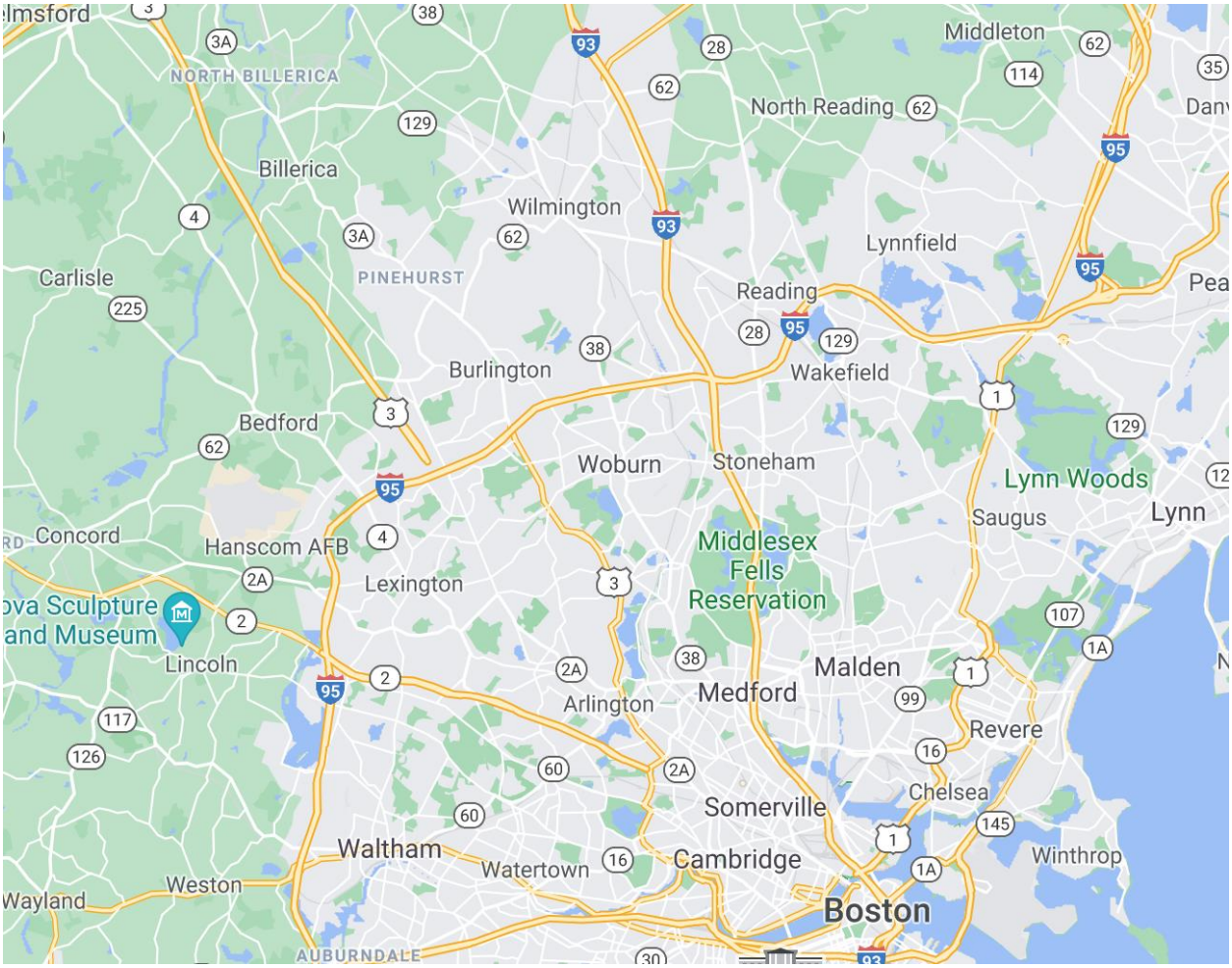
Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Town of Lexington
Project Title: Upper Mystic River Regional Stormwater Wetlands
Award Year (FY): FY21
Grant Award: $670,000
Match: $255,000
Match Source: Barr Foundation support for the Resilient Mystic Collaborative
One or Two Year Project: One year
Municipal Department Leading Project: Town of Lexington Engineering Department
Project Website URL: https://mysticriver.org/wetlands
Community Overview:

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

The Towns of Lexington and Reading and the City of Woburn are all located in the upper Mystic watershed.

