

## Municipal Vulnerability Preparedness Program Action Grant Case Study

**Municipality:** Town of Tewksbury

**Project Title:** Stormwater Analysis for Nature-Based Solutions and Community Co-Benefits

**Award Year (FY):** 2022

**Grant Award:** \$193,935

**Match:** \$64,646

**Match Source:** In-kind staff hours/Stormwater Enterprise Fund

**One or Two Year Project:** One-year

**Municipal Department Leading Project:** DPW/Engineering, Community Development

**Project Website URL:** <https://www.tewksbury-ma.gov/278/Hazard-Mitigation-Climate-Resilience-Pla> ; <https://storymaps.arcgis.com/stories/d141d59a0e8c4452bbf8852b2c935b39>

### Community Overview:

- What is the population size of your community and where is it located? The population size of the Town of Tewksbury is approximately 30,730 according to Town census records. Tewksbury is in Middlesex County, Massachusetts, about 19 miles northwest of Boston.
- Do you have any [Environmental Justice](#) or other Climate Vulnerable communities? (Think about both those who live and work in your town.) Although there are no environmental justice blocks within Tewksbury, there are some located on the border of Tewksbury and Lowell. Climate vulnerable communities in Tewksbury include seniors who make up approximately 18.3% of the Town population, according to the U.S. Census Bureau, many of whom have disabilities. According to the 2019 American Community Survey from the Census Bureau, 5.1% of Tewksbury residents live in poverty. Additionally, according to the same survey, 17.3% of residents are under the age of 18.
- Other unique traits of your municipality like who the top employers are, geography, history, etc. Tewksbury is home to the headquarters of Raytheon Integrated Defense Systems and Demoulas Supermarkets, Inc. It is also home to Tewksbury State Hospital, which is the Commonwealth's largest public health hospital. Tewksbury has a lot of water features including the Concord, Merrimack, and Shawsheen Rivers, plus extensive brooks, swamps, ponds, and wetlands. It was originally settled as a farming community, a former part of neighboring Billerica. Today, it is a mix of farmland, commercial industry, and growing families.

### Project Description and Goals:

- Where was the project located? The project was located townwide.
- What climate change impacts did the project address? Flooding due to heavy, increasingly frequent precipitation.
- What were the specific goals and tasks of the project as stated in your application? Evaluate municipally-owned parcels for incorporation of nature-based

solutions/green infrastructure; prioritize nature-based solutions that provide co-benefits for climate vulnerable populations; creative, inclusive, and accessible public engagement for all residents, especially climate vulnerable populations; identify Town-owned land that could become resilient and affordable housing; producing final deliverables outlined in the scope of work; provide regional watershed benefits through Merrimack River Watershed Council facilitating ongoing conversations with residents about the benefits and opportunities associated with the stormwater enterprise fund.

- Did your project meet the goals set forth in your application in terms of:
  - Employing nature-based solutions Five sites across four parcels were identified as sites where nature-based solutions to respond to flooding could be implemented. The conceptual designs and planning costs associated with these solutions are detailed in the deliverables of the project.
  - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations The sites identified as possible candidates for nature-based solution climate resiliency planning are ones that serve some of our most climate vulnerable populations, as identified above. The Town Hall sees people from all walks of life, particularly our senior population who prefer to conduct municipal transactions like utility payments and clerk services in-person. Another site, the Tewksbury Public Library is a resource for seniors, low-income residents, and children in particular to utilize public computers, complete tax forms, and receive other essential services. The East Street Athletic Fields serve hundreds of children per year through youth sports, and it is adjacent to the Tewksbury Senior Center, another place that provides low-cost financial services, food service assistance, and transportation to senior, senior-disabled, and low-income senior residents. Finally, the Lowell Street neighborhood abuts the City of Lowell, which is an area identified as an environmental justice adjacent area.
  - Providing regional benefits The improvements to these top five priority sites will have direct positive effects on the Strongwater Brook watershed and other local water bodies. Improving these smaller watersheds will have an overall positive impact on larger ones, like the Shawsheen River Watershed, which we share with other communities like neighboring Andover. Establishing a great working relationship with Merrimack River Watershed Council to act as a liaison for future projects was invaluable. Finally, having a toolkit to move forward with to ensure that the public remains engaged with the process toward climate resiliency.
  - Implementing the public involvement and community engagement plan set forth in your application Survey was distributed to residents via hard copy at municipal buildings, email blasts, and social media postings. The survey was active between January 14, 2022 and March 25, 2022. The existing Town website was utilized and an ArcGIS StoryMap was created. The two outdoor events proposed in the application were adjusted for practicability. Instead of a design workshop and field trip with a STEM class, there were two outdoor events and one indoor event. The indoor event was an educational program presenting what green infrastructure is, and how it can be implemented in Tewksbury. This was

