

# Clean Water Investment Report

To: House Committee on Agriculture & Forestry

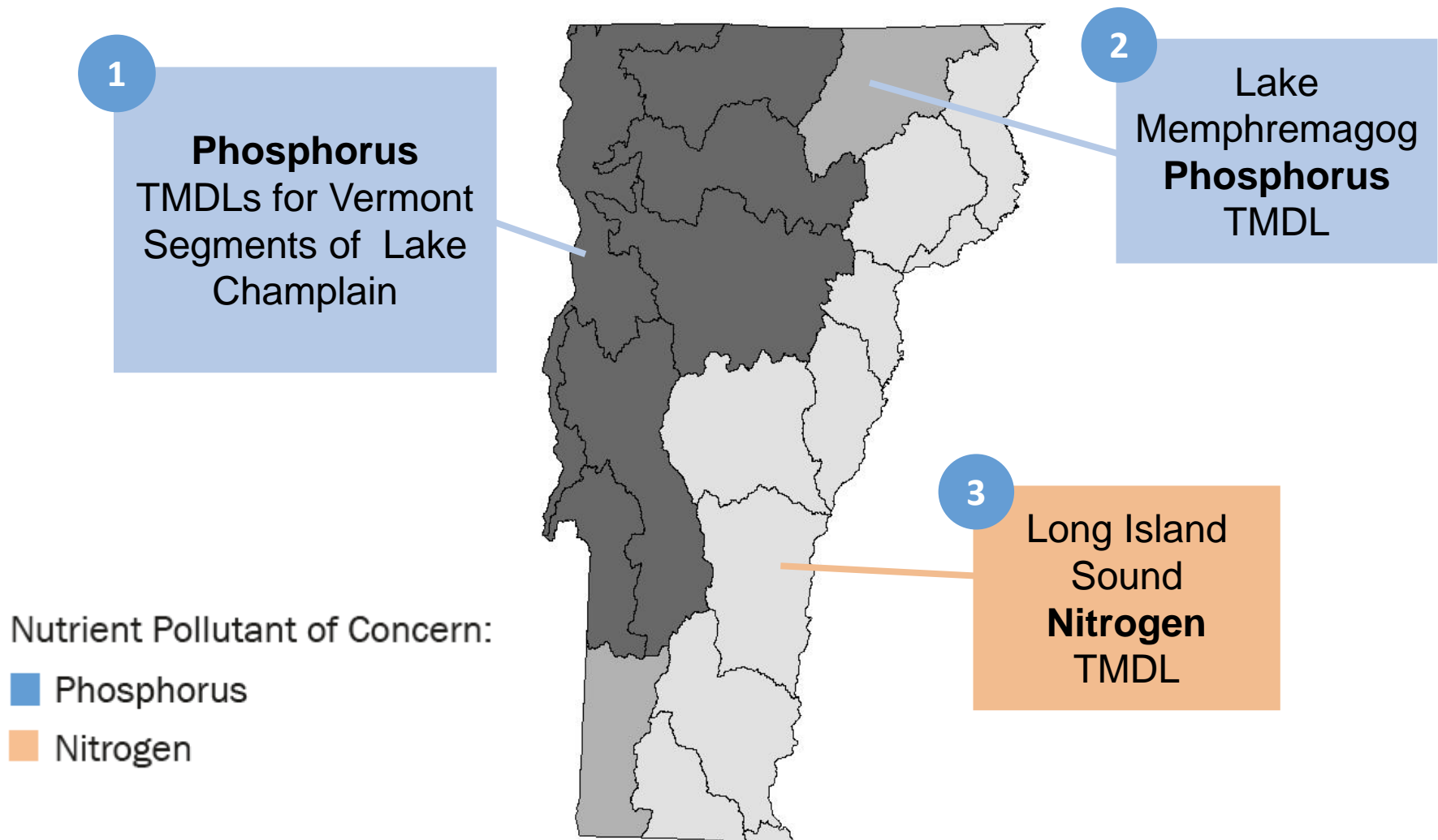
From: Kari Dolan  
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Vermont DEC

