Clean Water Initiative 2017 Investment Report: Executive Summary

Clean water supports fishing, swimming, boating, and other recreational uses, bolsters tourism, helps to maintain property values and provides access to safe drinking water. Vermont's residents, visitors, and businesses care about clean water and benefit from continued investments in restoring and protecting our waters.

The Vermont Clean Water Initiative 2017 Investment Report summarizes: (a) state investments made in clean water improvement projects through grants, contracts, and loans, and (b) the results of state-funded clean water restoration activities completed within State Fiscal Year (SFY) 2017, covering July 1, 2016 through June 30, 2017.

The Vermont Clean Water Initiative Investment Report uses four categories of accountability measures:

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 of dollars invested in clean water projects, addressing planning, design, and implementation of clean water improvement practices;

Project output measures that quantify the results of state-funded clean water restoration projects completed; and

Environmental outcome measures that quantify water pollution reductions achieved through state-funded clean water projects.

This executive summary of the SFY 2017 Investment Report summarizes state investments in clean water projects in SFY 2017 and results achieved by clean water projects implemented or constructed in SFY 2017 by sector:

Agricultural Pollution Prevention Projects
Installation or application of conservation practices that reduce sources of nutrient and sediment pollution from agricultural lands.

Natural Resources Restoration Projects
Restoration of floodplains, rivers/streams, lakeshore, wetlands, and forest lands to natural conditions that prevent and abate nutrient and sediment pollution.

Developed Lands Stormwater Treatment Projects
Installation of stormwater practices that treat sources of nutrient and sediment pollution caused by stormwater runoff from developed lands.

Transportation-Related Stormwater Treatment Projects
Installation of stormwater and roadside erosion control practices that prevent erosion and treat road-related sources of nutrient and sediment pollution.

The Investment Report also contains results of project development work, addressing project planning, design, and engineering that leads to high priority and cost effective clean water implementation or construction projects. The report also summarizes the extent of state-provided outreach and technical assistance. Highlights of project development work and outreach/technical assistance are summarized below.

Outreach and Technical Assistance Highlights

Extent of state-provided clean water outreach and technical assistance

State agencies and partners conducting State-funded outreach held 431 outreach events in SFY 2017, including workshops, trainings, and public/stakeholder meetings. Outreach efforts reached 10,533 attendees and provided 1,067 hours of education on clean water. Agency staff reviewed 4,857 projects to maximize water quality improvements and minimize water quality impact; provided 5,300 hours of engineering and technical assistance for stormwater and wastewater projects; conducted 700 farm visits farms; provided technical assistance on 1,032 logging operations/forest properties; assisted 78 communities in urban and community forestry; and provided 1,483 hours of technical assistance to municipalities on transportation-related stormwater projects.

Project Development Highlights

Extent of state-provided clean water outreach and technical assistance

State-funded planning and assessment work resulted in identification of 176 priority projects recommended for future design and/or implementation in SFY 2017, covering agricultural pollution prevention, river/floodplain restoration, and stormwater treatment projects. More than 116 road miles were assessed and identified for future improvements to comply with clean water regulations. 22 preliminary and 44 final clean water project designs were completed for future implementation work.

Investments made in clean water projects and results of clean water projects implemented in SFY 2017 are summarized by sector in the following sections.

