

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Natick

Project Title: Building Resilience across the Charles River Watershed

Award Year (FY): FY2021

Grant Award: \$264,171

Match: \$ \$93,725

Match Source: Charles River Watershed Association (CRWA), municipal partners

One or Two Year Project: One year

Municipal Department Leading Project: Natick Community & Economic Development is the project fiscal agent; this project is a collaboration of the Charles River Climate Compact (CRCC).

Project Website URL: <https://www.crwa.org/watershed-model.html>

Community Overview:

- This is a regional project focused on the upper/middle Charles River watershed, the area is 272 communities and includes the following communities (bolded communities participated in this project): **Arlington**, Ashland, Bellingham, Belmont, Boston, Brookline, **Dedham**, Dover, Foxborough, **Franklin**, **Holliston**, Hopedale, Hopkinton, Lexington, Lincoln, Medfield, **Medway**, Mendon, Milford, **Millis**, **Natick**, **Needham**, **Newton**, **Norfolk**, **Sherborn**, Walpole, Waltham, **Watertown**, Wayland, **Wellesley**, **Weston**, Westwood, and **Wrentham**
- Fifteen communities in the Charles River watershed (including Cambridge and Somerville which are downstream of the upper/middle watershed area) have environmental justice populations. Additionally, each watershed community has identified climate vulnerable residents within their community through the MVP Planning process.
- This project was highly unique in that it involved 15 communities working together on a regional collaboration at the watershed scale. The watershed scale is ideal for assessing flood risk as flood water follow watershed boundaries, but do not follow political boundaries.

Project Description and Goals:

- The project team developed the Charles River Flood Model (CRFM) to assess the impacts of precipitation-based flooding on the upper/middle Charles River watershed.
- The project team used the CRFM to assess the flood mitigation impacts of multiple strategies, with a focus on nature-based solutions.
- The project team also conducted extensive public outreach to inform watershed residents about the development and potential use of this tool, get input on modeling scenarios, and build confidence in the model as a planning and decision-making tool.
- The project was extremely successful. The team developed a watershed scale model for a fraction of what it would cost for each municipality to develop the model on their own.

Results and Deliverables:

- The model demonstrates that climate change will bring flooding to areas not previously vulnerable and will make flooding worse in some areas. In comparison to present day impacts, future storms are likely to impact between 1,200 and 1,900 additional acres of land.
- The model further demonstrated that nature-based solutions can mitigate the impacts of flooding, but need to be implemented aggressively to successfully bring projected future flooding in line with flooding impacts of today
- The Model combines stormwater drainage infrastructure for the 15 communities into one model platform.
- Model results are available online through an online interactive map viewer and through a story map. Both are accessible through the project website: www.crwa.org/watershed-model.html

Lessons Learned:

- It will require bold and aggressive action to mitigate expected flooding and collectively we need to shift our thinking about what is feasible when it comes to implementing nature-based solutions.
- Development practices need to change quickly as allowing undeveloped watershed land to develop in traditional ways that do not account for the flooding impacts of climate change will have significant negative consequences for watershed flooding.
- Public engagement during the pandemic was a challenge, we were able to effectively utilize virtual platforms for the most part, however, there were no opportunities to go into the community to engage residents that did not seek out the content we produced.
- Engagement of non-English speaking residents was a particular challenge during the pandemic and due to the short project timeline. Future project timelines need to include adequate time for translation and formatting of multi-lingual materials.
- The project involved a somewhat technical subject, development of a flood model, however, as a tool it has the potential to impact local policy and result in on the ground changes. It was a challenge at times to balance the communication of highly-technical information to those who wanted it while also keeping people who were not as interested in the technical details engaged. Through multiple project engagement sessions, we were able to obtain feedback on effective strategies to do this including using accessible language, promoting the online results at local libraries, schools and through local organizations, and using short accessible content.

Partners and Other Support:

- Charles River Watershed Association manages the Charles River Climate Compact and served as project lead.
- Weston & Sampson served as the project technical lead

- Communities Responding to Extreme Weather (C.R.E.W) supported community engagement

Project Photos:



Project Team Final Meeting (on Zoom!)