On: March 14, 2018



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

# Nutrient Pollutant Reductions Required by Pollution Control Plans (i.e., TMDLs)



# VERMONT CLEAN WATER INITIATIVE 2017 INVESTMENT REPORT



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



# Vermont Clean Water Initiative Annual Investment Report



**Outreach and technical assistance measures** to evaluate the level of clean water outreach and technical assistance provided by state agencies to support implementation of clean water funding and projects;



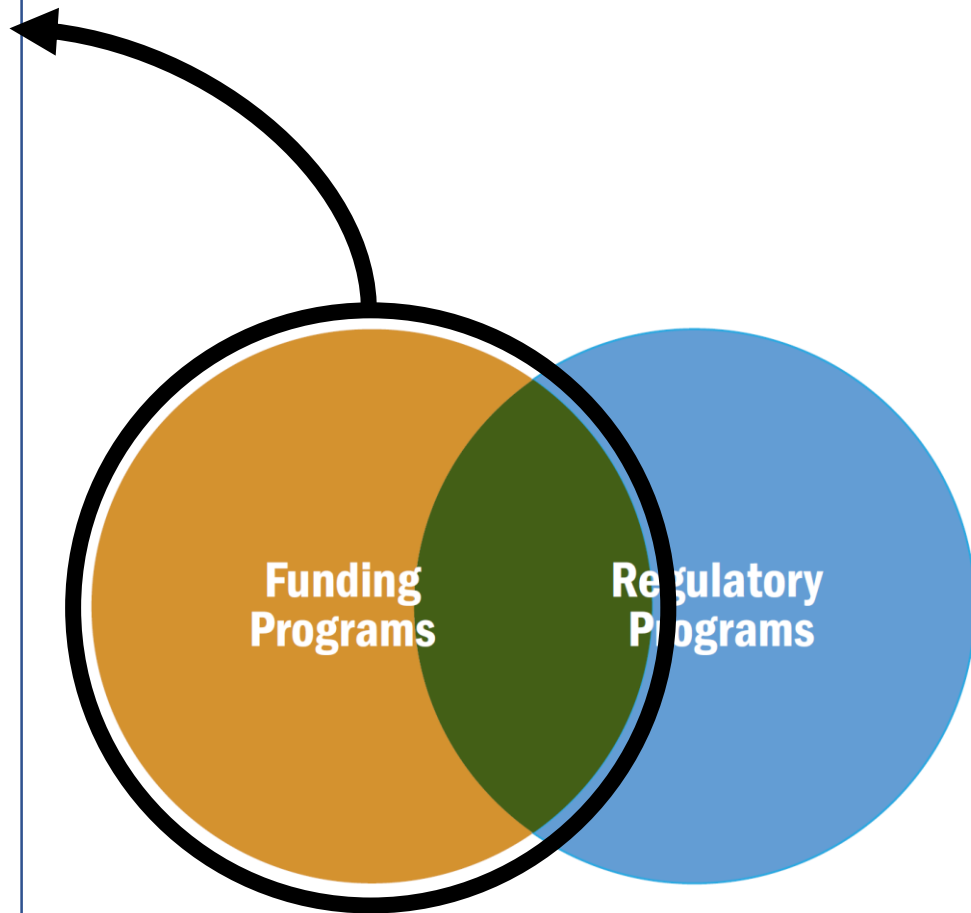
**Investment measures** on dollars invested in clean water restoration projects, addressing planning, design, and implementation of water quality improvement practices;



Measures of **project outputs**, quantifying the results of clean water restoration projects completed by project type; and



Measures of **environmental outcomes**, quantifying nutrient reductions achieved through State-funded clean water restoration projects.





