Nonpoint Source Management Program 2020 Annual Report

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Executive Summary

This report summarizes activities and accomplishments of Massachusetts' Nonpoint Source (NPS) Management Program ("NPS Program") in 2020. The Massachusetts Department of Environmental Protection (MassDEP) has prepared this report to help notify the general public as well as the U.S. Environmental Protection Agency (EPA) about the work being done in the state to reduce and control nonpoint source water pollution. This report also meets the annual reporting requirements of Section 319(h) of the Federal Clean Water Act (CWA).

Nonpoint source (NPS) pollution is a significant source of degraded water quality in Massachusetts. NPS water pollution involves the movement of water over and through the ground, picking up and carrying pollutants and depositing them into bodies of water. The NPS Program is funded in part by the U.S. EPA under sections 319(h) and 604(b) of the Clean Water Act. MassDEP uses the federal Clean Water Act to define nonpoint source pollution and recommend ways to control it. The Massachusetts Nonpoint Source Management Plan recognizes that MassDEP must continue to work with its many partners on a watershed-by-watershed basis to improve and protect the water resources of the Commonwealth.

Each year, MassDEP undertakes a competitive process seeking proposals for 319 funded projects to restore and remediate impaired waters through implementation of total maximum daily loads (TMDLs), Watershed-Based Plans, and the Massachusetts Nonpoint Source Management Program Plan. The awards provide financial support for local projects and programs that control NPS pollution or that protect or improve NPS-impaired or threatened water resources.

This report includes an overview of the 2020 highlights, program activities, 319-grant information as well as summaries of 319-funded projects conducted consistent with the Massachusetts 2020-2024 Nonpoint Source Management Program Plan.

DEP recommended 7 new projects for funding from the FFY2020 319 allocation. The selected projects will demonstrate structural and non-structural best management practices to improve water quality in impaired waters.

Onota Lake Pittsfield, MA

Table of Contents

Walden Pond Concord, MA by Walden Woods Project

I. Introduction

Nonpoint source (NPS) pollution can occur anywhere and involves the movement of water over and through the ground. As runoff moves, it picks up and carries natural and human-made pollutants, overtime depositing them into bodies of water such as lakes and rivers. Examples of pollutants include fertilizers, oil, construction sediment or bacteria and nutrients from animal wastes. The major categories of NPS pollution sources in Massachusetts consist of developed areas, transportation, agriculture, forestry, hydromodification, atmospheric deposition, landfills, waste management sites, and natural resource extraction.

MassDEP uses the federal Clean Water Act to define nonpoint source pollution and recommend ways to control it. Under Section 319 of the federal Clean Water Act, EPA awards federal grants to states, territories, and tribes for projects that will help prevent and control NPS pollution. The NPS Program is guided by the Massachusetts Nonpoint Source Management Program Plan 2020-2024 (https://www.mass.gov/doc/final-2020-2024-massachusetts-nonpoint-source-management-program-plan/download).

This report summarizes the Nonpoint Source Program activities and accomplishments in 2020. Every year, MassDEP prepares a report to report on the progress made in Massachusetts toward controlling NPS water pollution and meet annual reporting requirements of Section 319(h) of the Federal CWA.

Upper Deerfield River

II. 2020 Highlights – NPS Management Program

A. **Program Integration**- FFY2020 was the first full year that the MassDEP 319 NPS Program was incorporated into the MassDEP Division of Watershed Management (DWM) Watershed Planning Program (WPP). The NPS program expects further collaboration and coordination with the Watershed Planning Program. In addition, the Water Quality Planning grant program (604b) was also integrated into the NPS program. While coordination with the 604b Program has been extensive over the years, the formal inclusion of the 604b Program within the NPS Program will strengthen collaboration with the NPS program. 604b solicitations have historically solicited projects that support development of competitive 319 projects. Through the FFY2019 604b grant solicitation MassDEP focused on projects that will result in the development of Watershed-based Plans following the nine-element template. Projects which support the identification and remediation of water quality pollution sources were also solicited.

B. **New Grant Projects in 2020** – The FFY2020 319 NPS Project Funds Target awarded by the US EPA was set at $1,069,160. Eleven proposals were received on June 4, 2019, in response to the FFY2020 Request for Responses. After review and evaluation, an inter- and intra- agency committee selected seven new projects to be recommended for funding from the FFY2020 319 allocation. The combined grant amount given by the US EPA for all seven projects is $1,026,704, and the combined match amount (in the form of cash or in-kind services) is $704,639.

C. **Closing Grant Projects in 2020** – Four projects funded through the NPS 319 grant program in recent years were successfully completed and closed out in 2020. Three of the projects were implementation projects and one was a stormwater utility development project. These projects were awarded a combined total of $838,802 in section 319 funds. Matching funds for these projects were valued at $569,490 and were given in the form of cash or in-kind services.

- The completed projects took place in the Towns of Amesbury, Westford, Bellingham, and Great Barrington. Target watersheds included the Merrimack River watershed, Sudbury, Assabet, and Concord River (SuAsCo) watersheds, Charles River watershed, and the Housatonic watershed.

- Project outcomes included implementation of Best Management Practices (BMPs), development of a stormwater utility plan, and public outreach. As a result, there was a reduction of nutrients, pathogens, sediment, cyanobacteria, and other contaminants in waterbodies, and an increase in public knowledge of nonpoint source pollution and best management practices, ultimately improving the quality of Massachusetts' impaired waters.

D. **National Water Quality Initiative** – MassDEP coordinated with the USDA-National Resource Conservation Service (NRCS) to focus on the Palmer River watershed in Rehoboth, MA, which discharges into Narragansett Bay in Rhode Island. MassDEP worked with EPA Region 1 over the past few years to conduct a bacteria source tracking project in the Palmer River watershed, which provided baseline information that supports this initiative. Based on findings by Tetra Tech, EPA agreed that the requirement for additional baseline monitoring would be disinvested for 2015-2017 and again for 2020. MassDEP will continue to support the National Water Quality Initiative (NWQI) and NRCS through cooperative actions in the watershed. The Massachusetts Association of Conservation District (MACD) 319 grant project in this watershed is expected to end in calendar year 2020.

Working with EPA 319 staff and EPA drinking water staff as well as NRCS, a NRCS-EPA National Water Quality Initiative was initiated in the James Brook watershed which is part of the Nashua and Merrimack River Watersheds. In addition to restoring water quality in James Brook, the primary focus of this initiative is to protect drinking water in the Merrimack River Watershed.

In order to implement the Westport River Estuarine System Total Maximum Daily Loads For Total Nitrogen (CN-375.1), the Westport River watershed was also chosen as a National Water Quality Initiative watershed. Implementation of the Final Pathogen TMDL for the Buzzards Bay Watershed CN 251.1 in the Westport River watershed is also expected. The Westport River watershed is also the focus of a MACD 319 grant project and MassDEP hopes to replicate the overall success in the Palmer River watershed which has seen the implementation of numerous agricultural BMPs funded by both NRCS and the MassDEP 319 program. The Palmer River watershed is a good case study in a successful partnership between the local farmers and state and federal agencies.

MassDEP is grateful for the strong support from EPA in coordinating interested parties in the James Brook and Westport River watersheds. Additionally, MassDEP appreciates the EPA sampling support in the James Brook watershed in the summer of 2020. MassDEP is working on a streamlined method to solicit both assessment and water quality sampling support for National Water Quality Initiative watersheds.

MassDEP staff also worked with NRCS and EPA to nominate two additional HUC12 watersheds as National Water Quality Initiative watersheds: the Manhan River and the South River. The Manhan River and South River readiness phase reports are not expected to be completed until end of 2021 or 2022.

E. **Nonpoint source coordinators** - One new initiative for 2020 is a contract with multiple planning agencies in western Massachusetts to serve as regional nonpoint source coordinators. These contractors will be asked to develop watershed-based plans and high-quality projects to be funded through the 319 program and to conduct outreach and education work to enhance the NPS Program message.

F. **Healthy Watersheds** - Program guidelines encourage projects to protect healthy watersheds and unimpaired/high quality waters. Accordingly, the FFY 2020 319 solicitation included a category for implementation projects that address climate change adaptation and resiliency and projects that protect unimpaired and high-quality waters from the effects of nonpoint source pollution. While no healthy watershed proposals were received, one climate resilient proposal was recommended for funding in the FFY 2020 round.

G. **Updating the Watershed-based Plan (WBP) –** MassDEP has revised its Watershed-based Planning tool to support 319 implementation projects funded with Watershed Project funds. 319 funds have been used to contract with Geosyntec Consultants Inc. for the purpose of developing an online template-based tool that will support development of nine-element watershed-based plans for lakes, stream segments, and estuaries. A task was also added to collect and analyze information based on National Pollution Discharge Elimination System (NPDES) stormwater regulated areas; this feature is expected to be very helpful for communities who will be required to meet updated NPDES stormwater permit requirements. The template was completed on June 30, 2017 and is actively being used to support development of 319 projects and other watershed plans. Additional recent updates included updated training materials and a training workshop for regional NPS coordinators. Planned updates include updating Impaired Waters Information to reflect the EPA approved 2016 Integrated List of Waters, a BMP Hotspot Map, and WBP export document formatting fixes. As resources allow operation and maintenance costs estimates may be added to the BMP selector tool and additional functionality to estimate load reductions from nonstructural BMPs may be added.

In 2020, MassDEP requires the development of WBPs as a task of each implementation project and will encourage development of WBPs through 604b funds. Proposals that use WBPs as a basis for watershed projects will receive priority for 319 funding.

III. Massachusetts NPS Management Program

A. Overview

The Massachusetts Nonpoint Source Management Program Plan (NPS Plan) presents (MassDEP's strategy for preventing, controlling, and reducing pollution from nonpoint sources to protect and improve the quality of the Commonwealth's waters. The NPS Plan was originally developed in 1989 and approved by US EPA, pursuant to Section 319 of the Clean Water Act (CWA). The Plan was previously revised in 1994, 1999, and 2014. The 2020 NPS Plan has been updated to reflect the current priorities of the Massachusetts NPS Program, the current US EPA program guidelines, funding levels, and staff resources for the five-year period of 2020– 2024.

MassDEP, as the agency designated to administer CWA programs for the Commonwealth, has established an overall vision for the Massachusetts NPS Program that focuses on protecting and restoring water quality: The vision of the Massachusetts NPS Program is to bring the citizens of the state together to restore surface and groundwater impaired by NPS pollution, to protect water quality in healthy watersheds, and to plan for and address human-induced and naturally occurring changes in the environment. The Plan identifies five major goals, including:

1. Identify and expand opportunities to accomplish and leverage work by private, state, local, and federal partners.
2. Restore impaired waters, reduce NPS pollutants, and mitigate the effects of climate change.
3. Protect healthy and threatened waters through planning, education, program coordination, and implementation of climate ready BMPs.
4. Monitor waters for NPS impairments and improvements to prioritize actions, measure success, and increase program efficacy.
5. Instill, encourage, and nurture a passion for restoring water quality through education, capacity building, and building new partnerships.

B. Restoring Impaired Waters

The objective of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. As one step toward meeting this goal each state must administer a program to monitor and assess the quality of its surface and groundwater and provide periodic status reports to the US EPA, the U.S. Congress, and the public. S. 305(b) of the CWA codifies the process whereby waters are evaluated with respect to their capacity to support designated uses as defined in each of the states' surface water quality standards (SWQS). These uses include aquatic life support, fish and shellfish consumption, drinking water supply, and primary (e.g., swimming) and secondary (e.g., boating) contact-recreation. The 305(b) process entails assessing each of these uses for rivers, lakes and coastal waters. Causes and sources of impairment are identified wherever possible.

S. 303(d) of the CWA and the implementing regulations at 40 CFR 130.7 require states to identify those water bodies that are not expected to meet SWQS after the implementation of technology-based controls and to prioritize and schedule them for the development of total maximum daily loads (TMDLs). A TMDL establishes the maximum amount of a pollutant that may be introduced into a water body and still ensure attainment and maintenance of water quality standards. Furthermore, a TMDL must also allocate that acceptable pollutant load among all potential sources. The formulation of the 303(d) List of Impaired Waters (303(d) List) includes a more rigorous public review and comment process than does reporting under s. 305(b), and the final version of the list must be formally approved by the EPA. The most recent approved Integrated List can be found here: https://www.mass.gov/lists/integrated-lists-of-waters-related-

reports

Watershed-Based Plans

The Massachusetts WBP template was first developed in 2006 in response to USEPA guidelines requiring a nine-element WBP to support the award of 319 implementation project funds. The purpose of the WBP template is to organize information about Massachusetts' watersheds and present it in a format that supports development of WBPs that can be used as the basis for NPS watershed projects to restore water quality in the Commonwealth.

The completed WBP tool (http://prj.geosyntec.com/MassDEPWBP) allows the user to select watersheds for lakes, rivers and streams, and estuaries. Following the nine-element format, the WBP tool provides existing information about the selected watershed, estimates pollutant loads, guides the user to BMP selection and remediation strategies, and assembles the WBP into an editable Word document.

In addition to supporting the WBP Tool, MassDEP also provides direct support in the creation of watershed-based plans. MassDEP provides 604b and 319 grant funds to complete watershed-based plans. MassDEP accepted 14 watershed-based plans including one healthy watershed-based plan. At the end of 2020, there were 20 active nine-element WBPs.

C. NPS Pollutant Load Reductions

Grants Reporting and Tracking System (GRTS) is a comprehensive EPA database of NPS program information is used to track § 319 program activity and information, enhancing the understanding of NPS projects and programs. Per US EPA Guidelines (EPA 2013), "States are required to use GRTS to report all nationally mandated elements described in the most recent GRTS memorandum located on the GRTS website (www.epa.gov/nps/319-grant-current-guidance)." MassDEP enters all mandated elements for projects ending in a given federal fiscal year by February 15 of the following federal fiscal year as required. For all projects which ended in FFY2020 MassDEP has entered all mandated information including load reductions achieved by individual 319-funded projects.

D. Section 319 Grant Administration

Each year, MassDEP undertakes a competitive process seeking proposals for 319 funded projects to restore and remediate impaired waters through implementation of TMDLs and Watershed-Based Plans and implementation of Massachusetts Nonpoint Source Management Program Plan. The awards are intended to provide financial support for local projects and programs for controlling the major statewide categories of NPS pollution or for protecting or improving NPS-impaired or threatened water resources. An intra- and inter-agency screening committee reviews all eligible 319 proposals. The proposals that are determined most likely to succeed in a cost-effective manner are selected for recommendation. Recommended proposals are approved by the Department and will be included in the Department's yearly program Workplan, which is submitted to EPA at the start of the federal fiscal year. Once the Workplan has been approved, the Department enters into a contractual agreement with each applicant to conduct the project. Once the projects are accepted by EPA, MassDEP negotiates a scope of work, milestone schedule and a budget, which are incorporated into a contract with the selected grantee.

The April 5, 2019 Request for Responses (RFR) for FFY 2020 projects encourages applicants to propose high quality projects in five categories, with emphasis on projects that address water quality impairments. The "Draft Massachusetts Year 2016 Integrated List of Waters (303d list)" served as the basis for impairment information for the FFY 2020 319 Request for Responses. The FFY 2020 RFR solicited projects in the following categories:

A. **Implementation Projects in Impaired Waters**- The most competitive applicants will propose projects that pursue a watershed-based strategy to implement a combination of structural and non-structural Best Management Practices (BMPs) addressing all impairments and leading to restoration of impaired waters. (Impaired waters are those listed in categories 4a, 4c, and 5 of the Massachusetts 2016 Integrated List of Waters, which can be found at: https://www.mass.gov/files/documents/2020/01/07/16ilwplist.pdf). BMPs should be selected for optimal pollutant load removal, emphasizing source reduction. Proposed BMPs must be developed at least to the conceptual design stage and submitted with the proposal. Proposals must contain site specific information to demonstrate that the project is feasible and ready to be constructed within the project timeline. Additional information addressing the nine elements of the watershed-based plan supporting a project may be required for awarded projects, as outlined in the EPA Program Guidelines.

B. **Healthy Watersheds and Protection of High-Quality Waters**- Proposed implementation projects for climate change adaptation and resiliency and projects that protect non-impaired and high quality waters from the effects of nonpoint source pollution are eligible for 319 program funds. These proposals must be supported with documentation of the problem, conceptual or better plans to explain the strategy and approach, and all information necessary to demonstrate the feasibility and effectiveness of the project.

C. **Outreach and Education**- Outreach and education projects are often recommended as an effective nonstructural BMP. Successful projects of this type will propose specific outreach and education activities and products and will develop and implement an evaluation method to gauge the effectiveness of these activities. Projects should have regional or statewide relevance and should include a deliverable that can be made available in both print and electronic form, ensuring accessibility for disabled and non-English-speaking audiences if appropriate.

D. **Development of Regional Coordinator Initiative**- Eligible not-for-profit entities in Berkshire, Franklin, Hampshire, and Hampden counties will serve as Regional Nonpoint Source Coordinators (RCs) and carry out NPS-focused work including: outreach and education, identification of regional NPS priorities, development of watershed-based plans, supporting or undertaking the development and submittal of high-quality proposals for funding under 319 or other NPS partner programs, and any other activities that will further the goals of the Massachusetts Nonpoint Source Program.

Responses to the MassDEP's 319 RFR for FFY 2020 funding have been reviewed and evaluated, and 7 project recommendations have been approved for funding as of October 24, 2019. The May 2020 Workplan for the FFY2020 program year also features these same recommendations. See Section IV, C below for more information.

E. Expenditure of Funds

In accordance with program guidelines, expenditures are reflected according to an even split of the 319 allocation between Watershed Project and Program funds. For the allocation between program and project funds and the amounts awarded to grantees as Sub-awards see Table 1. The watershed project funding allocation will be spent for implementation projects that address water quality impairments. Program funds support NPS staff and administrative functions as well as projects that are consistent with the 2020-2024 Nonpoint Source Management Program Plan.

The FFY2016 PPG, 99187811, is funding projects from FFY2017, FFY2018, FY2019. Projects recommended for funding from FFY2020 will be funded from the FFY2019 PPG, 991872811 and FFY2020 PPG, 991872812.

Table 1. 2016-2020 percentages of funds used for subawards

FFY	Total 319 Allocation	Total Program award	Program Sub-awards	Program Sub-awards (%)	Watershed Implementation Projects (WIP) Award	WIP Sub-awards	WIP Sub-awards (%)	Total Sub-awarded (%)
2016	$2,144,851	$1,072,426	$380,096	35%	$1,072,426	$1,072,426	100%	68%
2017	$2,187,948	$1,093,974	$451,644	41%	$1,093,974	$1,093,974	100%	71%
2018	$2,160,757	$1,080,379	$589,076	55%	$1,080,379	$1,080,379	100%	77%
2019	$2,138,319	$1,069,160	$283,507	27%	$1,069,160	$1,069,160	100%	63%
2020	$2,228,120	$1,114,060	$217,436	20%	$ 1,114,060	$1,114,060	100%	60%
TOTAL	**$8,631,875**	$4,315,938	$1,704,324	39%	$ 4,315,938	$4,315,939	100%	70%

Match

Grantees receiving competitive sub-awards are required to provide a 40% non-federal match of the total project cost as part of the grant-funded project. The 40% match may be in cash or from in-kind services performed as part of the approved project activities. The match for the FFY 2020 allocation of $2,219,159 is shown in Table 2.

Table 2. FFY 2020 Match Required

FFY 2020	Sub-awards and Nonpoint Source Projects	MassDEP Program Expenses	Total
319 funds	$1,331,496	$553,517	$1,885,013
Match	$887,664	$369,011	$1,256,675
Total Program Value	$2,219,159	$922,528	$3,141,688

The report summarizes activity on 23 319-funded projects. Four projects are closing with this report, and nineteen projects remain ongoing. . For a financial summary for these projects see Table 3. With the five proposed new FFY 2021 projects, we anticipate 24 active projects.

The total 319 funds for the 23 projects reported is $4,205,234. Total project value, including match, is $7,153,597. With four of these projects closing, the 319 funds committed to the 24 active and proposed projects will be $5,545,010, and current and proposed total project value will equal $9,553,062.

