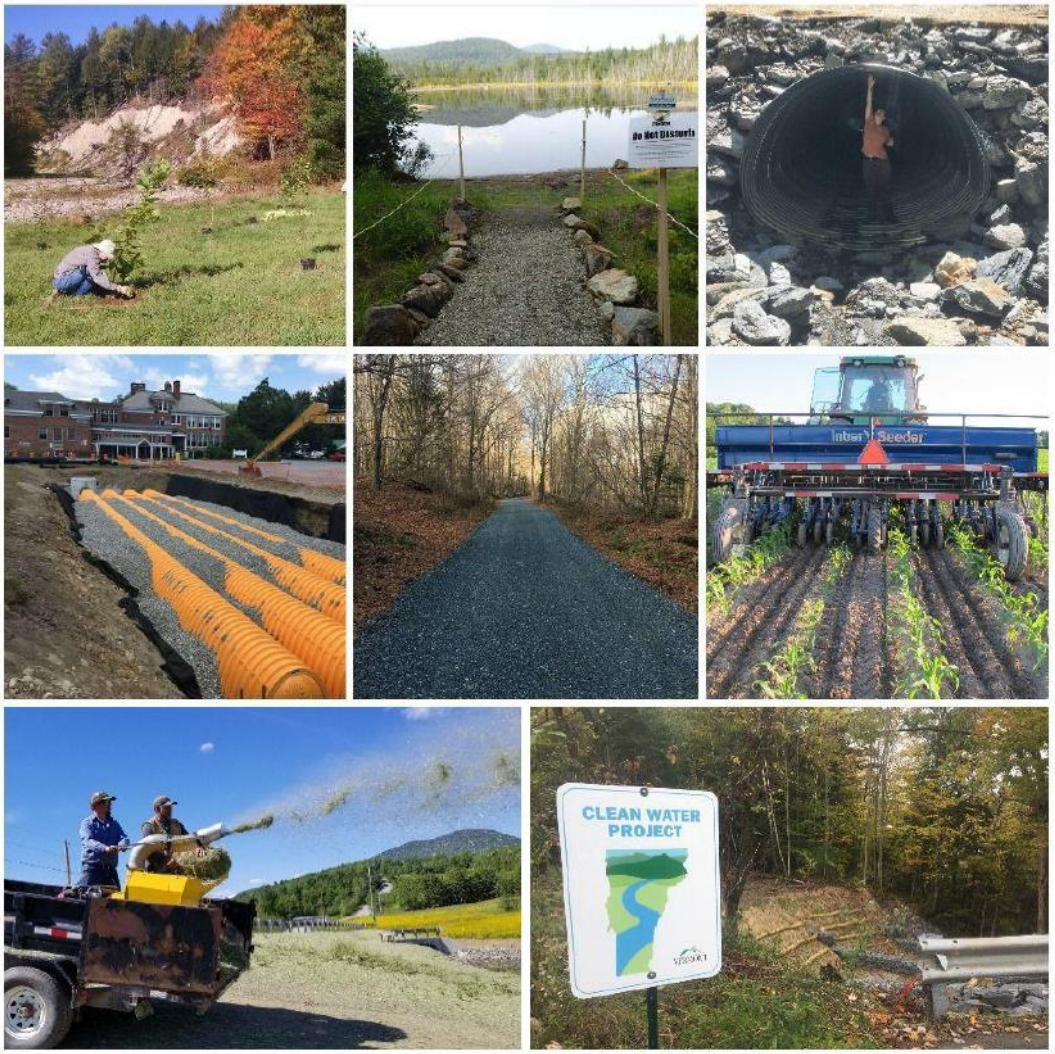
Clean Water Initiative 2019 Performance Report

To: House Committee on Natural Resources, Fish, and Wildlife

From: Emily Bird
Vermont Department of Environmental Conservation (DEC)

On: May 5, 2020

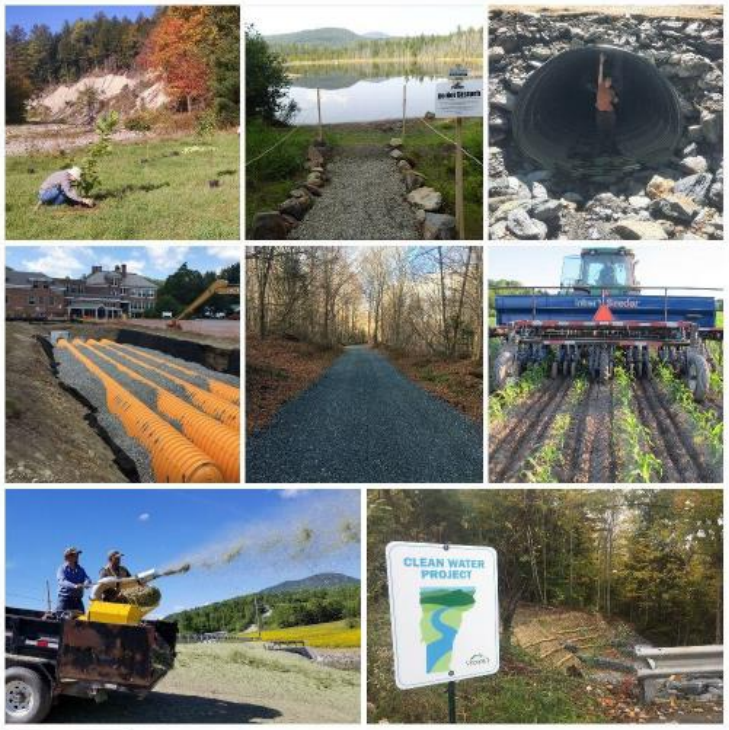


VERMONT CLEAN WATER INITIATIVE

VERMONT

AGENCY OF ADMINISTRATION
AGENCY OF AGRICULTURE, FOOD & MARKETS
AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT
AGENCY OF NATURAL RESOURCES
AGENCY OF TRANSPORTATION

VERMONT CLEAN WATER INITIATIVE
2019 PERFORMANCE REPORT



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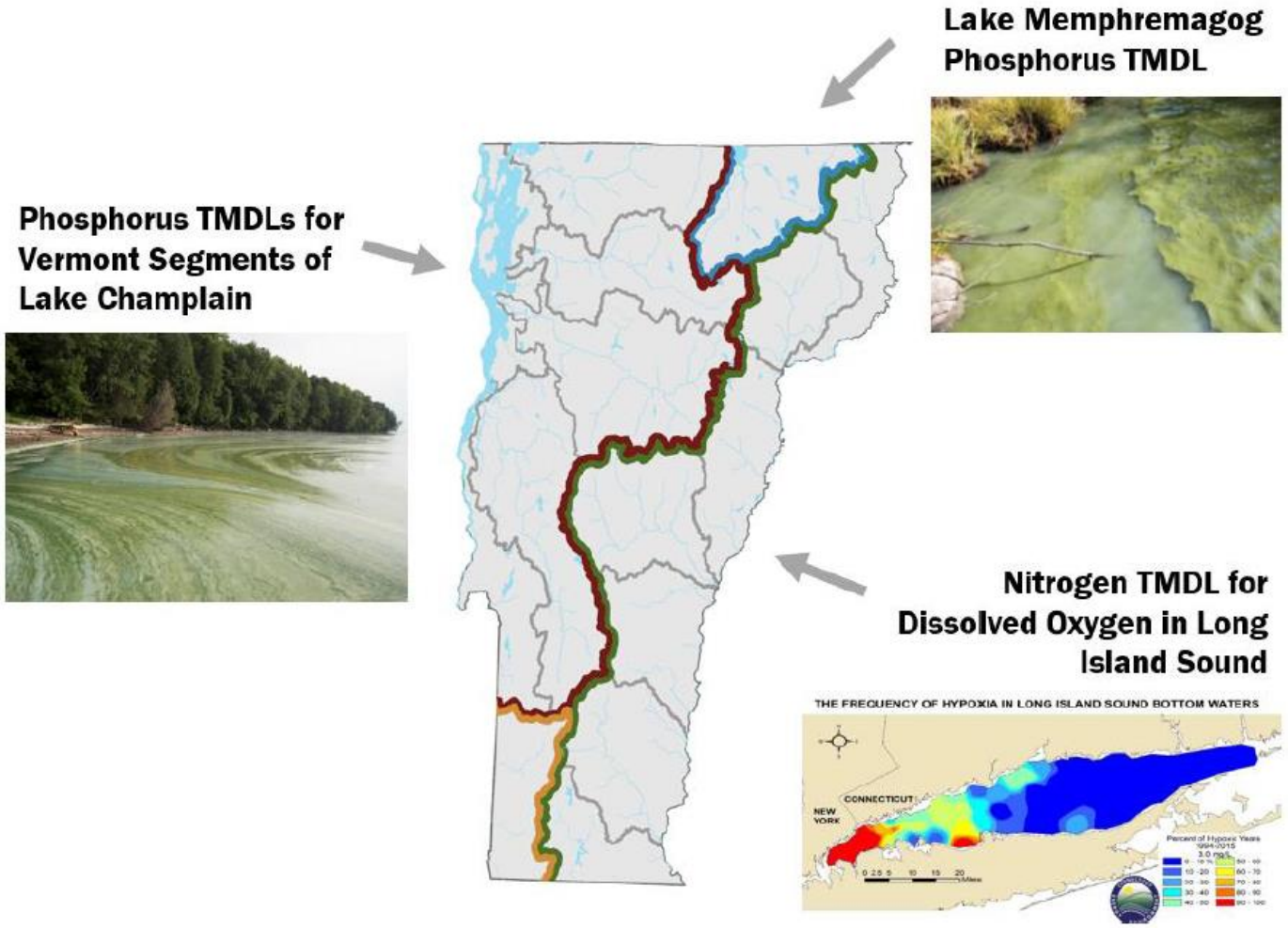
https://dec.vermont.gov/water-investment/cwi/projects

What is a Clean Water Project?

