

Vermont Nonpoint Source Management Program Federal Fiscal Year 2021 Annual Report



Submitted to the U.S. Environmental Protection Agency Region 1
on Progress Implementing the Vermont Nonpoint Source Management Program

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Cover Photos (More details in Appendix C):

Top Left: Dry well installed during the Taylor Street Reconstruction project

Top Right: River Corridor Easement Grant to conserve 33 acres along Lewis Creek

Bottom Left: A riparian buffer planting on the Richmond town green (funded through the Woody Buffer Block grant)

Bottom Right: Camp Wihakowi dam removal in Northfield, VT

Introduction

This *Vermont Nonpoint Source (NPS) Management Program 2021 Annual Report* addresses milestones and progress updates for the federal fiscal year (FFY) 2021 reporting period (October 2020-September 2021). The Vermont NPS Management Program Plan (2015) was prepared by the Vermont Department of Environmental Conservation (DEC) to fulfill Clean Water Act Section 319 program requirements following U.S. Environmental Protection Agency (EPA) guidance.¹ The most recent Vermont NPS Management Program Plan 2021-2025 was approved by EPA in September of 2020.² This is the first Annual Report to address milestones under the FFY 2021-2025 plan.

During this FFY 2021 reporting period, the State of Vermont has continued to make substantial progress completing milestones associated with the *Vermont NPS Management Program* also driven by:

- Implementing elements of the Clean Water Service Delivery Act (Act 76 of 2019): Act 76 establishes regional organizations called Clean Water Service Providers (CWSP) in the Lake Champlain and Lake Memphremagog basins. CWSPs are responsible for partnering with Basin Water Quality Councils to identify, implement, operate, and maintain non-regulatory projects to meet non-regulatory interim phosphorus reduction targets. The Act requires formula dispersal of funds for non-regulatory projects in the Lake Champlain and Lake Memphremagog basins. DEC is on track to meet these requirements.
- Implementation of the *Phosphorus Total Maximum Daily Loads (TMDLs) for Vermont Segments of Lake Champlain* (i.e., Lake Champlain TMDL): The Lake Champlain TMDL and its accountability framework drive NPS management efforts in the Lake Champlain basin of Vermont. The State of Vermont published Lake Champlain TMDL progress report in January 2021, as part of the *Vermont Clean Water Initiative 2021 Performance Report*.³

NPS pollution is the leading cause of water use impairment to Vermont's surface water and ground water resources. Nonpoint sources are diffuse precipitation and snowmelt-driven sources of water pollution. As a result, NPS Management Program activities are integrated in much of the water quality work completed by the Agency of Natural Resources' (ANR) Department of Environmental Conservation (DEC) and Department of Forests, Parks and Recreation (FPR); Agency of Agriculture, Food and Markets (AAFM); and Agency of Transportation (VTrans).

Appendix A illustrates the entire suite of NPS-related goals, objectives, milestones, and respective

¹The Vermont Nonpoint Source Management Program Plan approved in 2015.

<https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/VCWIP-Vermont-Nonpoint-Source-Management-Program.pdf>

² The Vermont Nonpoint Source Management Program Plan (FFY 2021-2025) was finalized and approved September 2020 <https://dec.vermont.gov/water-investment/cwi/reports#NPSPlan>

³ Vermont Clean Water Initiative 2021 Performance Report: <http://dec.vermont.gov/water-investment/cwi/reports>.

completion year based on the 2020 Vermont NPS Management Program Plan. A progress update is provided for those NPS milestones that were completed or moved forward during FFY 2021. Milestones that have been completed for this reporting period and marked “complete” in Appendix A. Milestones that repeat annually or will continue after this reporting period are marked as “ongoing.” Explanations are provided for milestones that were partially met. Only milestones with an “X” in the 2021 column are required to be addressed in this report, although in some cases, more information is provided. There are four areas where minor corrections to existing milestones are requested in Appendix A. We welcome your review and approval of these changes.

Section 319-Funded Statewide Programs and Watershed Projects

SECTION 319 FUNDED STATEWIDE PROGRAMS

DEC’s FFY 2021 Section 319 federal funding award totaled approximately \$1.24 million, of which approximately 84 percent was used to carry out DEC’s NPS activities on a statewide basis. The remaining 16 percent was passed through to AAFM to support agricultural NPS pollution reduction programs. The Section 319 award to Vermont DEC is included as part of Vermont’s Performance Partnership Agreement (PPA) with EPA. DEC’s annual report to EPA under the PPA provides more detailed information about additional water quality-related priorities and commitments under the PPA. Clean Water Act Section 319 funds supported 12.2 full time equivalent (FTE) staff members in the DEC NPS-related programs as shown in Table 1. Further information about these program activities and respective accomplishments during the reporting period are summarized below.

Table 1. DEC use of FFY 2021 Section 319 Funds

Vermont DEC Program	Program Activities	FTE
Clean Water Initiative Program (CWIP)	Funds, tracks, and reports on priority NPS projects to restore Vermont’s waters, and reports progress toward meeting TMDL targets	6.0
Watershed Planning Program (WPP)	Identifies and prioritizes projects or actions needed to protect or restore specific waters based on monitoring and assessment data and identify funding sources to complete the work	6.0
Administration and Innovation Division (AID)	Financial management and administrative support	0.2
Total		12.2

DEC’s Water Investment Division (WID) supports the prioritization (through Tactical Basin Planning),

funding/financing, management, reporting, and accountability of clean water and water infrastructure projects. Section 319 funds support DEC personnel within Clean Water Initiative Program (CWIP) and the Watershed Planning Program (WPP) which are housed within the Water Investment Division.

Nonpoint Source Program Management/Administration

Federal Funding – Clean Water Act Section 319

DEC developed the FFY 2021-2025 Vermont NPS Management Program Plan, approved by EPA in September of 2020. EPA approved of Vermont's FFY 2022 Section 319 workplan in March 2022. Consistent with EPA program guidance, DEC continued using Section 319 funds to support personnel working under the NPS management program and leveraged over \$1.24 million in state funded NPS projects, in addition to providing the required 40% non-federal match. DEC's leveraged state-funded watershed projects were reported in the EPA Grants Reporting and Tracking System (GRTS). A portion of the Section 319 award (\$187,431) was provided to the Vermont AAFM, and matched by that Agency, to support their work on the management of agricultural NPS pollution across Vermont.

Federal Funding – Clean Water Act Section 604(b)

DEC has effectively utilized federal Clean Water Act Section 604(b) funds, a "set-aside" of the Federal Clean Water State Revolving Loan Fund capitalization grant, to further the inventory, evaluation, strategic planning, and management of its water resources. DEC used a portion of FFY 2021 Section 604(b) funds to complete field work, compile data, and generate assessment reports in conjunction with the statewide rotational water quality assessment process. DEC has designed a rotational watershed assessment process with a goal that surface waters (rivers, streams, lakes, ponds) of all 15 major river basins in the state are evaluated once every five years. The assessment process, including preparation of basin-specific assessment reports, is an essential and ongoing first phase of Tactical Basin Plan update and development process.

DEC also used FFY 2021 604(b) funds in conjunction with preparation of the 2020 305(b) Water Quality Assessment Report and to migrate assessment information concurrent with the EPA Assessment, TMDL Tracking and Implementation System (ATTAINS) data management system. The DEC assessment process integrates relevant DEC maintained surface water assessment and planning database information.

DEC continues to allow for the pass through federal Clean Water Act Section 604(b) funding to support water quality and NPS planning activities carried out by the 11 Regional Planning Commissions (RPCs). DEC will continue to assist in the identification and selection of planning activities conducted by the eligible regional comprehensive planning organizations (herein referred to as RPCs) consistent with the following: Statewide Surface Water Management Strategy (revised January 2017); the Lake Champlain Opportunities for Action (2022 version set to be released soon); subsequent phases of Tactical Basin Plans

for Lake Champlain TMDL implementation; and river basin assessment reports incorporated into revised river basin water quality management plans (i.e., DEC's Tactical Basin Plans).⁴

The 604(b) funding also supports surface water reclassification efforts, which includes soliciting support from municipalities for candidate waters that meet reclassification criteria, and which have been identified in Vermont's Tactical Basin Plans.

State-Administered Clean Water Funding

DEC continued to award funds to RPCs, Natural Resource Conservation Districts, and Watersheds United Vermont (WUV) to support Tactical Basin Plan development and outreach in SFY 2021. WUV became a statutory partner to support Tactical Basin Planning in SFY 2021. Funds to support Tactical Basin Plan development and outreach increased to \$600,000 in SFY 2022.

The State of Vermont offers clean water funding opportunities in the form of grants, loans, and contracts across state agencies from a variety of sources, including the Clean Water Fund (CWF), Clean Water State Revolving Loan Fund, Capital Bill, Transportation Fund, Lake Champlain Basin Program federal funds, and many others as shown in Figure 1. Vermont's CWF was established by Act 64 of 2015 (i.e., the "Vermont Clean Water Act"). CWF and Capital Bill clean water dollars are proposed for appropriation by the Clean Water Board through an annual budget process with public participation opportunities. All state investments made across agencies in support of clean water projects are reported in the *Vermont Clean Water Initiative Annual Performance Report*. Chapter three of the 2021 Performance Report contains a progress update for the Lake Champlain TMDL. EPA uses the Performance Report to issue report cards on progress implementing the Lake Champlain TMDL, targeting its review of the Tactical Basin Planning watersheds due for interim and final report cards, per the schedule defined in Lake Champlain TMDLs accountability framework.⁵ The Performance Report dataset is made available to the public through two online tools.

1. The "Clean Water Projects Explorer" allows interested parties to search for and learn more details about individual state-funded clean water projects. The Explorer also contains potential projects identified through Tactical Basin Planning.
2. The "Clean Water Interactive Dashboard" (CWID) is an online tool that allows interested parties to interact with Performance Report data on investments, project outputs, estimated pollutant load reductions and project cost effectiveness.⁶

⁴ 2017 Statewide Surface Water Quality Strategy, available at: <https://dec.vermont.gov/watershed/map/strategy>. Lake Champlain Opportunities for Action, available at: <https://www.lcbp.org/about-us/opportunities-for-action>. Tactical Basin Plans, available at: <https://dec.vermont.gov/water-investment/watershed-planning>.

⁵ For more information on TMDL report cards visit: <https://dec.vermont.gov/watershed/restoring/champlain>

⁶ Clean Water Projects Explorer and Clean Water Interactive Dashboard are available via the Clean Water Portal:

Investments by Funding Source

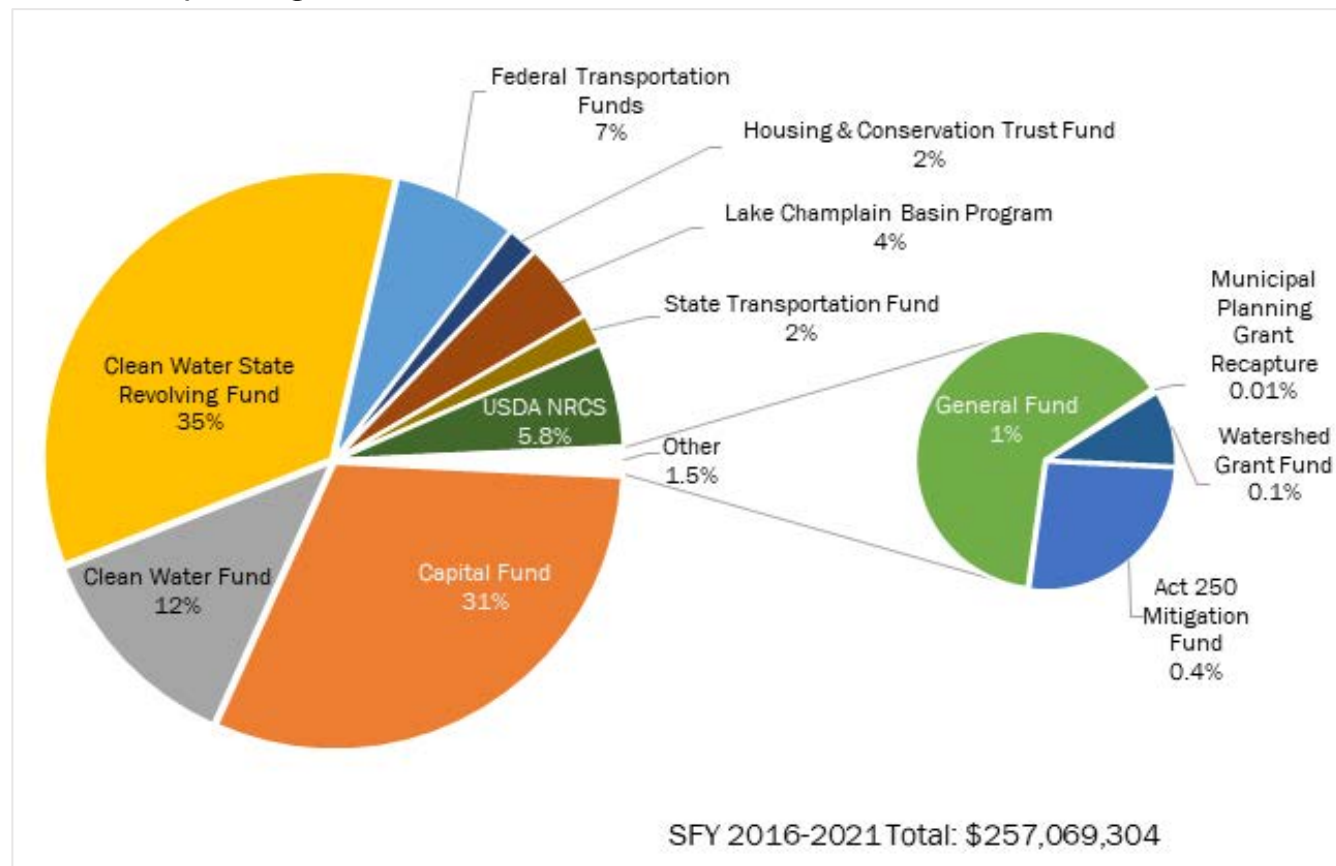


Figure 1. Proportion of dollars awarded to clean water projects through State of Vermont agencies, SFY 2016-2021 by funding or financing source (see the *Vermont Clean Water Initiative 2021 Performance Report*).

