



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

March 19, 2021

OFFICE OF THE
CHIEF FINANCIAL OFFICER

The Honorable Chellie Pingree
Chair, Subcommittee on Interior,
Environment and Related Agencies
Committee on Appropriations
House of Representatives
Washington, D.C. 20515

The Honorable David Joyce
Ranking Member, Subcommittee on Interior,
Environment and Related Agencies
Committee on Appropriations
House of Representatives
Washington, D.C. 20515

The Honorable Jeff Merkley
Chairman, Subcommittee on Interior,
Environment and Related Agencies
Committee on Appropriations
United States Senate
Washington, D.C. 20510

The Honorable Lisa Murkowski
Ranking Member, Subcommittee on Interior,
Environment and Related Agencies
Committee on Appropriations
United States Senate
Washington, D.C. 20510

Dear Chair Pingree, Chairman Merkley and Ranking Members Joyce and Murkowski:

Enclosed is the U.S. Environmental Protection Agency's Southeast New England Program Report to Congress, as directed by the Explanatory Statement accompanying the *Consolidated Appropriations Act, 2021* (Public Law 116-260).

This report provides updates on efforts made by the EPA to build technical capacity to achieve environmental restoration throughout the SNEP. This report discusses the scope of the agency's investment in capacity building, the vital role of that investment in preparing communities to undertake projects in the SNEP region, and the EPA's plan to track and assess the environmental results achieved through building increased local capacity to finance, plan, design, and carry out restoration activities.

If you have further questions or would like to set up a meeting to discuss this report, please contact Ed Walsh at (202) 564-4594 or walsh.ed@epa.gov.

Sincerely,

DAVID BLOOM

Digitally signed by
DAVID BLOOM
Date: 2021.03.19
13:29:09 -04'00'

David A. Bloom
Acting Chief Financial Officer

Enclosure

Southeast New England Program
EPA Region 1
Report to Congress

February 2021



Explanatory Statement Language: *“Southeast New England Coastal Watershed Restoration Program [SNEP]. – The Committee is aware that the Agency has dedicated a significant portion of funding under the SNEP program towards a local capacity building program rather than to projects. The Committee directs the Agency to submit a report no later than 60 days after the enactment of this act detailing the scope of this investment, how it intends to build technical capacity within the area covered by the geographic program, and the metrics for assessing its progress.”*

Consolidated Appropriations Act, 2021, P.L. 116-260, Explanatory Statement, Pg. 88

Executive Summary

This report updates the United States Congress on efforts by the U.S. Environmental Protection Agency (EPA) to build technical capacity to achieve environmental restoration through the Southeast New England Program (SNEP). The report discusses the scope of EPA’s investment in capacity building, the vital role of that investment in preparing communities to undertake projects in the SNEP region, and EPA’s plan to track and assess the environmental results achieved through building increased local capacity to finance, plan, design, and carry out restoration activities. Any future Federal activities or funding described in this report are subject to the availability of appropriations.

Congress’ charge¹ to EPA is to protect, enhance, and restore the coastal watersheds of southern New England, and includes specific instructions to:

- Facilitate development of strategies to restore and protect southern New England estuaries;
- Convene/lead comprehensive regional policy and outreach;
- Establish goals emphasizing water quality and habitat restoration;
- Develop and implement innovative technologies to meet challenges and create jobs;
- Provide for streamlined interagency communication and an inclusive stakeholder process;
- Collaborate with state agencies and other federal partners; and
- Include local governments and agencies, non-governmental organizations (NGOs), and academic institutions as stakeholders.

EPA’s SNEP addresses this charge by serving as a collaborative framework and a funding source for multiple organizations. EPA has established two major partnership efforts to carry out its charge: a SNEP Watershed Implementation Grants (SWIG) program that provides funding to implement projects, and a SNEP Technical Assistance Network (“SNEP Network” or “the Network”) that provides technical assistance to local communities, tribes and nonprofit organizations to finance, plan, design and complete local implementation activities. The Network is comprised of sixteen organizations that together leverage existing programs and provide mentoring and expertise to local partner organizations. Their efforts empower and make it easier for communities and stakeholders to undertake effective restoration and protection projects over the long term.

1 See full text of 2012 charge in the Appendix A at the end of this report.

In its first year alone, the Network has:

- Begun working one-on-one with twelve communities to provide expertise in financing, mapping, planning, stormwater siting and design, and other project needs;
- Offered “on-call” technical assistance to five communities in the SNEP region;
- Completed two in-person trainings and ten webinars reaching over 600 people;
- Helped launch the Providence Stormwater Innovation Center to provide stormwater management training; and
- Begun two large-scale pilot projects to highlight restoration techniques, one on Aquidneck Island (Rhode Island) and the other in the Taunton River watershed (Massachusetts).

EPA has provided the Network with \$3,226,741 in SNEP federal funding to support its activities over two years, with the possibility of receiving up to \$6,000,000 over five years. EPA has developed a set of standardized metrics to capture and evaluate the value of these investments in capacity-building. These metrics are based on the number of local organizations assisted by the Network as well as the number that successfully undertake implementation projects after receiving assistance. Further detail about SNEP, the Network, and EPA’s metrics and evaluation process are in the report that follows.

Southeast New England Program Background

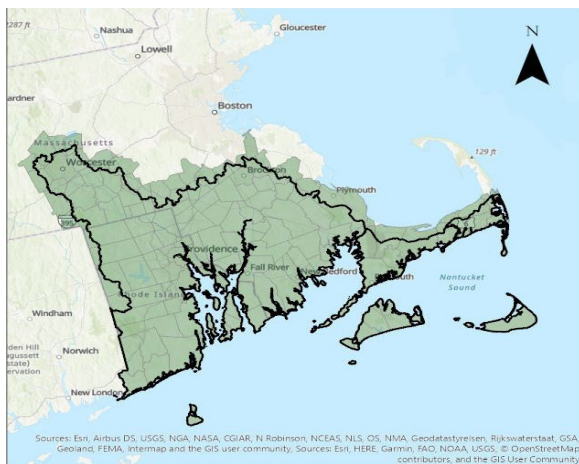


Figure 1: The SNEP Region

SNEP Geographic Scope

SNEP is a bi-state geographic program administered by the EPA to restore and protect the coastal environment of southeastern New England. It covers Rhode Island and the southeastern coastal areas of Massachusetts including the southern facing watersheds of Cape Cod, Martha’s Vineyard and Nantucket, and the watersheds to Narragansett Bay, and Buzzards Bay (Figure 1). SNEP’s focus on the region’s ecosystems offers an opportunity to address complex common issues while also working at the local scale with local implementers, including the Cape Cod Commission and the two National Estuary Programs (Narragansett Bay NEP and Buzzards Bay NEP) whose watersheds and comprehensive planning efforts are nested within the SNEP region.

Regional Stressors

The SNEP region supports a vibrant water-based economy, is known world-wide as a desirable tourist destination, and supports a complex system of estuaries, ponds, rivers, coastal waters, saltmarshes, fields, forests, and wetlands that together supports the health and well-being of native fisheries, animals and plants, and the people who live here.

Since the Europeans arrived in the SNEP area, 400 years of industrial, commercial, and residential development in the region have led to the degradation of ecological systems. While many areas in the region remain of high quality, the impairment of coastal and inland water quality from nutrients, sediment, and bacteria and loss and/or disconnection of habitat has led to increasing degradation and threatens the region's way of life. Today, environmental, social, and economic stressors are impacting the region's environmental health and water-based economies. These stressors are further compounded by the effects of climate change. Scientists predict that this region, more so than some others, will experience increased sea level rise, more frequent and intense storms, rising ground water levels, and higher temperatures (Figure 2). To counter these stressors requires a holistic, collaborative, and innovative approach, one that has been outlined by Congress and that has been implemented by EPA's SNEP.

Climate Change	including changes to the intensity of storms, the rate of sea level rise and rising ground water tables, the frequency of flooding, and air and ocean temperatures; change in and/or loss of habitats; shifts in commercially and ecologically critical terrestrial and aquatic species composition and numbers; and increased vulnerability of natural ecosystems and human infrastructure
Nutrients and Pathogens	excessive levels caused by inadequate treatment of septic systems, stormwater, fertilizer and manure from agricultural, commercial and homeowner uses; all of which can cause harmful algal blooms, unsafe swimming, fishing, or shellfishing conditions, and water quality and habitat degradation
Land Development	loss of natural lands and habitat; hydrologic modification; increased impervious cover, pollution and reduced forest cover; impacting human safety and infrastructure
Economic Impacts	lost ecosystem services, lost economic benefits from tourism, recreation opportunities, property values, and habitat-based food and fisheries
Social Justice	greater susceptibility to health and environmental stressors in underserved, poor, and minority communities; disproportionate negative effects on sustainability, environmental/cultural opportunities, and health and economic outcomes

Figure 2: Stressors Facing the SNEP Region

Impaired Waters in the SNEP Region (2016 Integrated List)	
RI	1184
MA	407

SNEP Vision, Goals, and Actions

EPA's SNEP addresses this Congressional charge by serving as a collaborative framework and a funding source for multiple organizations. Since SNEP's inception in 2012, the program has focused on bringing partner organizations together to discuss regional needs and identify shared priorities, facilitating and funding on-the-ground environmental restoration and planning projects, bringing technical resources to local stakeholders as needed, and creating a regional framework built on common challenges and new partnerships at the local, state, and federal levels. The key elements of the program are described in [SNEP's Five-Year Strategic Plan](#).