Land Use	Clean Water Project Objectives and Example Project Images	Additional Benefits
AGRICULTURE	Addresses runoff and soil erosion from farm production areas and farm fields 	• Supports Clean Water Act compliance • Cost-effective • Leverages federal funds • Supports agricultural economy
DEVELOPED LANDS	Addresses stormwater runoff from developed lands, such as parking lots, sidewalks, and rooftops 	• Supports Clean Water Act compliance • Increases flood resilience • May enhance aesthetic appeal
NATURAL RESOURCES	Restores functions of "natural infrastructure"—river channels, floodplains, lakeshores, and wetlands 	• Supports Clean Water Act compliance • Cost-effective • Increases flood resilience • Improves habitat • Enhances recreation
ROADS	Addresses stormwater runoff from roads 	• Supports Clean Water Act compliance • Cost-effective • Increases flood resilience • Leverages federal funds • Reduces future road maintenance costs
WASTEWATER	Decreases nutrients (phosphorus and nitrogen) through enhanced wastewater treatment and addresses aging infrastructure 	• Protects public health and safety • Supports Clean Water Act compliance • Leverages federal funds

What is a “Total Maximum Daily Load?”

Figure 2. Vermont's large TMDLs that require nutrient pollutant reductions



Report Scope
Types of Measures Reported

Investment measures of how State of Vermont invests in clean water projects from planning to design and implementation

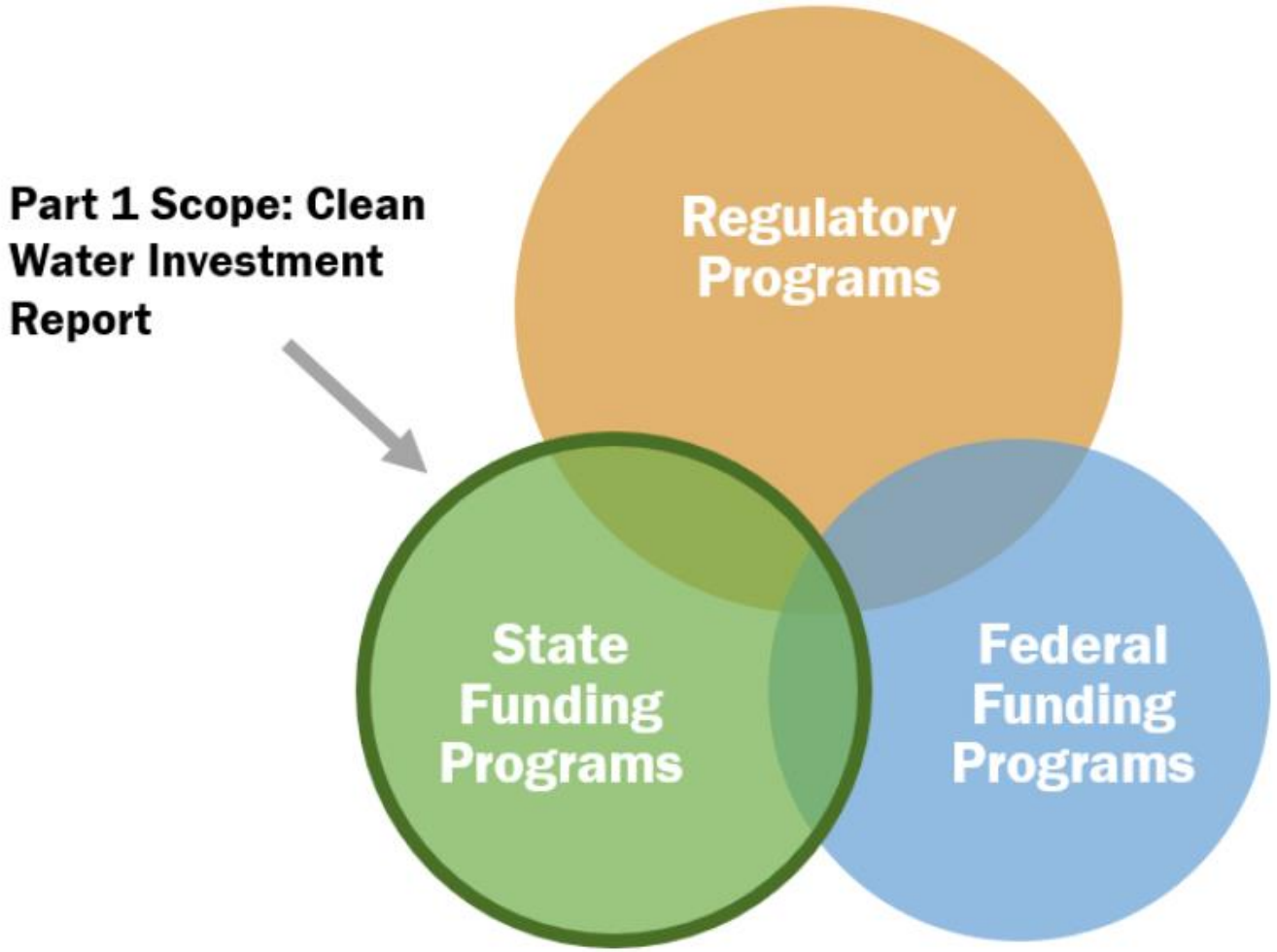
Project output measures that quantify the results of state-funded clean water projects

Education measures on outreach and technical assistance to support, identify, and develop clean water projects

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

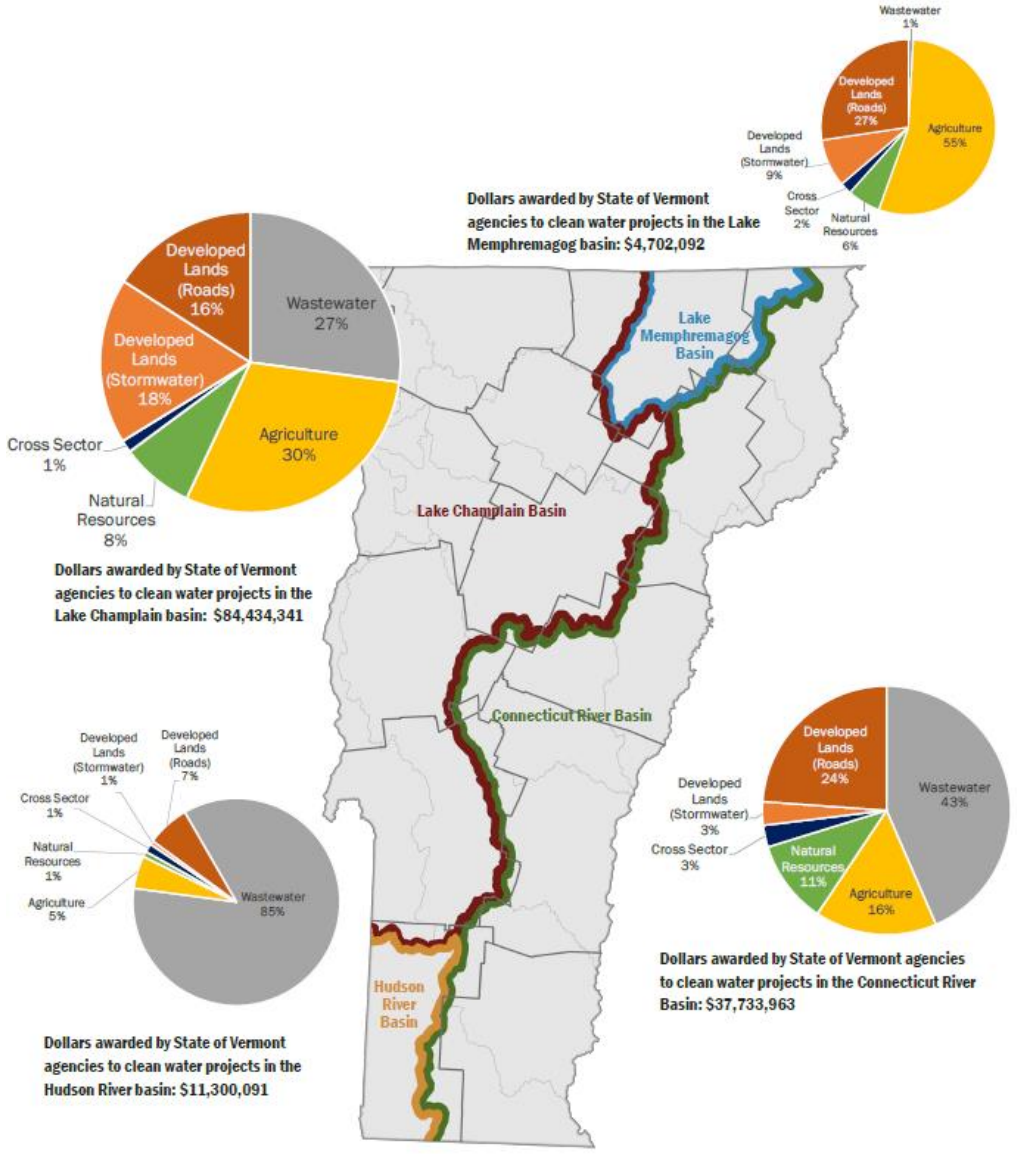
Report Scope
Part 1: Vermont Clean Water Investment Report

