Nonpoint Source Management Program 2020 Annual Report

Contact: Matthew Reardon, NPS Program Manager
Bureau of Water Resources-Watershed Planning Program
Email: matthew.reardon@mass.gov
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.
# Table of Contents

Executive Summary ......................................................................................................................... 2  
Table of Contents ............................................................................................................................. 3  
I. Introduction ..................................................................................................................................... 5  
II. 2020 Highlights – NPS Management Program ........................................................................... 6  
III. Massachusetts NPS Management Program ................................................................................ 8  
   A. Overview .................................................................................................................................... 8  
   B. Restoring Impaired Waters ......................................................................................................... 8  
   C. NPS Pollutant Load Reductions .................................................................................................. 9  
   D. Section 319 Grant Administration ............................................................................................ 9  
   E. Expenditure of Funds ............................................................................................................... 10  
IV. Massachusetts NPS Program Activities in 2020 ........................................................................ 13  
   A. Partnerships ............................................................................................................................... 13  
   B. Prioritization ............................................................................................................................. 14  
   C. Healthy Watersheds .................................................................................................................. 14  
   D. Grant Awards Issued in 2020 .................................................................................................... 14  
III. Summaries of NPS Projects Completed in 2020 ........................................................................ 16  
   Internal Phosphorous Load Inactivation for Lake Attitash #18-01/319 ........................................... 17  
   Stormwater Fee Development for Westford’s Stormwater Management Master Plan #18-04/319 .... 19  
   Phase I Implementation of Bellingham’s Subwatershed Management plan #18-05/319 ............... 21  
   Knob Hill Road Storm Drainage Improvements #18-08/319 ......................................................... 23  
VI. Summaries of Active NPS Projects ............................................................................................ 25  
   ACPP Technical Providers for the Palmer River Watershed- Part 2 #17-04/319 ......................... 26  
   Revision of Massachusetts Watershed-based Plans #18-02/319 ................................................... 28  
   Franklin Public - Private Partnership for Stormwater GI#18-03/319 ........................................... 30  
   Pequit and Beaver Brook BMP Retrofit Project #18-06/319 ....................................................... 32  
   Crosby Lane Stormwater Treatment and Salt Marsh Restoration #18-07/319 ......................... 34  
   Armory Village Green Infrastructure Project #18-09/319 ......................................................... 36  
   Stormwater Management and Stream Restoration for Water Quality in Lower Abbey Brook #19-01/319 ................................................................. 38  
   Reducing Phosphorous Impacts from Septic Systems Near Freshwater Lakes and Ponds - Defining Best Management Practices #19-02/319 ................................................................. 40  
   Stormwater Mitigation at Aberjona River in Winchester #19-03/319 ........................................ 42  
   Beaver Meadow Brook BMP Retrofit Project #19-04/319 ......................................................... 44  
   Avon Town Hall Green Infrastructure Demonstration Project #19-05/319 ............................... 46  
   Westport River Agricultural Nonpoint Source Program #19-06/319 ...................................... 48  
   Regional Nonpoint Source Coordinator Initiative: A Proposal for Franklin County Project#20-01/319 ................................................................. 50  
   Fearing Brook Floodplain Creation Project #20-02/319 ......................................................... 52  
   Stormwater BMPs: Sevenmile River Watershed Project #20-03/319 ....................................... 54  
   Berkshire County Regional Nonpoint Source Coordinator Project #20-04/319 ....................... 56  
   Massachusetts Nonpoint Source Grant Guidebook Project #20-05/319 .................................... 58
A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience Project #20-06/319 .................................................. 60
Reducing Nonpoint Source Pollution from Two Equine Facilities through Implementation, Remediation, and Education of Selected BMPs Project #20-07/319 ........................................................................................................... 62
Appendices .................................................................................................................................................. 64
Appendix A. FFY 2020 Selected Projects .................................................................................................. 64
Appendix B. NPS Grant Projects Closed in 2020 ...................................................................................... 65
Appendix C. Active NPS Grant Projects .................................................................................................. 66
Appendix D. Matrix of NPS Plan Goals, Objectives, and Milestones ......................................................... 68
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.


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.
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-
C. NPS Pollutant Load Reductions

Grants Reporting and Tracking System (GRTS) is a comprehensive EPA database of NPS program information 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

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

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

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

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

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>Grantee</th>
<th>Grant $</th>
<th>Match $</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-01/319</td>
<td>Regional Nonpoint Source Coordinator – Franklin County</td>
<td>Franklin Regional Council of Governments</td>
<td>100,000</td>
<td>81,075</td>
</tr>
<tr>
<td>20-02/319</td>
<td>Fearing Brook Floodplain Creation Project</td>
<td>Town of Amherst</td>
<td>276,549</td>
<td>188,285</td>
</tr>
<tr>
<td>20-03/319</td>
<td>Stormwater BMPs: Sevenmile River Watershed</td>
<td>Town of Spencer</td>
<td>88,200</td>
<td>60,300</td>
</tr>
<tr>
<td>20-04/319</td>
<td>Berkshire County Regional Nonpoint Source Coordinator</td>
<td>Berkshire Regional Planning Commission</td>
<td>100,000</td>
<td>66,667</td>
</tr>
<tr>
<td>20-05/319</td>
<td>Nonpoint Source Pollution Grant Guidebook</td>
<td>Comprehensive Environmental Inc</td>
<td>75,285</td>
<td>50,250</td>
</tr>
<tr>
<td>20-06/319</td>
<td>A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience</td>
<td>Pioneer Valley Planning Commission</td>
<td>100,000</td>
<td>66,667</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>1,026,704</td>
<td>704,639</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Phosphorous Load Inactivation for Lake Attitash (18-01/319)</td>
<td>17</td>
</tr>
<tr>
<td>Stormwater Fee Development for Westford’s Stormwater Management Master Plan (18-04/319)</td>
<td>19</td>
</tr>
<tr>
<td>Phase I Implementation of Bellingham’s Subwatershed Management Plan (18-05/319)</td>
<td>21</td>
</tr>
<tr>
<td>Knob Hill Road Storm Drainage Improvements (18-08/319)</td>
<td>23</td>
</tr>
</tbody>
</table>
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

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
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.