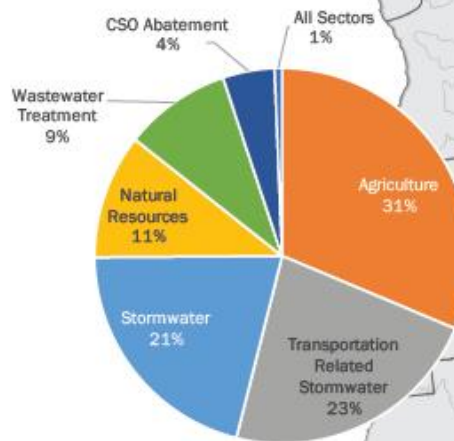
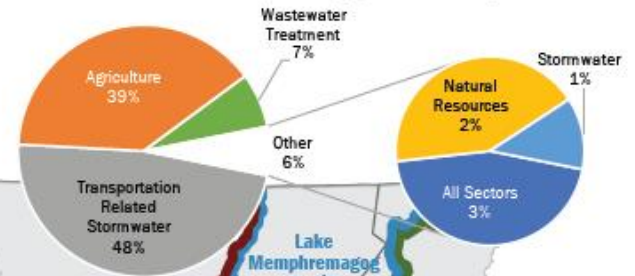
# Investment Measures

# 114%

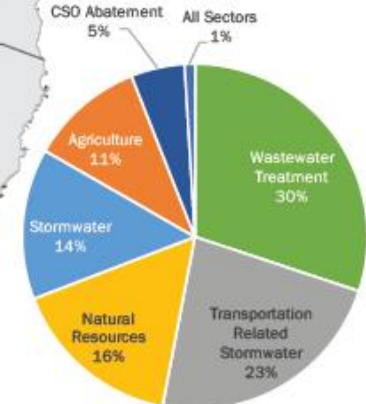
Increase in funds invested in clean water projects from 2016 to 2017

Total state funds invested in clean water projects in SFY 2017: \$22,976,188

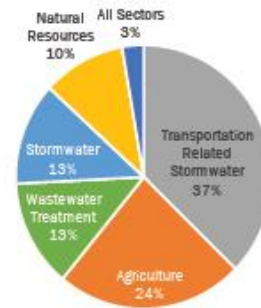
Funds awarded for clean water projects in the Lake Memphremagog Basin: \$607,164



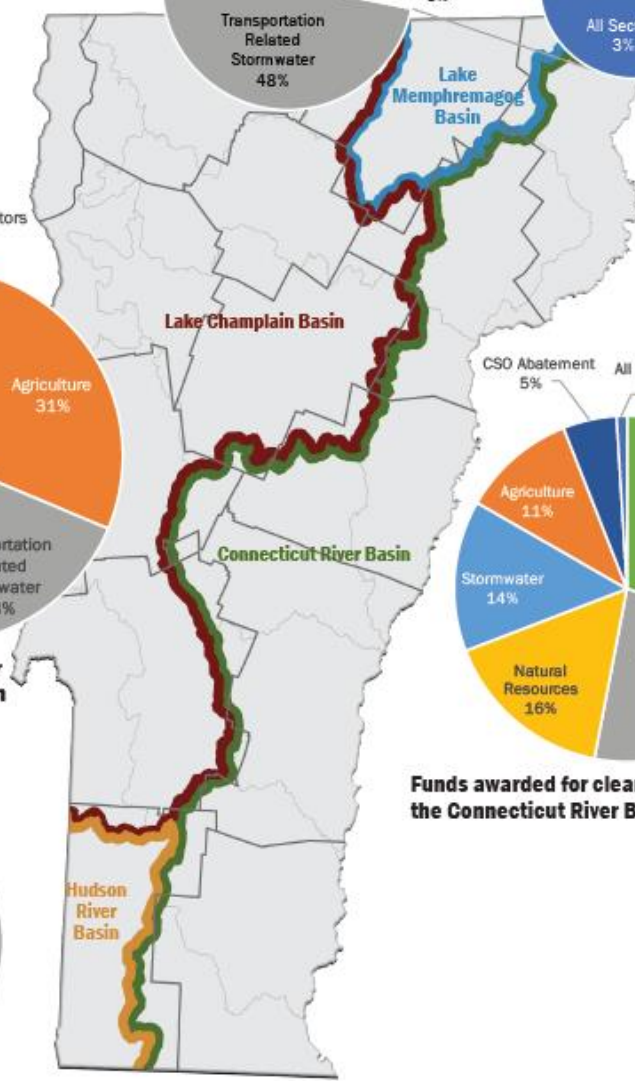
Funds awarded for clean water projects in the Lake Champlain Basin: \$14,303,667