Target Audience: Vermont State Legislature



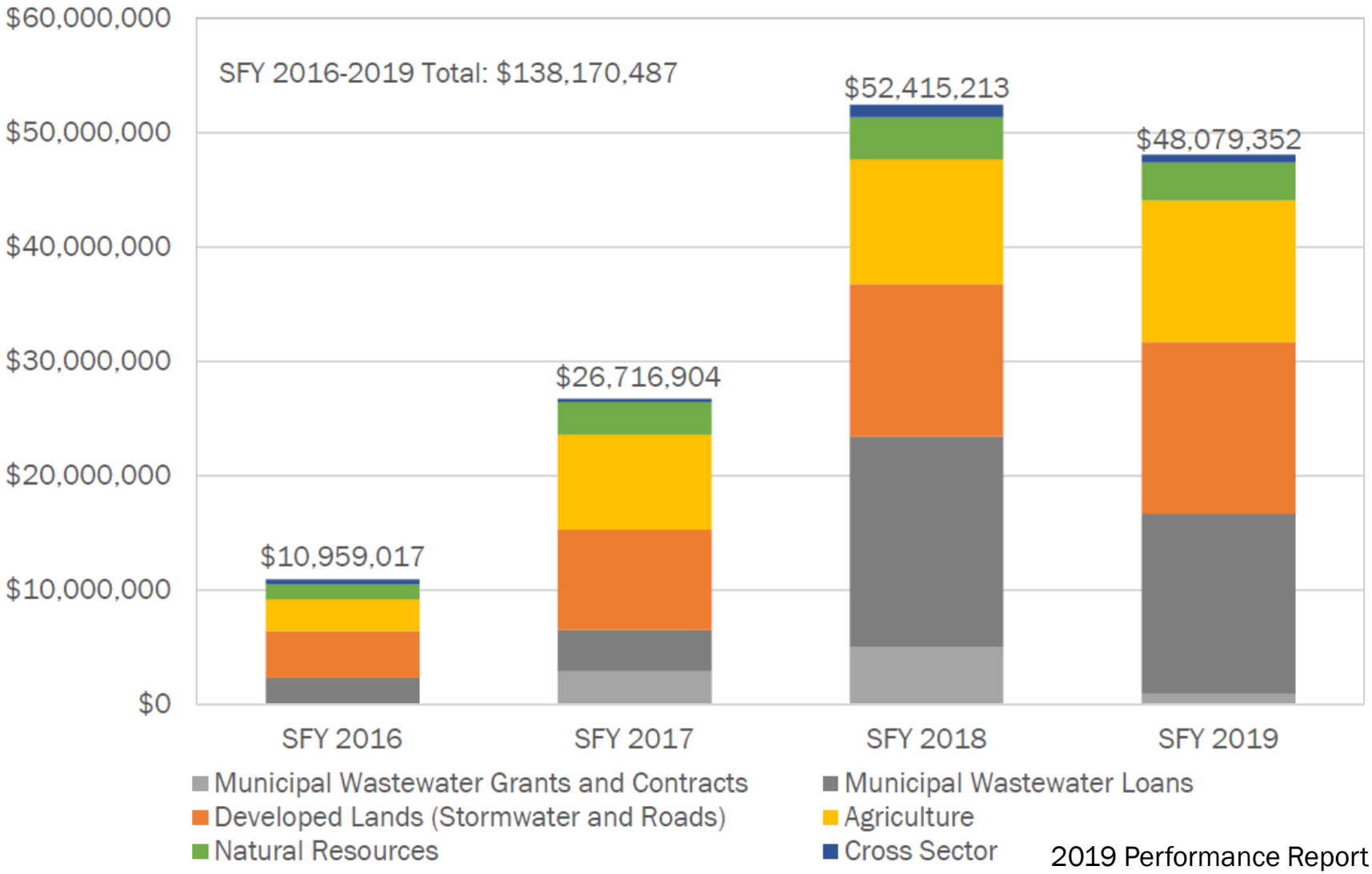
Vermont's Clean Water Investments

$138 million
Awarded by State of Vermont agencies to clean water projects, SFY 2016-2019



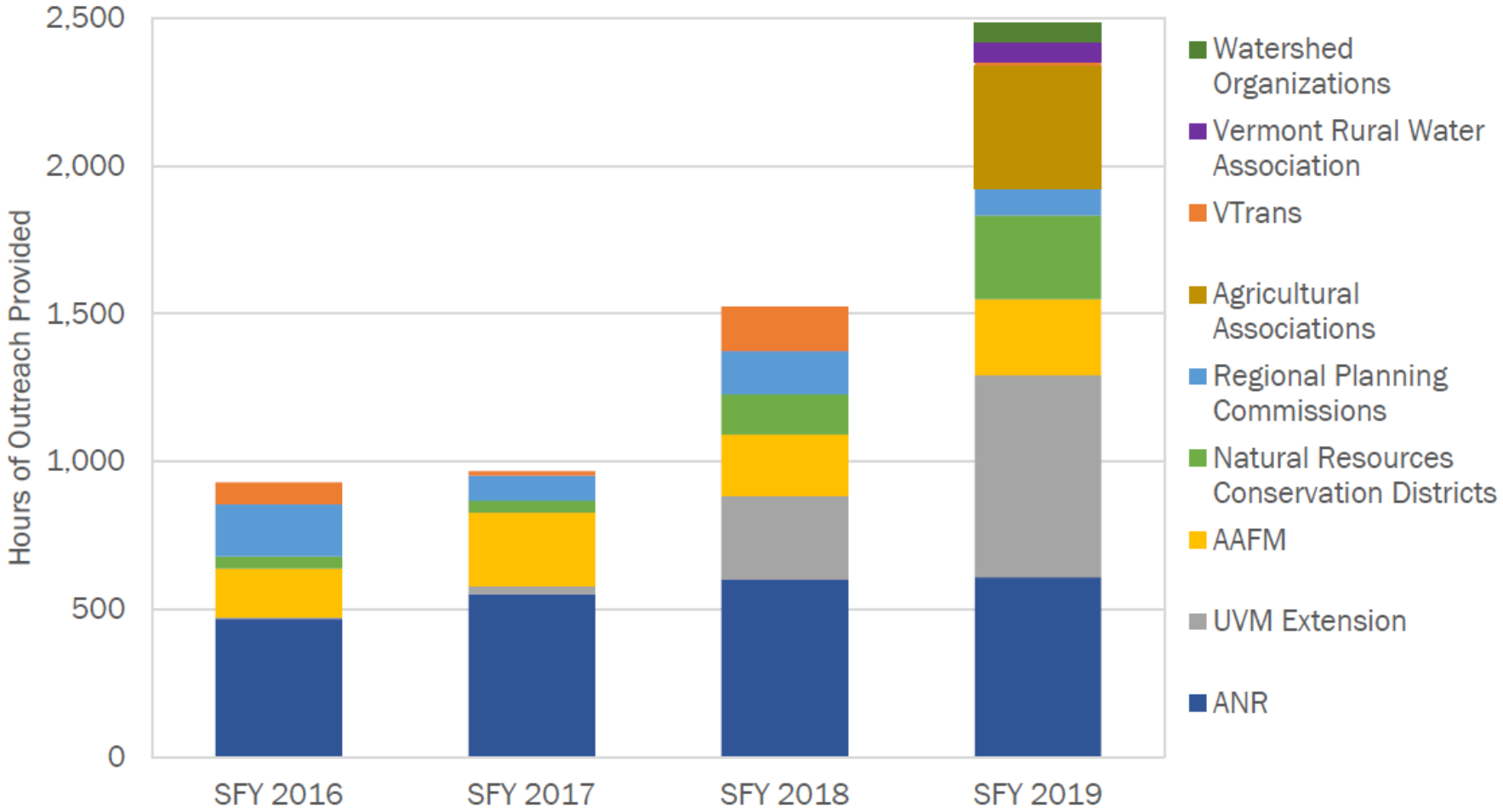
Vermont's Clean Water Investments

Figure 7. Total dollars awarded to clean water projects through State of Vermont agencies, SFY 2016-2019 by land use sector[5]



