

# Vermont's Clean Water Projects Tracking

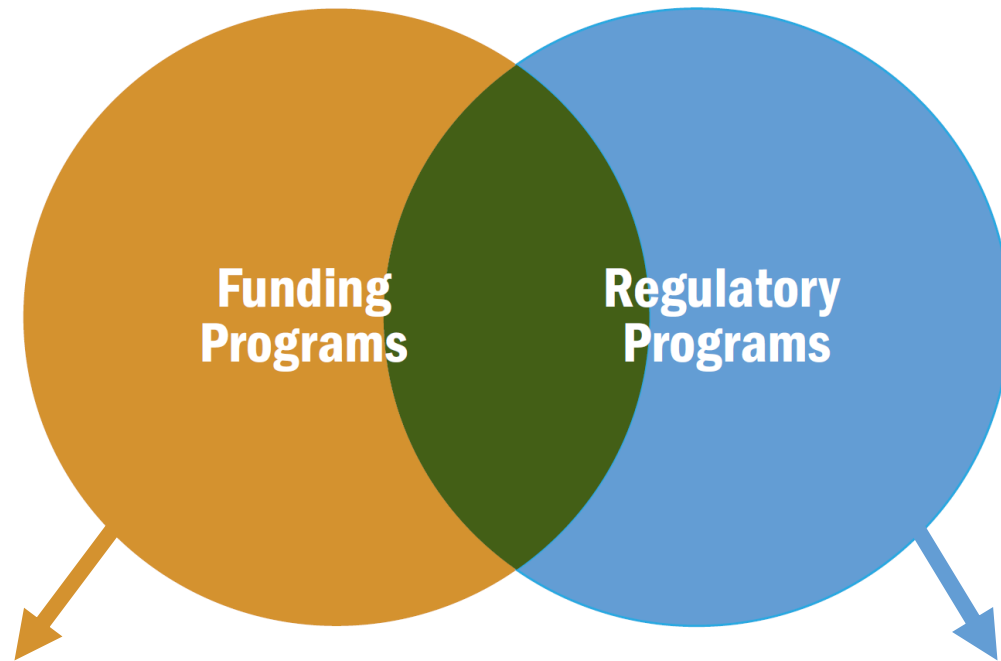
Kari Dolan and Emily Bird  
DEC Clean Water Initiative  
Program