DEC CWIP staff supported a variety of efforts during the reporting period to fund, track, and report on NPS projects, including:

- Assisting the Clean Water Board in completing its SFY 2021 and 2022 clean water budget process and initiating its SFY 2023 clean water budget process;
- Awarding millions of state dollars to NPS projects through Dam Removal Grants, River Corridor Easement Grants, Design/Implementation Block Grants, Woody Riparian Buffer Restoration Grants, and various other block grants;
- Tracking and accounting outputs and outcomes for all CWIP-funded clean water projects in the

<https://dec.vermont.gov/water-investment/cwi/projects/clean-water-portal>.

state's tracking database;

- Developing and documenting methods to account for nutrient pollutant reductions to show progress toward meeting TMDLs;
- Fulfilling all Section 319 planning and reporting requirements;
- Coordinating with state and federal agencies to gather clean water project data through state funding programs, federal funding programs, and regulatory programs; and
- Publishing the *Vermont Clean Water Initiative Annual Performance Report*, which fulfills the State of Vermont's clean water investment statutory reporting requirements and Lake Champlain TMDL progress federal reporting requirements.

DEC staff, working under Vermont's NPS Management Program, assisted in the planning, review, selection, initiation, management, and closing out of NPS projects funded through CWIP grants and contracts.

Concurrently with Vermont's budgeting, granting, and reporting processes, DEC has begun implementing elements of the Clean Water Service Delivery Act (Act 76 of 2019). The Act requires that the Agency assign, by rule, entities that will serve as Clean Water Service Providers (CWSPs). The final Rule was approved by the Legislative Committee on Administrative Rules and is effective August 12, 2021.⁷

DEC staff have worked with stakeholders this reporting period to meet several Act 76 milestones including: documentation of phosphorous accounting methods across all sectors; documentation of a formula grant methodology based on five-year non-regulatory phosphorous reduction targets by basin; and development of a new operation and maintenance program framework for installed clean water projects. Staff completed documentation of clean water project phosphorus accounting methods across the agricultural, developed lands, and natural resources sectors (including forestry and floodplain and river restoration) and posted for public notice.

DEC established a method to allocate funds to CWSPs via Water Quality Restoration Formula Grants. Formula Grants will target phosphorus reductions necessary to restore Lake Champlain and Lake Memphremagog through actions not compelled by regulatory programs (i.e., non-regulatory clean water projects). DEC first established non-regulatory phosphorous reduction targets for the Lake Champlain and Lake Memphremagog phosphorus TMDLs by watershed. Formula Grant funds will be allocated to CWSPs based on non-regulatory phosphorus reduction targets and a standard cost per unit of phosphorus reduced.

⁷ The updated rule and other information about Act 76 can be found here: <https://dec.vermont.gov/water-investment/statutes-rules-policies/act-76>

Staff are also working to establish a framework to support operation and maintenance (O&M) and verification of existing and newly implemented clean water projects. This will be a new program to help ensure long term performance of non-regulatory clean water projects.

Continued Coordination with USDA-NRCS

DEC staff continued to participate as a member of U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) State Technical Committee to advise on cost-sharing assistance programs for Vermont landowners seeking to implement conservation practices. Staff coordinate with NRCS and AAFM on all aspects of agricultural and natural resources planning and water quality improvement and using technical and financial resources efficiently.

USDA-NRCS National Water Quality Initiative

DEC staff continue to engage with NRCS under the National Water Quality Initiative (NWQI) program in Vermont. The NWQI focuses conservation funding on priority HUC-12 watersheds, as recommended by state water quality agencies, for addressing agricultural sources of NPS pollution. DEC coordinates with the Vermont Office of NRCS on NWQI watershed identification and selection and, when applicable, coordinates funding of NWQI activities. For designated NWQI watersheds, DEC ensures water quality monitoring data is made available to NRCS to help partner agencies assess water quality improvements in NWQI watersheds. In FFY 2020, East Creek and Hungerford Brook were two NWQI watersheds targeted for conservation practice implementation and committed \$663,477 in cost share dollars. Rock River was added back for FY21 and committed \$67,892.

USDA-NRCS Region Conservation Partnership Program Grants

DEC coordinates with partners on multiple NRCS Regional Conservation Partnership Program (RCPP) grants in the State of Vermont. In April 2021, DEC completed their 6-year RCPP agreement, focusing on accelerated implementation of agricultural and forestry conservation practices. Outcomes included \$7.6 million in EQIP funds spent in 111 contracts, 35 agricultural and wetland easement projects totaling \$4.8 million, 515 technical farm visits and 15,589 acres of conservation planning. In January 2021, DEC signed an agreement with NRCS to extend RCPP for an additional five years, and with an additional \$10 million. These funds will be split among the following categories:

- Agricultural best management practices: \$2,500,000
- Forestry best management practices: \$1,000,000
- Wetland restoration: \$250,000
- Agricultural/forestry easements: \$2,250,000
- Wetland easements: \$1,000,000
- Technical assistance: \$2,500,000

A supplemental agreement allocating funds to DEC was signed and outreach began for development of

the RCPP practice scenarios, standards, and payments.

DEC has also coordinated with multiple partners in establishing and providing support for other RCPP grants in Vermont. One of these, the Memphremagog Long-term Water Quality Partnership RCPP grant, has also been renewed for five years.

303(d) List and Total Maximum Daily Load Development

The 2020 303(d) listing cycle was completed in September 2020 with EPA's approval of the 303(d) List⁸, as described in the 2020 annual report. There are no further 303(d) listing actions in FY 2021 because work on the 2022 list did not commence until after the reporting period.

DEC staff completed impaired waters remediation planning, TMDL planning and development, and continued 303(d) assessment activities during this reporting period. TMDL development activities included:

- TMDL methodologies were developed, and data collection initiated for a chloride TMDL in Sunnyside Brook. This methodology will be transferable to an emerging water quality problem identified in the state. Data collection for this TMDL was completed and TMDL write-up commenced.
- NPS phosphorus TMDL alternatives are under development for ten small streams in Basins 5 and 6, Northern Lake Champlain Direct and Missisquoi River respectively. Rather than developing complex phosphorus TMDLs in these waters, a more "direct to implementation" approach is being developed in cooperation with EPA called an Alternative Restoration Plan (ARP). It is anticipated that a target loading analysis report and the respective Tactical Basin Plans will act in concert to provide the necessary planning to restore these waters.

Activities related to the Long Island Sound Nitrogen TMDL include representing Vermont on EPA's Nitrogen Reduction Strategy Technical Work Group. This group reviews EPA and contractor work in the development of nitrogen thresholds and ultimately nitrogen allocations to the states.

Considerable time was devoted to EPA's national TMDL/303(d) Program "Vision," including work related to the Vision Priorities, participation in multiple webinars and conference calls and the national TMDL workshop held by EPA.

Ongoing work related to alternative water quality remediation plans continued, including remediation plans for habitat and water quality improvements at Jay Peak, Stowe, and Stratton Mountain resorts. These efforts involve reviewing and commenting on annual implementation progress reports, conducting site visits, and holding annual public meetings.

⁸ The 2020 303(d) list available here:

https://dec.vermont.gov/sites/dec/files/documents/mp_PriorityWatersList_PartA_303d_2020.pdf.

Stormwater Management Priority Focus Areas

Municipal Stormwater Mapping and Stormwater Permit Inspections

DEC staff provided final reports and stormwater infrastructure maps for the Villages of Ferrisburgh, Sheldon Junction, East Highgate, and the Towns of Stowe, Addison, Mendon, and Bridport. Updated stormwater infrastructure data was collected for Barnet, Calais, Charlotte, Chittenden, Elmore,

Enosburg, Franklin, Hardwick, Highgate, Ira, New Haven, North Hero, Orange, Pittsford, Rutland City, Shelburne, Sheldon, St. George, Wallingford, Westfield, and Williston. During the reporting period, DEC staff inspected 59 stormwater permitted facilities in the towns listed above and sent the findings to the Stormwater Program.

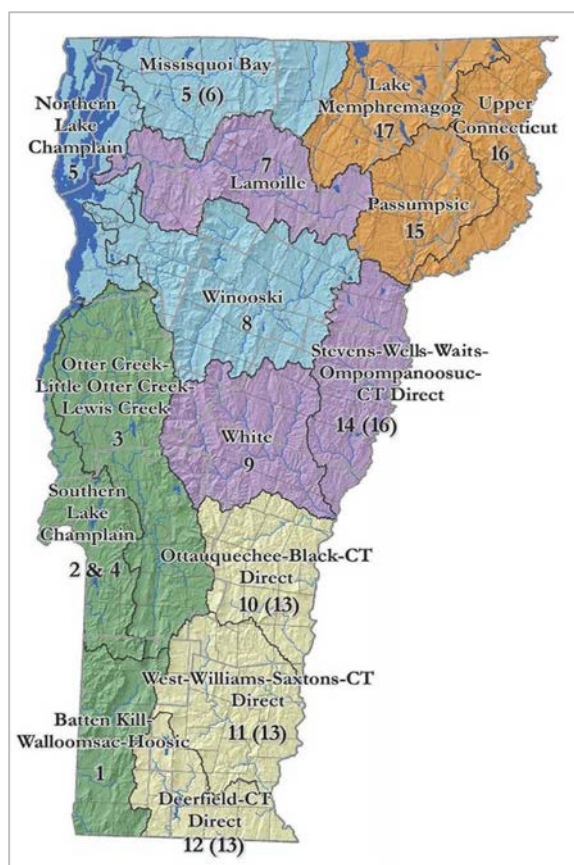


Figure 2. Tactical Basin Planning boundaries by watershed name and number

Illicit Discharge Detection and Elimination

DEC staff participated in the public noticing of illicit discharges and oversaw four illicit discharge detection and elimination (IDDE) contracts during the reporting period. Contracts awarded or managed during this period involved IDDE work in the Deerfield River (Basin 12) and the Battenkill, Hoosic, and Walloomsac River Basin (Basin 1), three statewide IDDE contracts. This includes about 70 small towns statewide. Figure 2 shows watershed/basin boundaries by name and basin number. Seven illicit discharges are under investigation in Montpelier, and two in Bennington. The follow up has been delayed due to COVID. New illicit discharges have been found in Arlington, Concord, Barre City, and Highgate Springs. Several discharges have been confirmed to be eliminated through monitoring. Ten discharges in the MS4 communities of Burlington and St. Albans City are still under investigation.

Grant Technical Assistance and Education

DEC staff participated in the Chittenden County Regional Stormwater Education Program steering committee meetings during the reporting period. Staff collaborated with the U.S. EPA, U.S. Geological Survey (USGS) New England Water Science Center, the University of Vermont, nine municipalities, and the Chittenden County Regional Planning Commission on a two-year study on the effectiveness of street cleaning practices and strategies for improving phosphorus reduction. Towns have the option to obtain sweeping credit by sweeping leaves four times in the fall to achieve required phosphorus reductions

under the Lake Champlain TMDL. To date, 5 towns have chosen to submit for street cleaning credits.

Staff met with numerous towns statewide on stormwater retrofit projects and provided technical assistance on preliminary and final designs.

Staff provided technical and geographic information system (GIS) assistance in development of the Municipal Roads General Permit (MRGP). Road segments with stormwater collection systems throughout the state have been mapped and added to the MRGP hydrologically connected road segment database.

The Green Infrastructure Roundtable is a statewide group of Green Stormwater Infrastructure (GSI) practitioners. In 2021, feedback was gathered from partners on needs and future directions for this group and the previous strategic plan was updated for 2022-2026. An Advisory Committee was reconvened and met once to review the strategic plan, share information of mutual interest, and discuss technical and programmatic topics.

Stormwater Technical Assistance

DEC staff provided Stormwater Master Planning technical assistance to the following towns and entities: Bethel, Lyndonville, Bellows Falls-Rockingham, Brattleboro, Manchester, Stowe, Williamstown, Windsor and Woodstock, Cambridge, Johnson, Springfield, Milton, Rutland, Richford, Concord, Rochester, Bristol, Waitsfield, and the Poultney River Watershed Towns.