The SNEP Strategic Plan entitled "Getting to Resilience: Restoration and Adaptation in Southeast Coastal New England," sets a vision for the future, and identifies three program goals focused on safe and healthy waters, thriving watersheds and natural lands, and sustainable communities (Figure 3). Through consultation with its program partners, EPA identified five priority action categories to achieve that vision over the next 30 years (see table below). The plan is intended to guide SNEP and spur its many partner organizations to work together to achieve a set of common goals through shared priorities and actions.

Program Vision 2050

A resilient ecosystem of safe and healthy waters, thriving watersheds and natural lands, and sustainable communities in the Southeast New England Program coastal watershed region.

SNEP Goal: Resilient Ecosystem of Safe and Healthy Waters

- Waters support native seagrasses and aquatic life, plentiful native fish and shellfish, and a variety of water-based recreation opportunities

SNEP Goal: Thriving Watersheds and Natural Lands


- Watersheds provide essential ecological functions, species diversity, and protection from both human-based and naturally occurring environmental stressors, and healthy, connected natural lands support a variety and range of native plant and wildlife communities.

SNEP Goal: Sustainable Communities

- Communities share robust water-based economies, protect and provide access to natural lands, open spaces and parks, encourage local food sources, and are adapting for resilience to expected impacts of climate change.

Figure 3: SNEP's 2050 Vision and Program Goals (See [Five-Year Strategic Plan](#) for Additional Details).

Because its goals are organized around common challenges rather than a single shared waterbody, SNEP relies on - and facilitates - collaboration among its many local partner organizations. Rather than subsume their efforts, SNEP provides resources to complement, enhance, and expand them. In this role, SNEP builds on the expertise and consensus developed through the Comprehensive Conservation Management Plans of the Narragansett Bay Estuary Program (NBEP) and Buzzards Bay National Estuary Program (BBNEP), and the Cape Cod Area Wide Water Quality Management Plan by the Cape Cod Commission (CCC). As the region’s primary watershed planning institutions, NBEP, BBNEP, and CCC offer critical input to SNEP as valued members of multiple SNEP committees as well as productive SNEP grantees. The need for continued synergy between our programs is key to implementing SNEP’s Congressional charge as well as the Clean Water Act (sec. 320 & sec. 208).



SNEP Priority Actions	Approach
Increase Local Capacity to Complete Projects and Adopt New Policies	Increase local capacity by providing financial and technical assistance to communities for the application of environmentally sustainable solutions towards the restoration of water quality and the stewardship of natural habitats.
Increase Available Solutions	Increase available solutions to address stressors/issues by spurring the development, evaluation, and dissemination of innovative technologies, financing approaches, and policy development.
Ensure Diverse Representation in Program Decision-making	Ensure diverse representation of community needs, science, and management solutions in SNEP committees to include a wide range of perspectives and input in program decision-making by building relationships with Environmental Justice (EJ) communities, municipal/state/federal governments, tribes, non-profit organizations, businesses and academia.
Demonstrate Ways to Address Common Challenges	Demonstrate ways to address common challenges by selecting pilot watersheds to support a holistic and targeted watershed management approach that is tailored to the differing characteristics in the region, with a focus on innovative, systemic solutions to environmental stressors that can be transferred to other areas in the SNEP region and beyond.
Increase Community Leaders' Understanding of the Benefits of Restoration Projects	Increase community leaders' understanding of benefits achieved by supporting clean water, healthy natural lands, and sustainable practices by quantifying multiple benefits of ecosystem/habitat restoration projects.

Finding Solutions to Common Regional Challenges

Tying these pieces together is SNEP’s unique charge to develop, support, and implement cost-effective, innovative approaches and techniques. Over the next five years SNEP will act as an incubator in the following six areas (more detail can be found in SNEP’s Five-Year Strategic Plan):

Research Area	Emphasis
Innovative Technologies and Approaches	<ul style="list-style-type: none"> • Develop non-traditional technologies and approaches to reduce pollution from septic systems, stormwater, and fertilizer. • Evaluate effectiveness of aquaculture to improve water quality, remote sensing to prioritize interventions, and the restoration of saltmarsh, eelgrass, and riparian habitat. • Break down barriers for using new techniques and technologies.
Evaluation of Ecosystem Service Benefits	<ul style="list-style-type: none"> • Develop methodologies to track, compile, evaluate, and demonstrate the full range of environmental, social, and economic benefits achieved by SNEP restoration technologies and projects.
Monitoring	<ul style="list-style-type: none"> • Understand how different geological, biological, chemical, and physical characteristics in the SNEP region dictate pollutant movement, attenuation, and the suite of treatments most capable of addressing impairments for each region.
Tracking Program Effectiveness	<ul style="list-style-type: none"> • Bolster SNEP project impact tracking by using site-specific, watershed-wide, and system-wide data to document changes in environmental quality and community resilience.
Harmful Algal Blooms	<ul style="list-style-type: none"> • Support and share technologies for tracking, monitoring, and predicting harmful algal blooms. • Quantify the economic and social impact of harmful algal blooms. • Research practices for the prevention and treatment of harmful algal blooms.
Effective Communication	<ul style="list-style-type: none"> • Understand the driving forces behind the public’s support for environmental projects. • Utilize social science to use the most effective venues and approaches for disseminating information and lessons learned from SNEP implementation projects, watershed pilot projects, innovative technologies and approaches, and the co-benefits of holistic sub-watershed management.

Use of Metrics to Track Results

To better understand the value of SNEP’s investments in the region, as well as progress towards its 2050 vision, SNEP is developing metrics at multiple scales. A regional monitoring strategy will coordinate watershed and regional scale monitoring by several organizations in the region to evaluate change in environmental conditions over time. Project level metrics are being developed and will be used to compile results and evaluate the impact of those projects on the environmental health of the region. At the same time, SNEP will evaluate its own programmatic effectiveness, using internal programmatic and funding metrics together with project level information to determine how SNEP can better meet its charge from Congress (Figure 4). This data will be used to release a “SNEP State of the Region Report” in 2025 that will be used to inform SNEP’s priority actions for the following five years.

SNEP Restoration Activities

Congress appropriated \$32.4 million between 2014 and 2020 to carry out SNEP. In that time, a total of 119 projects aimed at restoring and protecting the region’s water-based environment and building strong partnerships are now in place to continue work in the future. Congress directed EPA to facilitate development of strategies to restore and protect the southern New England estuaries and the majority of funding has been dedicated to improving water quality. The program has also supported habitat improvement, improved resilience, monitoring and local capacity building.

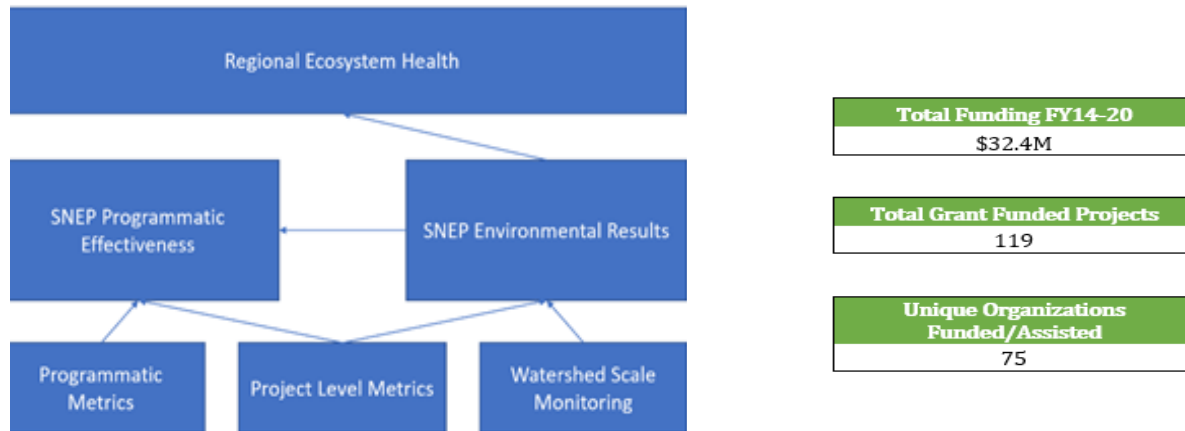


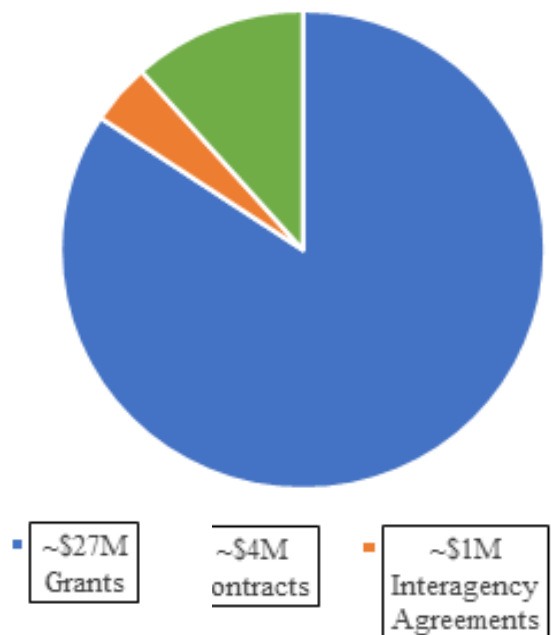
Figure 4: Diagram Showing the Relation Between Environmental Health and SNEP’s Metrics and Monitoring

Local Subgrants by Organization Type			
Organization Type	Number of Subgrants	Funding Amount	Percent
Academic	17	\$ 3,707,863	19%
Municipality	36	\$ 4,627,804	23%
State Agency	5	\$ 1,300,000	7%
NGO	40	\$ 6,014,898	30%
Tribe	2	\$ 655,042	3%
Other	13	\$ 3,431,375	17%

Local Subgrants by SNEP Program Goal/Action			
Goal/Action	Number of Subgrants	Funding Amount	Percent
Water Quality	54	\$ 11,177,523	57%
Monitoring/Tracking	12	\$ 3,149,634	16%
Habitat Restoration	13	\$ 2,572,031	13%
Resilience	18	\$ 1,529,121	8%
Capacity Building	16	\$ 1,308,673	7%

Note: subgrant numbers reflect subgrants awarded up to and including FY19 funds. FY20 funds have not yet been distributed for subawards.

