

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality:	Newburyport
Project Title:	<i>Resilient Critical Infrastructure: Adapting a Wastewater Treatment Facility, Underground Electric Lines and Public Rail Trail to Future Sea Level Rise and Storm Surge</i>
Award Year (FY):	FY21
Grant Award:	\$1,000,000
Match:	\$343,495
Match Source:	Local Sewer Funding, local Community Preservation Act funding, federal Recreational Trails Grant, in-kind staff hours
One or Two Year Project:	One year
Municipal Department Leading Project:	Office of Planning and Development
Project Website URL:	https://www.cityofnewburyport.com/planning-development/clipper-city-rail-trail-harborwalk/news/city-of-newburyport-announces-start-of

Community Overview:

- What is the population size of your community and where is it located?
 - Newburyport is a small city in Essex County of approximately 18,481 people which is located approximately 35 miles north of Boston.
- Do you have any [Environmental Justice](#) or other Climate Vulnerable communities? (Think about both those who live and work in your town.)
 - Newburyport has minority and low-income residents such as the subsidized senior low-income apartments at the James Steam Mill complex located a few hundred feet from the site, but does not have Environmental Justice communities as defined by the state. Approximately one-third of Newburyport residents served by the wastewater treatment plant and the underground electric transmission lines have median annual household incomes below 65% of the statewide median according to census data. Approximately 7% of Newburyport's population lives in poverty as defined by the federal government, as well as 4.2% of Newbury's population. The project will protect the health and quality of life of all vulnerable populations in the community and region, including the underserved populations of the elderly and low income, and people with disabilities, children and youth, as well as improve opportunities for safe and affordable recreation and transportation through the incorporation of the Rail Trail.
- Other unique traits of your municipality like who the top employers are, geography, history, etc.
 - Newburyport is an historic seaport, residential community, and vibrant tourist destination located on the Merrimack River and Atlantic Ocean. Newburyport has been largely shaped by its waterfront. In the 17th and 18th centuries, Newburyport was a center for ship-building, fishing, and trade. In the 19th Century, the community's waterfront became industrialized and supported

commercial activities such as the regional distribution of coal by railroad. The waterfront and downtown have been revitalized in recent decades through public and private investment, and today the community has a thriving recreational waterfront and a flourishing downtown cultural center.

Project Description and Goals:

- Where was the project located?
 - The project was located off of Water Street (approximately 157 Water Street) along the Merrimack River.
- What climate change impacts did the project address?
 - The project addressed the vulnerability of the City's wastewater treatment plant as well as underground electric transmission lines to climate change induced rising sea levels and storm surge.
- What were the specific goals and tasks of the project as stated in your application?
 - The project's goals included providing protection against storm surge for the City's wastewater treatment plant (WWTP) beyond the current FEMA Base Flood Elevation level of 12' and allow for an additional approximately two feet of future sea level rise, based on site specific conditions, in order to protect the WWTP and its critical services to the region for decades and allow the City to plan for future decisions regarding wholesale neighborhood elevation and/or WWTP relocation towards the end of the facility's expected useful life. Specific tasks included constructing a sloped stone revetment to elevation 14', a raised berm to elevation 14.5', and a paved Rail Trail on top.
- Did your project meet the goals set forth in your application in terms of:
 - Employing nature-based solutions: YES; remediated site; removed invasive vegetation; planted multiple species of beneficial trees, shrubs, and grasses; facilitated improvements to air quality and climate mitigation through pedestrian and bicycle trail.
 - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations: YES; in addition to preventive outcomes, we are hearing multiple stories of low-income and elderly residents who are indicating that the trail has "changed their life," e.g., allowing them to get all the way downtown in a safe and social way, commenting on how their physical and social lives have reopened with the trail, etc.
 - Providing regional benefits: YES; the project provides regional benefits as it helps protect the WWTP that serves both Newburyport and a substantial portion of the neighboring Town of Newbury; the project also helps protect the underground electric transmission lines that supply power to Newburyport and across the river to the Town of Salisbury and other communities; and the project provides a pedestrian/bicyclist trail that directly connects to the Town of Newbury and the other communities in the regional Coastal Trails Network.
 - Implementing the public involvement and community engagement plan set forth in your application: YES; printed flyers, local newspaper articles, website

postings, regional emails, podcasts, and signs were generated to inform and engage the community, building on many years of work, meetings, reports, and outreach to the community on this subject;

- Finishing the project on time: YES, the construction of the project was completed right on time.