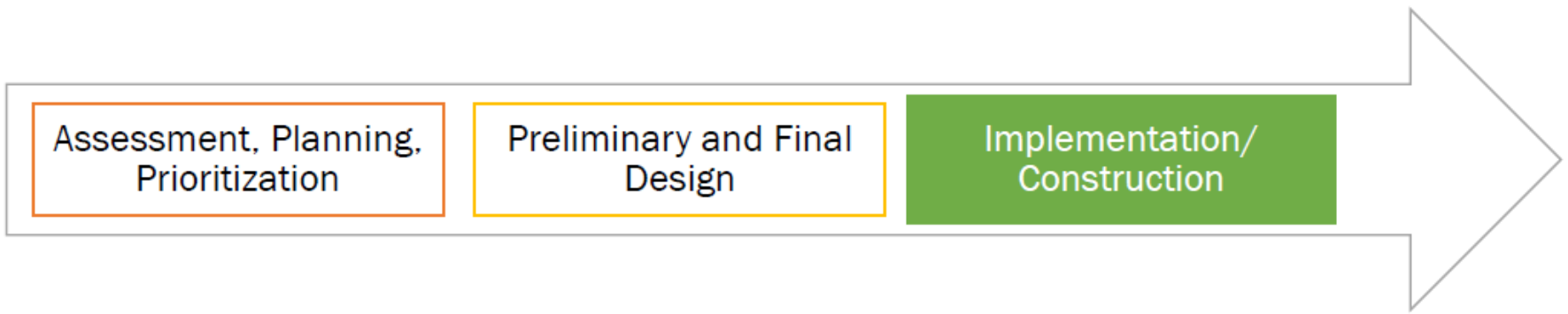


Funds awarded for clean water projects in the Connecticut River Basin: \$7,734,114



Funds awarded for clean water projects in the Hudson River Basin: \$331,243





## Why are these measures important?

- ✓ Implementation of TMDL requirements
- ✓ Implementation of Vermont Clean Water Act (Act 64 of 2015) requirements
- ✓ Compliance with Required Agricultural Practices
- ✓ Compliance with municipal stormwater permits
- ✓ Compliance with Municipal Roads General Permit
- ✓ Compliance with municipal wastewater discharge permits
- ✓ Compliance with the 2016 Combined Sewer Overflow (CSO) Rule
- ✓ Improved flood resiliency and flood hazard mitigation for public health and safety
- ✓ Support outdoor recreation, tourism, and property values
- ✓ Supports agricultural working lands
- ✓ Improved habitat function



# Results of Agricultural Projects

## Results of agricultural pollution prevention projects implemented in SFY 2017, statewide.

PROJECT RESULTS			BENEFITS					
Performance Measures	2016	2017	TMDL <sup>1</sup> Implementation	Act 64 (2015) Implementation	RAP <sup>1</sup> Compliance	Flood Resiliency	Working Landscape	Habitat Function
Acres of cropland and pasture treated by annual conservation practices	3,865	2,486*	✓	✓	✓		✓	
Acres of cropland and pasture treated by crop rotation and associated practices	572	0*	✓	✓	✓		✓	
Acres of cropland and pasture treated by forested buffers	366	178*	✓	✓	✓	✓	✓	✓
Number of barnyard/production area practices installed	39	87	✓	✓	✓		✓	
Acres of water quality protections within conserved agricultural lands	New in 2017	89	✓	✓	✓	✓	✓	✓

\* USDA NRCS prioritized federal funding for field-based practices in SFY 2017, therefore, state-funded field practices decreased relative to SFY 2016, while state-funded barnyard/production area practices increased by more than 50 percent relative to SFY 2016. Federally funded projects are outside the scope of this report.





