Vermont Nonpoint Source Management Program
Federal Fiscal Year 2023 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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Contents

Introduction

This *Vermont Nonpoint Source (NPS) Management Program 2023 Annual Report* addresses milestones and progress updates for the federal fiscal year (FFY) 2023 reporting period (October 2022-September 2023). The Vermont Department of Environmental Conservation (DEC) prepares an updated NPS Management Plan every five years to fulfill Clean Water Act Section 319 program requirements following U.S. Environmental Protection Agency (EPA) guidance. The current Vermont NPS Management Program Plan covering FFY 2021-2025 was approved by EPA in September of 2020.[1] This Annual Report addresses milestones outlined in the FFY 2021-2025 plan.

During this FFY 2023 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 established four complementary grant programs intended to support implementation of the Clean Water Initiative by addressing sources of pollution through both regulatory and nonregulatory mechanisms: Water Quality Restoration Formula Grants, Water Quality Enhancement Grants, Municipal Stormwater Implementation Grants, and Developed Lands Implementation Grants. Regional organizations called Clean Water Service Providers (CWSPs) in the Lake Champlain and Lake Memphremagog basins are responsible for partnering with Basin Water Quality Councils to facilitate and oversee the identification, development, design, implementation, operation, and maintenance of non-regulatory projects to meet non-regulatory interim phosphorus reduction targets. The Act requires a formulaic dispersal of Water Quality Restoration Formula Grant funds for non-regulatory projects in the Lake Champlain and Lake Memphremagog basins. CWSPs were awarded a combined total of $7 million in SFY 2023 to support non-regulatory phosphorus reduction projects. The statewide Water Quality Enhancement Grant program, supports non-regulatory clean water projects that protect high quality waters, maintain or improve water quality in all waters, restore degraded or stressed waters, create resilient watersheds and communities, and support the public's use and enjoyment of the State's waters. Funding program administrators for the Enhancement Grant program were awarded a total of $2.3 million in SFY 2023 to sub-grant to support clean water projects. The Developed Lands Implementation Grant Program will provide grants or financing to support individuals required comply with stormwater regulatory requirements that are necessary to achieve water quality standards. The program will support Three-Acre General Permit obtainment and compliance through design and implementation. The Municipal Stormwater Implementation Grant Program provides grants to municipalities to assist with their compliance efforts under regulatory stormwater permits. Act 76 funding programs are contributing to Vermont's nonpoint source management efforts. DEC is on track to meet these requirements.

[1] 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

- **Implementation of the Phosphorus Total Maximum Daily Loads (TMDLs) for Vermont Segments of Lake Champlain and Lake Memphremagog:** 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 2024, as part of the Vermont Clean Water Initiative 2023 Performance Report.[2] Implementation of the Lake Memphremagog TMDL is guided by the Tactical Basin Planning process and progress is reported in the Vermont Clean Water Initiative Annual Performance Report. In addition to targeted funding to support non-regulatory NPS projects to meet the Lake Champlain TMDL and Lake Memphremagog TMDL, establishment and expansion of regulatory programs is contributing to improvements in water quality statewide, including in the TMDL basins.
- **Distribution of newly available funding through the American Rescue Plan Act (ARPA):** The State of Vermont will receive $1.026 billion in ARPA funds to invest in broadband infrastructure, clean water, climate action, housing, and economic development to be encumbered by December 31, 2024 and expended by the end of calendar year 2026. The Vermont Agency of Natural Resources and Agency of Agriculture, Food, and Markets are distributing a portion of these ARPA funds to support clean water initiatives statewide. In total, $9.5 million in ARPA funding is being deployed by the Agency of Agriculture, Food, and Markets to ARPA-eligible projects in support of clean water. Within ANR, ARPA funding is supporting 74 discrete projects addressing regulatory or non-regulatory stormwater pollution control, and in some instances related infrastructure, for a total of $74.2 million.
- **Regional Conservation Partnership Program (RCPP):** Through the USDA-NRCS Regional Conservation Partnership Program, the State of Vermont has awarded $1.5 million to landowners to support NPS projects in the agriculture and forestry sectors in SFY 2023. Requests totaled more than $6 million. Applications for water quality related easements were also received from 20 applicants in 2023 and are being evaluated for funding. An additional $5 million will be funded under this grant in FY 2024 and an additional $10.7 million has been awarded to DEC for the next five years.
- **Continued implementation of regulatory programs under Act 64:** The State of Vermont has been building and expanding clean water regulatory, financial, and technical assistance programs since the passage of Act 64 in 2015. Many regulatory programs now in the implementation phase will contribute to NPS pollution reduction progress in the agricultural and developed lands sectors. For example, under the Three-Acre General Permit, landowners are in the process of obtaining permit coverage, and construction of appropriate stormwater control and treatment measures is required within five years of permit authorization.

NPS pollution is the leading cause of water quality 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

[2] Vermont Clean Water Initiative 2023 Performance Report: http://dec.vermont.gov/water-investment/cwi/reports.

Recreation (FPR); Agency of Agriculture, Food, and Markets (AAFM); and Agency of Transportation (VTrans).

Appendix A contains the NPS-related goals, objectives, milestones, and anticipated completion year as identified in the 2021-2025 Vermont NPS Management Program Plan. A progress update is provided for those NPS milestones that were completed or moved forward during FFY 2023. Milestones that have been completed during this reporting period are marked "complete." Milestones that repeat annually or will continue after this reporting period are marked as "ongoing." Only milestones with an "X" in the 2023 column are required to be addressed in this report, although in some cases, more information is provided.

Addressing Climate Change and Environmental Justice in the Nonpoint Source Program

As part of the Federal Justice40 Initiative, EPA is expanding expectations for states to incorporate equity and environmental justice into Section 319 Nonpoint Source Programs. This will be a program requirement under new guidance effective in FFY 2024, however Vermont has already begun work that will contribute towards increased programmatic considerations of equity, environmental justice, and climate change. In the last several years, Vermont has passed two key acts that lay the foundation for state progress in the areas of climate change and environmental justice, which will be reflected in our water quality protection, restoration, and maintenance efforts for years to come.

The first is Act 153 of 2020, the Global Warming Solutions Act. The Act requires reductions in Vermont's greenhouse gas emissions tied to three time periods: 2025, 2030, and 2050; creates a Climate Council that is required to develop a Climate Action Plan that sets forth the proposed programs and strategies to meet the reductions and to build resilience to the impacts of climate change; and requires the Agency of Natural Resources to adopt rules consistent with the plan. The Initial Vermont Climate Action Plan was published in December of 2021.[3]

The second is Act 154 of 2022, the Environmental Justice Act. The Act establishes an environmental justice policy for the State of Vermont and requires state agencies to incorporate environmental justice considerations into their work, rules, and procedures. Act 154 also establishes the Environmental Justice Advisory Council and the Interagency Committee to advise the state on environmental justice issues. Finally, it requires the Agency of Natural Resources to create an environmental justice mapping tool.

Through the implementation of these acts, Vermont will continue to assess opportunities to advance climate resilience and environmental justice goals, and to develop the policies, procedures, and tools to help Vermont achieve them. As Vermont makes progress in implementing these statewide initiatives, as well as complying with the requirements of the Federal Justice40 initiative, the results will be reflected in future Annual Reports.

[3] Vermont Climate Action Plan: https://climatechange.vermont.gov/readtheplan

Section 319-Funded Statewide Programs and Watershed Projects

Section 319 Funded Statewide Programs

DEC's FFY 2023 Section 319 federal funding award totaled approximately $1.25 million, of which approximately 85 percent was used to carry out DEC's NPS activities on a statewide basis. The remaining 15 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 11.8 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 2023 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	5.9
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	5.9
Administration and Innovation Division (AID)	Financial management and administrative support	0.1
Total		**11.8**

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 the Clean Water Initiative Program (CWIP) and the Watershed Planning Program (WPP) which are housed within the Water Investment Division.

Nonpoint Source Program Management and 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 Vermont's FFY 2023 Section 319 workplan in April 2023. Consistent with EPA program guidance, DEC continued using Section 319 funds to support personnel working under the NPS management program and leveraged over $1.25

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 2023 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 2023 604(b) funds to assess, compile, and populate the EPA Assessment, TMDL Tracking and Implementation System (ATTAINS) data management system for the 2022 listing cycle to fulfill 305(b) state reporting requirements. Additionally, staff developed narrative information that was integrated into the 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 Management Plan (LCBP, 2022); 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. As part of the revisions to the Vermont Water Quality Standards in 2022, three waterbodies were reclassified from Class B(2) to A(1) for the aquatic biota, aquatic habitat, and aesthetic designated uses. DEC understands that EPA is not currently taking action on these classification upgrades pending consultation with the USFWS under the Endangered Species Act (ESA).

[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.

State-Administered Clean Water Funding

DEC continues to award funds to RPCs, Natural Resource Conservation Districts, and Watersheds United Vermont (WUV) to support Tactical Basin Plan development and outreach. WUV became a statutory partner to support Tactical Basin Planning in SFY 2021. DEC issued $650,000 of funding to support Tactical Basin Plan development and outreach in SFY 2023.