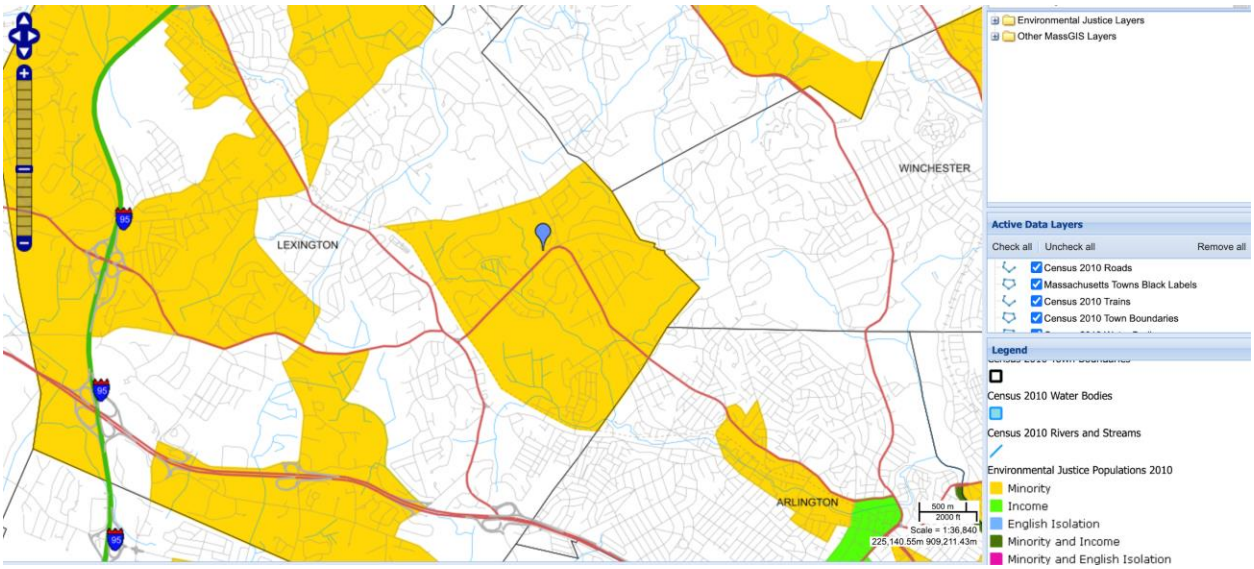


The Town of Lexington has a population of 33,340; the Town of Reading has a population of 26,050, and the City of Woburn has a population of 40,304.

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

Both the Town of Lexington and the Town of Reading are home to environmental justice populations. The site in Woburn has three EJ communities (25% or more identify as people of color) within a mile of the site, as illustrated in the map below.

The site in Lexington falls within an EJ community (25% or more identify as people of color), as illustrated in the map below:



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

The Town of Reading occupies approximately 10 square miles of land and sits at the headwaters of three major watersheds. The Aberjona River, located on the western side of Town ultimately discharges to the Mystic River of which the Maillet Sommes Morgan Conservation area is within. The Town of Reading also contributes to the Saugus and Ipswich River Watersheds. During the 1970's the Aberjona was channelized and rip-rapped, in many areas it no longer moderate springtime flooding, major storm events or the increased runoff from housing development, ultimately resulting in flooding downstream. As a result this specific site in Reading often experiences road closures downstream during heavy rain events.

Project Description and Goals:

<u>Where was the project located?</u>

The three sites are located at:

1. Maillet Sommes Morgan Conservation Area, Reading
2. 0 Lowell St and 0 Maple St., Behind the Harrington School, Lexington
3. Hurld Park, Woburn

What climate change impacts did the project address?

Climate change is linked with heavier and more frequent rainfall, leading to more destructive inland flooding. All three sites will address both local and regional flooding and improve water quality.

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

Our stated goal of the 2-year proposed project was to: "develop a multi-year, multi-community master plan of stormwater wetland projects that help manage regional flooding while providing co-benefits to host communities. By working regionally, we also hope to attract substantial public funding to move projects forward faster and more efficiently than they would if done in a piecemeal manner."

