The Southeast New England Program (SNEP) Network

CANOE RIVER AQUIFER RESILIENCE PROTECTION THROUGH REGIONAL APPLICATION OF NATURE BASED SOLUTIONS

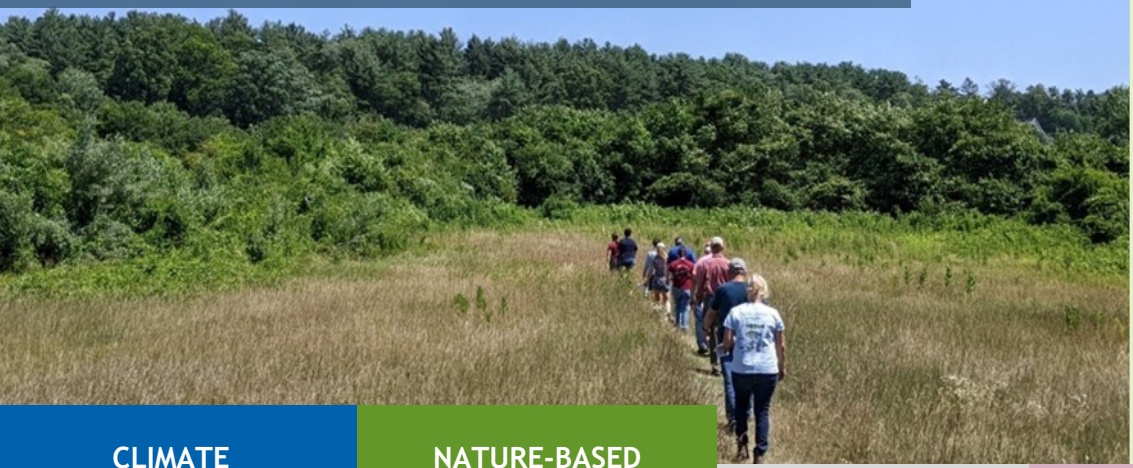
PROJECT SUMMARY

The Canoe River Aquifer is a sole-source aquifer co-located within the Towns of Easton, Foxborough, Mansfield, Norton, and Sharon, Massachusetts. For more than 50,000 people across these five communities, it is the only viable source of drinking water. The Canoe River Aquifer was designated an Area of Critical Environmental Concern (ACEC) by the State of Massachusetts more than 20 years ago, but protecting the watershed heavily relies on local policies and enforcement. Significant development pressures in the surrounding region, compounded by climate change, are impacting both the function of ecosystems and the vulnerability of local communities to a variety of environmental hazards.

SNEP Network partners teamed up with the RTWN and representatives from the five aquifer communities to identify and advance local projects with the greatest potential to provide multiple co-benefits, such as protecting drinking water resources, improving wildlife habitat and protecting people and infrastructure from extreme weather.

> ***Nature Based Solutions (NBS)*** *leverage natural systems and function to enhance nature's capacity to provide clean air and water and protect communities from extreme weather.*

Site visit to Sam Wright Field in Easton, one of several wetland restoration priorities identified.



CLIMATE RESILIENCE PLANNING

NATURE-BASED SOLUTIONS

STORMWATER PLANNING

FUNDING + FINANCING

LID/BYLAW REVIEW

PROJECT HIGHLIGHTS

SNEP NETWORK PARTNERS:
Southeastern Regional Planning and Economic Development District (SRPEDD), The Nature Conservancy (TNC), Mass Audubon, Kimberly Groff Consulting, New England Environmental Finance Center

Consultants:
Horsley Witten Group, BSC Group, Walberg Consulting

LOCAL PARTNERS:
Towns of Easton, Foxborough, Mansfield, Norton, Sharon; Resilient Taunton Watershed Network (RTWN)

LOCATION:
Canoe River Watershed & Aquifer region in Southeastern, MA

SCALE/SIZE:
The Canoe River Aquifer is fed by 19.7 sq. mi. of land in 5 communities

KEYWORDS:
Regional collaboration, aquifer protection, Nature Based Solutions (NBS), climate resilience, stormwater management, habitat restoration

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COLLABORATIVE APPROACH

To address these concerns, the five communities participated in an 18-month facilitated planning process hosted by SNEP Network partners. This community-driven endeavor identified NBS projects that would reduce local flooding, restore habitat, protect drinking water quality, and improve ground water supply and community resilience to climate change impacts.