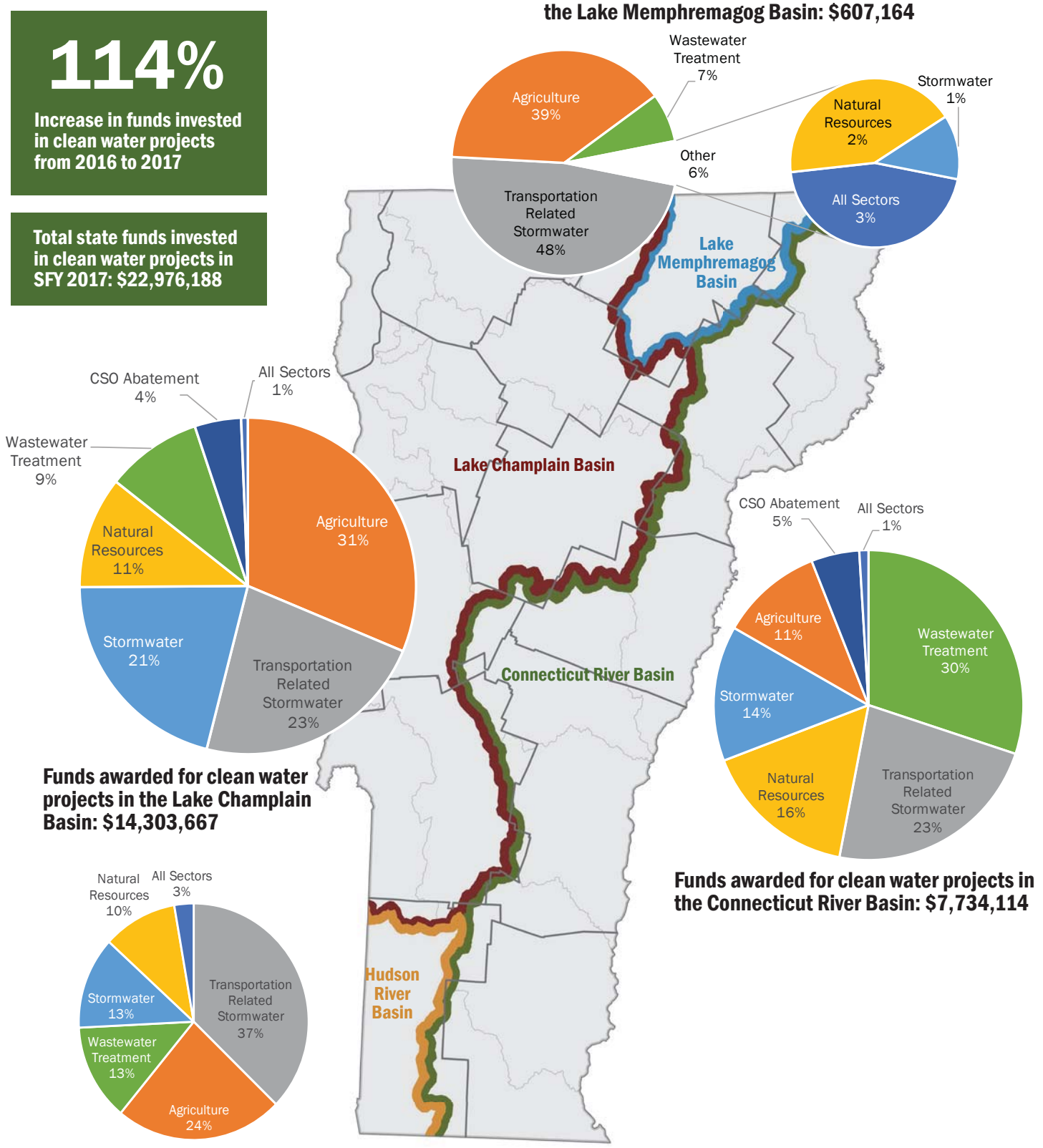
State Investments in Clean Water

State funding awarded in SFY 2017, by major basin.

