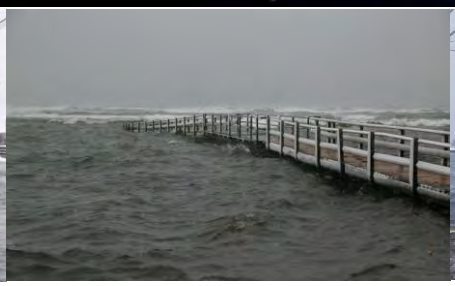

U.S. Environmental Protection Agency's Building Blocks Program
Regional Resilience Toolkit

Cape Ann Summary Report

August 2022

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INTRODUCTION

EPA's Regional Resilience Toolkit

The Regional Resilience Toolkit[1] was created by the U.S. Environmental Protection Agency (EPA) and the Federal Emergency Management Agency (FEMA) to help regions plan for disasters by working across multiple jurisdictions and with non-governmental partners. The Regional Resilience Toolkit focuses on the regional scale because disasters happen at a regional scale, and a coordinated process across multiple jurisdictions can result in safer communities. The toolkit is also designed for non-governmental partners and community groups to engage in a more inclusive and holistic process so that resilience actions are guided by core community values.

EPA's Office of Community Revitalization is using the Regional Resilience Toolkit through the Building Blocks Program to help multiple jurisdictions come together to identify shared natural disaster risks and a common action plan for the region. Through these workshops, EPA supports communities and their partners as they set resilience goals, prioritize assets to protect, and develop resilience strategies and funding plans.

TownGreen

TownGreen, Inc.[2] (TownGreen) is a grassroots organization on Cape Ann. Its mission is to act as a catalyst in assisting the greater Cape Ann region in becoming a vibrant and inclusive model of sustainability that is fossil fuel free and prepared for the impacts of climate change. With community partners, in particular the Cape Ann Climate Coalition (CACC), TownGreen provides local governments, residents, and businesses with resources and opportunities to reduce their carbon footprint. It does this through key focus areas:

- Energy efficiency
- Renewable energy
- Climate education
- Carbon sequestration

Technical Assistance

In 2021, TownGreen and the CACC were awarded technical assistance from EPA's Building Block Program to engage residents, businesses, and municipal governments in the Cape Ann region around climate issues. The purpose of this engagement was to identify priority projects and funding sources to address threats from sea level rise, winter Nor'easters and hurricanes, droughts, flooding, and excess heat. That same year, TownGreen and the four municipalities in the region also began three additional climate awareness initiatives parallel to EPA's technical assistance grant that it hoped to incorporate into the engagement process. These efforts are discussed in more detail later in this report.

The engagement process of EPA's Building Block Program included two virtual workshops. While these events were open to the public, TownGreen targeted invitations to local decision makers, including

[1] https://www.epa.gov/smartgrowth/regional-resilience-toolkit
[2] https://towngreen2025.org/

members of Select Boards and Gloucester City Council, state representatives, municipal staff of all four communities, and other key stakeholders, including citizen experts and residents. The intent was to have a spectrum of decision-makers and perspectives to discuss these important climate issues.

The format of each workshop was similar. They opened with a short presentation highlighting key information that would help participants in their small group discussions. Each small group was led by a facilitator to achieve the objectives of the workshop. An important takeaway of each discussion was to identify additional information participants felt they needed to continue the conversation about building resilience in the region after the workshops were over. See Appendix A for detailed summaries from each workshop.

Workshop #1

The intent of the first workshop was to have broader discussions with the four Cape Ann communities about shared climate threats and vulnerabilities. Each municipality had assessed its vulnerabilities and needs associated with the impacts of climate change and are currently taking individual actions to build resilience. In particular, all four municipalities had earlier prepared Municipal Vulnerability Plans (MVPs) that reflected expected sea level rise and flooding. The goal of this workshop was to incorporate this information, as well as new analyses of damages from a low-probability extreme storm (Category 3 hurricane) into a broader discussion about climate threats and vulnerabilities on Cape Ann as a region, while learning about different experiences and perspectives from the communities.

The first workshop was held on April 27, 2022, and approximately 65 people attended. The workshop presentation is found in Appendix A. A video is available on TownGreen's website.

Workshop #2

During the second workshop, participants developed a list of ideas and projects that could potentially help address vulnerable people, places, and infrastructure identified during the first workshop. Small group discussions highlighted ideas and projects that could benefit from collaboration between two or more communities on Cape Ann, thus highlighting regional pursuits versus those that could be tackled by individual communities. As small groups reported out, the larger group discussed the challenges and opportunities to move an idea forward.

The second workshop was held on May 23, 2022, and approximately 45 people attended. A video is available on TownGreen's website.

BACKGROUND

To set the stage for the workshop discussions, each workshop included a brief overview of state-produced climate projections for the Cape Ann region, recent municipal climate resilience planning efforts, and concurrent TownGreen climate resilience engagement projects taking place in Cape Ann. Each of these topics is summarized below.