Vermont's Clean Water Education

Figure 10. Total hours of education provided to participants of State of Vermont clean water outreach events (i.e., workshops, trainings, and public/stakeholder meetings), SFY 2016-2019 by outreaching organization/organization category



Results of Vermont's Clean Water Investments

DEVELOPED LANDS AND ROADS PROJECT OUTPUTS	2016	2017	2018	2019	TOTAL
Acres of existing impervious surface treated by stormwater practices	0.2	87	28	107	222
Miles of municipal road drainage and erosion control improvements	1	12	68	88	169
Number of municipal road drainage and stream culverts replaced	–	106	137	254	497
Cubic yards of Class IV road gully erosion remediated	–	–	260	33	293
Cubic yards of catch basin outlet erosion remediated	–	–	1	784	785
Acres stabilized through use of hydroseeder/mulcher equipment per year	–	–	19	98	117

Figure 29. Before (left) and after (right) installation of stone-lined drainage ditches, removal of high road shoulders and replacement of drainage culverts along Dorset Hill Road by the Town of Dorset in partnership with Bennington County Regional Commission funded through the Municipal Roads Grants-in-Aid Program

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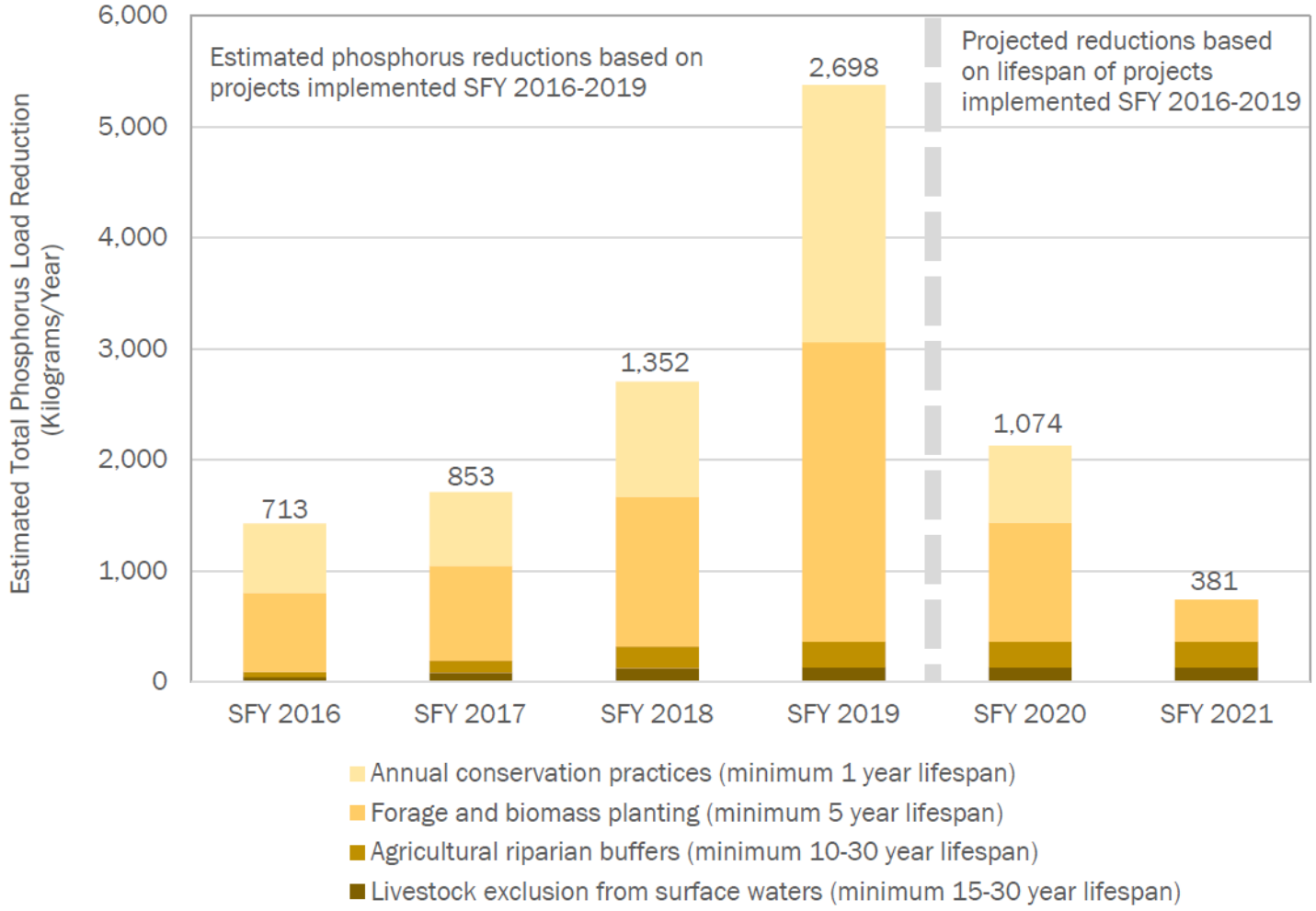
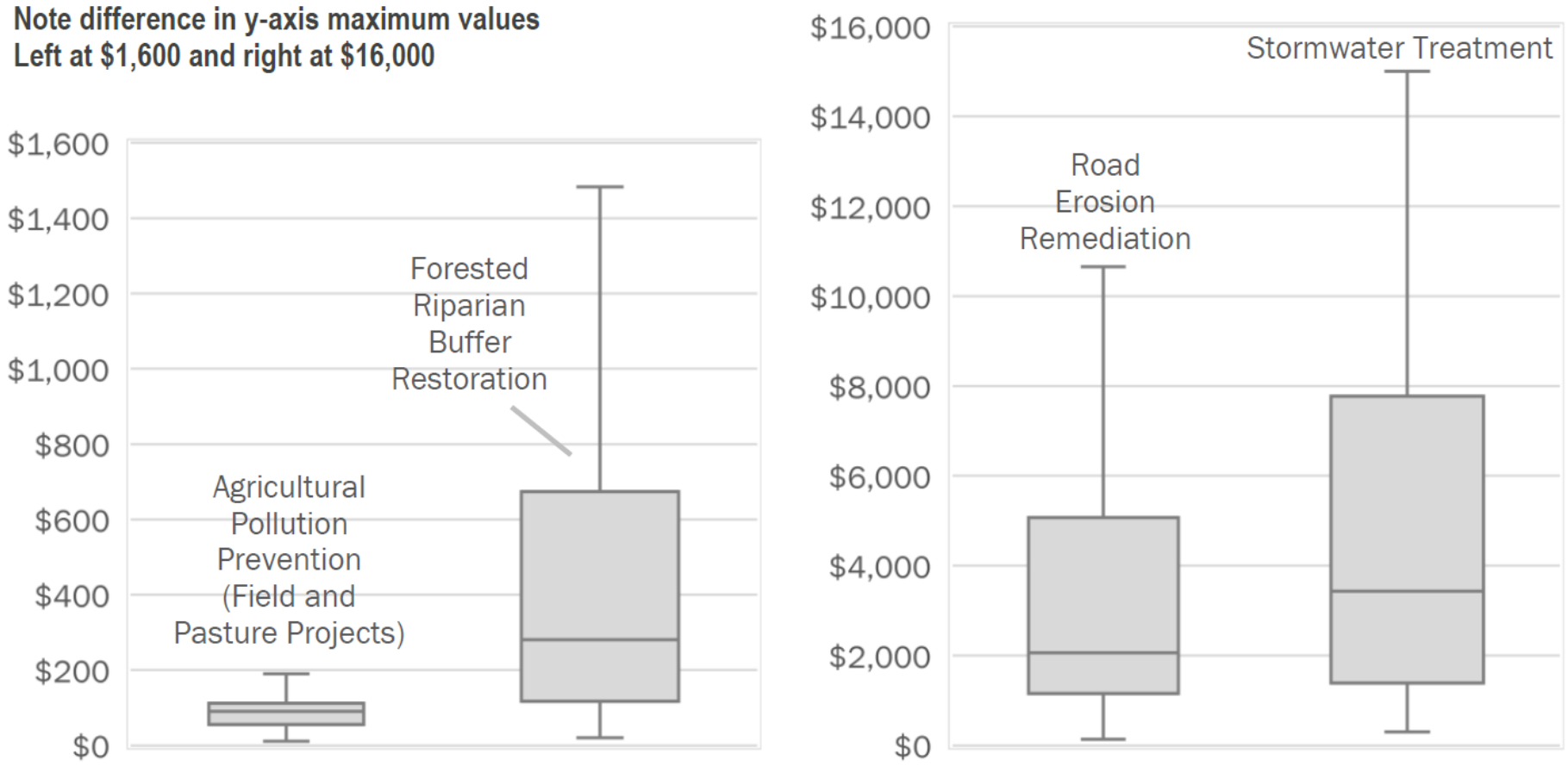
Results of Vermont's Clean Water Investments