CONTACT INFORMATION:

Robert Desmarais  
PE, Director of Public Works, Project Manager  
(978) 388-8116  
rob@amesburyma.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.
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.

CONTACT INFORMATION:
Paul Starratt
Town Engineer, Town of Westford, Project Manager
(978) 399-2716
pstarratt@westfordma.gov

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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

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.

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.

CONTACT INFORMATION:

Donald DiMartino  
DPW Director, Project Manager  
508 966-5813  
ddimartino@bellinghamma.org

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

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.

CONTACT INFORMATION:

Christopher Rembold
Project Manager Assistant Town Manager / Director of Planning and Community Development
413 528-1619 x 7
crembold@townofgb.org

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPP Technical Providers for the Palmer River Watershed- Part 2</td>
<td>26</td>
</tr>
<tr>
<td>Revision of Massachusetts Watershed-based Plans</td>
<td>28</td>
</tr>
<tr>
<td>Franklin Public- Private Partnership for Stormwater GI</td>
<td>30</td>
</tr>
<tr>
<td>Pequit and Beaver Brook BMP Retrofit Project</td>
<td>32</td>
</tr>
<tr>
<td>Crosby Lane Stormwater Treatment and Salt Marsh Restoration</td>
<td>34</td>
</tr>
<tr>
<td>Armory Village Green Infrastructure Project</td>
<td>36</td>
</tr>
<tr>
<td>Stormwater Management and Stream Restoration for Water Quality in Lower Abbey Brook</td>
<td>38</td>
</tr>
<tr>
<td>Reducing Phosphorous Impacts from Septic Systems Near Freshwater Lakes and Ponds-Defining Best Management Practices</td>
<td>40</td>
</tr>
<tr>
<td>Stormwater Mitigation at Aberjona River in Winchester</td>
<td>42</td>
</tr>
<tr>
<td>Beaver Meadow Brook BMP Retrofit Project</td>
<td>44</td>
</tr>
<tr>
<td>Avon Town Hall Green Infrastructure Demonstration Project</td>
<td>46</td>
</tr>
<tr>
<td>Westport River Agricultural Nonpoint Source Program</td>
<td>48</td>
</tr>
<tr>
<td>Regional Nonpoint Source Coordinator Initiative: A Proposal for Franklin County</td>
<td>50</td>
</tr>
<tr>
<td>Fearing Brook Floodplain Creation</td>
<td>52</td>
</tr>
<tr>
<td>Stormwater BMPs: Sevenmile River Watershed</td>
<td>54</td>
</tr>
<tr>
<td>Berkshire County Regional Nonpoint Source Coordinator</td>
<td>56</td>
</tr>
<tr>
<td>Massachusetts Nonpoint Source Grant Guidebook</td>
<td>58</td>
</tr>
<tr>
<td>A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community</td>
<td>60</td>
</tr>
<tr>
<td>Reducing Nonpoint Source Pollution from Two Equine Facilities through Implementation, Remediation, and Education of Selected BMPs</td>
<td>62</td>
</tr>
</tbody>
</table>
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

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.
CONTACT INFORMATION:

Michael Leff
Executive Director, Project Manager
413-326-6353
MLefMACD@gmail.com

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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.
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.

CONTACT INFORMATION:

Adam Questad  
Water Resources Engineer  
978-263-9588  
AQuestad@Geosyntec.com

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
Franklin Public - Private Partnership for Stormwater GI #18-03/319

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

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.
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.

CONTACT INFORMATION:

Robert Cantoreggi  
Project Manager  
508 520-4910  
rcantoreggi@franklin.ma.us

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

CONTACT INFORMATION:

Michael Trotta
DPW Superintendent, Project Manager
mtrotta@town.canton.ma.us
(781) 821-5023

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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

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.
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.

CONTACT INFORMATION:

Patrick Ellis  
Director, Department of Public Works, Town of Brewster, Project Manager  
508 896-3212  
pellis@brewster-ma.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

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.

CONTACT INFORMATION:

Laurie Conners  
Millbury Director of Planning and Development  
508 865-4754  
lconnors@townofmillbury.net  

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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:
Stormwater 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.
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.

CONTACT INFORMATION:

Lee Pouliot  
Planning Director, Project Manager  
413 594-1516  
lpouliot@chicopeema.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov

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 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.

CONTACT INFORMATION:

George Heufelder
Project Manager
508 375-6616
gheufelder@barnstablecounty.org

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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

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.
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.

CONTACT INFORMATION:

Patrick Herron  
Executive Director, Project Manager  
(781) 316-3438  
patrick@mysticriver.org

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

CONTACT INFORMATION:

Craig Horsfall  
Assistant Town Engineer, Project Manager  
(781) 341-1300 x 9264  
chorsfall@stoughton-ma.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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 daylighted 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:

- 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.

