

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Town of Yarmouth

Project Title: Climate Change Vulnerability Assessment and Adaptation Plan

Award Year (FY): FY2023

Grant Award: \$80,089

Match: \$32,893

Match Source: \$20,000 cash match, remaining \$12,893 through in-kind services.

One or Two Year Project: One year

Municipal Department Leading Project: Department of Public Works

Project Website URL: N/A

Community Overview:

Yarmouth, Massachusetts, is a coastal town located on Cape Cod's coastline. As of September 2021, the population of Yarmouth was approximately 24,000 residents. The town is situated in Barnstable County and is known for its scenic beaches, maritime heritage, and tourism industry.

There is a significant aging-in-place population as well as low-income communities that are vulnerable to the impacts of climate change. South Yarmouth is the most vulnerable neighborhood, with a significant number of buildings projected to be impacted by flooding in the coming decades. Specifically, the Swan Pond Village property stands out as highly vulnerable. In contrast, Yarmouth Port and West Yarmouth.

Project Description and Goals:

Sea level rise and increased impacts from stronger coastal storms are the two greatest climate related hazards in Yarmouth. To address this, the Yarmouth Municipal Government initiated a climate change vulnerability assessment project with the following objectives: assessing vulnerabilities in flood-prone areas, critical infrastructure, and communities; evaluating the impact of climate change on wetland resources, particularly salt marsh habitats, and proposing protection measures; developing adaptation strategies for community safety, infrastructure protection, and vulnerable areas, including affordable housing complexes; and establishing a framework for ongoing monitoring and adaptive management.

The project used a multidisciplinary approach, involving municipal authorities, experts, community representatives, and a Steering Committee. They collected and analyzed data on climate trends, sea level rise projections, storm surge frequencies, and infrastructure.

The proposed adaptation strategies included elevating critical facilities in flood-prone areas, protecting and enhancing salt marsh habitats, exploring managed retreat options, and elevating low-lying roads.

The project prioritized engagement with the community, local businesses, and stakeholders to gather insights and incorporate local knowledge into strategies. Environmental Justice and Climate Vulnerable Populations were also considered to ensure equitable outcomes.

By employing nature-based solutions and involving the community, the project successfully addressed climate change challenges in Yarmouth, serving as a model for other coastal communities. With an

adaptive management framework, Yarmouth remains prepared to face future climate changes and improve its resilience measures.

Results and Deliverables:

The project's completion yielded a ranked list of the most vulnerable assets, serving as a basis for identifying priority actions and future projects. As climate data evolves and projects are finalized, the town can continually update and review this list to determine the next set of prioritized assets. The top three areas the town chose to focus adaptation strategies included Packet Landing Marina, Bass River Beach and Bathhouse Area, and the Englewood Multi-Use area. Conceptual plans and estimated costs were developed and were included in the final deliverables of the project.

Several public meetings were conducted as part of the outreach strategy and links to the recorded videos can be found below:

Public Meeting 1- Yarmouth Town Hall Hearing Room May 24, 2023

https://www.youtube.com/watch?v=j9Jb_KldrP4

Public Meeting 2- Yarmouth Town Hall, Hearing Room June 28, 2023

<https://www.youtube.com/watch?v=kQjh4iLC-Oo>

A short overview video was created as another way to provide a summary of the project and provide information about the second public meeting. The link to the video is below:

<https://www.youtube.com/watch?v=sVqtJwIwKwo>.

Lessons Learned:

Valuable lessons were learned, encompassing both technical matters and process-oriented insights. The importance of comprehensive data analysis became evident, providing a strong foundation for assessing vulnerabilities and identifying high-risk areas accurately. Nature-based solutions, particularly in protecting coastal areas, proved as effective and sustainable options. Prioritizing vulnerable populations, engaging in multi-stakeholder collaboration, and establishing ongoing monitoring and adaptive management frameworks were highlighted as critical process-oriented lessons.

Knowledge exchange events, workshops, and partnerships can facilitate direct learning and collaboration. Supporting capacity-building initiatives and leveraging existing networks can empower communities to adapt and build resilience tailored to their unique circumstances, contributing to a collective effort in addressing the challenges of climate change.

Partners and Other Support:

- Amanda Lima, Town Engineer
- Jeff Colby, Director of Public Works
- Kevin Huck, Fire Captain
- Bruce Barrow, GIS Specialist

- Bill Bonnetti, Director of Natural Resources
- Kathleen Williams, Town Planner
- Robert Whritenour, Town Administrator
- Kevin Lennon, Chief of Police
- Dianne Kane, Director of Senior Services
- William Scott, Assistant Town Administrator
- Scott Gilmore, Director of Golf Course Operations
- Jane Cain, Director of Library Services
- Brittany DiRienzo, Conservation Administrator
- Karen Greene, Director of Community Development
- Jon Sawyer, Deputy Fire Chief
- Anthony Bennet, Recreation Director
- Laurie Ruzala, Water & Wastewater Superintendent
- Mary Vilbon, Chamber of Commerce Executive Director
- Woods Hole Group, Consultant

Each of these listed participants was vital for the completion of the project. They represent the various Town departments and participated by providing their expertise and knowledge of their department's assets.

Project Photos:



Informational Session at the Senior Center



Old Main Fire Station



Bass River Beach (Smugglers Beach)—Site Visit



Yarmouth Water Department- Site Visits to Survey Critical Elevations