Table 3. Financial Status -Projects Reported on in Annual Report (as of 11/30/2020)

FFY	Project Number	Grantee	Project Title for Tracking	Status	End Date	319 Grant Award	Reimbursed	Balance
2017	17-04	Massachusetts Association Of Conservation Districts	ACPP technical staff	*Active*	12/30/2020	$505,900	$342,937	$162,963
2018	18-01	Town Of Amesbury	Lk Attitash	**Closed**	9/30/2020	$352,000	$222,688	$129,312
2018	18-02	Geosyntec Consultants Inc	Update of WBP	*Active*	6/30/2021	$332,084	$204,186	$127,898
2018	18-03	Town Of Franklin	Dean Avenue Franklin	*Active*	6/30/2021	$125,000	$56,430	$68,570
2018	18-04	Town Of Westford	Stormwater fee Westford	**Closed**	6/30/2020	$99,982	$99,982	$0
2018	18-05	Town Of Bellingham	Bellingham	**Closed**	6/30/2020	$114,963	$114,963	$0
2018	18-06	Town Of Canton	Pequit & Beaver Canton	*Active*	6/30/2021	$144,784	$129,069	$15,715
2018	18-07	Town Of Brewster	Crosby Ln Brewster	*Active*	6/30/2021	$105,000	$0	$105,000
2018	18-08	Town Of Great Barrington	Knob Hill GB	**Closed**	6/30/2020	$288,925	$288,925	$0
2018	18-09	Town Of Millbury	Armory Hill Millbury	*Active*	12/30/2020	$150,000	$133,650	$16,350
2019	19-01	City Of Chicopee	Lower Abbey Brook	*Active*	6/30/2021	$122,000	$5,776	$116,224
2019	19-02	County Of Barnstable	MASSTC	*Active*	6/30/2021	$296,604	$65,632	$230,971
2019	19-03	Mystic River Watershed Association	Aberjona River	*Active*	6/30/2021	$190,645	$70,873	$119,772
2019	19-04	Town Of Stoughton	Beaver Meadow	*Active*	7/30/2021	$96,836	$1,767	$95,069
2018	19-05	Town Of Avon	Avon Town Hall	*Active*	6/30/2021	$79,107	$61,949	$17,158
2018	19-06	Massachusetts Association Of Conservation Districts	Westport River	*Active*	6/30/2021	$174,700	$33,033	$141,667
2020	20-01	Franklin Regional Council Of Governments	Regional Coordinator	*Active*	6/30/2022	$100,000	$3,324	$96,676
2020	20-02	Town Of Amherst	Amherst-Fearing Brook Restoration	*Active*	9/30/2022	$276,549	$0	$276,549
2020	20-03	Town Of Spencer	Spencer BMPs	*Active*	6/30/2022	$88,200	$0	$88,200
2020	20-0	Berkshire Regional	Regional Coordinator	*Active*	6/30/2022	$100,000	$3,718	$96,282

FFY	Project Number	Grantee	Project Title for Tracking	Status	End Date	319 Grant Award	Reimbursed	Balance
2020	20-05	Comprehensive Environmentl Inc	Grantee Guidebook	*Active*	6/30/2022	$75,285	$14,201	$61,084
2020	20-06	Pioneer Valley Planning Comm	Regional Coordinator	*Active*	6/30/2022	$100,000	$8,758	$91,242
2020	20-07	UMass-Amherst	UMass-Equine Projects	*Active*	6/30/2022	$286,670	$16,652	$270,018
			Total			$4,205,234	$1,878,515	$2,326,718

IV. Massachusetts NPS Program Activities in 2020

A. Partnerships

The NPS Plan recognizes that MassDEP must continue to work with its many partners on a watershed-by-watershed basis to improve and protect the water resources of the Commonwealth. Strengthening partnerships with state and federal agricultural programs is vital. The following is a brief summary of the coordination undertaken with other groups and agencies.

Coordination with NRCS and EPA

MassDEP staff worked with NRCS and EPA to nominate four HUC12 watersheds as National Water Quality Initiative watersheds. The four nominated watersheds include the James Brook/Nashua River, Westport River, Manhan River and South River. NRCS is working with their contractor a readiness report for the James Brook/Nashua River and Westport River watersheds which is expected to be completed in early 2021. The Manhan River and South River readiness phase reports are not expected to be completed until end of 2021 or 2022. Finally, MassDEP attended all NRCS State Technical Committee meetings.

Joint reviews of grant application proposals

NPS staff regularly participates in review and selection of project proposals for work funded through NPS partner programs including 604b, CZM's Coastal Pollution Remediation (CPR) grant program, the Sustainable Watershed Management Initiative (SWMI), and the Massachusetts Environmental Trust. This cross-program activity ensures that recommended projects are chosen within the context of sister agency activities and experiences and the NPS Management Program Plan, resulting in synergistic work and higher quality grantees and projects across the board. In the past year MassDEP staff participated in CZM CPR grant review. Additionally, MassDEP staff provided feedback to the EEA Municipal Vulnerability Program (MVP). MassDEP staff also participated in the SFY2021 Stormwater MS4 Municipal Assistance Grant Program allowing MassDEP staff to coordinate stormwater remediation activities.

New for FFY2021 is the Agricultural Regional Coordinator Initiative, which will provide for the development of agricultural regional nonpoint source coordinators for Berkshire, Franklin, Hampshire, and/or Hampden counties to work to collaboratively address NPS pollution from agricultural sources through program coordination, increased communication, and technical support to producers.

Accomplishments in 2020

- Participated in the EPA Region 1 Nonpoint Source Work Group, which is convened by the New England Interstate Water Pollution Control Commission (NEIWPCC).
- Increased communication between partners by attendance of NRCS State Technical Committee meetings, interagency grant review.
- Nomination of 3 HUC12 NWQI watersheds.

B. Prioritization

NPS Program objectives include establishing geographic focus areas and funding locally led projects to increase program efficiency.

Accomplishments in 2020

- Using the Recovery Potential Screening Tool (RPST) lists of priority waterbodies for 604b and 319 grant funding were created and included in the most recent grant solicitations.
- With EPA funding, a consultant is providing an updated RPST which will include both updated indicators at the Sustainable Water Management Initiative (SWMI) and HUC12 level as well as updated indicators for watersheds delineated at the MassDEP waterbody segment level. The NPS group is coordinating with the TMDL group and one scenario run was conducted to prioritize potential chloride sampling and TMDL work. MassDEP received an updated RPST tool in the fall of 2020 and hopes to update the tool with recent 2016 Integrated List information.

C. Healthy Watersheds

Much progress has been made to improve water quality in Massachusetts, but more work remains. USEPA's 2013 guidelines for the CWA s.319 grant program allow states flexibility to use program funds and a limited amount of watershed project funds for activities to protect unimpaired, high-quality waters where a state identifies protection as a priority and has described a process for identifying such waters. In addition to the high-priority work to revise and implement the statewide Watershed-based Plans, the need for coordinated program planning and project development assistance remains. Consistent with USEPA's program guidelines, MassDEP recognizes that it is important to consider the protection of waters and watersheds that are not listed as impaired, as well as those that have been delisted due to restoration efforts.

The primary focus of the NPS Program remains on the restoration of impaired waters, and the majority of s.319 funds available for NPS watershed projects (which must implement WBPs) are directed at remediating water quality impairments. Protection of water quality in unimpaired or restored waters will be a secondary, but important priority.

Accomplishments in 2020

- The RPST was used to create a Healthy Waters Prioritization Framework and Healthy Waters Priority Waterbodies List which will be reviewed internally for inclusion in future grant solicitations.

D. Grant Awards Issued in 2020

The restoration of nonpoint source impaired waters and the reduction of NPS pollutant is an important goal. Targeted 319 grant projects are used to implement restoration activities. As part of the FFY2020 319 Request for Responses eleven proposals were received on June 4, 2019. The proposals were reviewed and evaluated by an inter- and intra-agency committee. As a result, seven new projects are recommended to

be funded from the FFY2020 319 allocation (Table 4). The selected projects will demonstrate structural and non-structural best management practices to improve water quality in impaired waters. Three of the seven recommended projects are "shovel-in-the-ground" projects that either address Category 5 impairments or implement TMDL recommendations. Three additional projects will support regional Nonpoint Source Coordinators in Berkshire, Franklin, Hampshire, and Hamden counties. The final project will develop a guidebook and supporting materials for regional NPS coordinators and other stakeholders. Grantees for the recommended sub-awards include municipalities, regional planning agencies and a private consulting firm. The FFY 2020 319 Project Funds Target is $1,069,160.

Table 4. NPS grants issued in 2020

Project #	Project Title	Grantee	Grant $	Match $
20-01/319	Regional Nonpoint Source Coordinator – Franklin County	Franklin Regional Council of Governments	100,000	81,075
20-02/319	Fearing Brook Floodplain Creation Project	Town of Amherst	276,549	188,285
20-03/319	Stormwater BMPs: Sevenmile River Watershed	Town of Spencer	88,200	60,300
20-04/319	Berkshire County Regional Nonpoint Source Coordinator	Berkshire Regional Planning Commission	100,000	66,667
20-05/319	Nonpoint Source Pollution Grant Guidebook	Comprehensive Environmental Inc	75,285	50,250
20-06/319	A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience	Pioneer Valley Planning Commission	100,000	66,667
20-07/319	Implementation Remediation, and Education of Selected Best Management Practices to Minimize the Environmental Impact of Two Equine Operations	UMass-Amherst	286,670	191,395
Totals			1,026,704	704,639

III. Summaries of NPS Projects Completed in 2020

Four projects funded through the NPS 319 grant program in past years were successfully completed and closed out in 2020. Three of the projects were implementation projects and one was a stormwater utility development project. These projects were granted a combined total of $838,802 in Federal 319 Funds. Matching funds for these projects, given in the form of cash or in-kind services, was equal to $569,490.

- Projects took place across four towns including Amesbury, Westford, Bellingham and Great Barrington. Target watersheds included the Merrimack River Watershed, Sudbury, Assabet, and Concord River (SuAsCo) watersheds, Charles River watershed, and Housatonic watershed.

- BMPs included the installation of 2 infiltration basins, 1 infiltration trench, 6 deep sump catch basins, 1 hydrodynamic stormwater treatment unit, and 1 vegetated swale. In addition, impervious area was replaced with green space, and roadsides were stabilized and revegetated.

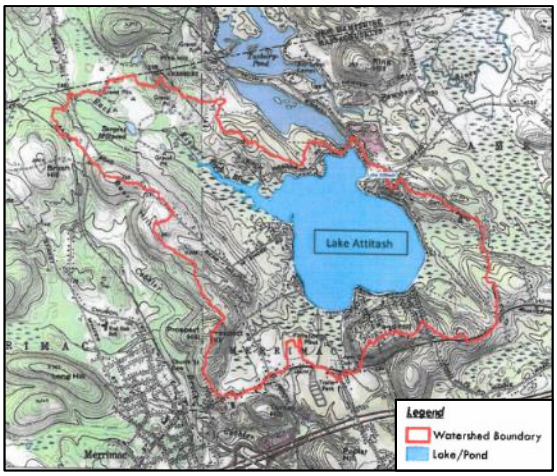
- Additional project outcomes included a rate structure to cover stormwater management program costs, completion of a detailed plan that will allow for implementation of proposed stormwater utility, increased public knowledge and understanding of nonpoint source pollution and BMPs, and a reduction of nutrients, pathogens, sediment, cyanobacteria, and other impairments in Massachusetts waterbodies.

Summaries of each project are on the following pages and include the project sponsor, grant amount, general problem or need, description of the project and goals, project outcomes and contact information.

Table 5. List of projects completed and closed out in 2020

Internal Phosphorous Load Inactivation for Lake Attitash #18-01/319

Waterbody Name:	Lake Attitash (MA84002)
Location:	Merrimack River Watershed
Waterbody Status:	Category 5
Project Sponsor:	City of Amesbury
Project Duration:	April 2018- September 2020
319 Grant Amount:	$352,000 by the US EPA
Local Match:	$235,000 by the City of Amesbury and project partners



Map of Lake Attitash and watershed boundary

PROBLEM:

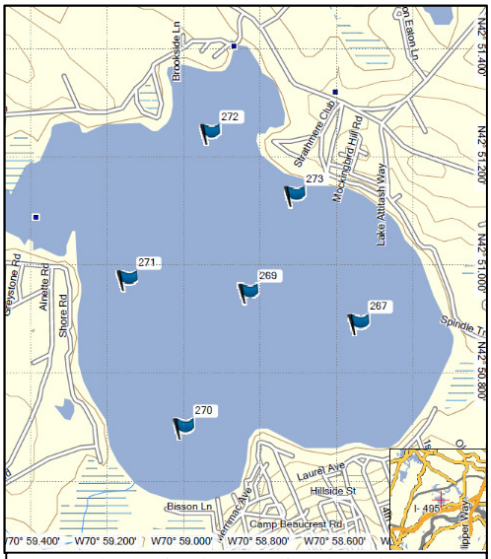
Lake Attitash is a secondary drinking water supply that experiences frequent cyanobacteria or Harmful Algal Blooms (HABs) caused by cultural eutrophication, particularly excess phosphorus. Drinking water containing toxins related to HABs can result in adverse health risks including; liver, kidney and neurological damage. During high flow conditions it is not possible to avoid water from Lake Attitash being sent to Amesbury's drinking water intake. In addition to threatening Amesbury's drinking water supply, other public health issues have been identified. Oversight conducted by MA Department of Public Health (MA DPH) between 2009-2014 resulted in the issuance of more than a dozen health advisories, resulting in postings due to algal blooms for a total of 318 days during this period.

Numerous efforts by EPA, MassDEP, the Towns of Amesbury and Merrimack and the Lake Attitash Association (LAA) have been made of the past 30 years to reduce inputs of nutrients from the watershed. Efforts to improve water quality include a 2002 demonstration grant and two 319 grant projects (01-20/319 and 11-07/319). Large scale and ongoing public education efforts have been implemented as part of these efforts and restrictive ordinances have been implemented to reduce phosphorus inputs to the lake. Agriculture was a major source of phosphorus loading in the past. Through the efforts of LAA and Massachusetts Department of Agricultural Resources (MDAR) these inputs have been drastically reduced. With the implementation efforts to control watershed sources of nonpoint source pollution, internal loading from lake sediments has been as the source of high levels of phosphorus within the lake.

PROJECT DESCRIPTION:

The goal of this project is to reduce internal loading of phosphorus 70% by sequestering sediment phosphorus over the 194 acres of Lake Attitash where anoxia occurs. This was accomplished by applying aluminum compounds at a dose of at least 40 g/m2 over the area of anoxia (194 acres), and a subsequent cumulative dose of 60 g/m2 over the deepest areas of the lake (51.25 acres).

Treatment of phosphorus in the water column and surficial sediment will lead to decreased cyanobacteria abundance, preventing the formation of cyanobacteria blooms. Improved water clarity and deep-water oxygen levels is also expected. By reducing phosphorus levels and risk from HABs, the safety of Amesbury's drinking water supply and the public will be



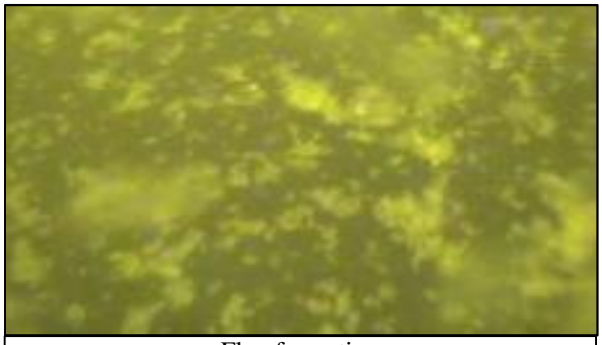
Lake Attitash sampling locations

improved.

PROJECT OUTCOMES:

- Reduction of phosphorous through the sequestration of sediment sources in Lake Attitash by a minimum of 70% and decrease in the abundance of cyanobacteria present resulting in an increase in water clarity and deep oxygen levels.
- Education and outreach included distributing flyers as well as holding 2 annual workshops to educate area residents on best property management for minimizing impact on the lake, discussing the project and explaining how the aluminum treatment works.

Barge applying aluminum



Floc formation

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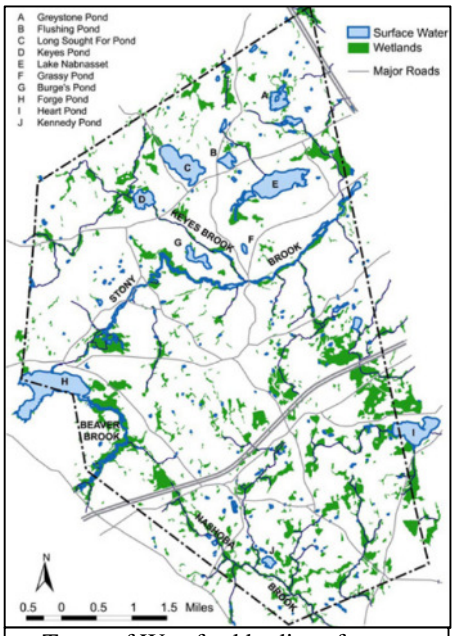
Stormwater Fee Development for Westford's Stormwater Management Master Plan #18-04/319

Waterbody Name:	Assabet and Concord Rivers
Location:	Merrimack River and SuAsCo Watersheds
Waterbody Status	Category 5 (varies)
Project Sponsor:	Town of Westford
Project Duration:	2018- June 2020
319 Grant Amount:	$99,982 by the US EPA
Local Match:	$78,540 by the Town of Westford



Town of Westford bodies of water

PROBLEM:

Many towns in the Commonwealth are looking to reduce the impacts of stormwater pollution to their local waterbodies and dedicated funding sources to support town efforts are needed. Over the past five years, the Town of Westford has demonstrated its commitment to stormwater management through development of a long-term Stormwater Management Master Plan (SWMMP). One element of the plan, completed in 2016, was an in-depth funding study which recommended that the Town pursue development of a fee-funded stormwater utility. The Town Board of Selectmen voiced its support to move forward with the next phase of utility development with a vote in May 2017 that approved $72,000 in funding for this effort.

PROJECT DESCRIPTION:

This project proposed a rate structure that will generate enough revenue to cover stormwater management program costs. This project included preparing a detailed plan specific to the Town's existing administrative structure that will allow for a seamless implementation of the proposed stormwater utility; and to bring the proposed stormwater utility to the Board of Selectmen and ultimately Town Meeting for approval and adoption. Ultimately, the Stormwater Management Utility was adopted by town leaders and at Town Meeting and will forward stormwater bills in fiscal year 2021.Without the long-term funding source provided by this stormwater utility, the goals of the SWMMP for watershed protection, water quality monitoring and improvements, and proactive drainage system operation and maintenance could not be achieved. Through implementation of a utility, the Town of Westford seeks to ensure the execution of projects identified in its SWMMP and ongoing proactive stormwater management.

Beaver Brook located in Westford, MA

PROJECT OUTCOMES:

- Development of a completed a rate structure plan with 5 residential tiers, rates and billing mechanics for the Town of Westford that will generate a stable long-term funding source to cover stormwater management program costs in the town, ultimately resulting in town wide pollutant reduction through BMPs, improved operation and maintenance of town stormwater infrastructure, public outreach and more.
- Completion of a detailed plan specific to the Town of Westford's existing administrative structure that will allow for a seamless implementation of the proposed stormwater utility; and to bring the proposed stormwater utility to the Board of Selectmen and ultimately Town Meeting for approval and adoption.
- Public education and outreach consisted of stakeholder workshops, public meetings, direct mailings and presentations at 2 separate town meetings.
- The Stormwater Management Utility was adopted and will forward stormwater bills in fiscal year 2021.

Stormwater display at annual town meeting

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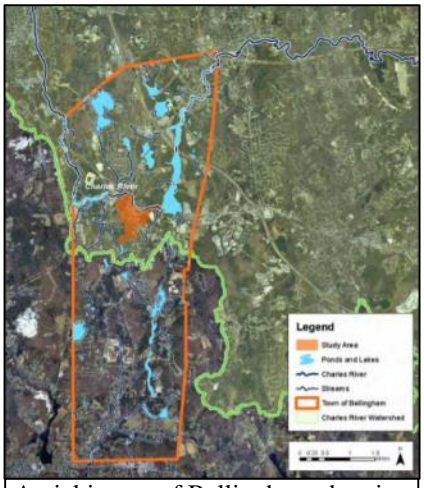
Phase I Implementation of Bellingham's Subwatershed Management plan #18-05/319

Waterbody Name:	Charles River (MA72-04)
Location:	Charles River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Bellingham
Project Duration:	April 2018- June 2020
319 Grant Amount:	$114,963 by the US EPA
Local Match:	$65,875 by the Town of Bellingham



Aerial image of Bellingham showing study area, and bodies of water

PROBLEM:

Stormwater pollution has been identified as an issue in the Charles River Watershed. As documented in the Massachusetts 2014 Integrated List of Waters, the segment of the Charles River (MA72-04) is listed as a Category 5 Water impaired by *E. coli*, chlordane, DDT, fishes bioassessments, and mercury in fish tissue. In addition, there is a final TMDL for Nutrients in the Upper/Middle Charles River and a final TMDL for pathogens. Water quality, streamflow, algae, sediment, and non-point source pollution issues in the Charles River Watershed have been well documented by various entities, including the CRWA, the 2001-2006 MassDEP Charles River Watershed Water Quality Assessment Report, and EPA studies.