Tasks of the awarded one-year project include:

Task 1: Design & Permitting
Sub-task 1.1 Permitting analysis and pre-design screening
Sub-task 1.2 Detailed design of up to 3 wetland GI sites
Sub-task 1.3 Environmental permitting for up to 3 wetland GI sites
Task 2: Community Engagement & Participatory Design
Sub-task 2.1 Upfront community involvement of municipal staff through RMC and Upper Mystic Stormwater Working Group meetings
Sub-task 2.2 Participatory design (3-6 communities) for Year 1
Sub-task 2.3 Regional outreach/communication
Task 3: Additional Site Investigation and Preliminary Designs
Sub-task 3.1: Desktop Analyses for Top 35 Sites
Sub-task 3.2: Field Investigations for Top Sites including Site Condition Review for 16 Sites and Wetland Delineation for Top 6 Sites
Sub-task 3.3 Site Prioritization and 10% Concept Designs
Sub-task 3.4 Final Report
Sub-task 3.5 Additional Working Group or Municipal Meetings

Did your project meet the goals set forth in your application in terms of:

Employing nature-based solutions

The proposed stormwater wetlands are nature-based solutions for flood storage as well as water quality improvements. Additionally, the stream and floodplain restoration on the Woburn site is a nature-based solution, providing local flood storage.

Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations

As mentioned above, two out of the three sites were in the vicinity of EJ populations. The Woburn engagement process in particular was especially robust, drawing approximately 70 people to an Open House and 30 people to a Public Meeting, while also gathering almost 500 responses to a survey sent out by the City. The Project Team enlisted the help of the Engineering Department, Recreation Department, local Alderman, and the Mayor to spread the word about work being done at the Hurld Park site. The City engaged enthusiastically on all parts of engagement. Furthermore, engagement was truly focused on gathering information about how the site is used and how neighboring communities would like to use it, resulting in an authentically community-informed design.

Providing regional benefits

The intention behind these stormwater wetlands is to provide regional flood storage while providing local benefits including open space improvements (e.g. pathways), open space connectivity, ecological and habitat restoration, and stormwater quality improvement. The Phase 1 concept designs anticipated more regional flood storage than accomplished in the Phase 2 permitting plans since DEP does not allow constructed wetlands within wetlands. That said, flood storage was still designed, just not to the extent that the Project Team had initially anticipated.

Implementing the public involvement and community engagement plan set forth in your application

The community engagement in all three communities met and in some cases surpassed the guidelines set forth in our application. In all three communities the following process was followed:

	Woburn	**Lexington**	**Reading**
Engagement with municipal/ agency stakeholders.	Engineering Department; Recreation Department; Local Alderman, Conservation Commission. Regular meetings between this group.	Engineering Department; School Department; Conservation Commission. Also elderly affordable housing complex abutting site.	Engineering Department; School Department; MBTA; Conservation Commission (sat on project team).
Engagement with particular			Reading Trails Committee.

community groups.			
Outreach to abutters.	Local Alderman personally delivered flyers, engaging in discussion along the way. The Recreation Department posted on social media about engagement opportunities. Web page created with relevant information and updates.	Flyers sent to all abutters. Signs posted on site. Web page created with relevant information and updates.	Flyers sent to all abutters. Signs posted on site. Web page created with relevant information and updates.
Survey	Survey created to gather info on how the site is used and how residents would like to use it. Approx. 500 responses, all from Woburn residents.	Given the constraints of the project, a survey was not deemed useful for gathering community input. (Note: survey not included in application.)	Given the constraints of the project, a survey was not deemed useful for gathering community input. (Note: survey not included in application.)
Open House	In person open house with City Engineer and local alderman giving tours. Mayor and others giving welcome. 70+ attendees.	Virtual joint open house (Lexington & Reading) with break out rooms by municipality. 30+ attendees.	Virtual joint open house (Lexington & Reading) with breakout rooms by municipality. 30+ attendees.
Public Meeting	Public meeting with consultant presenting concept design based on site constraints and community input. 25+ attendees.	Joint public meeting. Sparsely attended after Open House. Lesson learned: Space meetings farther apart if possible. 6+ attendees.	Joint public meeting. Sparsely attended after Open House. Lesson learned: Space meetings farther apart if possible. 6+ attendees.
Conservation Commission meeting	Informational presentation at ConComm meeting to	Presented at 2 ConComm meetings ensuring input early	Presented at 2 ConComm meetings ensuring input early

	ensuring input early on from Commission members, and offering additional opportunities for the public to engage.	on from Commission members, and offering additional opportunities for the public to engage.	on from Commission members, and offering additional opportunities for the public to engage.