SNEP Total Spending Breakdown



SNEP Innovation

Since its formation in 2012, SNEP has made great strides toward establishing itself as a regional force for positive environmental change as well as an incubator for promising innovative techniques, technologies, and policies. SNEP defines “innovative” as nontraditional technologies and new approaches that are not widely used in the region and hold strong potential to more efficiently and effectively reduce pollution or restore habitat. SNEP’s Five-Year Strategic Plan emphasizes funding the technologies and approaches capable of addressing priority sources of coastal water pollution and causes of habitat impairment in the region, especially technologies that are effective and are close to being accepted for wide use in the region. Using grants, interagency agreements, and contracts, SNEP has funded a number of cutting-edge projects and will continue to do so in the future (see below).

Siting Assessment Approach for Permeable Reactive Barriers (Interagency Agreement with U.S. Geological Survey)

Wastewater disposal associated with rapid population growth and development on Cape Cod, Massachusetts has resulted in widespread contamination of groundwater with nitrogen. To reduce nitrogen loads, both traditional (sewering) and alternative wastewater management options are under consideration. Permeable reactive barriers (PRBs), which are reactive zones emplaced below the water table for passive treatment of groundwater contaminants, are one of the options being considered as a potentially cost-effective technology. However, the effectiveness of PRBs depends on local conditions, and site-specific hydrologic and water-quality data are needed to inform the decision to install a PRB. These data are not available in most locations on Cape Cod. To address this need, the EPA, U.S. Geological Survey, and Cape Cod Commission formed a technical team to develop and evaluate a hydrologic site-assessment approach for PRB installation. The approach includes a preliminary regional assessment followed by a phased on-site investigation. The approach is intended to provide the hydrologic data needed to make informed decisions on site suitability and to support installation and monitoring should the site be deemed appropriate for a PRB. The approach was demonstrated on Cape Cod by conducting a preliminary assessment of 27 sites, from which five sites were selected for on-site investigations. Results indicated that the site-assessment approach was successful for screening sites and characterizing the conditions at the sites selected for on-site investigations. SNEP grantees have used this approach to successfully site PRBs in Falmouth and Martha’s Vineyard, Massachusetts and elsewhere.

[See Publication Here](#)

Innovative SNEP- Funded Projects

- [Siting Assessment Approach for Permeable Reactive Barrier.](#)
- [Identifying Riverine Nitrogen “Hot Spots” for Pollution Reductions](#)
- [Applying Cutting-Edge Monitoring Technology to Determine Bacterial Contamination Sources and Assess Treatment Interventions](#)
- [Assessing Improvements Resulting from Multiple Nutrient Management Activities Across a Single Watershed](#)

SNEP Funded Innovation Technologies in Development or Evaluation for Use in the Region	
Treatment Before Disposal to Ground Water or Surface Water	<ul style="list-style-type: none"> • Non-proprietary Innovative and Alternative Septic Systems (home and facility scale) • Composting Toilets • Regional Wastewater Planning • Manure Management • Lawn Fertilizer Management • Stormwater Planning and Design • Cranberry Bog Treatment
Treatment in Ground Water or Surface Water Runoff	<ul style="list-style-type: none"> • Permeable Reactive Barriers • Constructed Wetlands • Fertigation Wells • Stormwater Gravel Wetlands • Identification of Pollution Hotspots
Treatment in the Water Body	<ul style="list-style-type: none"> • Aquaculture
Habitat Connection and Restoration	<ul style="list-style-type: none"> • Removal of Obstructions • Restoration of Cranberry Bog to Natural Wetland • Saltmarsh Runnels
Building Resilience	<ul style="list-style-type: none"> • Shoreline Restoration • Stormwater Planning to Restore Hydrological Balance
Environmental Evaluation	<ul style="list-style-type: none"> • Low-Cost Nitrogen Sensor for Septic Systems • Real-Time Monitoring • PhyloChip for Bacteria Source Tracking

Please see **Appendix B** for additional SNEP funded project highlights.

The Intersection of SNEP Implementation and Capacity Building

Several federal and state agencies, dozens of academic institutions, and hundreds of local governments, environmental organizations, and industry groups operate in the SNEP region. To meet the challenge set out by Congress, SNEP engages these entities in a planning framework and action agenda that builds on and complements their unique local capacities, relying on their on-the-ground presence and credibility to not only inform policy, science and funding decisions through participation on SNEP committees, but also to partner on projects with local implementers. Key to this agenda is the annual funding provided by Congress. Since 2014, SNEP has distributed over \$32 million throughout its geographic region to address pressing restoration and protection needs and build technical and financial capacity.

These efforts are advanced primarily through two vehicles: the SNEP Watershed Implementation Grants program and the SNEP Network, currently administered by SNEP grantees (Restore America’s Estuaries (RAE) and the New England Environmental Finance Center (NEEFC) hosted by the University of Southern Maine).

The Watershed Implementation Grants program focuses on integrated or interdisciplinary approaches to water quality and ecosystem restoration as well as holistic, sub-watershed wide planning. To date, it has supported projects ranging from green infrastructure stormwater controls, to planning and implementing habitat restoration, to testing of innovative environmental technologies such as permeable reactive barriers.

In contrast, the SNEP Network is a collaborative association of partners that provides no-cost targeted expertise and technical assistance at the request of communities, tribes, and other local organizations to improve their capacity to protect, maintain, and restore healthy watersheds, provide sustainable financing, and build long-term climate resilience. Direct technical assistance includes trainings, consultation, and capacity building activities to help local municipalities, tribes, and NGOs finance, plan and design implementation projects, which may then be supported through the SNEP Watershed Implementation Grants (SWIG), other available funding sources, or in coordination with SNEP’s applied research and pilot projects. This process helps local communities, tribes, and NGOs develop effective projects and improve their success in receiving grants through the SWIG and other available funds, thus producing greater environmental results (Figure 5).

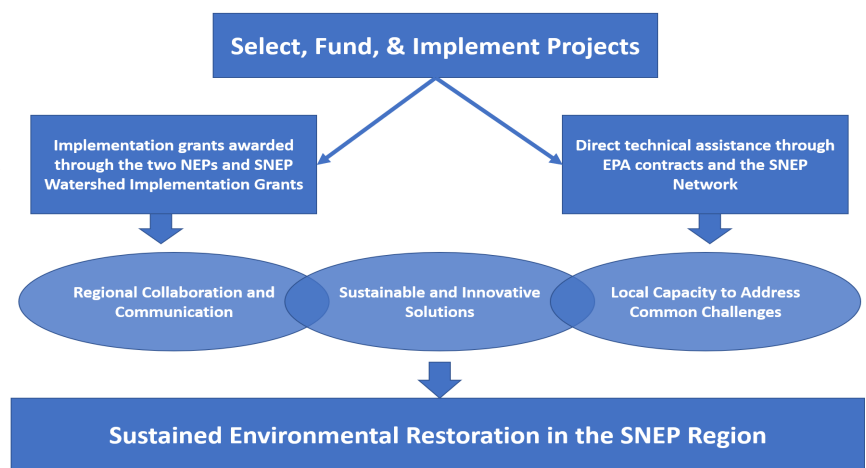


Figure 5: Diagram Showing SNEP’s Multi-Faceted Approach to Sustained Environmental Restoration

SNEP Network: Helping Communities Achieve Success

SNEP’s growing role as a stable and dedicated funding source for environmental protection and restoration in the region is reflected in the increasing demand for project funding under its SNEP Watershed Implementation Grants program. This demand is due in part to pent-up municipal needs. Many of those needs are coming from small, often under-staffed communities and organizations that find it difficult to generate competitive proposals

Concerns about SNEP’s ability to meet the needs of these communities for project funding were raised by members of our Policy and Steering Committees. They repeatedly brought up the lack of technical capacity in NGOs and municipalities throughout the region in areas such as project planning, design and construction, effective consultant selection and management, and assurance of sufficient fiscal ability to sustain implementation over time. They also acknowledged the barriers caused by the unique system of home-rule governance in the SNEP region, in which each town independently manages functions that in many other parts of the country are carried out efficiently and cost-effectively at county or regional levels.

In response to this serious gap in our ability to support the communities in most need of assistance, SNEP, in consultation with the SNEP Steering and Policy Committees, explored ways to address the issue. In 2019, EPA conducted a competition to select an organization to provide technical assistance and training, and promote a wide range of sophisticated yet practical tools to build capacity in the region.