Snapshot of Climate Projections for Cape Ann

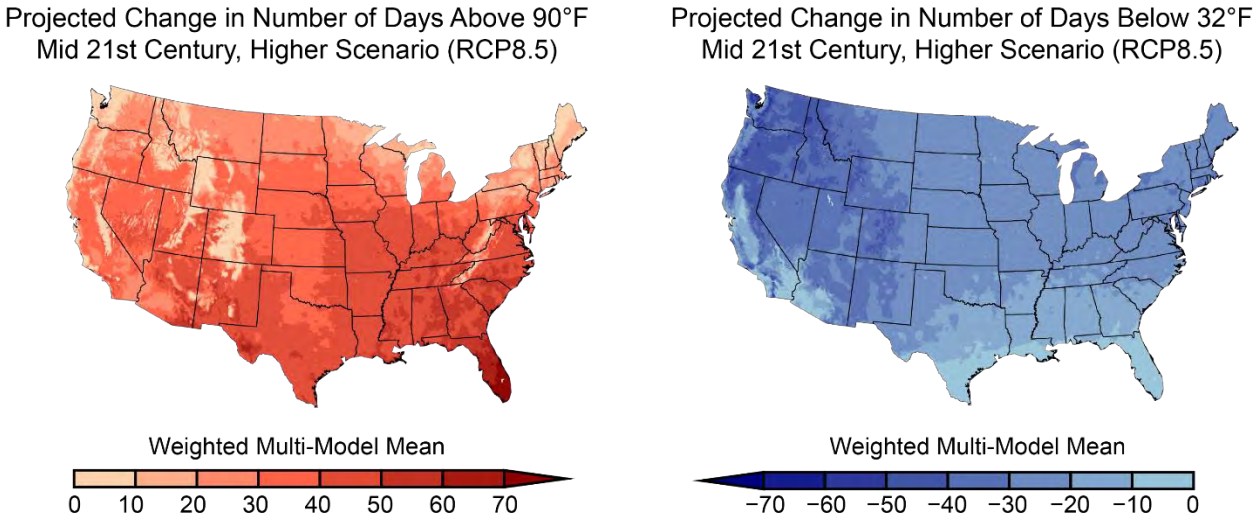
The Commonwealth of Massachusetts enlisted the help of University of Massachusetts scientists to develop a set of climate model simulations to provide Massachusetts communities with the tools to plan

for climate change impacts in the 21st century. These simulations addressed changes in precipitation patterns, temperature and sea level rise in Massachusetts based on varying carbon emissions scenarios. As described in the ResilientMA mapping tool climate projections metadata, "The two emissions scenarios are RCP4.5, a 'medium stabilization scenario' in which emissions are expected to peak in the mid-21st century and decline thereafter, and RCP8.5, a high emissions scenario without any reduction in emissions over time."

These projections were compiled by the state in a March 2018 report, Massachusetts Climate Change Projections, Statewide and For Major Drainage Basins, available on the state's resilience hub, resilientMA.org[3]. Additional information and data are continually being developed to help us understand the potential climate changes that can be expected in the New England region. In the meantime, this compilation of projections put out by the state continues to provide a useful overview for planning purposes, and is excerpted below for context for the Cape Ann Building Blocks project.

Increased Temperatures

National projections indicate that climate change will result in hotter summers and warmer winters in the northeastern US by the middle of the 21st century. Notably, Cape Ann is projected to experience hotter summers, with many more days above 90 degrees, and hotter winters, with many fewer days below freezing. This puts a strain on our energy supplies for cooling and AC. It also alters the local ecology, as the normal seasonal processes on which the ecosystem depends adjust to or are harmed by changing conditions.



Source: Fourth National Climate Assessment, Chapter 6

According to the projections developed for the Commonwealth and shared on resilientMA.org (as of July 27, 2022, see Table 1), Cape Ann is anticipated to experience 6 to 18 more days per year that reach above 90°F by mid-century, and 8 to 31 more days per year by the end of the century (Medium RCP 4.5

[3] https://resilientma.mass.gov/resources/resource::2152/massachusetts-climate-change-projections-statewide-and-for-major-drainage-basins

Emissions Scenario). The region will also experience a decrease in the number the days with temperatures below freezing (32°F). By mid-century, it is anticipated that the region will have 17 to 35 fewer days below 32°F annually, and 22 to 49 fewer days by the end of the century (Medium RCP 4.5 Emissions Scenario).

Table 1. Projected Temperatures Changes in the Cape Ann Region

	Mid-Century	End of Century
Annual Ave Temp	+2.7 to +5.3	+3.2 to +7.4
Days over 90 degrees F	+6 to +19	+8 to +31
Days below 32 degrees F	--17 to -25	-22 to -49

Source: resilientMA.org, July 27, 2022

Sea Level Rise and Flooding

Cape Ann is projected to see sea levels rise by between 1.4 to 3.1 feet by 2050 (depending on the emissions scenario, ranging from intermediate to extreme), over the year 2000 (or a 19-year tidal epoch centered on the year 2000). By 2100, sea levels are projected to rise 4 to perhaps as much as 10 feet. (resilientMA.org, July 27, 2022)

In addition, Cape Ann can expect to see an increase in the intensity of storm events, with more heat and energy in the atmosphere and the ability of storms to gather more energy from a warmer southern ocean. While it is not clear that Cape Ann will experience more frequent hurricanes and nor'easters, they are expected to be stronger and more damaging. (Climate Action Tool. Stressors: Coastal Storms. MassWildlife, July 27, 2022[4])