DEC staff provided stormwater reports on the 2020 303(d) listed streams impaired or stressed for stormwater runoff including Giddings Brook in Enosburg, Blanchard Brook in Montpelier, Tenney Brook in Rutland, Deer Brook in Georgia, Munson Brook in Manchester, Inn Brook in Stowe, Dothan Brook in Hartford, Baselodge Tributary in Dover, Big Spruce-Little Spruce, Inn Brook and the West Branch in Stowe, the Brewster River in Cambridge, Coeman and Trailside Brook in Ludlow, Dothan Brook in Hartford, Gunner Brook in Barre, Kedron Brook and the Lower Ottauquechee River in Woodstock, Mill Brook in Windsor, Munson Brook in Manchester, Patrick Brook in Hinesburg, and Roberts Brook in St Johnsbury,

DEC staff provided comments to the DEC Wastewater Program and the Towns of St. Johnsbury and Rutland City on their next draft Combined Sewer Long Term Control Plans. Numerous combined sewer surface inlet locations in each service area were noted and several significant mapping mistakes by consultants were found and corrected. Staff also provided comments on the implementation phase(s) of the upcoming municipal combined sewer separation projects.

River and River Corridor Management

DEC Rivers Program field staff receive and respond to an average of ten new requests per day from landowners, municipalities, and other state agencies for technical and regulatory assistance on river and

floodplain projects. In FFY 2021, Rivers Program staff provided technical assistance on 2,068 projects, permitted or were involved in the permitting of 1,142 projects, and offered 272 hours of training. This level of interaction shows that adoption of state river conservation policies and the establishment of the Vermont DEC Rivers Program has increased awareness of the environmental damage and erosion hazards of river and floodplain encroachments.

The river engineers and scientists play a critical role in providing technical and regulatory assistance based on sound river science. Vermont is protecting flows and managing streams toward their least erosive, equilibrium condition using science-based rules, technical assistance, and training. Resolving conflicts between human activities and development and river dynamics is resulting in the restoration of floodplain functions and the long-term reduction of nutrient and sediment pollution driven by erosion of stream banks.

The Rivers Program initiated the Functioning Floodplains Initiative (FFI) in 2019. The FFI is developing methodologies for evaluating river reach and watershed-scale restoration of stream, riparian, wetland, and floodplain function. The identification and prioritization of natural resource conservation and restoration projects will be vastly improved through a publicly accessible mapping platform. The initiative seeks to garner local community support by tracking and publicizing the accumulation of the natural and socio-economic assets derived from connected and naturally functioning floodplains and wetlands.⁹

Phase 1 FFI contract work began in March 2019 and was completed in June 2021. Phase 1 developed methods and maps to quantify and display stream and floodplain connectivity and optimal locations where restoration and protection practices would increase connectivity and stream equilibrium conditions. Work under the Phase 2 contract began in 2020 and work will continue until January 2023. Phase 2 is building upon the stream and floodplain connectivity mapping and the hydrology-hydraulics framework developed in Phase 1 to include:

- Maps of river, wetland, and floodplain forms with estimates of dynamic processes (flow storage, sediment erosion/deposition, and nutrient and carbon retention) to indicate a weighted prioritization of wetland/floodplain and river reconnection projects in a river network context.
- Ecological and economic valuation of floodplain functions to inform weighted priorities for restoration and conservation projects.
- Five-year estimated allocations for pollutant load reductions for Lake Champlain sub-watersheds at the HUC 12 scale. This includes pollutant reduction accounting methods for common restoration and protection practices.

⁹ An FFI project summary and supporting information is available here: <https://dec.vermont.gov/rivers/ffi>.

- A web-based system to track implementation, effectiveness, and value of river and floodplain/wetland restoration and conservation projects.
- Training modules and a user manual for the web-based tracking tools.
- Outreach materials that can be used to engage a greater range of stakeholders in the initiative and learn about their perceptions of place and river dynamics as they relate to both local and statewide initiatives to reconnect Vermont's rivers.

The FFI project is at the most cutting edge of advanced science-based river management and will serve as a template internationally for jurisdictions where policy directs pursuit of river equilibrium. The project is being funded by the Lake Champlain Basin Program and the State of Vermont (via the Clean Water Fund and Clean Water State Revolving Fund).

Lakes and Ponds Watershed and Shoreland Management

DEC's Lakes and Ponds Program continued work on numerous priorities identified in the Program's Strategic Plan aimed at reducing nonpoint source pollution, namely:

- Better integrate Lakes and Ponds Program priorities into the Tactical Basin Planning process.
- Empower lake leaders to participate in monitoring and managing their lakes including through direct participation in monitoring and project planning, including water quality in lakes and lake tributaries.
- Preserve and restore the natural lakeshore to protect and improve water quality, aquatic and terrestrial wildlife habitat, and lake ecosystem functions.
- Implement a suite of shoreland protection and lake encroachment regulatory actions collectively aimed at reducing nonpoint source pollution to lake ecosystems.

The Lakes and Ponds Program actively participates in the Watershed Management Division's Annual Monitoring Summit each year, aimed at coordinating monitoring teams across the Division. Goals of the summit are to review water quality challenges in the three basins that are next in the pipeline for the assessment phase of Tactical Basin Planning, prioritize sites for monitoring during the coming field season, and coordinate monitoring efforts across the Lakes and Ponds, Monitoring and Assessment, Rivers, and Wetlands Programs. In 2021, the Monitoring Summit focused on coordinating staff sampling of surface waters, expanding the scope of the Vermont Lay Monitoring Program, improving integration between in-lake

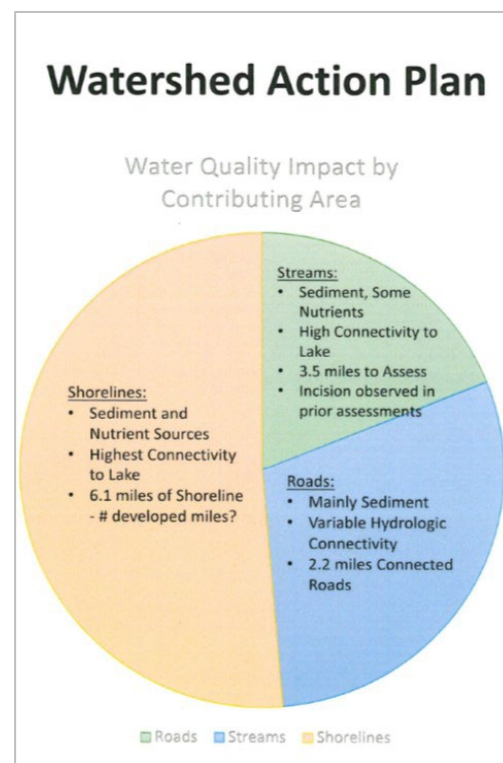


Figure 3. Water quality impacts by contributing area, identified in the Lake Eden Watershed Plan.

sampling and lake tributary sampling performed through the LaRosa Watershed Partnership (both vital statewide citizen monitoring programs) and increasing monitoring for invasive species. The Summit also identified priority sites for continued cyanobacteria monitoring at inland lakes and on Lake Champlain.

These summits highlight the need to protect many of Vermont's lakes from excessive nutrient loading and restore other lakes that have already been negatively impacted from cultural eutrophication. In 2021, the Lakes and Ponds Program continued to implement a new clean water project type called Lake Watershed Action Plans which have been incorporated into Tactical Basin Plans and the Watershed Projects Database. The Lakes and Ponds Program is scaling up this process at lakes across the state. Watershed Action Plans are under development and implementation at four lakes (Carmi, Eden, Dunmore, and Elmore) and future watershed action plans are being developed at an additional nine lakes (Iroquois, Fairfield, Caspian, St. Catherine, Fairlee, Maidstone, Morey, Willoughby, and Shadow-Glover). The Lake Eden, Lake Elmore, and Lake Dunmore Watershed Plans were completed in 2020-2021, and provide a template for other lake watersheds to understand the major water quality threats and solutions in and around the lake. These plans combine assessments of three contributing areas: shoreland, roads, and tributaries (Figure 3).

The Lakes and Ponds Program has continued implementation of a Lake Carmi Crisis Response Plan mandated by Act 168 of 2018, which declared Lake Carmi a "Lake in Crisis." From SFY 2016 to SFY 2019, the State of Vermont invested \$1.4 million in clean water projects in Lake Carmi and its watershed and has achieved approximately 41% of the phosphorus reduction required to meet the Lake Carmi Phosphorus TMDL according to modeled estimates.¹⁰ Continued investments and efforts across all land use sectors within the Lake Carmi watershed are needed to achieve the remainder of Lake Carmi's TMDL goal, and DEC recently updated the critical path section of the Crisis Response Plan.

The Lakes and Ponds Program also maintained its monitoring efforts during the 2021 field season and was able to resume a more typical suite of lake monitoring programs after some challenges encountered in 2020 due to the COVID-19 pandemic. Volunteer lay monitors collected data throughout the summer at almost 80 lakes and ponds and from tributaries to a subset of around twenty of those lakes. DEC scientists collected high-frequency data to monitor the impacts of climate change at five sentinel lakes and performed next generation lake assessments, macrophyte surveys, and a water drawdown impact assessment at Miles Pond during the 2021 field season. Monitoring for aquatic invasive species also continued during the 2021 field season, with response to new and possible infestations of Eurasian Water Milfoil and Zebra Mussels respectively at a number of inland lakes, and a new water chestnut infestation detected and eradicated at a site on the Connecticut River (Rockingham).

¹⁰ Modeled estimates of total phosphorus load reductions achieved by clean water projects implemented in the Lake Carmi watershed are summarized in the *2019 Lake Carmi Clean Water Progress Report*, available here: <https://dec.vermont.gov/sites/dec/files/wsm/erp/docs/2019%20Lake%20Carmi%20Clean%20Water%20Progress%20Report%20AMENDED%207.17.2020.pdf>.

The Lake Wise Program provides technical assistance to shoreland property owners seeking to restore previously developed property. In 2021, the Lake Wise Program supported bioengineering projects to restore living shorelands on five lakes, including:

- Lake Fairlee: Establishment of shoreland buffers with native plantings at the Treasure Island Public Beach Site to reduce shoreline erosion and stormwater runoff.
- Lake Hortonia: Shoreline stabilization project which used fiber coir rolls to establish a new toe and regraded to a gentle slope and prepared for plantings (Figure 4). Native plants are used because of their value as keystone species for healthy lake ecosystems and to avoid ever introducing invasive, non-native species. The network of plant roots grip and bind the bank, while the rest of the plant filters upland runoff, intercepts pelting rain and snow, shades the water, and feeds the wildlife.



Figure 4. Before (left), during (center) and after (right) installation of a Lake Wise project showing fiber coir roll toe placement with an erosion control blanket along Lake Hortonia in Sudbury, VT.

Agency of Agriculture, Food and Markets Nonpoint Source Programs

The remaining 16 percent of Vermont's 2019 Section 319 award was passed through to the Vermont AAFM. AAFM used FFY 2021 Section 319 funds to carry out portions of its agricultural NPS reduction program across the state. AAFM's agricultural NPS program, assisted by Section 319 funds, involves:

- Engineering technical assistance to landowners on best management practice (BMP), conservation practice, and waste management recommendations and designs;
- Coordinating with NRCS in the review and certification of BMPs receiving federal and state cost-share funds; and
- Resources and materials to assist in conservation planning and engineering design.

Completed Section 319 and Leveraged Watershed Projects

COMPLETED SECTION 319 PROJECTS

DEC has not awarded Section 319 funds directly to watershed projects since 2011, therefore, no Section 319-funded projects were completed during this reporting period.

COMPLETED LEVERAGED WATERSHED PROJECTS

Vermont DEC retains and expends “Section 319 watershed funds” for NPS program purposes, and therefore is required to leverage Section 319 funds with state funded NPS projects. Each year, DEC and EPA agree on state funded NPS projects that qualify as Section 319 leveraging. In FFY 2021, eight state funded leveraged NPS projects were completed and administratively closed. The results of these projects are summarized in Appendix C of this report and are also reported in EPA’s Section 319 Grants Reporting and Tracking System (GRTS). Where feasible, DEC reports on the estimated annual NPS pollution reductions accomplished by completed projects. Reported pollutant reductions are modeled estimates based on DEC’s phosphorus accounting methodologies.¹¹ Actual pollutant reductions are influenced by a range of factors such as BMP type, maintenance status, land use changes, and variations/extremes in weather (e.g., precipitation and runoff).

Appendix B of this report summarizes the status of all Section 319 leveraged watershed projects from FFY 2014 through FFY 2021. Additional details on all listed projects, completed or active, can be obtained by contacting the Vermont NPS Coordinator, by visiting the Clean Water Project Explorer, or through GRTS.

Ongoing Section 319 and Leveraged Watershed Projects

SECTION 319 PROJECTS

There are no active Section 319-funded NPS projects in Vermont. DEC has not awarded Section 319 funds to directly to watershed projects since 2011.

LEVERAGED WATERSHED PROJECTS

Appendix B of this report lists NPS projects used for Section 319 leveraging purposes from FFY 2014

¹¹ For more information, on project tracking and accounting visit: <https://dec.vermont.gov/water-investment/cwi/projects/tracking-accounting>

through FFY 2021. The status of projects (ongoing, completed, discontinued) are noted along with completion dates (where applicable). The outputs and outcomes of the 8 projects completed within FFY 2021 are described in Appendix C of this report.