Ultimately, the goal is to create a self-sustaining network capable of helping communities, tribes and small NGOs with:

- Developing innovative and sustainable funding/financing mechanisms such as incentives for private capital, green finance, and public-private partnerships and frameworks to leverage multiple funding pools;
- Seeking out best practices in land use, stormwater management and green infrastructure, and financing;
- Developing policies and ordinances to foster low impact development and green infrastructure for new construction and re-development;

Assistance Capabilities
<ul style="list-style-type: none"> • Bringing together a network of regional experts in stormwater management, innovative financing, water quality and habitat restoration, green infrastructure, low impact development, and environmental restoration.
<ul style="list-style-type: none"> • Offering a full complement of technical and financial services to municipalities, tribes, and organizations in the SNEP region.
<ul style="list-style-type: none"> • Making available to communities a pool of vetted, top-tier contractors and consultants.
<ul style="list-style-type: none"> • Providing immediate “on-call” technical assistance to municipalities seeking help.
<ul style="list-style-type: none"> • Expanding upon existing regional partnerships and creating new ones.
<ul style="list-style-type: none"> • Serving as a clearinghouse for the region on stormwater management and financing, green infrastructure, low impact development, and water quality and habitat restoration activities.
<ul style="list-style-type: none"> • Creating and administering training on priority topics to municipalities, organizations, and tribes.
<ul style="list-style-type: none"> • Creating improved norms of practice and financing.
<ul style="list-style-type: none"> • Bolstering peer-to-peer exchange in the region and beyond.

Goals Continued:

- Promoting adoption of asset management for stormwater infrastructure to ensure long-term functionality; and
- Supporting regional efforts to advance watershed-scale improvements in water quality and habitat and to build resiliency.

In addition to helping entities across the SNEP region grow in their capacity to help themselves, having a diverse network of experts provides an efficient, cost-effective means for them to access expertise and services that would otherwise need to be contracted for or would compete with other municipal budget priorities. The investment in improved local ability will enable stronger and more successful environmental management by both governmental and non-governmental organizations, and ultimately lead to improved water quality and habitat in the SNEP region.

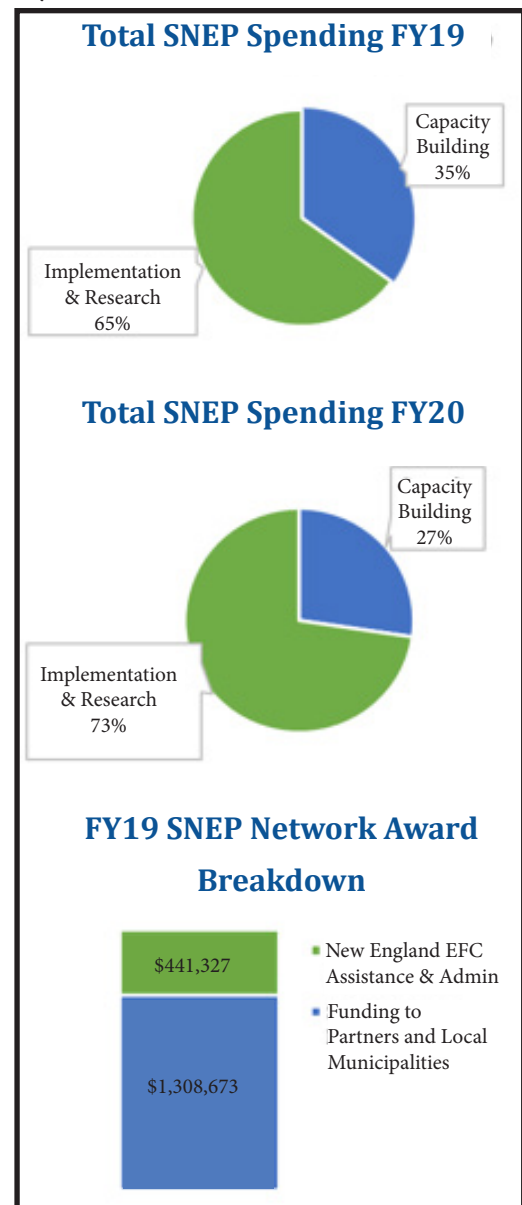
SNEP’s commitment to this investment is reflected in its emphasis in the Five-Year Strategic Plan, where enhancement of technical capacity is one of five priority actions.

How SNEP is Building Local Environmental Capacity:

The SNEP Network

In early 2019 SNEP issued a competitive Request for Applications (RFA) to establish SNEP’s technical capacity building arm, which came to be known as the SNEP Network (or the Network), to achieve the goals detailed above. The New England Environmental Finance Center (NEEFC) at the University of Southern Maine (USM) was selected through that process for its ability to provide cutting-edge financial assistance, bring in national experts to help solve regional problems, and team up with local organizations in the region. Founded in 2001, and funded in part by EPA, the NEEFC seeks to advance the shared goal of EPA and the USM Muskie School of Public Service to research, publish, and extend creative approaches to environmental policy, protection, and management, especially associated questions of how to pay for environmental improvements throughout New England.

Scope of Investment in the SNEP Network	
Grant Period:	Up to Five Years
Total Funding:	Up to \$6,000,000
Total Match:	\$900,000
Funding to Date:	\$3,226,741



The SNEP Network began operation in October 2019 by bringing together a group of key local partners with expertise in stormwater management, financing, water quality and habitat restoration, green infrastructure, low impact development, and watershed-scale conservation and restoration.

Local Network Partners Include:

- Audubon Society of Rhode Island
- Cape Cod Commission
- Elizabeth Scott Consulting
- Mass Audubon
- Kimberly Groff Consulting
- Rhode Island School of Design
- Brown University
- Save the Bay
- Throwe Environmental
- The Nature Conservancy, Rhode Island
- The Nature Conservancy, Massachusetts
- The Environmental Finance Center at The University of North Carolina
- The Environmental Finance Center at Syracuse University
- University of New Hampshire Stormwater Center
- University of Rhode Island Nonpoint Education of Municipal Officials (NEMO)
- University of Rhode Island Master of Public Administration Program

The Network aims to empower communities to achieve effective environmental management by delivering technical assistance and training to municipalities, organizations, and tribes, creating improved norms of practice and financing, and peer-to-peer exchange across the region. More broadly, the Network's approach bolsters SNEP communities' ability to adopt holistic and long-term policies and increases community ownership of environmental projects.

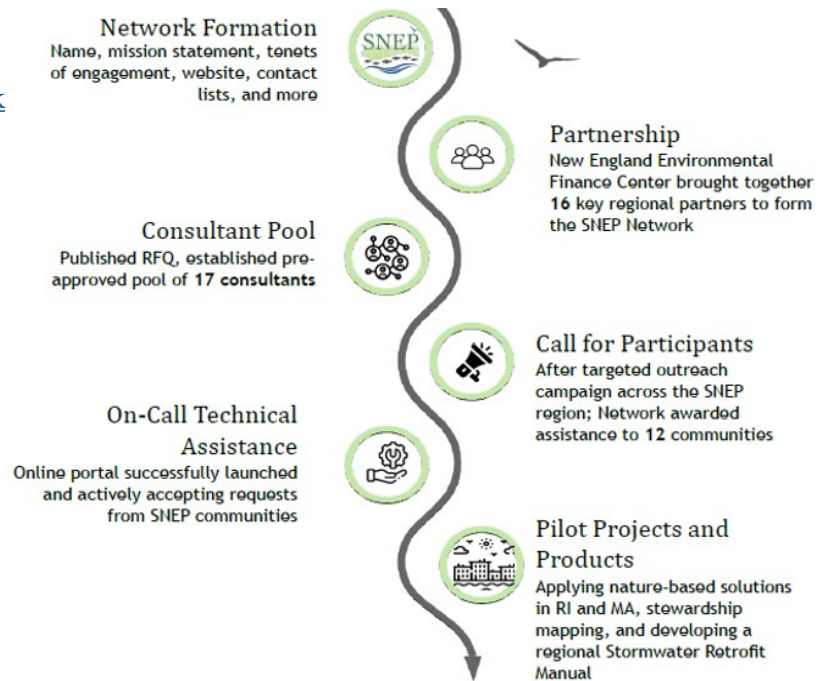
Despite the unforeseeable challenges created by the COVID-19 pandemic, the SNEP Network, under the thoughtful and creative administration of the NEEFC, has already made impressive progress. Below are highlights of accomplishments to date.

The Reach of the SNEP Network

- 127 total SNEP municipalities and community organizations reached through SNEP Network trainings/webinars, technical assistance, and Network projects.
- 101 municipalities and community organizations reached through Network webinars/trainings.
- 16 municipalities and community organizations reached through Network projects. This includes the 12 Call for Participants projects in addition to the four communities of the Pleasant Bay Alliance.
- 10 municipalities and community organizations reached through Network technical assistance.
- 117 municipalities and community organizations outside of the SNEP region attended trainings/webinars. Of that, 41 (35%) of those communities were from neighboring municipalities and community organizations in Massachusetts.

Network Formation and Cohesion

- **Finalized** SNEP Network logistics and management processes, including creating the [SNEP Network webpage](#) that carries the SNEP Newsletter and conveys project and partner information throughout the SNEP region.
- **Organized** partnerships with **sixteen** regional organizations to provide technical assistance on the local level via subaward. (See **Appendix C** for individual partner accomplishments).
- **Established** pre-approved pool of **seventeen** consultants to provide no-cost technical assistance and contracting services to local groups.
- **Selected twelve** communities in the SNEP region for intensive technical assistance, including help from eight contractors from the consultant pool worth **\$347,677** (see **Appendix D** for a list of assisted communities).
- **Provided two** Network Liaisons to offer on-call technical assistance via an online portal.