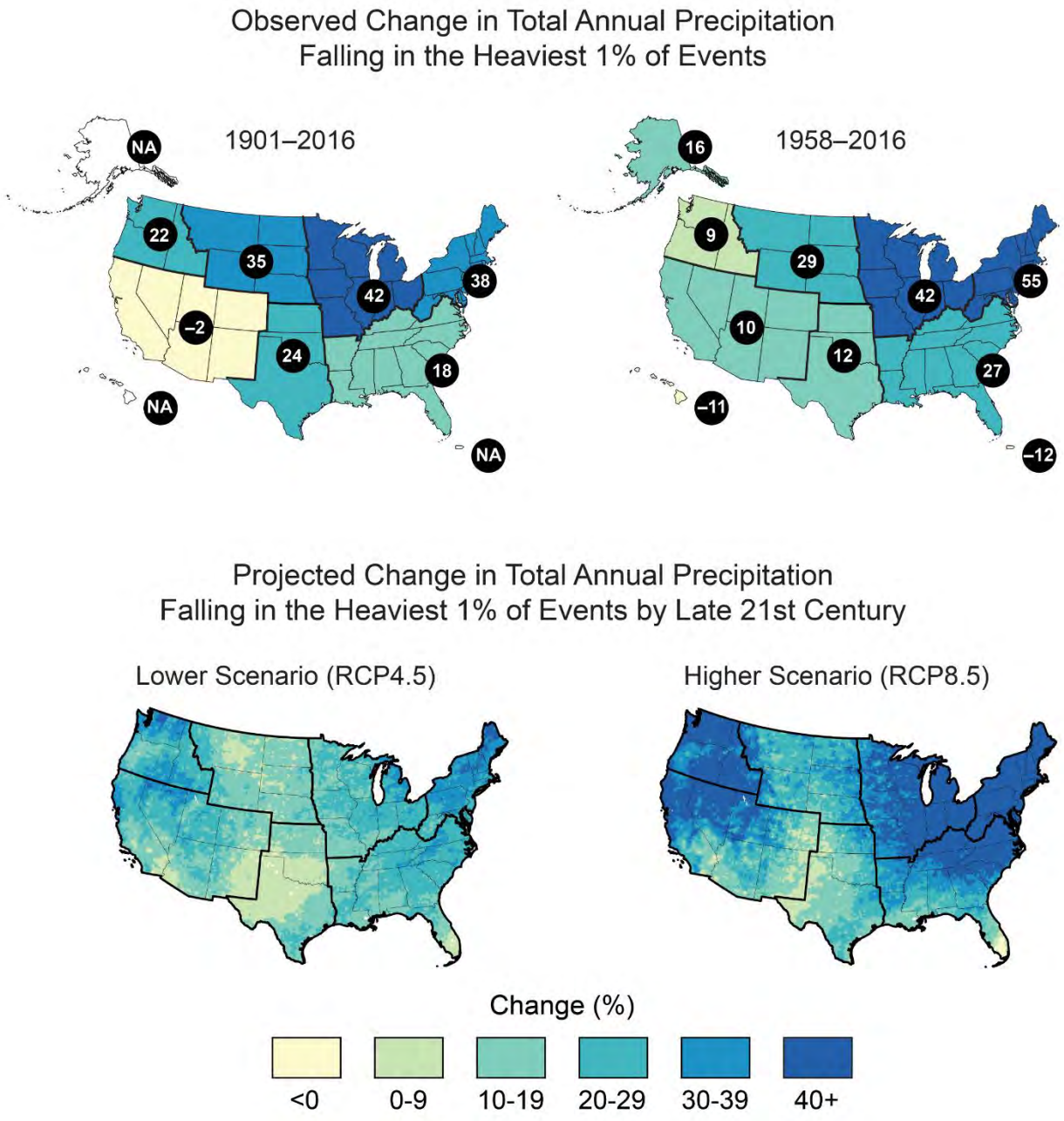
Precipitation

Cape Ann can expect wetter years overall as a result of climate change, with an increase of up to 5.3 inches in annual precipitation by midcentury and the same by end of century, under the medium RCP 4.5 emissions scenario. For comparison, Cape Ann received about 39 to 53 inches of total precipitation annually in the 2000s. (resilientMA.org, July 27, 2022)

The projected increase will occur more in winter than spring and summer, potentially resulting in rain on snow or lack of snow. In addition, as shown below, Cape Ann can expect a significant increase in the amount of rain that is delivered in very heavy rainfall events. The upper two maps in the figure below show that this change is already being observed in the northeast. From 1958 to 2016, there has been a 55% increase in the total annual precipitation falling in the heaviest 1% of events.

Conversely, Cape Ann can also expect a slight increase in consecutive dry days, which when combined with hotter temperatures can create concern for water supplies. In short, Cape Ann can expect wetter winters, heavier storm, and more very wet and very dry spells (resilientMA.org, July 27, 2022).

[4] https://climateactiontool.org/content/coastal-storms



Source: Fourth National Climate Assessment, Chapter 2.

Municipal Climate Resilience Work

Prior to this EPA technical assistance, the four Cape Ann communities had individually already embarked on a variety of resilience planning efforts and investments and initiated several joint partnership projects across the four communities in the region. This project aimed to acknowledge and build on those processes, rather than repeat those discussions, and identify opportunities to support those efforts through enhanced regional collaboration. Below is a brief overview of recent climate resilience planning efforts by each of the Cape Ann communities.