Figure 22. Annual estimated total phosphorus load reduction (kilograms per year) achieved by state-funded agricultural pollution prevention projects implemented SFY 2016-2019 (projected reductions are based on lifespan of projects completed SFY 2016-2019)



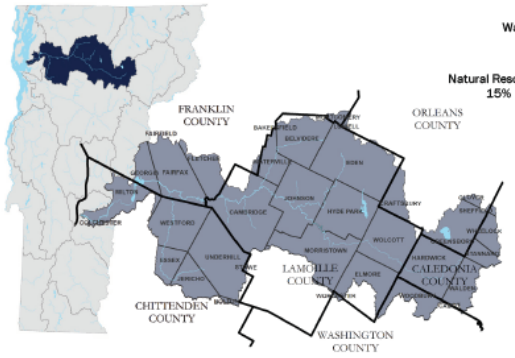
Cost Effectiveness of State Clean Water Investments

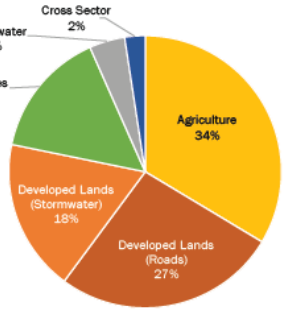
Figure 36. Estimated cost per kilogram of total phosphorus load reduced, based on clean water projects funded through State of Vermont agencies with estimated total phosphorus load reductions completed SFY 2016-2019 (project costs include local match/in-kind and federal match where reported)



Watershed Summaries (Appendix A)

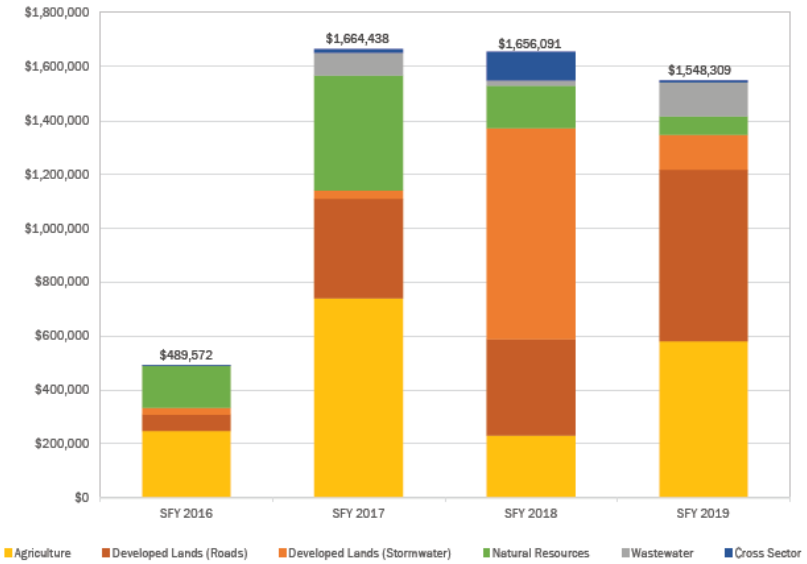
Lamoille River Watershed Investments





Dollars awarded by State of Vermont agencies to clean water projects in the Lamoille River watershed, SFY 2016-2019, by sector
Total: $5,358,410

Dollars awarded by State of Vermont agencies to clean water projects in the Lamoille River watershed, by sector and State Fiscal Year.



Lamoille River Watershed Results

Results of clean water projects funded by State of Vermont agencies completed, SFY 2016-2019, by sector, in the Lamoille River watershed. Note: Does not include results of projects funded, but not yet completed. The Lamoille River Tactical Basin Plan is due for an interim report card as part of the Lake Champlain Progress Report this reporting period. Refer to Part 2 "Lake Champlain Progress Report" and Appendix B "Interim Lake Champlain TMDL Progress Report for Lamoille River" of this report for more information.

AGRICULTURE

AGRICULTURE PROJECT OUTPUTS	2016	2017	2018	2019	TOTAL
Acres of agricultural land treated by conservation practices	189	87	182	840	1,298
Acres of agricultural land treated by forest and grass buffers	–	14	100	–	114
Acres of pasture with livestock excluded from surface waters	–	9	27	–	36
Number of barnyard and production area practices installed	12	29	2	2	45
Acres of water quality protections within newly conserved agricultural lands	–	–	42	–	42
Estimated acres of agricultural land treated through equipment	–	153	2	104	259
AGRICULTURE POLLUTANT REDUCTION	**2016**	**2017**	**2018**	**2019**	
Total phosphorus load reduction (kilograms per year)	29.6	34.3	86.9	243.0	

NATURAL RESOURCES

NATURAL RESOURCES PROJECT OUTPUTS	2016	2017	2018	2019	TOTAL
Acres of forested riparian buffer restored	1	1	0.9	8	11
Acres of riparian corridor conserved and restored through easements	21	35	35	–	91
Acres of floodplain restored	–	–	0.3	–	0.3
Acres of lakeshore restored	–	–	–	–	–
Stream miles reconnected for stream equilibrium/fish passage	–	–	–	–	–
Acres of wetland conserved and restored through easements	–	–	–	–	–
Acres of forestland conserved with water quality protections	–	15	15	–	30
Miles of forest road drainage and erosion control improvements	–	–	–	0.8	1
Number of stream crossings improved	–	–	–	2	2
Square feet of eroding gully remediated	–	–	–	27	27
NATURAL RESOURCES POLLUTANT REDUCTION	**2016**	**2017**	**2018**	**2019**	
Total phosphorus load reduction (kilograms per year)	0.5	2.7	6.2	6.8	

DEVELOPED LANDS

ROADS

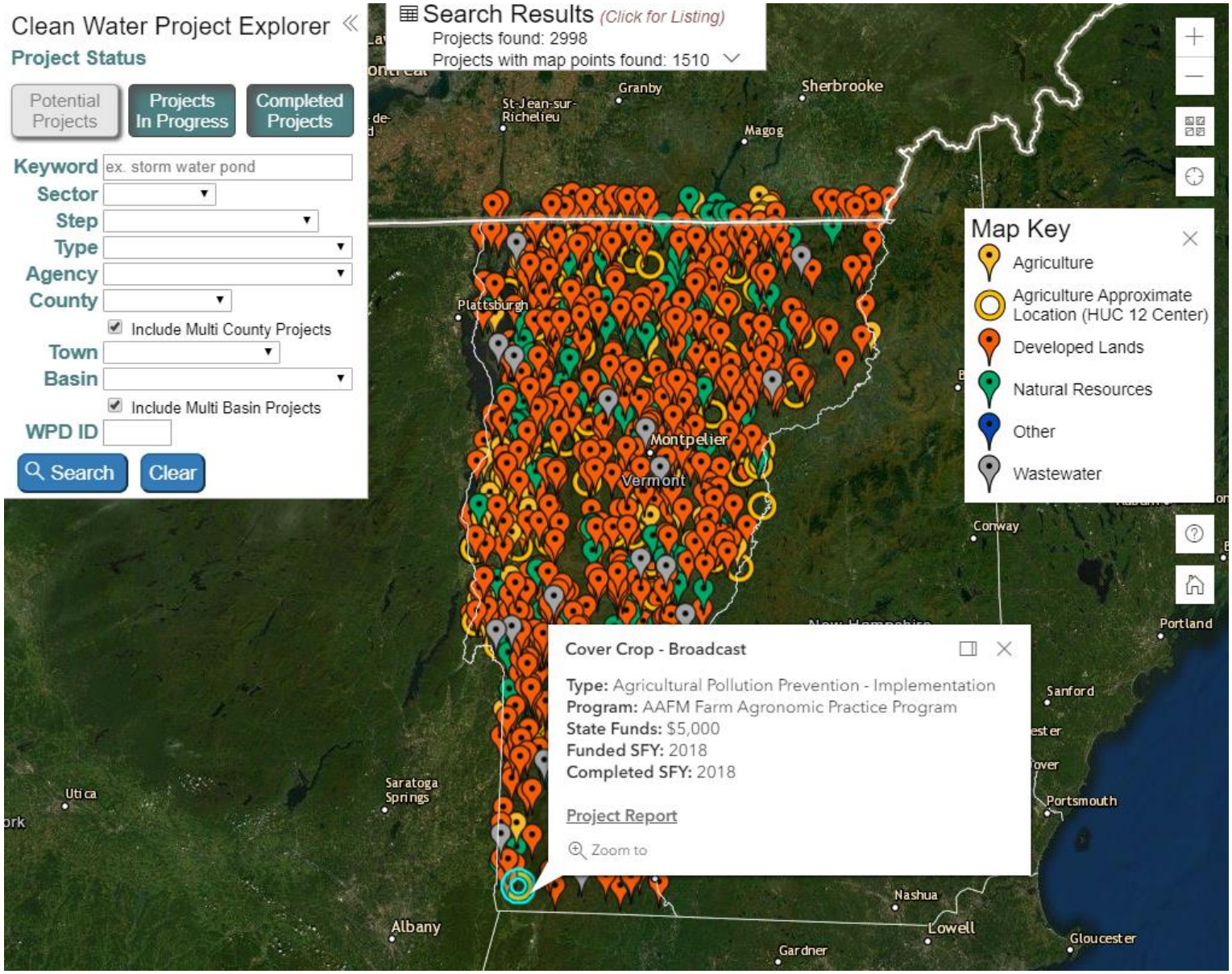
DEVELOPED LANDS AND ROADS PROJECT OUTPUTS	2016	2017	2018	2019	TOTAL
Acres of existing impervious surface treated by stormwater practices	–	4	10	3	17
Miles of municipal road drainage and erosion control improvements	–	0.7	7	4	12
Number of municipal road drainage and stream culverts replaced	–	1	32	11	44
Cubic yards of Class IV road gully erosion remediated	–	–	–	–	–
Cubic yards of catch basin outlet erosion remediated	–	–	–	–	–
Acres stabilized through use of hydroseeder/mulcher equipment per year	–	–	1	81	82
DEVELOPED LANDS AND ROADS POLLUTANT REDUCTION	**2016**	**2017**	**2018**	**2019**	
Total phosphorus load reduction (kilograms per year)	–	3.9	30.9	48.5	