Finishing the project on time

We were confronted with certain obstacles but ultimately were able to finish the project on time. Obstacles included:

1. The surveyor employed by Weston and Sampson experienced some setbacks due to Covid and had difficulty making deadlines as a result.
2. We chose to go out to bid for the design and permitting contract in order to get the most competitive price and ensure that we were using the State's money wisely. However, this did result in a loss of 2 months during the grant period. We partially recouped this time by putting out a separate RFQ for the field work (surveying and delineation), allowing this work to begin earlier than the design and permitting.
3. We succeeded in bringing in competitive bids for the project, and with the surplus funds requested an amendment to include some of the tasks that were not funded in this grant period. We were fortunate enough to have this amendment approved, but unfortunately not until May, resulting in a sprint through those deliverables. Having ample time to review the top candidates for stormwater wetlands within the Upper Mystic would have allowed for a more thoughtful re-prioritization of these nature-based solutions to regional flooding, and robust municipal engagement might have better set us up to embark on the next round of projects. While deliverables were met, we will plan to spend time with municipalities over the summer and fall reviewing sites. The tight timeline was a detriment to our work.

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.

Site #1: Lexington, behind Harrington School
Acres: 8
Drainage area: 32.93 acres
% reduction in flow: -27.53%
% reduction in volume: -44.46%
TSS removal rate: 80%
Co-benefits: Improved path network, creation of educational space for neighboring school, invasies removal.

Site #2: Reading, Maillet Conservation Land
Acres: 5.5
Drainage area: 49.5 acres
% reduction in flow: -0.8%
% reduction in volume: +2.5%
TSS removal rate: 85%
Co-benefits: Improved path network, invasive removal.

Site #3: Woburn, Hurld Park
# of acres: 11.27
Proposed Drainage Area: 30.2 acres
% reduction in flow: -58% (SW constructed wetland)
% reduction in volume: +100% (we are increasing the volume to this wetland compared to what is directly draining to Cummings Brook)
TSS removal rate: 85% (Stormwater Constructed Wetland)
Co-benefits: Restoration of existing Cummings Brook and floodplain, Improved path network, invasive removal, open space improvements.

- Note: there are additional overall benefits with the restoration projects that will be implemented in addition to the SW constructed wetland.

Provide a brief summary of project deliverables with web links, if available.

Task	Deliverable
Task 0: Kick-off meeting with Town, EEA, and Consultant	Meeting notes, sign-in sheet
Task 1: Year 1 Design & Permitting	
Sub-task 1.1 Permitting analysis and pre-design screening	Initial permitting analysis and documents for Top 6 sites, including survey, wetland delineation, and environmental permitting assessment. Short memo summarizing prioritization of Top 3 sites based on permitting and construction readiness and ease.
Sub-task 1.2 Detailed design of up to 3 wetland GI sites	Up to 75% design for constructed wetlands at Lexington and Reading sites; and up to 30% design of the constructed wetland and additional community resilience features at Woburn site.
Sub-task 1.3 Environmental permitting for up to 3 wetland GI sites	Develop and submit permits to the respective agencies for Lexington and Reading sites. Hold at least one pre-application meeting with each relevant permitting agency for Woburn site.