CONTACT INFORMATION:

William Fitzgerald  
DPW Director, Project Manager  
508 588-0414  
wfitzgerald@avon-ma.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
**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

**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.
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.

<table>
<thead>
<tr>
<th>Mixed Vegetables</th>
<th>Dairy</th>
<th>Equine</th>
<th>Cattle</th>
<th>Mixed Livestock</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Grassed Waterway</td>
<td>• CNMP</td>
<td>• Gutters</td>
<td>• CNMP</td>
<td>• Fencing</td>
</tr>
<tr>
<td>• Surface Drain</td>
<td>• Surface Drain</td>
<td>• Fencing</td>
<td>• Stream Crossing</td>
<td>• Stream Crossing</td>
</tr>
<tr>
<td>• Irrigation Pump</td>
<td>• HUA Roofing</td>
<td>• Subsurface Drains</td>
<td>• Roof Bedded Pack</td>
<td>• Roof Bedded Pack</td>
</tr>
<tr>
<td>• Reception Pit</td>
<td>• Fencing</td>
<td>• Manure Storage</td>
<td>• Subsurface Drains</td>
<td>• Roof Runoff</td>
</tr>
<tr>
<td></td>
<td>• Leachate and Milk House Waste Filtering</td>
<td></td>
<td>• Roof Bedded Pack</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Manure Storage</td>
<td></td>
<td>• Roof Runoff</td>
<td></td>
</tr>
</tbody>
</table>

Farm conservation measures

CONTACT INFORMATION:

Michael Leff  
Executive Director, Project Manager  
413-326-6353  
MLeffMACD@gmail.com

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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.

CONTACT INFORMATION:

Kimberly Noake MacPhee  
Land Use & Natural Resources Planning Program Manager  
413 774 3167  
KMacPhee@frcog.org

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

CONTACT INFORMATION:

David Ziomek  
Assistant Town Manager  
413 259-3122  
ziomekd@amherstma.gov

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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

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.

CONTACT INFORMATION:

Lee Pouliot
Director – Planning & Development
413-594-1482
lpouliot@chicopeema.gov

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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.

CONTACT INFORMATION:

Melissa Provencher  
Environmental & Energy Program Manager  
413 442-1521  
mprovencher@berkshireplanning.org

Malcolm Harper  
MassDEP 319 Nonpoint Source Program Coordinator  
Malcolm.harper@mass.gov
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.
CONTACT INFORMATION:

Robert M. Hartzel
Project Manager, Principal
508 281-5201
rhartzel@ceiengineers.com

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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

CONTACT INFORMATION:

Patty Gambarini
Senior Environmental Planner/Section Manager
413 781-6045
pgambarini@pvpc.org

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov
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.

CONTACT INFORMATION:

Masoud Hashemi
Extension professor and Nutrient Management Specialist
413-545-1843
masoud@umass.edu

Malcolm Harper
MassDEP 319 Nonpoint Source Program Coordinator
Malcolm.harper@mass.gov

Potential BMPs at Moonlit Farm, Belchertown
# Appendices

## Appendix A. FFY 2020 Selected Projects

### Table 7. Projects recommended for the FFY2020 Work plan

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

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

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

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Project Number</th>
<th>Grantee</th>
<th>Grant Amount ($)</th>
<th>Non-Federal Match ($)</th>
<th>Planned Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACPP Technical Providers for the Palmer River Watershed - Part 2</td>
<td>17-04/319</td>
<td>Massachusetts Association of Conservation Districts (MACD)</td>
<td>505,900</td>
<td>218,500</td>
<td>December 2020</td>
</tr>
<tr>
<td>Revision of Massachusetts Watershed-based Plans</td>
<td>18-02/319</td>
<td>Geosyntec Consultants Inc.</td>
<td>219,224</td>
<td>103,957</td>
<td>June 2021</td>
</tr>
<tr>
<td>Franklin Public - Private Partnership for Stormwater GI</td>
<td>18-03/319</td>
<td>Town of Franklin</td>
<td>125,000</td>
<td>85,220</td>
<td>June 2021</td>
</tr>
<tr>
<td>Pequot and Beaver Brook BMP Retrofit Project</td>
<td>18-06/319</td>
<td>Town of Canton</td>
<td>144,784</td>
<td>97,208</td>
<td>June 2021</td>
</tr>
<tr>
<td>Crosby Lane Stormwater Treatment and Salt Marsh Restoration</td>
<td>18-07/319</td>
<td>Town of Brewster</td>
<td>105,000</td>
<td>358,500</td>
<td>June 2020</td>
</tr>
<tr>
<td>Armory Village Green Infrastructure Project</td>
<td>18-09/319</td>
<td>Town of Millbury</td>
<td>150,000</td>
<td>100,000</td>
<td>December 2020</td>
</tr>
<tr>
<td>Stormwater Management and Stream Restoration for Water Quality in Lower Abbey Brook</td>
<td>19-01/319</td>
<td>City of Chicopee</td>
<td>122,000</td>
<td>81,400</td>
<td>June 2021</td>
</tr>
<tr>
<td>Stormwater Mitigation at Aberjona River in Winchester</td>
<td>19-03/319</td>
<td>Mystic River Watershed Association (MyRWA)</td>
<td>190,645</td>
<td>300,000</td>
<td>June 2021</td>
</tr>
<tr>
<td>Beaver Meadow Brook BMP Retrofit Project</td>
<td>19-04/319</td>
<td>Town of Stoughton</td>
<td>96,836</td>
<td>64,570</td>
<td>June 2021</td>
</tr>
<tr>
<td>Avon Town Hall Green Infrastructure Demonstration Project</td>
<td>19-05/319</td>
<td>Town of Avon</td>
<td>79,107</td>
<td>52,889</td>
<td>June 2021</td>
</tr>
<tr>
<td>Westport River Agricultural Nonpoint Source Program</td>
<td>19-06/319</td>
<td>Massachusetts Association of Conservation Districts (MACD)</td>
<td>174,700</td>
<td>118,000</td>
<td>June 2021</td>
</tr>
<tr>
<td>Regional Nonpoint Source Coordinator – Franklin County</td>
<td>20-01/319</td>
<td>Franklin Regional Council of Governments</td>
<td>100,000</td>
<td>81,075</td>
<td>June 2022</td>
</tr>
<tr>
<td>Project Title</td>
<td>Project Number</td>
<td>Grantee</td>
<td>Grant Amount ($)</td>
<td>Non-Federal Match ($)</td>
<td>Planned Completion Date</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------</td>
<td>-------------------</td>
<td>------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Fearing Brook Floodplain Creation Project</td>
<td>20-02/319</td>
<td>Town of Amherst</td>
<td>276,549</td>
<td>188,285</td>
<td>June 2022</td>
</tr>
<tr>
<td>Stormwater BMPs: Sevenmile River Watershed</td>
<td>20-03/319</td>
<td>Town of Spencer</td>
<td>88,200</td>
<td>60,300</td>
<td>June 2022</td>
</tr>
<tr>
<td>Berkshire County Regional Nonpoint Source Coordinator</td>
<td>20-04/319</td>
<td>Berkshire Regional Planning Commission</td>
<td>100,000</td>
<td>66,666</td>
<td>June 2022</td>
</tr>
<tr>
<td>Nonpoint Source Pollution Grant Guidebook</td>
<td>20-05/319</td>
<td>Comprehensive Environmental Inc. (CEI)</td>
<td>75,285</td>
<td>50,250</td>
<td>June 2022</td>
</tr>
<tr>
<td>A Regional Nonpoint Source Coordinator: Collective Action in the Pioneer Valley for Water Quality Improvement and Greater Community Resilience</td>
<td>20-06/319</td>
<td>Pioneer Valley Planning Commission</td>
<td>100,000</td>
<td>66,666</td>
<td>June 2022</td>
</tr>
</tbody>
</table>