Stewardship Mapping Project

- The Stewardship Mapping and Assessment Project (StewMAP) of Southern New England is supporting partner coordination through an interactive database and mapping tool that visually documents the variety and location of the SNEP region’s 500 plus stewardship organizations and governmental agencies, showing both the connections and the gaps in the work they do.
- Hosted virtual survey launch on September 16, 2020.
- Created a core team of 19 individuals representing 'grass tops' and tribes in the region, to iterate and provide feedback in the development of [the StewMAP tool](#).

Training for Local Entities

- In-Person events include: A “Preparing for Success-Funding Climate Resilience Initiatives” workshop on February 20, 2020, and “Chesapeake and Narragansett Bay Environmental Leadership Exchange”, September 25, 2019.
- Two Green Stormwater Infrastructure webinars through the Providence Stormwater Innovation Center.
- Four Additional webinars from University of Rhode Island, Mass Audubon, and The Nature Conservancy.
- A Four-part webinar series “COVID-19 Preparedness and Recovery: An Opportunity for a Stronger and Resilient New England” on April 10, April 17, April 24, and May 1, 2020, from Throve Environmental.
- 1,617 subscribers to the SNEP Network newsletter.

Providence Stormwater Innovation Center

- Through the SNEP Network’s partners including Audubon Society of RI, The Nature Conservancy, and UNH Stormwater Center, officially launched the [Stormwater Innovation Center](#) to create a regional hub for learning, training, and public engagement focused on stormwater practices.
- Training for Local Entities

Stormwater Retrofit Manual

- In a collaborative effort led by the UNH Stormwater Center with state agencies, SNEP Network partners, and EPA, began development of a retrofit manual to guide communities and consultants through updated guidance on retrofit, sizing and performance characterization, including using performance curves and offering design and sizing considerations for stormwater control measures (BMPs), “every-day-counts” retrofits, non-structural controls, and operations and maintenance.
- Formed the Stormwater Retrofit Manual Advisory Committee, vetted the short-listed consultants from provider pool, and signed contract with selected consultant to begin work to develop the manual.
- Provided over 220 hours of additional technical assistance to federal, state, and local regulatory officials and stormwater professionals.
- Launched work in four communities to advance innovative small-scale stormwater controls for watershed restoration.



Network Leadership Exchange

- The Network launched the first of several planned intensive consultations with selected communities to introduce paths to sustainable development and finance.
- Consultation includes four webinar sessions to help guide Wareham’s (MA) redevelopment plans and explore sustainable finance opportunities for:
 - ◇ Green Infrastructure
 - ◇ Climate and Economic Resilience
 - ◇ Comprehensive Redevelopment
 - ◇ Smart Growth and Strategic Zoning
- Each session has:
 - ◇ Closed meetings
 - ◇ Webinar (open to the public)
 - ◇ An accompanying [podcast](#)
- Leaders representing eighteen communities/organizations from across the country participated:
 - ◇ Lancaster City, PA; Provincetown, MA; Annapolis, MD; Hoboken, NJ; New Bedford, MA; Boston Harborkeepers (Boston, MA); ULI/City Dock, MD; Tilghman Island, MD; Chattanooga, TN; Burlington, VT; Ranson, WV; Warwick/RIPTA, RI; Portland, ME; Low Impact Development Center (College Park, MD); Grow Smart RI (Providence, RI)



SNEP Network Pilot Projects: Demonstrating Solutions

Two pilot projects have been selected to demonstrate planning and design approaches for common challenges in the region. The Network is working with local leaders in both areas to find solutions, help with planning and design, and build expertise to obtain financing and implement practices.

Planning and Design of Nature-Based Solutions for the Maidford River, RI



Photo Credit: SNEP Network

SNEP Network partners are assisting the Town of Middletown and Aquidneck Land Trust with planning and design for nature-based solutions to reduce flooding and improve water quality of the Maidford River and downstream receiving waters which include two sources of Aquidneck Island's water supply, Nelson and Gardiners Ponds.

- This project implements recommendations of local watershed plans to increase the river's flood storage capacity by creating meanders and floodplain storage and replacing a culvert that restricts flow and contributes to flooding.
- Project partners are also working with property owners to restore the river's riparian buffer by allowing the land adjacent to the river to return to a more natural condition. These efforts complement ongoing work to improve the river's water quality including construction of controls to treat runoff from roads and improved agricultural practices.

2020 Achievements:

- Property owner approval to undertake site assessments to evaluate floodplain restoration alternatives. Field assessments completed and evaluation of alternatives underway; and
- Riparian Buffer Restoration Initiative launched including preparation of outreach and guidance materials and site visits to three properties.

Regional Planning to Develop Nature-Based Solutions for the Taunton River

- SNEP Network partners are assisting the towns of Easton, Mansfield and Norton, Massachusetts in advancing the application of nature-based solutions on a regional scale. The overarching goals of the project are to enhance the protection of the water supply, improve water quality, enhance/restore habitat, and promote climate resiliency. Lessons learned from this project will help inform the processes and systems that need to be in place to support local capacity to implement nature-based solutions on a regional scale.
- Includes the use of technical tools and inclusive community-based planning to identify nature-based solutions and the steps needed for implementation.
- SNEP Network resources will also be directed toward monitoring pre and post conditions at a local (Sam Wright Farm) and regional scale.
- The project will build on prior regional community planning initiatives that were conducted through the Massachusetts Municipal Vulnerability program.

How Will EPA Measure and Determine the Network's Success: Metrics for Assessment of Capacity Building:

Beyond the standard metrics SNEP is developing to evaluate its funded projects, the regional environment, and the Program itself, EPA is using the following metrics to assess the progress of the SNEP Network's technical capacity building program. Each year these metrics will be revisited to determine if additional funding will be provided to the Network. At the end of the Network's five-year grant period, these metrics will also be used to decide whether to continue the effort and if changes to Network services or expectations are warranted. If SNEP decides to continue the effort, EPA will conduct another competitive process to select an organization to run the program as required by grants policy.

Metrics for Assessment of Technical Capacity Building by the SNEP Network	
<u>Increased Implementation Success</u>	
<ul style="list-style-type: none"> • Number of municipalities, tribes, and NGOs that go on to successfully implement projects/policies after assistance from the Network. 	
<u>Direct Assistance and Training</u>	
<ul style="list-style-type: none"> • Number of municipalities, tribes, and NGOs that receive direct community assistance awards. • Number or percent of municipalities in the SNEP region that have engaged with the SNEP Network through direct assistance or training. • Number of professional development opportunities made available to municipalities, tribes, and NGOs. • Number of peer-to-peer exchanges to share successful approaches to addressing regional challenges. • Number of municipalities, tribes, and NGOs receiving training, outreach and education to share and promote best practices across southeast New England. 	
<u>Financing</u>	
<ul style="list-style-type: none"> • Number of enhanced training opportunities made available to municipalities, tribes, and NGOs on traditional and innovative financing for environmental projects. • Number of communities that, with Network assistance, complete a finance plan including analysis of needs and priorities as well as potential funding mechanisms. 	
<u>Stormwater</u>	
<ul style="list-style-type: none"> • Number of enhanced training opportunities made available to municipalities, tribes, and NGOs on innovative stormwater practices. • Number of communities that, with Network assistance, update and incorporate nature-based stormwater management programs and/or site plans 	
<u>Holistic Planning</u>	
<ul style="list-style-type: none"> • Number of municipalities that adopt low impact development, open space, or green infrastructure ordinances. • Number of communities that complete Bylaw Review Tool/Low Impact Development Checklist trainings and/or use the Bylaw Review Tool/ Low Impact Development Checklist. 	

Future Directions: SNEP Network

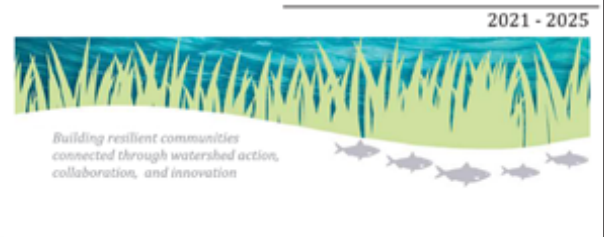
- Enhance Network Cohesion by expanding the Network and increasing emphasis on environmental justice and equity.
- Leverage regional partnerships and resources by strengthening ties with grassroots organizations, building shared capacity between the Network and other coalitions.
- Continue implementation of the twelve community assistance projects to advance the state of practice and build climate resiliency in the region.
- Continue leadership exchange and training to share learning from leaders from across the nation and ensure communities have access to training in the time of COVID.
- Enhance peer-to-peer learning by taking lessons learned from Network projects and strengthening local capacity.
- Select another set of communities in 2021 for community assistance projects.
- Conduct twelve to fifteen webinars/trainings in 2021.



Future Directions for EPA's SNEP

- Finalize, publish, and begin to implement the [SNEP's Five-Year Strategic Plan](#) in February 2021.
- Conduct four information webinars and two regional workshops in 2021.
- Continue to release bi-monthly SNEP Newsletters (register [here](#)).
- Begin developing a SNEP Regional Monitoring Strategy in Spring-Summer 2021.
- Finalize project level, regional, and programmatic metrics to better evaluate SNEP and its impact on the environment of southeast New England.
- Develop a SNEP Dashboard for rapid analysis of programmatic, environmental, and project metrics and results.
- Release a SNEP State of the Region Report in 2025.
- Continue innovative research through interagency agreements and contracts.
- Release a Request for Applications (RFA) for an entity to administer the SNEP Watershed Implementation Grants program from FY22-27.
- Release a Request for Applications (RFA) for the new Pilot Watershed Initiative which will use small watersheds to demonstrate how communities, tribes and local organizations can make use of concentrated and collaborative work to achieve quantified improvements in environmental conditions.