A previous 604b grant titled "Subwatershed Management Plan for Bellingham, MA" identified a number of high priority BMPs to remediate stormwater pollution. Currently, stormwater runoff from the Municipal Center parking area discharges without treatment to the Charles River Watershed which results in the discharge of pollutants including nutrients, pathogens, and sediments. In order to reduce stormwater pollution from this area the project consisted of the final design and construction of two infiltration basins and one infiltration trench, along with creation of a landscaped park that reduces 0.36 acres of directly connected impervious cover, at the Town's Municipal Center located at 10 Mechanic Street.

PROJECT DESCRIPTION:

Project goals included: (1) Substantially reducing the loading of nutrients, sediment, pathogens, oil, and other contaminants from entering the Charles River through treatment and reduction of stormwater runoff. (2) Increasing groundwater recharge. (3) Providing highly visible demonstration BMPs at a site widely used by Town citizens that will provide education to residents about stormwater runoff, steps they can take to reduce pollution, and unique water quality and ecological issues of the Charles River in Bellingham. (4) Providing outreach and education regarding stormwater pollution and treatment strategies to the general public, in a manner to motivate individual pollution reduction actions. (5) Enhancing local knowledge and expertise within the Bellingham Public Works Department in the design, construction and maintenance of infiltration BMPs for stormwater treatment, as the Town continues to implement its pollution reduction plans.


The Charles River Bellingham

Construction included installation of three infiltration BMPs and removal of impervious area with a green space. Installing BMPs and decreasing the paved area is expected to reduce the concentrations of pollutants in

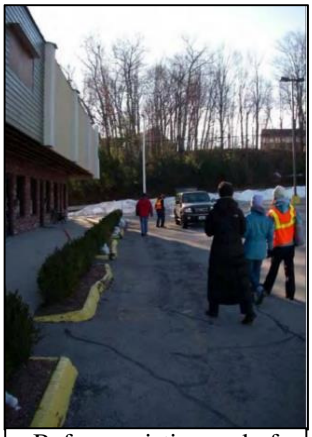
stormwater runoff, reduce thermal impacts, and reduce peak runoff during small precipitation events.

PROJECT OUTCOMES:

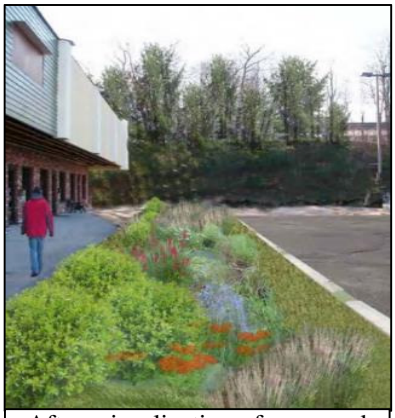
- Designed and constructed one infiltration basin that treats 0.92 acres of impervious area in addition to converting 0.31 acres of impervious area within a parking lot to permeable green space resulting in reduced concentrations of pollutants in stormwater runoff, reduced thermal impacts and reduces peak runoff during small precipitation events.
- Assuming an annual runoff of 38.9 inches, it was calculated that the pollutant load removed is equal to: 1.4 lbs. phosphorous/year, 353 lbs. total sediment substrate/year, 8.9 lbs. Nitrogen/year and just under 5,000 colonies/mL of bacteria
- Public education and outreach was conducted through online publications, web page updates, press releases and a public education display onsite including signs that informed people about stormwater pollution, stormwater BMPs and the Town's stormwater management efforts.

Before: lawn area south of Municipal Center entrance

After: visualization of proposed infiltration basin south of Municipal Center entrance



Before: existing end of northwest parking lot



After: visualization of proposed rain garden at end of parking lot

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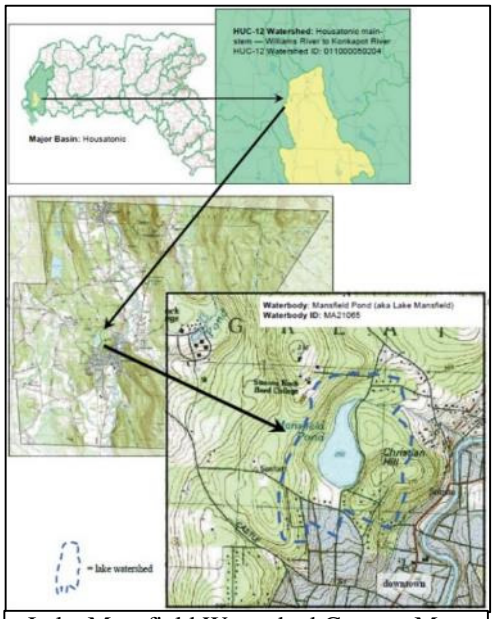
Knob Hill Road Storm Drainage Improvements #18-08/319

Waterbody Name:	Mansfield Pond (MA21065)
Location:	Housatonic Watershed
Waterbody Status:	Category 4c
Project Sponsor:	Town of Great Barrington
Project Duration:	April 2018- June 2020
319 Grant Amount:	$288,925 by the US EPA
Local Match:	$190,075 by the Town of Great Barrington and project partners



Lake Mansfield Watershed Context Map

PROBLEM:

Mansfield Pond (Lake Mansfield) is impaired and listed under category 4c due to invasive macrophyte (aquatic plant) species. Biological control efforts and bottom barriers have mitigated this issue, but nonpoint source runoff from several areas in the watershed pollutes the lake with sediment, leading to shallower and warmer waters, thereby making it easier for invasive plants to grow. In addition to physical problems associated with sediment deposition, sediment particles readily transport pollutants such as metals, nutrients, and pathogens.

This project proposed to address the storm drainage from Knob Hill Road, an identified nonpoint source pollution problem area, and develop construction plans for a lake outlet control structure. At the beginning of this project there were no catch basins on Knob Hill Road and sediment-laden stormwater flowed directly into the southern end of Lake Mansfield. Installation of a new outlet structure designed to allow water level drawdowns to control invasive weeds and reduce erosion by allowing high water to flow out of the lake was a project component. This project was the next step in the Town's comprehensive approach to address pollution sources and improve the health of the lake.

PROJECT DESCRIPTION:

The primary goal of this project is to reduce runoff in order to improve the water quality of the lake and remove the lake from the impairment list. This will be accomplished primarily through the installation of structural BMPs to capture runoff, implementation of non-structural BMPs including watershed education, and designing lake level controls.

Location of BMPs (not to scale)

The BMPs that this project implemented are those that would be the most effective in reducing sediment and nutrient runoff into Lake Mansfield. The BMPs were evaluated and sized by recent 604(b) planning work (project #10-03/604). Knob Hill Road was reconstructed with a new drainage system, curbing and new pavement, and included deep sump catch basins with oil hoods to capture sediment and pollutants. In addition, a hydrodynamic separator unit was installed to further remove suspended sediments and pollutants. In addition to improvements identified in the 604b project, the boat ramp will be reconstructed to reduce erosion and included the installation of a BMP to capture

stormwater runoff from the parking lot, road, and adjacent hillside. This project also included the design and permitting of a lake outlet water-level control structure to control invasive plants and decrease erosion in the buffer zone. A healthy buffer zone will treat road runoff and help reduce nutrient/sediment inputs to the lake.

PROJECT OUTCOMES:

- Installed structural Best Management Practices on Knob Hill Road including (6) deep sump catch basins with oil/debris hoods that capture sediment and pollutants that lead to the impairment of Lake Mansfield. In addition, (1) hydrodynamic stormwater treatment unit was installed and (1) vegetated swale with stone discharge apron and check dam.
- Stabilized and revegetated roadsides and steep slopes within project area, and an operation and maintenance plan was drafted.
- BMPs resulted in a 90% TSS reduction equal to 500 pounds per year of sediment.
- Education and outreach program reached 100% of all property owners in the Lake Mansfield watershed in the form of letters mailed to their addresses.

Before: looking west, down Knob Hill Road towards boat launch

After: looking west, down Knob Hill Road towards boat launch

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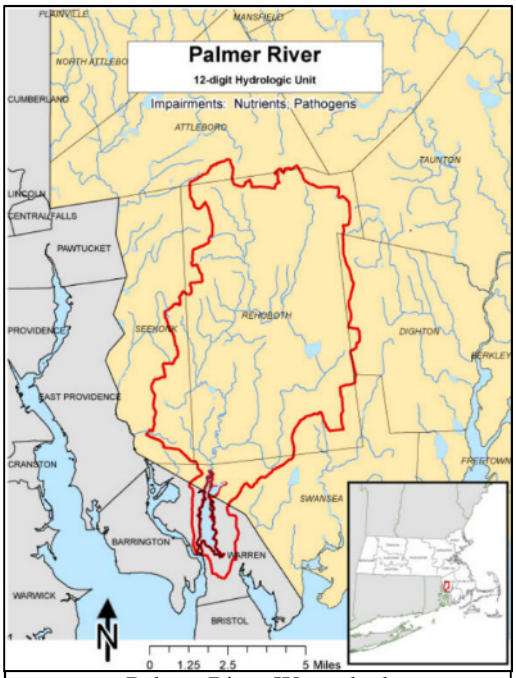
VI. Summaries of Active NPS Projects

A total of nineteen projects currently active are summarized below. Summaries of each project are on the following pages and include the project sponsor, grant amount, general problem or need, description of the project and goals, anticipated project outcomes, and contact information.

Table 6. List of active projects

ACPP Technical Providers for the Palmer River Watershed- Part 2 #17-04/319

Waterbody Name:	Palmer River Watershed
Location:	Narragansett Basin/ Palmer River subwatershed
Waterbody Status:	Category 5
Project Sponsor:	Massachusetts Association of Conservation Districts (MACD)
Project Duration:	December 2016- December 2020
319 Grant Amount:	$505,900 by the US EPA
Local Match:	$218,500 by the MACD and project participants



Palmer River Watershed

PROBLEM:

The Palmer River Watershed, located within the Narragansett Bay watershed, was selected by the USDA Natural Resources Conservation Service (NRCS) as the target of the National Water Quality Initiative (NWQI) in Massachusetts. The Palmer River is currently classified as a category 5 impaired waters for nutrients and bacteria. Approximately 10 percent of the watershed is agricultural land and is a likely source of nutrient and bacteria pollutants which can be effectively mitigated through implementation of agricultural conservation practices and other nonpoint source BMPs.

The Palmer River subwatershed is approximately 33,193 acres or 51 square miles in area and supports small-stream American Shad fisheries as well as an important river herring fishery, along with rainbow smelt and white perch populations. In addition, water piped from the Shad Factory Pond Dam into the Kickemuit Reservoir supplies drinking water for the residents of Barrington, Bristol and Warren, Rhode Island.

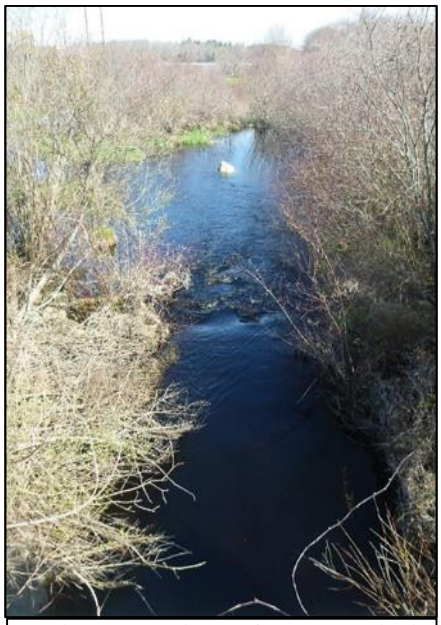
PROJECT DESCRIPTION:

The project, part of a NRCS National Water Quality Initiative, will help farmers, ranchers and forest landowners in the Palmer River watershed improve water quality and aquatic habitats in impaired streams by providing technical and financial resources. Through the Accelerated Conservation Planning Program (ACPP), field staff will work with the Palmer River watershed farmers to develop and implement conservation planning practices and nonpoint source BMPs to address NWQI goals. One conservation planner and one implementation contractor will serve as field staff dedicated to undertaking the tasks and produce the deliverables, fully implementing as many of the completed plans as possible.

ANTICIPATED PROJECT OUTCOMES:

- Dedication of technical and financial resources to address impairments in the watershed and determine which conservation actions will provide the best results.
- Development and implementation of conservation planning practices and nonpoint source BMPs to address NWQI goals and improve water quality on land.

Bryan Dore (EPA Region 1) collecting water quality data on Rocky Run (Palmer River Watershed)



Rocky Run (Palmer River Watershed)

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Revision of Massachusetts Watershed-based Plans #18-02/319

Location:	Statewide Application
Project Sponsor:	Geosyntec Consultants Inc.
Project Duration:	March 2018- June 2021
319 Grant Amount:	$219,224 by the US EPA
Local Match:	$103,957 by Geosyntec Consultants, Inc, and project partners

PROBLEM:

Watershed-based plans, a requirement for 319 implementation projects, are an important planning tool to guide water quality restoration. This project, building on the success of the Massachusetts Watershed-Based Plans (WBP) web-based tool (http://prj.geosyntec.com/MassDEPWBP) will support MassDEP partners in completing technically robust completed WBPs and provide technical and programmatic support to the MassDEP NPS Program for the WBP tool.

PROJECT DESCRIPTION

This project will provide support to complete WBPs: Working with MassDEP's partner organizations targeted science and engineering support will be provided as needed to complete WBPs for identified 319 implementation projects. Lessons learned from the 2016 WBP pilot projects will guide project activities which will focus on providing the technical assistance identified as most needed by partner organizations for completion of WBPs, including guiding the completion of watershed-based plans and field assessment of BMP locations, selection, sizing, etc.

This project will also provide NPS Program Support. The successful and increased use of the WBP tool will be accomplished by: (1) ongoing website hosting and technical support and (2) development of a WBP Review Criteria and Scoresheet that NPS Program staff can use for evaluation of completed WBPs and to provide constructive feedback to project partners.

Watershed Based Plans (WBP) web-based tool developed by Geosyntec on behalf of MassDEP

ANTICIPATED PROJECT OUTCOMES:

- Technical and programmatic support to the MassDEP NPS Program for the WBP tool through web hosting and development of a WBP Review Criteria and Scoresheet that staff can use for evaluation of completed WBPs and to provide constructive feedback to project partners.
- Support MassDEP partners with the completion of technically robust completed WBPs.

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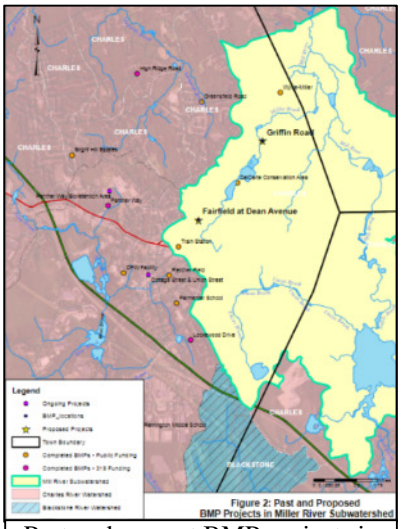
Franklin Public - Private Partnership for Stormwater GI #18-03/319

Waterbody Name:	Mill River subwatershed (MA72-15)
Location:	Charles River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Franklin
Project Duration:	April 2018- June 2021
319 Grant Amount:	$125,000 by the US EPA
Local Match:	$85,220 by the Town of Franklin



Past and present BMP projects in Mill River subwatershed

PROBLEM:

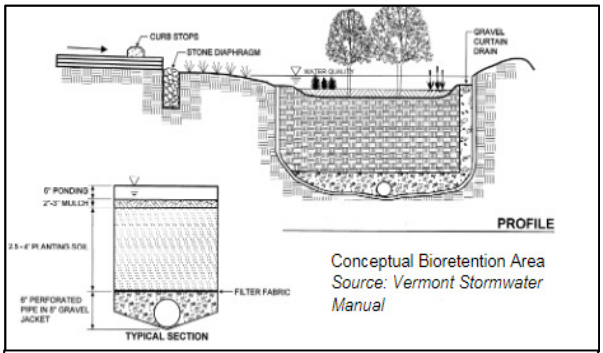
The Charles River is listed as impaired due to flow alteration, mercury, nutrients, noxious aquatic plants, organic enrichment/low DO and turbidity. The Town of Franklin is located in the headwaters of the Charles River. Stormwater runoff in the Charles River watershed has been identified as the main contributor of pollutant loading and inability to meet water quality standards.

Recognizing the need to restore water quality, nutrient and pathogens TMDLs have been completed for the Charles River watershed. In order reduce nutrient loading to the Charles River the EPA continues to explore means to reduce municipalities' stormwater phosphorus loads in the watershed. Tributaries of the Charles River, such as the Mill River have been listed as impaired on the Integrated List and are a source of nutrients to the Charles River. The Miller Brook, a tributary to the Mill River, will be most directly targeted by this project.

PROJECT DESCRIPTION:

This project seeks to improve water quality in the impaired waters of the Upper Charles River watershed, specifically the Mill River subwatershed in the Town of Franklin. This goal will be achieved by reducing pollutant loading in the Mill River subwatershed by installation of BMPs to maximize the water quality benefits.

This project by the Town of Franklin will continue the implementation of a watershed-wide water quality improvement strategy and build upon the success of publicly funded, previously implemented projects within the watershed. The strategy includes incorporating structural and non-structural BMPs. The Franklin DPW is proposing the following BMPs within the Mill River subwatershed: Four bioretention areas at the proposed Fairfield condominiums at Dean Avenue, removal of unnecessary pavement and installation of a rain garden at the end of Griffin Road.



Conceptual bioretention area

ANTICIPATED PROJECT OUTCOMES:

- BMPs include (4) bioretention areas at the proposed Fairfield condominiums at Dean Avenue, removal of unnecessary pavement at unused roads including dead ends, and installation of a rain garden located at the end of Griffin Road.
- Reduction of pollutant loading in the Mill River subwatershed through the continuation of BMP retrofits and enhancements. The estimated annual phosphorous load reduction from the implemented BMPs is approximately 27 pounds/year.
- Improvement of water quality in the Upper Charles River Watershed, specifically the Mill River subwatershed in the Town of Franklin, Massachusetts.
- Increase in public awareness and knowledge of nonpoint source pollution and stormwater management needs through a public education program.

Before: location for bioretention area 1

Before: location for bioretention area 2

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Pequit and Beaver Brook BMP Retrofit Project #18-06/319

Waterbody Name:	Pequit Brook (MA73-25) Beaver Meadow Brook (MA73-20)
Location:	Boston Harbor Watershed
Waterbody Status:	Category 5, Category 4a
Project Sponsor:	Town of Canton
Project Duration:	May 2018- June 2021
319 Grant Amount:	$144,784 by the US EPA
Local Match:	$97,208 by the Town of Canton

BMP site locations in Canton, MA

PROBLEM:

Pequit Brook and Beaver Meadow Brook, which drain into the East Branch of the Neponset River (Boston Harbor watershed), are listed as Category 4a for pathogens and Category 5 for dissolved oxygen respectively. Reducing the pollutant loading is anticipated to be a major step in improving water quality in both waterbodies. The Neponset River Watershed is home to some 330,000 residents and includes portions of 14 communities. Until relatively recently, water quality was uniformly very poor, but dramatic improvements have been achieved over the last four decades primarily through investments in wastewater infrastructure.

Despite this progress, many stream-reaches in the Town of Canton and throughout the Neponset River Watershed continue to fall short of their designated uses, and virtually the entire basin fails to support primary contact recreation during wet weather. By far the most widespread cause of wet weather water quality impairment in the Neponset is stormwater runoff from developed areas. The importance of stormwater runoff as a driver for water quality in the Neponset Watershed has been well documented by MassDEP and the Neponset River Watershed Association (NepRWA). Stormwater has been highlighted as a MassDEP priority concern in past watershed-based plans for the Neponset River Watershed and the Total Maximum Daily Loads of Bacteria for Neponset River Basin and in EEA's Boston Harbor Watershed Assessment and Action Plan. All these previous planning documents call for the identification, design, and implementation of stormwater BMP retrofits as priority tasks. Recognizing the need for stormwater pollution remediation this project implements recommendations from the FY2016 SWMI Grant "*Mitigation and Minimization Alternatives to Improve Streamflow in the Neponset River Watershed*" (BRP 2016-06) and draws on lessons learned during an earlier 604b grant (2009-01/604).