Newly added to the list of ongoing projects are five block grant projects approved in the FFY 2021 workplan. Once known, individual projects under those block grants will be identified for EPA and subsequently updated in future annual reports and in GRTS.

Acronyms

AAFM	Agency of Agriculture, Food and Markets
BMP	Best Management Practice
CWF	Clean Water Fund
CWIP	Clean Water Initiative Program
CWSP	Clean Water Service Provider
DEC	Department of Environmental Conservation
EPA	Environmental Protection Agency
FFI	Functioning Floodplain Initiative
FFY	Federal Fiscal Year
FPR	Department of Forests, Parks and Recreation
FTE	Full Time Equivalent
GRTS	Grants Reporting and Tracking System
GSI	Green Stormwater Infrastructure
IDDE	Illicit Discharge Detection and Elimination
MRGP	Municipal Roads General Permit
NPS	Nonpoint Source
NRCS	Natural Resources Conservation Service
NWQI	National Water Quality Initiative
PPA	Performance Partnership Agreement
RCPP	Regional Conservation Partnership Program
RPC	Regional Planning Commission
SFY	State Fiscal Year
TMDL	Total Maximum Daily Load
USDA	U.S. Department of Agriculture

Appendices

**APPENDIX A – ANNUAL REPORT ON NONPOINT SOURCE MANAGEMENT
PLAN MILESTONES 2021-2025**

**APPENDIX B – SECTION 319 LEVERAGED WATERSHED PROJECTS AND
STATUS**

**APPENDIX C – OUTPUTS AND OUTCOMES OF SECTION 319 LEVERAGED
PROJECTS COMPLETED IN FFY 2021**

Appendix A: Annual Report on Nonpoint Source Management Plan Milestones 2021-2025

Each milestone lists a status such as “ongoing”, “complete”, or “not started”. If a milestone is complete for the current year, but will continue into future years, it is listed as “Complete/Ongoing”. There are bolded requested adjustments to milestone reporting requirements. Please indicate if these are acceptable adjustments.

Objectives Table 1. Required Agricultural Practices and Regulatory Program Lead Entity: AAFM unless otherwise noted									
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
1.1	Revise the Required Agricultural Practices (RAP) rule	<ul style="list-style-type: none"> Update definition and requirements for Custom Manure Applicators Develop Technical Service Provider (TSP) certification program Develop and provide guidance for managing agricultural activities related to wetlands 	<ul style="list-style-type: none"> Rulemaking complete for revised Custom Manure Applicator statute update and TSP certification Complete Wetlands rulemaking 	x					Ongoing- Rule revisions to the Custom Manure Applicator definition has been completed. Rules related to the TSP certification program and wetlands is ongoing.
								X	Ongoing
1.2	Conduct inspections on all Large Farm Operations (LFOs) annually (36 LFOs in 2019)	<ul style="list-style-type: none"> Minimize Large Farm Operation (LFO) NPS pollution Ensure LFO permit terms and provisions, and RAP requirements are being attained 	<ul style="list-style-type: none"> 100% LFOs reporting and inspected annually 	x	x	x	x	x	2021-Complete. In 2021 there were 38 LFOs, of which 100% were inspected. LFOs are on an annual inspection cycle.
1.3	Conduct inspections of Medium Farm Operations (MFOs) on a 3-year inspection cycle (114 MFOs in 2019)	<ul style="list-style-type: none"> Minimize Medium Farm Operation (MFO) NPS pollution. Ensure MFO General Permit terms and RAP requirements are being attained 	<ul style="list-style-type: none"> All permitted MFOs inspected at least once every three years. In order to meet rotation schedule, AAFM will inspect approximately 33% of MFOs each year 	x	x	x	x	x	2021-Complete/Ongoing. In 2021 there were 110 MFOs, of which 20% were inspected. MFOs are on a three-year inspection cycle. ¹
1.4	Revise MFO General Permit - every 5 years	<ul style="list-style-type: none"> Revise MFO General Permit, to ensure consistency with current water quality regulations and conservation practices 	<ul style="list-style-type: none"> Initiate MFO General Permit Revisions Complete revisions, release new MFO General Permit 		X				Not started
						X			Not started
1.5	Conduct inspections of Certified Small Farm Operations	<ul style="list-style-type: none"> Reduce Certified Small Farm Operation (CSFO) and Small 	<ul style="list-style-type: none"> All CSFOs inspected at least once every 7 	x	x	x	x	x	2021-Complete/Ongoing. In 2021 there were 297 CSFOs, of which 10% were inspected. CSFOs are on a seven-year inspection cycle. ¹

Objectives Table 1. Required Agricultural Practices and Regulatory Program Lead Entity: AAFM unless otherwise noted									
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
	(CSFOs) on a 7-year inspection cycle (312 CSFOs in 2019)	Farm Operation (SFO) NPS pollution <ul style="list-style-type: none"> Assess CSFO compliance with RAP requirements 	years. In order to meet the inspection schedule, AAFM will inspect approximately 14% of CSFOs each year						
1.6	Conduct Vermont Housing Conservation Board (VHCB) water quality assessments per AAFM/VHCB grant agreement (Average 15 VHCB water quality assessments per year)	<ul style="list-style-type: none"> Annually meet the terms of the AAFM/VHCB grant agreement, ensuring water quality assessments for farmland conservation applicants are completed to assess compliance with the RAPs 	<ul style="list-style-type: none"> 100% of VHCB farms agreed upon in the workplan will have a current water quality assessment 	x	x	x	x	x	2021-Complete/Ongoing. In SFY21 AAFM conducted 3 on-farm water quality assessments per the AAFM/VHCB agreement ¹
1.7	Ensure implementation and compliance of the AAFM/ANR Memorandum of Understanding (MOU) (DEC & AAFM)	<ul style="list-style-type: none"> Conduct routine meetings between ANR DEC-Watershed Management Division (WSMD), DEC-CED, VT Attorney Generals' Office, and AAFM to share current activities and review cases Institute measures or protocols to ensure consistency between DEC and AAFM during farm inspection process Coordinate with DEC-WSMD to review new or amended LFO permits <p>Note: actions above are a collaboration between AAFM and DEC</p>	<ul style="list-style-type: none"> MOU report annually demonstrating successful implementation of MOU accepted by the Vermont Legislature 	x	x	x	x	x	2021-Complete/Ongoing. The SFY21 DEC/AAFM MOU report was submitted January 15, 2022 to the Vermont Legislature. Link to AAFM-ANR-MOU Annual Report

¹ Milestone percentages are idealized annual targets, but work fluctuates each year. Due to the COVID19 inspections conducted during the pandemic (specifically July 1, 2020 – June 1, 2021) did not follow normal inspection protocols. All main facilities were inspected, and any additional facilities that were previously required the farm to make corrective measures were inspected. This change in procedure was necessary to maintain social distancing and to minimize the person-to-person contact, while still ensuring oversight of environmental water quality requirements. This change in procedure supported achieving the statutory requirements to complete large farm inspections annually, while still providing the opportunity to meet statutory requirements to inspect medium farm inspections every three years and certified small farm inspections every seven years.

Objective Table 2. Agricultural Outreach, Education, Technical Assistance and Financial Assistance

Lead Entity: AAFM unless otherwise noted

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress
2.1	Support partner technical assistance and educational events promoting Nutrient Management Planning (NMP) development and implementation (AAFM)	<ul style="list-style-type: none"> Provide financial support to partners to host NMP development, implementation, and update workshops and provide NMP technical assistance 	<ul style="list-style-type: none"> Annual report summarizing partner education and technical assistance efforts related to NMP development and implementation 	X	X	X	X	X	2021-Complete/Ongoing - In SFY21, partners provided 8 nutrient management related events, reaching 155 attendees. In addition to organized events, partners continue to provide one-on-one technical assistance related to NMP development and implementation to farmers across the State.
2.2	Expand NMP educational and training opportunities (AAFM)	<ul style="list-style-type: none"> Develop and deliver NMP training program(s) for Custom Manure Applicators and Technical Service Providers, requiring educational credits 	<ul style="list-style-type: none"> 80% certified technical service providers and certified custom manure applicators in compliance with educational credit requirements 					X	Ongoing
2.3	Provide technical and financial assistance for field and manure management practice implementation (AAFM)	<ul style="list-style-type: none"> Deliver AAFM cost share and technical assistance programs that promote agronomic and manure management practices (BMP, FAP, CEAP, CREP) 	<ul style="list-style-type: none"> Annual report funding and acreage of conservation practices implemented through AAFM cost share programs Over course of 5 years cumulative increase in p-reductions achieved as a result of field practice implementation 	X	X	X	X	X	2021-Complete - Link to AAFM Annual Report on Financial and Technical Assistance for Agricultural Water Quality
2.4	Promote improved grazing, pasture management, and livestock exclusion (AAFM)	<ul style="list-style-type: none"> Support agricultural partners and existing pasture based technical assistance programs, to provide technical and financial assistance for 	<ul style="list-style-type: none"> Annual report of funding, technical assistance visits, and acreage of pasture conservation practices implemented 	X	X	X	X	X	2021-Complete. Link to AAFM Annual Report on Financial and Technical Assistance for Agricultural Water Quality

Objective Table 2. Agricultural Outreach, Education, Technical Assistance and Financial Assistance Lead Entity: AAFM unless otherwise noted									
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress
		grazing pasture management and exclusion fencing practices.	through AAFM cost share programs						
2.5	Continue research and development of best management practices for tile drain systems (AAFM)	<ul style="list-style-type: none"> Continue tile drain sampling and research data analysis Continue development of Best Management Practices (BMPs) for tile drain management based on research and data analysis, and provide outreach and education on developed BMPs 	<ul style="list-style-type: none"> Deliver annual update to partners and the agricultural community on tile drain research, sampling and BMP updates 	X	X	X	X	X	Ongoing – Tile drain sampling has been completed, analysis is ongoing.
2.6	Conduct Conservation Practice Surveys and Conservation Adoption social science efforts and surveys (AAFM)	<ul style="list-style-type: none"> Support partner efforts to understand, track, and report farmer funded conservation adoption outside of state and federal programs Ensure funding available for education, outreach, and organizational development to support social science approach to conservation efforts 	<ul style="list-style-type: none"> Track and report farmer-funded conservation practice installation in the Partner Database Analyze and develop report summarizing social research results to inform effective and realistic water quality policy and program development 		X	X			Ongoing
								X	Ongoing

Objective Table 3. Agricultural Partnerships and Initiatives Lead Entity: AAFM unless otherwise noted									
	Objectives	Actions by AAFM and partners	Milestones	2021	2022	2023	2024	2025	Progress Update
3.1	Increase water quality improvement	<ul style="list-style-type: none"> Receive and allocate additional \$10M funding to 	<ul style="list-style-type: none"> Successful implementation of 	X	X	X	X	X	Ongoing -A supplemental agreement between NRCS and DEC has been approved. Approval for funding is in the state financial system.

	<p>through innovative and flexible practice adaptations available through RCPP program in Vermont.</p> <p>(DEC & AAFM)</p>	<p>extend RCPP through 2025 (DEC, AAFM)</p> <ul style="list-style-type: none"> • Apply for and implement additional RCPP funds as possible (DEC, AAFM) <p>Note: DEC will lead the above actions with support from AAFM</p>	<p>Regional Conservation Partnership Program (RCPP) \$10M extension in producer contracts and quantified reductions.</p>						<p>However, extensive work has been done on outreach to partners to develop RCPP practice and land rental priorities. Farmers will be eligible for funding in the 2023 fiscal year.</p>
3.2	<p>Improve understanding of land treatment and water quality response in conjunction with National Water Quality Initiative (NWQI) (Rock River, East Creek and Hungerford Brook)</p> <p>(DEC)</p>	<ul style="list-style-type: none"> • Review current NWQI projects with partners and identify more site-specific monitoring and localized opportunities for water quality improvement (DEC, AAFM, partners) • Carry out water quality monitoring efforts and interpret monitoring data (DEC). • Acquire non-sensitive information from NRCS regarding land treatment implementation (DEC, AAFM) <p>Note: DEC will lead the above actions with support from AAFM</p>	<ul style="list-style-type: none"> • NWQI progress reports submitted to EPA on annual or biannual basis. • Mutually agreed upon process to document the nature and location of treatment. 	X	X	X	X	X	<p>Ongoing- Total NWQI Implementation (East Creek/Rock/Hungerford) - \$731,369 through 10 contracts</p> <ul style="list-style-type: none"> - East Creek- 3 contracts - \$185,368 - Rock - 3 contracts - \$67,892 - Hungerford - 4 contracts - \$478,109
				X					<p>Ongoing -Water quality monitoring in the Rock River is being expanded under the DEC RCPP program, to increase understanding of responses to BMPs and prioritization of additional projects. We expect to begin a stream assessment project in the upper headwaters of Rock River to evaluate the influence of sediment on Rock River water quality.</p>

3.3	Initiate and expand alternative incentive programs and new approaches to conservation incentives	<ul style="list-style-type: none"> Finalize and implement existing ESP type pilot programs Examine alternatives or develop new approaches to conservation incentives Initiate development of a program that evaluates the feasibility and metrics of a carbon sequestration program Continue Payment for Ecosystem Services (PES) working group discussions and program development Develop tracking process that coordinates with TMDL phosphorus reduction tracking Initial development of metrics for soil health and carbon sequestration <p>Note: AAFM will lead the actions above with collaboration from agricultural partners</p>	<ul style="list-style-type: none"> Launch the Vermont Environmental Stewardship Program (VESP) 	X	X	X			Ongoing - In 2021, 4 farms were awarded Vermont Environmental Stewardship certifications through the Pilot program. While the pilot program has been completed, the full launch of the program is currently on hold, as the VT Pay-For-Phosphorus (VPFP) incentive program has launched and the Payment for Ecosystem Services workgroup continues, to assess how the VESP program integrates with current State priorities and initiatives.
3.4	Support agricultural water quality partners to increase and strengthen partnerships, assistance and resources to farms, and efforts to improve water quality	<ul style="list-style-type: none"> Host, maintain, and enhance the Multi-Partner Agricultural Conservation Practice Tracking and Planning Geospatial Database (Partner Database) 	<ul style="list-style-type: none"> Provide Partner Database trainings and support Include farmer-led watershed groups in stakeholder meeting, as applicable 	X	X	X	X	X	2021-Complete/Ongoing – The Partner Database continues to be used for tracking and reporting across the State and organizations. In SFY21, over 5,400 practices and 1,500 visits were reported by 60 users. This resulted in 22 metric tons of delivered p reductions. Utilization of the Partner Database ensures consistent and accurate tracking of TMDL P reductions and enables coordination across organizations.