Getting to Resilience: Restoration and Adaptation in Southeast Coastal New England



APPENDIX A

Southeast New England Program Congressional Charge

Many federal, state, and local agencies – along with partners in research institutions and nongovernmental organizations (NGOs) – implement programs to restore, preserve, and monitor the coastal watersheds of southeast New England. Each of these entities has limited responsibility and jurisdiction and none is charged with considering broad ecological needs across the southeast New England coastal region as a whole or has the tools to adequately address the full range of coastal issues in this region.

To address this gap, in 2012 the United States Congress charged the U.S Environmental Protection Agency (EPA) with forming an interagency group to address the region's environmental challenges and since 2014 has appropriated funding to support restoration activities. The following language was included in the Interior section of the Omnibus Appropriations Bill for Federal Fiscal Year 2012 (FFY12) and calls for coordinated action by New England coastal and estuarine agencies and organizations:

Southern New England Estuaries- The conferees recommend that the Agency convene and lead a comprehensive regional policy coordination and outreach effort to protect, enhance, and restore the coastal watersheds of southern New England. No entity or consortium exists to meet these challenges, and there is an urgent and immediate need for such an effort. For example, in Rhode Island's Narragansett Bay, there are documented extensive areas of pollution severely degrading fish and wildlife habitat and water quality; problems that are compounded by the effects of warmer water temperatures and milder winters. The conferees recommend that EPA establish goals for the regional effort, emphasizing water quality and habitat restoration as well as the development and implementation of innovative technologies to meet these challenges and create jobs. The effort should provide for streamlined interagency communication and involve an inclusive stakeholder process. Specifically, EPA should collaborate with State agencies as well as other Federal partners such as the National Oceanic and Atmospheric Administration, the U.S. Fish and Wildlife Service, U.S. Geological Survey, Natural Resources Conservation Service, and the Small Business Administration. The Agency should also include stakeholders from local governments and agencies, non-governmental organizations, and academic institutions. The conferees also recommend that the Agency, through this regional effort, facilitate the development of strategies to restore and protect the southern New England Estuaries.

Congress authorized EPA to coordinate and catalyze these various functions and programs to enhance the region's overall capability and capacity – convening an interagency process to address complex issues at the ecosystem level, using existing resources more efficiently, finding synergies and leveraging opportunities across multiple agencies and organizations, and increasing the likelihood of developing sustainable solutions. This interagency group, headed by the EPA, is called the Southeast New England Program (SNEP).

APPENDIX B

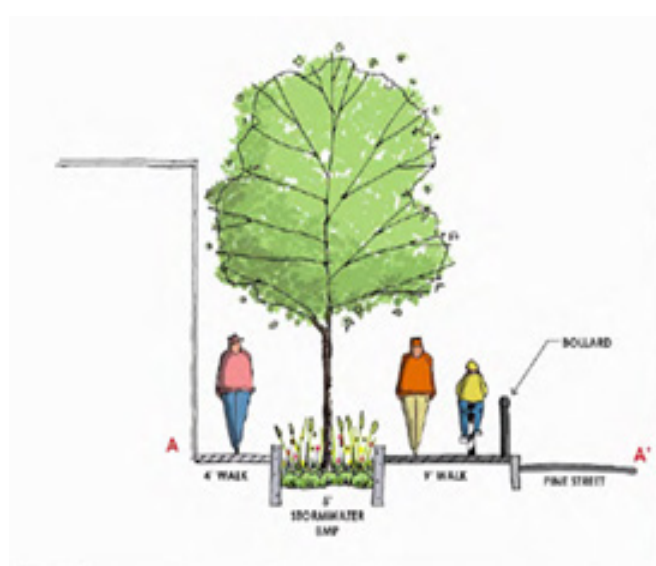
SNEP Project Highlights

Below are examples of ongoing and completed SNEP funded grants and subawards. Please contact SECoastalNE@epa.gov for more information.

Green and Complete Streets Stormwater Planning in Pawtucket, RI (Multiple Grant Programs)

Grants to the city of Pawtucket have led to creation of a master stormwater plan that includes a digitized system map and Geographic Information Systems (GIS) analysis of the city's infrastructure. This led to incorporation of Green Infrastructure (GI) into the redevelopment of the Pawtucket/Central Falls commuter rail station and overall transit-oriented design for the central city area. Pawtucket's Green & Complete Streets Project is on track as a local example of the Watershed Grant Program's emphasis on critical partnerships and integrated restoration. Partnering with the Narragansett Bay Commission, the City was awarded

more than \$376,000 to implement Green Stormwater Infrastructure (GSI) as part of a larger transportation effort coordinated with the projected 2021 arrival of a new commuter rail and bus transit hub and the development of a transit-oriented urban district. In addition to the economic benefits expected from the new hub, the installation of the green streets' elements will help restore water quality to the Blackstone River and Narragansett Bay. At present, more than 86% of the City's land is impervious cover and its combined sewer system experiences frequent overflows due to excess stormwater inundation. To counteract these problems, the Green & Complete Streets Project will implement at least four unique GSI features to disconnect stormwater from the sewer system while also advancing multimodal (walking, biking, transit, automobile) transportation access. Preliminary designs include porous pavers, on-street rain gardens, and bioretention planters in pocket parks and along walkways to separate pedestrians and cyclists from vehicular traffic. An innovative feature will be the incorporation of so-called "silva cells," or modular pavement systems containing unlimited amounts of healthy soil beneath paving while supporting traffic loads and accommodating surrounding utilities. In addition to enhancing tree cover, the cells will help manage the rate, quality and volume of stormwater and contribute to the health and aesthetic values of the neighborhood. Limited information regarding maintenance requirements and associated costs has historically fueled reluctance to implement GSI features in neighboring municipalities. To maximize the transferability of the present project, the Pawtucket DPW will develop a report to serve as a resource for municipal operations managers, engineers, and staff. It will also produce a set of instructional videos to demonstrate maintenance activities as an educational resource for future DPW staff. (Graphic Credit: City of Pawtucket)



Implementing the First Massachusetts Watershed Permit in Pleasant Bay

“If you want to go fast, go alone. If you want to go far, go together.” The Pleasant Bay Alliance has taken the lesson from this African proverb to heart. Created from a shared commitment to nutrient reduction efforts, the Cape Cod towns of Brewster, Chatham, Harwich and Orleans learned early on in their reduction efforts that working together would be easier than going it alone. For more than two decades, the Alliance has been cooperating on nutrient issues, including water quality monitoring and modeling that led the EPA to issue Total Maximum Daily Load (TMDL) reports for Total Nitrogen across 19 segments throughout Pleasant Bay. It was these efforts that led the Alliance to work with the MA Department of Environmental Protection to establish one of the first regional watershed-wide permits to allow for the creation of a shared management plan for nutrient reduction.

In addition to standard nutrient reduction efforts such as infrastructure upgrades or sewer expansion, the watershed permit opened the door for new and innovative nutrient reduction technologies such as the installation of permeable reactive barriers, the use of golf course fertigation (uptake of nitrogen from groundwater through irrigation), the installation of innovative and alternative (I/A) septic systems, nitrogen bioextraction via shellfish aquaculture, and the potential for nitrogen reduction credit trading between towns. While towns were interested in these promising technologies, pilot projects were needed to determine how well they would work. Funding for these pilots quickly became an issue due to tight town budgets. Through partnership with the Southeast New England Program (SNEP), the Pleasant Bay Alliance was able to test many of these new and innovative solutions while continuing to work toward their nutrient reduction targets for the first phase of their 20-year watershed permit. In 2018, SNEP funding enabled the Alliance to study the municipal requirements of I/A septic system installation; develop a monitoring framework to determine shellfish aquaculture efficacy in nutrient extraction; launch a nutrient-trading demonstration project; and update the fifteen-year-old ecological model serving as the underpinning for the initial TMDL designation

Find it, Fix it: Citizen Science Combats Easton Beach’s Problems, Aquidneck Island, RI

Clean Ocean Alliance (COA), a Rhode Island-based nonprofit, was formed in 2006 after a parking ban to restrict beach accessibility stirred two local surfers to contact both Newport Police and the City Council to improve the situation as pipe ruptures and combined sewer overflows led to beach closures well into the summer. Marty Grimes and Dave McLaughlin organized 27 other surfers to discuss the importance of water quality in their community. United by their shared interest in maintaining year-round beach accessibility for the public, the group resolved to increase the frequency of local water quality monitoring to better understand when unsafe conditions exist. Water quality at Easton’s Beach has been an ongoing problem, influenced both by the aging infrastructure of the adjacent public drinking water reservoir and the increasingly developed surrounding watershed. The beach, known locally as “First Beach,” is located directly across the street from Easton Pond, which is one of nine drinking water reservoirs for Aquidneck Island maintained by the City of Newport.