PROJECT DESCRIPTION:

The goals of the project are to partially implement the Neponset Bacteria TMDL, address the low dissolved oxygen impairment in Beaver Meadow Brook and low dissolved oxygen and *E. coli* impairments in Pequit Brook and areas downstream, and ultimately work towards full attainment of designated uses in these waterbodies. The project also seeks to raise awareness throughout the Town about the need and opportunity to reduce stormwater pollution and to encourage adoption of behaviors such as proper pet waste and yard waste management that will reduce nonpoint source pollution.

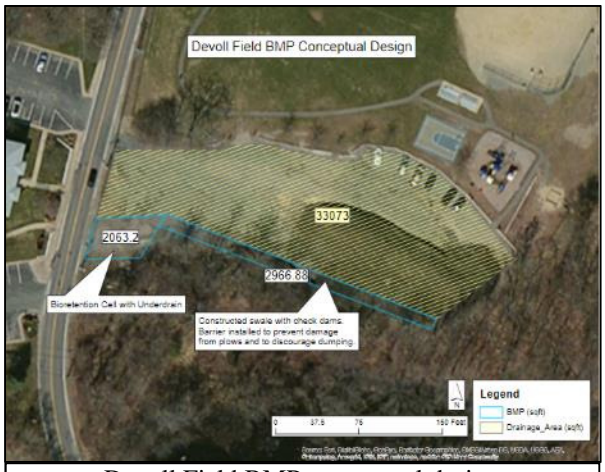
The project will construct structural BMPs at the Dean S. Luce School and Devoll Field in Canton. At the Devoll Field a constructed water quality swale will capture, cleanse and convey runoff from a snow storage field to a raingarden prior to discharge. Rain gardens are proposed at four highly visible Dean S. Luce School locations. In addition to the proposed rain gardens, it is proposed to remediate an existing

erosion/sedimentation problem behind the school. Installation of concrete steps will allow access to the lower field without disruption of the proposed hillside stabilization which includes a LID cascading swale. The structural BMPs will be complemented by a comprehensive outreach and education campaign using a combination of an initial press release, town wide mailing, and interpretive signage on site.

ANTICIPATED PROJECT OUTCOMES:

- Implementation of the Neponset Bacteria TMDL.
- Construction of structural BMPs at the Devoll Field including a water quality swale that will capture, cleanse and convey runoff from a snow storage field to a raingarden prior to discharge into environment. Construction of rain gardens at 4 locations visible at the Dean S. Luce School as well as remediation of an existing erosion/sedimentation problem behind the school.
- Estimated annual pollutant load reductions from structural BMPS include: 1,200 lbs. TSS, 2.9 lbs. total Phosphorous, 10.1 lbs. Nitrogen, and 80,636 billion colonies of fecal coliform.
- Comprehensive outreach and education campaign including press releases, town wide mailing and interpretive signage on site all resulting in increased public awareness throughout the Town of Canton about the need and opportunity to reduce stormwater pollution and to encourage adoption of behaviors such as proper pet waste and yard waste management that will reduce nonpoint source pollution.

BMP locations at Dean S. Luce School



Devoll Field BMP conceptual design

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Crosby Lane Stormwater Treatment and Salt Marsh Restoration #18-07/319

Waterbody Name:	Namskaket Creek & Estuary (MA96-27)
Location:	Cape Cod Watershed
Waterbody Status:	Category 4a
Project Sponsor:	Town of Brewster
Project Duration:	May 2018- June 2020
319 Grant Amount:	$105,000 by the US EPA
Local Match:	$358,500 by the Town of Brewster and project partners

Locus map of project site within Inner Cape Cod Bay ACEC

PROBLEM:

Many coastal waterbodies in Massachusetts are impacted due to fecal coliform and nitrogen pollution. The project is located in the western end of the Inner Cape Cod Bay Area of Critical Environmental Concern (ACEC) where Crosby Lane crosses a restricted tidal creek which flows into the Namskaket Creek Estuary located to the east. This area of the ACEC contains high-quality waters and coastal resources including: An Outstanding Resource Water (ORW); brackish wetlands that connect to the Namskaket salt marsh (which provides important habitat and serves as a nitrogen sink to protect coastal water quality).

The project site includes a 60-space public parking lot located landward of the coastal dune which provides public access to Crosby Landing Beach, the Town's most popular beach. The parking lot and road drain into the Crosby Lane tidal creek that connects to the Namskaket Estuary, a category 4A water body with a TMDL for fecal coliform bacteria. The stormwater treatment will reduce the pathogen load to the estuary. Replacing an undersized culvert on Crosby Lane will greatly improve tidal flow to a tidally restricted salt marsh that drains to Namskaket Marsh to the east.

PROJECT DESCRIPTION:

The Town of Brewster will complete plans and permitting, oversee construction bids, provide construction oversight, certify as-built plans, and develop O&M plans for the stormwater treatment BMPs and the new tidal culvert. The Grantee will conduct two public meetings (one for Board of Selectmen, one for general public), post outreach presentations and outreach materials on the Town's webpage and install signage at the parking lot describing the stormwater BMP and tidal culvert improvements.

The goals of this project are to protect and improve water quality and habitat in this portion of the Inner Cape Cod Bay ACEC through the following activities: (1) Treat stormwater runoff from Crosby Lane and Crosby Landing Beach parking lot through installation of green stormwater infrastructure (bioretention basin, sediment forebay and vegetated swales); and (2) Restore tidal flow and restore salt marsh by replacing the undersized 12" culvert under Crosby Lane with a 5'x5' culvert. The larger tidal culvert will also accommodate changing precipitation and groundwater elevations as climate change and sea level rise occur, thus enhancing coastal resilience.


Salt marsh east of Crosby Lane, looking towards Namskaket Marsh

ANTICIPATED PROJECT OUTCOMES:

- Treat stormwater runoff from Crosby Lane and Crosby Landing Beach parking lot through installation of green stormwater infrastructure including bioretention basin, sediment forebay and vegetated swales.
- Restoration of tidal flow as well as restoration of the salt marsh by replacing the culvert under Crosby Lane with a larger one.
- Using bioretention BMPs would remove an estimated 90% of total suspended solids, 60% total phosphorous, 40% total nitrogen, and 70% of bacteria.
- Increase public awareness in the Town of Brewster through 2 public meetings (1 for the Board of Selectmen, 1 for the general public) in addition to posting outreach presentations, outreach materials and signage at the parking lot describing stormwater BMP and tidal culvert improvements.

Before: Undersized 12" tidal culvert under Crosby Lane

Before: Looking south from the parking lot up Crosby Lane towards the adjacent residential area

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Armory Village Green Infrastructure Project #18-09/319

Waterbody Name:	Blackstone River (MA51-03)
Location:	Blackstone River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Millbury
Project Duration:	April 2018- December 2020
319 Grant Amount:	$150,000 by the US EPA
Local Match:	$100,000 by the Town of Millbury and project partners

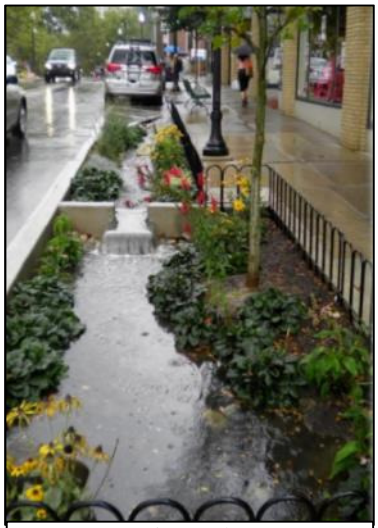
Town of Millbury project location, showing Main and Elm Street along with upper and lower commons

PROBLEM:

The intersection of Main and Elm Streets forms the heart of the Town's downtown and is situated approximately 500 feet up from the Blackstone River. In Millbury, the river is classified as a Category 5 due to up to 17 different causes of impairment including trash, chronic aquatic toxicity, excessive algal growth, phosphorous, foam/scum/oil slicks, and turbidity, all of which are exacerbated by stormwater flowing directly into the river.

PROJECT DESCRIPTION:

This project will bring Low Impact Development (LID) and green infrastructure practices to the intersection of Main and Elm Streets, Upper and Lower Commons, and a portion of South Main Street. This targeted area has the potential to address stormwater issues in a portion of Millbury Center that is highly visible, upslope of and in closest proximity to the Blackstone River.

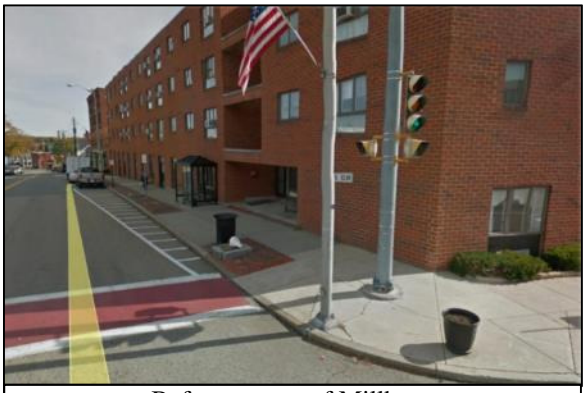


Rain garden

The goals of the project are to (1) reduce sediment and nutrient loads as well as the quantity/velocity of stormwater flows to the Blackstone River through the use of green infrastructure features including bioretention bump outs and rain gardens, tree box filters, flow-through planters, tree planting, expansion of open space areas, and selective application of permeable paving surfaces; (2) provide education and outreach on the types and benefits of Green Infrastructure features to community members and public officials; and (3) demonstrate the use of infiltration-based green infrastructure within the public right-of-way to promote stakeholder support for their use within other areas of the Town that contribute considerable stormwater flows into the Blackstone River.

ANTICIPATED PROJECT OUTCOMES:

- Implementation of green infrastructure practices to the intersection of Main and Elm Streets including bioretention pump outs and rain gardens, tree box filters, flow-through planters, tree planting, expansion of open-space areas, and selective application of permeable paving surfaces.
- Green infrastructure features will intercept and infiltrate 70% of total stormwater flow addressing both stormwater capacity and quality issues.
- Increased public awareness of community members and public officials through education and outreach on the types and benefits of green infrastructure features.



Before: center of Millbury before project construction

After: proposed design of green infrastructure in the center of Millbury

Construction of south Main Street sidewalk

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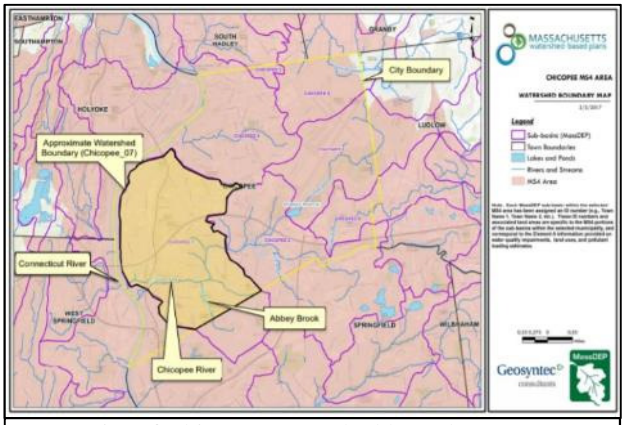
Stormwater Management and Stream Restoration for Water Quality in Lower Abbey Brook #19-01/319

Waterbody Name:	Abbey Brook (MA36-40)
Location:	Chicopee River Watershed
Waterbody Status:	Category 5
Project Sponsor:	City of Chicopee
Project Duration:	March 2019- June 2021
319 Grant Amount:	$122,000 by the US EPA
Local Match:	$81,400 by the City of Chicopee and project participants



City of Chicopee watershed boundary map

PROBLEM:

Abbey Brook is impaired and listed under Category 5 for *E. coli* and total suspended solids. Abbey Brook drains a small, but highly urbanized watershed in Springfield and Chicopee and flows 1.5 miles to join the Chicopee River. Sampling done under a 2016 604b grant found high *E. coli* levels in lower Abbey Brook attributable to the Canada geese that congregate at Lower and Upper Bemis Ponds in Szot Park.

This project will improve water quality in Abbey Brook and transform the landscape around the two ponds in Szot Park. Stormwater BMPs for the shoreline will discourage year-round geese that are habituated to using the park and address the previously identified bacteria issues in a high priority stormwater management location. The stormwater work coincides with plans to remove the lower dam and efforts to advance both a feasibility study for removal of the upper dam. All recent activities aim to increase public understanding about water quality and knowledge of ongoing restoration activities in Abbey Brook.

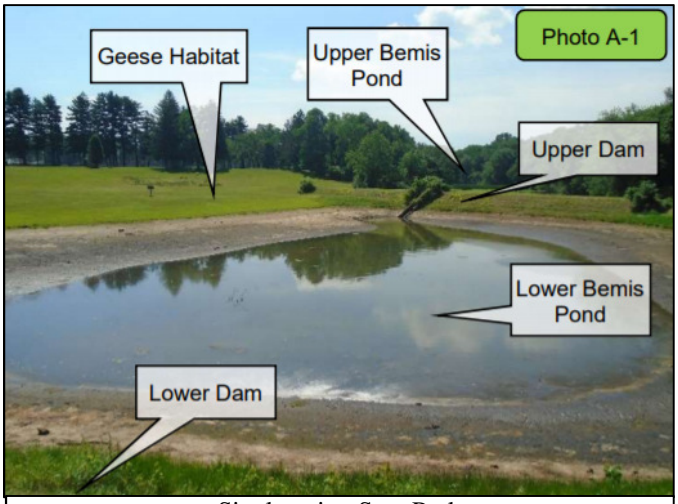
PROJECT DESCRIPTION:

Stomrwater runoff will be reduced in order to improve the water quality of the brook with the hope to remove the brook from the impairment list. This will be accomplished primarily through: (1) Installing BMPs to discourage congregation of geese, providing for decentralized treatment of stormwater runoff impacts, reducing sediment loading from the nearby roadway, and slowing flows along the slopes that drain to Bemis Pond/Abbey Brook. (2) Reducing stormwater flow volumes with infiltration to make the areas around Abbey Brook more resilient to climate change. (3) Advancing full restoration of Abbey Brook with an investigation at the upper dam, and (4) Support public understanding of what Szot Park could look like with restoration of Abbey Brook.

Examples of Public Education and Outreach in the Abbey Brook Watershed

ANTICIPATED PROJECT OUTCOMES:

- Installation of BMPs providing for decentralized treatment of stormwater runoff impacts, reduction of sediment loading from nearby roadway, and slowing the stormwater flows with infiltration along the slopes that drain to Bemis Pond/Abbey Brook.
- Completion of a full investigation at the upper dam at Abbey Brook.
- It is estimated that the quantity of pollutants to be removed in the northern bioswale will be 10.7 billion colonies of *E. coli*, and 983 lbs. total sediment substrate. For the southern bioswale, it is estimated that 479 million colonies and 195 lbs. of total sediment substrate will be removed.
- Increase public awareness and understanding in the Town of Chicopee of what Szot Park could look like with restoration of Abbey Brook.



Site location Szot Park

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Reducing Phosphorous Impacts from Septic Systems Near Freshwater Lakes and Ponds - Defining Best Management Practices #19-02/319

Location:	Statewide Application
Project Sponsor:	County of Barnstable
Project Duration:	February 2019- June 2021
319 Grant Amount:	$296,603 by the US EPA
Local Match:	$112,320 by the County of Barnstable and project participants

PROBLEM:

For many areas of Massachusetts septic systems are a source of nutrients and pollution which impact both freshwater and estuarine waterbodies. This project will validate cost-effective BMPs for protecting freshwater resources from phosphorus and pathogen inputs from onsite septic systems. Phosphorus inputs to our region's freshwater lakes and ponds are often responsible for harmful algae blooms, anoxic events that cause fish kills, and reduced diversity.

In addition to the dearth of available treatment technologies, phosphorus management from wastewater near ponds and lakes is hampered by the common practice of replacing native in-place soil in leaching fields with sand fill. This is unfortunate as native soils in the shallow A and B soil horizons are important in efforts to attenuate phosphorus. Accordingly, this project will install available and DEP-approved shallow-based septic systems in native shallow soil horizons and demonstrate the efficacy of a simpler and more-passive means of phosphorus attenuation. Education efforts will target boards of health and the engineering/design community to encourage this strategy for the protection of freshwater resources.

The Commonwealth of Massachusetts presently requires a five feet of vertical separation between the infiltrative surface beneath a wastewater dispersal system and groundwater in highly transmissive soils (with percolation rates < 2 minutes per inch) and four feet in soils having a lower percolation rate. The proposed study will evaluate pathogen removal rates at these depths and at the depths of 2 and 3 feet by a field study and a review of more recent literature regarding the subject.

DESCRIPTION:

This project will pilot at least two advanced-treatment technologies to address the issue of phosphorus inputs from onsite septic systems. Additionally, the project will demonstrate the efficacy of applying two shallow soils-based treatment technologies, which currently have General Use Approval, to attenuate phosphorus from onsite septic systems. As a result, the project will develop both a Best Management Strategy for protection of freshwater watersheds that depend on septic systems, and guidelines for BMP implementation.

The goals are to install at least four advanced onsite systems that purport to remove phosphorus, two to four shallow native-soil systems in watersheds of freshwater ponds in Barnstable County demonstrating their efficacy in removing phosphorus, and to build 35 test cells to evaluate pathogen removal within soil treatment units. Finally, this project will encourage the community of engineers and system designers to the adopt technologies found to successfully remove phosphorus to protect and restore freshwater resources impacted by phosphorus loading.

ANTICIPATED PROJECT OUTCOMES:

- Development of a Best Management Strategy for protection of freshwater watersheds that depend on septic systems, and guidelines for BMP implementation.
- Installation of at least 4 advanced onsite systems that remove phosphorous and installation of 2 to 4 shallow native-soil systems in watersheds of freshwater ponds in Barnstable County. These systems will be tested for their effectiveness in removing phosphorous.
- Evaluate pathogen removal at varying depths in the infiltrative surface beneath a wastewater dispersal unit.
- Outreach and education focusing on phosphorous treatment strategies and technologies. This will include a minimum of 5 presentations being held at regional conferences and training events as well as 3 workshops will be conducted for engineers, designers and installers. Post all information on the Barnstable County website and various conference websites.

Lovell's Pond, with algal bloom
July 2009

Barnstable County water quality monitor

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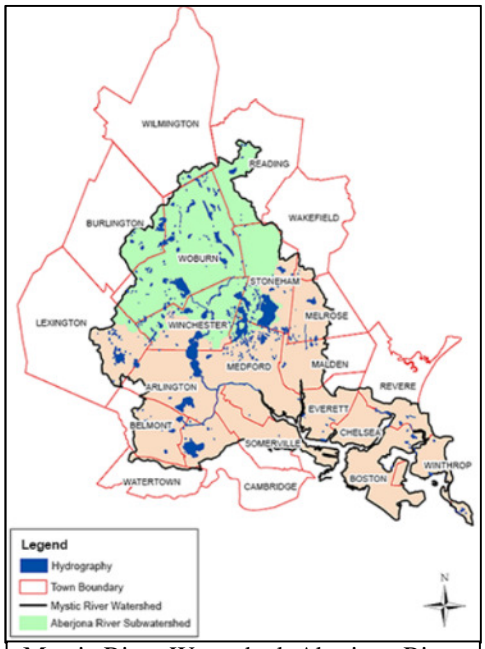
Stormwater Mitigation at Aberjona River in Winchester #19-03/319

Waterbody Name:	Aberjona River (MA71-01)
Location:	Mystic River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Mystic River Watershed Association
Project Duration:	January 2019- June 2021
319 Grant Amount:	$190,645 by the US EPA
Local Match:	$300,000 by the Mystic River Watershed Association and project partners



Mystic River Watershed, Aberjona River Subwatershed and town boundaries

PROBLEM:

The Mystic River Watershed is a heavily urbanized watershed that suffers from nonpoint source pollution, a long history of industrial pollution and combined sewer overflows. The Aberjona River is the only major tributary to Upper Mystic Lake. Both the Aberjona River and the Mystic Lakes are Category 5 impaired water bodies that drain into the Mystic River. This project is a follow-up to an earlier 604b grant (project number 11-01/604). It will implement a green infrastructure retrofit on residential streets in the Aberjona River watershed. Stormwater runoff will be diverted into multiple tree trenches (bioswales). The stormwater tree trenches will significantly improve stormwater management, reduce nonpoint source pollution, and help ameliorate localized flooding.

