New Bedford-Fairhaven MVP Case Study

Municipality/Nonprofit Organization: Town of Fairhaven and City of New Bedford
Project Title: New Bedford Harbor MC-FRM Evaluation and Resilience Design Guideline Development
Grant Award: $58,662.00
Match: $20,380.64

Community Overview:

Positioned on the northwestern corner of Buzzard's Bay and flanked by the City of New Bedford and the Town of Fairhaven, the Port of New Bedford is the number one fishing port in America. More than 6,800 people are directly employed by New Bedford's commercial port and it generates economic activity in excess of $11 billion. Its importance reaches far beyond its immediate surroundings—it is the center of the commercial fishing industry on the east coast.

The port defines the resilient, hard-working identity of the surrounding communities. A diverse population makes up the workforce and keeps its daily operations running. From commercial fishing and cargo transport to offshore wind development, the port supports a unique blend of industrial, commercial, and recreational activities that contribute to the vibrant culture of New Bedford and Fairhaven.

Description of Climate Impact:

Over the past century, New Bedford Harbor has experienced 10 inches of sea level rise (SLR). Even intermediate projections suggest an additional 1.3 feet by 2050 and 4 feet by the end of the century. The Port of New Bedford has been the most valuable commercial fishing port in the U.S. since 2001, landing 111 million pounds of seafood in 2016 valued at $389 million. While the New Bedford and Fairhaven working waterfront has driven the local and regional economy for over 300 years, some of the infrastructure has remained unchanged since Herman Melville used the Port of New Bedford as the backdrop of Moby-Dick in 1851. Some of this infrastructure has already experienced over a foot of sea level rise during its lifetime. Over the past three years, New Bedford Harbor has increased the frequency of closures of the hurricane barrier to mitigate storm surge and sea level rise at king and spring tides. This is not a sustainable practice for flooding related to current tide levels, let alone future projected levels. Therefore Fairhaven, New Bedford, and the New Bedford Port Authority are eager to create a comprehensive long-term resilience strategy for the harbor.

Project Goals:

Developing a long-term strategy for the Port of New Bedford was one of the key actions identified in New Bedford's 2019 climate action and resilience plan: NB Resilient. Fairhaven recently completed its MVP Vulnerability Assessment and identified New Bedford Harbor as a key asset and the maritime industry as a primary stakeholder.

This project is one piece in a long-term comprehensive plan to increase the resiliency of the New Bedford Harbor. The goals of this project included evaluating the sea level rise projections in the New Bedford Harbor; developing Resilient Design Guidelines based on those projections and the project design life; engaging landowners, developers, employers, front line workers and other stakeholders in the Harbor to understand their current impacts and concerns; and creating a Maritime Business Resilience Toolkit that outlines resilience steps for businesses.

Approach and Result:

The project combined technical expertise, community engagement, and stakeholder collaboration to develop the final outputs of the project. Below is the project approach:

- Project and logistics kickoff meetings to align all partners on project goals
- Port Tour to better understand the location and operation of key harbor infrastructure
- Massachusetts Coast Flood Risk Model (MC-FRM) workshop to better understand the existing sea level rise modeling and implications for the harbor
- Online and paper surveys to understand the concerns of businesses and residents around the harbor
- Resilient Design Guidelines development based on the workshop findings and additional best practice research
- Maritime Business Resilience Toolkit development to support businesses looking to increase resilience to sea level rise and storm surge

Lessons Learned:

The team discovered what a novel product the project was seeking to create. While there are many examples of resilient design guidelines from other communities, few seek to be as all-encompassing as this one. The team learned to consider strategies that would be applicable for businesses, residents, and developers alike. Additionally, the modeling system used to guide the project is still in development and marks a departure from some of the more traditional sea level rise modeling systems. Therefore, the team had to consider how to integrate a new system with existing best practices to create a comprehensive, up-to-date set of guidelines.

Given that the much of the project fell during the Covid-19 pandemic, the entire project team learned a lesson in adaptability. Whether adjusting community engagement options or reorganizing the workshop to be virtual, the team had to adapt to the rapidly changing conditions. The team worked creatively with technology to ensure the project was not compromised by the lack of in-person collaboration.

Partners and Other Support:

Municipal Departments

- City of New Bedford: Office of Environmental Stewardship, Department of Public Infrastructure, Office of City Planning
- Town of Fairhaven: Harbormaster, Conservation and Sustainability Department, Planning and Economic Development Department
- New Bedford Port Authority: Harbormaster, Engineering and Operations, Development
- New Bedford Economic Development Council

Kim Lundgren Associates, Inc. (KLA) has been New Bedford's primary climate and resilience consultant since 2017. KLA led project team coordination and direct outreach with project partners. KLA also led the development of the Marine Business Resilience Toolkit and the Resilient Design Guidelines.

Punchard Consulting worked with Fairhaven through their MVP process and was well positioned to augment the project by providing priority actions identified in Fairhaven.

Woods Hole Group (WHG) completed the updated sea level rise and storm surge projections through their Massachusetts Coast Flood Risk Model (MC-FRM) work with MassDOT and CZM. WHG provided training and support to Fairhaven, New Bedford, and Port Authority planners and engineers to maximize the utility of their recently developed MC-FRM information tool. WHG toured New Bedford Harbor and customized a workshop to train municipal and Port Authority staff to use the MC-FRM probabilities to examine specific port asset vulnerabilities into 2070. WHG provided technical support throughout the project.

CLE/Foth is working with the New Bedford Port Authority to plan for the future construction of North Terminal—an enhancement of 21-acres of working waterfront owned by the City of New Bedford. CLE Foth provided technical assistance to ensure that the most updated project data was included in the evaluation.

Project Photos:

In your electronic submission of this report, please attach (as .jpg) a few representative photos of the project. Photos cannot show persons who can be easily identified, and avoid inclusion of any copyrighted, trademarked, or branded logos in the images.

PowerPoint with images provided.