		<ul style="list-style-type: none"> • Provide support to new and existing farmer-led watershed groups • Provide support to agricultural partners through the Agricultural Clean Water Initiative Program grants (Ag-CWIP) • Continue and expand, if funding allows, technical assistance efforts under Agronomy and Conservation Assistance Program (ACAP). • Support local conservation practice research and monitoring • Administer the VAAFM AgCWIP Grant Program • Research and monitoring results developed and disseminated as available 							
3.5	Collaborate and Coordinate with the Vermont Agricultural Water Quality Partnership (VAWQP)	<ul style="list-style-type: none"> • Implement the VAWQP strategic plan developed in 2019 to build a stronger coalition and share research and learning across the partnership • Create and sustain a formal VAWQP structure • Utilize Tactical Basin Planning to Prioritize watersheds within each Basin • Support Vermont-specific research and monitoring including Conservation Effects Assessment Program in Addison County, Discovery Acres in Franklin County and the MAPHEX (phosphorus removal 	<ul style="list-style-type: none"> • Host biennial research summit where researchers share their findings, results, and on-going work with partners, including Vermont, regional and national experts • Hold Annual VAWQP Meeting, Steering Committee as well as VAWQP Leadership meetings. 	X		X		X	Ongoing - The VAWQP held a science advisory meeting on May 2, 2022 highlighting local and national research.
				X	X	X	X	X	Ongoing - The VAWQP steering committee meets monthly to share information about organizational programs, issues and opportunities for collaboration.

		system) demonstrations in collaboration with Penn State. Note: VAWQP will lead the above actions with support from AAFM and DEC							
3.6	Vermont Phosphorus Innovation Challenge (VPIC)	<ul style="list-style-type: none"> Continue VPIC program development, supporting the development of innovative prototypes to address phosphorus pollution in Vermont (DEC, AAFM) 	<ul style="list-style-type: none"> Administration of VPIC program through VPIC board development, proposal reviews, and grant administration 	X	X	X	X	X	Ongoing – Three grants remain active, with ongoing work in Phase III Implementation.

Objectives Table 4. Nonregulatory Stormwater Management Lead entity: DEC Clean Water Initiative Program									
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
4.1	Increase education and awareness of Operation and Maintenance (O&M) of installed BMPs (in conjunction with Lake Champlain Sea Grant)	<ul style="list-style-type: none"> Organize a regional O&M summit or outreach event each year for partners, municipalities and consultants and track their attendance Train municipalities and private owners of GSI BMPs on maintenance techniques and track attendance at trainings. 	<ul style="list-style-type: none"> Reach at least 150 people per year. Train at least 75 people per year. 	X	X	X	X	X	Ongoing/partially met- DEC provided O&M outreach to an estimated 40 participants at the National Shoreland Erosion Control Certification Program in 2021. DEC presented on O&M to 14 people on the GI roundtable advisory committee. The new O&M program under development will likely not be realistic to focus on such a broad audience. Request an adjustment to 50 people per year.
				X	X	X	X	X	Ongoing- O&M and Verification training programs are in development. We are currently working with stakeholders to determine the best framework to conduct trainings. Trainings are expected to begin within in the next year. Request an adjustment to report on this starting next year.

4.2	Identify priority non-regulatory road segments contributing to NPS pollution and Address runoff (e.g. Private roads)	<ul style="list-style-type: none"> • Develop methods and tools to inventory private roads • Pilot inventory of private roads in high priority watersheds (as defined in Basin Plans, SWMP's etc.) • Identify and implement high priority private road improvement projects • Identify funding sources to implement priority private road projects going forward 	<ul style="list-style-type: none"> • Complete pilot inventory for private roads to identify high priority private roads for remediation • 10% of private roads addressed 		X			X	Not started
									Not started
4.3	Utilize the Basin Planning Process to identify priority municipalities for developing Stormwater Master Plans (SWMPs) and maintain a list of priority proposed stormwater projects to be addressed	<ul style="list-style-type: none"> • Identify priority towns or watersheds that have not completed SWMPs • Implement SWMP's as described in specific Basin planning objectives 	<ul style="list-style-type: none"> • 15 SWMPs out of a total of 150 funded and completed over 5 years 					X	In SFY 2021, SWMPs were completed for towns of Johnson and Ludlow. Staff also provided support for VTrans funded completed plans in Fairlee, Northfield, and Middlebury
4.4	Make progress toward meeting Lake Champlain and Lake Memphremagog developed lands targets through implementation of non-regulatory projects	<ul style="list-style-type: none"> • Fund and implement developed lands treatment projects. 	<ul style="list-style-type: none"> • Adequate progress made on non-regulatory developed lands reductions in Lake Champlain and Memphremagog basins, in relation to 5-year targets. 					X	Ongoing

Objectives Table 5. Minimizing River Corridor and Floodplain Encroachments and Restoring Riparian Buffers

Lead Entity: DEC Rivers Program

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
5.1	Phase 1 Functioning Floodplains Initiative (FFI): identify nature-based projects through scoring, tracking, and mapping of floodplain and wetland functions.	Develop methods and mapping to identify high priority projects to restore and protect stream, wetland, and floodplain functions.	<u>Phase 1</u> , Deliverables completed <ol style="list-style-type: none"> 1. Attainment scoring 2. Connectivity Maps 3. Reconnect VT Rivers Maps 4. Conceptual Hydrology/Hydraulics mapping 	X					Phase 1 Deliverables were completed. Floodplain and stream connectivity methods were applied to full Lake Champlain Basin and are housed on the web map. An interim project report was prepared documenting the Phase 1 methods.
5.2	Phase 2 Functioning Floodplains Initiative (FFI): track existing and potential river form and process, as well as the effectiveness of interventions to improve river and floodplain connectivity and function	Work with contractor to advise and assist in completion of required deliverables	<u>Phase 2</u> Deliverables Completed <ol style="list-style-type: none"> 1. Weighted prioritizations of floodplain and river reconnection projects 2. Function and values assessment and mapping methodologies 3. Web-based mapping and tracking program with training modules 4. Outreach materials reconnect Vermont rivers 5. Final Report/Closeout 		X				Phase 2 Contract was extended to January 2023. Request adjustment to report in 2023- Much of 2021 entailed development of the phosphorous accounting and crediting methodology and report. Phosphorus crediting methods have been incorporated into draft standard operating procedures (SOPs) that were posted for public comment. Research findings were assembled by the UVM members of the FFI team. The FFI Team created resiliency screening methods that are under testing and refinement. DEC continued work on developing a framework for hosting the FFI web-based mapping tools in the near and long term. Web application development continued with the planning application taking shape.

Objectives Table 7. Wetland Protection and Restoration

Lead entity: DEC Wetlands Program

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
7.1	Provide regulatory assistance in wetland avoidance and minimization. restoration	<ul style="list-style-type: none"> Administer Vermont Wetland Rules (VWR). Revise VWR to include greater clarity on avoidance and minimization steps. 	<ul style="list-style-type: none"> Rule revision adoption Yearly reports of wetland losses and gains from permitting. 5-year report of wetland losses and gains demonstrating the achievement no net loss. 	X					Ongoing We are proposing an amendment to the Vermont Wetland Rules to incorporate updates to the Vermont Significant Wetland Inventory (VSWI) map and a general wetland determination. We will be working through Internal and Legislative Committees on Administrative Rules with public comment through 2022. Our plan is to adopt the Rules and update the VSWI in early 2023.
				X	X	X	X	X	Ongoing (next report expected June 2022)
				X					Ongoing (expected July 2022)
7.2	Increase protections for our most irreplaceable wetlands that provide water storage and water quality protection functions.	<ul style="list-style-type: none"> Complete Class I Designations 	<ul style="list-style-type: none"> 2,000 acres of wetland designated as Class I 					X	Ongoing (170 acres to be added in 2022)
7.3	Improve knowledge of wetland locations to enhance wetland avoidance in project design.	<ul style="list-style-type: none"> Update wetland advisory layer and Vermont Significant Wetlands Inventory (VSWI) 	<ul style="list-style-type: none"> 20 square miles added to map layers 					X	Ongoing (~67 square miles to be added to VSWI by 2023)

7.4	Increase wetland acreage and function through restoration of previously drained and degraded wetlands	<ul style="list-style-type: none"> • Provide technical assistance to the Department of Fish and Wildlife's wetland restoration program to ensure projects maximize water quality improvements. • Provide incentive funding to the NRCS WRE program to increase number of farmers enrolled. • Provide grant funding for wetland restoration projects. 	<ul style="list-style-type: none"> • 1,000 acres restored 						X	Ongoing
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Objective Table 8. Lakes and Ponds NPS pollution Lead entity: DEC Lakes and Ponds Program										
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates	
8.1	Reduce runoff from impervious surfaces on shorelands into lakes	<ul style="list-style-type: none"> • Work with shoreland residents through the Lake Wise Program to implement land management practices that reduce this runoff, including planting and maintaining vegetated areas, ensuring clean runoff, and stabilizing banks. • Training Lake Wise Evaluators, individuals qualified to help residents identify sources of runoff and address those through the implementation of best management practices, is another important ongoing effort. 	<ul style="list-style-type: none"> • At least ten new Lake Wise participants identified and shoreland sites assessed during each field season • Ten Lake Wise BMP project sites identified during each summer field season • Complete at least five lake wise implementation projects each summer field season • Two Shoreland Erosion Control Trainings completed each year 	X	X	X	X	X	Compete/Ongoing, milestone met in 2021, may slow down in 2022 due to retirement of Lake Wise Lead	
				X	X	X	X	X	Complete/Ongoing, milestone met in 2021	
				X	X	X	X	X	Complete/Ongoing, milestone met in 2021	
				X	X	X	X	X	Ongoing, trainings limited to one online training during 2020 and 2021 due to the pandemic	
8.2	Identify and address sources of non-point	<ul style="list-style-type: none"> • Develop water quality restoration plans known as 		X					Complete (five lakes identified for DEC-funded LWAPs)	

	source pollution in a lake's watershed and develop projects to reduce loading	Lake Watershed Action Plans (LWAPs) that identify sources of nutrient and sediment loading to lakes, prioritize sources based on various environmental, economic, and social criteria, and design projects to mitigate those sources.	<ul style="list-style-type: none"> Identify five lakes to develop LWAPs Complete five LWAPs pending funding and willing partners Identify funding sources to implement LWAP projects 		X				Ongoing
						X	X	X	Ongoing
8.3	Detect and Eradicate Aquatic Invasive Species (AIS)	<ul style="list-style-type: none"> Implement a series of projects to reduce the spread of AIS enabled by increasing phosphorus concentrations, such as EWM. Award annual grants to support projects that will contain further AIS spread, including the Vermont Public Access Greeter Program which educates boaters and provides courtesy watercraft inspections to prevent invasive plants and animals from spreading from one waterbody to another. 	<ul style="list-style-type: none"> Implement the Greeter Program at 30+ boat access areas across the state on an annual basis to prevent the spread of AIS to lakes where none are currently present 	X	X	X	X	X	Ongoing, complete for 2021
8.4	Reducing non-point phosphorus pollution from roads	<ul style="list-style-type: none"> To help reduce road runoff and protect surface waters, Act 64 mandates all hydrologically connected roads (class one through four) be maintained according to new road drainage standards. One such standard is an exemption that protects trees and shrubs along roads within 250 feet from cutting or moving and prevents roads from being widened toward 	<ul style="list-style-type: none"> Completion of Bioengineering Manual showcasing five years of shoreland road restoration projects and methodologies for the installation of these practices Implement new BMPs and evaluate effectiveness of BMPs 		X				Complete- Bioengineering manual is published and available to the public.
						X	X	X	Planning underway

		the lake side. The Lakes and Ponds Program is training road maintenance officials and road building contractors and providing materials to successfully implement this aspect of Act 64.	<ul style="list-style-type: none"> New shoreland BMP guidance to address specific road / shoreland interface challenges 	X					Ongoing, new shoreland guidance and info sheets are being developed and will be disseminated in 2022 to address this issue
8.6	Reverse pattern of increasing chloride trends in Lake Champlain and other relevant inland lakes	<ul style="list-style-type: none"> Support the development of a program in VT similar to New Hampshire's Green Snow Pro program which reduces liability for certified salt applicators and thereby is a guard against over-salting, integrate lakes priorities into VTrans Snow and Ice Transportation Plan, and begin an effort to monitor lakes where chloride concentrations are increasing 	<ul style="list-style-type: none"> Development of legislation for a reduced salt application program Work with VTrans to add low-salt zones around chloride-sensitive lakes into Snow & Ice Plan 	X	X				Complete – H. 730 drafted, link here: LINK
					X	X	X		Planning underway for work with VTrans on this milestone