The goal of the Canoe River Aquifer Resilience Project was to identify high priority projects to advance towards implementation. More than 300 potential projects were initially identified from previous local and regional planning efforts. These projects were screened and evaluated for opportunities where NBS could provide multiple co-benefits to the surrounding communities. Projects were further vetted through an extensive public engagement process designed to learn more about local vulnerabilities and educate people about the importance of NBS to address these vulnerabilities.

PRIORITIZING COMMUNITY CO-BENIFTIS

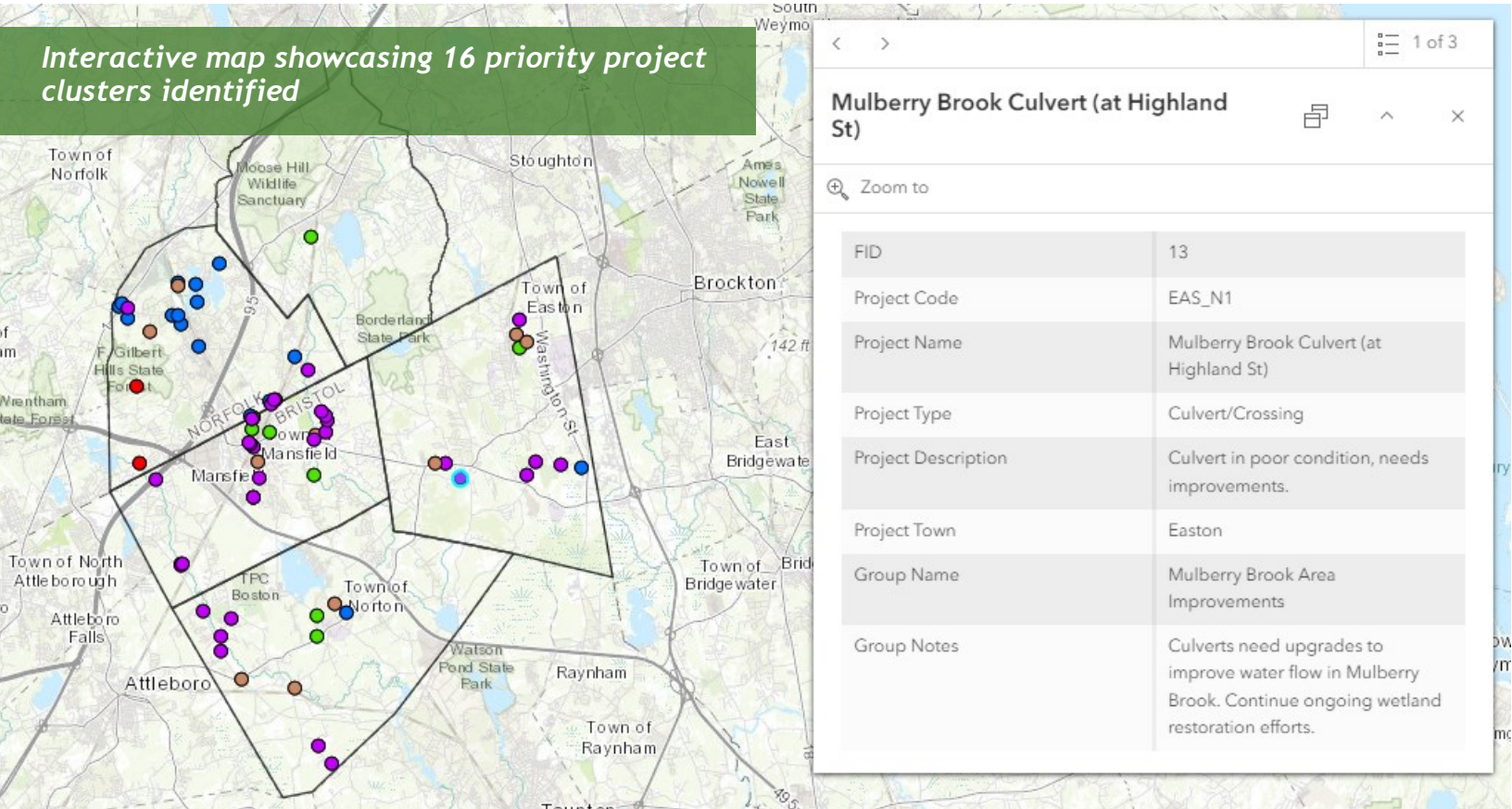
The project team and community representatives classified the identified projects into one of four project categories: 1. Water Supply and Drought Resilience; 2. Flooding, Stormwater, Dams, and Culverts; 3. Forests, Habitats, and Invasive Species; and 4. Public Health and Emergency Preparedness.