# Results of Agricultural Projects

## Results of agricultural pollution prevention projects implemented in SFY 2017, statewide.

Total Phosphorus Reduced (Kilograms per Year)	POLLUTANT REDUCTION			Extent of Load Reduction Quantified
	2016	2017	Cumulative	
Annual agricultural conservation practices (active for at least 1 year)	443	283	283	53 percent of acres quantified in 2017 (projects in the Lake Champlain basin)
Agricultural crop rotation and associated practices (active for at least 5 years)	271	0	271	100 percent of acres quantified (cumulative) (projects in the Lake Champlain basin)
Forested riparian buffer restoration on agricultural lands (active for at least 15 years)	199	34	234	69 percent of acres quantified (cumulative) (projects in the Lake Champlain basin)

Figure 20. Before (left) and after (right) restoration of a forested riparian buffer on agricultural lands one year after implementation (will mature into fully forested buffer over time)



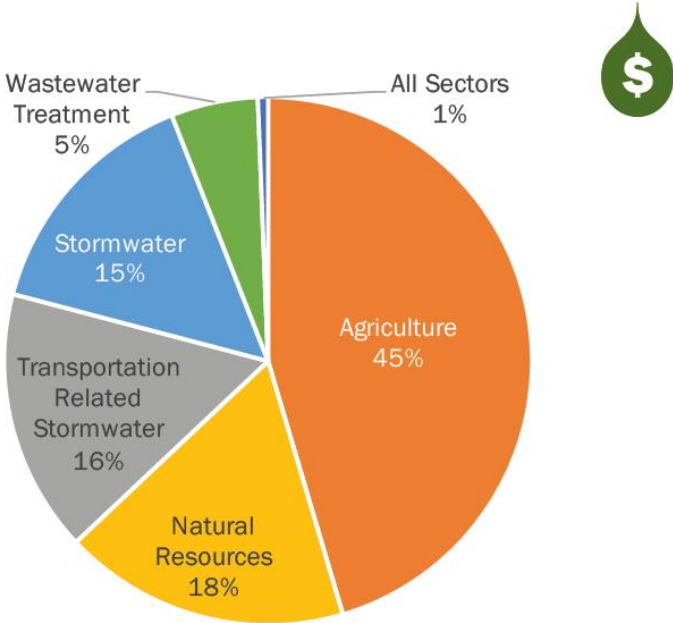
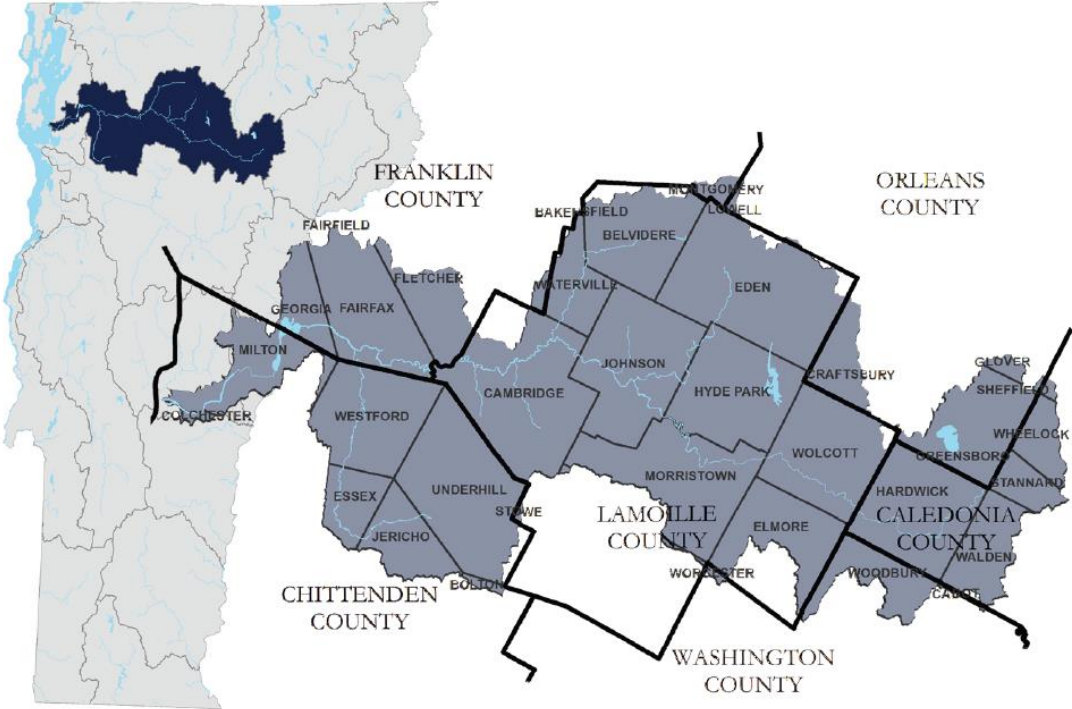
Figure 21. Before (left) and after (right) installation of livestock exclusion fencing and improved laneway and water crossing, completed by Poultney Mettewee Conservation District with ANR funding





