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

**Municipality:** Belmont
**Project Title:** Stormwater Flood Reduction and Climate Resilience Capital Improvement Plan
**Award Year (FY):** FY22
**Grant Award: $** 195,000
**Match: $** $63,600
**Match Source:** In-kind hours and local funding
**One or Two Year Project:** One-year
**Municipal Department Leading Project:** Office of Community Development
**Project Website URL:** https://www.belmont-ma.gov/community-development/pages/municipal-vulnerability-preparedness-mvp

**Community Overview:**

- What is the population size of your community and where is it located?
    - Belmont is located approximately 5 miles west of Boston in Middlesex County, MA and has a population of approximately 27,000 people.
- Do you have any Environmental Justice or other Climate Vulnerable communities? (Think about both those who live and work in your town.)
    - Yes, Belmont's Environmental Justice (EJ) populations include minority residents ("25% or more of the residents identify as a race other than white.") In addition to EJ populations, Belmont also considers climate vulnerable residents whose everyday stressors make it harder to adapt or recover when climate hazards occur. In Belmont, seniors, children, low-income residents, and socially isolated residents are considered vulnerable. Socially isolated residents could include residents with disabilities, residents with limited English fluency, residents experiencing homelessness, and climate refugees.
- Other unique traits of your municipality like who the top employers are, geography, history, etc.
    - Belmont historically consisted of expansive agricultural lands and supplied produce and livestock to the City of Boston. Belmont was known for its market gardens and the large amount of fruit and vegetables it produced. In the early 19th century, roads and railroads linked the town to Boston, which sparked suburban growth (Town of Belmont and MAPC, 2013). Despite its growth, Belmont has been able to maintain hundreds of acres of parks and agricultural lands, including the Cambridge Reservoir and several ponds. Belmont is a primarily residential community outside of Boston, with a walkable downtown area and wealth of municipal services. The top employment industries in Belmont are Business Management, Science, and Arts. The largest employer in Belmont is by far Mclean Hospital, but other large employers are the Belmont Country Club, Belmont Hill School, Belmont Manor Nursing Center, and People's United Bank. Belmont is also home to a growing number of technology-based companies.

**Project Description and Goals:**

- Where was the project located?
    - Town-wide
- What climate change impacts did the project address?
    - Increased stormwater runoff, increased flooding, urban heat island.
- What were the specific goals and tasks of the project as stated in your application?
    - Engage residents in working towards shared solutions for climate change impacts through active public outreach process.
    - Address high priority action items identified through the MVP Planning Process
    - Improve the existing 1-D drainage model by creating a 2-D model upgrade with enhanced climate evaluation.
    - Document current and future flooding problems in Belmont using the revised model.
    - Integrate Belmont's drainage model into the regional 2-D hydraulic model to evaluate both the impacts of the planned regional interventions on Belmont and Belmont's planned improvements on the regional system.
    - Identify site specific green infrastructure/nature-based controls for implementation
    - Identify any needed grey stormwater infrastructure improvements
    - Identify the associated co-benefits from resilience improvements to inform prioritization
    - Create an action plan or road map to equitably implement capital improvements
- Did your project meet the goals set forth in your application in terms of:
    - Employing nature-based solutions-Yes
    - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations-Yes
    - Providing regional benefits-Yes
    - Implementing the public involvement and community engagement plan set forth in your application-Yes
    - 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.
    - The project resulted in a prioritized capital improvement plan for implementation of green infrastructure projects across the Town of Belmont. Though the projects themselves have not been implemented yet, 45 projects have been mapped out with initial design concepts, and the timeline has been compared to coinciding construction or road work already occurring or planned in the Town. Additionally, the project included the creation of a 2-D stormwater model. A list of Green Infrastructure projects was developed based on the

model. The Green Infrastructure solutions are estimated to reduce the peak flood volume of a 10-year 24-hour storm in 2022 by 15%, and reduce the peak flood volume of a 25-year, 24-hour storm in 2070 by 2.8%.

- Provide a brief summary of project deliverables with web links, if available.
    - The project deliverable is the Stormwater Flood Reduction and Climate Resilience Capital Improvement Plan Report, as well as specific sub task memorandums regarding: Field Work, Flow Metering, Model Calibration, Existing and Future Conditions, Nature Based Solutions, Flood Evaluation, Costs, Public Input, and Prioritization. Deliverables also included meeting presentations and minutes from CRWA and MyRWA, cost tables, and the prioritization matrix. Public engagement materials, such as surveys, promotional flyers, social media posts, website updates, outreach toolkit for organizations serving EJ and vulnerable populations, and public art were also included as deliverables. A map of locations where residents experience flooding and heat, and where they want to see stormwater projects installed is available here.

**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.
    - It may be helpful to plan similar projects so that any flow metering is conducted in the months of June and July. To facilitate this timing, projects may need to span two years, or flow metering could be conducted as up-front work.
    - Reaching a representative sample of the community through meetings, online survey, and art challenge continues to be difficult, although working with the local Chinese American Association was a great partnership for outreach and they provided translation free of charge. 11% of participants in project activities identified as Asian, compared to 19% in the town as a whole; 3% of participants were Hispanic, and 5% of town identifies as Hispanic. The art challenge and survey did engage a couple people under 18 years old.
    - Turnout for an online meeting on a beautiful summer evening was low, although by not using RSVPs we do not know how many people had intended to come/were reached by outreach. Recommend using RSVP form (and sending them appointments and reminders) for future online meetings.
- What is the best way for other communities to learn from your project/process?
    - Other communities could review Belmont's Stormwater Flood Reduction and Climate Resilience Capital Improvement Plan for ideas of project locations for stormwater mitigation. Additionally, they could reach out to any of those involved in the preparation of the plan, field work, modeling, and prioritization of green infrastructure projects.
    - Other communities should consider trying an artwork challenge to engage different audiences in a constructive visioning activity. Also consider getting schools more involved and/or trying to hold an in person event where people could create and submit their artwork in real time. To the extent possible,

connect with local cultural organizations for outreach assistance to non-English speaking populations.

**Partners and Other Support:**

- Community Stakeholders: Belmont Citizen's United Stormwater Working Group, Sustainable Belmont, Belmont Against Racism, Youth and Family Services, Belmont Public Library, Belmont Food Pantry
- Town of Belmont: Glenn Clancy, Mary Trudeau, David Blazon, Jay Marcotte, Mike Santoro, Mark Hurley, Andrew Tobio, Wesley Chin, Patrice Garvin, Pam Callahan, Mitchell Carolan
- Stantec: Emily Bonaccorso, Lin Liang, Mike DuPont, Grace Huson, David VanHoven
- Weston & Sampson: Adria Boynton, Tony Zerilli, Jennie Moonan, Steven Roy, John Frey, Mary O'Malley, Justin Gould
- Carolyn Mecklenburg, Greater Boston Regulatory Coordinator for MVP Program

**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.