January 19, 2018



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

# Tracking Clean Water Activities



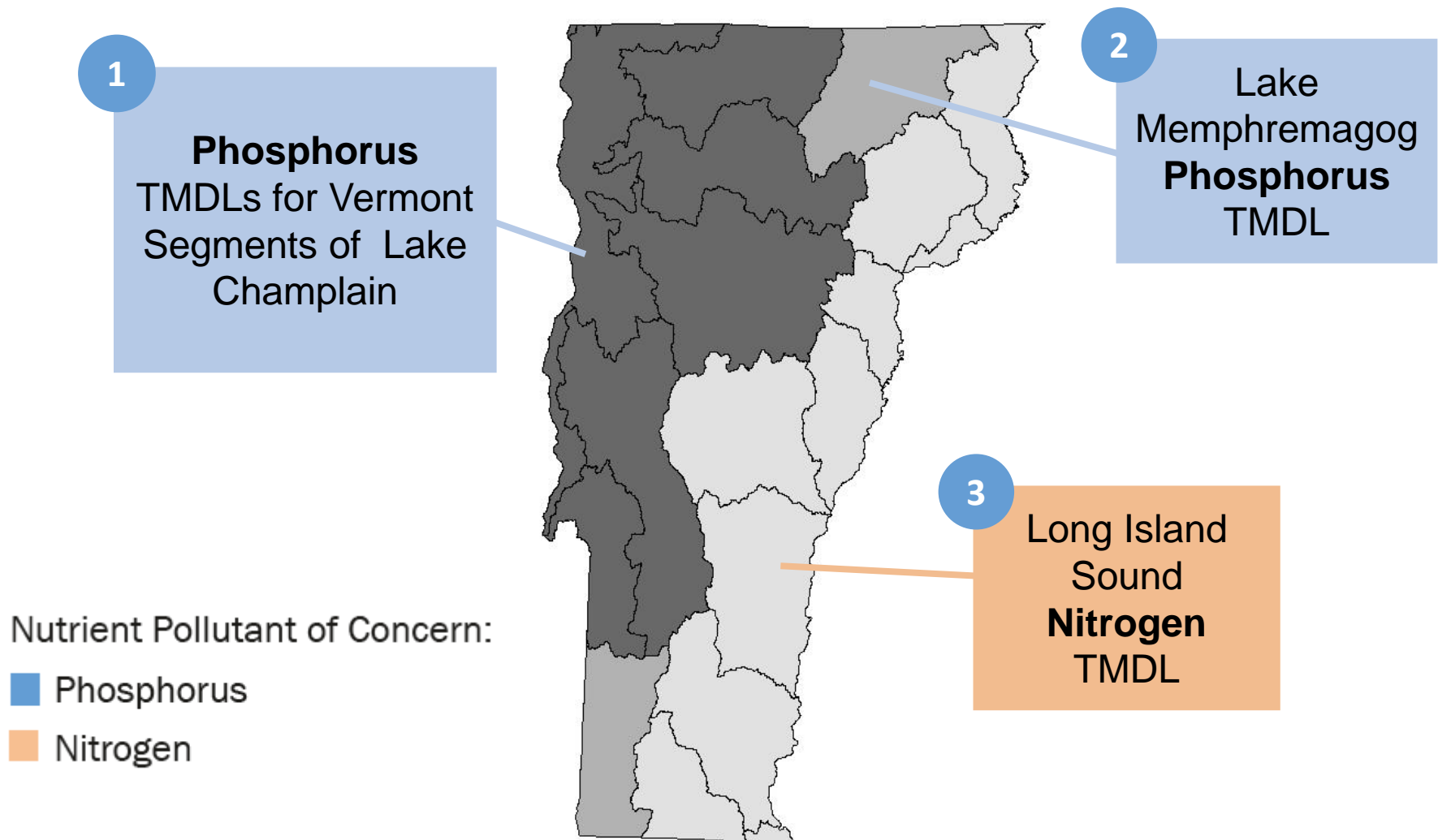
## **Funding Programs**

Projects/best management practices completed through state funding programs and other programs where data available (e.g., federal, local)

## **Regulatory Programs**

Projects/best management practices completed to comply with water quality regulations for agriculture, stormwater, and wastewater

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



# SFY 2016

## Establishing our baseline

### VERMONT CLEAN WATER INITIATIVE 2016 INVESTMENT REPORT



Agency of Administration  
Agency of Agriculture, Food and Markets  
Agency of Commerce and Community Development  
Agency of Natural Resources  
Agency of Transportation