# Watershed Summaries – New this Year

## Lamoille River Watershed Summary



**State funding awarded in the Lamoille River watershed in SFY 2017, by sector**  
**Total: \$1,589,446**

STATE FUNDS AWARDED IN SFY 2017

# Watershed Summaries – New this Year

## RESULTS OF PROJECTS COMPLETED IN SFY 2017



Results of projects completed in SFY 2017, by sector, in the Lamoille River watershed.

### AGRICULTURE PROJECT RESULTS

Acres of cropland and pasture treated by annual conservation practices	87
Acres of cropland and pasture treated by crop rotation and associated practices	NA
Acres of cropland and pasture treated by forested buffers	14
Number of barnyard/production area practices installed	29
Acres of water quality protections within conserved agricultural lands	NA

### TOTAL PHOSPHORUS REDUCED (kilograms per year)

Annual agricultural conservation practices	21
Agricultural crop rotation and associated practices	NA
Forested riparian buffer restoration on agricultural lands	9

### NATURAL RESOURCES PROJECT RESULTS

Acres of forested riparian buffer restored through buffer planting	NA
Acres of river corridor conserved through easements	35
Acres of floodplain restored	NA
Stream miles enhanced and reconnected due to dam removal (also supports aquatic organism passage)	NA
Acres protected for public access, recreation, forest conservation, and water quality	179
Acres of water quality protections within conserved land (forested buffer area and wetland protection zones)	15

### TOTAL PHOSPHORUS REDUCED (kilograms per year)

Forested riparian buffer restoration on non-agricultural lands	NA
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### TRANSPORTATION RELATED STORMWATER PROJECT RESULTS

Miles of municipal road drainage improvements	0.4
Number of municipal road drainage structures installed	NA
Number of municipal road drainage and stream culverts replaced	2
Stream miles enhanced and reconnected due to replaced stream culverts (also supports aquatic organism passage)	NA

### TOTAL PHOSPHORUS REDUCED (kilograms per year)

Road erosion control practices	2
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### PROJECT RESULTS: STORMWATER

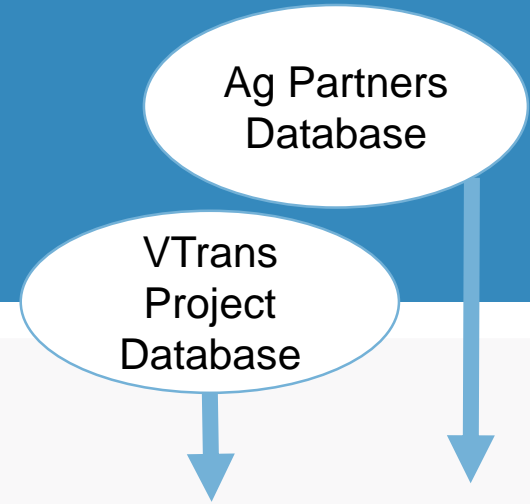
Acres of impervious surface treated	4
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### TOTAL PHOSPHORUS REDUCED (kilograms per year)

