

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: City of Revere

Project Title: Saugus River Watershed: Coastal Vulnerability Assessment and Regional Adaptation Plan

Award Year (FY): FY22-23

Grant Award: \$ 154,742

Match: \$ 52,159

Match Source: In-Kind Match

One or Two Year Project: One Year Project

Municipal Department Leading Project: Revere Office of Planning and Community Development

Project Website URL: <https://www.saugusriver.org/sprarr> ;
<https://lynnincommon.com/saugus-river-watershed-regional-adaptation-plan>

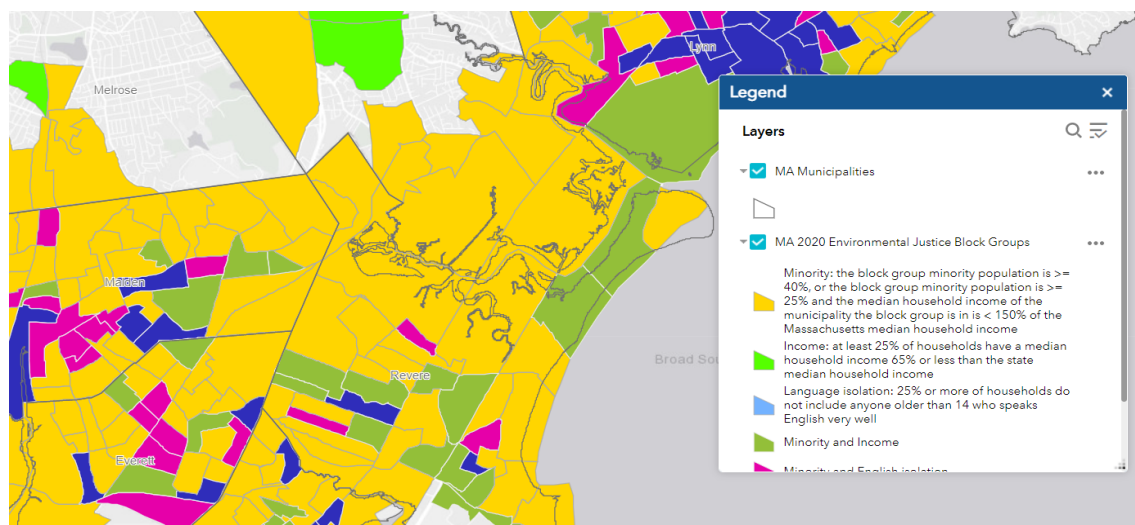
Community Overview:

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

282,752 across five communities: Revere, Everett, Malden, Saugus, and Lynn

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

The five municipalities together encompass Minority, Income, Language Isolation, Minority and Income, Minority and English Isolation, Income and English Isolation, and Minority, Income, and English Isolation EJ block groups, as shown in the below image. The EJ identified population is 249,980, out of a total population of 282,752, representing 88.4% of the total region's population, as detailed in the below map and table.



Municipality	EJ Criteria	# of EJ Block Groups	Total # of Block Groups	% of Block Groups with EJ	Population in EJ Block Groups	Total Population	% of the Population in EJ Block Groups
Revere	MIE	37	42	88.1	50,113	53,692	93.3
Everett	MIE	27	27	100.0	46,118	46,118	100.0
Malden	MIE	49	52	94.2	59,058	60,984	96.8
Saugus	MI	6	20	30.0	7,361	28,215	26.1
Lynn	MIE	67	72	93.1	87,330	93,743	93.2
Total					249,980	282,752	88.4