Objective Table 9: Forest Lands Analysis, Tracking, Accounting and Pollutant Reduction Lead Entity: Department of Forest Parks and Recreation (FPR)										
	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates	
9.1	Encourage compliance with AMP rules and decrease enforcement cases.	<ul style="list-style-type: none"> Continue annual AMP enforcement and compliance reporting under revised AMPs using the AMP database. 	Decrease average number of complaints from a baseline of 32 cases per year and increase the average number of technical assists from a baseline of 13 per year.	X	X	X	X	X	Complete/Ongoing- 26 complaints investigated in 2021, and 16 technical assistance calls done in 2021	
9.2	Provide technical	<ul style="list-style-type: none"> Provide trainings through 	<ul style="list-style-type: none"> Offer 2-3 workshops per 	X	X	X	X	X	Complete/Ongoing- Completed 6 workshops in 2021	

	assistance and outreach to loggers, foresters and landowners	partnerships with LEAP, Vermont Woodlands Association (VWA), Vermont Forests Products Association (VFPA). <ul style="list-style-type: none"> Develop digital AMP manual consisting of the new AMP manual as a smartphone application with enhanced tools to help implement the AMPs 	year <ul style="list-style-type: none"> Disseminate the new digital AMP manual. 	X					Ongoing- AMP App is scheduled to be release in April of 2022
9.3	Reduce erosion and sedimentation at stream crossings during harvesting	<ul style="list-style-type: none"> Provide technical support and bridge rentals to loggers, foresters and landowners Continue to administer the cost-share program for temporary skidder brides Continue to support stream crossing improvement projects with RCPP funds 	<ul style="list-style-type: none"> 2-3 rentals of the heavy-duty bridges per year Support cost share 5-7 bridges per year 	X	X	X	X	X	Complete/Ongoing- 4 heavy duty bridge rentals in 2021. Stockbridge, Richmond, Northfield, and Maidstone.
				X	X	X	X	X	Complete/Ongoing- In 2021, 22 temporary wooden bridges and 5 heavy duty temporary steel skidder bridges cost-shared
9.4	Implement BMPs at priority sites (private lands).	<ul style="list-style-type: none"> Refine methodology to evaluate high priority sites Develop forestland BMP accounting methodology. Promote BMP implementation through private lands staff, Technical Service Providers (TSPs), private foresters and other strategies. 	<ul style="list-style-type: none"> Contractors hired to develop forestland BMP accounting methodology and high priority site identification methodology and accounting projects underway. Contractors complete final report for accounting methods and site identification methods. 	X					Complete- A methodology was established to account for forestland BMPs and documented in the Natural Resources Phosphorus Accounting Standard Operating Procedures.
				X					Complete- First Round project completed in September, 2021.
9.5	Refine the tracking and accounting of	<ul style="list-style-type: none"> Inspect parcels and document AMP compliance 	<ul style="list-style-type: none"> Develop, test and refine data collection system. 	X					Delayed- Methodology defined, but database not refined to track due to unrelated database management challenges.

	UVA AMP compliance, especially in priority basins to meet TMDL targets	and identify opportunities for improvements	<ul style="list-style-type: none"> Fully deploy system 		X	X	X	X	
9.6	Implementation of BMPs on high priority state lands	<ul style="list-style-type: none"> Develop method to inventory ANR roads and trails Prioritized list of projects for remediation-completed in 3 phases. Implement BMPs based on priority and funding. 	<ul style="list-style-type: none"> Complete mapping of ANR roads and trails Conduct inventory assessment of ANR lands over 3 years. Phase one starting in 2020. Complete final prioritization list Inventory results and project prioritization incorporated into long range management planning and FPR Annual Stewardship plans. 	X					Ongoing- Two thirds of mapping completed
				X	X	X			Ongoing- Phase one scheduled to begin in May 2022. Phase two scheduled to go out to bid in summer 2022.
						X			Scheduled for end of 2023
				X	X	X	X	X	2024 and beyond- This item cannot be completed until other items are complete. Request adjustment to reporting years to remove reporting in 2021, 2022, and 2023
9.7	Enhance inter-Departmental (within ANR) coordinated approach in managing current state lands	<ul style="list-style-type: none"> Identify high priority acquisition projects that meet mutual (multiple) objectives Work with District Stewardship Teams to revise/update criteria and apply to new acquisition priorities forwarded to the Agency Lands Acquisition Committee (ALAC) 	<ul style="list-style-type: none"> Update ANR Lands Conservation Plan 	X					Ongoing, completed within the process of the District Stewardship Teams.

Objectives Table 10: Healthy Forest Cover

Lead Entity: FPR Division of Forests

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
10.1	Protect and enhance urban forest canopy cover	<ul style="list-style-type: none"> Provide high-priority communities with targeted technical & financial assistance to protect urban forest canopies. Assistance includes conducting tree inventories and canopy assessments, reviewing policies and plans, and supporting tree wardens and tree management objectives Deliver urban forestry outreach presentations to varying audiences. Provide educational opportunities to municipalities to develop sustainable urban forestry programs and advance urban forestry management. 	<ul style="list-style-type: none"> Provide assistance to 10 communities per year. Provide 5 outreach events per year. 	X	X	X	X	X	Completed/Ongoing- 17 grants awarded to municipalities in 2022, technical assistance provided as needed, new Resilient Urban Forests for All program piloting in 2 municipalities that need enhanced support to support local urban and community forestry activities.
				X	X	X	X	X	Ongoing; new Tree Warden School online course will be offered again in 2022 to municipal staff and tree wardens; Shade Tree Preservation Plan presentations will occur in fall 2022; Arbor Day programming and workshops throughout the month of May 2022 will engage citizens in a variety of urban and community forestry topics.
10.2	Maintain and increase UVA enrolled forestland among eligible parcels.	<ul style="list-style-type: none"> Provide outreach and technical assistance to private landowners and foresters to equip them with tools to apply, enroll and manage their land in accordance with program standards, including implementation of AMPs. Current forestland enrolled is just under 2,000,000 acres 	<ul style="list-style-type: none"> Provide 5 outreach events per year Visit 800 parcels per year 	X	X	X	X	X	Complete/Ongoing: More than 130 outreach events on forestry reached more than 3,300 people. Most of these events included discussion about AMPs and Use Value.
				X	X	X	X	X	Ongoing: Parcel visits in 2021 were slightly below target due to Covid. 700 parcels were visited in 2021.

Objective Table 11. Planning and reporting on TMDL Progress
Lead Entity: Water Investment Division Watershed Planning Program (WPP)

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
11.1	Identify and develop high priority clean water projects to implement TMDLs	<ul style="list-style-type: none"> Coordinate with inter-agency programs and statutory partners to develop draft TBPs for review (Watershed Planning Program (WPP)) 	Publish 15 Basin Plans 2025					X	Ongoing- The Watershed Planning Program made noted this progress in 2021: Upper Connecticut River Tactical Basin Plan approved in June 2021, Missisquoi Tactical Basin Plan was approved in December 2021, Lamoille Tactical Basin Plan was approved in December 2021, Missisquoi and Lamoille Final Report Card was submitted along with the <i>Vermont Clean Water Initiative 2021 Performance Report</i>
11.2	Meet TMDL target load allocations to comply with VT Water Quality Standards	<ul style="list-style-type: none"> Publish Tactical Basin Plans with phase 3 and/or geographically explicit implementation priorities (WPP) 	<ul style="list-style-type: none"> Phase 3 content (Lake Champlain) Subsequent iterations of other TBPs (Memphremagog, Connecticut River Basins) Implementation targets (Memph) 	Basin 6&7	Basin 2/4	Basin 8	Basin 3&5		Complete- Published Missisquoi (Basin 06) and Lamoille (Basin 07) TBP "Phase 3" content in 2021, including TMDL 5-year target reductions for these two basins. South Lake (Basin 02-04) TBP "Phase 3" content in development (2022).
				X	X				Ongoing- Memphremagog (Basin 17) implementation targets in development and will be published in 2022

11.3	Develop TMDL Targets	<ul style="list-style-type: none"> Target-setting to meet allocations by sector, by basin split into regulatory and non-regulatory 	<ul style="list-style-type: none"> Phase 3 accounting and target setting completed (Champlain) Implementation targets established (Memphremagog) 	Basin 6&7	Basin 2/4	Basin 8	Basin 3&5		<p>TMDL targets for Missisquoi and Lamoille Basins published in January 2022, including projected reductions for regulatory stormwater projects.</p> <p>Non-regulatory Implementation targets for CWSPs (per Act 76) were posted for public comment for the 6 Champlain Basins.</p>
				X	X				<p>Non-regulatory Implementation targets for CWSPs (per Act 76) were posted for public comment for the Memphremagog Basin</p>
11.4	Report on progress made towards clean water restoration and protection goals	<ul style="list-style-type: none"> Develop Tactical Basin Plan Implementation Table interim and final progress reports CWIP and WPP Develop and submit <i>Vermont Clean Water Initiative Annual Performance Report</i> including TMDL progress reports 	<ul style="list-style-type: none"> Interim/ Final Progress Reports developed for basins according to Lake Champlain TMDL Accountability Framework Basins 6 and 7 submit final reports in 2021 	<p>Basin 8</p> <p>X</p>	Basin 2/4 & 3	Basin 8 & 5	Basin 3	Basin 5	<p>Final (5-year) Progress Reports published for the Missisquoi and Lamoille basins' TBP Implementation Tables as Appendix A and B in the <i>Vermont Clean Water Initiative 2021 Performance Report</i></p> <p>Interim (2.5 year) Progress Report published for the Winooski River basin's Implementation Table as Appendix C in the <i>Vermont Clean Water Initiative 2021 Performance Report</i></p>

Objective Table 12. Clean Water Service Delivery Tasks and Programs Addressing Nonpoint Source Pollution
Lead Entity: Clean Water Initiative Program and Watershed Planning Program

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
12.1	Provide reasonable assurances that non-regulatory TMDL targets will be achieved and maintained	Establish Clean Water Service Providers and Water Quality Restoration Formula Grant Program	<ul style="list-style-type: none"> Complete rulemaking process to establish Clean Water Service Providers in Lake Champlain and Lake Memphremagog Basins and finalize Water Quality Restoration Formula Grant Guidance Document 	X					Rulemaking to establish CWSPs- Complete Water Quality Restoration Formula Grant Guidance is ongoing. Some Chapters have been completed and posted for public comment. Remaining Chapters of Guidance will be published by target of July 2022.
			<ul style="list-style-type: none"> Implement Water Quality Formula Grant Program 		X				Set to begin July 2022
			<ul style="list-style-type: none"> Determine timeline for expanding Clean Water Service Provider model to address other priority pollutants statewide 			X			Not started
12.2	Ensure protection and enhancement of unimpaired waters through enhanced nonpoint source management and protection projects	Establish Water Quality Enhancement Grant Program	<ul style="list-style-type: none"> Implement Water Quality Enhancement Grant Program statewide 		X				Set to begin July 2022. Stakeholder engagement on design of Enhancement Grant Program is ongoing.
12.3	Develop and deploy clean water accounting methodology	<ul style="list-style-type: none"> CWIP coordinate the development of phosphorus accounting methodologies for all 	<ul style="list-style-type: none"> Document phosphorus accounting methodology by sector and project types 	X					Complete- Phosphorus accounting methodologies for Developed Lands, Agricultural Practices, and Natural Resource Restoration have been documented and posted for public comment. Following the close of the public comment period, the methods will be posted. Methods will be updated as needed.

