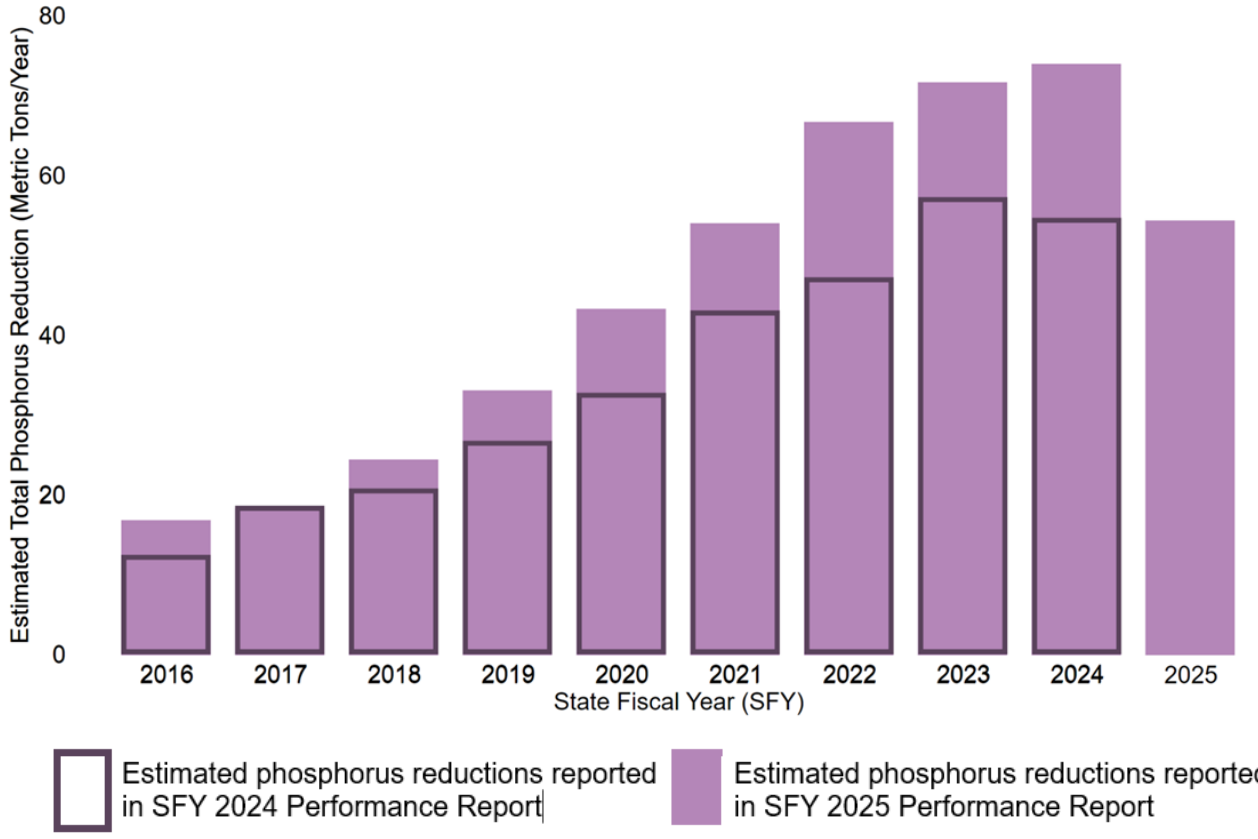
Phosphorus Reduction | Lake Champlain





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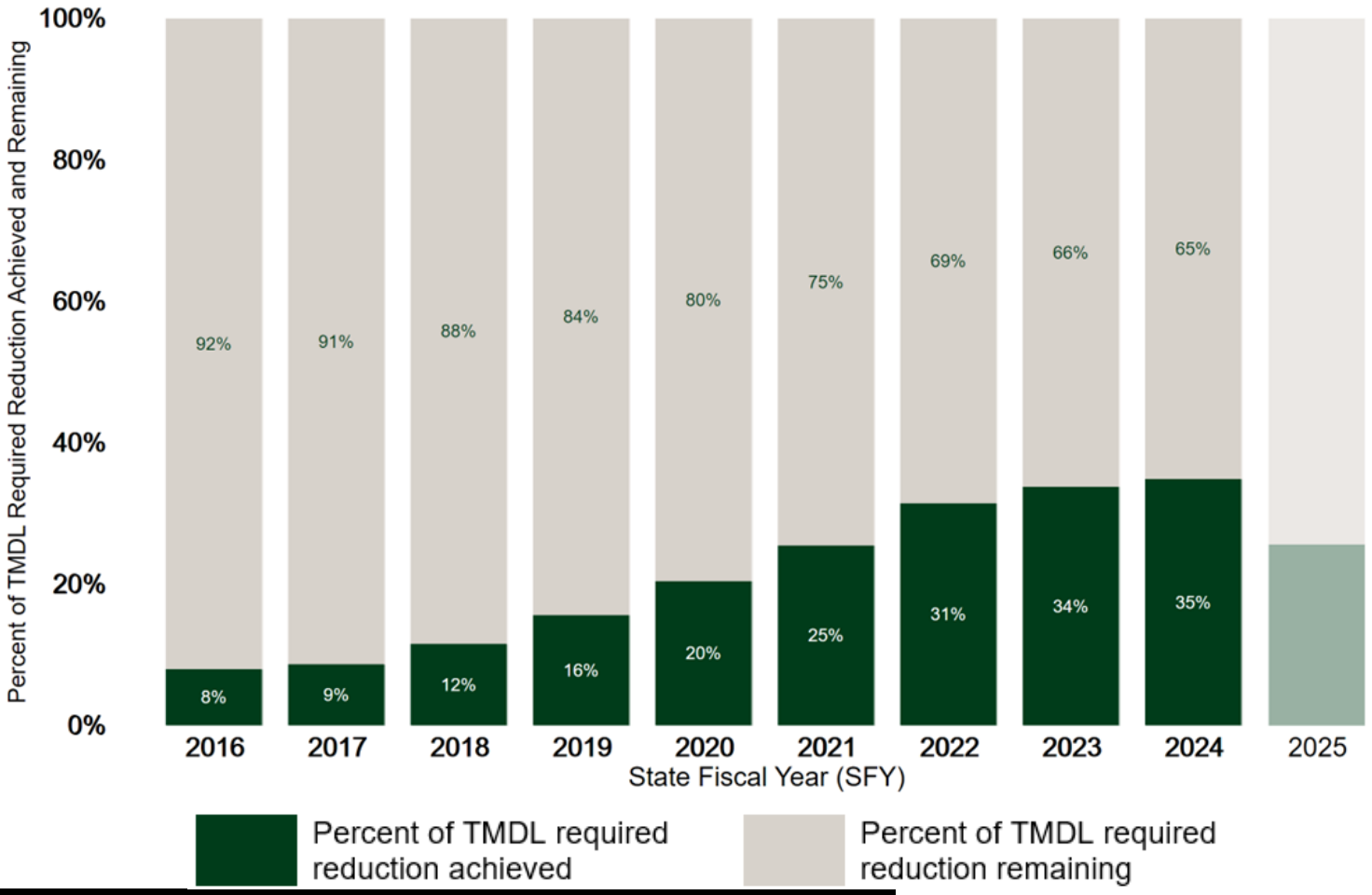
TMDL Progress | Lake Champlain



- Progress is representative of completed implementation that we have systems in place to collect data and quantify a phosphorus reduction
- Implementation is also occurring for projects which we do not have systems in place to track & account
- Established regulatory drivers will result in continued implementation over the next several years and we can project future estimated phosphorus reductions to be achieved through implementation

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Gaps in Phosphorus Accounting