The communities selected projects in Categories 1 and 2 as the highest priorities to move forward with during this planning effort. Mapping analyses helped identify project clusters along connected stream networks. Approaching clusters of projects at the sub-watershed scale results in a more holistic approach to restoring natural flow and the ability of the landscape to absorb and filter water. Further analysis evaluated opportunities where projects could offer co-benefits, as follows:

- **Scientific Analysis –** which NBS are going to have the greatest ecological impact? Hydrologic impact?
- **Regional Benefits** – which NBS will have the greatest positive impacts on communities in the region?
- **Ready to Go –** which NBS have local support to get built soon and be properly maintained?
- **Equitability** – which NBS are going to help people and communities most vulnerable to climate change?
- **Community Driven Needs –** which NBS best address what residents care about most?

At least one project and up to 5 clusters of projects were identified in each town, including 2 regional project clusters that included multiple towns. Each project was selected based on the opportunity to incorporate NBS with the potential to realize co-benefits after implementation. The cumulative impact of addressing connected project clusters, versus individual projects, compounds the regional benefits and makes a more competitive case for applicants seeking grant funding opportunities.

Interactive map showcasing 16 priority project clusters identified



PROJECT OUTCOMES

The SNEP Network's pre-approved consultant pool removed implementation barriers through a streamlined process of securing technical assistance. The creation of a project website, educational Story Map, and interactive map showcasing the 16 priority project clusters was an effective tool to communicate the results to the public. The SNEP Network's sustained direct assistance enabled the advancement of priority projects. A funding workshop, hosted by the SNEP Network, facilitated connections between project advocates and funding organizations.