Task 2: Year 1 Community Engagement & Participatory Design	
Sub-task 2.1 Upfront community involvement of municipal staff through RMC and Upper Mystic Stormwater Working Group meetings	Meeting materials and minutes for RMC meetings and Upper Mystic Stormwater Working Group quarterly meetings.
Sub-task 2.2 Participatory design (3-6 communities) for Year 1	Public Outreach and Community Engagement Plan materials, Short summary memo
Sub-task 2.3 Regional outreach/communication	Public Outreach and Community Engagement Plan materials
Task 3: Additional Site Investigation and Preliminary Designs	
Sub-task 3.1: Desktop Analyses for Top 35 Sites	Memorandum summarizing the data collected, the methodologies for the desktop analyses and the results of the assessments for all 32 sites (electronic). Attendance of up to two staff at two meetings and preparation of a meeting agenda, presentation and meeting minutes (electronic (PDF).
Sub-task 3.2: Field Investigations for Top Sites including Site Condition Review for 16 Sites and Wetland Delineation for Top 6 Sites	Field surveys and forms for up to 16 sites. A short report summarizing field methodologies and site observations for existing resource areas for up to 6 sites (electronic). Photos and geolocation data of flags (electronic).
Sub-task 3.3 Site Prioritization and 10% Concept Designs	Attendance of up to two staff at two meetings, and preparation of meeting agendas, presentations and meeting minutes (electronic (PDF)). Draft and final 10% conceptual designs for up to three sites (electronic (PDF)). Draft and final GI concept fact sheets for up to three sites (electronic (PDF)).
Sub-task 3.4 Final Report	Draft and final report summarizing data collected and analyses performed under Task 3, including appendices with all interim deliverables as noted in previous tasks.
Sub-task 3.5 Additional Working Group or Municipal Meetings	Attendance of up to two staff at up to six meetings and preparation of meeting agendas, presentations and meeting minutes (electronic (PDF)).
Task 4: Program Management	
Sub-task 4.1 Project coordination and design standard consistency	Coordinate Independent Design Review (PM/Tech Leads, RMC steering committee, non-host community municipal staff); design review comments on draft plan documents; meeting minutes

Sub-task 4.2 RMC regional coordination	Project updates on RMC website
Required Task 5: Case Study	
Sub-task 5.1 Prepare Case Study Draft (template provided)	Draft case study report, 1-2 powerpoint slides with project photos
Sub-task 5.2 Prepare Final Case Study (template provided)	Final case study report, 1-2 powerpoint slides with project photos

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.

Phase 1 consultants had placed stormwater wetlands within existing wetlands and Wetlands Protection Act resource areas, something we discovered would not be permittable by DEP, therefore reducing the ability of these structures to manage regional flooding (since the footprint in the upland areas was significantly smaller than the original footprint within existing wetland). We have since created a working group of the Resilient Mystic Collaborative to liaise with DEP on this issue, with the hope that they will find a way to permit these important BMPs within existing wetlands. We are also considering wetlands restoration rather than constructed wetlands in some of these sites to increase flood storage capacity and improve water quality.

What is the best way for other communities to learn from your project/process?

Other communities can read more about the work we are doing on https://resilient.mysticriver.org/ or email Julie Wormser at julie.wormser@mysticriver.org.

Partners and Other Support:

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

Woburn	**Lexington**	**Reading**	**MyRWA**	**RMC Upper Mystic Working Group**
Jay Corey, City Engineer, Lead, Project Team	Mike Sprague, Town Engineer, Lead, Project Team	Alex Rozycki, Senior Civil Engineer, Lead, Project Team	Catherine Pedemonti, part of Project Team, responsible for project management	Emily Sullivan, part of Project Team, help with project oversight, technical expertise, and coordination with RMC UMWG. Engagement

			and community engagement	around Meadowbrook Park, 2nd tier of projects.
Mayor Galvin, Woburn project team, attended community engagement meetings	Karen Mullins, liaison to ConComm	Chuck Tirone, Conservation Agent, on Project Team and attended all community engagement meetings	Patrick Herron, provide technical expertise	Tom Philbin, City of Everett, engagement around Gateway Park as 2nd tier of projects.
Jeff Dillon, Local Alderman, Woburn project team, attended community engagement meetings, responsible for outreach and flyering	Harrington School	Kim Honetschlager, GIS Administrator	Julie Wormser, provide climate expertise	Brett Gonsalves, Director of Public Works, Town of Stoneham, engagement around high school as 2nd tier of projects.
Rory Lindstrom, City's Recreation Director, Woburn project team, created City's web page for project, social media outreach, distributed survey, attended all engagement meetings	Lexington Housing Authority	Reading Trails Committee, Chair Kathy Kelly		Also re: overall advising and engagement on project progress and potential pipeline for future projects: Alicia Hunt and Tim McGivern, City of Medford; Catherine Woodbury, City of Cambridge; and Beth Rudolph, Town of Winchester.
Theresa Murphy Conservation Administrator, liaison to ConComm		Karen Herrick, select board Chair and Mark Dockser Select Board Secretary attended		

		community engagement meeting		

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.