The pond is surrounded by a berm that essentially causes a large moat along the side, and this moat is a source of pathogens on the beach. Identifying and reducing potential pathogen sources to the beach has been a complex problem and despite \$12 million of combined investments by the City of Newport and Town of Middleton, closures have continued. Several fixes have been tried and more continue to be sought to solve the problem. For example, in 2014 the City and Town tried using ultraviolet (UV) disinfection to treat pathogens in water from the moat when storms led to at least 0.25 inches of rainfall. Unfortunately, water in the channel was routinely re-contaminated, and COA water quality sampling revealed that Easton's Beach was still experiencing elevated pathogen levels. This finding means that more must be done to treat pathogen sources entering into the beach during dry weather too. Motivated by these results, COA fostered a partnership between the City of Newport, Town of Middletown, and Rhode Island's Department of Health to identify pathogen sources during both dry- and wet-weather events, facilitate the development of pathogen remediation plans, and suggest improvements in stormwater conveyance systems to reduce beach closures. (Photo Credit: Clean Ocean Access)

Nourishing Ecology and Society with Beachgrass, Wampanoag Tribe of Gay Head (Aquinnah), Martha's Vineyard, MA.

The largest Atlantic hurricane on record, Hurricane Sandy in 2012 hit parts of New England causing enormous damage and requiring a correspondingly enormous response. Recognizing that recovery was not sustainable by simply replacing past systems, partners at the national, regional, local, and tribal levels also incorporated efforts to enhance coastal resilience at the same time. Hurricane Sandy and subsequent storms damaged Lobsterville Road and the culvert beneath it while erosion of the dunes put the adjacent marsh ecology at risk. To address these issues, the tribe partnered with the town of Aquinnah to carry out a SNEP-funded coastal enhancement project that included dune nourishment, plantings, reinforcements, and a culvert replacement. Lobsterville Road runs parallel to the beach and is a major local access way. People rely on the road to reach their fishing boats or to hunt, and nearly everyone relies on the road to support their livelihoods. The marsh, too, is a culturally significant place for the Wampanoag and is home to several endangered and threatened plant species. In addition, the Commonlands support some of Massachusetts' very few naturally occurring cranberry bogs. Dunes were the key to protecting the marsh and the road alike. The tribe worked with the U.S. Army Corps of Engineers to move 43,000 cubic yards of dredged sand from another project into place along the shoreline. After initial delays, the work was finished in just under three weeks. Volunteers came in to plant the newly formed dunes in 2016 with 19,000 plugs of beach grass on one section of the beach. Native shrubs were planted near the roadside and cedar shakes—small wooden planks that catch windswept sand—were added to amplify the effects of the beach grass. Each subsequent year, volunteers repeated the process in another area, for a total of three finished installations. The tribe and town also needed to stabilize the road and improve drainage from the marsh by replacing a culvert along Lobsterville Road. The culvert was designed to capture nutrients and sediment to reduce impacts on the beach. Consideration was also given to climate change impacts, and the culvert was sized to accommodate higher flows resulting from more intense storms. (Photo Credit: Wampanoag Tribe of Gay Head Aquinnah Natural Resources Department).



Providence Stormwater Innovation Center: A Unique Opportunity in an Unlikely Place

In 2017, managers in the city of Providence, RI found themselves with an unexpected opportunity. A consent decree had been issued by the State, which included a requirement for construction and maintenance of 42 separate stormwater projects within Roger Williams Park, a major undertaking to which the City committed \$1.5 million. That commitment became a down payment on important lessons learned of the challenges of constructing and maintaining green stormwater practices. Implementing the required projects planted a kernel of innovation: what if we documented all of these challenges and provided training and educational resources to prevent other municipalities from finding themselves in a similar predicament? From that seed, the Stormwater Innovation Center was born: a Center focused on community outreach, education, and research. With initial funding from EPA through Restore America's Estuaries, a pass-through entity for the Southeast New England Program, the Center launched in November of 2019 with three main objectives: 1) to provide training to organizations and municipalities on stormwater management and green infrastructure design and implementation; 2) to monitor green infrastructure for functionality and to determine best management practices and the proper length of maintenance; and 3) to provide public outreach and increase community engagement with stormwater management practices. The Center is located in the heart of Roger Williams Park, which serves as a living laboratory to test innovative stormwater management and green infrastructure designs. Prior to COVID, the Center hosted regular training events to engage local community members in new stormwater management strategies. "That's one of the strengths of the Center and its location," said Brian Byrnes. "Of the trainings that we've done prior to COVID, we would do a half-day in class and then take these participants -- engineers, DPW workers, homeowners, facility managers-- into the practices to have them do the actual maintenance [in the field]." And because of the unique landscape of the park, "we can mimic almost anything that you would see in an urban [stormwater] setting." (Photo Credit: Providence Stormwater Innovation Center)



Falmouth Harbor Voluntary Homeowner Septic System Upgrades, Falmouth MA

West Falmouth Harbor fails to meet water quality standards due to nitrogen pollution and is listed as impaired by Massachusetts Department of Environmental Protection (MassDEP). A watershed nitrogen pollution budget (TMDL strategy) has been approved for the watershed. The major source of nitrogen pollution is septic systems and the Town of Falmouth and its partner, the Buzzards Bay Coalition, are working to promote the use of innovative nitrogen-reducing onsite septic systems by working with homeowners to replace twenty traditional septic systems or cesspools on properties located within 300 feet of West Falmouth Harbor with nitrogen removing septic systems or eco-toilets (composting or urine-diverting systems). The town and the Coalition are working with the West Falmouth Village Association to secure commitments from property owners, provide grants to homeowners of up to \$10,000 to upgrade their systems, and monitor the performance of the newly installed systems.

APPENDIX C

SNEP Network Partner Accomplishments (2020)

Network Partner Organization	Year 1 (2020) Accomplishments
Audubon Society of RI	1) The SNEP investment has created and launched a center for learning, training, and public engagement, focused on the stormwater practices for the Stormwater Innovation Center (Virtual Launch held on June 18th) https://www.providencejournal.com/news/20200621/stormwater-solution-roger-williams-park-project-model-for-other-communities
	2) Monitoring at the Stormwater Innovation Center: Inflow/outflow water quality and water quantity monitoring and rainfall + cyanobacteria. https://www.stormwaterinnovation.org/water-quantity https://www.stormwaterinnovation.org/water-quality https://www.stormwaterinnovation.org/cyanobacteria
	3) Two swales with trees are being installed by Groundwork RI and monitoring will be installed to measure performance
	4) Public engagement: The Center developed a story map showcasing Center activities https://www.stormwaterinnovation.org/map and hosted the Rain Harvest Arts Festival.
	5) Training: June 26, 2020. Green Stormwater 101. Featuring Jamie Houle. July 31, 2020. Designing Green Stormwater. Featuring Jamie Houle.
Cape Cod Commission	1) Generated a map-based planning tool to estimate runoff and pollutant loads. The approach makes use of statewide data sets which will facilitate future expansion from the one example town (Falmouth) completed in Year 1 to the rest of Barnstable County, and further throughout the state and SNEP region.
	2) Prepared an inventory of existing tools and resources for municipalities dealing with regulatory and non-regulatory stormwater challenges, and an organization / evaluation template that will facilitate easy filtering, searching, and exploration of tools and associated case studies from a single interface.
	3) Developed a modified tool, based on the MA Audubon bylaw review tool, to guide bylaw reviews and identify areas where local regulations can be updated both for regulatory compliance and for better general stormwater management. Began using the tool with Pleasant Bay Alliance in year 1 and will expand in Cape Cod in year 2.
Elizabeth Scott Consulting	1) Assisting with establishment of the foundational framework for the SNEP Network
	2) Advancing Maidford River pilot project in spite of Covid-19 lockdown - meeting project milestones though at slower pace than originally planned.
	3) Managed Call for Participants Projects as an on-the-ground project manager

Kimberly Groff Consulting	1) Supported the creation and implementation of a cohesive bi-state (Massachusetts and Rhode Island) stormwater technical assistance Network.
	2) Managed Network providers to deploy technical assistance to the Pleasant Bay Alliance (Orleans, Chatham, Harwich, and Brewster)
	3) Managed the deployment of technical assistance through the pre-approved Network contractor pool to the Town of Mendon for the development of a concept level site plan
	4) Worked with Network partners to develop a scope of work for the Canoe River Aquifer Resilience project
Mass Audubon	1) Worked with partners and municipalities in the Taunton River watershed, selected and developed the scope of work for the Taunton Watershed Pilot Project: Canoe River Aquifer Resilience Through Regional Application of Nature Based Solutions
	2) Presented two webinars 1.) Saving Land, Water, and Money with Smart Local Land Use Regulations (fifty-five attendees) 2.) Building the Case for Green Infrastructure (sixty-three attendees)
	3) Responded to ten assistance requests from communities/partners (not including RFR awards)
	4) Consulting on four ongoing technical assistance awards
	5) Networking and resource sharing at two conferences, ten regional meetings, and two workshops
	6) Collaborated with five external partners on Network-related work, mostly bylaw review best practices (URI, CCC, Mass Rivers Alliance, Old Colony Planning Council, Metropolitan Area Planning Council)
Rhode Island School of Design & Brown University	1) Developed database of stewardship organizations for SNEP Region (over 500 tribes, organizations and environmental groups, and city/state/federal/municipal agencies)
	2) Created a core team of 19 individuals representing 'grass tops' and tribes in the region, to iterate and provide feedback in the development of a Southeastern New England-specific StewMAP tool
	3) Began developing New England-specific StewMAP tool
	4) Hired and trained three research assistants (two undergraduate and one graduate) in social science research methods
Save the Bay	1) Maidford River Restoration: Established strong project team; secured permission from property owners for floodplain restoration site evaluation; created Buffer Restoration Guide and project factsheets, sent initial mailings to all 43 buffer property owners, and conducted four buffer site visits so far; designed and produced buffer signage.
	2) Storm Drain Marking: Ordered over 16,000 storm drain markers ("Drains to Bay," "Drains to River" or "Drains to Ocean.) Overcame delays due to pandemic and installed over 1,600 storm drain markers in ten Narragansett Bay communities with assistance from fifty-five volunteers. Created volunteer training materials including an instructional video