Results and Deliverables:

- Describe, and quantify (where possible) project results (e.g. square footage of habitat restored or created, increase in tree canopy coverage, etc.). Report out on the metrics outlined in your application.
 - Installed 900 Linear Feet of sloped stone revetment to protect shoreline;
 - Installed 5,880 Cubic Yards of borrow to elevate berm plus 410 CY of loam;
 - Raised revetment and berm to 14.5' elevation, 2.5' above FEMA BFE and approximately 2'-4' above the existing grade of the WWTP;
- Provide a brief summary of project deliverables with web links, if available.
 - The project's primary deliverables involved construction of the new facility (divided into 25%, 50%, 75%, and 100% construction); the City bid, selected, and contracted with a contractor, who mobilized to the site, cleared vegetation, removed debris, received stone from a quarry, installed the sloped stone revetment and an adjacent vertical seawall, and brought in fill to install an elevated berm; another contractor installed two new manholes at the new grade to access the underground electric duct bank; the contractor installed loam and plantings, paved the 10-foot-wide path on top of the berm, and installed fencing, signage, and amenities.

Lessons Learned:

- What lessons were learned as a result of the project? Focus on both the technical matter of the project and process-oriented lessons learned.
 - Significant negative storm/disaster event can create sense of urgency and priority and become a catalyst for climate adaptation project; however, catalyst must be capitalized upon quickly or urgency will rapidly fade;
 - Political leadership, staff engagement, and organized outside advocacy are all important to carrying through complex projects;
 - Grant funding is crucial to shaping the options pursued and drives decisions;
 - Systematic planning can provide a critical foundation for project, although not a universal impact due to lack of engagement by some decision makers and citizens and changing stakeholders;
 - Investing in design and permitting for "shovel-ready" projects can improve odds of project success;
 - Divergent preferences from different agencies and consultants on conventional engineering vs. green infrastructure can slow process and require significant navigation;

- Providing multiple community benefits, including recreational, enhances support for project;
- Psychological resilience required to successfully navigate and address multiple challenges and obstacles encountered while developing climate change resilience projects;
- Overall timeframe for climate adaptation projects can be very long, with construction just the tip of the iceberg of many years of work behind the scenes.
- What is the best way for other communities to learn from your project/process?
 - Other communities can shape their own planning and climate adaptation projects by actively comparing and contrasting with this one; significant information is available posted online (plans, photos, updates, reports, etc.); presentations, tours, interviews, etc. are other vectors for transmitting information.

Partners and Other Support:

- Include a list of all project partners and describe their role in supporting/assisting in the project.
 - MVP Program – primary funding support;
 - MassTrails Program – significant funding support;
 - National Grid – cooperation with retrofitting underground electric duct bank;
 - Coastal Trails Coalition – local advocacy for project and financial support
 - Merrimack Valley Planning Commission – regional advocacy for project and financial support for prerequisite of soil contamination cleanup
 - City of Newburyport’s multiple organizations, e.g., cooperating department such as Planning Office, Department of Public Services, and Parks Department, Community Preservation Committee recommending funding, Climate Change Resiliency Committee providing support.

Project Photos:

- In your electronic submission of this report, please attach (as .jpg or .png) a few high-resolution (at least 300 pixels per inch) representative photos of the project. Photos should not show persons who can be easily identified, and avoid inclusion of any copyrighted, trademarked, or branded logos in the images. MVP may use these images on its website or other promotional purposes, so please also let us know if there is someone who should receive credit for taking the photo.