*Table 9. Active Nonpoint Source Grant Projects*
### Table 10. Matrix of NPS Plan Goals, Objectives and Milestones

<table>
<thead>
<tr>
<th>Goal: Identity and expand opportunities to accomplish and leverage work by private, state, local, and federal partners</th>
<th>5-Year Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td><strong>Milestones</strong></td>
</tr>
<tr>
<td>1. Align partner grant priorities to maximize environmental benefits</td>
<td>1.1.a. Identify NPS goals with partner program activities</td>
</tr>
<tr>
<td>1.2.a. Create a statewide NPS Recovery Roundtable to coordinate efforts among key partners and set watershed priorities</td>
<td>MassDEP</td>
</tr>
<tr>
<td>1.2.b. Maintain NPS Program website to consolidate and advertise NPS-focused grants and assistance</td>
<td>MassDEP</td>
</tr>
<tr>
<td>1.2.c. Conduct joint reviews of grant application proposals</td>
<td>MassDEP</td>
</tr>
<tr>
<td>1.2.d. Improve the sharing of information on NPS pollution issues, restoration, and protection activities</td>
<td>MassDEP</td>
</tr>
<tr>
<td>2. Increase communication between partners</td>
<td>1.3.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</td>
</tr>
<tr>
<td>1.2.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 requirements)</td>
<td>MassDEP</td>
</tr>
<tr>
<td>1.2.g. MassDEP will continue to serve on the MassBays Management Committee and attend the Science and Technical Advisory Subcommittees as staffing allows.</td>
<td>MassDEP</td>
</tr>
<tr>
<td>1.2.h. MassDEP will engage with the National Estuary Program as it undertakes activities in fulfillment of Section 319 of the Clean Water Act.</td>
<td>MassDEP</td>
</tr>
<tr>
<td>3. Fund locally led projects and increase program efficacy</td>
<td>1.3.a. Identify local capacity in impaired and unimpaired/high-quality watersheds; solicit grant proposals and work with previous applicants to develop more robust proposals</td>
</tr>
<tr>
<td>1.3.b. Develop priorities and processes for funding large-scale NPS projects that require partnerships because they exceed the funding capacity of any single program</td>
<td>MassDEP</td>
</tr>
</tbody>
</table>
### Objectives