	<p>3) Developed salt marsh migration and stormwater infiltration conceptual plans for Allens Pond pilot project and the Woonasquatucket River Watershed Council, respectively. Encouraged and assisted RI and MA communities in applying for Technical Assistance Network services during the year 1 Call for Participants.</p>
	<p>4) Save The Bay’s Communications Department supported SNEP/STAN efforts by contributing photography and content to the early stages of the STAN website development; by promoting storm drain marking volunteer opportunities via news releases, on social media, and in digital publications; by consulting with the Network on possible webinar outlets and promotional strategies; by sharing media lists and contact information with the network; and by designing and editing outreach materials and signage.</p>
<p>Thrope Environmental</p>	<p>1) Organized, implemented, and facilitated an environmental leadership exchange between the Narragansett Bay and the Chesapeake Bay held in Newport, RI on September 25, 2019.</p>
	<p>2) Implemented a workshop entitled “Show me the Money – Preparing for Success: Funding Climate Resilience Initiatives” held on February 20, 2020, at the Stormwater Innovation Center, Rhode Island.</p>
	<p>3) Implemented four webinars entitled “Covid-19 Preparedness and Recovery: An Opportunity for a Stronger and Resilient New England” on April 10, April 17, April 24, and May 1, 2020.</p>
	<p>4) Coordinating a Climate Leadership Training for Elected and Appointed Officials series in collaboration with the Association of Climate Officers to be held as webinars on October 21, October 28, November 18, and December 2, 2020.</p>
	<p>5) Developing a leadership exchange for Wareham, MA that includes monthly podcast series, closed sessions with invited guests from around the country and featured public webinars to share the results of leadership engagement. Each month has a main theme that includes “incorporating green infrastructure for stormwater and other co-benefits” held on October 7, 2020; “integrating action planning for climate, social, and economic resilience” scheduled for November 4, 2020; “revitalizing waterfront communities through comprehensive redevelopment” scheduled for December 2, 2020; and, “Smart growth and strategic zoning for livable communities” scheduled for January 6, 2021.</p>
	<p>6) Identifying and prioritizing climate actions and potential financing options related to mitigating the long-term impacts of climate change for Bourne, MA. Extensive research and analysis have already resulted in a completed Climate Resilience Capacity Review and a Prioritization and Criteria for Short, Medium, and Long-Term Projects to guide community investments.</p>
	<p>7) Exploring innovative financing mechanisms for stormwater and climate resilience for the Pleasant Bay Alliance, MA. Municipalities are evaluating four possible options for financing stormwater that include informal collaboration on equipment, projects, and services; a more formal partnership that creates an arrangement where revenue is collected and managed by a specific entity; and, innovative opportunities through engagement of the private sector.</p>

<p>The Nature Conservancy</p>	<p>1) Selected Resilient Taunton Watershed Network (RTWN) pilot to advance nature-based solutions in the Canoe River Aquifer</p>
	<p>2) Supported wetland restoration monitoring as part of baseline for RTWN pilot. Continued to validate a model to identify wetland restoration opportunities for flood abatement and water quality benefits.</p>
	<p>3) Advanced NBS for water supply and flood mitigation for the Assawompsett Ponds Complex based on the Hydraulic and hydrologic (H&H) model funding by the call for participants.</p>
<p>University of New Hampshire Stormwater Center</p>	<p>1) SNEP Retrofit Manual: Provided over 220 hours of additional technical assistance to federal, state, and local regulatory officials and stormwater professionals. Worked in 4 communities to advance innovative small-scale stormwater controls for watershed restoration</p>
	<p>2) Roger Williams Park Stormwater Innovation Center: Developed and delivered two trainings for stormwater professionals. Monitored four Green Stormwater Infrastructure systems throughout the park. Modeled all 42 installations using up-to-date EPA performance curves. Developed a state-of-the-art real-time water quality monitoring system at the inlet and outlet of the park.</p>
	<p>3) Interstate Tracking and Accounting Pilot: A new task force has been formed to proactively develop and promote innovative tracking and accounting approaches for structural and non-structural stormwater controls. The goal is to build a consistent regional approach to tracking and accounting mechanisms that allows for understanding of water quality improvements and long-term trends toward water resource management.</p>
<p>University of Rhode Island Nonpoint Education of Municipal Officials (NEMO)</p>	<p>1) New Webinar: Incorporating Low Impact Development in local ordinances for RI municipalities. The webinar offered American Planning Association certificate maintenance credits for members of the American Institute of Certified Planners.</p>
	<p>2) Work Can Proceed: Worked with Bristol, RI and Charlestown, RI to get Memoranda of Agreement approved by their town councils, paving the way for SNEP work to fully begin there.</p>
	<p>3) Model Ordinance Language Shared: RI NEMO updated a model ordinance to protect groundwater drinking water supplies with compact development by preventing use of multiple private wells rather than a properly regulated public well. RI NEMO also researched RI local landscaping ordinances and regulations and prepared model language to promote the use of native plants and avoid the use of invasives with development applications. These model ordinances were shared with RI municipalities.</p>
	<p>4) Impressive Invasive List Update: Lorraine Joubert assisted the RI Natural History Survey with their first update in 20 years of the Invasive Plant List. This vastly improved the list to include weedy plants, aquatic plants, and common names, making it much more user-friendly. This was promoted to our contact list of RI municipalities.</p>

APPENDIX D

SNEP Network Direct Community Assistance Projects



Community Assisted	Project Description
Stormwater Financing/Climate Resilience	
Pleasant Bay Alliance, MA	<ol style="list-style-type: none"> 1) Review of land use regulations and stormwater bylaws in the four member towns of Orleans, Chatham, Harwich, and Brewster. 2) Outline set of sustainable and scalable financing options for stormwater management. 3) Facilitation of discussions with EPA and MassDEP to quantify nitrogen removal from stormwater activities.
Town of Bourne, MA	<ol style="list-style-type: none"> 1) Development of a Coastal Resilience Action Strategy, which will include a set of key recommendations and prioritized climate resilience projects, actions, and implementation criteria designed to determine the greatest need, impact, and opportunity. 2) Development of sustainable and scalable financing options that will help lead Bourne towards successful long-term project implementation and community resilience.
Town of Wareham, MA	<ol style="list-style-type: none"> 1) Engagement in a leadership exchange with other communities and subject matter experts to help guide the redevelopment process for Wareham Village with a focus on incorporating climate resiliency, stormwater management, and green infrastructure into long-term plans that are closely connected to economic development opportunities. 2) Exploration of innovative and sustainable environmental finance opportunities associated with Wareham's redevelopment plans and introductions to potential public private partnerships examples, pay-for-performance models, and a collection of several pertinent case studies to use as reference.
Town of Portsmouth, RI	<ol style="list-style-type: none"> 1) Development of a town-wide climate resiliency planning and financing strategy
Low Impact Development, Green Infrastructure, Bylaw Review	
Town of Charlestown, RI	<ol style="list-style-type: none"> 1) Assistance in the drafting a conservation design ordinance for new subdivisions that incorporates stormwater management and low impact development standards

Town of Mendon, MA	1) Development of a concept level site plan to incorporate environmental sensitive design (ESD) planning, low impact development (LID), and green infrastructure (GI) into the parking lot retrofit on the town hall campus.
	2) Assistance in developing documentation needed to apply for an Action Grant through the Massachusetts Vulnerability Program.
	3) Assistance in development of educational content and training of town staff.
Field Assessments/Engineering	
Audubon Society of RI and Providence Stormwater Innovation Center	1) Engineering services to design non-proprietary tree filters at Roger Williams Park to demonstrate best practices in green stormwater management as part of the Providence Stormwater Innovation Center.
Woonasquatucket River Watershed Council, RI	1) Assistance with a parking lot retrofit at a Providence church in an area that drains directly to the Woonasquatucket River. The retrofit is part of the "Greening the Woonasquatucket River Greenway." Network assistance includes developing conceptual design and cost estimates for funding proposals; final engineering/landscape design; construction oversight; training of WRWC's River Rangers to install retrofits.
Southeast Regional Planning and Economic Development District, MA	1)H&H study for the Upper Namasket River watershed that will be used to evaluate, recommend, and prioritize potential restoration projects, create conceptual designs to best meet environmental needs, and utilize available funding for resource protection, restoration, adaptation, and resilience.
Mass Audubon's Allens Pond Wildlife Sanctuary	1) Salt marsh migration modelling/mapping services at The Allen's Pond Wildlife Sanctuary to determine the best locations to facilitate marsh migration, as well as staff training to better understand the process of marsh migration.
Stormwater Planning	
Town of Warren, RI	1) Development of a long-term flood mitigation plan and direct technical assistance to address stormwater flooding in a specific section of town that is prone to flooding on a regular basis.
Town of Bristol, RI	1) Development of a stormwater management and landscape improvement master plan for the Bristol Town Common.