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

Investments in Agricultural Pollution Prevention

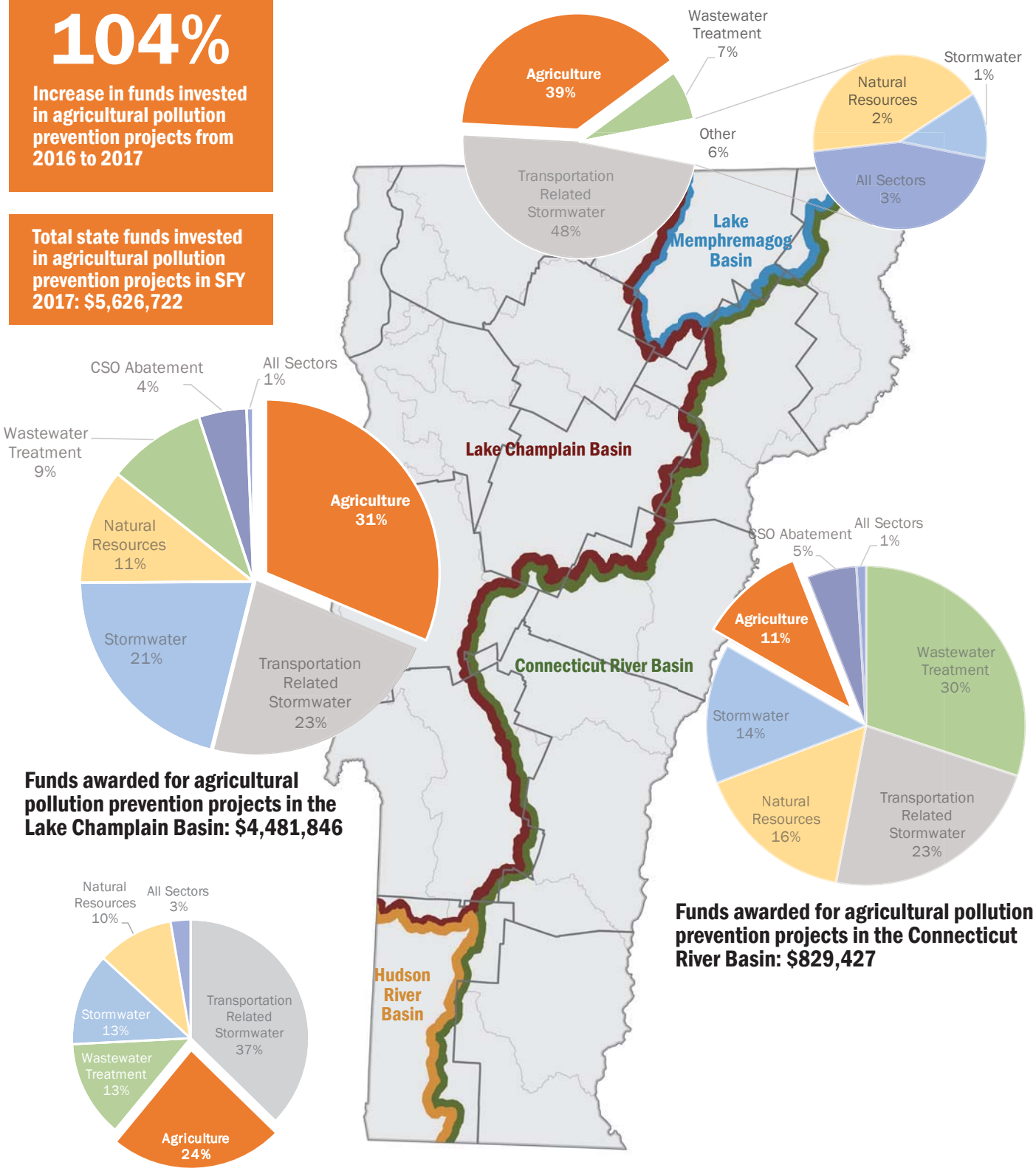
Agricultural Pollution Projects: Installation or application of conservation practices that reduce sources of nutrient and sediment pollution from agricultural lands.

State funding awarded in SFY 2017, by major basin.

104%

Increase in funds invested in agricultural pollution prevention projects from 2016 to 2017

Total state funds invested in agricultural pollution prevention projects in SFY 2017: $5,626,722



Funds awarded for agricultural pollution prevention projects in the Lake Memphremagog Basin: $237,053

Funds awarded for agricultural pollution prevention projects in the Lake Champlain Basin: $4,481,846

Funds awarded for agricultural pollution prevention projects in the Connecticut River Basin: $829,427

Funds awarded for agricultural pollution prevention projects in the Hudson River Basin: $78,396

Results of Agricultural Projects

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

PROJECT RESULTS			BENEFITS					
Performance Measures	2016	2017	TMDL[1] Implementation	Act 64 (2015) Implementation	RAP[1] 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.

POLLUTANT REDUCTION				
Total Phosphorus Reduced (Kilograms per Year)	2016	2017	Cumulative	Extent of Load Reduction Quantified
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)

AGRICULTURAL HIGHLIGHTS

Updated Required Agricultural Practices (RAPs) regulations became effective December 2016, and are expected to drive demand for additional projects in 2018

Before (left) and after (right) installation of livestock exclusion fencing and improved laneway and water crossing in Pawlet, completed by Poultney Mettowee Conservation District with Agency of Natural Resources funding

1 - Definition of acronyms: Total Maximum Daily Load (TMDL); Required Agricultural Practices (RAP)

Investments in Natural Resources Restoration

Natural Resources Restoration Projects: Restoration of floodplains, rivers/streams, lakeshore, wetlands, and forest lands to natural conditions that prevent and abate nutrient and sediment pollution.