simulcast on YouTube and the Town's cable access channels. The two outdoor events were educational materials incorporated into the Town's annual cleanup day, and stormwater demonstrations at the Farmer's Market.

- Finishing the project on time While there were adjustments on the timing of the outdoor public engagement events, ultimately, all activities were completed within the grant program 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. Ultimately, the success of this project will be measured through improved flood adaptation to reduce damage to public and private property. The more short-term measurement of success comes through increased public engagement and awareness of climate change, especially flood risks. The annual Town cleanup event saw about 100 people who received more information about flooding in Town. We had approximately 10 people participate (in-person and virtually) in the discussion regarding green infrastructure solutions. The Farmer's Market had 1,150 individual visitors, many of which stopped to engage with the project team and learn more about flooding in Town. The initial survey also garnered 123 responses. As a result of this project, far more people in Tewksbury are engaged in the ideas of flooding, the causes, and how we can respond as a municipality.
- Provide a brief summary of project deliverables with web links, if available. The deliverables for this project include maps with parcels identified as possible sites for green infrastructure solutions, ranking of those parcels, the data and modeling files associated with the climate projections for the area, green infrastructure assessments including planning costs and concept designs, public engagement materials, and reporting documents. One of the public engagement pieces is in website format, linked here: <https://storymaps.arcgis.com/stories/d141d59a0e8c4452bbf8852b2c935b39>

### 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. The evaluation of the Town-owned parcels was a much more involved process than anticipated. The sheer number of these parcels and how many of them are under one acre made it difficult to narrow them down. Additionally, conducting site visits to evaluate these parcels was originally scheduled for winter months which made the evaluations difficult. This pushed our scheduling out a bit, making the rest of the process a little later than anticipated, which ultimately made it so the reporting was close to project closeout. Staff involvement is crucial because they are the ones who know the land best. However, it was also very beneficial to pivot our outdoor public engagement strategy as

having a place where a lot of people are expected to be in attendance versus inviting them to an event dedicated solely to this project meant we engaged with people more casually.

- What is the best way for other communities to learn from your project/process? Reading our final report which details the project at every stage would be the best way for other communities to learn from our project and process. Additionally, the Story Map is a very accessible way to engage with some of the harder data.

### **Partners and Other Support:**

- Include a list of all project partners and describe their role in supporting/assisting in the project. Town Manager's Office provided administrative support and oversight; DPW/Engineering division was crucial to providing input on the town-owned parcels and helping to rank the parcels, plus the real driver behind the technical expertise on the Town's side of the project; Community Development Office was the main driver of community engagement and distribution of materials plus project management; Open Space and Recreation Committee assisted with public engagement; Building Department helped with discussions regarding priority ranking and site identification; Housing Authority helped with community engagement, particularly of low-income seniors; Merrimack River Watershed Council was instrumental in the public engagement component and designing the Story Map plus making the technical material more digestible to the public; Weston and Sampson were the technical leads on the green infrastructure design and planning, plus the leads on all data-related reporting; MVP Regional Coordinator provided support and feedback through some of the project adaptations with public engagement components as well as some of the green infrastructure solutions.

### **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. Photos are attached from the Farmer's Market.