PROJECT DESCRIPTION:

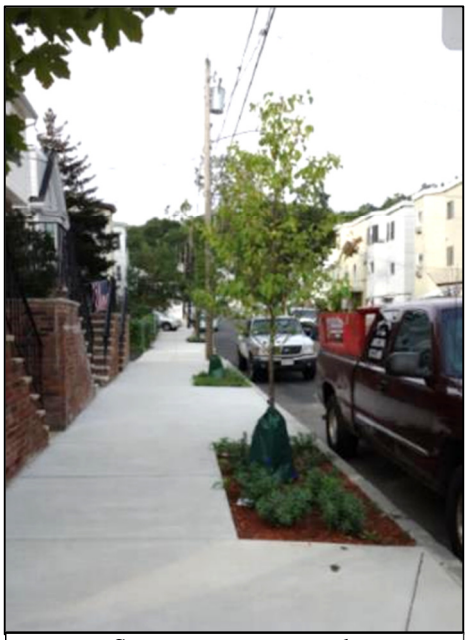
One of the goals of this project is to develop a practice in the Town of Winchester for routine retrofitting of streets with an established set of practices. This project will involve the construction of green infrastructure that will reduce nutrient and other pollutant inputs from stormwater runoff to the Aberjona River, Mystic Lakes and the Mystic River specifically diverting runoff into multiple stormwater tree trenches (bioswales). Another goal is to increase the Town's capacity and experience in green infrastructure installations and maintenance, increasing the likelihood of future efficiencies and success.

This project also includes increasing community knowledge of the problem of stormwater pollution and of the benefits of green infrastructure as a solution as well as increasing public support in Winchester for future green infrastructure investments.

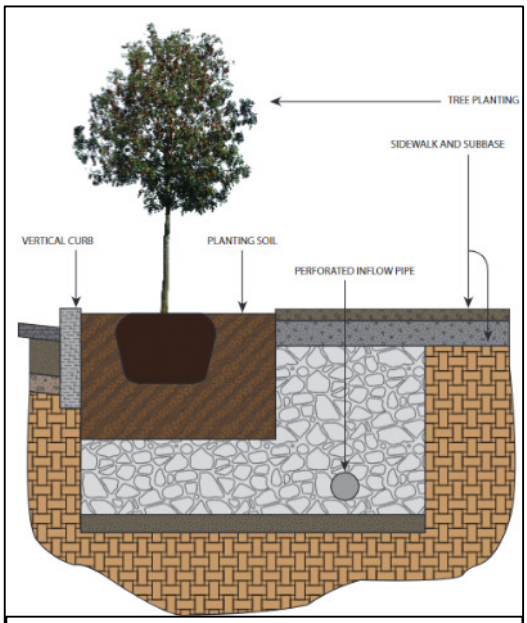

Aberjona River in Winchester, MA

ANTICIPATED PROJECT OUTCOMES:

- Development of a practice in the Town of Winchester for routine retrofitting of streets with an established set of practices.
- Implementation of green infrastructure practices that will reduce nutrient and other pollutant inputs from stormwater runoff to the Aberjona River and Mystic River.
- Estimated total annual pollutant load reductions will be: 353 lbs. total suspended solids, 6.6 lbs. total phosphorous, and 37 lbs. total nitrogen.
- Increased public awareness and knowledge of stormwater pollution and the benefits of green infrastructure as a solution and increasing public support in the Town of Winchester for future green infrastructure investments.



Stormwater tree trench



Enhanced stormwater tree trench cross section

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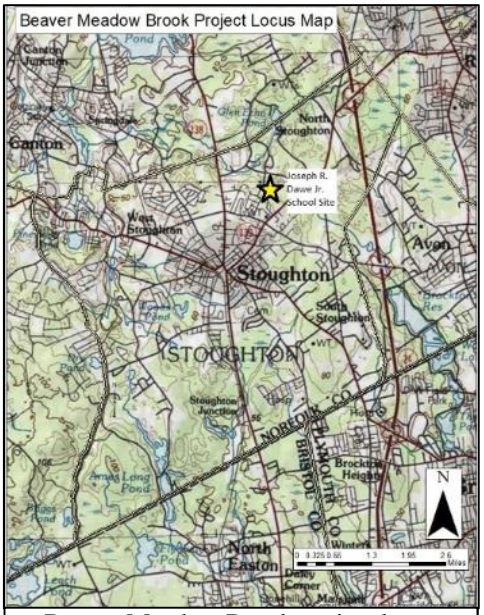
Beaver Meadow Brook BMP Retrofit Project #19-04/319

Waterbody Name:	Beaver Meadow Brook (MA73-20)
Location:	Boston Harbor Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Stoughton
Project Duration:	June 2019- June 2021
319 Grant Amount:	$96,836 by the US EPA
Local Match:	$64,570 by the Town of Stoughton and project participants



Beaver Meadow Brook project locus

PROBLEM:

Beaver Meadow Brook drains into Bolivar Pond, the East Branch of the Neponset, and ultimately the Neponset River. The MassDEP 2016 Integrated List of Waters places Beaver Meadow Brook in Category 5 for dissolved oxygen and category 4a for *E. coli*. Ambient water quality data collected by the Neponset River Watershed Association suggest that Beaver Meadow Brook also suffers from high concentrations of phosphorus on a regular basis. Stormwater is highlighted as a priority concern in MassDEP's past watershed-based plans for the Neponset River Watershed and the Pathogen TMDL for the Neponset River Watershed and in EEA's Boston Harbor Watershed Assessment and Action Plan.

The proposed project will implement the top recommendation from the FY2017 SWMI Grant "*Charles-Neponset Water Conservation and Groundwater Recharge Project*". The project will construct a large infiltration basin at the Joseph R Dawe Jr. Elementary School within the Beaver Meadow Brook watershed. This site was selected for ease of construction, its large contributing drainage area, potential for major groundwater recharge, and its value as a highly visible educational project.

PROJECT DESCRIPTION:

Project goals include reducing pollutant loading to Beaver Meadow Brook as important first step towards attaining designated uses for Beaver Meadow Brook and Neponset River and increasing public awareness of the need to reduce stormwater pollution and available methods to reduce pollutant loads.

The project has two main components, construction of a large infiltration basin and public education about stormwater pollution and suggested solutions. The basin will be constructed adjacent to the school. A diversion structure within an upstream manhole will redirect a portion of the flow from the drainage area into the infiltration basin sized to treat a one-inch storm. Pretreatment will be completed by a proprietary separator installed between the diversion manhole and the basin. Informational signage will be installed beside the BMP with information about the infiltration basin, stormwater in general, and examples of actions individuals can take to reduce stormwater pollution.

In addition to the structural BMP, a town wide stormwater outreach program will be undertaken. The outreach program will include a press release, a mailing to all town residents, and interpretive signage on site, regular blogs and articles to be posted on the Neponset River Watershed Association (NepRWA) website as well as distributed among NepRWA's members and the members of the Neponset Stormwater Partnership. Finally, a school education program will be undertaken in the Stoughton Public School system and Dawe School students will visit the BMP to learn how it works as a field component of a classroom lesson about stormwater and water conservation.

ANTICIPATED PROJECT OUTCOMES:

- Partially implement the Neponset Bacteria TMDL.
- Reduced pollutant loading to Beaver Meadow Brook through the construction of a large infiltration basin located adjacent to local school.
- It is estimated that the quantity of pollutants removed by structural BMPs is 1,065 lbs./year total suspended solids, 8.1 pounds/year total phosphorous, 61.1 pounds/year total nitrogen and approximately 90% of the bacteria.
- Increased public awareness of the need to reduce stormwater pollution through the completion of a town wide stormwater outreach program, which includes mailing to all town residents, interpretive signage on site, articles posted to the Neponset River Watershed Association website as well as a school education program.

Before: depression in wooded area, proposed infiltration basin location

Example of an infiltration basin

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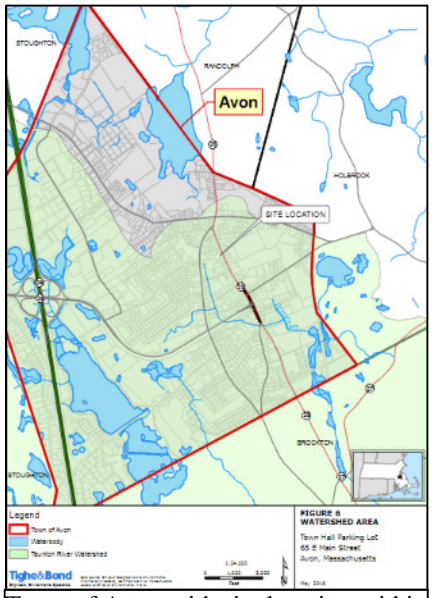
Avon Town Hall Green Infrastructure Demonstration Project #19-05/319

Waterbody Name:	Trout Brook (MA62-07)
Location:	Taunton River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Avon
Project Duration:	January 2019- June 2021
319 Grant Amount:	$79,107 by the US EPA
Local Match:	$52,889 by the Town of Avon and project participants



Town of Avon with site location within Taunton River Watershed

PROBLEM:

Trout Brook is listed as a Category 5 waterbody on the 2016 Integrated List of Waters for bacteria and dissolved oxygen. There is also a final TMDL to address pathogens in this brook in the portion downstream from Avon. Impervious cover and discharge of untreated stormwater from Avon is strongly suspected as the cause of the impairment in Trout Brook and the source of the total and fecal coliform detected in a public water supply well. In addition, more than 65% of the Town's water supply is drawn from the Trout Brook aquifer, through which the brook flows.

This project will design and construct BMP's at Avon's Town Hall to reduce pollution from stormwater runoff discharging to Trout Brook. Runoff from the Town Hall parking lot currently enters Trout Brook without treatment via the storm drain network. It is a priority location identified through work completed under an Environmental Protection Agency's Southeast New England Program (SNEP) grant titled "*Identification and Assessment of Causes of Impairment: Trout Brook (MA62-07_2008(5))*" awarded in FFY2015. The implementation of stormwater treatment by installing a gravel wetland, tree box filters, and a rain garden at the Town Hall parking lot will significantly reduce the loading of pollutants.

PROJECT DESCRIPTION:

The goals of this project are to: (1) Reduce the loading of sediment, pathogens, nutrients and other contaminants from entering Trout Brook through treatment of stormwater runoff, as a step towards attaining designated uses for this and downstream waterbodies. (2) Provide outreach and education regarding stormwater pollution and treatment strategies, in a manner to spur implementation of specific municipal and individual pollution reduction actions. (3) Continue to implement the town's pollution reduction plans while enhancing local knowledge and expertise within the Avon Public Works Department in the design, construction and maintenance of BMPs such as gravel wetlands, tree box filters, and rain gardens, and possibly porous asphalt/concrete and day-lighted drainage swales.

This project will construct a gravel wetland, tree box filters, and a rain garden. The gravel wetland will be located in an area to the west of the Town Hall and will receive sheet flow from the parking area, and piped flow from existing drainage on the site and on Bartlett Street. The gravel wetland will be sized to treat runoff for a tributary area of approximately 50,000 square feet. Two tree box filters will treat a small volume of runoff from a portion of the front parking lot (approximately 3,000 square feet total). A rain garden along the rear of Town Hall will capture runoff from approximately 1/4 of the building roof (~4,000 square feet), and two rain barrels and a gutter system will be installed at the front of Town Hall to

capture runoff from small segments of the slanted roof. The project also will install drainage systems and overflows for these BMPs. In addition, this project will be supported by a robust education and outreach program that consists of a variety of programming including: educational signage, a website with project profile and BMP resources, educational posters, educational message in Town's quarterly newsletter, and tours/lectures about the site following construction.

ANTICIPATED PROJECT OUTCOMES:

Example of a gravel wetland

- Reduction of sediment loading, pathogens, oil, nutrients and other contaminants from entering Trout Brook through the construction of a gravel wetland, (2) tree box filters and (1) rain garden as well as installation of drainage systems and overflows for these BMPs.
- Annual estimates for pollutant removal include 246.5 lbs. total sediment substrate/ year, 10.5 lbs. total nitrogen/year and 6011.7 billion colonies of fecal coliform/ year.
- Completion of an education and outreach program consisting of educational signage, website, educational posters regarding stormwater pollution and treatment strategies as well as tours about the site following construction.

Green infrastructure BMPs and locations in the Town of Avon, MA

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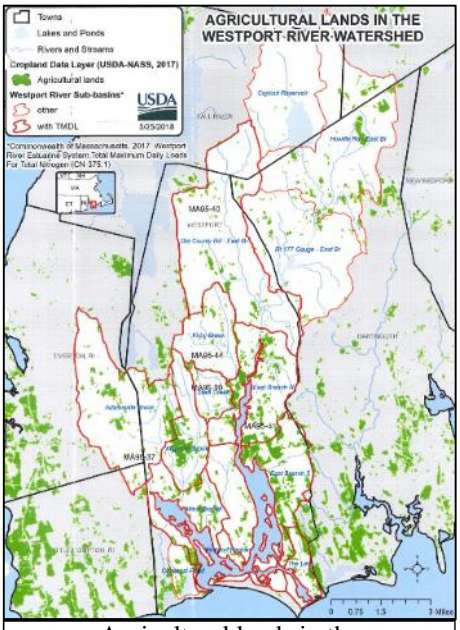
Westport River Agricultural Nonpoint Source Program #19-06/319

Waterbody Name:	Westport River
Location:	Westport River Watershed located within the Buzzards Bay Watershed
Waterbody Status:	Category 4a and 5
Project Sponsor:	Massachusetts Association of Conservation Districts (MACD)
Project Duration:	February 2019- June 2021
319 Grant Amount:	$174,700 by the US EPA
Local Match:	$118,000 by the MACD and project participants



Agricultural lands in the Westport River watershed

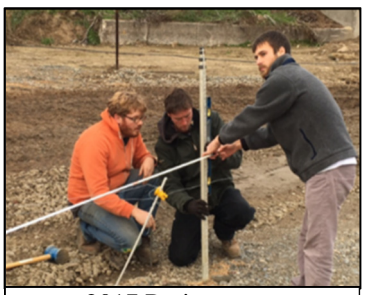
PROBLEM:

The Westport River is impaired by pathogens and nutrients, some of which are related to agricultural activities. Pollutants from farms can effectively be mitigated when farmers implement conservation practices and other nonpoint source BMPs. This project encourages agricultural operations to take voluntary actions to minimize impacts on water quality through the development and implementation of NRCS designed and engineered BMPs such as manure management. The grantee will apply an adaptive management framework in nonpoint source pollution mitigation which includes assessing the problem, designing solutions, implementing BMPs, modeling results, and adjusting to help achieve proposed outcomes as part of a cooperative effort among governmental agencies, private organizations, and the public.

The project will focus on the following Westport River segments, as appropriate, MA95-40, MA95-41, MA95-44, MA95-59 and gradually conduct outreach in other segments such as MA95-37 and MA95-54. These segments are classified as Category 4a and 5 impaired waters due to pathogens, and nitrogen with a significant source of pollution coming from agricultural operations.

PROJECT DESCRIPTION:

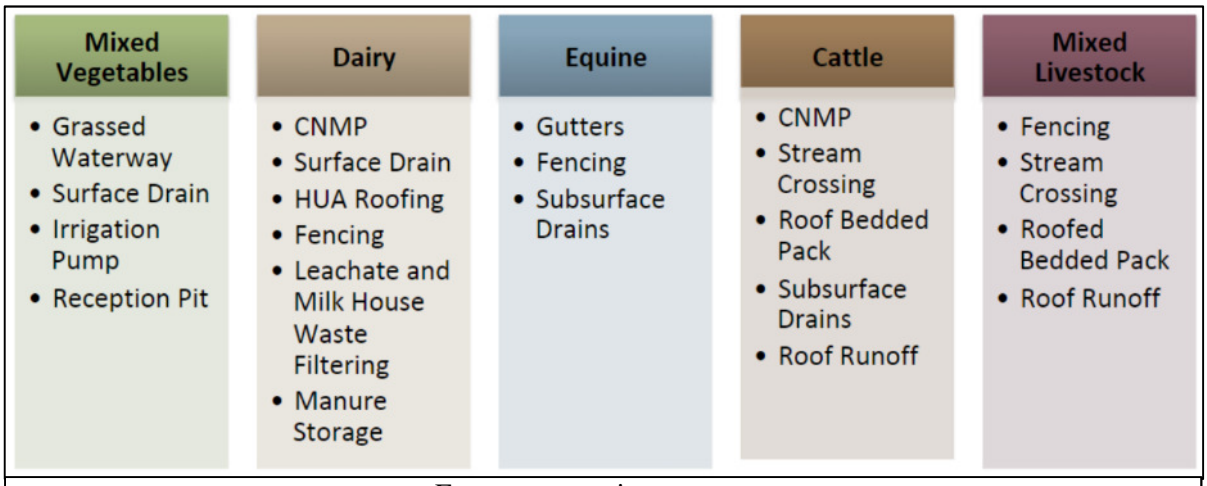
This project involves the completion of farm conservation plans and implementation of BMPs to reduce contaminant runoff and improve water quality in the Westport River watershed. The project also involves outreach and education with farmers to solicit interest in the program; develop NRCS approved conservation plans outlining BMPs to reduce pollutant runoff; assist landowners in obtaining access to financial resources; implement BMPs; and ensure farmers' preparation of operation and maintenance plans.


2017 Project team


Project team working on a farm

ANTICIPATED PROJECT OUTCOMES:

- Completion and implementation of approved farm conservation plans including installation of BMPs to reduce contaminant runoff and improve water quality of Westport River watershed.
- It is estimated that these conservation practices will result in a removal of 18,333 lbs. of Nitrogen/ acre/year.
- Completion of outreach and education with farmers to solicit interest in the program and outreach to residents to share NRCS, MDAR and MACD activities to preserve and protect water quality.



Farm conservation measures

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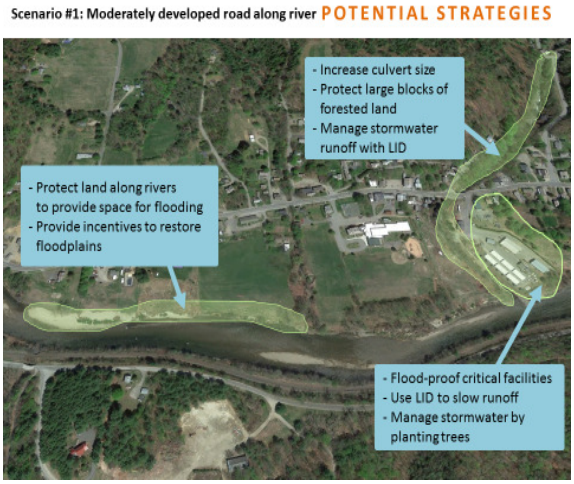
Regional Nonpoint Source Coordinator Initiative: A Proposal for Franklin County Project #20-01/319

Waterbody Name:	County-wide
Location:	Connecticut, Deerfield, and Millers Rivers Watersheds
Waterbody Status:	Varies
Project Sponsor:	Franklin Regional COG
Project Duration:	March 2020- September 2022
319 Grant Amount:	$100,000 by the US EPA
Local Match:	$66,667 by FRCOG and project participants



PROBLEM:

This project will support the Massachusetts Nonpoint Source (NPS) Program and carry out nonpoint source pollution mitigation focused work. The grantee will develop watershed-based plans, facilitate high-quality project proposals to be funded through the 319 grant program and conduct outreach and education work to enhance the NPS Program message and support of the NPS Program.