Completed Reports and Studies

In preparation for the workshops, HW reviewed the following plans and studies and identified five overarching priorities shared across the plans in the four communities:

Essex Hazard Mitigation Plan (2019)

Essex Community Resilience Building Workshop Summary of Findings (June 2018)

Community Exposure to Potential Climate-Driven Changes to Coastal-Inundation Hazards for Six Communities in Essex County, Massachusetts (2016)

Gloucester Community Resilience Building Workshop Summary of Findings (June 2018)

Gloucester Coastal Climate Change Vulnerability & Adaption Plan (2015)

Gloucester Hazard Mitigation Plan (2020)

Rockport Hazard Mitigation Plan (2020)

Rockport Community Resilience Building Workshop Summary of Findings (May 2018)

Manchester Hazard Mitigation Plan (June 2018)

Manchester Community Resilience Building Workshop Summary of Findings (June 2018)

Sawmill Brook Culvert and Green Infrastructure Analysis - Vulnerability and Required Capacity under Climate Change (2016)

1. Flooding and Roadway Infrastructure

A considerable number of actions across all four Cape Ann communities focused on addressing roadway infrastructure that would be impacted by increased flooding and sea level rise. These included projects that improve stormwater management and minimize flood waters with either structural improvements (e.g., increasing culvert size) or the use of nature-based solutions/green infrastructure. While these individual projects are specific to certain geographic locations, they can be grouped together at a regional scale with the shared goal of creating a more resilient regional road network that supports emergency preparedness/evacuation planning, supports the regional economy, and supports an overall unique and high quality of life for residents.

2. Emergency and Evacuation Planning

All communities identified similar individual needs to better reach and coordinate with residents and local businesses before, during, and after emergency events (also see below) and to increase local capacity to manage response. Examples of the latter include establishing safe shelter and command center locations, acquiring generators, and improving internal communication and dispatch systems. Only a few communities developed actions to work with neighboring communities to address these needs, such as improving specific roadways that can address evacuation routes for multiple communities.

3. Water Supply Infrastructure and Resource Management

Actions related to water supply (both groundwater and surface water sources) identified by the Cape Ann communities focused on collaborating with neighbors to ensure resources are protected and managed for long-term drinking water needs. Examples included public education on protecting water supplies, invasive species management, and land protection and conservation efforts by municipalities.

4. Natural Resource Management

Some actions that focus on natural resource management are associated with water supply protection (see below), but also on other shared resources that provide regional environmental, economic, and social benefits. Specific natural resources identified by Cape Ann communities included the Essex River watershed, Chebacco Lake watershed, and the Great Marsh, as well as dunes, beaches, and other shoreline features. Actions called for adopting regional management plans into local policy, reviewing policies across municipalities for consistency in protection and conservation, establishing conservation easements, and collaborating on restoration efforts.

5. Public Education and Communication

Regional actions related to public education and communication primarily focused on communication to the public during emergency events (as noted above), but also with neighboring communities to understand local needs and availability of resources during events, share "lessons learned," and find opportunities to share resources. Individual communities' plans indicate that communities have common needs around educating and communicating with residents and businesses during emergency events, including: how to prepare for natural hazards/storm events, awareness of evacuation routes, locations of emergency shelters, how to sign up for emergency notifications, etc. These actions could also be opportunities for regional strategies.

Recent Investments and Initiatives

Even as this technical assistance process was underway, the Cape Ann communities continued to make investments in infrastructure and work on policy development and regulatory review to build resilience. During the workshops, participants highlighted the following initiatives and projects to help educate everyone on the work that is taking place.

Essex Zoning Bylaw Review

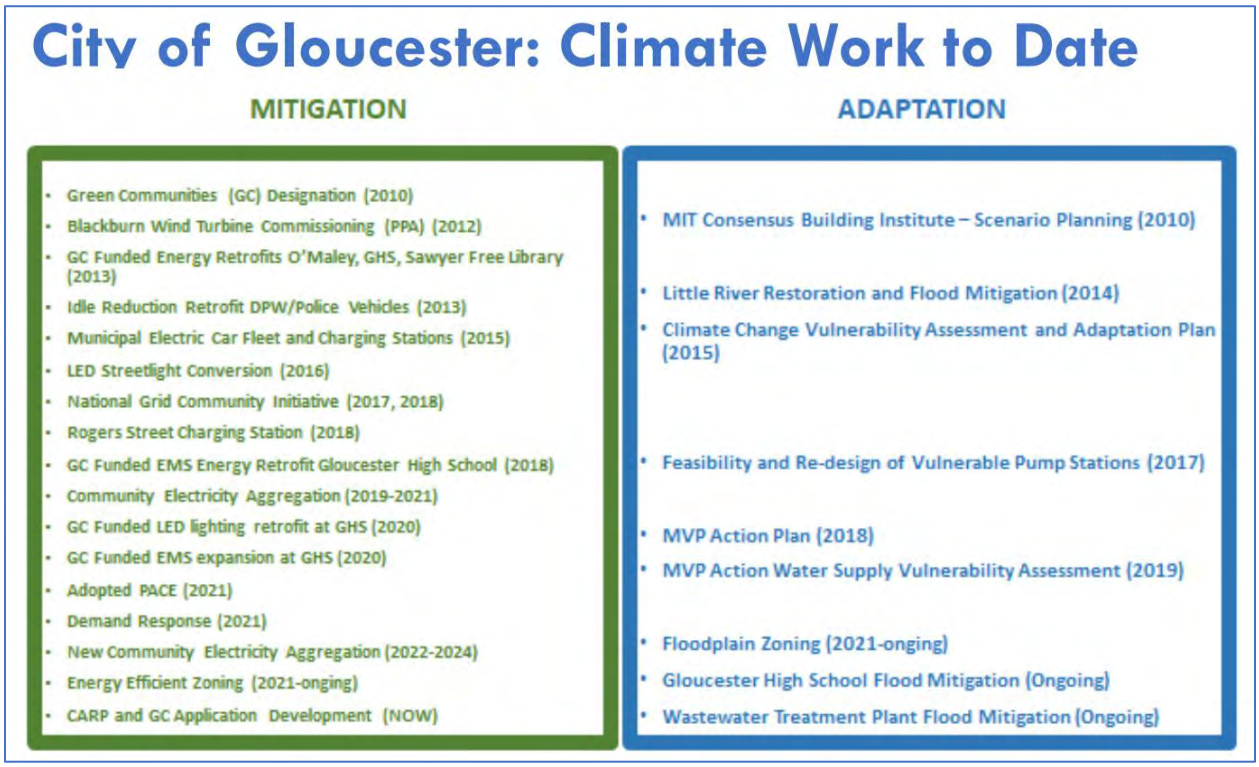
The Town of Essex worked with the Metropolitan Area Planning Council (MAPC) to conduct a review of its existing zoning regulations. Unlike many other towns, Essex's zoning code imposes minimal requirements and regulatory oversight on where residential, commercial, and industrial uses can be located. This unusual approach can result in conflicts, property risks and harm to the environment. Phase I of that work was finalized in May 2022 and MAPC released the Essex Zoning Diagnostic report to summarize its zoning bylaw audit, community outreach, and zoning recommendations. One recommendation is to align zoning and general bylaws with community values, including natural and cultural resource protection and resilient and sustainable development. Phase II will focus on implementation and is anticipated to begin in the Winter of 2022, pending grant funding.