Sector	Project or Practice Type	Status of Phosphorus Accounting Methodology	Status of Phosphorus Accounting Implementation[96]	Implementation Notes[97]
Agriculture	Conservation crop rotation	Implemented	☑	Farmer funded implementation without state/federal technical assistance is not captured in available data
	No-till and reduced till			
	Cover crop			
	Crop to hay planting			
	Manure injection			
	Manure incorporation			
	Grazing management			
	Grassed waterways and filter strips			
	Livestock exclusion			
	Nutrient management			
	Production area compliance	Implemented	☑	
	Agricultural riparian buffer	Implemented	☑	Dataset does not currently capture regulatory buffer inspection results
	Easements with water quality protections	Under development	☒	2,450 acres of land conserved with special water quality protections
	Livestock trails and walkways	Under development	☒	Implementation data not yet processed
Stormwater	Structural stormwater treatment	Implemented	☑	
	Non-structural stormwater treatment	Implemented	☑	
	Outlet and gully stabilization	Implemented	☑	
	Tree canopy expansion	Implemented	☑	
	Native revegetation ('no-mow zones')	Implemented	☑	
Transportation Related Stormwater	Public road erosion remediation (MRGP and TS4)	Implemented	☑	
	Private road erosion remediation	Under development	☒	255 drainage structures installed/repaired 27.7 miles of road drainage improved

Sector	Project or Practice Type	Status of Phosphorus Accounting Methodology	Status of Phosphorus Accounting Implementation[96]	Implementation Notes[97]
Natural Resources	Forested riparian buffer	Implemented	☑	
	Bioengineered lakeshore stabilization	Implemented	☑	
	Forest road & trail erosion remediation	Implemented	☑	
	Use Value Appraisal program enrollment	Implemented	☑	
	Floodplain and stream restoration	Established	☒	Stream and river corridor regulations not yet accounted for in estimated phosphorus reductions Non-regulatory implementation not yet accounted for in estimated phosphorus reductions: 55 acres of floodplain restored 187 stream miles reconnected/restored
	River corridor easements	Established	☒	1,038 acres of riparian corridor easement
	Wetland restoration/easement	Under development	☒	1,354 acres of wetland conserved/restored through easements
	Land conservation easements	Under development	☒	1,042 acres of land conserved with special water quality protections
Wastewater	Private (on-site) wastewater systems constructed/refurbished	Not yet established	☒	120 private wastewater systems constructed or refurbished
	Combined sewer overflow (CSO) abatement	Not yet established	☒	4 combined sewer overflow abatements

Status of Phosphorus Accounting Methodology
Implemented = accounting methodology is published and applied to available data in reporting
Established = accounting methodology is published, not yet applied to available data in reporting
Under development = accounting methodology is being developed but is not yet available to implement
Not established = accounting methodology is not available

Status of Phosphorus Accounting Implementation
☑ = estimated phosphorus reduction data is quantified in reporting.
☒ = estimated phosphorus reduction not quantified in reporting.

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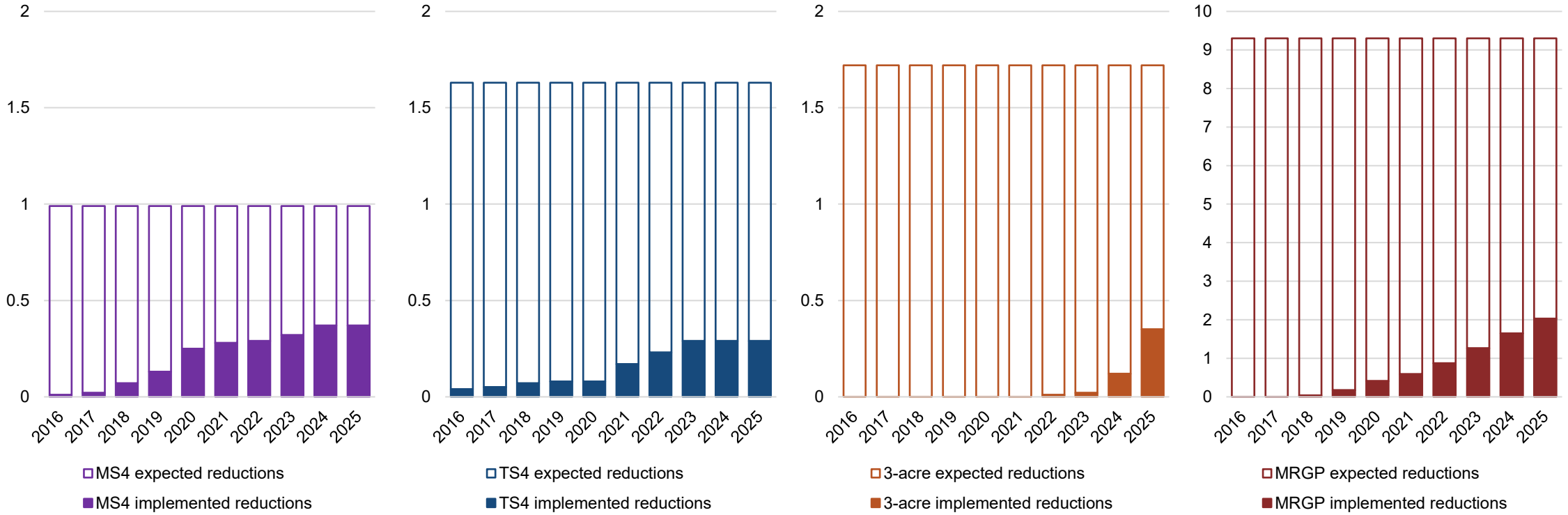
Example of Anticipated Phosphorus Reductions