PROJECT DESCRIPTION:

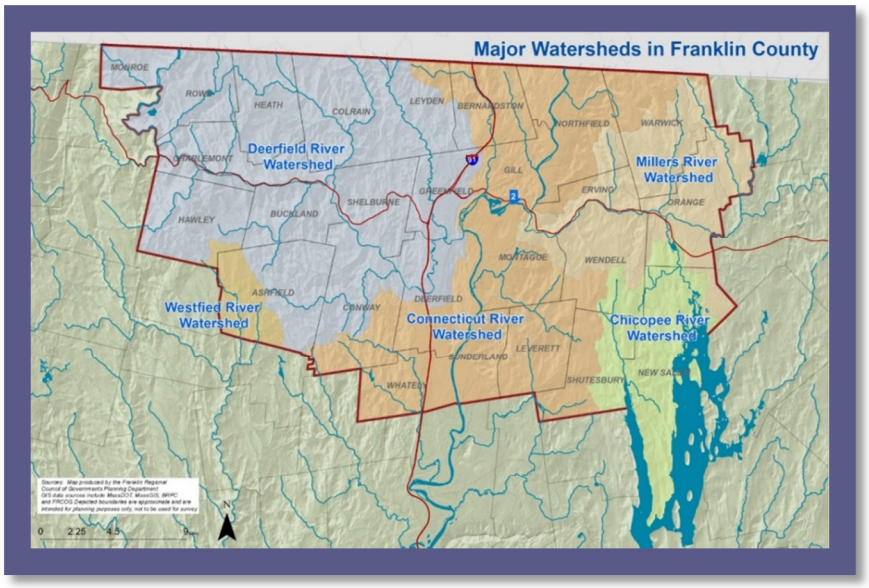
The project goals are to provide services in support of the Nonpoint Source Program by assigning Grantee's staff to serve as Regional Coordinators to conduct work that is focused on NPS. It will include a collaborative watershed-based planning approach across subwatersheds, identification and prioritization of regional NPS priorities, development of watershed-based plans, development and submittal of high-quality proposals for funding under the 319 competitive grant program, outreach and education efforts, and any other activities that will further the goals of the Nonpoint Source Program especially objectives and milestones identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan.

The Regional NPS coordinators may fulfill the following objectives identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan:

- Fund locally led projects and increase program efficacy
- Establish geographic focus areas (Support the USEPA Healthy Watershed Program)
- Address urban/rural sources of NPS pollution
- Promote/assist development of complete Watershed-Based Plans (WBPs) to guide NPS watershed projects
- Incorporate protection into watershed planning
- Engage local partners on climate change adaptation, resiliency planning, and protection of healthy waters
- Engage new partners to address NPS pollution (Encourage land trusts to participate in protection of healthy watersheds/high-quality and unimpaired watershed protection)
- Educate the public and increase the capacity of NPS partners

ANTICIPATED PROJECT OUTCOMES:

- Identified and expanded opportunities to accomplish and leverage work by private, state, local, and federal partners.
- Reduced nonpoint source pollutants and restored impaired waters and protected unimpaired/high quality and threatened waters through planning, education, program coordination, and implementation of climate-ready Best Management Practices (BMPs): Identified and prioritized solutions, prepared conceptual designs, provided guidance with regard to permitting requirements, and provided sound cost estimates for implementation. These services will focus on ensuring that projects selected for advancement include sufficient engineering evaluation of site conditions, optimal BMP selection based on anticipated pollutant removal and cost, BMP sizing considerations (including pre-treatment requirements), site characteristics and other potential design and permitting constraints.
- Instilled, encouraged, and nurtured a passion for restoring water quality through education, capacity building, and building new partnerships.



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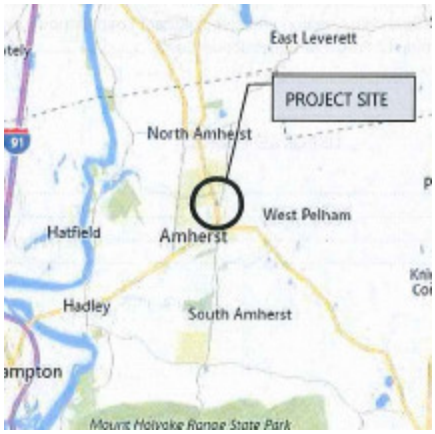
Fearing Brook Floodplain Creation Project #20-02/319

Waterbody Name:	Fearing Brook and Fort River (MA34-27)
Location:	Connecticut River Watershed
Waterbody Status:	Varies
Project Sponsor:	Town of Amherst
Project Duration:	March 2020- June 2022
319 Grant Amount:	$276,549 by the US EPA
Local Match:	$188,285 by the Town of Amherst and project participants



Approximate Project Area

PROBLEM:

Fearing Brook is a small, 1 mile long, urban stream originating beneath downtown Amherst. The modest watershed of 0.75 miles is approximately 90% impervious. Fearing Brook is a tributary to the Fort River, the longest free flowing tributary to the Connecticut River in the state. Recent studies have documented that Fearing Brook is a significant point source of pollution to the Fort River which is listed in category 5 for *E. coli*. in the 2016 Integrated List of Waters.

This project proposes to improve water quality, river processes and habitat by restoring and reconnecting Fearing Brook to its historic floodplain as a first phase of a strategic restoration effort for this urban stream. The floodplain restoration will increase nutrient and sediment retention which should reduce bacteria concentrations while also reducing erosive forces associated with the disrupted hydrologic regime associated with 'urban stream syndrome'.

PROJECT DESCRIPTION:

The project goal is to improve water quality in Fort River by remediating stormwater-related pollution in the Fearing Brook. Currently Fearing Brook's channel is isolated from its natural floodplain- the result of over 150 years of manipulation. Much of the visible stream channel has been straightened and dredged with the dredged material cast next to the stream creating high, steep banks. The goal is to remove a segment of the built-up bank, regrade the bank to recreate a functioning floodplain, undertake in-stream bioengineering to reduce erosion, create more complex habitat and work to eradicate invasive species along the river corridor.

In 2015, the Town of Amherst received a grant from the Massachusetts Environmental Trust (MET) to study the Fearing Brook including sampling for stormwater pollutants. Based on this work, the Town applied for support to DER's Priority Project program to investigate and remediate the Fearing Brook. DER recommended Fearing Brook as a Priority Project and in 2018, DER funded further investigation of Fearing Brook to catalog its existing condition, identify problems, and recommend and prioritize potential restoration projects. Floodplain restoration and reconnection at the lower Fearing Brook reach was selected as the top priority both for its feasibility and its water quality potential. The proposed restoration area is immediately upstream of Fearing Brook's confluence with the Fort River and is on town-owned land.

ANTICIPATED PROJECT OUTCOMES:

- Reduction of sediment loading, pathogens, and nutrients from entering Fearing Brook through the lowering approximately 375 linear feet of the sidecast berms/banks and bank regrading to recreate a functioning floodplain. Access to a healthy, stable vegetated floodplain which would allow stream flow to disperse across and infiltrate into the floodplain creating a sink for sediment and phosphorus.
- Instream features with increased channel diversity and roughness reducing erosive forces against the stream banks and channel. The restoration area stripped of invasive plants and replanted with native species.
- Completion of an education and outreach program consisting of educational signage, educational materials as well as tours and walks about the site following construction.

Example of Fearing Brook Stream Reach

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Stormwater BMPs: Sevenmile River Watershed Project #20-03/319

Waterbody Name:	Sevenmile River (MA36-11)
Location:	Chicopee River Watershed
Waterbody Status:	Category 5
Project Sponsor:	Town of Spencer
Project Duration:	April 2020- June 2022
319 Grant Amount:	$88,200 by the US EPA
Local Match:	$60,300 by the Town of Spencer and project participants

Example of a gravel wetland (UNHSC)

PROBLEM:

The Sevenmile River (MA36-11, MA36-12) is listed as a Category 5 water on the 2016 List of Impaired Waters with the impairment of *E. coli*. Stormwater management in these tributary areas generally consists of piped drainage infrastructure that discharges to Sevenmile River without treatment. This project will protect the Sevenmile River (Chicopee River Watershed) in Spencer along with the Town's public water supply aquifer through the design and construction of stormwater BMPs for drainage areas predominantly along Meadow Road from Pleasant Street to Olde Main Street, and along North Spencer Road (Route 31) south of Alta Crest Road.

The Project will build upon work already completed under the 2017 319 Grant (17-09 319), which included design of five BMPs and construction of three BMPs in the Meadow Road area. This project will allow the Town to construct the two remaining already designed BMPs, including an infiltrating rain garden at 30 Meadow Road and Cultec Recharger ® chambers or similar at Meadowbrook Lane. The project will also allow the Town to design and construct two new BMPs at 84 North Spencer Road and Hillsville Road at Meadow Road as well as continue public outreach and education activities.

PROJECT DESCRIPTION:

The goals of this project are to: (1) Design and construct stormwater BMPs to protect the high-quality water resource of the Sevenmile River such as bioretention/rain gardens, infiltration basins and constructed vegetated wetlands.(2)A public outreach and education program that will inform residents of the stormwater BMPs and of project progress and educate and encourage them to participate in reducing nonpoint source pollution.

ANTICIPATED PROJECT OUTCOMES:

- Reduction of sediment loading, pathogens, and nutrients from entering Sevenmile River through the utilization of a mixture of structural and non-structural BMPs. The grantee anticipates promoted treatment, storage/detention and infiltration (where possible) prior to discharge into the river. BMPs may include bioretention/rain gardens and bioswales, and infiltration chambers that will capture first-flush stormwater runoff contaminants.
- Annual estimates for pollutant removal include 10 tons of sediment/year and 34 pounds of phosphorus/year.
- Completion of an education and outreach program consisting of educational materials addressing nonpoint source pollution in the Sevenmile River watershed and posted and/or available at Town Hall and provided on local cable access television as appropriate.

Example of a subsurface infiltration system.

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Berkshire County Regional Nonpoint Source Coordinator Project #20-04/319

Waterbody Name:	County-wide
Location:	Hudson/Hoosic River, Housatonic, Farmington, and Westfield River watersheds.
Waterbody Status:	Varies
Project Sponsor:	Berkshire Regional Planning Comm.
Project Duration:	April 2020- September 2022
319 Grant Amount:	$100,000 by the US EPA
Local Match:	$66,667 by BRPC and project participants

PROBLEM:

This project will support the Massachusetts Nonpoint Source (NPS) Program and carry out nonpoint source pollution mitigation focused work. The grantee will develop watershed-based plans, facilitate high-quality project proposals to be funded through the 319 grant program and conduct outreach and education work to enhance the NPS Program message and support of the NPS Program.

PROJECT DESCRIPTION:

The project goals are to provide services in support of the Nonpoint Source Program by assigning Grantee's staff to serve as Regional Coordinators to conduct work that is focused on NPS. It will include a collaborative watershed-based planning approach across subwatersheds, identification and prioritization of regional NPS priorities, development of watershed-based plans, development and submittal of high-quality proposals for funding under the 319 competitive grant program, outreach and education efforts, and any other activities that will further the goals of the Nonpoint Source Program especially objectives and milestones identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan.

The Regional NPS coordinators may fulfill the following objectives identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan:

- Fund locally led projects and increase program efficacy
- Establish geographic focus areas (Support the USEPA Healthy Watershed Program)
- Address urban/rural sources of NPS pollution
- Promote/assist development of complete Watershed-Based Plans (WBPs) to guide NPS watershed projects
- Incorporate protection into watershed planning
- Engage local partners on climate change adaptation, resiliency planning, and protection of healthy waters
- Engage new partners to address NPS pollution (Encourage land trusts to participate in protection of healthy watersheds/high-quality and unimpaired watershed protection)
- Educate the public and increase the capacity of NPS partners

ANTICIPATED PROJECT OUTCOMES:

- Identified and expanded opportunities to accomplish and leverage work by private, state, local, and federal partners.
- Reduced nonpoint source pollutants and restored impaired waters and protected unimpaired/high quality and threatened waters through planning, education, program coordination, and implementation of climate-ready Best Management Practices (BMPs): Identified and prioritized solutions, prepared

conceptual designs, provided guidance with regard to permitting requirements, and provided sound cost estimates for implementation.

- Instilled, encouraged, and nurtured a passion for restoring water quality through education, capacity building, and building new partnerships.

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Massachusetts Nonpoint Source Grant Guidebook Project #20-05/319

Location:	Statewide Application
Waterbody Status:	Varies
Project Sponsor:	Comprehensive Environmental Inc.
Project Duration:	February 2020- June 2022
319 Grant Amount:	$75,285 by the US EPA
Local Match:	$10,290 by CEI and project participants

PROBLEM:

The nonpoint source program and its ability to help program partners restore water quality through 319 grant funds may not be well known. In addition, information about water quality and MassDEP efforts may be in multiple locations. Responding to the need to support program partners, this project will develop a suite of materials and support services to support and enhance the work of the Nonpoint Source Pollution (NPS) Program staff and NPS Regional Coordinators. It will provide a wide range of NPS public education/outreach materials and resources that will strengthen the capacity for MassDEP project partners to develop competitive s.319 grant projects. This project will develop a suite of NPS Program support materials organized around a primary document, the Nonpoint Source Pollution Grant Guidebook (Guidebook), that will comprehensively guide s.319 applicants from "concept to implementation" in a way that builds upon MassDEP NPS Program efforts.

The Guidebook will be fully compatible with and complementary to existing MassDEP NPS public outreach resources such as the *Massachusetts Clean Water Toolkit, BMPs Cost Catalog,* and the *Massachusetts Watershed-Based Plans* (WBP) website. As such, the Guidebook will reference and link to these materials to guide potential s.319 grantees from project concept to submittal of a highly competitive s.319 grant application that includes a nine-element Watershed-Based Plan.

PROJECT DESCRIPTION:

The goals of this project are to:

1. Facilitate and enhance the education/outreach efforts of MassDEP NPS Program staff and NPS Regional Coordinators.
2. Provide comprehensive education and outreach materials and resources that will strengthen local capacity for MassDEP project partners to develop competitive s.319 grant projects.
3. Develop the Nonpoint Source Pollution Grant Guidebook to comprehensively guide s.319 applicants from "concept to implementation" supporting the MassDEP NPS Program.

ANTICIPATED PROJECT OUTCOMES:

- Identified areas where existing materials provide limited guidance and developed materials which provide more robust guidance that will be helpful to s.319 grant applicants and grantees;
- Organized all existing and new information in a format that is specific to the needs of the s. 319 grant applicants and the MassDEP staff who assist them. The NPS Grant Guidebook and its supporting materials will guide applicants through all aspects of an s. 319 grant project. From concept to post-project documentation.
- Increase public awareness of existing NPS Program resources wherever possible.

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A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience Project #20-06/319

Waterbody Name:	Watershed-wide Waterbodies
Location:	Chicopee River Watershed
Waterbody Status:	Varies
Project Sponsor:	Pioneer Valley Planning Commission
Project Duration:	April 2020- June 2022
319 Grant Amount:	$100,000 by the US EPA
Local Match:	$66,667 by PVPC and project participants

PROBLEM:

This project will support the Massachusetts Nonpoint Source (NPS) Program and carry out nonpoint source pollution mitigation focused work. The grantee will develop watershed-based plans, facilitate high-quality project proposals to be funded through the 319 grant program, conduct outreach and education work to enhance the NPS Program message and support of the NPS Program.

The project goals are to provide services in support of the Nonpoint Source Program by assigning Grantee's staff to serve as Regional Coordinators to conduct work that is focused on NPS. It will include a collaborative watershed-based planning approach across subwatersheds, outreach and education efforts, identification and prioritization of regional NPS priorities, development of watershed-based plans, development and submittal of high-quality proposals for funding under the 319 competitive grant program, and any other activities that will further the goals of the Nonpoint Source Program especially objectives and milestones identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan.

The Regional NPS coordinators may fulfill the following objectives identified in the 2020-2024 Massachusetts Nonpoint Source Management Program Plan:

- Fund locally led projects and increase program efficacy
- Establish geographic focus areas (Support the USEPA Healthy Watershed Program)
- Address urban/rural sources of NPS pollution
- Promote/assist development of complete Watershed-Based Plans (WBPs) to guide NPS watershed projects
- Incorporate protection into watershed planning
- Engage local partners on climate change adaptation, resiliency planning, and protection of healthy waters
- Engage new partners to address NPS pollution (Encourage land trusts to participate in protection of healthy watersheds/high-quality and unimpaired watershed protection)
- Educate the public and increase the capacity of NPS partners

ANTICIPATED PROJECT OUTCOMES:

- Identified and expanded opportunities to accomplish and leverage work by private, state, local, and federal partners.
- Reduced nonpoint source pollutants and restored impaired waters and protected unimpaired/high quality and threatened waters through planning, education, program coordination, and implementation of climate-ready Best Management Practices (BMPs): Identified and prioritized solutions, prepared conceptual designs, provided guidance with regard to permitting requirements, and provided sound cost estimates for implementation. These services will focus on ensuring that projects selected for advancement include sufficient engineering evaluation of site conditions, optimal BMP selection based on anticipated pollutant removal and cost, BMP sizing considerations (including pre-treatment requirements), site characteristics and other potential design and permitting constraints.
- Instilled, encouraged, and nurtured a passion for restoring water quality through education, capacity building, and building new partnerships.

Example of a Biofiltration Basin

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Reducing Nonpoint Source Pollution from Two Equine Facilities through Implementation, Remediation, and Education of Selected BMPs Project #20-07/319

Waterbody Name:	Fort River (MA34-27), Mill River (MA34-25), Lake Warner (MA34098)
Location:	Connecticut River Watershed
Waterbody Status:	Categories 4a and 5
Project Sponsor:	University of Massachusetts-Amherst
Project Duration:	May 2020 - June 2022
319 Grant Amount:	$286,670 by the US EPA
Local Match:	$191,394 by UMass-Amherst and project participants

PROBLEM:

Portions of the Mill and Fort Rivers in the Connecticut River watershed are impaired by pathogens, some of which are related to agricultural activities. Pollutants from farms can effectively be mitigated through farm conservation practices and other nonpoint source pollution BMPs. This project will minimize nonpoint source pollution from two equine facilities located in critical watersheds and conduct educational training targeted to community livestock owners. This will be accomplished with approved farm conservation plans and the implementation of various BMPs. This project will provide hands on learning opportunities to various livestock owning constituencies throughout the state of Massachusetts, including owners of commercial stables and riding facilities and the general public. Outreach will be provided through several hands-on workshops and field days throughout the year. The project will reinforce USDA nutrient management programs and NRCS standards for nutrient management practices while reducing non-point source pollution.

PROJECT DESCRIPTION:

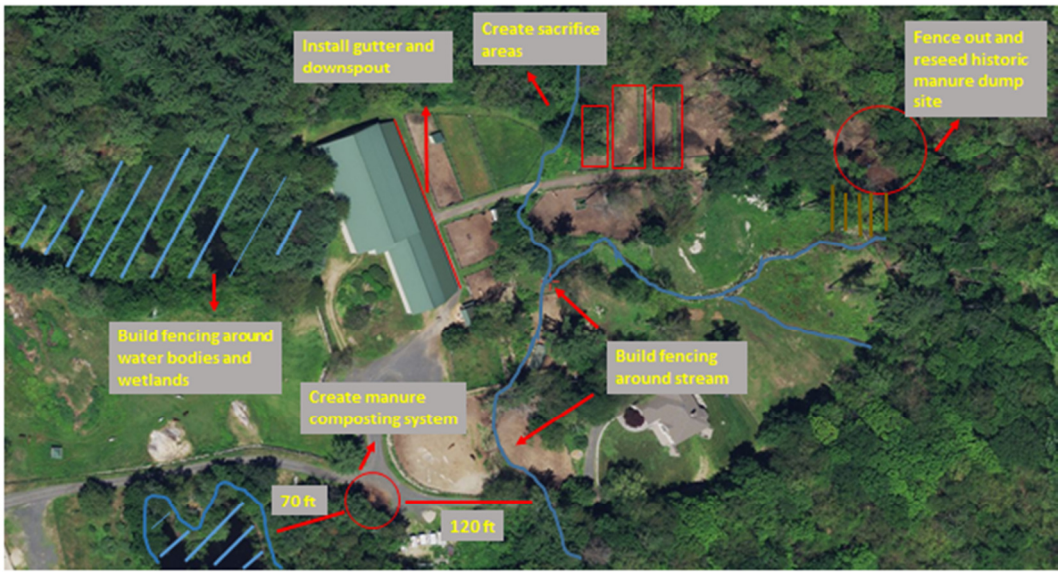
This project will 1) generate approved farm conservation plans (NRCS approval is subject to the availability of the NRCS) for at least two livestock facilities, 2) install BMPs, 3) educate horse owners to recognize good management practices utilizing the two pilot farms for several hands-on workshops and demonstrations, and 4) provide technical assistance to horse owners wanting to install similar BMPs at their facilities through farm visits and fact sheets, as well as other educational materials.

The BMPs may include installation of sacrifice lots and fencing to keep off horses from streams and wet fields, installation of low cost aerated composting systems as part of manure management, installing gutters, French drains and underground outlets to convey roof runoff to drainage swales thus reducing mud formation and runoff, and repairing walkways between paddock area and pasture areas to minimize carrying nutrients and sediments from the walkway land flow.