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Milestones</th>
<th>Agency Lead</th>
<th>Partners</th>
<th>Measure of Success</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>FFY20 Actions</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Fund locally led projects and increase program efficacy</td>
<td>1.3.c.</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Number of projects that build on or support partner-funded projects</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>Two competitive proposals that were developed through the 6046 Grant Program were recommended for funding in the FY2021 round.</td>
<td>Yearly</td>
</tr>
<tr>
<td>4. Where feasible, seek to coordinate grant funding cycles</td>
<td>1.4.a.</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Partner grant project load reductions entered into GRTS before the deadline.</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td></td>
<td>Yearly</td>
</tr>
<tr>
<td>5. Establish geographic focus areas</td>
<td>1.5.a.</td>
<td>MassDEP</td>
<td>MDAR, NRCS, MACD</td>
<td>Provide s.319 funds to support technical staff efforts related to the Palmer River NWQI project</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>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.</td>
<td>2023</td>
</tr>
<tr>
<td></td>
<td>1.5.b.</td>
<td>MassDEP</td>
<td>USEPA</td>
<td>Fund or support project/resources in Healthy Watershed Program watersheds</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>No competitive proposals were recommended for funding in the FY2021 round.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>1.5.c.</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Annual evaluation of priorities and adjustments noted in annual report to USEPA</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>MassDEP continues evaluate priorities and report adjustments in our Annual Report to USEPA.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>1.5.d.</td>
<td>MassDEP</td>
<td>NRCS</td>
<td>Identification of agriculture-impaired watershed(s) and resource needs for participation in NWQI and resource availability</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>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 Marshan River HUC12 watersheds as future NWQI watersheds.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>1.5.e.</td>
<td>MassDEP</td>
<td>NRCS, MACD</td>
<td>Projects funded to support Worcester County RCPP goals</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>No competitive proposals were recommended for funding in the FY2021 round.</td>
<td>2023</td>
</tr>
<tr>
<td>6. Strengthen partnerships with state and federal agricultural programs</td>
<td>1.6.a.</td>
<td>MassDEP</td>
<td>NRCS</td>
<td>Activities reported in Annual Report</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>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.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>1.6.b.</td>
<td>MassDEP</td>
<td>MDAR, NRCS, MACD</td>
<td>Signed MOU between MDAR, NRCS, MACD, MassDEP</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>This milestone was deprioritized in the past year.</td>
<td>2020</td>
</tr>
<tr>
<td></td>
<td>1.6.c.</td>
<td>MassDEP</td>
<td>MDAR</td>
<td>Identification of program changes to support MDAR and MassDEP NPS efforts</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>This milestone was deprioritized in the past year.</td>
<td>2021</td>
</tr>
<tr>
<td></td>
<td>1.6.d.</td>
<td>MassDEP</td>
<td>MDAR, NRCS</td>
<td>White paper describing food waste composting water quality impacts and NPS Program activities and policy options to address</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>No competitive proposals were recommended for funding in the FY2021 round.</td>
<td>2021</td>
</tr>
<tr>
<td>7. Improve TMDLs</td>
<td>1.7.a.</td>
<td>MassDEP</td>
<td></td>
<td>Annual report of TMDLs reviewed; TMDL Program comments incorporated into final TMDL documents</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>This milestone was deprioritized in the past year.</td>
<td>Yearly</td>
</tr>
</tbody>
</table>