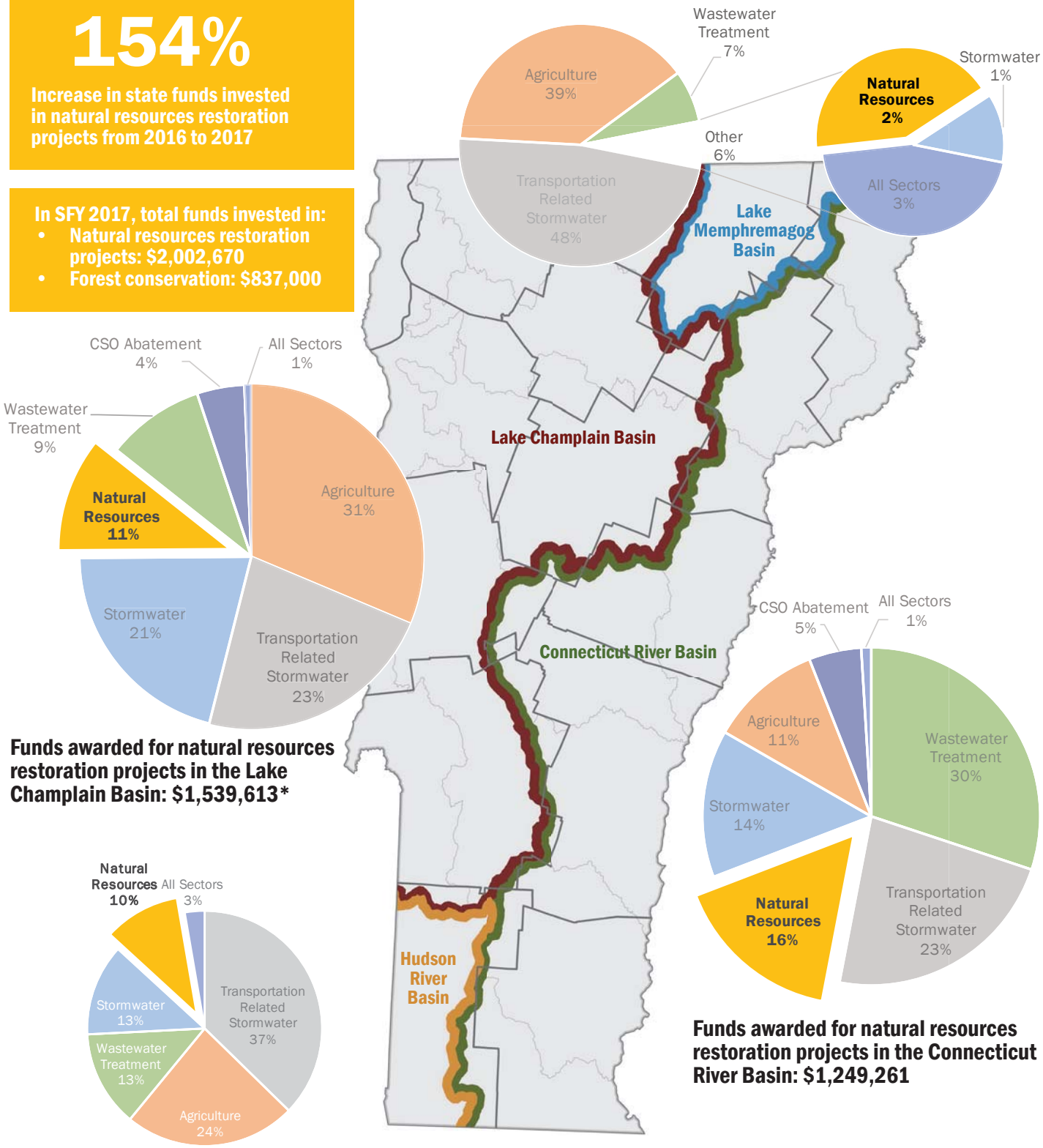
State funding awarded in SFY 2017, by major basin.

154%

Increase in state funds invested in natural resources restoration projects from 2016 to 2017

In SFY 2017, total funds invested in:

- **Natural resources restoration projects: $2,002,670**
- **Forest conservation: $837,000**



Funds awarded for natural resources restoration projects in the Lake Memphremagog Basin: $16,098

Funds awarded for natural resources restoration projects in the Lake Champlain Basin: $1,539,613*

Funds awarded for natural resources restoration projects in the Connecticut River Basin: $1,249,261

Funds awarded for natural resources restoration projects in the Hudson River Basin: $34,698

* Forest conservation represents 2% of total funds awarded in the Lake Champlain basin

Results of Natural Resources Projects

Results of natural resources restoration projects implemented in SFY 2017, statewide.

