Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: City of Chelsea
Project Title: Advancing the Vision for a Resilient & Community Focused Eastern Avenue
Award Year (FY): FY24
Grant Award: $ 339,000
Match: $ 114,167
Match Source: In-Kind and City's Capital Improvement Budget
One or Two Year Project: Two-Year Project
Municipal Department Leading Project: Housing and Community Development
Project Website URL:

Community Overview:

- What is the population size of your community and where is it located?
    - The City of Chelsea is located in Suffolk County in Massachusetts, just north of the City of Boston. According to the 2020 United States Census Bureau 2020 Decennial Census, the City of Chelsea is home to 40,787 residents.
- Do you have any Environmental Justice or other Climate Vulnerable communities? (Think about both those who live and work in your town.)
    - The entire City of Chelsea is an Environmental Justice Community.
- Other unique traits of your municipality like who the top employers are, geography, history, etc.
    - The City of Chelsea's unique traits include:
        - High Density: Chelsea is the second most densely populated city in Massachusetts
        - Immigrant Population: Chelsea has the largest foreign-born population in Massachusetts
        - Historic Relevance: Chelsea houses historical significance with it being home to the Battle of Chelsea Creek, the second Battle of the Revolution.

Project Description and Goals:

- Where was the project located?
    - Eastern Ave., Chelsea, MA 02150. The Project Area includes the space bounded by the Chelsea Street Bridge, the 2070 projected floodplain, and the MBTA tracks at the Chelsea Creek waterfront. This district supports port, industrial, commercial, residential, and civic land uses.
- What climate change impacts did the project address?
    - The 2022 Massachusetts Climate Change Assessment identified Health and Cognitive Impacts of Extreme Heat, Emergency Response Delays and Evacuation Disruptions, Loss of Urban Tree Cover, and Business Closures and Direct Damage to Commercial Structures as top climate impact for the Boston Harbor region.

This project was designed to address these impacts by selecting and designing flood and heat resilience measures along Eastern Avenue.
    - Vet proposed solutions that would address coastal flooding by assessing the feasibility of a berm and associated road diet as well as the effectiveness of proposed flood resilience measures through performance modeling.
    - Conduct performance modeling that considers both stormwater and coastal flooding
    - Ensure mitigation measures allow floodwater out of Chelsea, as well as keeping coastal flooding out
    - Project will emphasize nature-based solutions that provide cooling benefits to users of the roadway and sidewalk
- What were the specific goals and tasks of the project as stated in your application?
    - Goals
        - The goal of this project was to select and design flood and heat resilience measures along Eastern Avenue.
        - This project advances the vision developed in FY23 by vetting and designing specific resilience measures that can be implemented along the corridor.
        - Understand connections between ongoing issues, hazard, and local planning and actions in Chelsea.
        - Identify and map vulnerabilities and strengths of people and places, both buildings and natural environment/parks.
        - Develop and prioritize actions that reduce vulnerabilities and reinforce Chelsea's strengths.
        - Identify opportunities to advance actions that further reduce the impact of hazards and increase resilience in Chelsea.
        - Engage local flood-prone landowners and stakeholders in developing coastal flood solutions together
    - Tasks
        - Task 1 – Project Kick-off, Management, and Reporting in FY24
        - Task 2 – Stakeholder Engagement in FY24
        - Task 3 – Supporting Analysis for Feasibility in FY24
        - Task 4 – Schematic Design in FY24
        - Task 5 – Project Management and Reporting in FY25
        - Task 6 – Stakeholder Engagement in FY25
        - Task 7 – Supporting Analysis for Feasibility in FY25
        - Task 8 – Schematic Design in FY25
- Did your project meet the goals set forth in your application in terms of:
    - Employing nature-based solutions
        - While this project was the design phase, in the long-term, nature-based solutions will be employed along Eastern Ave.
    - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations

        - The City of Chelsea identified the Upper Chelsea Creek floodplain as a priority vulnerability area in their FY16 CZM Coastal Community Resilience Grant project and have since worked to position this district for a vibrant, climate resilient future for the environmental justice community that works and lives in the floodplain.
        - Portions of Eastern Ave are already susceptible to flooding, and flood projection models illustrate that during future heavy rain and storm surge events, large sections of Eastern Ave will be routinely flooded, making everyday life more arduous for residents. Encompassed within the projected flood zone is #488 Eversource substation, which is the main source of energy for Chelsea & E Boston. Future flooding events of the substation would yield enduring power outages, which will undoubtedly have detrimental social, economic and environmental impacts on the community. Furthermore, Commonwealth fuel corporation and a Gulf Oil terminal are located along Eastern Ave and Chelsea Creek. When future storm surges and flooding events occur, the presence of oil and gas facilities could pose serious ecological damage to the creek as well as significant health risks to neighboring Chelsea residents.
    - Providing regional benefits
        - The proposed flood mitigation strategies and habitat restoration along Eastern Ave, will assist in providing flood resilience and protection to the localized region. The protective measures will ensure economic security for the region's most vulnerable residents, by preserving industrial jobs and a main transit roadway within the municipality. Additionally, the flood resilience measures will provide added protection for an upcoming industrial building project, as well as a potential recreational open space and park project, anticipated to be constructed in parallel with the resilience measures. Flood resiliency in this region is imperative to safeguard the region's current and future economic and industrial health.
    - Implementing the public involvement and community engagement plan set forth in your application
        - Outreach has continued to update the community on the progress of the project and continued engagement with stakeholders who have private property along Eastern Ave.
    - Finishing the project on time
        - The project is completed 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.
    - 15% design of a resilient Eastern Ave
- Provide a brief summary of project deliverables with web links, if available.

- Task 1 – FY24 Project Kickoff, Management, & Reporting: Meeting agenda, list of attendees, meeting notes with action items, meeting notes summary
- Task 2 – FY24 Stakeholder Engagement: Meeting summaries from interviews, Meeting minutes from conversation with administrators, STEM engagement summary, FY 24 End of year statement of progress
- Task 3 – Supporting Analysis for Feasibility: Traffic Analysis, meeting with city departments, FY 24 End of year statement of progress
- Task 4 – Schematic Design: Typical berm architecture, berm driveway crossings, MBTA commuter rail crossing, FY 24 End of year statement of progress
- Task 5 – FY25 Project Kickoff, Management, & Reporting: Meeting notes summary
- Task 6 – FY25 Stakeholder Engagement: Discussion with Abutting State Agency Property Representative, FY 25 Website link, project fact sheet (English and Spanish), attendance at up to three (3) community events, tabling, and direct outreach at one (1) community meetings.
- Task 7 – Supporting Analysis for Feasibility: Traffic Analysis Technical Memorandum, Flood maps will show and compare the elevation, extent, and depth of flooding with and without the interim solution, Compound flooding maps and interpretation memorandum, FY 25 Meeting notes; Related capital improvements list and funding opportunity crosswalk.
- Task 8 – Schematic Design: FY 25: Memorandum describing alternatives including discussion of comparative advantage and detail figures of architectural solution with schematic design figures and board for community presentation, Memorandum describing stormwater adaptation associated with the berm with accompanying figure depicting schematic design figures, Memorandum discussing roadway architecture, transitions and retaining systems, and utility adaptation with accompanying schematic design figures, FY 25 Memorandum detailing berm interface with facility egress with schematic design figures, Memorandum district green stormwater infrastructure and canopy development with schematic design figures, FY 25 Memorandum on rail crossing with schematic design figures, and Memorandum utility bridging and utility adaptation with schematic design figures

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.
    - A big lesson learned is the difficulty to coordinate with state and local desires. For example, the MBTA cannot focus on community-specific flood concerns along the commuter line, but most look at the flooding issues at a larger scale whereas the Fire Department is concerned about emergency response due to change in traffic patterns.

    - Difficult to have engaging discussions with public and stakeholders early on in the design process. Going forward, having more meetings to strengthen relationships and increase trust between parties.
- What is the best way for other communities to learn from your project/process?
    - Multiple communities along the commuter line meeting up to discuss flooding issues and what are ways that the MBTA and surrounding communities can explore flood resiliency options.

Partners and Other Support:

- Include a list of all project partners and describe their role in supporting/assisting in the project.
    - Weston & Sampson
    - MyRWA
    - GreenRoots
    - MBTA
    - IntraPark
    - City of Chelsea: Grant Awardee, Provided Project, Financial, and Grant Management

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.
    - Please find photos in the Sharepoint folder.