Developed lands regulatory programs in the Lake Champlain basin



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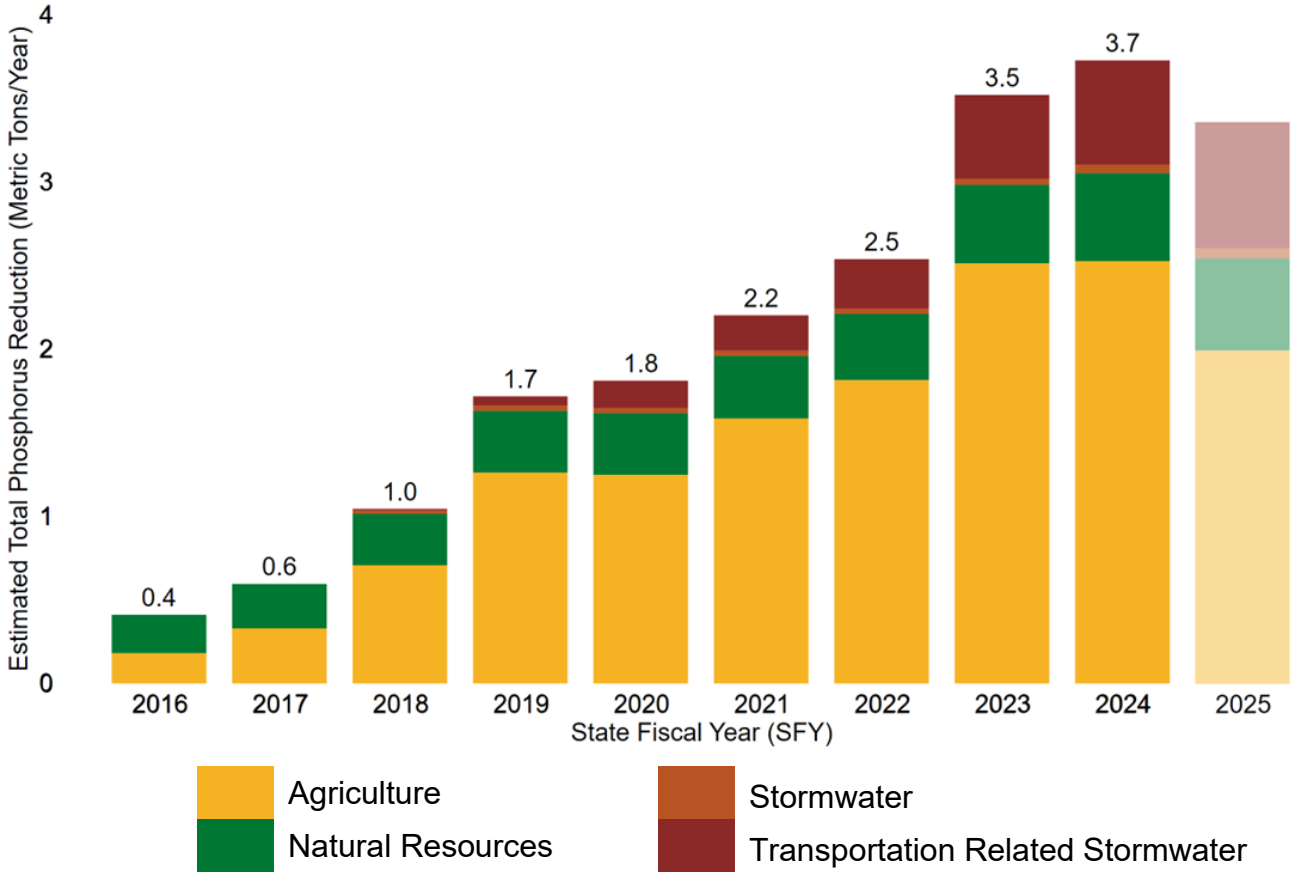
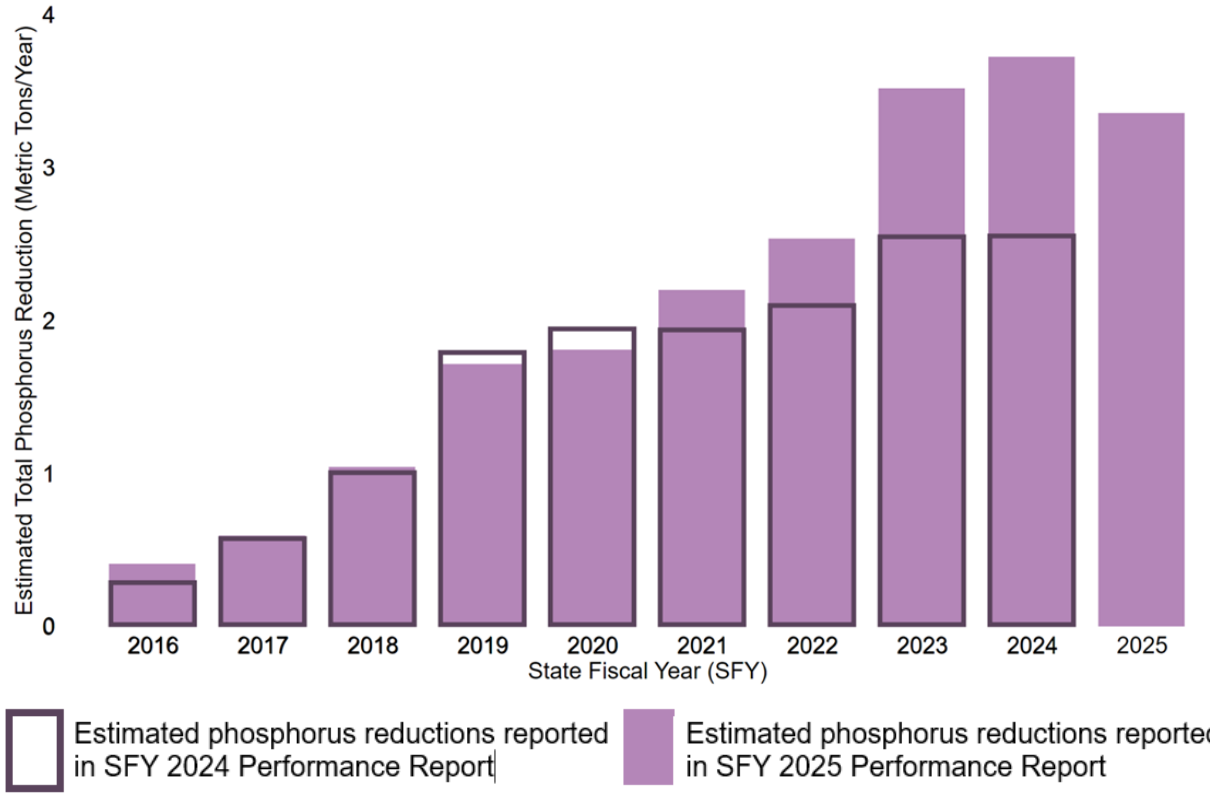
Phosphorus Reduction | Lake Memphremagog