# SFY 2017

## Measuring progress over time

### 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;



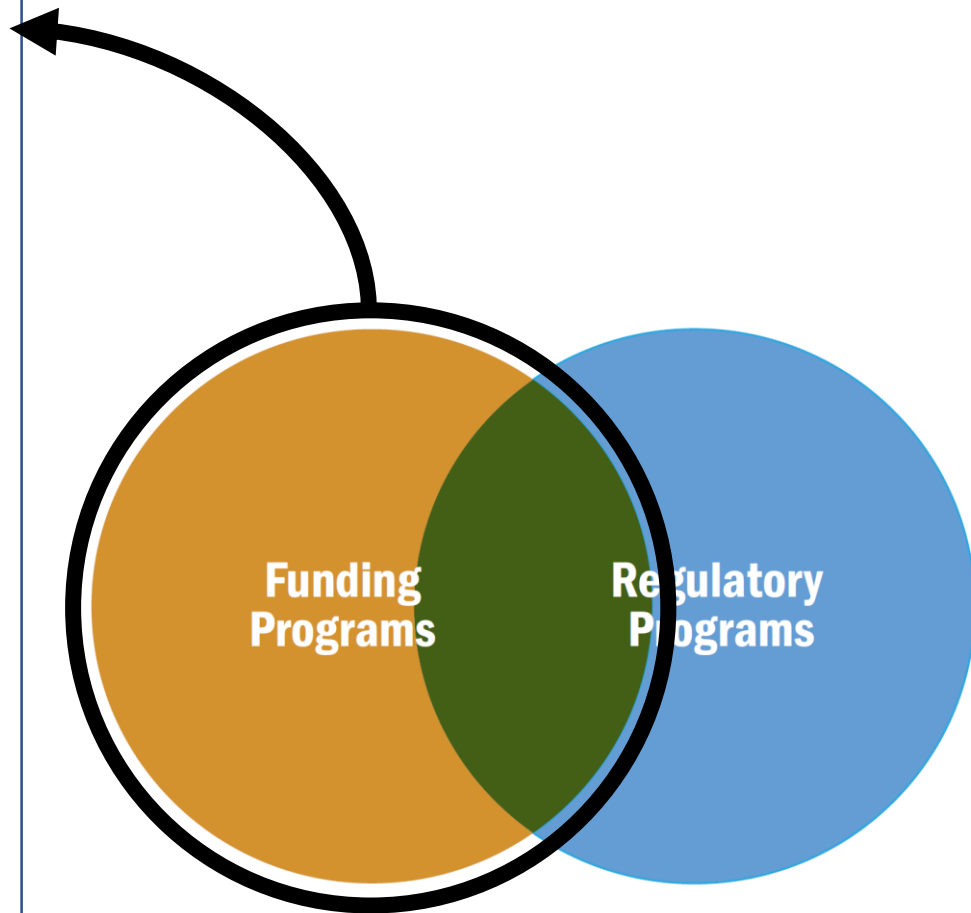
**Investment measures** on dollars invested in clean water restoration projects, addressing planning, design, and implementation of