PROJECT RESULTS			BENEFITS			
Performance Measures	2016	2017	TMDL[1] Implementation	Flood Resiliency	Outdoor Recreation	Habitat Function
Acres of forested riparian buffer restored through buffer planting	88	16	✓	✓	✓	✓
Acres of river corridor conserved through easements	141	209	✓	✓	✓	✓
Acres of floodplain restored	0	2	✓	✓	✓	✓
Stream miles enhanced and reconnected due to dam removal (also supports aquatic organism passage)	0	98	✓	✓	✓	✓
Acres protected for public access, recreation, forest conservation, and water quality	New in 2017	4,906		✓	✓	✓
Acres of water quality protections within conserved land (forested buffer area and wetland protection zones)	New in 2017	98	✓	✓	✓	✓

POLLUTANT REDUCTION				EXTENT OF LOAD REDUCTION QUANTIFIED
Total Phosphorus Reduced (Kilograms per Year)	2016	2017	Cumulative	Pollutant reductions quantified for 25 percent of buffer acres in 2016 and 34 percent in 2017 (projects in the Lake Champlain and Memphremagog basins)
Forested riparian buffer restoration on non-agricultural lands	74	12	86	

NATURAL RESOURCES HIGHLIGHTS

Natural resources restoration projects reduce nutrient and sediment pollution, as well as improve flood resiliency, support outdoor recreational opportunities, and improve habitat function

Before (above, right) and after (below, right) relocation of 1,100 feet of Stowe's Recreation Path outside of the river hazard zone and restoration/planting of two acres of floodplain, completed by Town of Stowe with Agency of Natural Resources funding

1 - Definition of acronyms: Total Maximum Daily Load (TMDL)

Investments in Transportation Related Stormwater Treatment

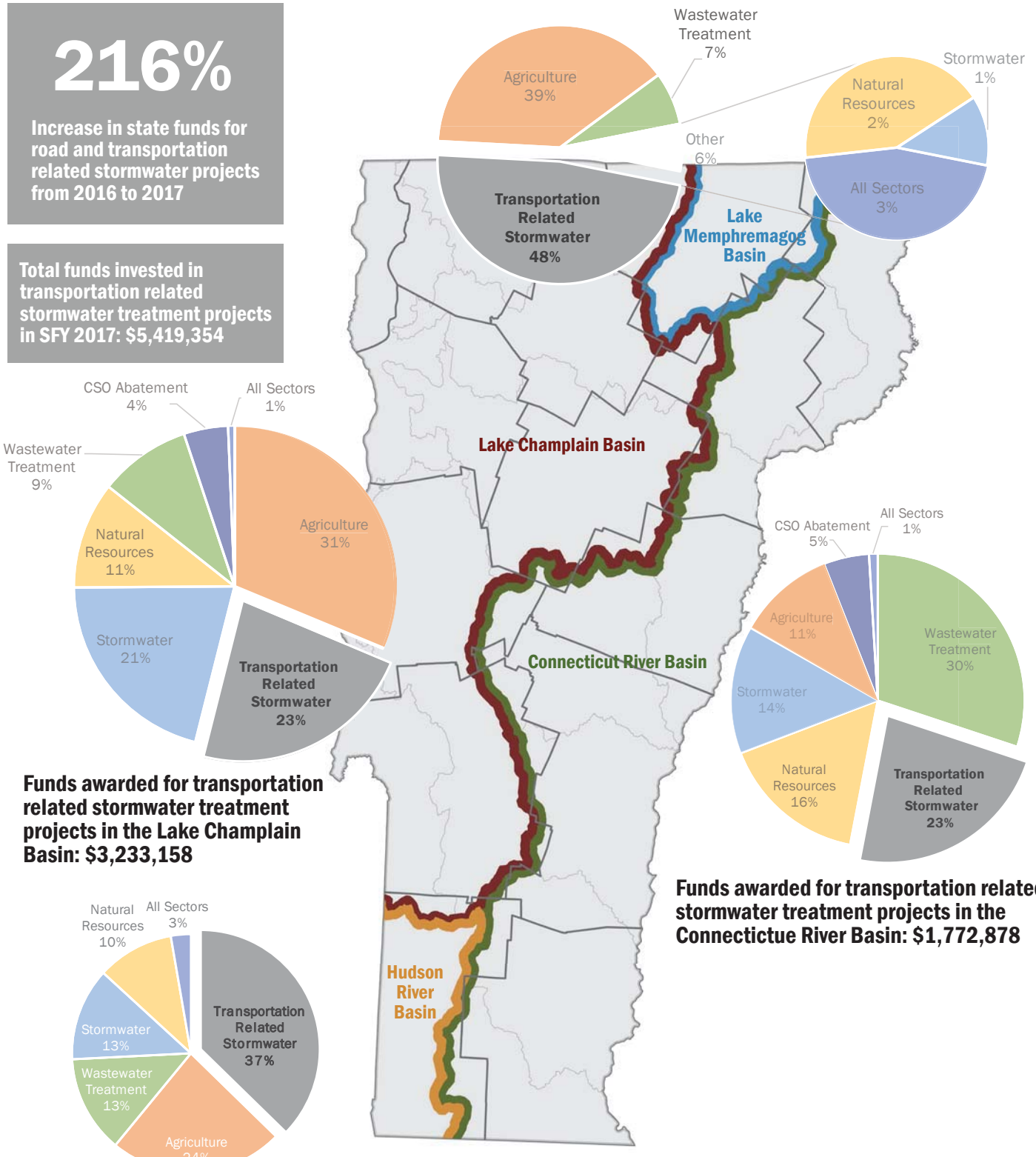
Transportation Related Stormwater Treatment Projects: Installation of stormwater and roadside erosion control practices that prevent erosion and treat road-related sources of nutrient and sediment pollution.