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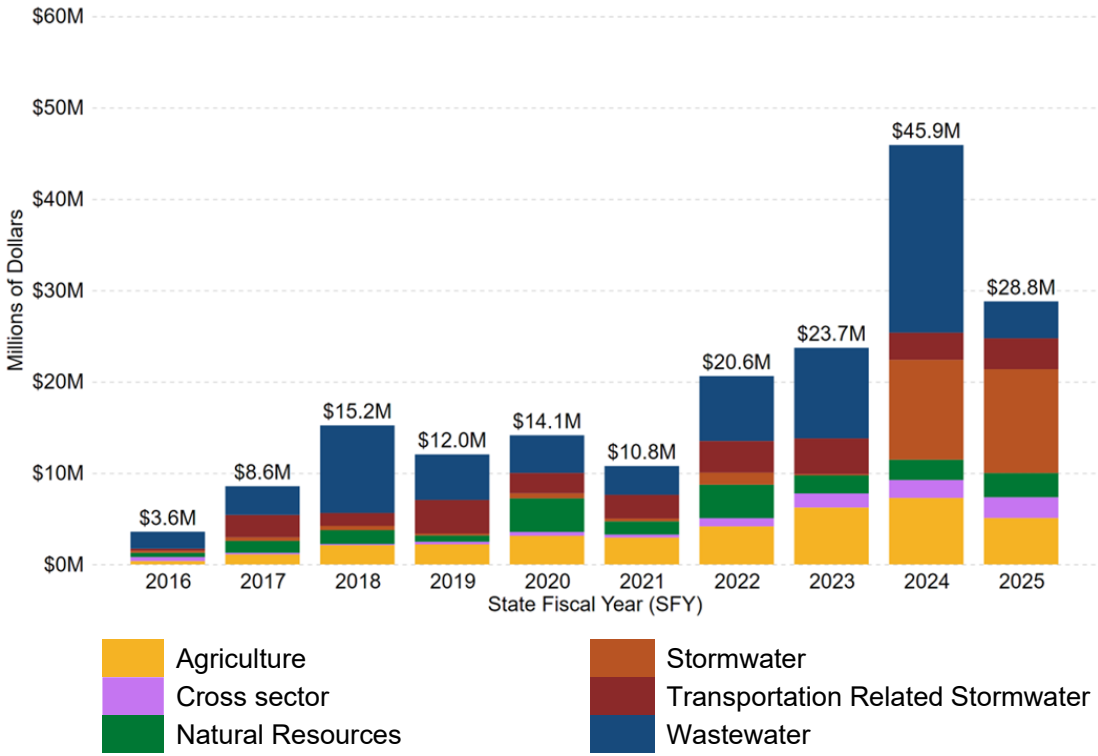
Connecticut River Drainage



Project Output Measure	Total SFY 2016 – 2025
Acres of agricultural practices implemented (including implementation supported by state or federal technical assistance)	81,278
Acres of production area inspected by AAFM for compliance with Required Agricultural Practices (RAPs)	2,274
Acres of floodplain restored	84
Acres of forested riparian buffer restored through buffer planting (including both agricultural and non-agricultural buffers)	252
Acres of new and existing impervious surface treated by stormwater treatment practices	200
Hydrologically connected road miles inventoried	2,743
Number of wastewater treatment systems constructed, upgraded, refurbished	60

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Clean Water & Climate Resilience

Post-implementation photo of the Kikitta Ahki-Whetstone Brook Conservation project in Brattleboro VT, which restored and permanently protected 12 acres along Whetstone Brook.