WASTEWATER

WASTEWATER PROJECT OUTPUTS	2016	2017	2018	2019	TOTAL
Number of combined sewer overflow abatements 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	–	–	–	–	–

2019 Performance Report, Appendix A, Page 71-72

Online Clean Water Projects Explorer

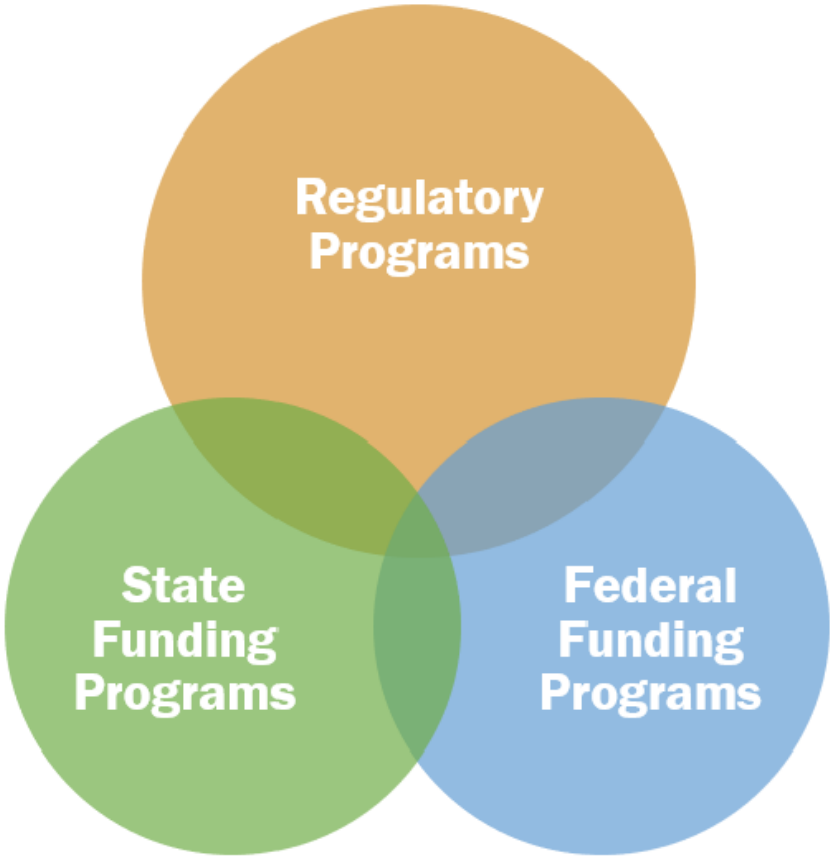


https://dec.vermont.gov/water-investment/cwi/projects

Report Scope
Part 2: Lake Champlain Progress Report

Target Audience: U.S. Environmental Protection Agency

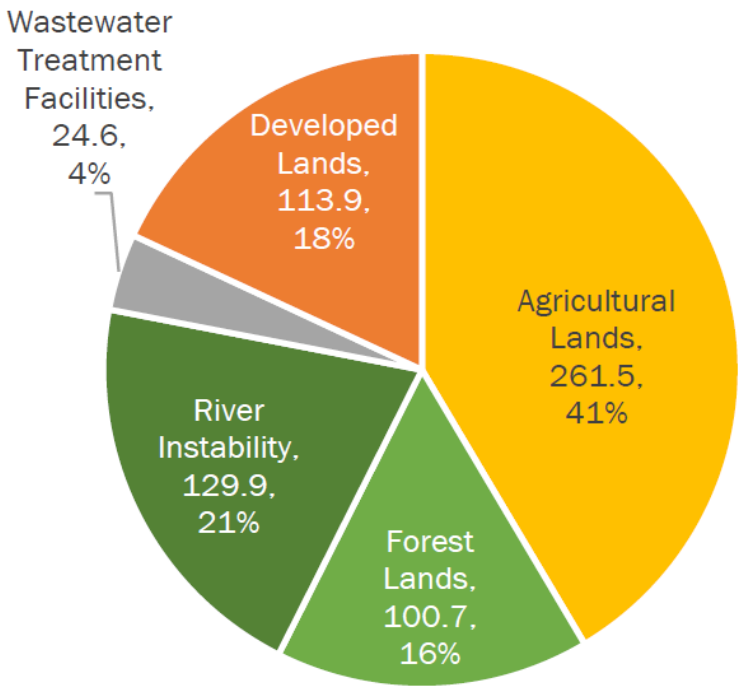
Part 2 Scope: Lake Champlain Progress Report



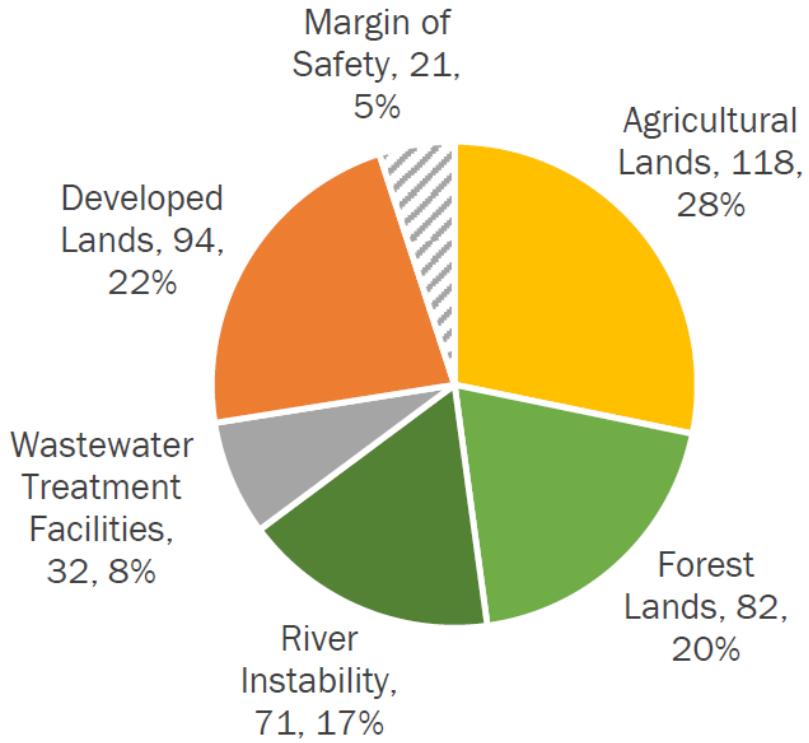
Part 2: Lake Champlain Progress Report

Figure 37. Lake Champlain TMDL baseline (left) and target (right) total phosphorus load in metric tons per year (requires a total reduction of 212.4 metric tons per year)[12]

Baseline total phosphorus load to Lake Champlain (average of 2001-2010): 631 metric tons per year