water quality improvement practices;



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



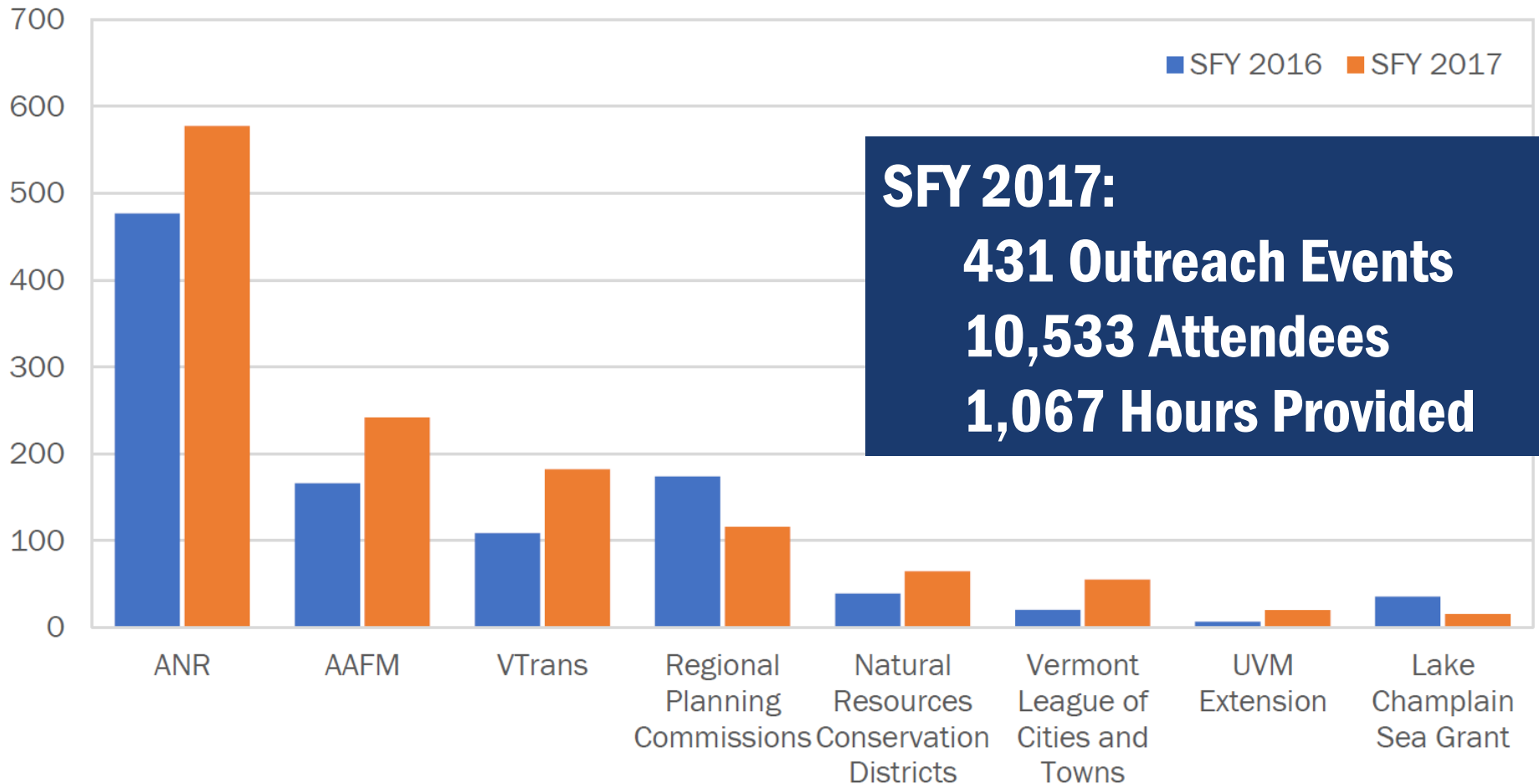
Measures of **environmental outcomes**, quantifying nutrient reductions achieved through State-funded clean water restoration projects.