Conomo Point Seawall Replacement in Essex

The Conomo Point Seawall was seriously damaged in 2018 by large storms; several areas were destroyed, and erosion was occurring toward Conomo Point Road. The Town of Essex received two separate grants from the state's Dam and Seawall Repair or Removal Program. The first grant in 2018 was for $65,650 to fund the design of the replacement wall. A vote at the 2018 Fall Town Meeting approved the allocation of $16,500 from the Town's free cash to also be used for design costs. The Town received its second grant in 2020 for $1.739 million (75% of project costs) for construction to replace much of the existing structure with a higher, reinforced concrete wall, which included natural plants on the landward side of the seawall to prevent erosion. The 2019 Annual Meeting approved the contribution of $573,300 from the Town's Sale of Real Estate Fund for additional improvements to the seawall.

Long Beach Options Committee in Rockport

The Long Beach Options Committee in the Town of Rockport was tasked with exploring the costs and benefits of scenarios—including renewing leases, selling property, and managed retreat—for the Long Beach cottage leases within the context of current and project climate hazards. The Long Beach cottages are located on a barrier beach in VE and AE zones in the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and are vulnerable to sea level rise and storms. The Committee released its Final Report for Rockport Town Meeting in April 2022.



Source: Gloucester 2021 CARP Community Meeting 1 Presentation

Gloucester Climate Action and Resilience Plan

The City of Gloucester received a Municipal Vulnerability Preparedness (MVP) Action Grant in 2021 to create a Climate Action and Resilience Plan (CARP) to identify priorities, challenges, and solutions for the City as it works to meet long-term energy, climate, and resiliency goals. The City's Clean Energy Commission and the MAPC are leading plan development. A final draft of the CARP is anticipated in late July 2022.

Gloucester Sustainability Director

The City of Gloucester approved funding for the creation of a Sustainability Coordinator position in their FY23 budget. As of this writing, the job opening has not been posted yet, but the City intends for the Coordinator to facilitate actions between different departments, boards, and committees in the city and serve as a liaison to the public.

Town of Manchester-by-the-Sea FEMA Proposal

The Town of Manchester-by-the-Sea has been pursuing a FEMA Building Resilient Infrastructure and Communities (BRIC) grant for the removal of a tide gate and the enlarging and complete reconstruction of the Central Street culvert and dam. The project will reduce flooding risks as Sawmill Brook enters the inner harbor and upstream.

U.S. Department of Energy Technical Assistance Grant

The Cape Ann communities were selected to participate in the U.S. Department of Energy (DOE) Waste-to-Energy Technical Assistance Program in 2022. DOE engineers will assist the four municipalities in a review and evaluation of emerging technologies for the conversion of wastewater and other organics into energy and an analysis of the feasibility of a waste-to-energy facility on Cape Ann.

The City of Gloucester will soon need to upgrade its wastewater treatment plant and could feasibly incorporate energy recovery into the wastewater plant design. Manchester-by-the-Sea, Rockport, and Essex also have challenges with wastewater and solid waste management. Officials from the four municipalities have started to discuss regional alternatives, including collaboration on waste-to-energy conversion efforts.

Cape Ann Ecological Restoration Project

The Town of Manchester-by-the-Sea will be receiving a $200,0000 grant from the Commonwealth of Massachusetts for a new collaborative regional project, Ecological Restoration: Climate, Nature-Based Solutions, and Community Benefits. Three types of ecosystems will be assessed and restorative designs will be proposed for coastal marshes, forested uplands, and urban neighborhoods.

