Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: City of Framingham, MA
Project Title: Walnut Street Neighborhood Flood Mitigation & City Stormwater Utility Feasibility Studies
Award Year (FY): 2020
Grant Award: $ 207,000
Match: $ 69,000
Match Source: Municipal General Fund/In-kind Contributions
One or Two Year Project: Two Year Project
Municipal Department Leading Project: Department of Public Works
Project Website URL: https://www.framinghamma.gov/2047/Climate-Change-and-Hazard-Planning

Community Overview:

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

The current population estimate for Framingham is 74,400, 9% higher than the 2010 census population of 68,300. The City of Framingham is in the MetroWest region of the Greater Boston metropolitan area, bordering Sudbury and Wayland to the north, Natick to the east, Sherborn and Ashland to the south, and Southborough and Marlborough to the west.

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

There are multiple Environmental Justice (EJ) communities and neighborhoods in the City, including the Walnut Street neighborhood, where the flood study portion of this project is focused. Framingham's minority and immigrant populations have been growing in the past decade—the City's percentages of minority, Hispanic, and Latino populations are significantly higher than others in the region. Over 25% of land area in Framingham meets at least one EJ criteria, and 11% of land area in the City meets two or more EJ criteria. Considering that statewide, only 4.8% of land area meets any one EJ criteria, multiple communities in Framingham exemplify a disproportionate environmental burden falling on vulnerable populations. In addition to distinct EJ communities, over 30% of Framingham's population is considered Climate Vulnerable by the American Public Health Association (APHA) due to age. Children and older adults (adults 65 and older) of all races and income levels are considered particularly vulnerable to climate change impacts such as extreme heat, air pollution, flooding, and water contamination..

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

Framingham was incorporated as a town in 1700, and changed to a city form of government on January 1, 2018. City limits encompass 26.4 square miles, of which 1.3 are water. Different

industries have played significant roles in the City's economy—from grist mills in the 1700s and larger manufacturing companies in the 1800s. The Bose Corporation, Staples, and TJX currently have their corporate headquarters in Framingham and are among the City's largest employers. Framingham is home to Framingham State University, which was founded in 1839, and a MassBay Community College Campus. Framingham today is known for its population and neighborhood diversity, good schools, and numerous recreational opportunities.

Project Description and Goals:

Where was the project located?

Flooding and other impacts of stormwater runoff were identified as a City-wide concern during the City's Community Resiliency Building (CRB) workshop. Therefore, this project explored the feasibility of a City-wide stormwater enterprise. Flooding events in the area have only been increasing in severity and occurrence in recent years as the City faces record-breaking storm events associated with global climate change. The CRB workshop identified areas that have experienced historical flooding issues and are expected to be further impacted by climate change. The Walnut Street area, a densely populated Environmental Justice neighborhood, was identified as a high priority area for flood mitigation.

What climate change impacts did the project address?

This project addresses flooding concerns resulting from changing weather and precipitation patterns. The City's drainage system will need to be able to accommodate the anticipated increase in extreme storms and yearly precipitation, which will only exacerbate flooding impacts. Flood mitigation alternatives were developed for the Walnut Street neighborhood under the projected climate adaptation models for year 2070. Also, as part of this project, the City decided to investigate the feasibility of developing a stormwater enterprise to provide a reliable funding source to make those improvements.

What were the specific goals and tasks of the project as stated in your application?

The specific goals for the Walnut Street Neighborhood Flood Mitigation Project were as follows:

- Conduct a flooding study of the Walnut Street neighborhood to assess flooding impacts in more detail and identify potential flood mitigation projects.
- Assess drainage infrastructure and develop alternatives, including green infrastructure, for stormwater management. Develop a list of specific priorities, assess feasibility and cost, rank priority projects in terms of climate resilience potential, and develop concept designs for key projects.
- Assess feasibility and funding options for property acquisitions within the project area with the intent of providing relief for property owners facing potential flood risks or repetitive losses and increasing available space for floodplain restoration to reduce flood impacts.

The specific tasks for the Walnut Street Neighborhood Flood Mitigation Project were as follows:

- Task 1. Compile Existing Information
- Task 2. Supplemental Topographic Survey Data
- Task 3. Flow Metering
- Task 4. Hydrologic/Hydraulic Modeling
- Task 5. Identify Alternatives (including Nature-Based Solutions)

Another goal of the project was to assess the feasibility of developing a stormwater enterprise. To do this, the City completed a stormwater needs assessment, updated impervious cover mapping, developed potential rates and fee structures, reviewed required regulatory framework, and developed a draft credit and abatement policy to accompany the enterprise fund.

The last goal of the project was increasing public involvement and community engagement. Specifically, public education materials were developed and the City participated in numerous public meetings to educate public officials, stakeholders, residences, and business owners on the City's stormwater needs. To promote equity in education & outreach, materials were made available in English, Spanish, and Portuguese.

Did your project meet the goals set forth in your application?

The overall project, including the Walnut Street Flood Mitigation Study and the stormwater enterprise feasibility study, met the goals outlined for employing nature-based solutions, improving equitable outcomes for and fostering partnerships with EJ and other Climate Vulnerable Populations, providing regional benefits, and implementing public involvement and community engagement.

While the City met the goals set forth in our application, the COVID-19 pandemic impacted this project. Some public meetings were cancelled and most others were adapted to a virtual platform. Although attendance was good, these meetings did not have the same impact as face-to-face interactions within our community. The pandemic also changed the way the City looked at municipal budgets, which impacted the way we will consider future funding for climate change projects or stormwater improvements. Lastly, the pandemic highlighted equity issues within the City, especially amongst EJ populations, and weaknesses with traditional communication methods with our most vulnerable populations.