# Outreach and Technical Assistance Measures

Figure 2. Total hours of outreach provided to participants of workshops, trainings, and public/stakeholder meetings in SFY 2016 and 2017, by organization (excludes organizations reported as “other”)



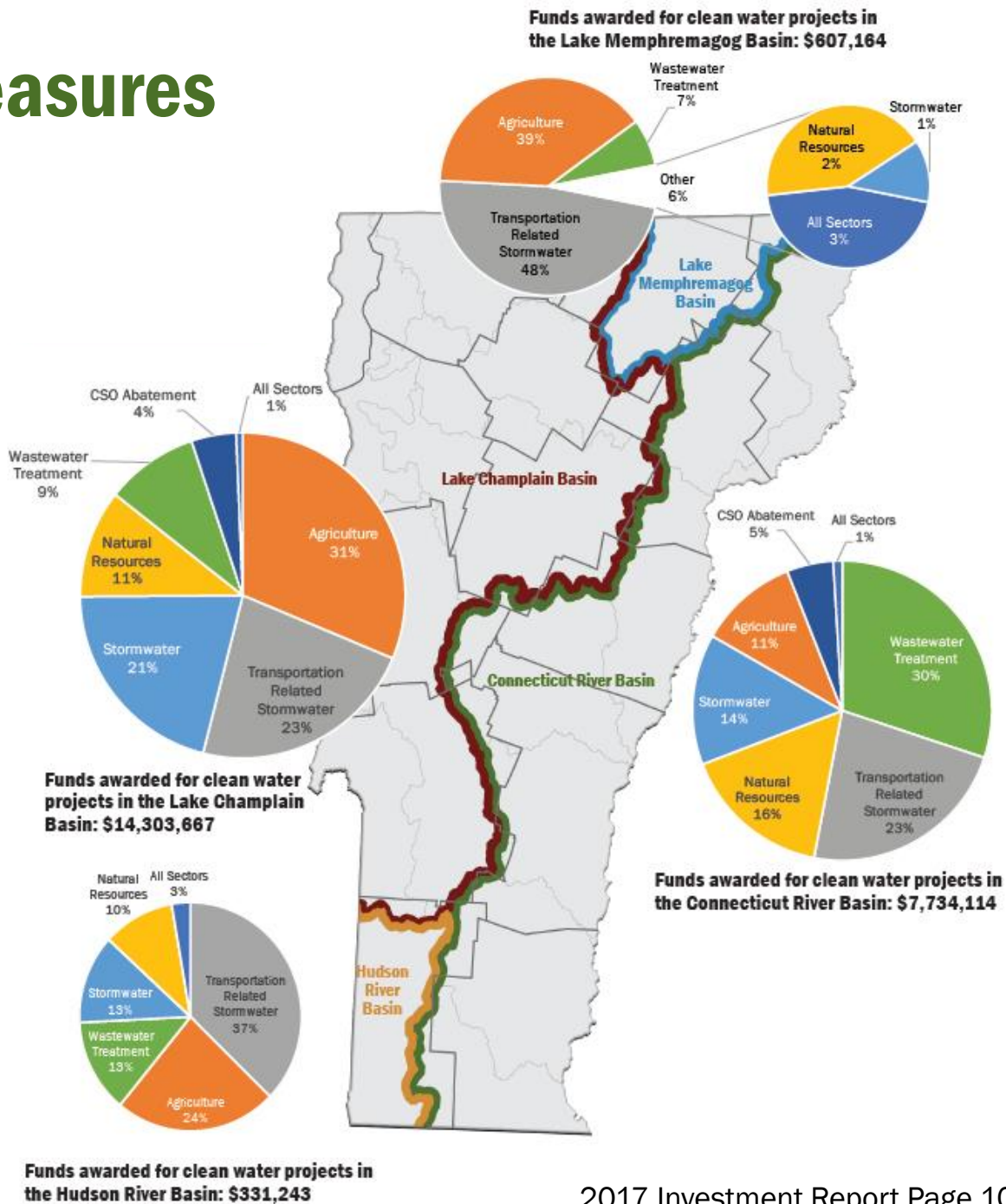


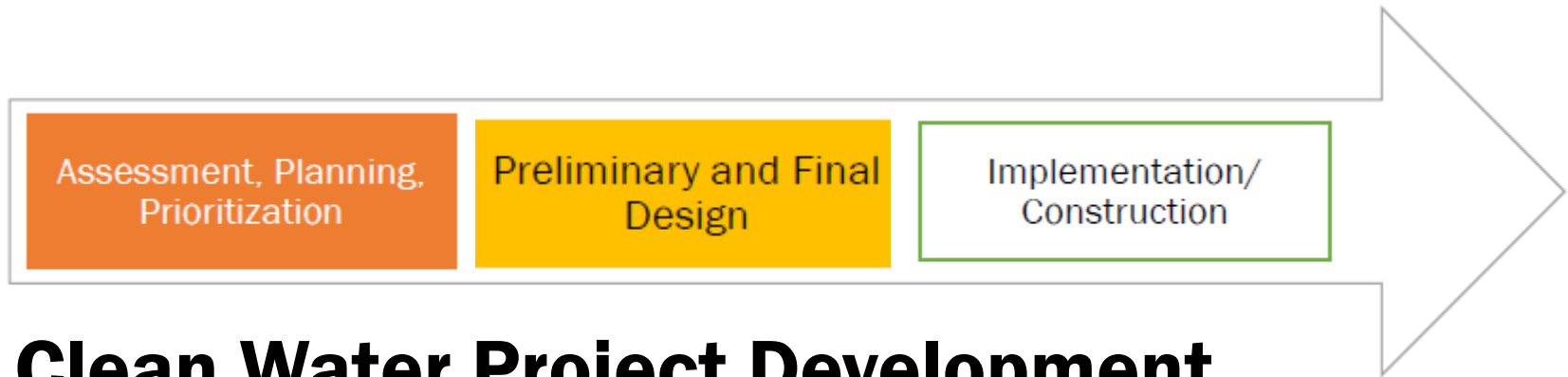
# Investment Measures

# 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





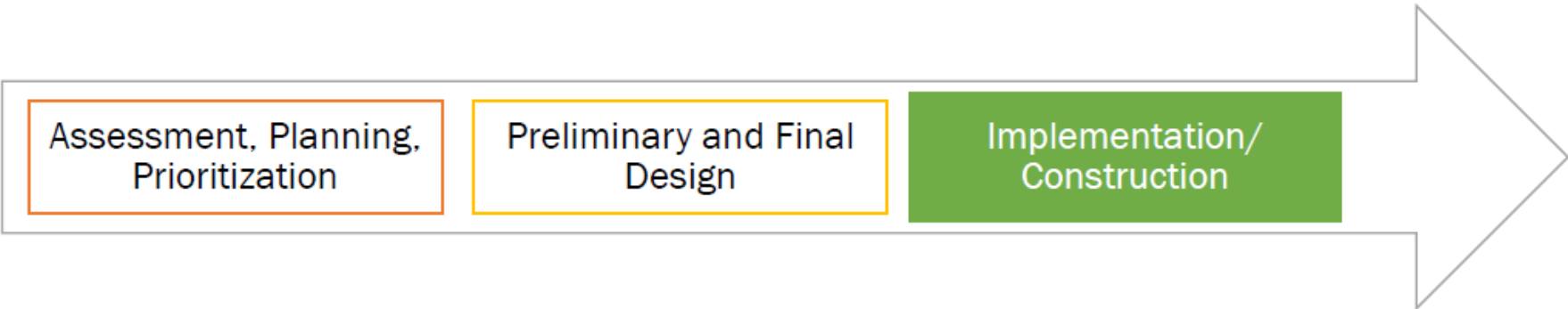
## **Clean Water Project Development**

176 priority projects recommended for future design and/or implementation

116 road miles assessed and identified for future improvements

22 preliminary and 44 final designs completed for future implementation work





Assessment, Planning,  
Prioritization

Preliminary and Final  
Design

Implementation/  
Construction

## 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 Transportation Related Stormwater Projects

## Results of transportation related stormwater projects implemented in SFY 2017, statewide.<sup>1</sup>

| PROJECT RESULTS  |      |       | BENEFITS                         |                              |                              |                                 |                  |                  |
|--|------|-------|----------------------------------|------------------------------|------------------------------|---------------------------------|------------------|------------------|
| Performance Measures   | 2016 | 2017  | TMDL <sup>2</sup> Implementation | Act 64 (2015) Implementation | MRGP <sup>2</sup> Compliance | Municipal Stormwater Compliance | Flood Resiliency | Habitat Function |
| Miles of municipal road drainage improvements  | 1*   | 13**  | ✓                                | ✓                            | ✓                            | ✓                               | ✓                |                  |
| Number of municipal road drainage structures installed   | 176* | 68    | ✓                                | ✓                            | ✓                            | ✓                               | ✓                |                  |
| Number of municipal road drainage and stream culverts replaced   | 4*   | 109** | ✓                                | ✓                            | ✓                            | ✓                               | ✓                | ✓                |
| Stream miles enhanced and reconnected due to replaced stream culverts (also supports aquatic organism passage) | 27*  | 2.4*  |                                  |                              |                              |                                 | ✓                | ✓                |

\* Represents results of ANR-funded projects only, therefore, results are likely underreported. Data were not tracked/reported by VTrans for applicable reporting periods.

\*\* Data available for, and represent, two-thirds of projects completed in SFY 2017.



# Results of Transportation Related Stormwater Projects

Results of transportation related stormwater projects implemented in SFY 2017, statewide.<sup>1</sup>