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 (CWSRF), 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, also known as Vermont's 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.[5] All state investments made across agencies in support of clean water projects and priorities are reported in the *Vermont Clean Water Initiative Annual Performance Report.* Chapter three of the 2023 Performance Report contains a progress update for the Lake Champlain TMDL.[6] 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 TMDL accountability framework.[7] In addition to the publicly available narrative report and executive summary, the Performance Report dataset is made available to the public through two online tools:[8]

- **The Clean Water Project 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.
- **The Clean Water Interactive Dashboard** 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.

[5] For more information on the Clean Water Board, visit: https://dec.vermont.gov/water-investment/cwi/board

[6] Vermont Clean Water Initiative 2023 Performance Report: https://dec.vermont.gov/water-investment/cwi/reports

[7] For more information on TMDL report cards, visit: https://dec.vermont.gov/watershed/restoring/champlain

[8] Clean Water Project Explorer and Clean Water Interactive Dashboard are available via the Clean Water Portal: https://dec.vermont.gov/water-investment/cwi/projects/clean-water-portal.

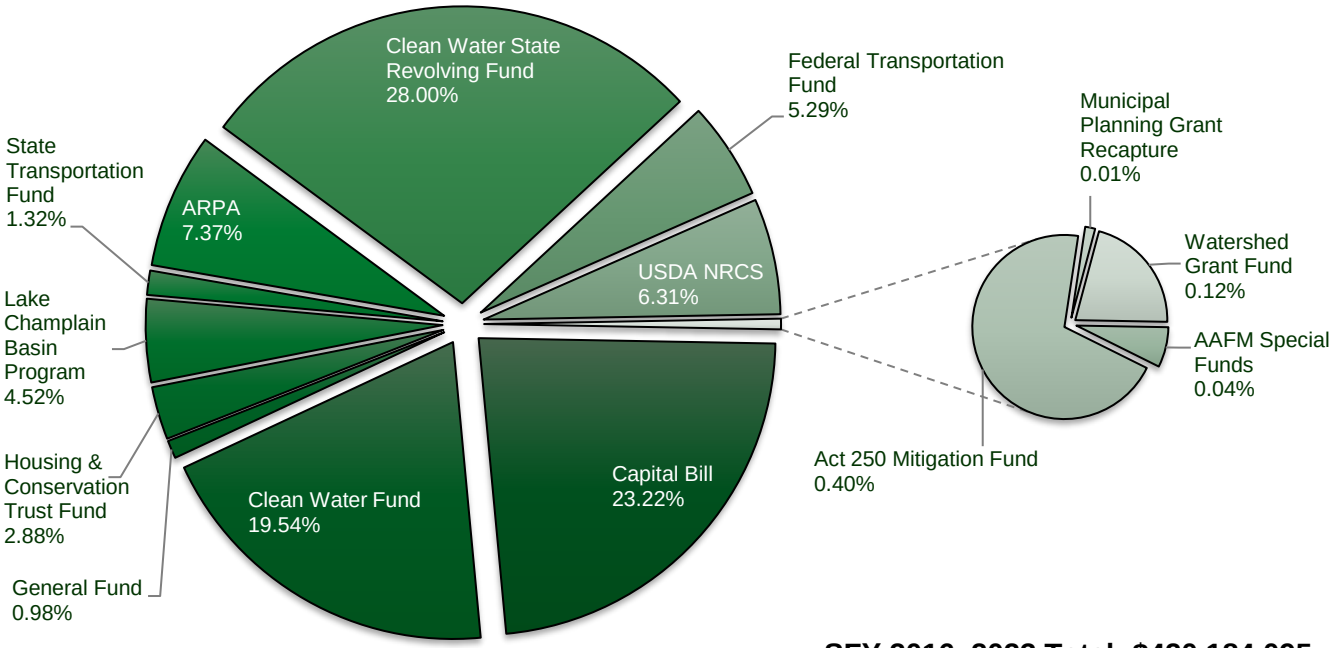

Figure 1. Proportion of dollars awarded to clean water projects through State of Vermont agencies by funding or financing source, SFY 2016-2023 (see the *Vermont Clean Water Initiative 2023 Performance Report*).

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 2023 and 2024 Clean Water Budget process and initiating its SFY 2025 Clean Water Budget process;
- Awarding millions of state dollars to NPS projects through Dam Removal Grants, River Corridor Easement Grants, Woody Riparian Buffer Restoration Grants, Water Quality Restoration Formula Grants, Water Quality Enhancement Development Design and Implementation Grants, and various other block grants;
- Tracking and accounting outputs and outcomes for CWIP-funded clean water projects in the state's tracking database;
- Developing, documenting, and implementing 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 data on clean water projects implemented 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 federal reporting requirements tied to Lake Champlain TMDL progress.

DEC staff, working under Vermont's NPS Management Program, supported funding program administrators tasked with administering block grants in the planning, review, selection, initiation, management, and closing out of NPS projects funded through CWIP funding programs.

Concurrently with Vermont's budgeting, granting, and reporting processes, DEC is implementing 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 went into effect on August 12, 2021.[9]

DEC staff have worked with stakeholders during this reporting period to meet several Act 76 milestones including: continued development and implementation of phosphorous accounting methods across all sectors; application of a formula grant fund allocation methodology based on non-regulatory phosphorous reduction targets by basin reflected in the first round of funding agreements; and continued development of a new verification and maintenance program framework for installed clean water projects.

Staff continued work to implement clean water project phosphorus accounting methods that have been published in Standard Operating Procedures documents covering clean water projects in the agricultural, developed lands, and natural resources sectors (including forestry and floodplain and river restoration).[10] DEC implemented the fund allocation methodology to award funding to CWSPs via Water Quality Restoration Formula Grants. Formula Grants target phosphorus reductions necessary to restore water quality in Lake Champlain and Lake Memphremagog through actions not compelled by regulatory programs (i.e., non-regulatory clean water projects). Formula Grant funds are allocated to CWSPs based on non-regulatory phosphorus reduction targets and a standard cost per unit of phosphorus reduced. CWSPs received their first annual allocation of Formula Grant awards at the end of FFY 2022 and their second annual allocation at the end of FFY 2023.

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

Continued Coordination with USDA-NRCS

DEC and AAFM staff continued to participate as members 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

[9] The updated rule and other information about Act 76 can be found here: https://dec.vermont.gov/water-investment/statues-rules-policies/act-76

[10] Standard Operating Procedures for Tracking and Accounting: https://dec.vermont.gov/water-investment/cwi/projects/tracking-accounting#SOP

conservation practices. Staff coordinate with NRCS 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 2023, East Creek and Hungerford Brook were two NWQI watersheds targeted for conservation practice implementation and $606,895 in cost share dollars was committed to practice implementation on 4 farms. Rock River is also an NWQI watershed but had no applications in FFY 2023.

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 January 2021, DEC signed an agreement with NRCS to extend RCPP for an additional five years, and with an additional $10 million. In 2023, the first application round was held for RCPP funds, and contracts for agricultural and forestry best management practices totaling $1,561,735 were awarded to 33 landowners. A second application round was held in October 2023, and it is likely that the balance of agricultural and forestry funds will be expended. A separate application round was held for conservation easements and 20 applications are currently being reviewed.

Technical assistance dollars in RCPP were used to fund part of a coordinator position for the RCPP program, and to contract with the VT Association of Conservation Districts and Redstart Natural Resources Consulting to provide landowner assistance in applications, contracting, and practice implementation. DEC has also provided support to multiple partners managing other RCPP grants in Vermont including the Orleans Natural Resources Conservation District and American Farmland Trust.

In August of 2023, DEC applied for a third RCPP grant and was awarded $10.7 million for additional agricultural and forestry best management practices and conservation easements that will focus on the intersection of water quality, flood resilience and habitat. Partners include The Nature Conservancy, Ducks Unlimited, Audubon Vermont, and the Vermont Housing & Conservation Board. The first application round for this project will be in August 2024.

303(d) List and Total Maximum Daily Load Development

In preparation for the 2024 303(d) listing cycle, data for the statewide assessment was compiled and analyzed. Specific assessments included those for direct measure of aquatic biota use over the past two years, statewide assessments for chloride and aluminum, nutrients

in lakes, flow modifications, and aquatic invasive species, among others. These assessments set the stage for the proposed 303(d) List development in 2024.

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:

- The Sunnyside Brook chloride TMDL methodology and analysis was completed with an expected TMDL release in early 2024. This methodology will be utilized in future TMDLs for chloride impairments.
- Continuous monitoring for chloride was conducted at several sites suspected of chloride impairment. These data will confirm impairment and provide information for TMDL development.
- The methodology for NPS phosphorus TMDL alternatives was finalized for thirteen small streams in the Lake Champlain Basin. Rather than developing complex phosphorus TMDLs in these waters, a more “direct to implementation” approach is being developed in cooperation with EPA called Advance Restoration Plans (ARPs). An internal target loading analysis report was completed and the Department is working with the VT Agency of Agriculture, Food, and Markets to explore approaches to meet the phosphorus targets and 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, Mt Snow, Stowe, and Stratton Mountain resorts. These efforts involve reviewing and commenting on annual implementation progress reports, conducting site visits, and holding annual public meetings.