Regional Wastewater Management

The Town of Manchester-by-the-Sea is working jointly with the City of Gloucester on coordinating a regional discussion surrounding wastewater management. The Massachusetts State Legislature recently allocated $50,000 to support this effort.

Regional Emergency Preparedness Exercises

Manchester-by-the-Sea is working to secure resources to implement an emergency preparedness exercise for Cape Ann. This effort would engage municipal officials and community members from across the region.

Concurrent Projects of TownGreen and Municipalities

The following summarizes the concurrent projects being led by TownGreen and the four Cape Ann municipalities that were integrated into the workshops to help enrich the discussion. It is important to note that this partnership between TownGreen and the four municipalities, as well as Harvard, has been an ongoing, sustained effort.

Typologies of Vulnerabilities

The Harvard University Graduate School of Design (GSD) Office for Urbanization studied the impacts of climate change on the region through four design scenarios at different scales or typologies.[5] Representatives of the GSD presented two of the scenarios at the workshops: *The 2038 Great Storm* and *Adaptation: Armoring Infrastructure and Managed Retreat*.

The 2038 Great Storm scenario envisions a Category 3 hurricane storm that passes to the west of Cape Ann. It arrives during an astronomical high tide with a large storm surge of at least 12 feet and winds over 110 mph. The scenario offers visualizations of the impacts on 27 sites throughout Cape Ann if no actions were taken to mitigate or adapt to the threats of this type of intense storm and sea level rise. Select visualizations were presented at the first workshop.

The *Adaptation: Armoring Infrastructure and Managed Retreat* scenario evaluates the potential of a hybrid approach for coastal development on Cape Ann, combining strategies of both "gray" and "green" protection as well as managed retreat. This scenario envisions the effects of armoring Cape Ann's coast by protecting infrastructure threatened by sea level rise and inundation in both the short and long term. It combines seawalls and other hard infrastructure with living shorelines and other natural system protections. As a secondary adaptive measure, this scenario also imagines managed retreat or relocation out of the most vulnerable flood and storm surge velocity zones. This scenario was presented at the second workshop.

Voices for Climate Action

The Voices for Climate Action project, an ethnographic study also led by the GSD through a different professor, was funded by the four Cape Ann municipalities and began in early 2022. Outreach targeted residents from all four communities that have largely been left out of the dialog on climate, with special attention on environment justice communities, to capture their perspectives on climate threats. Two research associates lived on Cape Ann for three months (February to April 2022) to observe patterns of behavior and movement. They conducted a series of formal and informal interviews with residents of diverse backgrounds, varying in age, income, neighborhood, and vulnerability to climate change. Questions focused on how residents see the area's future in light of rising temperatures and changing climates. The research associates shared their observations and interview findings at both workshops.

[5] https://towngreen2025.org/focus-areas/harvard-study

Other Outreach and Engagement

Organized and led by volunteers in each Cape Ann community, TownGreen also conducted its own series of interviews during this same time period as the Voices for Climate Action Project (February to April 2022). These interview sessions asked questions designed to uncover the values and priorities of diverse populations, how these populations will be affected by coastal storms and flooding threats, and preferences for policy solutions. Representatives of the TownGreen outreach efforts shared the observations from the interviews at both workshops.

VULNERABILITIES ON CAPE ANN

As noted above, during the first workshop, participants discussed how the increased potential for *The 2038 Great Storm*, when combined with the effects of climate change, will affect Cape Ann's natural, social, and economic environments. Participants discussed potential threats and vulnerabilities on Cape Ann and noted how this conversation confirms, adds to, or broadens the understanding of those inventoried in past resilience work. Below summarizes key takeaways from the small groups, and much of it confirmed conclusions and the work done by the municipalities to date.

Table 2. Cape Ann Vulnerabilities Identified during Workshop #1

What's at risk?	Who's at risk?
• Power grid and communications (especially as it affects emergency response) • Water and sewer infrastructure • Local roadways and bridges (including evacuation routes) • Capacity of natural systems to adapt to and mitigate the impacts of climate change and hazards • Historic resources in low-lying areas • Public health such as increases in mental health consequences and stress, heat-related illnesses, respiratory illnesses, etc.	• Older residents • Younger people • People without homeowner's or renter's insurance • People with existing respiratory and cardiovascular health conditions • Downtown Rockport businesses • Lower income areas • Traditionally under-engaged populations

However, there are new perspectives that need to be integrated into the decision-making process. Small groups also provided some insight into the challenges of addressing these vulnerabilities and ideas to consider for the next workshop's focus on actions. Thinking comprehensively is key. Environmental, health, economic, and social systems are interconnected, therefore, addressing vulnerabilities requires teamwork and recognition of these interconnections. The cumulation of small, individual actions has the potential to impact the greater system.

Public education/engagement and emergency preparedness at the neighborhood, community, and regional level are critical. Workshop participants noted that engaging different populations, especially traditionally under-engaged populations and those most vulnerable to hazards, is a challenge that requires tailored strategies. Additionally, addressing climate deniers and motiving people who may otherwise be apathetic or overwhelmed by the pending impacts of climate change is another challenge. Municipalities could develop messaging and host conversations about specific topics (e.g., emergency preparedness, economic impacts) that resonate with a range of people.