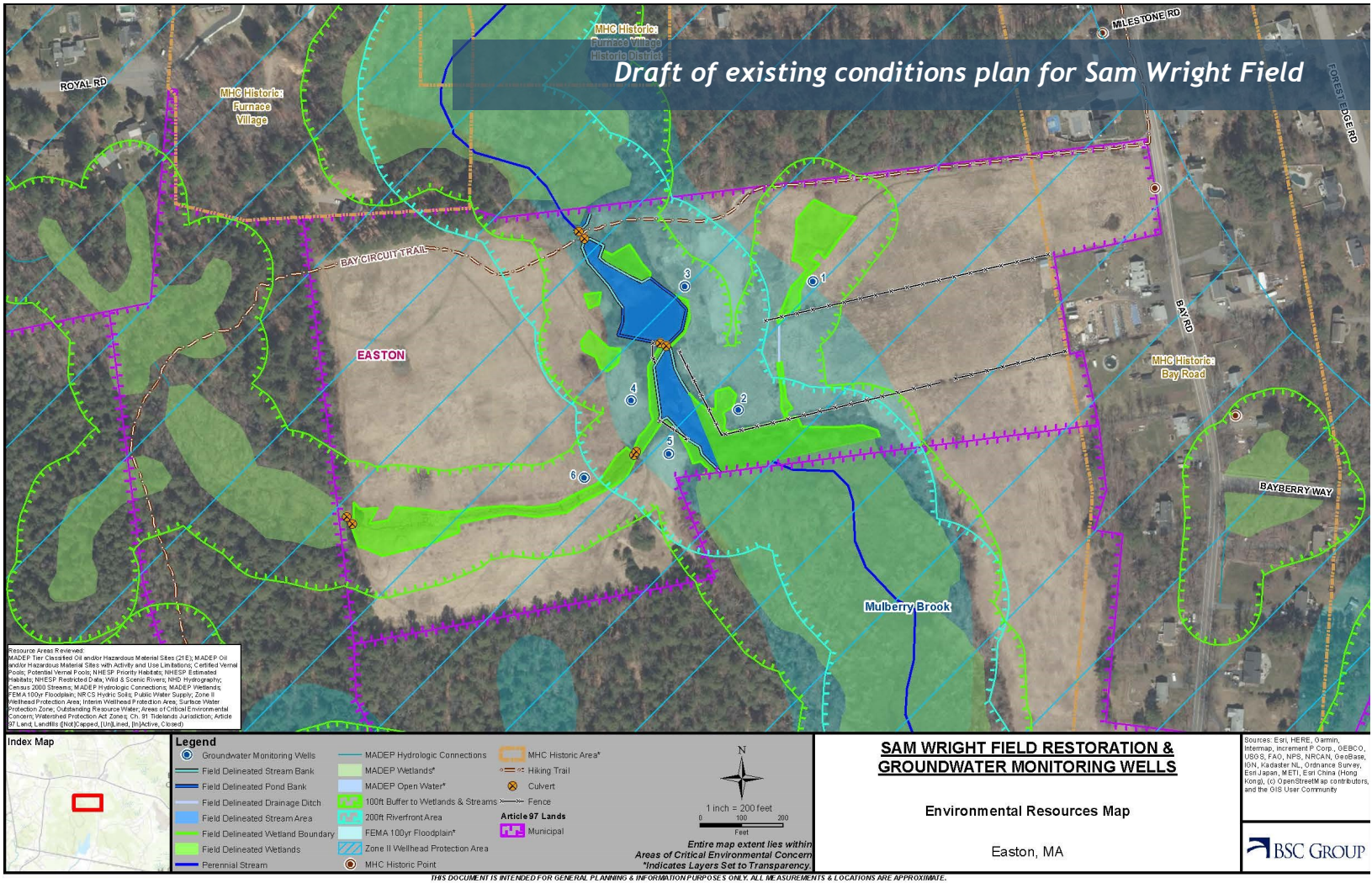
KEY FINDINGS

Municipal staff have significant capacity limitations and competing priorities that make pro-active planning efforts challenging. Once projects are identified, many communities struggle with identifying funding, applying for grants and managing grant awards. The SNEP Network's consistent presence and outcome focus was beneficial for advancing projects.

BEST PRACTICES/LESSONS LEARNED

Approaching projects at a watershed scale can provide more meaningful results through targeted efforts to restore the natural flow of water while providing multiple co-benefits at a regional scale. Significant investment is needed to achieve meaningful regional scale collaboration that fosters key partnerships with watershed groups, non-profits, regional planning agencies and local leaders to achieve common goals. These investments not only build sustainable project implementation momentum but enable the leveraging of resources to expand funding.

Project success is directly related to the engagement of community leadership as well as the public. Thoughtful engagement is needed at the outset of any initiative and should be continued throughout the duration of implementation. Communication tools like story maps aid public messaging and help Town management and the



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public understand how their involvement influences the advancement of community water supply resilience. Meeting communities where they are at – physically by seeking input at community events and gathering spots, as an alternative to the traditional public meeting format, and figuratively by understanding community needs and connecting projects to those priorities – has proven to be more effective at building relationships and gaining support for work. Early adopters of NBS initiatives provide leadership models to educate communities across the region.

NEXT STEPS

SNEP Network assistance is helping communities advance projects toward implementation. A few early wins have already been realized:

- Sharon: renewed project engagement helped reconnect the Great Cedar Swamp project with previously allocated implementation funding from the MA Division of Ecological Restoration following years of project planning and a period of staff turnover. The site monitoring and concept designs are complete and the project is advancing to detailed design.
- Easton: the Mulberry Meadow Brook wetland restoration project was advanced to the next phase with State support using a more holistic watershed approach that incorporates stream restoration. The project is advancing to preliminary design.
- Mansfield: the Rumford River knotweed management project cluster was advanced to an MVP Action grant application with a more holistic watershed restoration approach.

The SNEP Network will continue to support the Canoe River Aquifer Communities in further developing projects and securing funding for implementation through 2024.

ABOUT THE NETWORK

The SNEP Network provides free training and assistance to municipalities, organizations, and Tribes in Rhode Island and Massachusetts to achieve healthy watersheds, sustainable financing, and climate resilience **The SNEP Network is a project of the New England Environmental Finance Center and is funded by the U.S. Environmental Protection Agency's Southeast New England Program.** To learn more about or request network services, SNEP communities can visit www.snepnetwork.org

SNEP NETWORK

New England neefc Environmental Finance Center

Mass Audubon

The Nature Conservancy

SRPEDD Southeastern Regional Planning & Economic Development District

Kimberly Groff Consulting

ADDITIONAL RESOURCES:

- 2022 SNEP Symposium Presentation (Canoe River): https://www.epa.gov/system/files/documents/2022-06/nature-based-solutions-for-climate-resilience-and-resource-protection.pdf
- Network Narratives: https://snepnetwork.org/2021/10/13/network-narratives-canoe-river-aquifer-resilience-project/
- Watershed-scale Climate Collaboration Story Map (Mass ECAN): https://storymaps.arcgis.com/stories/e8cd32ad2255490fb29dcb9073c7ef34

ACCESS PROJECT MATERIALS BY SCANNING THE QR CODE.