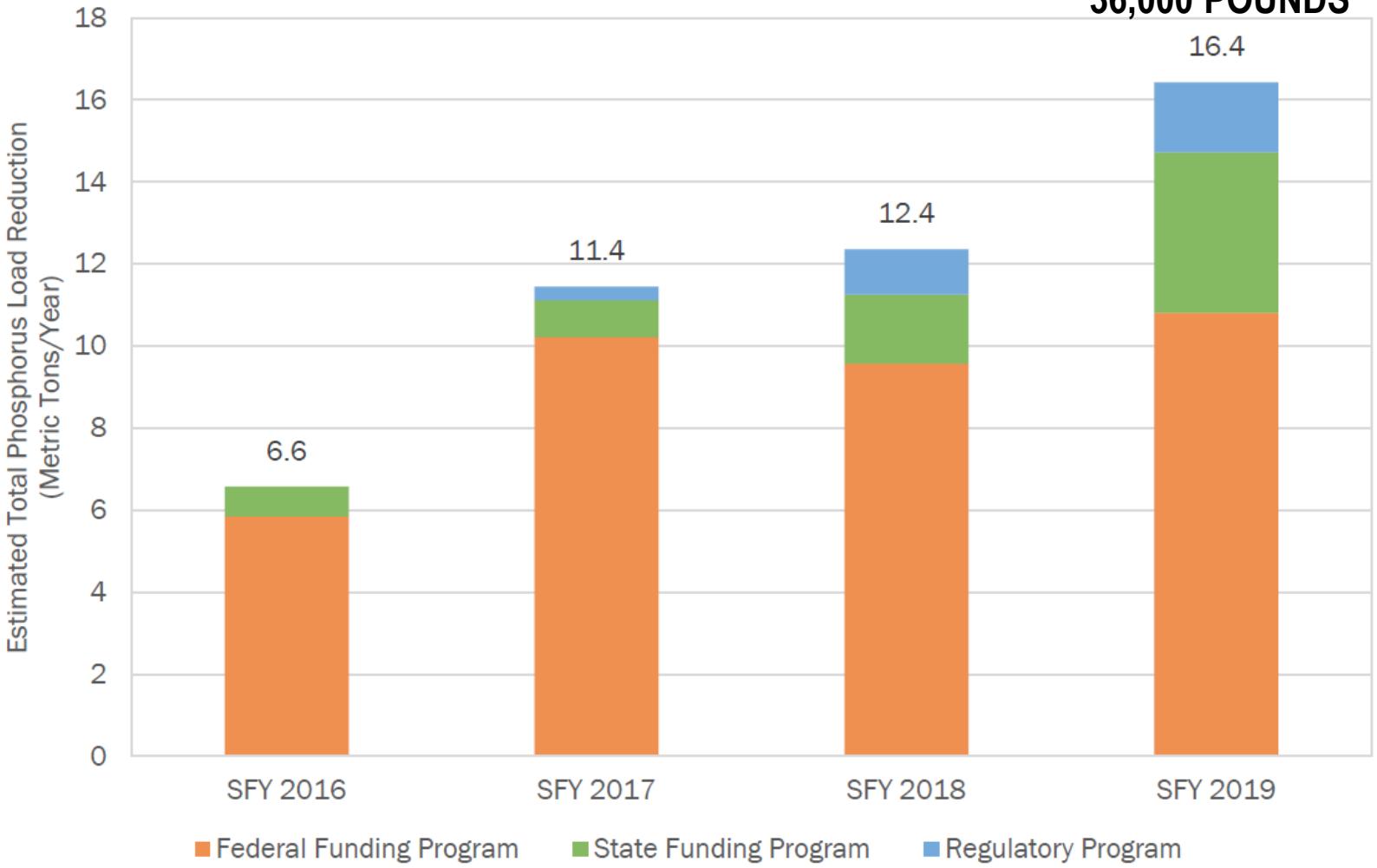
Target total phosphorus load to Lake Champlain: 418 metric tons per year



Part 2: Lake Champlain Progress Report

Figure 39. Annual estimated total phosphorus load reduction (metric tons per year) achieved by clean water projects that support implementation of the Lake Champlain TMDL completed SFY 2016-2019, by federal funding, state funding, and regulatory programs (top) and land use sector (bottom)[14]