State funding awarded in SFY2017, by major basin.

216%

Increase in state funds for road and transportation related stormwater projects from 2016 to 2017

Total funds invested in transportation related stormwater treatment projects in SFY 2017: $5,419,354



Funds awarded for transportation related stormwater treatment projects in the Lake Memphremagog Basin: $289,788

Funds awarded for transportation related stormwater treatment projects in the Lake Champlain Basin: $3,233,158

Funds awarded for transportation related stormwater treatment projects in the Connectictue River Basin: $1,772,878

Funds awarded for transportation related stormwater treatment projects in the Hudson River Basin $123,531

Results of Transportation Related Stormwater Projects

Results of transportation related stormwater projects implemented in SFY 2017, statewide.[1]

PROJECT RESULTS			BENEFITS					
Performance Measures	2016	2017	TMDL[2] Implementation	Act 64 (2015) Implementation	MRGP[2] 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.

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	

TRANSPORTATION RELATED STORMWATER HIGHLIGHTS

Roadside erosion/nutrient pollution controls required by the Municipal Roads General Permit are expected to drive implementation of additional projects in future years

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 with VTrans funding

1 - Results of projects completed by VTrans to comply with water quality regulations on state highways and VTrans non-road developed lands are outside the scope of this report.

2 - Definition of acronyms: Total Maximum Daily Load (TMDL); Municipal Roads General Permit (MRGP)