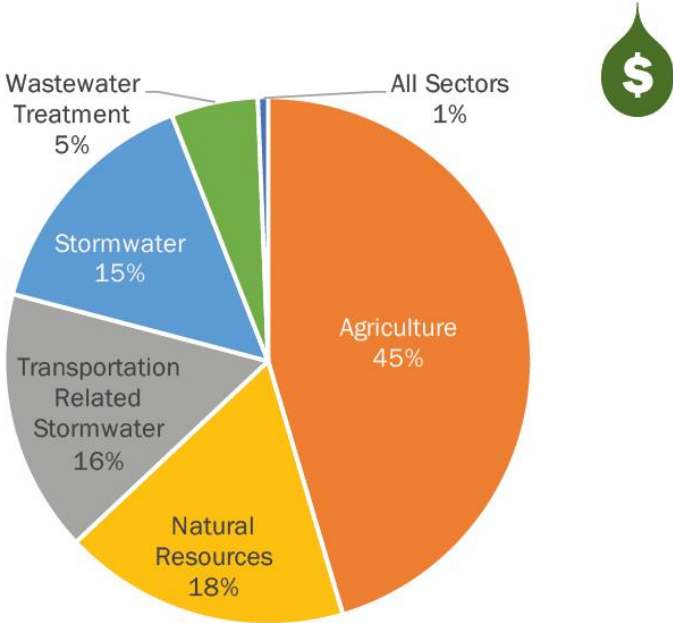
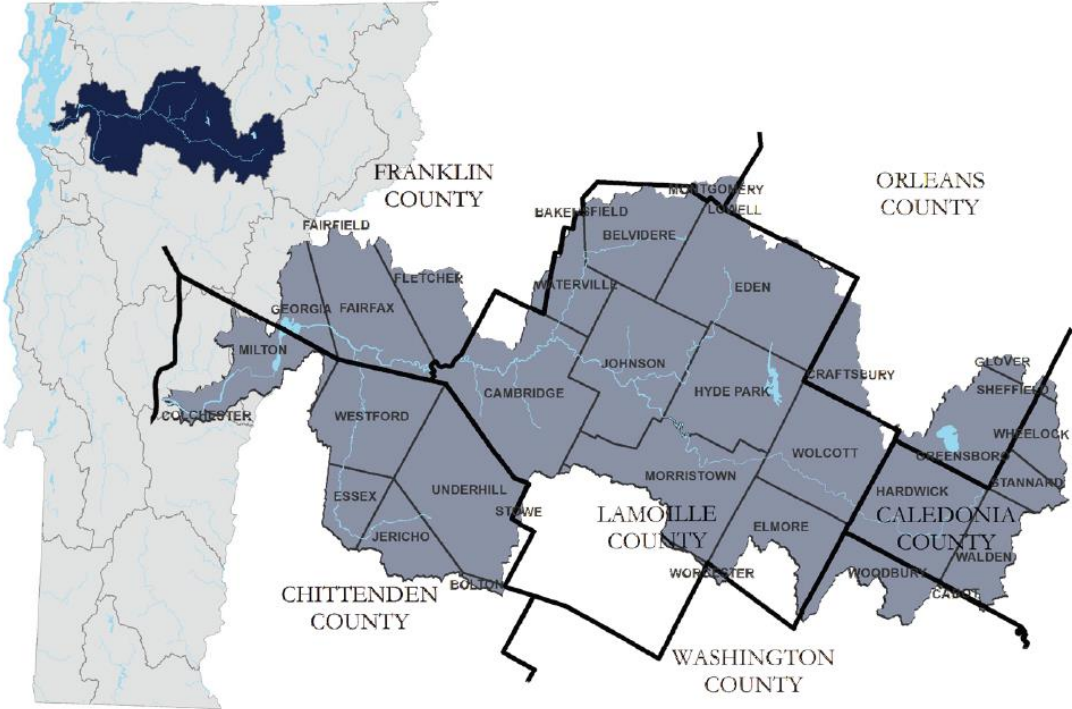
| POLLUTANT REDUCTION                           |      |      |            | EXTENT OF LOAD REDUCTION QUANTIFIED  |
|---|------|------|------------|--|
| Total Phosphorus Reduced (Kilograms per Year) | 2016 | 2017 | Cumulative | Pollutant reductions quantified for 38 percent of municipal road miles improved (projects in the Lake Champlain basin) |
| Road erosion control practices                | 4    | 22   | 26         |  |

Figure 28. Before (left) and after (right) installation of a stone-lined ditch along Finel Hollow, Highland Gray, and Watkins Hill Roads in Poultney, completed by the Town of Poultney.