		<p>project types without methods in place</p> <ul style="list-style-type: none"> • CWIP confirm existing accounting methodology for non-regulatory projects • CWIP coordinate development of standard design life for all project types 	<ul style="list-style-type: none"> • Develop Quality Assurance Project Plan (QAPP) on phosphorus accounting methodology and submit to EPA 		X				Ongoing.
12.4	Establish Clean Water Service Providers for each Champlain (tactical) Basin/region and Memphremagog Basin	<ul style="list-style-type: none"> • Rulemaking process to adopt the CWSP for 6 Champlain Basins and 1 Memphremagog Basin (WID) 	<ul style="list-style-type: none"> • CWSPs for Chaplain and Memphremagog Basins selected and adopted by rule • BWQCs established and operational for Champlain and Memphremagog Basins 	X					Complete- CWSPs have been established for all 7 basins.
					X				Ongoing- BWQC members have been approached and will begin convening in FFY 2022 reporting period.
12.5	Provide assurance that BMPs implemented on the ground are properly functioning throughout their useful design life	<ul style="list-style-type: none"> • Establish BMP Verification Procedures • Train CWSPs, and other entities on BMP Verification (see Objective table 4 for training milestones) 	<ul style="list-style-type: none"> • BMP Verification procedures documented • Operation and Maintenance (O&M) guidance manual finalized 	X					Ongoing- Verification procedures have been established for stormwater, buffer planting and road project types. Procedures for river and floodplain restoration, wetlands and lake shoreline projects are currently being established. Final documentation of these procedures for CWSPs is ongoing. Expected to be completed before the 2022 report.
					X				Ongoing- the O&M manual is nearly finalized. Final internal review of the document is needed.
12.6	Adaptive management strategy developed and deployed	<ul style="list-style-type: none"> • Applying accounting methods, determine progress made in meeting target allocations (WID) 	<ul style="list-style-type: none"> • Clean Water BMP implementation progress determined annually by sector and basin • BMP implementation progress informs updated targets for next planning cycle 		X	X	X	X	Set to begin 2023- because the Formula Grants have not fully been deployed, we do not yet have information to inform adaptive management. We are planning on tracking data to help inform how we can be flexible.
					X		X		Set to begin 2023 - Accounting at major river basin scale (HUC-08) is assessed per each Champlain TBP Plan update cycle. South Lake (Basin 2-4) to be updated by the end of 2022

Objective Table 13. NPS Program Administration and Oversight
Lead Entity: Clean Water Initiative Program: Nonpoint Source Coordinator

	Objectives	Actions	Milestones	2021	2022	2023	2024	2025	Progress Updates
13.1	EPA approved NPS Success Stories that document partial or full restoration of NPS impaired waters	<ul style="list-style-type: none"> Through reliable water quality monitoring efforts, document NPS impaired situations where water quality is fully or partially restored. 	<ul style="list-style-type: none"> At least two Type 1 Vermont NPS success stories submitted and made part of EPA's NPS Success Stories web page with each biannual listing cycle. 		X		X		Ongoing- We plan to submit at least 2 success stories within the coming year.
13.2	Continue to manage & implement NPS program to meet goals while working towards addressing Vermont's NPS water quality problems effectively & expeditiously	<ul style="list-style-type: none"> Employ appropriate programmatic & financial systems that ensure 319 dollars are used efficiently & consistent with fiscal and legal obligations. In keeping with Section 319(h)8 & 11, provide EPA with sufficient information/reports/data about VT 319 program to allow EPA to determine progress & whether meeting or exceeding all elements in EPA's Satisfactory Progress Determination (SPD) checklist. 	<ul style="list-style-type: none"> Vermont NPS Program continues to receive SPDs on an annual basis in a timely fashion. 	X	X	X	X	X	Complete for 2021
13.3	Preparation & submittal of annual NPS program reports consistent with EPA guidance	<ul style="list-style-type: none"> Assemble pertinent material reporting on Vermont's progress meeting program milestones noted in NPS Management Program plan. When information is available, report estimated reductions in NPS pollutant loading & other 	<ul style="list-style-type: none"> Report annually on progress made in implementing the state's NPS Management Program 	X	X	X	X	X	Complete for 2021

		<p>improvements in water quality arising from program implementation. Provide draft annual program report to EPA for review.</p> <ul style="list-style-type: none"> • Submit annual report. 							
13.4	Revised NPS Management Program plan	<ul style="list-style-type: none"> • Track the status of actions, milestones & accomplishments found in current 2021-2025 NPS Management Program plan. • Prepare revised & updated NPS Management Program 	<ul style="list-style-type: none"> • EPA-approved Vermont NPS Management Program plan (2026-2030) in place by 10/1/2025 					X	Not started

Appendix B – Section 319 Leveraged Watershed Projects and Status

Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2014	Vermont Agency of Agriculture, Food and Markets	Agricultural Technology to Monitor Nutrients (UVM)	\$63,150	Completed	6/24/2014
2014	Lamoille County Conservation District	Lamoille LID – Phase I (Design) & Phase II (Construction)	\$41,000	Completed	11/18/2014
2014	Rutland Natural Resources Conservation District	Tenney Brook Stormwater Master Plan	\$34,000	Completed	12/17/2014
2014	Winooski Natural Resources Conservation District	Trees for Winooski Basin Streams	\$33,960	Completed	12/29/2014
2014	Lewis Creek Association	Stormwater Treatment in the LaPlatte	\$67,600	Completed	1/9/2015
2014	Poultney-Mettowee Natural Resources Conservation District	Poultney High School Stormwater Management	\$41,710	Completed	2/4/2015
2014	Poultney-Mettowee Natural Resources Conservation District	Woodlawn Farm Agricultural Runoff Reduction	\$42,765	Completed	2/4/2015
2014	Friends of Northern Lake Champlain	Enhanced Silage Leachate Treatment System	\$10,000	Completed	3/13/2015
2014	Vermont Youth Conservation Corps	Water Quality Implementation Projects Work Crew	\$75,403	Completed	4/24/2015
2014	Vermont Agency of Transportation	Better Backroads by Towns in St. Albans Bay Watershed	\$60,000	Completed	5/27/2015
2014	Town of Poultney	York Street Stormwater Management Feasibility Analysis	\$9,000	Completed	6/2/2015
2014	Northwest Regional Planning Commission	Franklin County Regional Hydroseeder Program	\$38,675	Completed	6/5/2015
2014	Friends of the Winooski River	Winooski Watershed Targeted Riparian Restoration	\$23,420	Completed	7/21/2015
2014	Friends of the Mad River	Fayston Road Erosion	\$30,614	Completed	12/16/2015
2014	Vermont Association of Conservation Districts	Statewide Trees for Streams	\$137,461	Completed	1/14/2016
2014	Central Vermont Regional Planning Commission	Waterbury Corridor Plan and Fluvial Erosion Hazards	\$60,960	Completed	2/3/2016
2014	Lamoille County Planning Commission	Brewster River Stream Geomorphic Assessment and Corridor Plan	\$24,240	Completed	2/24/2016
2014	Friends of the Winooski River	Upper Winooski Illicit Discharge Detection and Elimination (IDDE)	\$59,400	Completed	3/7/2016
2014	Friends of Northern Lake Champlain	Missisquoi Basin Stormwater Project Identification and Implementation	\$75,000	Completed	11/2/2016

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Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2014	Missisquoi River Basin Association	Multi-Barrier Cluster Approach to Stewarding Farmland along the Missisquoi River	\$15,000	Discontinued	1/14/2016
2014	Franklin Watershed Committee	Multi-Barrier Cluster Approach to Stewarding Farmland Surrounding Lake Carmi	\$15,000	Discontinued	1/27/2016
2014	Town of Hardwick	South Main Street Stormwater Treatment	\$30,700	Completed	10/18/2017
2014	Vermont River Conservancy	Wild Branch Easements	\$76,660	Completed	3/21/2017
2014	Vermont Agency of Agriculture, Food and Markets	Stewarding Farmland in Missisquoi and St. Albans Bay Basins	\$68,000	Completed	6/30/2016
2015	Missisquoi River Basin Association	Northrop Road at Talcott Road (WB-3) Fairfield Ditch Project	\$32,805	Completed	2/11/2015
2015	Vermont River Conservancy	Hurteau River Corridor Easement, Lamoille River	\$48,220	Completed	4/24/2015
2015	Winooski Natural Resources Conservation District	Winooski Trees for Streams, Spring 2015	\$23,625	Completed	8/5/2015
2015	Vermont River Conservancy	Selawsky River Corridor Easement: Wild Branch	\$11,500	Completed	8/6/2015
2015	Vermont River Conservancy	Selawsky River Corridor Easement: Wild Branch – Phase 2	\$26,540	Completed	10/9/2015
2015	Winooski Natural Resources Conservation District	Equine Manure Management and Composting	\$13,000	Completed	11/3/2015
2015	Town of Fairfield	Shenang Road Erosion Controls	\$30,000	Completed	1/6/2016
2015	City of Burlington	Installation of Pervious Stormwater Sidewalk	\$11,890	Completed	1/14/2016
2015	Lake Iroquois Recreation District	Lake Iroquois Public Beach Area Ecological Landscape Design, Erosion Control and Stormwater Management	\$49,661	Completed	3/7/2016
2015	Vermont Youth Conservation Corps	Implementation of Class IV Roads Erosion Control BMPs	\$75,000	Completed	3/15/2016
2015	University of Vermont Extension	Implementing Precision Agriculture Technology to Improve Application and Minimize Nutrient Loss of Manure	\$75,057	Completed	7/21/2016
2015	Village of Swanton	Marble Mill Park Underground Stormwater Treatment: Final Design and Implementation of Phase 1	\$74,880	Completed	9/19/2016
2015	Lamoille County Conservation District	Hyde Park Stormwater Improvement Project	\$75,000	Completed	11/9/2016
2015	Central Vermont Regional Planning Commission	Northfield Stormwater Site Construction	\$59,842	Completed	11/21/2016
2015	Birds of Vermont Museum	Road Erosion Control and Stream Restoration Project	\$15,000	Completed	5/3/2017

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Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2015	Franklin Watershed Committee	Lake Wise Shoreland BMPs – Lake Carmi, Franklin County	\$37,125	Completed	7/24/2017
2015	Lake Champlain Land Trust	The Upper La Platte River Floodplain and River Restoration Project	\$15,750	Completed	3/14/2017
2015	Missisquoi River Basin Association	Missisquoi Watershed Trees for Streams	\$45,000	Completed	1/19/2018
2015	Poultney-Mettowee Natural Resources Conservation District	Agricultural Water Quality BMP Implementation Project	\$74,010	Completed	3/8/2017
2015	Rutland Natural Resources Conservation District	Stormwater Reduction in the East Creek Watershed	\$75,000	Completed	9/27/2017
2015	Town of Cambridge	Cambridge Trail Bridge Replacement and Floodplain Restoration	\$61,605	Completed	1/25/2018
2015	Vermont Association of Conservation Districts	Portable Skidder Bridge Rental Program	\$75,000	Completed	7/11/2017
2015	Vermont Association of Conservation Districts	Statewide Trees for Streams	\$67,500	Completed	7/11/2017
2015	Village of Jeffersonville	Jeffersonville Easement Acquisition	\$4,677	Completed	1/25/2018
2015	Poultney-Mettowee Natural Resources Conservation District	Agricultural Runoff Mitigation Project on Beaver Brook Tributary	\$75,000	Completed	4/30/2018
2016	Friends of the Winooski River	Hayes Road Sediment Control Project	\$25,000	Completed	12/9/2015
2016	Vermont Land Trust	Kaiser Farm River Corridor Easement Purchase	\$42,098	Completed	7/21/2016
2016	University of Vermont Extension	Developing Functional Nutrient Management Plans with GoCrop Software	\$57,577	Completed	9/7/2016
2016	Winooski Natural Resources Conservation District	Trees for Streams 2016	\$14,300	Completed	9/29/2016
2016	Town of Waitsfield	Waitsfield Town Office Stormwater Mitigation	\$15,000	Completed	11/2/2016
2016	Vermont Land Trust	Rankin Farm River Corridor Easement	\$40,349	Completed	12/28/2016
2016	Central Vermont Regional Planning Commission	Northfield Village Green Stormwater Site	\$110,695	Completed	2/24/2017
2016	University of Vermont Extension	Precision Manure Management in the Jewett Brook Watershed	\$75,000	Completed	4/24/2018
2016	City of Montpelier	One Taylor Street Stormwater Treatment	\$230,000	Completed*	5/5/2020
2016	City of Montpelier	Taylor Street Reconstruction Stormwater Treatment	\$250,000	Completed*	1/28/2021
2016	University of Vermont Extension/Farmers Watershed Alliance	Reduction of Fall Tillage in Jewett Brook/Stevens Brook Watersheds	\$102,154	Completed	9/15/2018

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Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2016	Vermont Association of Conservation Districts	Statewide Trees for Streams	\$173,250	Completed	4/19/2019
2017	Winooski Natural Resources Conservation District	Trees for Streams Spring 2017	\$18,050	Completed	9/25/2017
2017	Friends of the Mad River	Bioretention at Harwood Union Middle/High School	\$29,040	Completed	2/19/2018
2017	Lamoille County Conservation District	Johnson State College Stormwater Improvements	\$84,500	Discontinued	3/5/2018
2017	Village of Poultney	Poultney York Street Stormwater Treatment	\$420,000	Completed	12/9/2019
2017	City of Barre	City of Barre Vacuum Sweeper	\$260,750	Completed	11/9/2018
2017	City of Barre	City of Barre Vactor Truck	\$14,043	Completed	6/5/2019
2017	City of Barre	Park-Winter Meadow Stormwater Reduction	\$36,978	Discontinued in FY 2020	9/29/2020
2017	University of Vermont Extension	Enhancing the Water Quality Benefit of Cover Crops	\$99,554	Completed	6/3/2019
2017	Lake Iroquois Association	Lake Iroquois Streambed Restoration and Erosion Control	\$34,000	Completed	11/21/2018
2017	Town of Wolcott	Wolcott Town Garage and Fire Station Stormwater Management Improvements	\$15,888	Completed	10/22/2018
2017	Central Vermont Regional Planning Commission	Northfield Water Street Stormwater Structure	\$173,785	Completed	1/21/2020
2018	Northwest Regional Planning Commission	Municipal Roads Grants-in-Aid 2018	\$1,068,150	Completed	6/30/2018
2018	Warren Town	Fuller Hill Road, Warren Stormwater Treatment Implementation	\$164,074	Completed	12/22/2018
2018	Jericho Town	Packard Road, Jericho Stormwater Treatment Implementation	\$56,635	Completed	1/28/2019
2019	Vermont Land Trust	River Corridor Easement Grant- Lewis Creek-Briggs	\$137,377	Completed*	4/2/2020
2019	Vermont Land Trust	River Corridor Easement Grant- Lewis Creek, Clifford	\$117,832	Completed*	12/2/2019
2019	Vermont Natural Resources Council	Mill Pond Dam Removal	\$100,000	Completed	1/27/2020
2019	Warren Town	Warren School Campus Stormwater Management – Subsurface Chambers	\$22,051	Completed	11/27/2018
2019	Stowe Town	Town of Stowe Grader-Mounted Rollers	\$19,045	Completed	7/19/2018
2019	Vermont Department of Forests Parks and Recreation	Cotton Brook Culvert Upgrades	\$130,800	Completed	5/29/2019
2019	Rutland County Natural Resources Conservation District	Cold River Berm Removal	\$36,400	Ongoing	