Stormwater treatment practices	4
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# Vermont Clean Water Tracking Systems

- Tactical Basin Plan Implementation Tables
- Work completed through funding and regulatory programs
- BMP Accounting and Tracking Tool (BATT)



**Projects**

Name  Status  Grant Number

Project Type  County  Project ID

Basin Plan  Town

Grade Type  Grade

		ID	Project Name	Project Type	Status	Grant Number(s)
<a href="#">Edit</a>	<a href="#">View</a>	89	Better Back Roads projects	Road Project	Implementation Funded	MOA-2015-ERP-01
<a href="#">Edit</a>	<a href="#">View</a>	155	Upper Winooski River Illicit Discharge Detection and Elimination - Follow-up Investigation	Stormwater - IDDE	Scoping Funded	Contract-31083
<a href="#">Edit</a>	<a href="#">View</a>	154	Crooked Creek Gully Restoration	Agricultural Pollution Prevention	Implementation Funded	Contract-31018
<a href="#">Edit</a>	<a href="#">View</a>	153	Montpelier Illicit Discharge Detection and Elimination	Stormwater - IDDE	Scoping Funded	Contract-30772
<a href="#">Edit</a>	<a href="#">View</a>	152	White River Illicit Discharge Detection and Elimination	Stormwater - IDDE	Scoping Funded	Contract-30768
<a href="#">Edit</a>	<a href="#">View</a>	66	Upper and Middle Connecticut River and Pasumpsic River Illicit Discharge Detection and Elimination	Stormwater - IDDE	Scoping Funded	Contract-29218
<a href="#">Edit</a>	<a href="#">View</a>	65	Memphagog Illicit Discharge Detection and Elimination Completion	Stormwater - IDDE	Scoping Completed	Contract-28937
<a href="#">Edit</a>	<a href="#">View</a>	46	Crooked Creek Gully Restoration Designs	Agricultural Pollution Prevention	Design Completed	Contract-28911
<a href="#">Edit</a>	<a href="#">View</a>	69	Project Prioritization and Design for Implementation of the Cold River Corridor Plan	Floodplain/Stream Restoration	Design Completed	Contract-28843
<a href="#">Edit</a>	<a href="#">View</a>	35	Bennington and Pawlet Illicit Discharge Detection and Elimination Study	Stormwater - IDDE	Completed	Contract-28665
<a href="#">Edit</a>	<a href="#">View</a>	34	Bennington Infrastructure Stormwater Mapping Project	Stormwater - IDDE	Scoping Completed	Contract-27744
<a href="#">Edit</a>	<a href="#">View</a>	91	Follow-up on Illicit Discharges in the Otter Creek, Poultney River, and Lamoille River	Stormwater - IDDE	Scoping Funded	Contract-27743
<a href="#">Edit</a>	<a href="#">View</a>	2054	McKenzie Brook Nutrient Management Planning Project- UVM Extension (2016)	Technical Assistance	Completed	29109
<a href="#">Edit</a>	<a href="#">View</a>	2130	Green River Floodplain Attenuation Enhancement	Floodplain/Stream Restoration	Implementation Funded	2017-ERP-2-10
<a href="#">Edit</a>	<a href="#">View</a>	2129	Blackberry Ridge Streambank Erosion Grant	Road Project	Implementation Funded	2017-ERP-2-07
<a href="#">Edit</a>	<a href="#">View</a>	2128	Gully Stabilization, Mill Brook	Floodplain/Stream Restoration	Implementation Funded	2017-ERP-2-02
<a href="#">Edit</a>	<a href="#">View</a>	2145	Town Highway Garage Stormwater - Franklin	Stormwater	Scoping Funded	2017-ERP-1-22
<a href="#">Edit</a>	<a href="#">View</a>	2127	Dishmill Brook Stormwater Master Plan Phase 2	Stormwater Master Planning	Scoping Funded	2017-ERP-1-21