# 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 |
|--|----|

### 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 |
|--------------------------------|---|

### PROJECT RESULTS: STORMWATER

|                                     |   |
|-------------------------------------|---|
| Acres of impervious surface treated | 4 |
|-------------------------------------|---|

### TOTAL PHOSPHORUS REDUCED (kilograms per year)

|                                |   |
|--------------------------------|---|
| Stormwater treatment practices | 4 |
|--------------------------------|---|

# Clean Water Initiative Projects Dashboard

## Prior State (Pre-January 2018)

Listing of projects with basic identifiers

VERMONT OFFICIAL STATE WEBSITE

### Watershed Projects

Name  Status  Grade

Project Type  County  Project ID

Basin Plan  Town

Grade Type  Grade


| ID | Project Name   | Project Type                                       |
|----|--|--|
| 1  | St. Johnsbury Stormwater Master Planning   | Stormwater Master Planning                         |
| 7  | Towle Neighborhood Road Erosion Control - Planning and Design                      | Road Project - Final Design                        |
| 9  | Erosion Reduction at Hayes Road Stream Crossing                                    | Floodplain/Stream Restoration - Implementation     |
| 11 | Preparing Local Watersheds for Flood Resilience and Reducing Runoff in Lewis Creek | Stormwater - Preliminary Design                    |
| 12 | Whitney Brook and Black River Riparian Buffer Restoration                          | River - Planting                                   |
| 13 | Lake Bomoseen Stormwater Master Planning   | Stormwater Master Planning                         |
| 15 | Constructing Green Stormwater Infrastructure at the Waitsfield Town Office         | Stormwater - Implementation                        |
| 19 | Enhancing Nutrient Management Plan Implementation with goCrop Software             | Agricultural Pollution Prevention - Implementation |
| 24 | Moulton River Corridor Easement  | River Corridor Easement Implementation             |
| 25 | Nulhegan River Confluence Easements  | River Corridor Easement Implementation             |

## Good State/Phase 1 (Complete)

Individual project summaries

Stormwater - Implementation

### Northfield Village Green Bioretention Installation




**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

**Project Status:** Completed

**Results:**

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



**Northfield Parking Lot Before**

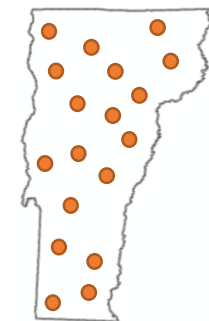
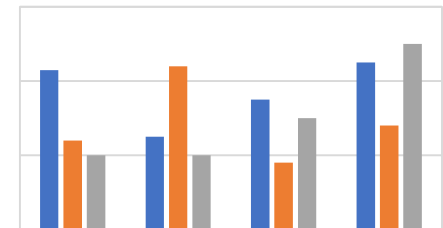
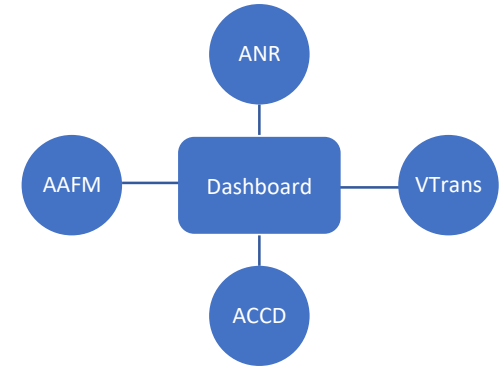
The back third of the parking lot covered by pavement before construction of the bio-retention area, behind the American Legion Hall.

After construction of the bio-retention 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>

## Great State/Phase 2-3 (2018)




Interagency data and data visualization



# Clean Water Initiative Projects Dashboard

## Good State/Phase 1 (Complete): Individual project summaries

**Stormwater - Implementation**  
**Northfield Village Green Bioretention Installation**





**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

**Project Status:**  
Completed

**Results:**

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

**Northfield Parking Lot Before**



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 bio-retention 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>

## 2017 Ecosystem Restoration Project Summaries

Access one-page summaries of Ecosystem Restoration projects funded or completed during State Fiscal Year 2017 (July 1, 2016 - June 30, 2017)

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>

Kari Dolan, Clean Water Initiative Program Manager  
[kari.dolan@vermont.gov](mailto:kari.dolan@vermont.gov) 802-490-6113

Emily Bird, Nonpoint Source Coordinator  
[Emily.bird@vermont.gov](mailto:Emily.bird@vermont.gov) 802-490-4083