Clean water projects are flood resilience projects

- 137 acres of floodplain restored
- 515 acres of riparian buffer planted
- 641 miles of hydrologically connected municipal roads where work has been completed to comply with permit standards
- 441 (non-regulatory) and 2,756 (regulatory) acres of existing impervious surface treated

Growing Capacity & Adaptive Management

- Regulations are in place – stormwater, roads, streams – implementation is in progress, and the results of these programs have not yet been fully realized
- Non-regulatory funding programs continue to evolve to efficiently support program administration, project identification, design, implementation, and maintenance
- Our collective progress relies heavily on a network of partners who make up a diverse and well-trained clean water workforce
- Tactical Basin Planning process provides a framework for regularly reassessing progress, gaps, and strategy development
- Tracking & accounting systems continue to be expanded to capture a more holistic picture of progress

Resources

Welcome to the Clean Water Interactive Dashboard!

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The Clean Water Interactive Dashboard is a data visualization tool that allows users to engage with data summarizing clean water investments, outputs, and outcomes across Vermont. The data presented in this tool is compiled annually for the *Vermont Clean Water Initiative Annual Performance Report,* which is submitted to the State Legislature and the Federal Environmental Protection Agency to communicate the state's progress in reaching our water quality goals.
Click here to access the *Vermont Clean Water Initiative Annual Performance Report.*

Vermont's lakes, rivers, wetlands, and reservoirs are important environmental and economic resources for residents and visitors. The State of Vermont has made it a priority to support partners' work to restore, enhance, and protect Vermont's water quality. In Vermont, a primary water quality challenge is pollution caused by excess sediment and nutrients, such as phosphorus and nitrogen, originating from the land and carried to waterways through runoff.
Click here to learn more about phosphorus and related water quality challenges.

Clean water projects address a variety of causes and sources of water quality issues across land uses. Clean water projects provide co-benefits for the environment and local communities, such as increasing flood resilience, improving habitat function and biodiversity, supporting carbon sequestration, improving soil health, supporting workforce development, and providing local economic stimulus.

Click here to learn more about clean water projects.

Data presented in this dashboard is organized by Tactical Basin Planning region. The State of Vermont uses the Tactical Basin Planning process to identify and prioritize clean water actions at a regional scale. Click here to learn more about Tactical Basin Planning.

Click on the map to find out how Tactical Basin Planning regions relate to other spatial boundaries.

Visit the help page for tips on how to navigate the dashboard: Click for Power BI Help

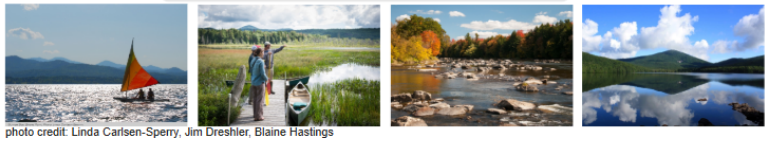

photo credit: Linda Carlsen-Sperry, Jim Dreshler, Blaine Hastings

Click on one of the measure icons below to view the data!

Investment measures show how Vermont invests in clean water projects from identification and planning through design, implementation, and maintenance. *State investments* are dollars obligated or awarded by State of Vermont agencies. *Federal investments* included in this report are dollars awarded to clean water projects through the Lake Champlain Basin Program.

Project output measures quantify the results of clean water projects. Output measures are standardized across programs based on project type to consistently summarize the results of funding and regulatory efforts.

Pollutant reduction measures are estimated nutrient (phosphorus) load reductions achieved by clean water projects modeled at the individual project level. Modeled pollution reduction estimates are based on the total pollutant load of the area treated and the expected pollutant reduction efficiency of the project.

Cost effectiveness measures return on investment, or dollars spent on project implementation per unit of pollution reduced. Cost effectiveness considers the total estimated pollutant reduction of the project for its anticipated functional life and total investment spent on implementation of the project.

Education measures summarize state efforts to support identification, development, and implementation of clean water projects. The State of Vermont and its partners deliver education through outreach events like workshops, trainings, and public meetings as well as targeted, one-on-one technical assistance.

Photo of paddlers enjoying Lake Champlain.

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Published:
January 15, 2026

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