36,000 POUNDS



Part 2: Lake Champlain Progress Report

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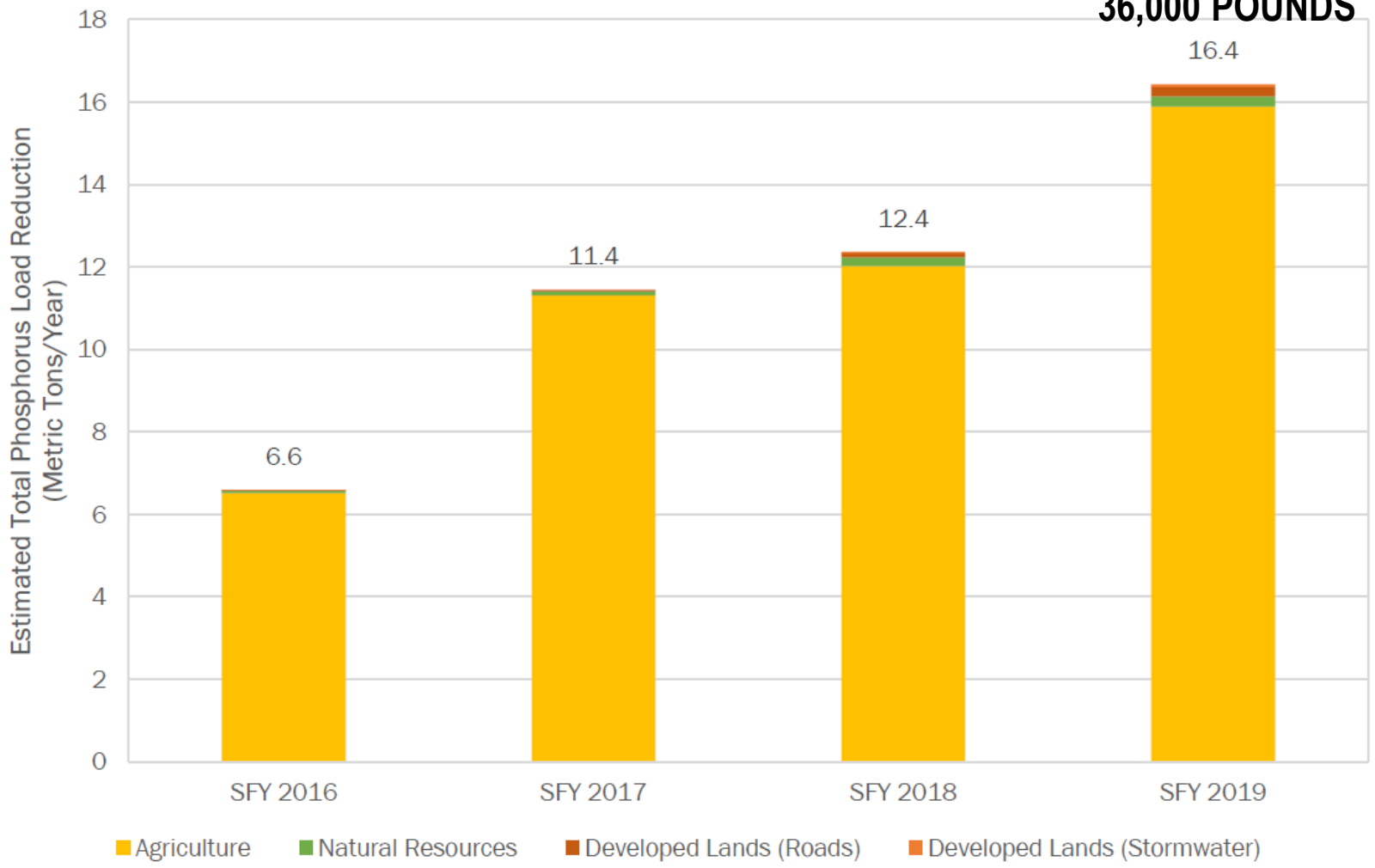
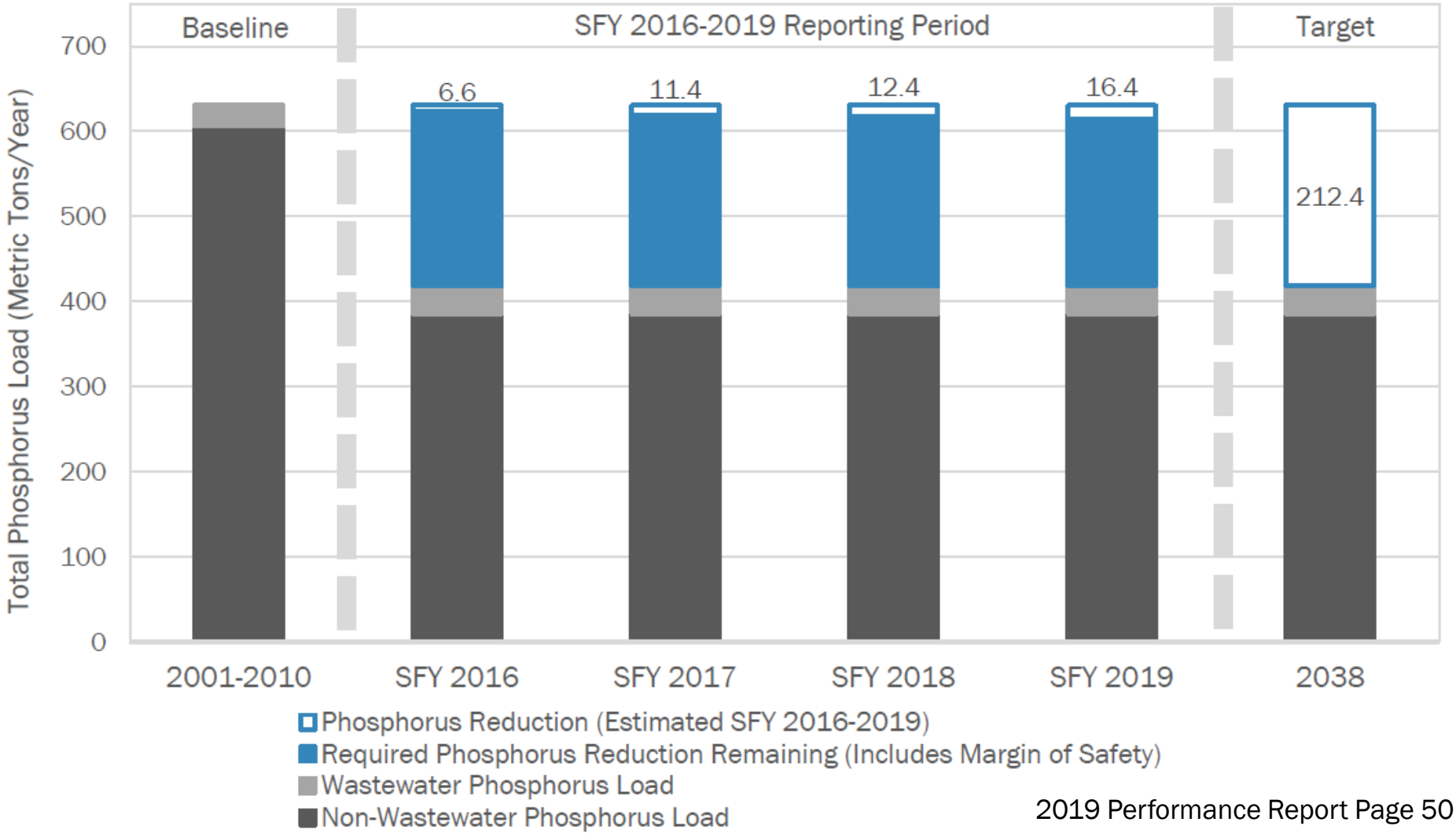
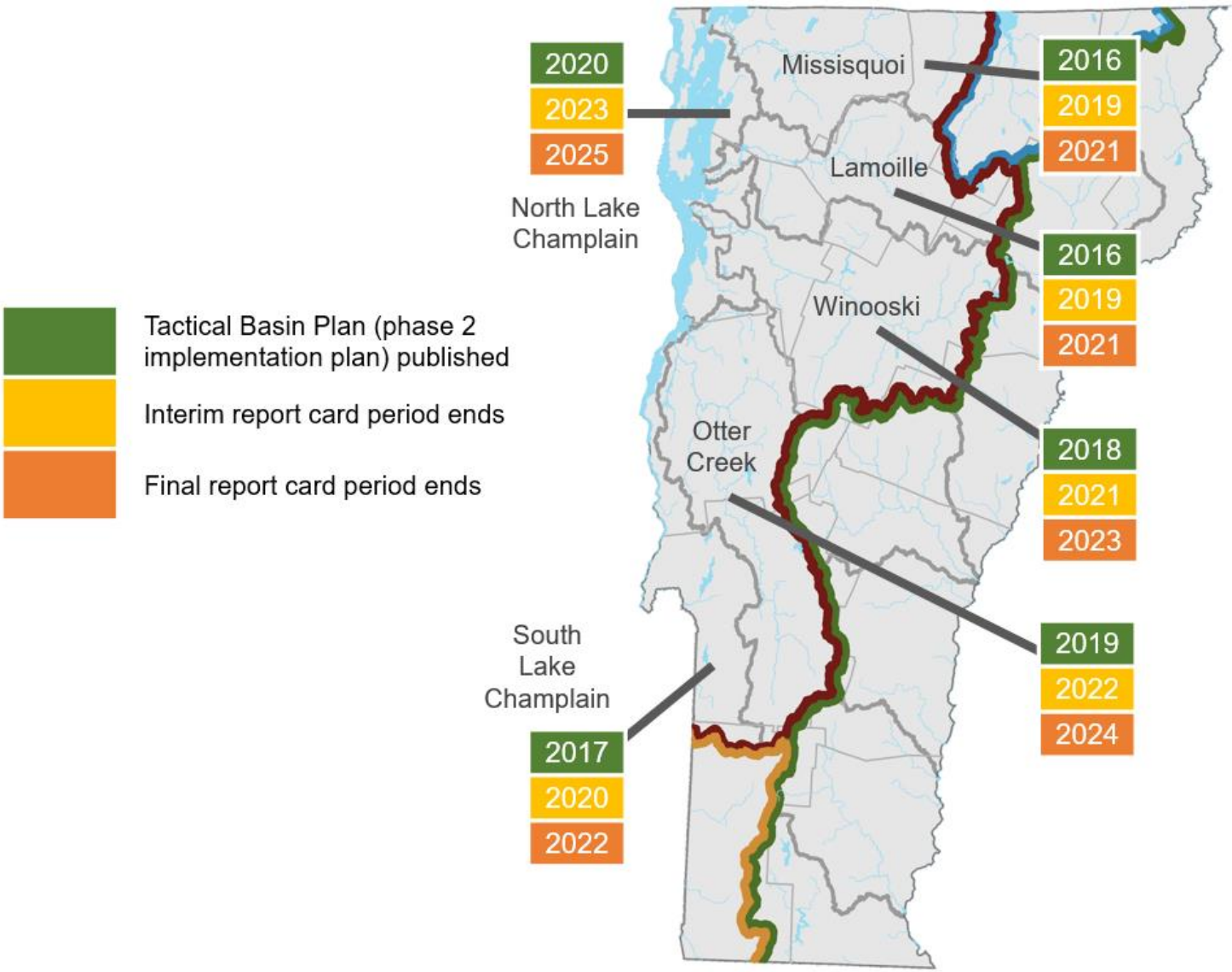


Part 2: Lake Champlain Progress Report

Figure 40. Lake Champlain TMDL total phosphorus load baseline (2001-2010), quantified estimated total phosphorus load reductions achieved through federal funding, state funding, and regulatory programs (SFY 2016-2019 reporting period), and target phosphorus load (2038) in metric tons per year[15]



Part 2: Lake Champlain Progress Report



EPA's Lake Champlain TMDL Interim Report Card for the Lamoille and Missisquoi Tactical Basin Plans

https://dec.vermont.gov/watershed/restoring/champlain

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

April 14, 2020

Peter Walke, Commissioner
Vermont Department of Environmental Conservation
1 National Life Drive, Main 2
Montpelier VT 05620-3522

Re: Lake Champlain TMDL Implementation Interim Report Card for the Lamoille and Missisquoi Tactical Basin Plans

Dear Commissioner Walke:

Thank you for your progress report on Lake Champlain TMDL implementation, the "Vermont Clean Water Initiative 2019 Performance Report," dated January 15, 2020. The well-documented and comprehensive report has given EPA a solid basis for evaluating Vermont's progress towards completion of the work described in the Accountability Framework section of the 2016 TMDL document.

When EPA issued the TMDL in 2016, we committed to periodically evaluating Vermont's progress with respect to completion of several sets of milestones. We have evaluated the state's progress on the Phase 1 milestones on several occasions in the past, and we will be providing a final Phase 1 report card in a separate communication. The purpose of this letter is to evaluate the state's progress on the Phase 2 milestones – a mid-cycle review of implementation progress for the Lamoille and Missisquoi Tactical Basin Plans.

The tactical basin plans (also referred to as Phase 2 plans) have a five-year implementation cycle, and the TMDL Accountability Framework indicates that at the mid-way point of the five-year cycle, EPA will provide an interim assessment of state progress toward implementation goals for each plan. As a result of our review, EPA concludes that the state is on track towards accomplishing most of the five-year actions identified in the implementation tables for both Phase 2 plans. The basis for this conclusion is explained below.

To assess state progress in implementing the Lamoille River and Missisquoi River Tactical Basin Plans, we focused our review on Appendices B and C of the state's performance report. At the end of the five-year cycle, EPA is committed to issuing a final report card for each basin,

For more information:

Vermont Clean Water Initiative reports and online tools:
https://dec.vermont.gov/water-investment/cwi/projects

Lake Champlain accountability and report cards:
https://dec.vermont.gov/watershed/restoring/champlain

Contact: Emily Bird, Clean Water Initiative Program Manager
emily.bird@vermont.gov, 802-490-4083