### Goal 2: Restore impaired waters, reduce NPS pollutants, and mitigate the effects of climate change

<p>| 2.1.a. | MassDEP | NPS partners | Web-based listing of grants/resources available | ☑ | ☑ | | | | | | | Yearly |
| 2.1.b. | MassDEP | | Enhanced outreach/education and coordination on NPS issues related to new MS4 permit requirements | ☑ | ☑ | ☑ | ☑ | ☑ | | | Yearly |</p>
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Milestone</th>
<th>Milestone Details</th>
<th>Agency Lead</th>
<th>Partners</th>
<th>Measure of Success</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Address urban/rural sources of NPS pollution</td>
<td>2.1.c</td>
<td>1.c. Support land protection and preservation activities that improve water quality.</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Funding and support for projects with a substantial land conservation component in NPS pollution prevention and remediation</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>No competitive proposals were recommended for funding in the FY2021 round. 2024</td>
</tr>
<tr>
<td></td>
<td>2.1.d</td>
<td>1.d. NPS watershed restoration projects that target water quality impairments by implementing WBPs.</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>A target of 6-10 NPS watershed restoration projects funded and closed each year</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>Three competitive proposals that target water quality impairments by implementing WBPs were recommended for funding in the FY2021 round. Yearly</td>
</tr>
<tr>
<td></td>
<td>2.1.e</td>
<td>1.e. Identify opportunities for NPS reduction projects in urbanized and urbanizing areas.</td>
<td>MassDEP</td>
<td>USEPA</td>
<td>Annual collaboration with USEPA on use of s.319 funds for projects in MS4 areas</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>One competitive proposal for work in an urbanized area was recommended for funding in the FY2021 round. 2021</td>
</tr>
<tr>
<td>2. Restore aquatic habitats</td>
<td>2.2.a</td>
<td>2.a. Restoration of fresh and salt water habitats (e.g., dam removals, tidal flow improvement)</td>
<td>DER</td>
<td>MassDEP</td>
<td>Annual report describing any restoration project designed/completed</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>Projects funded from the FY2019 319 solicitation include dam removal from Abby Brook, a tributary to the Chicopee River, and restored tidal flow which flows into the Namasket salt marsh and estuary. No competitive proposals were recommended for funding in the FY2021 round. 2024</td>
</tr>
<tr>
<td>3. Encourage increased local actions to address NPS pollution</td>
<td>2.3.a</td>
<td>3.a. Promote and support the development of stormwater utilities</td>
<td>MassDEP</td>
<td>CWSPF</td>
<td>Solicitation of s.319 and CWSPF projects that promote and support the development of stormwater utilities (e.g., development of feasibility studies, rate structure studies)</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>Project funded through the FY2018 319 solicitation included stormwater utility development work. As stormwater utilities can be funded through the MassDEP’s I04b and Stormwater MS4 Municipal Assistance Grant Program they were not solicited in FFY2021 319 granting round. Yearly</td>
</tr>
<tr>
<td>4. Target resources to critical watersheds</td>
<td>2.4.a</td>
<td>4.a. Continuous evaluation of MassDEP and partner NPS priorities</td>
<td>MassDEP</td>
<td>USEPA</td>
<td>Evaluation of priorities in Annual Report to USEPA and workplan</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>The Annual Report for FY2019, with an evaluation of program priorities, was submitted on November 22, 2019. Yearly</td>
</tr>
<tr>
<td></td>
<td>2.4.b</td>
<td>4.b. State-wide/program-wide key NPS priority development</td>
<td>NPS partners</td>
<td>List of key partner priorities that are common to all state NPS partner grant programs</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>5. Mitigate the effects of airborne NPS pollution</td>
<td>2.5.a</td>
<td>5.a. Encourage the use of alternative and innovative energy practices</td>
<td>NPS partners</td>
<td>Inclusion of alternative and innovative energy practices in at least one SRF-funded project per year</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>No competitive proposals were recommended for funding in the FY2021 round. Yearly</td>
<td></td>
</tr>
<tr>
<td>6. Promote new regulations and existing programs to increase infiltration, improve stormwater management, and protect groundwater</td>
<td>2.6.a</td>
<td>6.a. Enhance groundwater recharge and protection of critical surface and subsurface water supplies</td>
<td>MassDEP</td>
<td>SWM, NPS Partners</td>
<td>SWMI projects funded as match for s.319</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>No competitive proposals were recommended for funding in the FY2021 round. Yearly</td>
</tr>
<tr>
<td></td>
<td>2.6.b</td>
<td>6.b. Promote model ordinances, innovative community approaches</td>
<td>MassDEP</td>
<td>EEA</td>
<td>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</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>NPS Program continues to update and enhance existing content, as well as to add new and supportive information. Yearly</td>
</tr>
<tr>
<td>7. Promote/assist development of complete WBPs to guide NPS watershed projects</td>
<td>2.7.a</td>
<td>7.a. Reevaluate the current Massachusetts WBP template and improve as needed to address USEPA priorities</td>
<td>MassDEP</td>
<td>USEPA</td>
<td>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)</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>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</td>
</tr>
<tr>
<td></td>
<td>2.7.b</td>
<td>7.b. Support NPS coordinator positions in Regional Planning Agencies to facilitate development of WBPs</td>
<td>MassDEP</td>
<td>Regional Planning Agencies</td>
<td>Completed and approved WBPs to support s.319 watershed restoration projects awarded annually</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>Three projects were funded in FY2020 and another was recommended for funding in the FY2021 round. Yearly</td>
</tr>
<tr>
<td>8. Support and promote watershed planning by NPS partner agencies</td>
<td>2.8.a</td>
<td>8.a. Work with state and federal partners to support the LISS to reduce nitrogen loadings</td>
<td>MassDEP</td>
<td>Continued participation by MassDEP as a member of the LISS Program Management Committee</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>MassDEP staff has continued participation as able. Yearly</td>
<td></td>
</tr>
<tr>
<td>9. Work to address NPS pollution from onsite wastewater systems</td>
<td>2.9.a</td>
<td>9.a. Advance the work of MASSTC</td>
<td>MassDEP</td>
<td>MASSTC</td>
<td>Publication of septic system advances and technology designed to reduce NPS pollution and improve effectiveness of treatment</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>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</td>
</tr>
<tr>
<td>Objectives</td>
<td>Milestones</td>
<td>Measurements</td>
<td>Agency Lead</td>
<td>Partners</td>
<td>Measure of Success</td>
<td>2020</td>
<td>2021</td>
<td>2022</td>
<td>2023</td>
<td>2024</td>
<td>FFY20 Actions</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>--------------</td>
<td>------------</td>
<td>----------</td>
<td>-------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>--------------</td>
</tr>
<tr>
<td>10. Address NPS pollution from forestry operations</td>
<td>2.10.a</td>
<td>10.a. Continued implementation of the Massachusetts Forest Cutting Practices Act and its coordination with Wetlands Protection Program performance standards</td>
<td>DCR</td>
<td>Massachusetts Forest Cutting Practices Act permits issued, including filing of a Forest Cutting Plan with DCR.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>DCR is the lead agency managing Massachusetts Forest Cutting Practices Act permits.</td>
<td></td>
</tr>
<tr>
<td>11. Address NPS pollution from landfills, contaminated areas, and waste management sites</td>
<td>2.11.a</td>
<td>11.a. Continued implementation of the Massachusetts Superfund Law (MOL Chapter 21E), the Massachusetts Solid Waste Facility Regulations (310 CMR 19.00), and Regulations for Land Application of Sludge and Seepage (310 CMR 32.00)</td>
<td>MassDEP, USEPA</td>
<td>Permits issued and site remediation activities implemented (for 21E sites) pursuant to the regulations listed under Milestone 12.a</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>MassDEP Bureau of Waste Site Cleanup and EPA are the lead agencies managing permits and site remediation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Address NPS pollution from natural resource extraction sites</td>
<td>2.12.a</td>
<td>12.a. Continued implementation of the federal CWA, Sections 401, 402, and 404.</td>
<td>MassDEP, USEPA</td>
<td>USACE</td>
<td>Permits issued for natural resource extraction sites pursuant to federal CWA, Sections 401, 402, and 404.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>MassDEP staff provide comments and input to permits issues for natural resource extraction sites pursuant to federal CWA, Sections 401, 402, and 404.</td>
<td></td>
</tr>
<tr>
<td>13. Address NPS nutrient pollution and harmful algal blooms</td>
<td>2.13.a</td>
<td>13.a. Prioritize projects in waterbodies with routine cyanobacteria issues</td>
<td>MassDEP, DCR, NPS Partners</td>
<td>List of waters with routine cyanobacteria issues; funded projects to address nutrients/harmful algal blooms</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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
   - 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
     - No competitive proposals were recommended for funding in the FY2021 round.
   - 1.b. 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 Watersheds Program and protection of unimpaired/high-quality waters
     - No competitive proposals were recommended for funding in the FY2021 round.

2. Incentivize work in unimpaired/high-quality watersheds
   - 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 Watersheds Program and protection of unimpaired/high-quality waters
     - No competitive proposals were recommended for funding in the FY2021 round.
   - 2.b. Solicit projects focused on protection of unimpaired/high-quality waters
     - MassDEP, CWSRF
     - Formal solicitation in 604(b) and 319 RFRs
     - No competitive proposals were recommended for funding in the FY2021 round.