Stormwater Management Priority Focus Areas

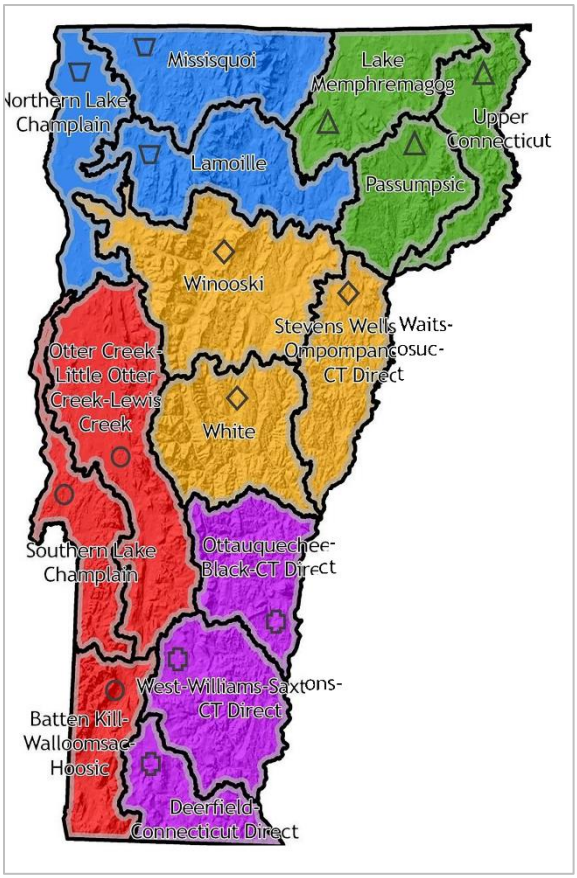

Figure 2. Tactical Basin Planning boundaries by watershed name.

Illicit Discharge Detection and Elimination

DEC staff participated in the public noticing of illicit discharges and oversaw two 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-Walloomsac-Hoosic River Basin (Basin 1), and one statewide IDDE contract, which includes 35-40 towns statewide. Around 50 outfalls require follow-up investigation or monitoring. Figure 2 shows the state's 15 Tactical Basin Planning watershed boundaries and names.

Grant Technical Assistance and Education

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

The Green Infrastructure Collaborative (GIC) is a partnership between Lake Champlain Sea Grant and VT DEC, which employs a coordinator that manages the Green Infrastructure Roundtable, a statewide group of Green Stormwater Infrastructure (GSI) practitioners. In 2023, an Advisory Group meeting was held to provide guidance on implementing goals in the 2022 – 2026 GIC strategic plan. A listserv, managed through UVM, provides opportunities to share information and collaborate on stormwater and GSI topics. There are consistently over 280 members of the listserv.

Stormwater Technical Assistance

DEC staff provided Stormwater Master Planning technical assistance to the following towns and entities: Bellows Falls-Rockingham, Brattleboro, Manchester, Stowe, Williamstown, Windsor and Woodstock, Bennington, Chester, Chittenden, Mendon, Londonderry, Pittsford, Pownal, and Wilmington.

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 2023, Rivers Program staff provided

technical assistance on 1,811 projects, permitted or were involved in the permitting of 964 projects, and offered 246 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 for phosphorus allocation and crediting. The identification and prioritization of natural resource conservation and restoration projects for phosphorus crediting work 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.[11]

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 may increase connectivity and stream equilibrium conditions. Work under the Phase 2 contract began in 2020 and work and was completed in June 2023, with the release of the tool to partners and Clean Water Service Providers to use for calculating phosphorus values for stream and restoration projects. Partners can find the FFI training materials on the VT Rivers Functioning Floodplain Initiative web page: https://dec.vermont.gov/rivers/ffi, and access to the tool at: https://ffi.stone-env.net/home.

The FFI tool continues to evolve through the first year of use, which has shown additional functionality users need and illustrated gaps in stream and floodplain restoration project types and mapped areas that were not captured in initial development stages. A “Phase 3” of FFI development began in February 2024 and includes building a user management system. These changes will take time to incorporate, and a 5-year contract is in place with the developer to allow for on-going improvements as the tool is used more and needs are identified. The user management system will allow users to create and save projects, lists, and input of data needed for tracking phosphorus crediting over time; provide initial project status information for better planning review over time; and other functions such as ability to import shapefiles and other spatial data to assist partners with determining phosphorus credits for a project. This work is planned to be released in summer 2024. Additional work in 2024 includes building out a format for including projects not previously included in FFI and creating crediting methods and a process within FFI for previously un-allocated stream segments and un-

[11] An FFI project summary and supporting information is available here: https://dec.vermont.gov/rivers/ffi.

mapped streams. A training opportunity is anticipated to be available in mid to late summer 2024 as the user management system is ready for release.

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 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 2023, 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 sampling and lake tributary sampling performed through the LaRosa Partnership Program (both vital statewide citizen monitoring programs), preparing to use our existing macrophyte, diatom, and macroinvertebrate datasets to establish biological criteria and indices of biological integrity for aquatic biota, 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 2023, 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. Lake Watershed Action Plans (LWAPs) have been completed at five lakes (Eden, Dunmore, Elmore, Maidstone, and Fairlee) and LWAPs are being developed at an additional eleven lakes (Iroquois, Fairfield, Caspian, St. Catherine, Keeler Bay, Morey, Willoughby, Shadow-Glover, Echo/Seymour, Halls, and Woodford) with a call for proposal advertised near the end of the reporting period for LWAPs on Great and Little Averill, and Miles Pond. The completed LWAPs provide a template for other lake watersheds to understand the major water quality threats and solutions in and around the lake, and combine assessments of three contributing areas: shoreland, roads, and tributaries (Figure 3). These initial plans have now generated lake restoration and phosphorus reduction projects that have been funded using CWIP Design and Implementation Block Grants and Clean Water Service Provider grant funding.

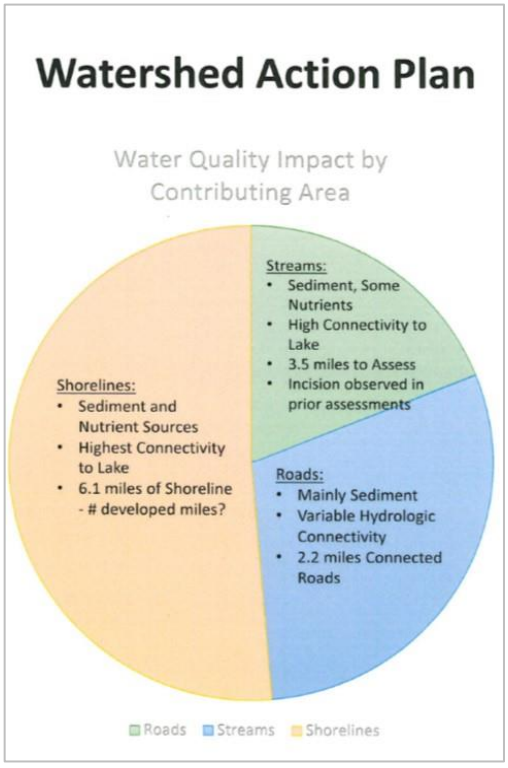

Figure 3. Water quality impacts by contributing area, identified in the Lake Eden Watershed Plan.

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 2023, the State of Vermont invested $3.6 million in clean water projects in Lake Carmi and its watershed. Estimated phosphorus reductions attributed to clean water projects have achieved over 100% of the phosphorus reduction required to meet the Lake Carmi Phosphorus TMDL load reduction target of 611 kg/year each year since SFY 2021. Continued investments and efforts across all land use sectors within the Lake Carmi watershed are needed to sustain the external load reduction target on an annual basis and the Lake Carmi TMDL in-lake phosphorus concentration target of 22 ug/L.

The Lakes and Ponds Program also maintained its monitoring efforts during the 2023 field season under the Lay Monitoring Program, summer lake assessment program, and spring phosphorus monitoring. Volunteer monitors collected data throughout the summer at over 80 lakes and ponds (Lay Monitoring Program) and from tributaries to a subset of 20 of those inland lakes and ponds (LaRosa Partnership Program). DEC scientists collected high-frequency data to monitor the impacts of climate change at five sentinel lakes and performed next generation lake assessments and macrophyte surveys during the 2023 field season. Monitoring for aquatic invasive species also continued during the 2023 field season, with response to new infestations of Eurasian water milfoil at three inland lakes, a confirmed arrival

of Zebra Mussels at Lake Memphremagog (US Waters), and new water chestnut infestations at sites within Lake Champlain and in one inland waterbody.

The Lake Wise Program provides technical assistance to shoreland property owners seeking to restore previously developed property. In 2023, the Lake Wise program focused heavily on assessment and moving identified projects through the design stages. Through funding from the Lake Champlain Basin Program (LCBP), the Lake Wise Seasonal Technician - Lake Champlain identified 36 public access sites on Lake Champlain and assessed them for potential shoreline improvement projects. From this assessment projects were prioritized, and one was selected to move forward to the initial design stage. That project is a shoreline stabilization and buffer planting project at Kill Kare State Park in St. Albans. Other projects on the Lake Champlain access areas list will move forward as funding allows. Other projects identified through Lake Wise and moving through the funding pipeline include:

- A shoreline stabilization and buffer planting project at Crystal Lake State Park (with Orleans NRCD)
- Buffer plantings at Lake Rescue (with Black River Action Team)
- Driveway removal and tiered native rain garden planting at Shadow Lake (with Orleans NRCD)
- Shoreline stabilization and buffer planting at Shadow Lake (with Orleans NRCD)
- Stormwater Improvements at the Peacham Pond Fish and Wildlife Access Area (with Caledonia County NRCD)
- Addison Gully Restoration project (with Poultney Mettowee NRCD and South Lake CWSP)
- Lakeside Road Stabilization projects at Sunset Lake Road in Orwell (with Rutland RCP) and South End Road in Plymouth.