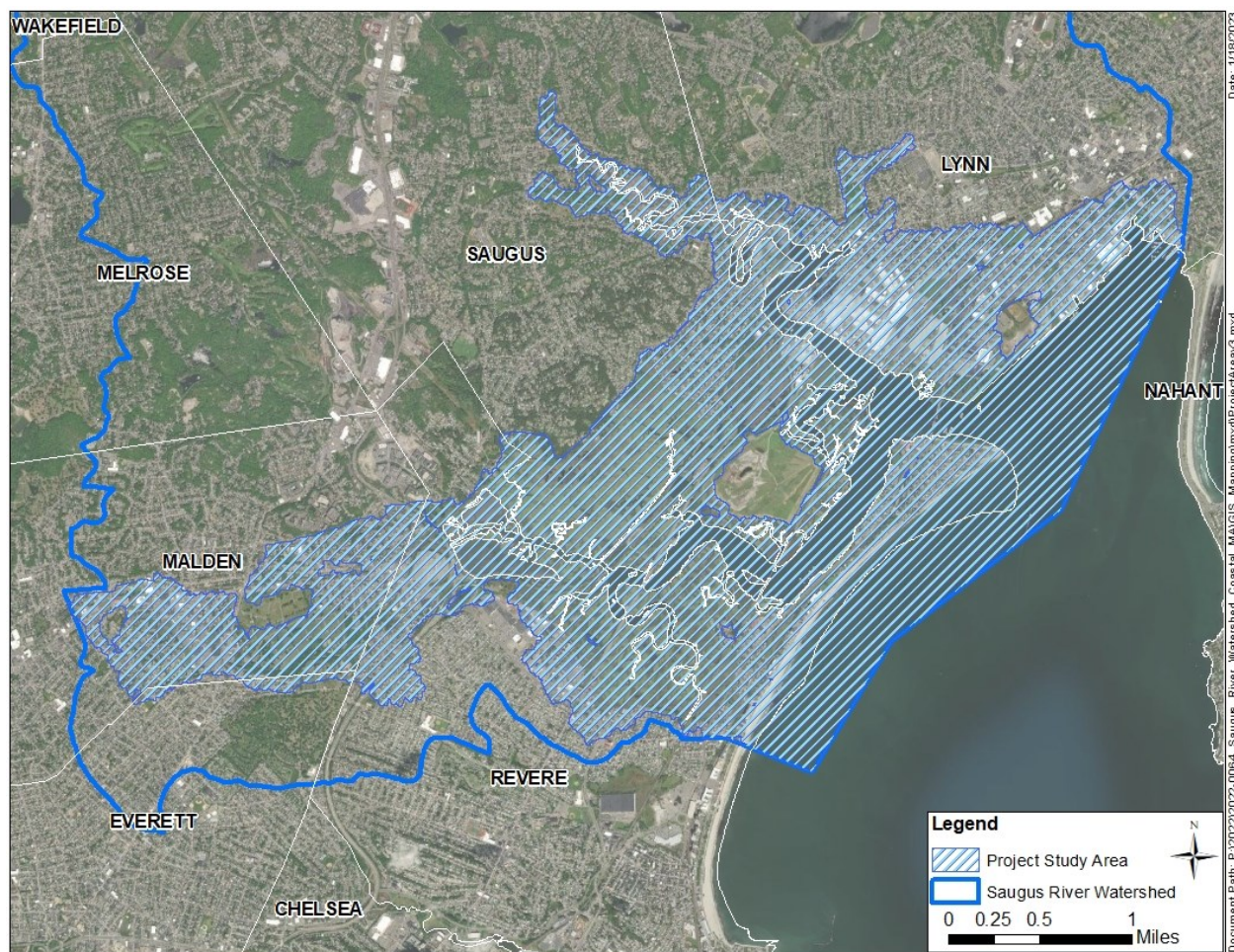
- Other unique traits of your municipality like who the top employers are, geography, history, etc.

The Saugus River Watershed Project area is a coastal region encompassing upland development, open space, and natural resources within the estuarine and open coast system. Prior to colonization, the Saugus and Pines River Estuary was home to the Naumkeag, Massachusetts, and Pawtucket native tribes. Settled by colonists in the 1600's, the region became agricultural lands which have since developed into dense residential and commercial areas. Construction of the Boston & Maine (B&M) Railroad in the mid-1800's transformed the region into a leading manufacturing center (including tannery and shoemaking industries). Urban development has impacted almost all upland areas and has encroached heavily on Rumney Marsh directly through filling, and indirectly through impacts to stormwater and water quality, among other impacts. Today, at risk within the watershed are five communities, encompassing over 5,000 buildings, 8,000 housing units, 10,000 residents, 20,000 employees, 400,000 commuters, 30 miles of shorefront structures, 400 commercial and recreational vessels, 1,650 acres of salt-water estuary, and major transportation arteries (Route 1, 1A, 107, MBTA Blue Line and B&M Commuter Rail). Development of areas which under natural conditions would be anticipated to erode and/or flood regularly (sand spit, existing and filled salt marsh, tributary brooks/creeks) has placed many communities directly in the present and future flood zone. Furthermore, a need for access to the waterfront continues for commercial industries such as fisheries and tourism.

Project Description and Goals:

- Where was the project located?

The Project Area encompasses the coastal zone of the Saugus River Watershed, crossing the jurisdictions of Revere, Everett, Malden, Saugus, and Lynn.



- What climate change impacts did the project address?

This SRW Coastal Vulnerability Assessment and Adaptation Plan details a vulnerability and risk assessment of municipal infrastructure and natural resources to develop targeted, regional strategies aimed at reducing risks from increased coastal storm intensity, sea level rise and storm surge.

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

The goal of the Project is to provide the Project Team with data on likely scenarios and degrees of potential impact in vulnerable areas, and to assist in the development and prioritization of recommended strategies to minimize risks to infrastructure, facilities and natural resources.

- Did your project meet the goals set forth in your application in terms of:
 - Employing nature-based solutions

Yes, nature-based solutions were detailed as a part of the regional adaptation plan.

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

Community outreach events were extended to all communities including Minority, Income, Language Isolation, Minority and Income, Minority and English Isolation, Income and English Isolation, and Minority, Income, and English Isolation EJ block groups.