3. Incorporate protection into watershed planning
   - 3.a. Promote the development of alternative WBPs to support the Healthy Watersheds Program and protection of unimpaired/high-quality waters
     - MassDEP, USEPA
     - Development of one alternative WBP
     - No competitive proposals were recommended for funding in the FY2021 round.
   - 3.b. Formal solicitation in 604(b) and 319 RFRs
     - MassDEP
     - No competitive proposals were recommended for funding in the FY2021 round.

4. Develop criteria, methods, and program approaches to protecting water quality
   - 4.a. Pilot test new initiatives to protect unimpaired/high-quality waters
     - MassDEP, USEPA
     - Establish a pilot watershed for statewide NPS partner actions, based on the 2017 USEPA Preliminary Healthy Watersheds Assessments state-specific dataset
     - Easement protections for at least one unimpaired or high-quality water
     - Efforts to support healthy watershed activities are ongoing.
   - 4.b. Determine the success of the pilot initiatives
     - MassDEP, NPS Partners
     - Efforts to support healthy watershed activities are ongoing.

5. Engage local partners on climate change adaptation, resiliency planning, and protection of healthy waters
   - 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.
   - 5.b. Support 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.

6. Promote and support land conservation efforts
   - 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
     - 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.
   - 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
     - No competitive proposals were recommended for funding in the FY2021 round.

7. Work to assess and protect watershed stream stability
   - 7.a. Support projects that protect and enhance watershed ability, 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.
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Milestone</th>
<th>Milestones</th>
<th>Agency Lead</th>
<th>Partners</th>
<th>Measure of Success</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>FFY20 Actions</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>8. Promote and support NPS pollution prevention on forest lands</td>
<td>3.8.a</td>
<td>3.a. Provide technical assistance and outreach efforts to the forest cutting community</td>
<td>DCR</td>
<td></td>
<td>Annual summary of technical assistance and outreach efforts provided through the DCR Forest Stewardship Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DCR is the lead agency managing the Forest Stewardship Program</td>
<td>Yearly</td>
</tr>
</tbody>
</table>

**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 |
| | | 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 |
| | | 2.b. Post-implementation monitoring to assess water quality improvements | MassDEP | | Evaluation of program needs/available resources | ☒ | ☒ | ☒ | ☒ | ☒ | Not applicable. | Yearly |
| | | 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 |
| | | 3.b. Identification of waterbodies 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 |