Many of these projects are slated for implementation in 2024. Additionally, shoreland projects identified through the Lake Wise assessment component of Lake Watershed Action Plans were implemented at Lake Eden and Lake Elmore and other small projects identified through the Lake Wise program were also installed. Examples of projects include:

Eden Town Beach Restoration

Water was running over the parking lot at the Eden Town Beach recreation area. An 8” deep grass lined pretreatment swale was installed with a bioretention basin and native plants were installed between the parking lot and the beach area to slow and infiltrate stormwater and mitigate beach erosion. This project was identified during the Lake Eden LWAP shoreland assessments/Lake Wise assessments. Funding from Vermont Asbestos Group Fund held by USFWS installed by The Town of Eden, Northwoods Stewardship Center. Design by Fitzgerald Environmental Associates. Project management, Lamoille County NRCD.

Photos from before and during the restoration process showing lawn area that went directly to the lake, with nothing to stop or slow rainwater coming off the driveway, parking lot, and lawn.

Photos from after the restoration project showing the bioretention area and native plants installed to slow and absorb stormwater before it reaches the lake.

Lake Dunmore Fish and Wildlife Boat Launch

A drainage ditch along the north side of the boat launch was improved and two rain gardens were added to catch and infiltrate stormwater from the ditch and parking lot. This project was identified during the shoreland assessment/Lake Wise assessment portion of the Lake Dunmore LWAP. Project management by the Lake Dunmore Association, engineering by Fitzgerald Environmental. Funding provided through 2022 DEC Design and Implementation Block Grant administered by Watershed United Vermont.

Before images of the Lake Dunmore Fish and Wildlife Access Area showing no drainage or buffer was present between the parking area and the lake.

Concrete and steel trench drain

After images showing the installed bioretention and drainage features.

Eden Fish and Wildlife Boat Launch

Concentrated runoff off from Route 100 was causing rill erosion near the cross culvert inlet conveying water to the adjacent wetland and directly to the lake. The recent addition of water bars has helped intercept flow from Route 100, but opportunities remain to improve infiltration and sediment retention on-site. The sediment load at the site may be exacerbated by accumulation of gravel in the winter from plowing.

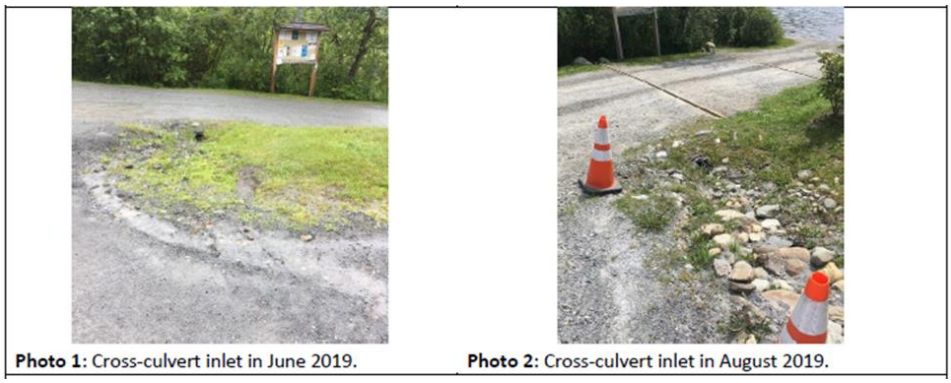

Photo 1: Cross-culvert inlet in June 2019.

Photo 2: Cross-culvert inlet in August 2019.

Before images of inadequate drainage at the Eden Fish and Wildlife Boat Launch.

After images showing new drainage installed to catch and slow stormwater and move it away from the parking area and boat launch.

Agency of Agriculture, Food and Markets Nonpoint Source Programs

Fifteen percent of Vermont's Section 319 award was passed through to the AAFM. AAFM used FFY 2023 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:

- Agricultural Best Management Practice grants
- 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 2023, one state funded leveraged NPS project was completed and administratively closed. The results of this project 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.[12] 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). Many of the state funded leveraged NPS projects in the active portfolio are block grants with multi-year awards. Individual NPS projects supported under block grants will be available to report at the close of the block grant agreement.

Appendix B of this report summarizes the status of all Section 319 leveraged watershed projects from FFY 2014 through FFY 2023. 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.

[12] For more information, on project tracking and accounting visit: https://dec.vermont.gov/water-investment/cwi/projects/tracking-accounting

Ongoing Section 319 and Leveraged Watershed Projects

Ongoing 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.

Ongoing Leveraged Watershed Projects

Appendix B of this report lists NPS projects used for Section 319 leveraging purposes from FFY 2014 through FFY 2023. The status of projects (ongoing, completed, discontinued) are noted along with completion dates (where applicable). Newly added to the list of ongoing projects are seven Water Quality Restoration Formula Grant agreements supporting non-regulatory NPS projects across sectors in the Lake Champlain and Lake Memphremagog basins, which were approved in the FFY 2023 workplan.

Appendix A: Annual Reporting on Nonpoint Source Management Plan Objectives 2021-2025

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	• 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	• Rulemaking complete for revised Custom Manure Applicator statute update and TSP certification	X					Ongoing – Rule revisions to the Custom Manure Applicator definition has been completed. Rules related to the TSP certification program and wetlands is ongoing.
			• Complete Wetlands rulemaking					X	Ongoing
1.2	Conduct inspections on all Large Farm Operations (LFOs) annually	• Minimize Large Farm Operation (LFO) NPS pollution • Ensure LFO permit terms and provisions, and RAP requirements are being attained	• 100% LFOs reporting and inspected annually	X	X	X	X	X	Complete/Ongoing – There are currently 37 LFOs in which 100% were inspected in 2023. LFOs are on an annual inspection cycle.
1.3	Conduct inspections of Medium Farm Operations (MFOs) on a 3-year inspection cycle	• Minimize Medium Farm Operation (MFO) NPS pollution. • Ensure MFO General Permit terms and RAP requirements are being attained	• All permitted MFOs inspected at least once every three years. To meet the inspection schedule, AAFM will inspect approximately 33% of MFOs each year.	X	X	X	X	X	Complete/Ongoing – There are currently 101 MFOs and at least 33% were inspected in 2023. MFOs are on a three-year inspection cycle.

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**
1.4	Revise MFO General Permit every 5 years	• Revise MFO General Permit to ensure consistency with current water quality regulations and conservation practices	• Initiate MFO General Permit revisions		X				Ongoing – MFO General Permit revisions are underway.
			• Complete revisions, release new MFO General Permit			X			Ongoing – The target date for releasing the new MFO General Permit is July 1, 2024.
1.5	Conduct inspections of Certified Small Farm Operations (CSFOs) on a 7-year inspection cycle	• Reduce Certified Small Farm Operation (CSFO) and Small Farm Operation (SFO) NPS pollution • Assess CSFO compliance with RAP requirements	• All CSFOs inspected at least once every 7 years. To meet the inspection schedule, AAFM will inspect approximately 14% of CSFOs each year	X	X	X	X	X	Complete/Ongoing – In 2023, there were 290 CSFOs, and at least 10% of CSFOs were inspected in 2023. CSFOs are on a seven-year inspection cycle.
1.6	Conduct Vermont Housing Conservation Board (VHCB) water quality assessments per AAFM/VHCB grant agreement	• 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	• 100% of VHCB-funded farmland conservation projects will have a current AAFM water quality assessment (average 15 VHCB water quality assessments per year)	X	X	X	X	X	Complete/Ongoing – In SFY 2023 AAFM conducted 15 on-farm water quality assessments per the AAFM/VHCB agreement.

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**
1.7	Ensure implementation and compliance of the AAFM/ANR Memorandum of Understanding (MOU)	• Conduct routine meetings between ANR DEC-Watershed Management Division (WSMD) and Environmental Compliance Division (ECD), 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 Note: actions above are a collaboration between AAFM and DEC	• Report annually on the successful implementation of MOU accepted by the Vermont Legislature	X	X	X	X	X	Complete/Ongoing – The SFY 2023 DEC/AAFM MOU report was submitted in January 2024 to the Vermont Legislature. Link to the ANR Submitted AAFM-ANR-MOU Annual Report. Link to the AAFM Submitted AAFM-ANR-MOU Annual Report.