Investments in Stormwater Treatment

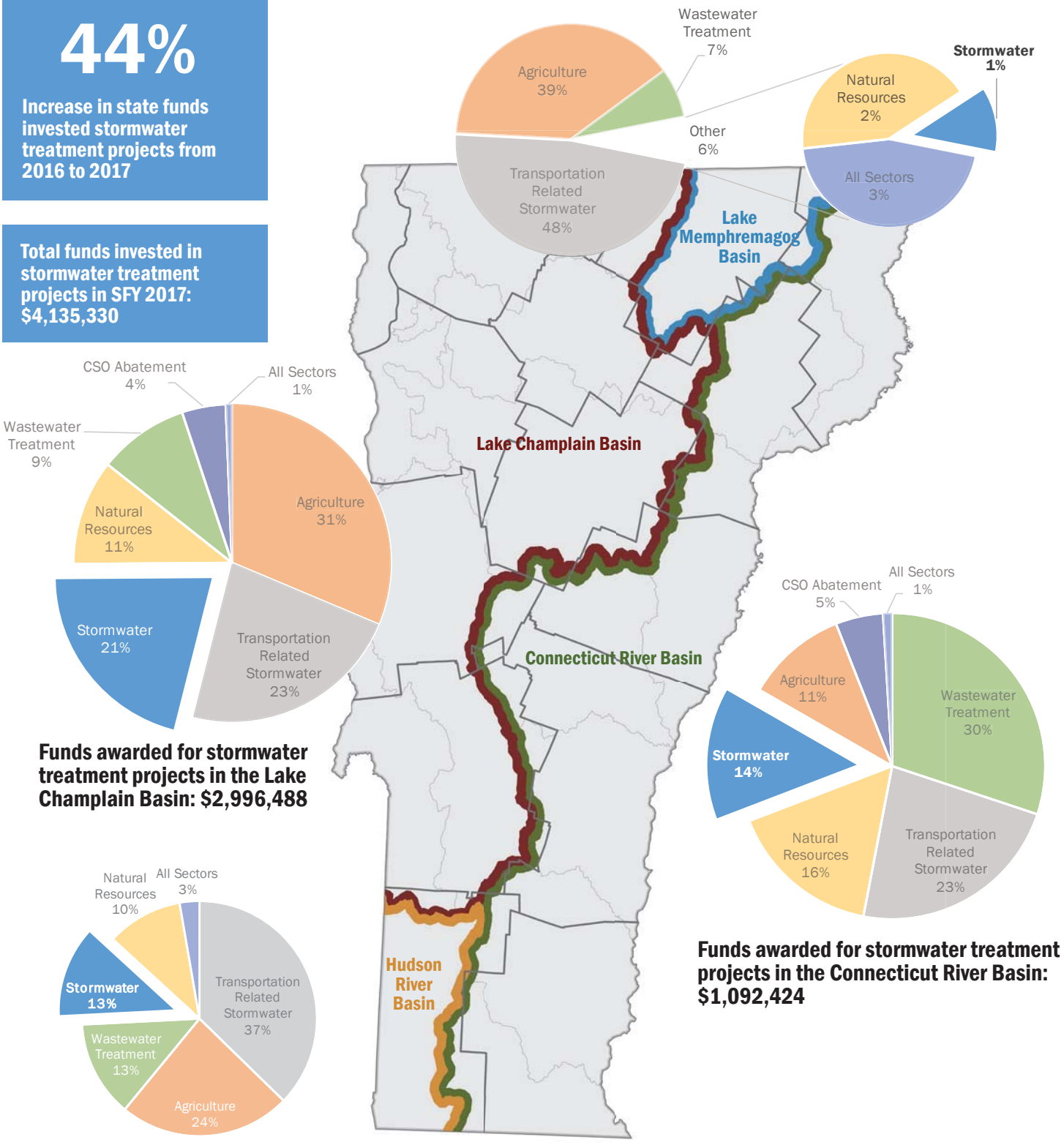
Stormwater Treatment Projects: Installation of stormwater practices that treat sources of nutrient and sediment pollution caused by stormwater runoff from developed lands.

State funding awarded in SFY 2017, by major basin.

44%

Increase in state funds invested stormwater treatment projects from 2016 to 2017

Total funds invested in stormwater treatment projects in SFY 2017: $4,135,330



Funds awarded for stormwater treatment projects in the Lake Memphremagog Basin: $4,656

Funds awarded for stormwater treatment projects in the Lake Champlain Basin: $2,996,488

Funds awarded for stormwater treatment projects in the Connecticut River Basin: $1,092,424

Funds awarded for stormwater treatment projects in the Hudson River Basin: $41,763

Results of Stormwater Projects

Results of stormwater treatment projects implemented in SFY 2017, statewide.

PROJECT RESULTS			BENEFITS		
Performance Measures	2016	2017	TMDL[1] Implementation	Act 64 (2015) Implementation	Municipal Stormwater Compliance
Acres of impervious surface treated	0.3	86.3	✓	✓	✓

LOAD REDUCTION				EXTENT OF LOAD REDUCTION QUANTIFIED
Total Phosphorus Reduced (Kilograms per Year)	2016	2017	Cumulative	Pollutant reductions quantified for 41 percent of impervious acres treated (projects in the Lake Champlain basin)
Stormwater treatment practices	0.3	15.0	15.3	

STORMWATER HIGHLIGHTS

Nutrient pollution controls, required by updated/new stormwater permits are expected to drive demand for additional projects in future years

Before (left) and after (right) installation of bioretention system on Morey Road in Hyde Park, completed by Lamoille County Conservation District

1 - Definition of acronyms: Total Maximum Daily Load (TMDL)