ANTICIPATED PROJECT OUTCOMES:

- Assessment of manure and mud management on pilot farms.
- Installation of appropriate best management practices to minimize nonpoint source pollution.
- Description of improvements post BMPs installation.
- Annual estimates for pollutant removal include 1,560 pounds of phosphorus/year, 4,950 pounds of nitrogen/year, and 6.0 x 1012 organisms/year of fecal coliform/year.

- Hands-on educational workshops at the demonstration sites conducted for local horse community members and equine facility owners.
- Distribution of new and updated BMP factsheets and educational materials to help horse owners with manure management, composting, protecting wetlands, sacrifice lots, pasture management, mud management, and controlling runoff.



Potential BMPs at Moonlit Farm, Belchertown

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Appendices

Appendix A. FFY 2020 Selected Projects

Table 7. Projects recommended for the FFY2020 Work plan

Project number	Project name	Grantee
20-01/319	Regional Nonpoint Source Coordinator – Franklin County	Franklin Regional Council of Governments
20-02/319	Fearing Brook Floodplain Creation Project	Town of Amherst
20-03/319	Stormwater BMPs: Sevenmile River Watershed	Town of Spencer
20-04/319	Berkshire County Regional Nonpoint Source Coordinator	Berkshire Regional Planning Commission
20-05/319	Nonpoint Source Pollution Grant Guidebook	Comprehensive Environmental Inc.
20-06/319	A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience	Pioneer Valley Planning Commission
20-07/319	Implementation Remediation, and Education of Selected Best Management Practices to Minimize the Environmental Impact of Two Equine Operations	UMass-Amherst

For more information see https://www.mass.gov/service-details/2020-nonpoint-source-competitive-grants-319-program.

Appendix B. NPS Grant Projects Closed in 2020

Table 8. NPS grant projects that were closed in 2020

Project Title	Project ID#	Grantee	Grant Amount	Non-Federal Match	Completion Date
Internal Phosphorous Load Inactivation for Lake Attitash	18-01/319	City of Amesbury	352,000	235,000	September 30, 2020
Stormwater Fee Development for Westford's Stormwater Management Master Plan	18-04/319	Town of Westford	99,982	78,540	June 30, 2020
Phase I Implementation of Bellingham's Subwatershed Management Plan	18-05/319	Town of Bellingham	114,963	65,875	June 30, 2020
Knob Hill Road Storm Drainage Improvements	18-08/319	Town of Great Barrington	288,925	190,075	June 30, 2020

Appendix C. Active NPS Grant Projects

Project Title	Project Number	Grantee	Grant Amount ($)	Non-Federal Match ($)	Planned Completion Date
ACPP Technical Providers for the Palmer River Watershed - Part 2	17-04/319	Massachusetts Association of Conservation Districts (MACD)	505,900	218,500	December 2020
Revision of Massachusetts Watershed-based Plans	18-02/319	Geosyntec Consultants Inc.	219,224	103,957	June 2021
Franklin Public - Private Partnership for Stormwater GI	18-03/319	Town of Franklin	125,000	85,220	June 2021
Pequit and Beaver Brook BMP Retrofit Project	18-06/319	Town of Canton	144,784	97,208	June 2021
Crosby Lane Stormwater Treatment and Salt Marsh Restoration	18-07/319	Town of Brewster	105,000	358,500	June 2020
Armory Village Green Infrastructure Project	18-09/319	Town of Millbury	150,000	100,000	December 2020
Stormwater Management and Stream Restoration for Water Quality in Lower Abbey Brook	19-01/319	City of Chicopee	122,000	81,400	June 2021
Reducing Phosphorous Impacts from Septic Systems Near Freshwater Lakes and Ponds-Defining Best Management Practices	19-02/319	County of Barnstable	296,603	112,320	June 2021
Stormwater Mitigation at Aberjona River in Winchester	19-03/319	Mystic River Watershed Association (MyRWA)	190,645	300,000	June 2021
Beaver Meadow Brook BMP Retrofit Project	19-04/319	Town of Stoughton	96,836	64,570	June 2021
Avon Town Hall Green Infrastructure Demonstration Project	19-05/319	Town of Avon	79,107	52,889	June 2021
Westport River Agricultural Nonpoint Source Program	19-06/319	Massachusetts Association of Conservation Districts (MACD)	174,700	118,000	June 2021
Regional Nonpoint Source Coordinator – Franklin County	20-01/319	Franklin Regional Council of Governments	100,000	81,075	June 2022

Project Title	Project Number	Grantee	Grant Amount ($)	Non-Federal Match ($)	Planned Completion Date
Fearing Brook Floodplain Creation Project	20-02/319	Town of Amherst	276,549	188,285	June 2022
Stormwater BMPs: Sevenmile River Watershed	20-03/319	Town of Spencer	88,200	60,300	June 2022
Berkshire County Regional Nonpoint Source Coordinator	20-04/319	Berkshire Regional Planning Commission	100,000	66,666	June 2022
Nonpoint Source Pollution Grant Guidebook	20-05/319	Comprehensive Environmental Inc. (CEI)	75,285	50,250	June 2022
A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience	20-06/319	Pioneer Valley Planning Commission	100,000	66,666	June 2022
Implementation Remediation, and Education of Selected Best Management Practices to Minimize the Environmental Impact of Two Equine Operations	20-07/319	UMass-Amherst	286,670	191,395	June 2022

Table 9. Active Nonpoint Source Grant Projects

Appendix D. Matrix of NPS Plan Goals, Objectives, and Milestones

☒ = ongoing activity ☑= completed activity

Table 10. Matrix of NPS Plan Goals, Objectives and Milestones

Goal 1: Identify and expand opportunities to accomplish and leverage work by private, state, local, and federal partners						5-Year Schedule						
Objectives	**Milestone**	**Milestones**	**Agency Lead**	**Partners**	**Measure of Success**	**2020**	**2021**	**2022**	**2023**	**2024**	**FFY20 Actions**	**Period**
1. Align partner grant priorities to maximize environmental benefits	1.1.a.	1.a. Identify NPS goals activities consistent with partner program activities	MassDEP	NPS partners	Annual Request for Responses includes partner projects that will receive priority consideration by MA NPS grant programs	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
2. Increase communication between partners	1.2.a.	2.a. Create a statewide NPS Recovery Roundtable to coordinate efforts among key partners and set watershed priorities	MassDEP	NPS partners	NPS Recovery Roundtable is formed and meets at least annually	☒	☒	☒	☒	☒	Instead of one recovery roundtable with all partners, MassDEP engaged select partners via focused meetings to discuss potential collaboration and shared priorities.	Yearly
	1.2.b.	2.b. Maintain NPS Program website to consolidate and advertise NPS-focused grants and assistance	MassDEP	NPS partners	Website remains active and current	☒	☒	☒	☒	☒	NPS Program continues to update and enhance existing content, as well as to add new and illustrative information.	Yearly
	1.2.c.	2.c. Conduct joint reviews of grant application proposals	MassDEP	NPS partners	MassDEP membership on partner review committees; partner participation in s.319 grant review committee	☒	☒	☒	☒	☒	MassDEP continues to participate with partner review committees. NPS Staff served on the CZM Coastal Pollution Remediation Grant review committee. Partner agencies CZM, DER, EPA and MassBays served on NPS grant review committees.	Yearly
	1.2.d.	2.d. Improve the sharing of information on NPS pollution issues, restoration, and protection activities	MassDEP	NPS partners	Interagency sharing of annual reports, data, and related information via list serve and web posting	☒	☒	☒	☒	☒	The MassDEP distributed the new 2020-2024 NPS Management Program Plan via the MassDEP's Watershed Planning Program's email list. •Available funding options for stormwater projects can be found in https://www.mass.gov/service-details/available-funding-for-stormwater-projects-in-massachusetts. •The Watershed Planning Program has also created a fall newsletter which contains highlights from the NPS program. It can be found here: https://mailchi.mp/4af4b015efdd/watershed-planning-program-fall-newsletter-7998765?e=4ff8f0b221	Yearly
	1.2.e.	2.e. NPS Program will continue regular participation in the NRCS State Technical Committee meetings that determine distribution of NRCS EQIP funds and related Farm Bill program priorities in Massachusetts	MassDEP	NRCS, MDAR	State Technical Committee participation by NPS Program staff	☒	☒	☒	☒	☒	NPS Program staff have attended quarterly meetings of the NRCS State Technical Committee.	Yearly
	1.2.f.	2.f. Where appropriate and consistent with other program goals, the NPS Program will coordinate with the NRD Program to address mutual restoration goals and leverage s.319 grant projects (e.g., help provide match requirement)	MassDEP		Annual coordination between the NPS Program and NRD Program to discuss potential project and funding coordination	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	1.2.g.	2.g. MassDEP will continue to serve on the MassBays Management Committee and attend the Science and Technical Advisory Subcommittee as staffing allows.	MassDEP	MassBays	Participation in MassBays committees.	☒	☒	☒	☒	☒	MassDEP staff continue to coordinate with the MassBays Program and serve on its Management Committee.	Yearly
	1.2.h.	2.h. MassDEP will engage with the National Estuary Program as it undertakes activities in fulfillment of Section 320 of the Clean Water Act.	MassDEP	MassBays	Coordination between NEP and MassDEP.	☒	☒	☒	☒	☒	MassDEP will engage with the National Estuary Program as it undertakes activities in fulfillment of Section 320 of the Clean Water Act.	Yearly
3. Fund locally led projects and increase program efficacy	1.3.a.	3.a. Identify local capacity in impaired and unimpaired/high-quality watersheds; solicit grant proposals and work with previous applicants to develop more robust proposals	MassDEP	NPS partners	Between six and 12 grantees awarded NPS funds each year	☒	☒	☒	☒	☒	In addition to the continued outreach to potential project stakeholders MassDEP will reach out to applicants from the previous granting round whose proposals had merit but did not meet the program's high expectations and will assist them to develop more robust proposals.	Yearly
	1.3.b.	3.b. Develop priorities and processes for funding large-scale NPS projects that require partnerships because they exceed the funding capacity of any single program	MassDEP	NPS partners	Multi-partner large-scale restoration or NPS watershed project	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly

Objectives	Milestone	Milestones	Agency Lead	Partners	Measure of Success	2020	2021	2022	2023	2024	FFY20 Actions	Period
3. Fund locally led projects and increase program efficacy	1.3.c.	3.c. Encourage the use of s.319 funds on projects that were designed or assessed using partner grant program funds and 604(b) funds for assessment work that supports partner-funded projects	MassDEP	NPS partners	Number of projects that build on or support partner-funded projects	☒	☒	☒	☒	☒	Two competitive proposals that were developed through the 604b Grant Program were recommended for funding in the FY2021 round.	Yearly
4. Where feasible, seek to coordinate grant funding cycles	1.4.a.	4.a. Report NPS benefits from partner grant projects	MassDEP	NPS partners	Partner grant project load reductions entered into GRTS	☒	☒	☒	☒	☒	Partner grant project load reductions entered into GRTS before the deadline.	Yearly
5. Establish geographic focus areas	1.5.a.	5.a. Support projects that continue the progress achieved through the Palmer River Watershed NWQI agricultural partnership pilot project	MassDEP	MDAR, NRCS, MACD	Provide s.319 funds to support technical staff efforts related to the Palmer River NWQI project	☒	☒	☒	☑		A Palmer River NWQI project funded through the FY2017 319 solicitation continues this effort. No competitive proposals were recommended for funding in the FY2021 round.	2023
	1.5.b.	5.b. Support the USEPA Healthy Watershed Program	MassDEP	USEPA	Fund or support project/resources in Healthy Watershed Program watersheds	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	1.5.c.	5.c. Continuously evaluate MassDEP and partner priorities, making adjustments as needed	MassDEP	NPS partners	Annual evaluation of priorities and adjustments noted in annual report to USEPA	☒	☒	☒	☒	☒	MassDEP continues evaluate priorities and report adjustments in our Annual Report to USEPA.	Yearly
	1.5.d.	5.d. Support NRCS efforts to identify additional watersheds for participation in NWQI	MassDEP	NRCS	Identification of agriculture-impaired watershed(s) and resource needs for participation in NWQI and resource availability	☒	☒	☒	☒	☒	Discussions between the MassDEP and NRCS have resulted in identifying the Westport River and the Nashua River Watersheds for participation in NWQI. Both watersheds are currently in the readiness phase. In addition, using the Recovery Potential Screening Tool, landscape metrics and the presence of priority river segments, a prioritization scheme was created which resulted in the identified the South River and Manhan River HUC12 watersheds as future NWQI watersheds.	Yearly
	1.5.e.	5.e. Prioritize s.319 funding for proposals that support the goals of the Worcester County RCPP	MassDEP	NRCS, MACD	Projects funded to support Worcester County RCPP goals	☒	☒	☒	☑		No competitive proposals were recommended for funding in the FY2021 round.	2023
6. Strengthen partnerships with state and federal agricultural programs	1.6.a.	6.a. Continue informal coordination and data sharing with NRCS that is consistent with federal Farm Bill requirements	MassDEP	NRCS	Activities reported in Annual Report	☒	☒	☒	☒	☒	We cooperate with NRCS to the extent possible. Section 1619 of the Farm Bill prohibits NRCS from disclosing where they are working or might work, and what they are doing there.	Yearly
	1.6.b.	6.b. Work to collaboratively address NPS pollution from agricultural sources through program coordination, increased communication, and technical support to producers	MassDEP	MDAR, NRCS, MACD	Signed MOU between MDAR, NRCS, MACD, MassDEP	☑					This milestone was deprioritized in the past year.	2020
	1.6.c.	6.c. Address NPS issues from agricultural sources through policy/grant coordination and implementation of nutrient regulations	MassDEP	MDAR	Identification of program changes to support MDAR and MassDEP NPS efforts	☒	☑				This milestone was deprioritized in the past year.	2021
	1.6.d.	6.d. Improve communication between MassDEP, NRCS, and MDAR regarding composting and land application of food waste and its impacts on water quality	MassDEP	MDAR, NRCS	White paper describing food waste composting water quality impacts and NPS Program activities and policy options to address	☒	☑				No competitive proposals were recommended for funding in the FY2021 round.	2021
7. Improve TMDLs	1.7.a.	7.a. NPS Program review of TMDLs to improve reasonable assurances	MassDEP		Annual report of TMDLs reviewed; NPS Program comments incorporated into final TMDL documents	☒	☒	☒	☒	☒	This milestone was deprioritized in the past year.	Yearly
Goal 2: Restore impaired waters, reduce NPS pollutants, and mitigate the effects of climate change												
1.Address urban/rural sources of NPS pollution	2.1.a.	1.a. Clearinghouse of grants/assistance for urban and rural communities	MassDEP	NPS partners	Web-based listing of grants/resources available	☒	☑				The NPS web page has been enhanced and expanded this year. Additional information will continue to be added this repository of grant-related resources. In addition a listing of financial assistance from a number EOEA agencies can be found on the web here: https://www.mass.gov/info-details/water-resources-grants-financial-assistance	2021
	2.1.b.	1.b. Coordination with Massachusetts Stormwater Program	MassDEP		Enhanced outreach/education and coordination on NPS issues related to new MS4 permit requirements	☒	☒	☒	☒	☒	Coordinate with the MassDEP's Stormwater MS4 Municipal Assistance Grant Program, and NPS staff continue to coordinate outreach and education efforts on NPS issues.	Yearly

Objectives	Milestone	Milestones	Agency Lead	Partners	Measure of Success	2020	2021	2022	2023	2024	FFY20 Actions	Period
1.Address urban/rural sources of NPS pollution	2.1.c.	1.c. Support land protection and preservation activities that improve water quality.	MassDEP	NPS partners	Funding and support for projects with a substantial land conservation component as NPS prevention and remediation	☒	☒	☒	☒	☑	No competitive proposals were recommended for funding in the FY2021 round.	2024
	2.1.d.	1.d. NPS watershed restoration projects that target water quality impairments by implementing WBPs.	MassDEP	NPS partners	A target of 6-10 NPS watershed restoration projects funded and closed each year	☒	☒	☒	☒	☒	Three competitive proposals that target water quality impairments by implementing WBPs were recommended for funding in the FY2021 round.	Yearly
	2.1.e.	1.e. Identify opportunities for NPS reduction projects in urbanized and urbanizing areas.	MassDEP	USEPA	Annual collaboration with USEPA on use of s.319 funds for projects in MS4 areas	☒	☑				One competitive proposal for work in an urbanized area was recommended for funding in the FY2021 round.	2021
2. Restore aquatic habitats	2.2.a.	2.a. Restoration of fresh and salt water habitats (e.g., dam removals, tidal flow improvement)	DER	MassDEP	Annual report describing any restoration project designed/completed	☒	☒	☒	☒	☑	Projects funded from the FY2019 319 solicitation includes dam removal from Abbey Brook, a tributary to the Chicopee River, and restored tidal flow which flows into the Namskaket salt marsh and estuary. No competitive proposals were recommended for funding in the FY2021 round.	2024
3. Encourage increased local actions to address NPS pollution	2.3.a	3.a Promote and support the development of stormwater utilities	MassDEP	CWSRF	Solicitation of s.319 and CWSRF projects that promote and support the development of stormwater utilities (e.g., development of feasibility studies, rate structure studies)	☒	☒	☒	☒	☒	Project funded through the FY2018 319 solicitation included stormwater utility development work. As stormwater utilities can be funded through the MassDEP's 604b and Stormwater MS4 Municipal Assistance Grant Program they were not solicited in FFY2021 319 granting round.	Yearly
4. Target resources to critical watersheds	2.4.a.	4.a. Continuous evaluation of MassDEP and partner NPS priorities	MassDEP	USEPA	Evaluation of priorities in Annual Report to USEPA and workplan	☒	☒	☒	☒	☒	The Annual Report for FY2019, with an evaluation of program priorities, was submitted on November 22, 2019.	Yearly
	2.4.b.	4.b. State-wide/program-wide key NPS priority development	NPS partners		List of key partner priorities that are common to all state NPS partner grant programs	☒	☒	☒	☒	☒	While an enumerated list of key partner priorities was not created formally, MassDEP through meetings with partners looked to find shared goals, priorities and targeted geographic areas.	Yearly
5. Mitigate the effects of airborne NPS pollution	2.5.a.	5.a. Encourage the use of alternative and innovative energy practices	NPS partners		Inclusion of alternative and innovative energy practices in at least one SRF-funded project per year	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
6. Promote new regulations and existing programs to increase infiltration, improve stormwater management, and protect groundwater	2.6.a.	6.a. Enhance groundwater recharge and protection of critical surface and subsurface water supplies	MassDEP	SWMI, NPS Partners	SWMI projects funded as match for s.319	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	2.6.b.	6.b. Promote model ordinances, innovative community approaches	MassDEP	EEA	Continue to promote webpage devoted to successful local rules, regulations, ordinances, utilities, or other methods to address or correct activities that contribute to NPS pollution	☒	☒	☒	☒	☒	NPS Program continues to update and enhance existing content, as well as to add new and supportive information.	Yearly
7. Promote/assist development of complete WBPs to guide NPS watershed projects	2.7.a.	7.a. Reevaluate the current Massachusetts WBP template and improve as needed to address USEPA priorities	MassDEP	USEPA	Update WBP template as needed to continue supporting development of complete (nine-element) WBPs; a completed WBP will be required for each s.319 NPS watershed restoration project (estimated 6–10 per year)	☒	☒	☒	☒	☒	A project funded through the FY2018 319 solicitation revised and enhanced the online WBP template, and will continue to complete technically robust WBPs for numerous implementation projects. Contractor has created checklists for NPS Staff to do a preliminary review of submitted watershed based plans and a complete review of plans submitted for approval.	Yearly
	2.7.b.	7.b. Support NPS coordinator positions in Regional Planning Agencies to facilitate development of WBPs	MassDEP	Regional Planning Agencies	Completed and approved WBPs to support s.319 watershed restoration projects awarded annually	☒	☒	☒	☒	☒	Three projects were funded in FY2020 and another was recommended for funding in the FY2021 round.	Yearly
8.Support and promote watershed planning by NPS partner agencies	2.8.a.	8.a. Work with state and federal partners to support the LISS to reduce nitrogen loadings	MassDEP		Continued participation by MassDEP as a member of the LISS Program Management Committee	☒	☒	☒	☒	☒	MassDEP staff has continued participation as able.	Yearly
9. Work to address NPS pollution from onsite wastewater systems	2.9.a.	9.a. Advance the work of MASSTC	MassDEP	MASSTC	Publication of septic system advances and technology designed to reduce NPS pollution and improve effectiveness of treatment	☒	☒	☒	☒	☒	A project funded from the FY2019 319 solicitation continues to validate cost-effective Best Management Practices for protecting freshwater resources from phosphorus and pathogen inputs from onsite septic systems. No competitive proposals were recommended for funding in the FY2021 round.	Yearly