Objectives 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	• Provide financial support to partners to host NMP development, implementation, and update workshops and provide NMP technical assistance	• Annual report summarizing partner education and technical assistance efforts related to NMP development and implementation	X	X	X	X	X	Complete/Ongoing – Since 2021 to date, partners have provided 17 nutrient management related events, reaching 510 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	• Develop and deliver NMP training program(s) for Custom Manure Applicators and Technical Service Providers, requiring educational credits	• 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	• Deliver AAFM cost share and technical assistance programs that promote agronomic and manure management practices (BMP,	• Annual report of funding and acreage of conservation practices implemented through AAFM cost share programs	X	X	X	X	X	Complete/Ongoing – Link to AAFM Annual Report on Financial and Technical Assistance for Agricultural Water Quality

Objectives 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**
	practice implementation	FAP, CEAP, CREP, PSWF, GWFS)	• Cumulative increase in phosphorus reductions achieved over the course of 5 years as a result of field practice implementation	X	X	X	X	X	Complete/Ongoing – Cumulative phosphorus reductions achieved as a result of field practice implementation each SFY. SFY 2020 – 20,387 kg P Reduction SFY 2021 – 32,374 kg P Reduction SFY 2022 – 29,848 kg P Reduction* SFY 2023 – 19,879 kg P Reduction* *Due to ongoing projects, data results reported for the most recent fiscal years are not always complete until prior year projects are completed. Link to AAFM Programs Power BI Interactive Dashboard.
2.4	Promote improved grazing, pasture management, and livestock exclusion	• Support agricultural partners and existing pasture based technical assistance programs, to provide technical and financial assistance for grazing pasture management and exclusion fencing practices.	• Annual report of funding, technical assistance visits, and acreage of pasture conservation practices implemented through AAFM cost share programs	X	X	X	X	X	Complete/Ongoing – Link to AAFM Annual Report on Financial and Technical Assistance for Agricultural Water Quality In SFY 2023, AAFM received a USDA $300,000 Grazing Lands Conservation Initiative (GLCI) grant to hire a Grazing Specialist to increase grazing technical assistance and AAFM Pasture and Surface Water Fencing grant program capacity.

Objectives 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**
2.5	Continue research and development of best management practices for tile drain systems	• 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	• Deliver annual update to partners and the agricultural community on tile drain research, sampling, and BMP updates	X	X	X	X	X	Complete/Ongoing – Tile drain sampling has been completed, analysis is ongoing.
2.6	Conduct Conservation Practice Surveys and conservation adoption social science efforts and surveys	• 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	• Track and report farmer-funded conservation practice installation in the Partner Database		X	X			Complete/Ongoing – VAAFM continues to support partner efforts to verify and track farmer funded conservation adoption. In SFY 2022, over 10,000 acres of farmer-funded conservation practices were reported and in SFY 2023, over 3,000 acres of farmer-funded conservation practices were reported.
			• Analyze and develop report summarizing social research results to inform effective and realistic water quality policy and program development					X	Ongoing – Link to 2022 Vermont Farmer Conservation & Payment for Ecosystem Services Study

Objectives 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 by adapting innovative and flexible practices under Regional Conservation Partnership Program (RCPP) funding in Vermont	• Receive and allocate additional $10 million funding to extend RCPP through 2025 • Apply for and implement additional RCPP funds as possible Note: DEC will lead the above actions with support from AAFM	• Successful implementation of Regional Conservation Partnership Program (RCPP) $10 million extension in producer contracts and quantified phosphorus reductions.	X	X	X	X	X	Ongoing – $1.6 million in funds were awarded in 2023 in the first application round for this RCPP to 33 landowners for the implementation of water quality agricultural and forestry practices. An application round for easements was also held and the 20 applications are being reviewed and sites evaluated. DEC applied for and received a third RCPP grant for $10.7 million which will begin in 2024.

Objectives 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**
3.2	Improve understanding of land treatment and water quality response in conjunction with National Water Quality Initiative (NWQI) (Rock River, East Creek and Hungerford Brook)	• 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) Note: DEC will lead the above actions with support from AAFM	• NWQI progress reports submitted to EPA on an annual or biannual basis.	X	X	X	X	X	Complete/Ongoing – DEC meets annually with NRCS and assists in water quality projects in these NWQI areas. Using RCPP funds, DEC provided resources for the Friends of Northern Lake Champlain (FNLC) to expand their water quality monitoring and farmer outreach and evaluation in the Rock River (a long-time, key NWQI region). DEC assisted FNLC in a grant application that was awarded to FNLC to further expand this work. RCPP funds will continue to support part of this multi-year project.
3.3	Support agricultural water quality partners to increase and strengthen partnerships, assistance and resources to farms, and efforts to improve water quality	• Host, maintain, and enhance the Multi-Partner Agricultural Conservation Practice Tracking and Planning Geospatial Database (Partner Database) • Provide support to new and existing farmer-led watershed groups	• Provide Partner Database trainings and support	X	X	X	X	X	Complete/Ongoing – The Partner Database continues to be used for tracking and reporting across the state and organizations. In SFY 2023, over 3,000 practices and 1,239 visits were reported by 39 users. This resulted in 19.8 metric tons of delivered P reductions. Utilization of the Partner Database ensures consistent and accurate tracking for TMDL P reductions and enables coordination across organizations.

Objectives 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**
		• Provide support to agricultural partners through the Agricultural Clean Water Initiative Program grants (Ag-CWIP) • Support local conservation practice research and monitoring • Administer the VAAFM AgCWIP Grant Program	• Include farmer-led watershed groups in stakeholder meeting, as applicable	X	X	X	X	X	Complete/Ongoing
			• Research and monitoring results developed and disseminated as available			X		X	Complete/Ongoing – There are various research and monitoring efforts underway in Vermont and results are made available as available. Discovery Acres is a research and educational site in St. Albans Bay let by UVM Extension. The first year of treatment began in April 2023 at this site. The treatment watershed will be used to monitor best management practices. Link to Discovery Acres Website. The Conservation Effects Assessment Project in the Lake Champlain Basin is paired watershed study led by UVM Extension. Link to CEAP Website.
3.4	Collaborate and Coordinate with the Vermont Agricultural Water Quality Partnership (VAWQP)	• Implement the VAWQP strategic plan developed in 2019 to build a stronger coalition and share research and learning across the partnership	• Host biennial research summit where researchers share their findings, results, and on-going work with partners, including Vermont, regional and national experts	X		X		X	Ongoing

Objectives 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**
		• 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 system) demonstrations in collaboration with Penn State. Note: VAWQP will lead the above actions with support from AAFM and DEC	• Hold Annual VAWQP Meeting, Steering Committee meetings and VAWQP Leadership meetings.	X	X	X	X	X	Complete/Ongoing – The 2023 VAWQP Annual meeting was hosted in April 2023, with visiting agricultural water quality experts from Quebec as key speakers. Approximately 160 staff from the VAWQP partner organizations attended. The VAWQP steering committee meets monthly to share information and coordinate programs, issues, and opportunities for collaboration. In addition, a communications sub-committee, a basin planning subcommittee, and other advisory groups meet regularly in between steering committee meetings. The VAWQP also subcontracts to four conservation districts to host regional coordination meetings twice per year, to share local information, ensure knowledge of and coordination between partner organizations, and to bring concerns, issues and ideas to the Steering Committee.
3.5	Vermont Phosphorus Innovation Challenge (VPIC)	• Continue VPIC program implementation, supporting the development of innovative protypes to address phosphorus pollution in Vermont Note: AAFM will lead with DEC support	• Administration of VPIC program through VPIC board development, proposal reviews, and grant administration	X	X	X	X	X	Complete/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 unless otherwise noted									
	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	• Establish O&M standards based on project type • Conduct training and technical assistance targeting municipalities, private owners of BMPs, CWSPs or CWSP O&M contractors on O&M standards • Organize a regional O&M summit or outreach event each year for partners, municipalities and consultants Note: DEC will lead this effort in conjunction with Lake Champlain Sea Grant.	• Training materials/curriculum developed on O&M inspection and maintenance standards and techniques	X					Ongoing – DEC/Lake Champlain Sea Grant are developing trainings on O&M and to certify verifiers to conduct Clean Water Project Verification.
			• Conduct annual O&M training and technical assistance each year. • Reach at least 50 people per year • Train at least 75 people per year	X	X	X	X	X	Ongoing – DEC/Lake Champlain Sea Grant held the first O&M training on Site Access Agreements on August 22, 2023. 34 attended the live session with an additional 9 requesting the recording. Additional trainings on O&M standards are under development. Lake Champlain Sea Grant hosted two Green Infrastructure O&M site visit events (October 17, 2022, and June 8, 2023) that engaged over 40 partners.
4.2	Identify priority non-regulatory road segments contributing to NPS pollution and mitigate erosion and polluted runoff	• 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.)	• Complete pilot inventory for private roads to identify high priority road segments for remediation		X				Delayed – The State of Vermont has secured funding through the Lake Champlain Basin Program to develop and pilot an assessment and data management framework for private road erosion inventories. The goal is to identify high priority road segments for BMP implementation. An RFP is under development with the goal to post by summer 2024.

