

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Town of Northbridge

Project Title: Carpenter Road Causeway Alternatives Analysis and Source Water Green Infrastructure Protection Plan

Award Year (FY): 2022

Grant Award: \$ 145,100

Match: \$ 50,933

Match Source: In-kind contributions and cash

One or Two Year Project: One

Municipal Department Leading Project: Department of Public Works

Project Website URL:

<https://experience.arcgis.com/experience/01601fa441d24904807c72cd9a9c2829/>

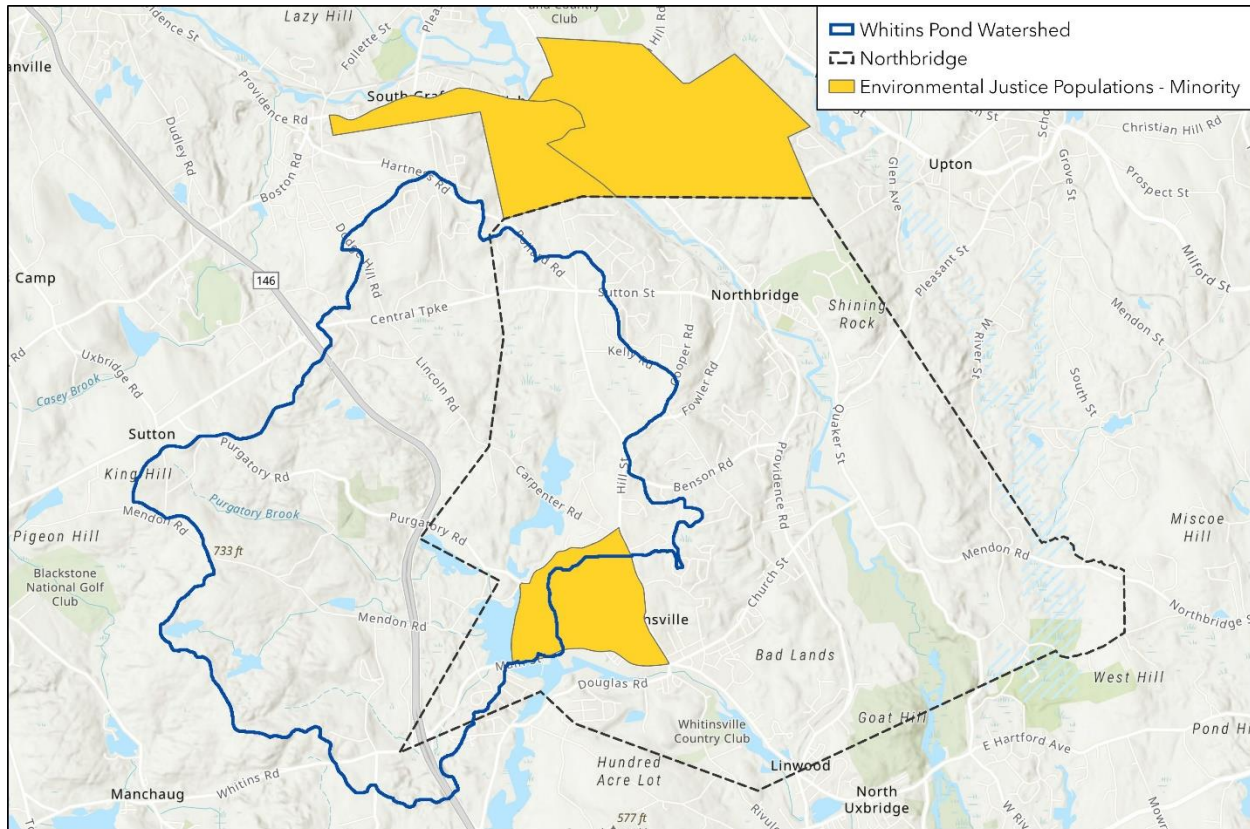
Community Overview:

- What is the population size of your community and where is it located?

According to the April 1, 2020, Census there are 16,335 people in Northbridge, MA.

- Do you have any Environmental Justice or other Climate Vulnerable communities? (Think about both those who live and work in your town.)

According to the April 1, 2020, Census there is a minority Environmental Justice population mapped in the southwest corner of the town abutting the eastern shore of Whitins Pond. The Environmental Justice community spans roughly from Main Street on the Southern end to Goldthwaite Road to the North and spans east to Hill Street.



- Other unique traits of your municipality like who the top employers are, geography, history, etc.