Perhaps the conversation about climate change and extreme events as both a challenge and opportunity needs to be reframed. Discussions of long-term resilience actions, including relocation and managed retreat, or what it means to "recover" after a storm, are difficult community conversations but important in order to envision different ways in which Cape Ann can be resilient. Creative messaging, visualizations, and signage are seen as tools to aid communication.

Table 3. Challenges to Addressing Vulnerabilities and Ideas to Think About in Workshop #2

Challenges	Ideas to Think About
• Mental health impacts related to stress, anxiety, uncertainty about future conditions • Planning for the elderly • Public education to motivate people to prepare vs responding to a crisis • Engaging "climate deniers" and unmotivated residents • People most vulnerable are difficult to reach • Capacity or ability to "return to normal" or "rebuild as is"	• Communities working together • Neighborhood coalitions, networks • Public education on emergency preparedness • Creative messaging and visualizations • Topics that resonate with people

See Appendix A for a full summary of the first workshop and notes from the small group discussions.

ADDRESSING VULNERABILITIES AS A REGION

Why focus on regional collaboration? First, geography. Cape Ann is interconnected by common natural systems, natural resources, infrastructure, transportation routes and systems, and, ultimately, climate challenges. Second, limited resources. Individual municipalities on Cape Ann are challenged by limited budgets, staff, and volunteer capacity. Finally, residents of all four communities have social, cultural, and economic connections that define a place like Cape Ann. These connections are created through shared experiences and values over generations. Working together and collaborating can efficiently and effectively access and employ limited resources while strengthening community ties to be collectively stronger in the future. Individually, Cape Ann communities are relatively small and face similar challenges in attracting attention and securing large scale funding that is needed to address the climate resilience challenges they face. Working together creates a greater potential impact across all four communities. The climate challenges facing Cape Ann are regional.

During the second workshop, participants identified a range of projects and actions to address vulnerabilities, including those that may require cooperative planning and investment by two or more Cape Ann communities. Projects and actions were organized into five general focus areas as they relate to building climate resilience:

Gray or Hard Infrastructure	Built systems such as roads, bridges, drinking water and sewer systems, stormwater piped systems, seawalls, etc.
Green Infrastructure	Natural systems that reduce impacts of storm events and climate change and features that enhance and maintain these systems, such as living shorelines, nature-based solutions for stormwater and flooding management, habitat restoration activities, etc.

Policies and Regulations	Local bylaws, standards, and other requirements that guide local decision making for land development, conservation, infrastructure, and other public and private investments.
Public Awareness and Education	Engagement that provides information to the public and allows for active civic participation, including digital and print materials, in person and virtual events and activities, websites, surveys, etc.
Emergency Preparedness	Being ready to respond to and recover from disasters and emergencies, such as severe storms, power outages, drought, extreme heat, etc.

When the small groups reconvened, each reported out what they felt should be priority to address vulnerabilities and build resilience, particularly ideas that could benefit from regional collaboration. The following table summarizes what was discussed with the larger group. See Appendix A for more detailed notes from each small group conversation.

Table 4. Actions for Regional Collaboration Discussed During Workshop #3

Action	Opportunities for collaboration
Gray or Hard Infrastructure Projects	
Address water supply and wastewater needs	Yes
Utilities: redundancy, utilities that cross bridges have no alternative for rerouting, power grids, and communications systems	Maybe
"Green" Infrastructure	
Invest in barrier beach restoration (Essex, Gloucester, Ipswich)	Maybe
Inventory natural resources on Cape Ann to assess current health, how they can be enhanced. Elevate resources that might be overlooked.	At Cape Ann scale, could share staff or consultants.
Better understanding and assessment of wetlands, their ability to move/migrate (Good Harbor Reach, Bass Ave behind S&S, Manchester, Raymond/Ocean St, Conomo Point)	Maybe
Policies and Regulations	
Regularly convene planning staff and boards to share information and best practices related to planning for climate hazards and explore joint funding opportunities. • Facilitate conversations to break down siloed government departments through these new resilience staff.	Yes
Compile regional climate change resilience planning, zoning, policy, and regulatory resources that Cape Ann communities can refer to as needed.	Yes, communities could share their best practices with one another, including public outreach information and implementation guidance.
Develop a collective climate policy vision for Cape Ann to inform needs in the region.	Yes, developed with input from all communities

Action	Opportunities for collaboration
Develop policies and regulations that facilitate the reduction of carbon emissions to mitigate sea level rise and manage risks of development in high-risk coastal and flood zones. • Net Zero • Carbon neutrality	Community by community; Communities could share ideas for model language and outreach materials.
Develop and/or find existing funding tools to assist communities in implementing priorities. • Local taxes to build trust fund for community projects	Community by community and regional; Communities could explore joint funding opportunities.
Public Awareness and Education Efforts	
Develop a general education campaign to raise awareness and share information about hazard exposure and the effect of climate change on people and infrastructure on Cape Ann. • Be mindful of language used • Not a top-down approach, start with residents to be more inclusive • Connect with the editor of the Gloucester Times to develop a climate change weekly feature to educate the public.	Yes
Continue to convene public information workshops and discussions like this that involve multiple communities	Yes
Emergency Preparedness	
Find opportunities for a table-top exercise for emergency preparedness • For residents and municipal staff • Include utility providers • Increase awareness of evacuation routes, location of shelters, etc.	Yes

FUNDING OPPORTUNITIES FOR PLANNING & IMPLEMENTATION

Funding sources to help communities build climate resilience through planning and implementation are diverse. Opportunities are available from federal and state government agencies as well as nonprofit and private entities. During our work with Cape Ann communities, we compiled a list if funding opportunities that may be of interest to Cape Ann to address the climate resilience actions that arose from our workshops and discussions. This list is provided in Appendix B. It is important to note that this list is only as current as the day it was assembled, and while it is a broad and inclusive list, we cannot claim that it is entirely exhaustive. Continued monitoring for grants and other funding opportunities is essential and can be labor intensive given the spectrum of funding sources, and the four communities, TownGreen, and many other agencies and organizations are all continually on the lookout for funding opportunities to move individual projects forward.