Objectives Table 4. Nonregulatory Stormwater Management Lead entity: DEC Clean Water Initiative Program unless otherwise noted									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
		• Implement high priority private road improvement projects (O&M responsible party must be in place) • Identify funding sources to implement priority private road projects	• 10% of private roads brought up to standard					X	Not started – results of the pilot inventory will inform prioritization, implementation, and tracking of additional private road improvement projects.
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	• Identify priority towns or watersheds that have not completed SWMPs • Implement SWMP's as described in specific Basin Planning objectives	• 15 SWMPs out of a total of 150 funded and completed over 5 years					X	Ongoing – In 2023, SWMPs were completed in Brattleboro, Manchester, Stowe, Rockingham, Woodstock, Windsor, Williamstown, and Westminster. Development of SWMPs in Bennington, Chittenden, Chester, Londonderry, Wilmington, Mendon, Pownal, and Pittsford has been extended due to flood related delays.
4.4	Make progress toward meeting Lake Champlain and Lake Memphremagog developed lands targets through implementation of non-regulatory projects	• Fund and implement non-regulatory developed lands treatment projects.	• Adequate progress made on non-regulatory developed lands reductions in Lake Champlain and Memphremagog basins in relation to achieving 5-year targets					X	Ongoing

Objectives Table 5. Functioning Floodplains Initiative (FFI): Restoring Rivers, Floodplains and Wetlands Lead Entity: DEC Rivers Program unless otherwise noted									
	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. Note: DEC's Rivers Program will lead this effort with assistance from a technical advisory committee comprised of several DEC staff and outside contractors	Phase 1 deliverables completed • Attainment scoring • Connectivity Maps • Reconnect VT Rivers Maps • Conceptual Hydrology/Hydraulics mapping	X					Complete
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 as part of a technical advisory committee to advise and assist in completion of required deliverables Note: DEC's Rivers Program will lead this effort with assistance from a technical advisory committee comprised of several DEC staff and outside contractors	Phase 2 deliverables completed • Weighted prioritizations of floodplain and river reconnection projects • Function and values assessment and mapping methodologies • Web-based mapping and tracking program with training modules • Outreach materials reconnect Vermont rivers • Final Report/Closeout		X				Complete/Ongoing – work under Phase 2 of the Functioning Floodplains Initiative was completed in June 2023. Additional work is ongoing, with the first phase of development for a user management system to be completed in 2024 to provide partners with better interface functions with the FFI web tool. A training to introduce partners to the new user management system will be done in 2024 when the first phase of the user management system is ready for release.

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	• Administer Vermont Wetland Rules (VWR). • Revise VWR to include greater clarity on avoidance and minimization steps.	• Rule revision adoption	X					Complete – Rule revisions were adopted in February 2023 to increase clarity on what wetlands are protected and allows for a more nimble way to update our jurisdictional maps.
			• Yearly reports of wetland losses and gains from permitting.	X	X	X	X	X	Complete/Ongoing – 2023 reporting due out this May.
			• 5-year report of wetland losses and gains demonstrating the achievement no net loss.	X					Ongoing – the 2016-2020 report is drafted and will be available Spring 2024.
7.2	Increase protections for our most irreplaceable wetlands that provide water storage and water quality protection functions.	• Complete Class I Designations	• 2,000 acres of wetland designated as Class I					X	Ongoing – Eight Class I wetlands have been designated since 2016, with two added in February of 2023. Over 2,300 acres have been added since 2016, plus more acres of buffer zone. Two wetlands were designated as Class I in early 2023, adding 170 acres of Class I protected resource. There is now a total of 3,762 acres of wetland protected as Class I.
7.3	Improve knowledge of wetland locations to enhance wetland avoidance in project design.	• Update wetland advisory layer and Vermont Significant Wetlands Inventory (VSWI)	• 20 square miles added to map layers					X	Ongoing – The VSWI was updated through Rule to include recent data for the Missisquoi basin. To improve accuracy, there were both additions and deletions with a net 5,100 acres added. In 2022 around 5,000 acres were added to the advisory layer. 884 acres will be added to the VSWI in early 2024 and will have the Otter Creek and Winooski Watershed added by the end of 2024, which will be more than the milestone goal. These numbers total around 15 square miles.

Objectives Table 7. Wetland Protection and Restoration Lead entity: DEC Wetlands Program									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
7.4	Increase wetland acreage and function through restoration of previously drained and degraded wetlands	• 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.	• 1,000 acres restored					X	Ongoing – 604 acres of wetland have been conserved and restored through easements from SFY 2021 – 2023.

Objectives 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	• 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.	• At least ten new Lake Wise participants identified and shoreland sites assessed during each summer field season	X	X	X	X	X	Complete/Ongoing – Steady progress being made annually with identification of new lake wise sites on lakes and ponds throughout Vermont, with this target significantly surpassed in 2023 with over 200 assessments performed statewide.
			• Ten Lake Wise BMP project sites identified during each summer field season	X	X	X	X	X	Complete/Ongoing – BMP project sites were identified at many lakes throughout the state including but not limited to: Lake Champlain, Lake Willoughby, Halls Lake, Lake Morey, Shadow Lake, Peacham Pond, Lake St. Catherine, Lake Iroquois, Wallace Pond, and Crystal Lake.
			• Complete at least five Lake Wise implementation projects each summer field season	X	X	X	X	X	Complete/Ongoing – 5+ Lake Wise implementation projects completed in 2023.
			• Two Shoreland Erosion Control Trainings completed each year	X	X	X	X	X	Complete/Ongoing – One Shoreland Erosion Control Certification Trainings was completed in FY 2022. NSECC Training was held virtually in November of 2022 with 100 participants. Annual Lake Wise Assessor training days were established in May 2022 and two trainings were held in May and June 2023, where over 30 staff from the state and partner organizations who wanted to become certified in performing Lake Wise Assessments were trained.

Objectives Table 8. Lakes and Ponds NPS pollution Lead entity: DEC Lakes and Ponds Program									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
8.2	Identify and address sources of non-point source pollution in a lake's watershed and develop projects to reduce loading	• Develop water quality restoration plans known as 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.	• Identify five lakes to develop LWAPs	X					Complete/Ongoing – Through October 2023, eight LWAPs are ongoing. LWAPs are prioritized for funding annually by the Lakes and Ponds program and target watersheds are identified in Tactical Basin Plans.
			• Complete five LWAPS pending funding and willing partners		X				Complete
			• Begin to implement LWAP projects			X	X	X	Ongoing – Projects identified in LWAPs are being implemented on Lake Elmore, Lake Eden, Lake Dunmore, Maidstone Lake, and Lake Fairlee.
8.3	Detect and eradicate Aquatic Invasive Species (AIS)	• 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.	• 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	Complete/Ongoing – In 2023, DEC provided funding to greeters at over 30 access areas throughout Vermont.

Objectives Table 8. Lakes and Ponds NPS pollution Lead entity: DEC Lakes and Ponds Program									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
8.4	Reducing non-point phosphorus pollution from roads near lake shores	• To help reduce road runoff and protect surfaces 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 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.	• Completion of Bioengineering Manual showcasing five years of shoreland road restoration projects and methodologies for the installation of these practices		X				Complete
			• New shoreland BMP guidance to address specific road / shoreland interface challenges		X				Complete
			• Implement new BMPs and evaluate effectiveness of BMPs			X	X	X	Ongoing – Bioengineering Manual, new BMPs from guidance mentioned above, and new BMP sheets began to be utilized in 2022.
8.6	Reverse pattern of increasing chloride trends in Lake	• Support the development of a program in VT similar to New Hampshire's Green	• Development of legislation for a reduced salt application program	X	X				Delayed – Chloride reduction legislation was introduced in 2023 but failed to gain traction during the biennium.

Objectives Table 8. Lakes and Ponds NPS pollution Lead entity: DEC Lakes and Ponds Program									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
	Champlain and other relevant inland lakes	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.	• Work with VTrans to add low-salt zones around chloride-sensitive lakes into Snow & Ice Plan		X	X	X		Delayed – No progress made on this in 2023.

Objectives 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.	• 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 – 23 complaints in 2023, and 19 requests for technical assistance. Over the last 20 years, the average number of complaints per year has been going down, and the number of technical assistance calls has been going up.
9.2	Provide technical assistance and outreach to loggers, foresters and landowners	• Provide trainings through partnerships with LEAP, Master Logger Program, Vermont Woodlands Association (VWA), Vermont Forests Products Association (VFPA), and Vermont Tree Farm Program. • Develop digital AMP manual consisting of the new AMP manual as a smartphone application with enhanced tools to help implement the AMPs.	• Offer 2-3 workshops per year	X	X	X	X	X	Complete/Ongoing – Completed 2 workshops in 2023. 5 workshops planned for 2024.
			• Disseminate the new digital AMP manual.	X					Complete/Ongoing – AMP app went live in August 2022. As of February 2023, 250 people have downloaded the App and are presumed to be using it. A training webinar was held in September 2022 and a recording is available at this link: https://www.youtube.com/watch?v=MRToiN5l0mQ&list=PL4Q_G01jMxBt0DzEgdhnwfowv14a2vsbY&index=1 The AMP App is a discussion at all AMP trainings, as well as making available printed AMP manuals.
9.3	Reduce erosion and sedimentation at stream crossings during harvesting	• Provide technical support and bridge rentals to loggers, foresters and landowners • Continue to administer the	• 2-3 rentals of the heavy-duty bridges per year	X	X	X	X	X	Complete/Ongoing – Rented 2 heavy duty bridges in 2023 in the towns of Worcester and Waterbury, as well as loaning free-of-charge, 4 bridges to the towns of Berlin and Worcester which were impacted by the July flooding.