- Providing regional benefits

The SRW coastal zone is a unique geographical region which, within these five municipalities, contains open coast beaches, a barrier sand spit, rare and valuable salt marsh habitat, tidal flats, rivers, brooks and tributaries, and dense urbanization. The watershed, coastal processes, and effects of climate change do not respect jurisdictional boundaries. Therefore, the Project Team is collaborating to gain a holistic view of the environmental conditions they are facing. This area is exposed to the damaging effects of coastal storms, nor'easters, and the exacerbation of these hazards with climate change and sea level rise.

This Project attempts to leverage the experience of each municipality, efficiently evaluate flood risk across a wide region, and develop regional adaptation strategies that provide multi-jurisdictional protection and co-benefits such as social, economic, and environmental enhancement. While long-term increases in sea level are of concern, a more urgent threat to the community is the influence sea level rise will have on the severity of episodic hazard events such as storm surge, wave action, and coastal flooding, in addition to the exacerbation of ongoing coastal erosion. The region expects sea level rise to be an amplifier of the frequency and magnitude of these other coastal hazards to which much of the town is already exposed and highly vulnerable. Coastal flooding represents a major threat to the region's infrastructural, societal, and environmental features.

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

In a regional effort to prepare for future coastal hazards, the Saugus Pines River Advocacy for Regional Resilience (SPRARR) was created. SPRARR is a municipal working group that includes the municipalities of Revere, Everett, Saugus, Lynn, and Malden. SPRARR was assembled with the understanding that future flooding and coastal hazards often cross jurisdictional borders and that a regional effort could minimize the impacts on their region's critical infrastructure, natural resources, and vulnerable populations.

SPRARR conducted an initial phase of work funded through the Metropolitan Area Planning Council's (MAPC) Accelerating Climate Resiliency (ACR) Municipal Grant Program, which the Barr Foundation supports. This phase included:

1. Engaging with critical stakeholders from the watershed, including: The Massachusetts Executive Office of Energy and Environmental Affairs (EEA), Massachusetts Office of

Coastal Zone Management (CZM), Massachusetts Bay Transportation Authority (MBTA), Department of Conservation and Recreation (DCR), Massachusetts Department of Transportation (MassDOT), National Park Service (NPS), Environmental Protection Agency (EPA), and Mystic River Watershed Association.

2. Conducting data analysis of the region's critical infrastructure and analyzing flood risk under future sea level rise scenarios.
3. Identifying SPRARRs goals, including shared interests, knowledge gaps, and desired outcomes.
4. Working to create educational material to increase public awareness of SPRARR's efforts.
5. Securing a Municipal Vulnerability Preparedness (MVP) Action Grant from the Commonwealth to fund this current phase of work.

A regional working group of stakeholders has been assembled to promote cross-jurisdictional and cross-discipline collaboration.

Public engagement has been facilitated throughout this work by the Project Team. A total of three community outreach events were held either remotely, or in-person with a publicly available recording. Outreach was led by the Saugus River Watershed Council, City of Revere, and with support from MA CZM to enhance awareness and accessibility. The landing page for on-going work has been held in two locations: Lynn in Common (<https://lynnincommon.com/>) and the Saugus River Watershed Council (<https://www.saugusriver.org/>). Public events were advertised broadly with support from the SPRARR regional working group.

- Finishing the project on time

The project was completed within the required fiscal year timeframe.

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 successfully projected present and future flood hazards; inventoried existing public and natural resource assets; quantified risk to the region, quantified potential economic impact of future storm scenarios; developed a high-level regional adaptation plan; and identified recommendations for future action by the SPRARR group and region.

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

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.

From the technical perspective, the project team learned that developing an adaptation plan for the region will require much greater analysis over a longer time period. That aspect of this work was squeezed into the final quarter of what become an 8-month project. This meant that only high-level analysis and coalescing of existing data sources was possible, rather than a more thorough independent analysis.

From the SPRARR engagement perspective, the project team continued to see the value in bringing various groups and municipalities together to speak openly about on-going work and concerns. Going forward, the team hopes to engage more members more consistently.

From the community engagement perspective, the project team learned how complex and tasking it can be to plan and implement strategies which provide access to all communities, including environmental justice communities. Some big successes included translation of presentation materials to several languages, real-time interpretation for Spanish and Arabic during two public meetings, and preparation of a StoryMap deliverable which is more easily digestible by non-technical readers. Some areas for improvement surround getting greater numbers and diversity of attendees at public meetings. Flyers, advertisements, and online announcements were useful, but additional and/or more creative approaches may be required in the future.

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

View project page at <https://www.saugusriver.org/sprarr> ; or <https://lynnincommon.com/saugus-river-watershed-regional-adaptation-plan>.

Partners and Other Support:

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

SPRARR Regional Working Group:

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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.



Credit: Woods Hole Group, 2023