Both the Walnut Street Flood Mitigation Study and City Stormwater Utility Study were completed on time. The scope of work was adjusted based on COVID-19 impacts (e.g. less public meetings) and the City was able to reallocate grants funds to further the Walnut Street Flood Mitigation Study to a 30% conceptual design level for the preferred design alternatives. While the Walnut Street Flood Mitigation work continues to move forward (hopefully with additional MVP funding), the stormwater enterprise fund will not likely be implemented until the City has fully recovered from the impacts of the COVID-19 pandemic and reassessed municipal budget priorities.

Results and Deliverables:

Project results for the Walnut Street Neighborhood are listed below:

- Developed and evaluated 10 flood mitigation design alternatives
- Quantified and documented flood mitigation benefits for each design alternative including climate change impacts with year 2070 projections
- Recommended three (3) design alternatives for preliminary and final designs and advanced to 30% conceptual design.

The following deliverables were developed and submitted for the Walnut Street Neighborhood Flood Mitigation Study:

- Flood Mitigation Summary Report with Attachments
    - Attachment A – Figures Alternative Designs
    - Attachment B – Technical Memorandum – Hydrologic and Hydraulic Analysis
    - Attachment C – Technical Memorandum - Environmental Permitting Analysis
    - Attachment D – Critical Culverts Inspections
    - Attachment E – Memorandum - Stream Assessment
    - Attachment F – Preliminary Design Drawings/Sketches – Preferred Alternatives
    - Attachment G – Cost Estimates – Preliminary Designs - Preferred Alternatives
- Additional Deliverables
    - Existing Information Memorandum
    - Topographic Survey
    - Flow Metering Data Report
    - H & H Model Calibration – Technical Memorandum
    - H & H Supplemental Technical Memorandum – Combined Alternatives
- Three presentations – Two to City and one to EEA/MEMA

Information about the City's Climate Change and Hazard Planning is available at: https://www.framinghamma.gov/2047/Climate-Change-and-Hazard-Planning. Walnut Street Flood Mitigation study documents will be uploaded to the City's website following submittal of the final deliverables to EEA.

The following deliverables were produced to assist the City in assessing the feasibility of a stormwater enterprise:

- Stormwater Needs Assessment Technical Memorandum
- Impervious Surface Analysis
- Proposed stormwater enterprise fee and rate structure
- Draft Stormwater Enterprise Rules and Regulations
- Draft Stormwater Enterprise Credit Manual
- Stormwater Enterprise Fund: Public Education and Engagement Plan including:
    - Stormwater Enterprise Frequently Asked Questions (FAQ) Document (English & Spanish)
    - Stormwater Enterprise FAQ Handout

- Stormwater Enterprise Brochure (English & Spanish)
- Recommended Updates to the Stormwater Website
- Fact Sheet/Flyer for Public Meeting (English & Spanish)
- Press Release (English & Spanish)
- Social Media Posts and Images

At this time, the City has decided not to implement a stormwater enterprise fund and has not posted stormwater enterprise documents, most of which are in draft form, online.

Lessons Learned:

The City of Framingham learned the following lessons from this project:

- Look at all the potential community benefits, not just climate mitigation.
  - The preferred alternative offered flood mitigation AND many community benefits that the others didn't including improved pedestrian safety, ecological restoration, and improved accessibility to schools, recreation, and the senior center.
- Use federal grants to amplify your projects.
  - The City was fortunate to be awarded a grant from FEMA that supported this project. The City was able to use the federal grant as a match for the state grant, and vice versa, resulting in less cash and in-kind labor needed from the City.
  - In addition to funding support, FEMA provided additional technical support and resources which helped improve the overall project.
- Permits are not the enemy. Do not dismiss good potential alternatives because they require permits.
  - Involve local, state, and federal regulatory agencies in your project as soon as you identify that permits might be needed.
- Framingham's biggest challenge is that the built environment leaves very limited options for flood mitigation. Alternatives could only reduce flooding risk, but not eliminate flooding.
  - With the current housing shortage and concerns about potential lost tax revenue, eliminating homes and restoring the flood plain was not a viable option.
  - Undersized culverts create a significant challenge. The roadway layout and existing overlying utilities often make it impossible to upgrade culverts. It's especially difficult to incorporate stream crossing standards or nature-based solutions to culvert projects.
- When you think you've done enough public engagement, do more.
  - Talk to people where they are. You cannot expect most people, especially the most vulnerable populations, to attend and participate at traditional public meetings.
  - Utilize the Senior Center and public libraries for programming.

- Involve youth. The next generation cares a lot about climate change. They want to be change makers, but they have very little appreciation of the local impacts. Reach out to the local schools, youth clubs, and after-school programs.
- Social media has been an effective method for sharing information.
- Give presentations to elected officials and any board/commission that might be involved. Inform them at the beginning of the project, at any milestone, and at the end.

Partners and Other Support:

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

This project was a collaborative effort amongst the City's Department of Public Works, Conservation Commission, Planning Board, Planning and Community Development Department, Parks and Recreation Department, School Department, and Sustainability Coordinator. The Mayor and City Council were very involved.

The City worked with the engineering consulting firm, Weston & Sampson, to produce the deliverables discussed above.

Project Photos:

Digital photos were submitted with the case study.