Objectives 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**
		cost-share program for temporary skidder brides • Continue to support stream crossing improvement projects with RCPP funds	• Support cost share 5-7 bridges per year	X	X	X	X	X	Complete/Ongoing – A cost share/grant program to get 15 bridges to VT NRCD's for their temporary bridge rental program was completed in the spring of 2023, with 15 bridges constructed and dispersed to 8 different Conservation Districts. Another portable skidder bridge initiative began in the fall of 2023 to build 10 skidder bridges to be used on State Land timber sales, to be completed in 2024.
9.4	Develop methods to track and account for phosphorus and sediment reduction of forestland projects	• Hire contractors to define methodology to identify and map critical sources areas of forestland phosphorus and sediment reduction potential • Create list of prioritized sites to target project development • Hire contractors to develop forestland BMP phosphorus accounting methodology design life and data requirements	• Critical source area maps categorized by forestland BMP type, and prioritized locations to target field assessments and project development	X	X				Ongoing – consultants have been awarded LCBP funding to conduct Phase 2 of the Forestland Spatial Analysis and Phosphorus Load Allocation project to groundtruth spatial data to verify landscape features and calibrate the spatial assessment model/tool.
			• Finalize forestland phosphorus accounting methods	X	X				Complete – methods to account for phosphorus reduction associated with forestland BMPs are complete and published.
			• Promote BMP implementation through private lands staff, Technical Service Providers (TSPs), private foresters and other strategies		X	X	X	X	Ongoing

Objectives 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**
9.5	Refine the tracking and accounting of UVA AMP compliance, especially in priority basins to meet TMDL targets	• Inspect parcels and document AMP compliance and identify opportunities for improvements	• Develop, test and refine data collection system	X					Complete – system in place to apply accounting methods to estimate phosphorus load reduction achieved through AMP compliance on inspected UVA enrolled parcels.
			• Fully deploy system		X	X	X	X	Complete – estimated phosphorus reductions associated with UVA enrolled parcels are reflected for the first time in the Clean Water Initiative 2023 Performance Report.
9.6	Implementation of forestry BMPs on high priority state lands	• 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.	• Complete mapping of ANR roads and trails • Conduct inventory assessment of ANR lands over 3 years. Phase one starting in 2020.	X	X	X			Ongoing – In 2022 one-third of the forest roads on ANR lands were inventoried and prioritized. The remaining two-thirds of the roads will be assessed by a contractor in 2024 and 2025. The existing prioritized projects are being incorporated into District workplans and implementation has begun on several projects.
			• Complete final prioritization list			X			Ongoing – District stewardship teams have completed prioritization of the first phase of inventories. Remaining prioritization will be completed after completion of data collection at end of 2025 field season.
			• Inventory results and project prioritization incorporated into long range management planning and FPR Annual Stewardship plans.			X	X	X	Ongoing – The first phase of inventory results and prioritization has been incorporated into annual stewardship plans and implementation of prioritized clean water practices has started. The remaining work will be completed after prioritization of results from the remaining two phases of inventories.

Objectives 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**
9.7	Enhance inter-Departmental (within ANR) coordinated approach in managing current state lands	• 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)	• Update ANR Lands Conservation Plan	X					Ongoing – completed within the process of the District Stewardship Teams.

Objectives Table 10: Healthy Forest Cover Lead Entity: Department of Forest Parks and Recreation (FPR)									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
10.1	Protect and enhance urban forest canopy cover	• 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.	• Provide assistance to 10 communities per year.	X	X	X	X	X	Ongoing/Complete - The Vermont Urban & Community Forestry Program provides assistance to towns by request. In 2023 the program assisted 18 communities with conducting or updating tree inventories, reviewed draft policies and shade tree preservation plans for 8 communities, and regularly supported tree warden requests for assistance. We hosted a virtual roundtable for tree wardens that was attended by 22 tree wardens from around the state.
			• Provide 5 outreach events per year.	X	X	X	X	X	Ongoing/Complete - In 2023 Vermont Urban & Community forestry program staff delivered over 20 presentations to varying audiences with topics ranging from emerald ash borer preparedness, to caring for and planting young trees in communities, to urban restoration and reforestation. After a three-year hiatus the program again offered its annual conference to an audience of over 150. Also of note was a series of day-long trainings on safely removing roadside trees, attended by 37 municipal staff from 15 different municipalities statewide.
10.2	Maintain and increase UVA enrolled forestland among eligible parcels.	• 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	• Provide 5 outreach events per year	X	X	X	X	X	Ongoing/Complete – The Vermont Private Lands Program provides outreach on a variety of topics and most presentations touch on Use Value Appraisal. In 2023, 171 presentations occurred reaching more than 4,557 attendees. 10 of these events had a strong UVA focus or component and were attended by 279 individuals.

Objectives Table 10: Healthy Forest Cover Lead Entity: Department of Forest Parks and Recreation (FPR)									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
		implementation of AMPs. Current forestland enrolled is just over 2,000,000 acres.	• Visit 800 parcels per year	X	X	X	X	X	Ongoing/Complete – In 2023 staff with the Private Lands Program visited more than 865 parcels covering 154,500 acres. Each visit included confirmation of implementation of water quality practices and where appropriate, advice and technical assistance to support good forest stewardship.

Objectives Table 11. Planning and Reporting on TMDL Progress Lead Entity: Water Investment Division Watershed Planning Program (WPP) unless otherwise noted									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
11.1	Identify and develop high priority clean water projects to implement TMDLs	• Coordinate with inter-agency programs and statutory partners to develop draft TBPs for review	• Publish 15 Basin Plans					X	Ongoing – Winooski (Basin 8) Tactical Basin Plan developed and approved in 2023. The Otter Creek (Basin 3), Northern Lake Champlain Direct Drainages (Basin 5), White River (Basin 9), Deerfield (Basin 12), and Passumpsic (Basin 15) Lake Memphremagog Tactical Basin Plan are under development and expected to be finalized in 2024.
11.2	Meet TMDL target load allocations to comply with VT Water Quality Standards	• Publish Tactical Basin Plans with phase 3 and/or geographically explicit implementation priorities	• Lake Champlain Phase 3 content completed and subsequent iterations of other TBPs (Memphremagog, Connecticut River Basins)	Basin 6&7	Basin 2/4	Basin 8	Basin 3&5		Complete/Ongoing – The Basin 8 (Winooski) Phase 3 content developed and approved in 2023. Basins 3 & 5 Phase 3 content in under development and anticipated to be approved by the end of 2024.
			• Implementation targets for Lake Memphremagog		X				Complete – Implementation targets for Lake Memphremagog were developed and published in 2023.
11.3	Develop TMDL targets by basin and sector	• Target-setting to meet allocations by sector, by basin split into regulatory and non-regulatory	• Phase 3 accounting and target setting completed (Champlain)	Basin 6&7	Basin 2/4	Basin 8	Basin 3&5		Complete/Ongoing –TMDL targets for the Winooski Basin (Basin 8) were updated and published at the end of 2023.
			• Implementation targets established (Memphremagog)		X				Complete – Non-regulatory implementation targets for CWSPs (per Act 76) for the Memphremagog Basin were finalized and published in June 2022.

Objectives Table 11. Planning and Reporting on TMDL Progress Lead Entity: Water Investment Division Watershed Planning Program (WPP) unless otherwise noted									
	Objectives	**Actions**	**Milestones**	**2021**	**2022**	**2023**	**2024**	**2025**	**Progress Updates**
11.4	Report on progress made towards clean water restoration and protection goals	• Develop Tactical Basin Plan Implementation Table interim and final report cards • CWIP and WPP develop and submit Annual Clean Water Initiative Performance Report including TMDL progress report card(s)	• Interim/ Final Report Cards developed for basins according to Lake Champlain TMDL Accountability Framework	Basin 8	Basin 2/4 & 3	Basin 8 & 5	Basin 3	Basin 5	Complete/Ongoing - The Basin 8 final report and Basin 5 interim report were submitted to EPA in early 2024.
			• Basins 6 and 7 submit final reports in 2021		X				Complete

Objectives 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 (CWSPs) and Water Quality Restoration Formula Grant Program	• Complete rulemaking process to establish CWSPs in Lake Champlain and Lake Memphremagog Basins and finalize Water Quality Restoration Formula Grant Guidance Document	X					Complete – Rulemaking to establish CWSPs is complete. Ongoing – Water Quality Restoration Formula Grant guidance chapters are under development. Seven guidance chapters have been finalized and published. The remaining chapters are being finalized and will be published in 2024.
			• Implement Water Quality Formula Grant Program		X				Ongoing – year 2 of Formula Grant awards were executed in the fall of 2023.
			• Determine timeline for expanding CWSP model to address other priority pollutants statewide			X			Delayed - efforts are underway to develop consistent methods for Long Island Sound TMDL states to estimate nitrogen reductions for clean water projects. Vermont intends to set a schedule to expand the CWSP model and establish methods to account for nitrogen reductions in the Connecticut River basin in alignment with ongoing five state nitrogen tracking coordination efforts.
12.2	Ensure protection and enhancement of unimpaired waters through enhanced nonpoint source management and protection projects	• Establish Water Quality Enhancement Grant Program	• Implement Water Quality Enhancement Grant Program statewide		X				Complete/Ongoing - DEC facilitated a stakeholder workgroup to inform and build consensus on the Enhancement Grant program design and priorities. The State of Vermont will meet the statutory goals/intent of the Enhancement Grant program through an offering of sub-initiatives. The first year of Enhancement Grants were budgeted in the SFY 2023 Clean Water Budget and CWIP Spending Plan. The first round of Enhancement Grant awards was made in SFY 2023.