As part of the second workshop, participants generated ideas to help the region build its resilience to climate impacts and the capacity to manage and/or adapt to these challenges (Table 4). Many did not

specifically require funding to plan or initiate, but others require financial support to implement. Table 5 lists some examples of funding opportunities that could help move these efforts forward.

Table 5. Potential Funding Opportunities to Support Regional Collaboration Actions from Workshop #2

Action	Potential funding opportunity
Invest in barrier beach restoration (Essex, Gloucester, Ipswich)	MA CZM Coastal Resilience Grant Program
Compile regional climate change resilience planning, zoning, policy, and regulatory resources that Cape Ann communities can refer to as needed.	MAPC TAP
Develop a collective climate policy vision for Cape Ann to inform needs in the region.	MAPC TAP
Develop policies and regulations that facilitate the reduction of carbon emissions to mitigate sea level rise. • Net Zero • Carbon neutrality • Risk-based coastal zoning	MAPC TAP
Develop a general education campaign to raise awareness and share information about hazard exposure and the effect of climate change on people and infrastructure on Cape Ann. • Be mindful of language used • Not a top-down approach, start with residents to be more inclusive • Connect with the editor of the Gloucester Times to develop a climate change weekly feature to educate the public.	Citizen Corps Program (CCP) Grant – MEMA MVP Grant
Find opportunities for a table-top exercise for emergency preparedness • For residents and municipal staff • Include utility providers • Increase awareness of evacuation routes, location of shelters, etc.	Regional Catastrophic Preparedness Grant Program – FEMA

Funding and Project Management

There are some key points to consider when it comes to managing funding opportunities and individual projects at a regional (Cape Ann) level in contrast to the municipal level. Cape Ann communities have worked together in recent years on several initiatives and have experience with collaboration, including with TownGreen and the CACC. These projects may have produced some lessons learned that will help guide future efforts. Overall, the communities need to consider some logistical and management needs that can impact the success of a regional or intermunicipal project.

Fiscal Agent/Recipient

Both Manchester-by-the-Sea and TownGreen have served as fiscal agents for various projects. Manchester-by-the-Sea has the structure and capacity to accept and ensure fiscal responsibility of funds, distribute payments to contractors, and cover other direct costs associated with projects. The Town

Manager in Manchester-by-the-Sea to date has been acting in effect as the official municipal coordinator and fiscal agent on behalf of the four municipalities and has been submitting and managing grants for the region during this time.

Project Management

Different from the fiscal agent, the project needs to be managed to ensure that it meets objectives and requirements of the funding agreement. This can include preparing monthly progress reports, monitoring project schedule, approving payments, and other administrative tasks. A project manager could be provided by the same entity as the fiscal agent or by a separate agency. In any case, two need to work together to ensure proper use of funds and the effort meets the obligations stipulated with the funding.

CONCLUSIONS AND NEXT STEPS

The participation in the workshops for this EPA Building Blocks project was only a small sample of the larger population across Cape Ann, but it served as a very positive step along the path of resilience planning and collaboration. The outcomes of these workshops are part of an ongoing conversation across the region about who and what are at risk to the threats of climate change and how to build resilience through regional projects and enhanced collaboration.

One of the first steps the region can do is to continue the conversations among the municipal decision makers around climate vulnerabilities. An action item identified in the second workshop was to regularly convene planning staff and boards to share information and best practices related to planning for climate hazards and explore joint funding opportunities. Communities like Gloucester are also hiring new resilience staff that could also help in coordinating these efforts. Meetings with municipal boards are open to the public and the communities should take advantage of this and engage members of the public that attend.

The workshops discussions also pointed to the sub-topics that could be pursued, including emergency preparedness, targeted attention to the needs of the most vulnerable populations, systems and network analysis, and community capacity-building.

From these discussions, the communities can also start planning for a regional community engagement and climate education strategy. During the second workshop, participants suggested developing a regional climate resilient vision for all of Cape Ann. This can be an opportunity to talk with the public about individual objectives of each community and how they support a larger regional vision to address shared regional vulnerabilities.

Final Thoughts

This effort tapped into the need for Cape Ann communities to share and hear new perspectives and experiences and understand how individuals in the community have, or do not have, the capacity and resources to meet climate challenges. It also highlighted the need and desire for continued collaboration among communities to meet shared climate goals and objectives. Participants talked about rethinking how the region prepares and responds to climate threats. These ideas need to be brought to the larger population of Cape Ann to build general agreement among the citizenry in how the municipalities move forward and address climate challenges.

Ultimately, it is safe to say that there is energy within the communities of Cape Ann to tackle the issues of climate change together. TownGreen and its partners must continue to collaborate and maintain this momentum to generate innovative, outside-the-box approaches that meet multiple objectives and support multiple communities and the region as a whole.