# Tracking & Accounting TMDL Implementation: BMP Accounting & Tracking Tool (BATT)

Project Reporting  
Project location  
Acres treated  
Land use of area treated  
Project type/specifications





Estimates annual  
average pollutant  
reduced by project


# Clean Water Initiative Projects Dashboard

## Phase 1 (Complete)

Stormwater - Implementation

### Northfield Village Green Bioretention Installation





**Project Status:**  
Completed

**Results:**

- 4 kg/year phosphorus reduction
- 5 acres of impervious area treated

**Town:** Northfield  
**County:** Washington  
**Watershed:** Winooski  
**Funding Amount:** \$110,695  
**Funding Source:** DEC Ecosystem Restoration Grant (Capital Fund, SFY 2016)  
**Description:** This project is located behind the Village Green in Northfield. The result is the construction of a large bioretention basin which captures and treats surface stormwater runoff from 14 acres of the downtown, including 5 acres of impervious surface.  
**Partners:** Central Vermont Regional Planning Commission

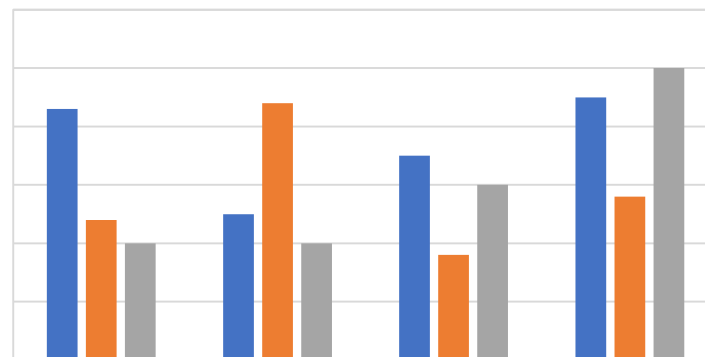
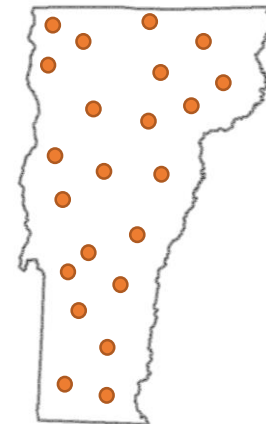
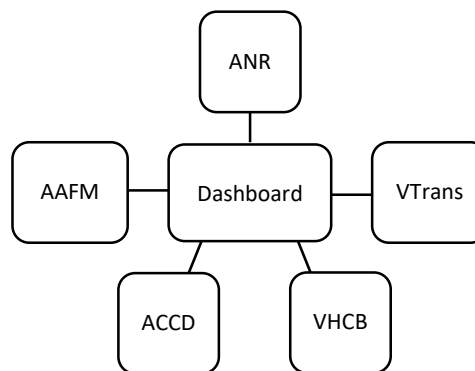
The back third of the parking lot covered by pavement before construction of the bio-retention area, behind the American Legion Hall.

After construction of the bioretention area, with grass established, guardrail installed, and willow trees planted to capture and treat stormwater from in and around Northfield Commons.

For more information visit: <http://dec.vermont.gov/watershed/cwi/projects>

## Phases 2-3 (2018)

Interagency data and data visualization



Available here: <http://dec.vermont.gov/watershed/cwi/projects>

# For more information:

Website [cleanwater.vermont.gov](http://cleanwater.vermont.gov)

Reports <http://dec.vermont.gov/watershed/cwi/cwf#reports>

Projects <http://dec.vermont.gov/watershed/cwi/projects>

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