Objectives 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**
12.3	Develop and deploy clean water accounting methodology	• CWIP coordinate the development of phosphorus accounting methodologies for all project types without methods in place • CWIP confirm existing accounting methodology for non-regulatory projects • CWIP coordinate development of standard design life for all project types	• Document phosphorus accounting methodology by sector and project types	X					Complete – phosphorus accounting methods for clean water projects addressing pollution in the developed lands, natural resources, and agricultural sectors were published June 2022.
			• Develop Quality Assurance Project Plan (QAPP) on phosphorus accounting methodology and submit to EPA		X				Complete – QAPP approved by EPA April 2023.
			• Reductions attained from all completed clean water projects, not previously reported on, captured in Clean Water Initiative Annual Performance Report			X	X	X	Ongoing – The Vermont Clean Water Initiative 2023 Performance Report reflects phosphorus reductions estimated through ongoing implementation of established accounting methods.
12.4	Establish Clean Water Service Providers for each Champlain (tactical) Basin/ region and Memphremagog Basin	• Rulemaking process to adopt the CWSP for 6 Champlain Basins and 1 Memphremagog Basin	• CWSPs for Champlain and Memphremagog Basins selected and adopted by rule	X					Complete – CWSPs have been assigned for all 7 basins.
			• Basin Water Quality Councils (BWQCs) established and operational for Champlain and Memphremagog Basins		X				Complete – BWQCs have been established in each basin.

Objectives 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**
12.5	Provide assurance that BMPs implemented on the ground are properly functioning throughout their useful design life	• Establish BMP Verification Procedures • Train CWSPs, and other entities on BMP Verification (see Objective table 4 for training milestones)	• BMP Verification procedures documented	X					Ongoing – Internal DEC procedures are documented, procedures for external partners to engage in this work is under development.
			• Operation and Maintenance (O&M) guidance manual finalized		X				Ongoing – Finalized manual is delayed. Currently under final review with DEC staff.
			• Field verify O&M of 35 state funded GSI projects per year	X	X	X	X	X	Ongoing – DEC staff and partners visited Lake Shoreland practices and River and Floodplain restoration practices to test project specific verification checklists as part of development of the Verification Program and trainings.
12.6	Adaptive management strategy developed and deployed	• Applying accounting methods, determine progress made in meeting target allocations (WID)	• Clean water BMP implementation progress determined annually by sector and basin	X	X	X	X	X	Ongoing – results are available through the Clean Water Initiative Annual Performance Report and related datasets.
			• BMP implementation progress informs updated targets for next planning cycle		X		X		Ongoing – adaptive management approach is integrated into Tactical Basin Planning process.

Objectives 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	• Through reliable water quality monitoring efforts, document NPS impaired situations where water quality is fully or partially restored.	• 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		Delayed – two success stories to be submitted before September 2025.
13.2	Continue to manage & implement NPS program to meet goals while working towards addressing Vermont's NPS water quality problems effectively & expeditiously	• 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.	• Vermont NPS Program continues to receive SPDs on an annual basis in a timely fashion.	X	X	X	X	X	Complete/Ongoing – EPA issued SPD for FFY 2022 on May 26, 2023.

Objectives 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**
13.3	Preparation & submittal of annual NPS program reports consistent with EPA guidance	• 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 improvements in water quality arising from program implementation. Provide draft annual program report to EPA for review. • Submit annual report.	• Report annually on progress made in implementing the state's NPS Management Program	X	X	X	X	X	Complete for 2023.
13.4	Revised NPS Management Program plan	• Track the status of actions, milestones & accomplishments found in current 2021-2025 NPS Management Program plan. • Prepare revised & updated NPS Management Program plan.	• EPA-approved Vermont NPS Management Program plan (2026-2030) in place by 10/1/2025					X	Not started – development of the 2026 – 2030 NPS Management Program plan will begin in the fall of 2024.

Appendix B: Section 319 Leveraged Watershed Projects and Status

Workplan Year	Grantee/Contractor	Project Title	Funding 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

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
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
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

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
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
2015	Franklin Watershed Committee	Lake Wise Shoreland BMPs – Lake Carmi, Franklin County	$37,125	Completed	7/24/2017

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
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

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
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
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	9/29/2020

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
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	Completed	8/18/2022

Workplan Year	Grantee/Contractor	Project Title	Funding 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	Completed	8/20/2020

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
2020	Vermont Youth Conservation Corps (VYCC)	2019 Vermont Youth Conservation Corps Watershed Work Crew Project	$93,316(awarded) $33,023(leveraged)[13]	Completed	3/27/2020
2020	Watersheds United Vermont (WUV)	Woody Buffer Block Grant – WUV 2019	$132,576 (awarded) $81,084 (leveraged)[13]	Completed	12/15/2020
2020	Watersheds United Vermont (WUV)	WUV Clean Water Projects Design and Implementation Grant	$575,000(awarded) $183,784(leveraged)[13]	Completed	12/31/2021[14]
2020	Vermont Natural Resources Council (NRCC)	NRCC Clean Water Projects Design and Implementation Grant	$925,000(awarded) $599,553(leveraged)[13]	Completed	12/31/2021[14]
2020	Southern Windsor County Regional Planning Commission (SWCRPC)	SWCRPC Design and Implementation Block Grant	$1,500,000 (awarded) $189,014(leveraged)[13]	Completed	12/31/2021[14]
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	$98,294	Completed	11/21/2021
2021	Vermont Land Trust	2020 River Corridor Easement Development and Implementation, Fairmont	$75,300	Completed	12/31/2021
2021	Watersheds United Vermont (WUV)	2021 WUV Clean Water Design and Implementation Block Grant	$1,000,000(awarded)	Ongoing	
2021	Vermont Natural Resources Council (NRCC)	2021 NRCC Clean Water Design and Implementation Block Grant	$1,000,000(awarded)	Ongoing	
2021	Southern Windsor County Regional Planning Commission (SWCRPC)	2021 SWCRPC Clean Water Design and Implementation Block Grant	$1,000,000(awarded)	Ongoing	

[13] DEC overleverages state funds by identifying block grants as sources of leverage in the annual workplan. Overleveraging (awarded value) accounts for the fact that some projects funded under block grants may not meet the Section 319 leverage criteria. Upon block grant closeout, projects funded under block grant sub-grants that meet the Section 319 leverage criteria are reported with final funded amounts (leveraged value) and outputs/outcomes in GRTS (also summarized in Appendix B and C of this report). As part of this process, DEC tracks the final sum of Section 319 leverage eligible projects closed out under block grants to ensure the total required leverage funding amount is met each year. The value reflected in this table for block grants with project status "completed" is representative of the projects that met the leveraging requirements and were reported as leveraged funds.

[14] These grant agreements have been amended to add funds and extend the term however for the purposes of tracking, leveraged projects under the initial award have been recorded in GRTS.

Workplan Year	Grantee/Contractor	Project Title	Funding Amount	Project Status	Date Completed
2022	Vermont Natural Resources Council	Dunklee Pond Dam Removal - Implementation	$196,000	Completed	5/28/2022
2022	Vermont Department of Fish and Wildlife	Pelletier Dam Removal MOA 2022	$180,000	**Completed**[15]	1/24/2023
2022	Vermont Land Trust	2021 River Corridor Easement Implementation: Bathalon & Parent	$215,725	Ongoing	
2022	Vermont Land Trust	2021 River Corridor Easement Implementation: Ricketson	$73,697	Ongoing	
2022	Watersheds United Vermont	2020 Woody Buffer Planting Block Grant Year 2-WUV	$492,946(awarded)	Ongoing	
2022	Natural Resources Conservation Council	2020 Woody Buffer Planting Block Grant Year 2-NRCC	$269,862(awarded)	Ongoing	
2023	Northwest Regional Planning Commission	Clean Water Service Provider Formula Grant - Basin 6 (Missisquoi)	$1,950,272	Ongoing	
2023	Vermont Housing and Conservation Board	Clean Water Service Provider Formula Grant - Basin 17 (Memphremagog)	$647,644	Ongoing	
2023	Chittenden County Regional Planning Commission	Clean Water Service Provider Formula Grant - Basin 5 (North Lake Champlain)	$645,340	Ongoing	
2023	Addison County Regional Planning Commission	Clean Water Service Provider Formula Grant - Basin 3 (Otter Creek)	$1,094,817	Ongoing	
2023	Central Vermont Regional Planning Commission	Clean Water Service Provider Formula Grant - Basin 8 (Winooski)	$1,040,947	Ongoing	
2023	Rutland Regional Planning Commission	Clean Water Service Provider Formula Grant - Basins 2 & 4 (South Lake Champlain)	$977,649	Ongoing	
2023	Northwest Regional Planning Commission	Clean Water Service Provider Formula Grant - Basin 7 (Lamoille)	$643,330	Ongoing	

[15] Projects completed during the reporting period are further described in Appendix C.

Appendix C: Outputs and Outcomes of Section 319 Leveraged Projects Completed in FFY 2023

The following project was completed during the FFY 2023 reporting period.

Pelletier Dam Removal Project	
Project Type	Dam Removal – Implementation
Watershed(s)	Castleton River (VT02-03)
Partner	Vermont Natural Resource Council
State Funding Amount	$180,000
Total Project Cost	$430,000
Project Output	0.53 stream miles reconnected for stream equilibrium and aquatic organism passage
Estimated Total Phosphorus Load Reduction	Unable to estimate – data required to estimate phosphorus reduction not available.
Estimated Total Suspended Solids	Unable to estimate – data required to estimate sediment reduction not available.

Pelletier Dam on North Breton Brook in Castleton, VT prior to removal.

North Breton Brook after removal of the Pelletier Dam. Aquatic organism passage has been restored in this section of the brook and the river has space to move, allowing for natural channel evolution and reduction in erosive channelization.