<p>| 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 |</p>
<table>
<thead>
<tr>
<th>Objectives</th>
<th>Milestone</th>
<th>Milestones</th>
<th>Agency Lead</th>
<th>Partners</th>
<th>Measure of Success</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>FFY20 Actions</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Determine impacts of NPS pollution sources</td>
<td>4.5.a.</td>
<td>5.a. Conduct water quality monitoring programs in selected watersheds to identify impacts of NPS pollution sources</td>
<td>MassDEP</td>
<td>604(b) and 3.319 grantees</td>
<td>Water quality monitoring programs conducted in selected watersheds to identify impacts of NPS pollution sources. Develop and implement 604(b) and s.319 monitoring and assessment project monitoring plans to identify and assess NPS pollution sources in watersheds with WBP's.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>See Milestone 4.2.c.above.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>4.5.b.</td>
<td>5.b. Monitoring and assessment activities in 604(b) and s.319 projects to support identification of NPS pollution sources</td>
<td>MassDEP</td>
<td>604(b) and 3.319 grantees</td>
<td>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.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>See 604(b) Annual Reports and Workplans which highlight recent monitoring and assessment projects.</td>
<td>Yearly</td>
</tr>
<tr>
<td>6. Increase use of volunteer data in the assessment of the scope and extent of NPS pollution</td>
<td>4.6.a.</td>
<td>6.a. Organize current volunteer monitoring efforts and expand through guidance, technical support, and leveraging of resources</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>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 was 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 streamlines 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.</td>
<td>2024</td>
</tr>
<tr>
<td>7. Improve data sharing among NPS partners and the public</td>
<td>4.7.a.</td>
<td>7.a. Support improved data sharing between the NPS Program and BWR programs</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>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.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>4.7.b.</td>
<td>7.b. Support improved access to MassDEP data and MassDEP’s use of external data through use of USEPA’s WDX and WQP</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>WPP continues to invest resources and time in a water quality database capable of migrating data to relevant EPA portals and database systems.</td>
<td>2024</td>
</tr>
<tr>
<td>8. Improve statewide coordination of NPS monitoring activities</td>
<td>4.8.a.</td>
<td>8.a. Coordinate NPS monitoring needs and activities with NPS partners through EEA</td>
<td>MassDEP</td>
<td>EEA</td>
<td>Work with EEA to develop a pathway for coordination of monitoring needs and activities</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>This milestone was deprioritized in the past.</td>
<td>2024</td>
</tr>
<tr>
<td>Goal 5: Instill, encourage, and nurture a passion for restoring water quality through education, capacity building, and building new partnerships</td>
<td>5.1.a.</td>
<td>1.a. Collection of data on grant successes for education/outreach</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Annual publication and update of 319 and 604(b) project indicative summaries</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Annual publication and update of 319 and 604(b) project indicative summaries. Links available here: <a href="https://www.mass.gov/files/documents/2018/05/23/319summ.pdf">https://www.mass.gov/files/documents/2018/05/23/319summ.pdf</a> <a href="https://www.mass.gov/files/documents/2018/12/04/idsum604.pdf">https://www.mass.gov/files/documents/2018/12/04/idsum604.pdf</a></td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.1.b.</td>
<td>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</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>The Annual Report for FY2019 was submitted on November 22, 2019.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.1.c.</td>
<td>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</td>
<td>CZM</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>CZM continues to meet their obligations to NOAA and include project summaries on their webpage (<a href="https://www.mass.gov/service-details/coastal-pollutant-remediation-cpr-grant-program">https://www.mass.gov/service-details/coastal-pollutant-remediation-cpr-grant-program</a>).</td>
<td>Yearly</td>
</tr>
<tr>
<td>2. Engage the public in setting priorities</td>
<td>5.2.a.</td>
<td>2.a. Stakeholder meetings/forums to gather input</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>The MassDEP hosted a public pre-RFR informational meeting on March 5 2020.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.2.b.</td>
<td>2.b. Communicate NPS-focused information to stakeholders</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>The NPS Program Plan continues to reach out via the MassDEP’s Watershed Planning Program’s expanding email list.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.2.c.</td>
<td>2.c. Project success presentations, hosted by grant recipients</td>
<td>MassDEP</td>
<td></td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>On November 1, 2019, Barnstable County staff gave an explanation of their project to the Cape Cod Health Agents Coalition.</td>
<td>Yearly</td>
</tr>
<tr>
<td>Objectives</td>
<td>Milestone</td>
<td>Milestones</td>
<td>Agency Lead</td>
<td>Partners</td>
<td>Measure of Success</td>
<td>2024</td>
<td>2023</td>
<td>2022</td>
<td>2021</td>
<td>2020</td>
<td>FFY20 Actions</td>
<td>Period</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>------------</td>
<td>------------</td>
<td>----------</td>
<td>--------------------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>----------------</td>
<td>--------</td>
</tr>
<tr>
<td>3. Educate the public and increase the capacity of NPS partners</td>
<td>5.3.a</td>
<td>3.a. Maintain the existing MassDEP 319 website</td>
<td>MassDEP</td>
<td></td>
<td>Annual evaluation of website and continued improvement with additional information on partner programs, information on grant opportunities, and education materials.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MassDEP works on this as a continuous process.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.3.b</td>
<td>3.b. Targeted education to unique population segments and types of NPS pollution sources, such as environmental justice communities and hobby farms</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Report on NPS pollution sources and activities with recommendations for targeted education approaches.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Two competitive proposals with targeted agricultural education approaches were recommended for funding in the FY2021 round.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.3.c</td>
<td>3.c. Continue efforts to educate on climate change and NPS</td>
<td>EEA</td>
<td>MassDEP</td>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This is a continued initiative at MassDEP.</td>
<td>Yearly</td>
</tr>
<tr>
<td></td>
<td>5.3.d</td>
<td>3.d. Expand/update the Massachusetts Clean Water Toolkit to include green infrastructure practices</td>
<td>MassDEP</td>
<td></td>
<td>Updated online web-based Clean Water Toolkit manual.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>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.</td>
<td>2020</td>
</tr>
<tr>
<td>4. Engage new partners to address NPS pollution</td>
<td>5.4.a</td>
<td>4.a. Incorporate statewide climate change plans into MassDEP NPS Program</td>
<td>MassDEP</td>
<td>EEA</td>
<td>Continued MassDEP involvement in EEA climate change workgroup.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MassDEP staff is engaged with a number of climate change initiatives within EEA.</td>
<td>Yearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.4.b</td>
<td>4.b. Incorporate groundwater protection/recharge into MassDEP NPS Program</td>
<td>MassDEP</td>
<td>EEA</td>
<td>Number of projects funded and implemented.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The NPS Program RFR solicits projects that are climate-ready, and healthy watersheds projects include climate preparedness and resiliency work.</td>
<td>Yearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.4.c</td>
<td>4.c. Encourage land trusts to participate in protection of healthy watersheds/high-quality and unimpaired watershed protection</td>
<td>MassDEP</td>
<td>MA Land Trust Coalition (MLTC)</td>
<td>Land conservation project incorporating healthy watershed priority area.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No competitive proposals were recommended for funding in the FY2021 round.</td>
<td>Yearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.4.d</td>
<td>4.d. Ongoing participation on the Agricultural Commissions/State Pesticide Board</td>
<td>MassDEP</td>
<td>MDAR</td>
<td>Coordination agreement on NPS information sharing/education.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MassDEP staff as able participate in the State Pesticide Board.</td>
<td>Yearly</td>
<td></td>
</tr>
<tr>
<td>5. Integrate the state NPS Plan into education and outreach activities</td>
<td>5.5.a</td>
<td>5.a. Report on success and challenges related to progress on NPS Plan goals, objectives, and milestones</td>
<td>MassDEP</td>
<td></td>
<td>Section of Annual Report to USEPA devoted to NPS Plan updates, submitted each year.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Section of Annual Report to USEPA devoted to NPS Plan updates, submitted each year.</td>
<td>Yearly</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.5.b</td>
<td>5.b. Revise the state NPS Plan to reflect successes, challenges, and new program directions</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>Annual revisions through workplans, and an approved NPS Management Program Update for the next cycle (including milestones for 2025–2030) to be in place by October 1, 2024</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Workplans are revised yearly.</td>
<td>2024</td>
<td></td>
</tr>
<tr>
<td>6. Improve data quality</td>
<td>5.6.a</td>
<td>6.a. Development of common data collection/analysis procedures</td>
<td>MassDEP</td>
<td>NPS partners</td>
<td>NPS partner monitoring programs use a single QA/QC plan for all NPS water quality data collection.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>This milestone was deprioritized in the past year.</td>
<td>2025</td>
<td></td>
</tr>
</tbody>
</table>