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Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2019	Cambridge Town	Cambridge Elementary Stormwater Project	\$18,589	Completed	3/28/2019
2019	Friends of Northern Lake Champlain	Bouchard Farm Ditch Improvement Project- Rock River	\$47,913	Completed	11/27/2018
2019	Franklin Watershed Committee	Towle neighborhood Road culvert stabilization	\$21,293	Discontinued	N/A
2019	The Nature Conservancy	Hathaway Point Agricultural Stormwater Runoff Project	\$22,565	Completed	12/20/2018
2019	Vermont Department of Forests Parks and Recreation	Waterman Brook Culvert to Bridge Project – Johnson	\$26,540	Completed	5/21/2019
2019	Vermont Department of Forests Parks and Recreation	Bombardier Forest Road- Preston Brook logging road remediation	\$60,170	Completed	5/29/2019
2019	Derby Town	Derby, Morgan and Brownington shared Hydroseeder program	\$24,390	Completed	4/10/2019
2019	Friends of Winooski River	Pouliot Stormwater Mitigation – Gully Restoration	\$ 144,000	Completed	2/11/2020
2019	Franklin Watershed Committee	Franklin Town Garage Stormwater Treatment	\$38,000	Completed	2/11/2020
2019	Poultney-Mettowee Natural Resources Conservation District	West Rutland School Stormwater Management	\$ 30,268	Completed	3/13/2020
2019	Otter Creek Natural Resource Conservation District	Elephant Mountain Gully Stabilization	\$ 39,100	Completed	3/13/2020
2019	Rutland Town	Rutland Town Elementary School Green Stormwater Infrastructure	\$ 16,244	Completed	3/13/2020
2019	Natural Resources Conservation Service	Wetland Incentive Payment – Salisbury	\$ 115,700	Completed	9/24/2018
2020	Vermont River Conservancy (VRC)	River Corridor Easement Grant 2019 – Lamoille River	\$70,945	Ongoing	
2020	Vermont Youth Conservation Corps (VYCC)	2019 Vermont Youth Conservation Corps Watershed Work Crew Project	\$93,316	Completed*	3/27/2020
2020	Watersheds United Vermont (WUV)	Woody Buffer Block Grant – WUV 2019	\$132,576	Completed*	12/15/2020
2020	Watersheds United Vermont (WUV)	WUV Clean Water Projects Design and Implementation Grant	\$575,000	Ongoing	
2020	Vermont Natural Resources Council (NRCC)	NRCC Clean Water Projects Design and Implementation Grant	\$925,000	Ongoing	
2020	Southern Windsor County Regional Planning Commission (SWCRPC)	SWCRPC Design and Implementation Block Grant	\$1,500,000	Ongoing	
2021	Friends of Winooski River	Camp Wihakowi Dam Removal	\$315,305	Completed*	10/13/2021
2021	Vermont Land Trust	2020 River Corridor Easement Design and Implementation, Randall only	\$98,294	Completed*	11/21/2021

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Workplan Year	Grantee/Contractor	Project Title	Total Amount	Project Status	Date Completed
2021	Vermont Land Trust	2020 River Corridor Easement Development and Implementation, Fairmount Only	\$75,300	Ongoing	
2021	Watersheds United Vermont (WUV)	2021 WUV Clean Water Design and Implementation Block Grant	\$1,000,000	Ongoing	
2021	Vermont Natural Resources Council (NRCC)	2021 NRCC Clean Water Design and Implementation Block Grant	\$1,000,000	Ongoing	
2021	Southern Windsor County Regional Planning Commission (SWCRPC)	2021 SWCRPC Clean Water Design and Implementation Block Grant	\$1,000,000	Ongoing	

*Projects completed in FFY 2021, further described in Appendix C.

Appendix C: Outputs and Outcomes of Section 319 Leveraged Projects Completed in FFY 2021

The following projects were completed during the FFY 2021 reporting period. Each completed project displays project photos, project outputs and estimated pollutant reductions, if available. Block Grant projects show more details as they represent multiple individual projects.

One Taylor Street Stormwater Treatment

Project Type	Stormwater Implementation
Watershed(s)	Winooski
Partner	Montpelier City
Funding Amount	\$230,000
Project Output	0.97 acres of existing impervious surface treated
Estimated Total Phosphorus Load Reduction	0.71 lbs/yr
Estimated Total Suspended Solids	Unable to be estimated due to lack of information collected from implementers



One Taylor Street in Montpelier previously was a 120 space gravel parking lot next to the Winooski River.



The redevelopment project added rain gardens, more green space and a smaller parking area.

Taylor Street Reconstruction Stormwater Treatment

Project Type	Stormwater Implementation
Watershed(s)	Winooski
Partner	Montpelier City
Funding Amount	\$250,000
Project Output	0.1 acres of existing impervious surface treated ¹
Estimated Total Phosphorus Load Reduction	0.30 lbs/yr
Estimated Total Suspended Solids	Unable to be estimated due to lack of information collected from implementers



Installation of a dry well along Taylor Street will increase the city's capacity to retain and treat stormwater runoff.



After the installation of drywells and rain gardens, crews are re-installing the sidewalks along Taylor Street.

River Corridor Easement Grant- Lewis Creek- Briggs

Project Type	River Corridor Easement
Watershed(s)	Lewis Creek
Partner	Vermont Land Trust
Funding Amount	\$132,997
Project Output	40 acres of riparian area conserved
Estimated Total Phosphorus Load Reduction	Phosphorus accounting methods under development
Estimated Total Suspended Solids	Sediment accounting methods under development

¹ Note, the project was only partially accounted for as some aspects of the project we were not able to calculate reductions such as adding individual trees.



River Corridor Easement on the Briggs Property in Starksboro VT along Lewis Creek.



View of Lewis Creek from the Briggs Property, Starksboro VT.

River Corridor Easement Grant- Lewis Creek- Clifford	
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Project Type	River Corridor Easement
Watershed(s)	Lewis Creek
Partner	Vermont Land Trust
Funding Amount	\$112,161
Project Output	33 acres of riparian area conserved
Estimated Total Phosphorus Load Reduction	Phosphorus accounting methods under development
Estimated Total Suspended Solids	Sediment accounting methods under development



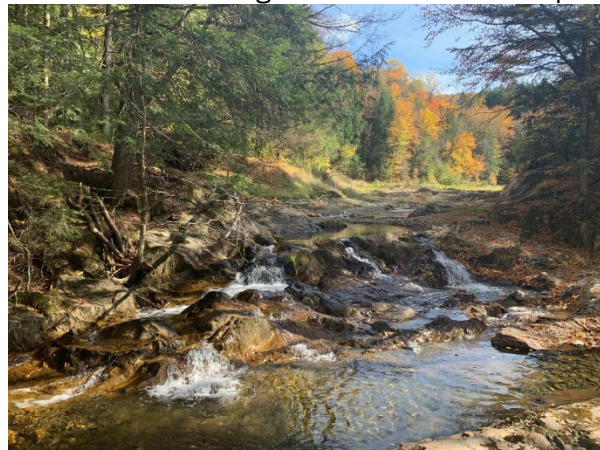
This river corridor easement conserves 33 acres along Lewis Creek.

Camp Wihakowi Dam Removal

Project Type	Dam Removal- River restoration
Watershed(s)	Winooski River Basin- Dog River
Partner	Friends of the Winooski River
Funding Amount	\$315,304
Project Output	4 acres of floodplain reconnected/restored 1100 linear feet of river restored
Estimated Total Phosphorus Load Reduction	Phosphorus accounting methods under development
Estimated Total Suspended Solids	Sediment accounting methods under development



Before removal of Camp Wihakowi dam on Bull Run river in Northfield, VT.



The free flowing Bull Run River after removal of Camp Wihakowi dam in Northfield, VT.

2020 River Corridor Easement Design and Implementation, Randall

Project Type	River Corridor Easement
Watershed(s)	Missisquoi River
Partner	Vermont Land Trust
Funding Amount	\$98,294
Project Output	37 acres of riparian area conserved
Estimated Total Phosphorus Load Reduction	Phosphorus accounting methods under development
Estimated Total Suspended Solids	Sediment accounting methods under development



Map of the 37 acre river corridor easement along the Missisquoi River in Lowell VT.



This easement established a permanent 50 foot buffer along the Upper Missisquoi River.

2019 Vermont Youth Conservation Corps Watershed Work Crew Project

Project Type	Riparian Buffer Planting and Road Stabilization
Watershed(s)	Missisquoi and South Lake
Partner	Vermont Youth Conservation Corps
Funding Amount	\$33,023
Project Output	8 acres of riparian buffer planted
Estimated Total Phosphorus Load Reduction	50.6 lbs/yr
Estimated Total Suspended Solids	35,467 lbs/yr



VYCC Crew working to plant 700 willow trees along the Missisquoi River in Troy, VT.



Eight drainage control structures were installed on this Class IV road in Hinesburg, VT. Structures help to stabilize eroded areas.

This block grant was provided to Vermont Youth Conservation Corps (VYCC) to work with a variety of partners across the state to implement clean water projects across sectors. Projects listed below include results of installation of improved road drainage structures, and two riparian buffer plantings. Note, only projects located within the Lake Champlain Basin are represented here. Other projects funded outside of Lake Champlain do not meet eligibility requirements and are not reported on.

Project Name	Project Description	Outputs	Towns	Basin	P Reducti on (lbs/yr)	TSS Reducti on (lbs/yr)	Cost \$
Hinesburg Class IV Road Erosion Control	Lavigne Hill Road is a Class IV road in the Town of Hinesburg that has a number of stream-road conflicts. VYCC improved drainage and installed armoring to facilitate pedestrian traffic and reduce erosion.	415 feet of road drainage improved	Hinesburg	North Champlain	0.21	49	11,557
Riparian Buffer Planting - PMNRCD	Poutney-Mettowee Natural Resource Conservation District (PMNRCD) worked with (VYCC) crew to establish and maintain multiple riparian buffers.	4.5 acres riparian buffer planted	Dorset, West Haven, Pawlet	South Champlain	17	18,782	13,210

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Missisquoi Riparian Buffer Planting	Missisquoi River Basin Association utilized a crew for one week in Troy to plant riparian buffer trees within a 26 acre plot owned by the Vermont Land Trust.	3.5 acres riparian buffer planted	Troy	Missisquoi Bay	33.6	16,684	8,256
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Woody Buffer Block Grant – WUV 2019

Project Type	Riparian Buffer Planting
Watershed(s)	Winooski and Missisquoi
Partner	Watersheds United Vermont (WUV)
Funding Amount	\$81,085
Project Output	19 acres of riparian buffer planted
Estimated Total Phosphorus Load Reduction	66.4 lbs/yr
Estimated Total Suspended Solids	30,063 lbs/yr



Approximately 0.6 acres of riparian buffer was planted on the Richmond town green along the Winooski River.



Approximately 0.9 acres of buffer were planted along the Little River adjacent to the Stowe Bike Path.

This block grant was provided to Watersheds United Vermont (WUV) to support local watershed groups in developing and implementing high-priority, cost-effective, native riparian woody buffer plantings throughout the state. Note, only the planting projects located within the Lake Champlain Basin are represented here. Other projects funded outside of Lake Champlain do not meet eligibility requirements and are not reported on.

Project Name	Project Description	Towns	Acres planted	P Reduction (Lbs/yr)	TSS reduction (lbs/yr)	Cost
2019 Woody Buffer Block Grant: Winooski plantings	A total of 9.5 acres of riparian buffer were planted in 10 locations along the Winooski River and its tributaries. Riparian buffers support restoration of riparian corridors and floodplains, filter nutrient and sediment pollution from runoff, and provide habitat benefits.	Calais, Marshfield, Middlesex, Moretown, Montpelier, Richmond, Stowe, Williston	9.51	19.7	11,461	\$49,646

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2019 Woody Buffer Block Grant: Missisquoi plantings	A total of 9.55 acres of riparian buffer were planted in 4 locations along the Missisquoi River and its tributaries. Riparian buffers support restoration of riparian corridors and floodplains, filter nutrient and sediment pollution from runoff, and provide habitat benefits.	Montgomery, Troy, Sheldon	9.55	46.8	18,602	\$31,438
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