Northbridge is a part of the Blackstone River Valley National Heritage Corridor Commission. The Blackstone River Valley was the first industrialized region in the United States. The area played a major role in early American industrial development, due to its natural resources and strategic location to Worcester and Providence. Northbridge has several valley sites designated by the National Park service

Project Description and Goals:

- *Where was the project located?*
The project primarily focused on the Carpenter Road Causeway, which bisects Carpenter Reservoir. Secondly, the project focused the green infrastructure planning task on areas draining to Whitins Pond which includes the watershed draining to the Carpenter Reservoir.
- *What climate change impacts did the project address?*
This project aimed to reduce flooding and increase resiliency as a result of the increased frequency and intensity of storms, increased algal blooms, water quality issues, and habitat connectivity.
- *What were the specific goals and tasks of the project as stated in your application?*

The objective of the Carpenter Road Causeway was to determine alternatives and a feasibility analysis that would:

- Reduce the flood risk created by the failing condition of the culverts within the causeway,
- Create safer, more resilient emergency response routes to the western portion of Town,
- Improve aquatic connectivity and water quality through better flow conditions through the culvert(s).

The objective of the green infrastructure task was to:

- Identify GI opportunities in watersheds critical to the water supplies of Northbridge and Sutton,
- Help reduce the occurrence of cyanoHABs by reducing stormwater runoff and pollutant loads to the reservoir, and make the reservoir more resilient to potential future occurrences of cyanoHABs under changing climatic conditions,
- Protect potential future drinking water supplies by identifying green infrastructure alternatives to reduce pollutant loading to the reservoir and downstream water supply reservoir.
- *Did your project meet the goals set forth in your application in terms of:*
 - Employing nature-based solutions: Yes. The Causeway alternatives include a removal scenario the Town is considering. The removal of the causeway would reduce flood risk at this key location in town and also have benefits to water quality and habitat. Additionally, the green infrastructure planning task of this project laid out options to reduce flood risk and improve water quality through primarily infiltration based green infrastructure practices which are a cost effective and nature-based alternative to traditional stormwater infrastructure. .
 - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations: A goal for this project was to begin to better engage residents, specifically those located in the mapped EJ community in the southwestern portion of town. It is hard to gauge how successful the engagement was with this specific population however the public workshop held at the new elementary school within the EJ area was highly attended, with nearly 50 participants. This project was successful improving equitable outcomes for EJ or climate vulnerable communities. Two of the green infrastructure concepts are located wither directly in or just outside the mapped EJ community. The Maine Street GI concept specifically would benefit not only flood resilience and help to protect water quality for a water supply reservoir but the concept also includes improvements to help connect the EJ community with commercial areas to the west by adding a sidewalk where none currently exists in an area that sees significant foot traffic.
 - Providing regional benefits: Northbridge now has concept designs for green infrastructure and plans for alternatives to the Carpenter Causeway that will

both work to improve water quality both regionally and in the Whitins Pond watershed.

- Implementing the public involvement and community engagement plan set forth in your application: Social media was used to spread the word about events and to direct the public to the website to see project updates and to voice their opinion. In addition, several press releases were publicized drawing further attention to the project and the website for public engagement opportunities.
- Finishing the project on time: Project deliverables completed by June 30, 2022.

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.
 - 5 green infrastructure concept plans within the Whitins Pond watershed
 - 3 Carpenter Causeway Alternatives
- Provide a brief summary of project deliverables with web links, if available.
 - Sourcewater Protection Plan & 5 Green Infrastructure Concepts
 - Carpenter Causeway Alternatives Analysis: Three alternatives, including replacement, rehabilitation, and removal, were proposed as solutions to the flooding at the Carpenter Road Causeway.
<https://fussandoneill.maps.arcgis.com/sharing/rest/content/items/7b46fb3c61ab47c1b9700f87f108dfe8/data>
- What lessons were learned as a result of the project? Focus on both the technical matter of the project and process-oriented lessons learned.
 - One important lesson that we learned from this project was the value of publicizing community event in several different spaces throughout the town. At the beginning of the project, we had difficulty getting the communities attention and engagement. However, as the project progressed, we began posting advertising throughout the town on telephone poles, in public buildings, and digital signs at the causeway. Through that outreach, we learned about a lot of the pain points of the local community, as well as additional locations for green infrastructure.
- What is the best way for other communities to learn from your project/process?
 - Start reaching out to the community as soon as the project starts and stay consistent. If you are not receiving engagement, change your strategy. The community will be interested in the project, you just need to find the right approach to reach them.

Partners and Other Support:

- Include a list of all project partners and describe their role in supporting/assisting in the project.

- Town of New Northbridge Team
 - Jamie Luchini - Interim DPW Director/
Project Manager
 - Gary Bechtholdt - Director of Planning
 - David Pickart - Conservation Agent
 - Jim Shuris - DPW Director (retired)
 - Randy Swigor - Whitinsville Water
Company General Manager
 - Dave Morrow - Resident
 - Christopher Allen - Resident
- Barry Gold - Resident
- Fuss & O'Neill, Inc Team
 - William Guenther, MS
 - Allen Tevyaw, MS
 - Shannon Beaumont, PE
 - Erik Mas, PE
 - Stefan Bengtson, MS, MESM
 - Amy Johnson, PE
 - Alex Duryea, MESM

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.