**Municipal Vulnerability Preparedness Program Action Grant Case Study**

**Municipality:** Town of Canton, MA
**Project Title:** Climate Change Vulnerability and Resiliency Assessment Study
**Award Year (FY):** 2020
**Grant Award: $** 337,500
**Match: $** 112,500
**Match Source:** Cash + In-Kind services
**One or Two Year Project:** 2 years
**Municipal Department Leading Project:** Engineering Department
**Project Website URL:** https://www.town.canton.ma.us/869/Flood-Mitigation

**Community Overview:**

- What is the population size of your community and where is it located?
    - **Canton has a population of about 21,932 (2012 information). It is located in southeastern Massachusetts at the Foot of the Blue Hills.**
- Do you have any [Environmental Justice]() or other Climate Vulnerable communities? (Think about both those who live and work in your town.)
    - **Canton has one environmental justice designated neighborhood due to a population of over 25% who identify as a race other than white. Several assets (affordable housing, senior housing and / or both) received a score based on the social vulnerability indicators within the risk framework and thus, were in the top 25 assets based on overall risk. The locations of these assets fell within the Areas of Interest that were considered for mitigation strategies and thus, could benefit from the proposed projects identified.**
- Other unique traits of your municipality like who the top employers are, geography, history, etc.
    - **The Town has an altitude of 126.8 feet above sea level.**

**Project Description and Goals:**

- Where was the project located?
    - **The project looked at all areas of Canton and develops strategies for specific areas of Town that are especially at risk of flooding.**
- What climate change impacts did the project address?
    - **The project addresses flooding from stormwater.**
- What were the specific goals and tasks of the project as stated in your application?
    - **Improve Canton's climate resilience**
        - **Identify areas of current flooding**
        - **Predict areas of future flooding**
    - **Engage residents to become 'climate ready'**
    - **Identify specific Town actions and strategies for**
        - **Reducing flooding**

- - **Improving climate resiliency**
- Did your project meet the goals set forth in your application in terms of:
  - Employing nature-based solutions
    - **Yes, nature-based storage solutions were considered as a potential strategy for mitigation of flood prone areas**
  - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations
    - **Environmentally and climate vulnerable populations were considered in our Vulnerability Assessment. One asset in particular showed high risk for flooding: Hagen Court Affordable Senior Housing facility**
  - Providing regional benefits
    - **Yes, this project will provide benefits not only to Canton but will serve as a model for other communities within the Neponset River Watershed to consider their own inland flooding concerns and how best to mitigate collectively as a Region.**
  - Implementing the public involvement and community engagement plan set forth in your application
    - **Yes, we were able to implement most of what was originally planned for public involvement and engagement with slight modifications due to the restrictions placed on the project related to COVID19.**
  - Finishing the project on time
    - **Yes**

**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.
  - **Through this project, the Town visits 411 features of their stormwater infrastructure system (392 drain manholes and 19 outfalls) to improve the overall GIS database that contributed to modeling**
  - **For the Risk Vulnerabiltiy Assessment, 153 total assets were assess for flood risk; of that number, only 3 were considered high risk (risk >20); 7 were considered medium to high risk (risk > 15) and the remainder were none to medium risk (risk below 15).**
- Provide a brief summary of project deliverables with web links, if available.
  - **Final Report (posted to flood mitigation website)**
  - **Flood Mitigation Website: https://www.town.canton.ma.us/869/Flood-Mitigation**
  - **Flood Survey portal (posted to flood mitigation website)**
  - **Public Workshop Educational Materials (posted to flood mitigation website)**
  - **Core Team Meeting materials (for 6 meetings)**
  - **Presentation to Town of Canton, MA Selectboard**

**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.
    - **Flood Model**
        - **Limited starting data available, 4 months were spent in the field gathering and verifying data on stormwater systems**
        - **Plan more time for model development; required multiple iterations as new info – such as dam operations - became available at various project phases**
    - **Risk Vulnerability Assessment**
        - **Pandemic highlighted some community assets, like the food pantry**
    - **Flood Mitigation Recommendations**
        - **Identifying driver of flooding is a challenge (i.e., are the primary flood pathways caused by riverine/overbank flooding? catchment slope/terrain/groundwater table? or impervious runoff/sheet flow/flash flooding?)**
        - **Our Canton-specific 2D modeling, which includes piped infrastructure and future climate scenarios, is being used to better distinguish specific drivers of flooding to identify most appropriate solutions. Through this analysis, we find most the impactful mitigation actions vary spatially. Where we recommend specific strategies depends on magnitude of projected future flooding, and specific sub-catchment and infrastructure conditions.**
    - **Engagement/Outreach**
        - **Scoped prior to pandemic**
        - **More technical fluency by the time of the first public workshop**
        - **Awareness to new technologies, allowing for potential of more attendees**
    - **Different departments have different strengths; cooperating as a team is key**
    - **Grant efforts can complement existing and future efforts. For example, the Town concurrently hosted a series of MACP workshops related to climate change at home interspersed with the public outreach of the MVP project. This served to expand the engagement of the overall Town program.**
- What is the best way for other communities to learn from your project/process?
    - **Through conversation with the project team and in reading our Final Report which well documents the process, evaluation and results**

**Partners and Other Support:**

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

    *Town of Canton, MA*

- Mike Trotta – DPW Superintendent
- Jay Mello, Town Engineer, 781-821-5063
- Laura Smead, AICP, Town Planner, 781-575-6575
- Lisa Grega – Assistant Town Engineer

*Kleinfelder*

- Courtney Eaton, PE, ENV SP, Project Manager
- Kyle Johnson, Climate Resiliency/Green Infrastructure Engineer
- Kenneth Yu, Hydrologic and Hydraulic Modeler
- Kristen Caracappa, Hydrologic and Hydraulic Modeler
- Bella Purdy, Climate Resiliency Planner
- Polly Crocker, PE, Water Resources Engineer
- Muriel Wixson, Communications and Community Outreach Lead

*Massachusetts Energy and Environment Agency*

- Carolyn Meklenburg, Regional MVP Coordinator

**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.