Objectives	Milestone	Milestones	Agency Lead	Partners	Measure of Success	2020	2021	2022	2023	2024	FFY20 Actions	Period
10. Address NPS pollution from forestry operations	2.10.a	10.a. Continued implementation of the Massachusetts Forest Cutting Practices Act and its coordination with Wetlands Protection Program performance standards	DCR		Massachusetts Forest Cutting Practices Act permits issued, including filing of a Forest Cutting Plan with DCR	☒	☒	☒	☒	☒	DCR is the lead agency managing Massachusetts Forest Cutting Practices Act permits.	Yearly
11. Address NPS pollution from landfills, contaminated areas, and waste management sites	2.11.a	11.a. Continued implementation of the Massachusetts Superfund Law (MGL Chapter 21E), the Massachusetts Solid Waste Facility Regulations (310 CMR 19:00), and Regulations for Land Application of Sludge and Septage (310 CMR 32:00)	MassDEP, USEPA		Permits issued and site remediation activities implemented (for 21E sites) pursuant to the regulations listed under Milestone 12.a	☒	☒	☒	☒	☒	MassDEP Bureau of Waste Site Cleanup and EPA are the lead agencies managing permits and site remediation.	Yearly
12. Address NPS pollution from natural resource extraction sites	2.12.a	12.a. Continued implementation of the federal CWA, Sections 401, 402, and 404.	MassDEP, USEPA,	USACE	Permits issued for natural resource extraction sites pursuant to federal CWA, Sections 401, 402, and 404	☒	☒	☒	☒	☒	MassDEP staff provide comments and input to permits issues for natural resource extraction sites pursuant to federal CWA, Sections 401, 402, and 404.	Yearly
13. Address NPS nutrient pollution and harmful algal blooms	2.13.a	13.a. Prioritize projects in waterbodies with routine cyanobacteria issues	MassDEP	DCR, NPS Partners	List of waters with routine cyanobacteria issues; funded projects to address nutrients/harmful algal blooms	☒	☒	☒	☒	☒	The most recent 604b and 319 solicitations did not include a list of waters with routine cyanobacteria issues. MassDEP intends to include waters with routine cyanobacteria issues within its annual prioritization included in future grant solicitations. No competitive proposals dealing with cyanobacteria issues were recommended for funding in the FY2021 round.	Yearly
Goal 3: Protect healthy and threatened waters through planning, education, program coordination, and implementation of climate-ready BMPs												
1. Identify unimpaired/high-quality and threatened waters	3.1.a.	1.a. Align NPS Program and partner priorities for unimpaired waters	MassDEP	NPS Partners	List of priority unimpaired/high-quality and threatened waters included in annual s.319 and 604(b) solicitations; other output from Recovery Roundtable	☒	☒	☒	☒	☒	NPS staff have generated a list of priority unimpaired/high quality and threatened waters to be included in future grant solicitations. No competitive proposals were recommended for funding in the FY2021 round.	Yearly
2.Incentivize work in unimpaired/high-quality watersheds	3.2.a.	2.a. Continue support for s.319 projects that support the Healthy Watersheds Program and protection of unimpaired/high-quality and threatened waters	MassDEP	USEPA	Number of projects funded to support Healthy Watershed Program and protection of unimpaired/high-quality waters	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	3.2.b.	2.b. Solicit projects focused on protection of unimpaired/high-quality waters	MassDEP	CWSRF	Formal solicitation in 604(b) and 319 RFRs	☒	☒	☒	☒	☒	No competitive 319 grant proposals were recommended for funding in the FY2021 round.	Yearly
3. Incorporate protection into watershed planning	3.3.a.	3.a. Promote the development of alternative WBPs to support the Healthy Watershed Program and protection of unimpaired/high-quality waters	MassDEP	USEPA	Development of one alternative WBP	☒	☒	☒	☒	☑	One watershed based plan was developed for a 2017 319 project	2024
4. Develop criteria, methods, and program approaches to protecting water quality	3.4.a.	4.a. Pilot test new initiatives to protect unimpaired/high-quality waters	MassDEP	NPS partners	Establish a pilot watershed for statewide NPS partner actions, based on the 2017 USEPA Preliminary Healthy Watersheds Assessments state-specific dataset	☒	☒	☒	☑		Efforts to support healthy watershed activities are ongoing.	2023
	3.4.b.	4.b. Determine the success of the pilot initiatives	MassDEP	NPS Partners	Restoration/protection of at least one unimpaired or high-quality water	☒	☒	☒	☒	☑	Not applicable.	2024
5. Engage local partners on climate change adaptation, resiliency planning, and protection of healthy waters	3.5.a.	5.a. Educate partners and stakeholders through on-the-ground projects showcasing climate change adaptation principles in healthy watersheds	MassDEP	Regional Planning Agencies	Projects funded in support of Regional Planning Agency outreach and education work	☒	☒	☒	☒	☒	Three projects funded through the FY2020 319 solicitation continue this effort. One competitive proposal was recommended for funding in the FY2021 round.	Yearly
6. Promote and support land conservation efforts	3.6.a.	6.a. Engage conservation organizations involved with land protection efforts with NPS-focused education/outreach	MassDEP	Conservation organizations	Education materials to support conservation projects in watersheds with identified healthy waters	☒	☒	☒	☒	☑	Efforts towards this activity are ongoing.	2024
6. Promote and support land conservation efforts	3.6.b.	6.b. Support land protection and preservation in watersheds with unimpaired/high-quality waters, including drinking water sources and groundwater zones	MassDEP		Funding criteria and priorities for Section 319 eligible projects	☒	☑	☐	☐	☐	MassDEP has worked to create funding criteria and priorities for eligible projects. This prioritization framework is currently under internal review. No competitive proposals were recommended for funding in the FY2021 round.	2021
7. Work to assess and protect watershed stream stability	3.7.a.	7.a. Support projects that protect and enhance watershed stability, restore streams, and use geomorphic data to create long-term viable solutions to stream stability	MassDEP		Target funding for at least one NPS watershed project each year that supports this objective	☒	☒	☒	☒	☑	No competitive proposals were recommended for funding in the FY2021 round.	2024

Objectives	Milestone	Milestones	Agency Lead	Partners	Measure of Success	2020	2021	2022	2023	2024	FFY20 Actions	Period
8. Promote and support NPS pollution prevention on forest lands	3.8.a.	8.a. Provide technical assistance and outreach efforts to the forest cutting community	DCR		Annual summary of technical assistance and outreach efforts provided through the DCR Forest Stewardship Program	☒	☒	☒	☒	☒	DCR is the lead agency managing the Forest Stewardship Program.	Yearly
Goal 4: Monitor waters for NPS impairments and improvements to prioritize actions, measure success, and increase program efficacy												
1. Establish methods to categorize and assess unimpaired/high-quality waters	4.1.a.	1.a. Use consistent methodologies for identifying unimpaired/high-quality waters	MassDEP	NPS partners	Methodology for NPS project prioritization for unimpaired/high-quality waters refined as needed	☒	☒	☑			MassDEP has used the Recovery Potential Screening Tool to identify priority healthy waterbodies. In addition, through conversations with our partners we incorporate their suggestions and feedback as appropriate.	2022
	4.1.b.	1.b. NPS partner monitoring programs help assess and identify unimpaired/high-quality waters	MassDEP	NPS partners	Maintain WPP data portal for uploading third party sampling information	☒	☒	☒	☑		WPP continues to maintain an external data database suitable for use in organization and evaluating water quality data submissions.	2023
2. Integrate NPS monitoring needs into MassDEP monitoring programs	4.2.a.	2.a. Advance selection of watersheds for baseline monitoring	MassDEP		Selection factors developed to identify watersheds, set priorities, and evaluate needed resources for baseline and follow-up monitoring	☒	☒	☑			NWQI watersheds are the highest priority for baseline monitoring.	2022
	4.2.b.	2.b. Post-implementation monitoring to assess water quality improvements	MassDEP		Evaluation of program needs/available resources	☒	☒	☒	☒	☒	Not applicable.	Yearly
	4.2.c.	2.c. Monitoring in the Palmer River Watershed in support of the NWQI project	MassDEP		Continue bacteria source tracking in the Palmer River watershed	☒	☒	☒	☒	☒	Bacteria source tracking in the Palmer River watershed continued through 2019. MassDEP SERO staff continues to coordinate with EPA and provide data, insight and expertise as able.	Yearly
3.Assess existing data and report on water quality improvements	4.3.a.	3.a. Clarification of delisting requirements	MassDEP	USEPA	Mutually accepted process for the research and development of USEPA Success Stories; develop one or more Success Stories annually	☒	☒	☒	☑		The 319 program developed two Success Stories for EPA review, one of which was successfully submitted by EPA.	2023
	4.3.b.	3.b. Identification of watersheds that are likely to show water quality improvements as a result of watershed-focused improvement activities	MassDEP		List of waterbodies likely to show measurable improvements due to watershed-based improvement activities	☒	☒	☒	☒	☒	List of waterbodies likely to show measurable improvements due to watershed-based improvement activities included in the FY2021 solicitation. One proposal that includes work on an identified waterbody has been recommended for funding.	Yearly
	4.3.c.	3.c. Annually assess selected watersheds for possible follow-up success story monitoring (e.g., review existing data and information to determine if additional monitoring is recommended)	MassDEP		Develop and implement monitoring plan to assess changes in water quality attributable to NPS implementation activities	☒	☒	☒	☒	☒	The NPS program currently does not have the staffing to meet this milestone but is investigating the feasibility of seasonal staff to conduct monitoring.	Yearly
	4.3.d.	3.d. Assessment of water quality data by DWM-WPP to determine if improvements in water quality have occurred in watersheds with NPS-focused water quality improvement activities	MassDEP		At least one USEPA success story submitted to and accepted by USEPA annually, if possible	☒	☒	☒	☒	☒	USEPA Success Story submitted to the USEPA annually. This year's success story features Martins Pond Brook in Groton which was delisted for sediment, turbidity, organic enrichment, and low dissolved oxygen after the implementation of a NRCS conservation plan, purchase of a conservation restriction, and purchase of land for protection.	Yearly
	4.3.d				At least one success story documenting a NPS-impaired waterbody that has been partially or fully restored over the next five years, if possible	☒	☒	☒	☒	☒	Not applicable.	Yearly
	4.3.e.	3.e. Continue the Massachusetts Effectiveness Monitoring Program (MEMP)	MassDEP		Number of impaired waterbodies monitored for effectiveness of NPS projects	☒	☒	☒	☒	☒	No waterbodies were sampled by WPP for effectiveness monitoring. Monitoring activities were affected by the Covid-19 pandemic.	Yearly
4. Improve resource allocation to meet mandates	4.4.a.	4.a. Coordination on CWA monitoring requirements, resource allocations, and NPS monitoring priorities	MassDEP	USEPA	Negotiate additional monitoring resources and an enhanced NPS monitoring program, including NWQI monitoring	☒	☒	☑			The WPP monitoring program has not allocated resources to meet this milestone in the past year.	2022

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5. Determine impacts of NPS pollution sources	4.5.a.	5.a. Conduct water quality monitoring programs in selected watersheds to identify impacts of NPS pollution sources	MassDEP		Water quality monitoring programs conducted in selected watersheds to identify impacts of NPS pollution sources	☒	☒	☒	☒	☒	See Milestone 4.2.c.above.	Yearly
	4.5.b.	5.b. Monitoring and assessment activities in 604(b) and s.319 projects to support identification of NPS pollution sources	MassDEP	604(b) and s.319 grantees	Develop and implement 604(b) and s.319 monitoring and assessment project monitoring plans to identify and assess NPS pollution sources in watersheds with WBPs	☒	☒	☒	☒	☒	See 604b Annual Reports and Workplans which highlight recent monitoring and assessment projects.	Yearly
6. Increase use of volunteer data in the assessment of the scope and extent of NPS pollution	4.6.a.	6.a. Organize current volunteer monitoring efforts and expand through guidance, technical support, and leveraging of resources	MassDEP		Increased availability of QAPP or QAPP-equivalent data that can be used by MassDEP in the assessment of the scope and extent of NPS pollution	☒	☒	☒	☒	☑	1) The SFY2020 state budget included up to $200,000 for contractual assistance to provide technical support for surface water quality monitoring and associated lab analysis. Contracts were issued to watershed organizations, academic institutions, and others with capacity for surface water quality monitoring. This increased the availability of QAPP or QAPP-equivalent data that can be used by MassDEP in the assessment of the scope and extent of NPS pollution. WPP staff performed external data reviews for external data submitted to WPP. 2) An additional $250,000 has been allocated to develop a water quality monitoring application, AquaQAPP; a web-based application generates tailored QAPPs. It is intended to support citizen monitoring groups by helping to improve the quality and streamline the process for reporting citizen-generated water quality monitoring data. The application will also allow for data sharing via the EPA's Water Quality Exchange.	2024
7. Improve data sharing among NPS partners and the public	4.7.a.	7.a. Support improved data sharing between the NPS Program and BWR programs	MassDEP		Annual report describing results of data sharing to identify success story candidates, priority projects, and other program priorities	☒	☒	☒	☒	☒	A formal annual report was not created but MassDEP has compiled a list of segments and grant funding (319, 604b, SRF) to help identify potential success stories.	Yearly
	4.7.b.	7.b. Support improved access to MassDEP data and MassDEP's use of external data through use of USEPA's WQX and WQP	MassDEP		Migrate all compatible water quality monitoring data to WQP and standardize use of WQP for storing new data	☒	☒	☒	☒	☑	WPP continues to invest resources and time in a water quality database capable of migrating data to relevant EPA portals and database systems.	2024
8. Improve statewide coordination of NPS monitoring activities	4.8.a.	8.a. Coordinate NPS monitoring needs and activities with NPS partners through EEA	MassDEP	EEA	Work with EEA to develop a pathway for coordination of monitoring needs and activities	☒	☒	☒	☒	☑	This milestone was deprioritized in the past year.	2024
Goal 5: Instill, encourage, and nurture a passion for restoring water quality through education, capacity building, and building new partnerships												
1. Communicate grant successes to spark further actions	5.1.a.	1.a. Collection of data on grant successes for education/outreach	MassDEP	NPS partners	Annual publication and update of 319 and 604(b) project indicative summaries	☒	☒	☒	☒	☒	Annual publication and update of 319 and 604(b) project indicative summaries. Links available here: https://www.mass.gov/files/documents/2018/05/23/319summ.pdf https://www.mass.gov/files/documents/2018/12/04/idsum604.pdf	Yearly
	5.1.b.	1.b. MassDEP will develop/disseminate an NPS Annual Report for the public and other stakeholders, which will include project descriptions and photos of ongoing and recently completed projects	MassDEP		Annual report highlighting successes and completed project overviews	☒	☒	☒	☒	☒	The Annual Report for FY2019 was submitted on November 22, 2019.	Yearly
	5.1.c.	1.c. CZM will continue to provide mid-year project summaries and end-of-year project reports to NOAA for the CPR grant program; in addition, CZM will also develop an indicative project summaries informational document for the CPR program and post it on the CZM website	CZM		Mid-year project summaries and end-of-year project reports to NOAA; indicative project summaries for the CPR Program posted to the CZM website	☒	☒	☒	☒	☒	CZM continues to meet their obligations to NOAA and include project summaries on their webpage (https://www.mass.gov/service-details/coastal-pollutant-remediation-cpr-grant-program).	Yearly
2. Engage the public in setting priorities	5.2.a.	2.a. Stakeholder meetings/forums to gather input	MassDEP		Annual public stakeholder listening session	☒	☒	☒	☒	☒	The MassDEP hosted a public pre-RFR informational meeting on March 5 2020.	Yearly
	5.2.b.	2.b. Communicate NPS-focused information to stakeholders	MassDEP	NPS partners	Continue to augment email list with information submitted by NPS partners	☒	☒	☒	☒	☒	The NPS Program Plan continues to reach out via the MassDEP's Watershed Planning Program's expanding email list.	Yearly
	5.2.c.	2.c. Project success presentations, hosted by grant recipients	MassDEP		At least one presentation annually that highlights a completed, successful s.319-grant-funded project	☒	☒	☒	☒	☒	On November 1, 2019, Barnstable County staff gave an explanation of their project to the Cape Cod Health Agents Coalition.	Yearly

Objectives	Milestone	Milestones	Agency Lead	Partners	Measure of Success	2020	2021	2022	2023	2024	FFY20 Actions	Period
3. Educate the public and increase the capacity of NPS partners	5.3.a.	3.a. Maintain the existing MassDEP 319 website	MassDEP		Annual evaluation of website and continued improvement with additional information on partner programs, information on grant opportunities, and education materials	☒	☒	☒	☒	☒	MassDEP works on this as a continuous process.	Yearly
	5.3.b.	3.b. Targeted education to unique population segments and types of NPS pollution sources, such as environmental justice communities and hobby farms	MassDEP	NPS partners	Report on NPS pollution sources and activities with recommendations for targeted education approaches	☒	☒	☒	☒	☒	Two competitive proposals with targeted agricultural education approaches were recommended for funding in the FY2021 round.	Yearly
	5.3.c.	3.c. Continue efforts to educate on climate change and NPS	EEA	MassDEP	Publication of Massachusetts state agency reports related to climate change adaptation, including the linkage to NPS pollution; continued work by state-agency-led action groups devoted to addressing climate change	☒	☒	☒	☒	☒	This is a continued initiative at MassDEP.	Yearly
	5.3.d.	3.d. Expand/update the Massachusetts Clean Water Toolkit to include green infrastructure practices	MassDEP		Updated online web-based Clean Water Toolkit manual	☑	☐	☐	☐	☐	This milestone was deprioritized in the past year. While efforts to update the Massachusetts Stormwater Handbook are underway the timing is not right for this initiative. The NPS program will revisit this milestone in the future.	2020
4. Engage new partners to address NPS pollution	5.4.a.	4.a. Incorporate statewide climate change plans into MassDEP NPS Program	MassDEP	EEA	Continued MassDEP involvement in EEA climate change workgroup	☒	☒	☒	☒	☒	MassDEP staff is engaged with a number of climate change initiatives within EEA.	Yearly
	5.4.a.	4.a. Incorporate statewide climate change plans into MassDEP NPS Program	MassDEP	EEA	NPS Program, TMDL, and other program guidance materials revised as necessary to incorporate EEA climate change plans	☒	☒	☒	☒	☒	The NPS Program RFR solicits projects that are climate-ready, and healthy watersheds projects include climate preparedness and resiliency work.	Yearly
	5.4.b.	4.b. Incorporate groundwater protection/recharge into watershed planning and implementation activities	MassDEP	CWSRF	Number of projects funded and implemented	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	5.4.c.	4.c. Encourage land trusts to participate in protection of healthy watersheds/high-quality and unimpaired watershed protection	MassDEP	MA Land Trust Coalition (MLTC)	Land conservation project incorporating healthy watershed priority area	☒	☒	☒	☒	☒	No competitive proposals were recommended for funding in the FY2021 round.	Yearly
	5.4.d.	4.d. Ongoing participation on the Agricultural Commissions/State Pesticide Board	MassDEP	MDAR	Coordination agreement on NPS information sharing/education	☒	☒	☒	☒	☒	MassDEP staff as able participate in the State Pesticide Board.	Yearly
5. Integrate the state NPS Plan into education and outreach activities	5.5.a.	5.a. Report on success and challenges related to progress on NPS Plan goals, objectives, and milestones	MassDEP		Section of Annual Report to USEPA devoted to NPS Plan updates, submitted each year	☒	☒	☒	☒	☒	Section of Annual Report to USEPA devoted to NPS Plan updates, submitted each year.	Yearly
	5.5.b.	5.b. Revise the state NPS Plan to reflect successes, challenges, and new program directions	MassDEP	NPS partners	Annual revisions through workplans, and an approved NPS Management Program Update for the next cycle (including milestones for 2025–2029) to be in place by October 1, 2024	☒	☒	☒	☒	☑	Workplans are revised yearly.	2024
6. Improve data quality	5.6.a.	6.a. Development of common data collection/analysis procedures	MassDEP	NPS partners	NPS partner monitoring programs use a single QA/QC plan for all NPS water quality data collection	☒	☒	☒	☒	☑	This milestone was deprioritized in the past year.	2025