Community Resilience Building (CRB)

Summary of Findings

Shelburne, Massachusetts

December 2023

MVP
Municipal Vulnerability Preparedness

Weston & Sampson

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EXECUTIVE SUMMARY

Weston & Sampson, on behalf of the Town of Shelburne, Massachusetts, is pleased to present this Summary of Findings report for the Community Resilience Building (CRB) Workshop. The Town of Shelburne obtained the Massachusetts Vulnerability Preparedness (MVP) Planning Grant to expand the assessment of the Town's vulnerability to climate change and to identify priority action items that advance the MVP program's priorities for community resilience. The CRB Workshop was extremely collaborative in nature, involving stakeholders representing multiple facets of the municipal government, town committees, neighboring communities, non-profits, and community businesses. The MVP Planning Grant was leveraged as an opportunity to craft a coordinated vision for Shelburne's future and to identify future areas of collaboration.

Four main climate hazards were considered during the CRB Workshop, including extreme winter weather/wind events, inland flooding, extreme temperatures (heat/cold), and drought.

Extreme Winter Weather/Wind Events

Inland Flooding

Extreme Temperatures (Heat/Cold)

Drought

The workshop participants' main area of concern was their population's susceptibility to climate change. Shelburne's aging population and rural landscape leads to increased risk of isolation and is a significant health and safety concern. Low-income populations may face difficulty in adapting to protect themselves and their homes against climate hazards. Shelburne also does not have a large population of younger residents to help coordinate climate change preparedness. The themes of maintained or improved infrastructure function, increased connectivity and improved emergency communication are prevalent in the top five priority action items that resulted from the CRB workshop voting process.

- Improve community connections and emergency communications with vulnerable populations
- Create a resilient drainage infrastructure improvement plan
- Create a resilient roadway improvement plan
- Create a resilient land use plan
- Improve townwide emergency communication infrastructure

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INTRODUCTION

In the face of an increasingly dynamic climate, the Town of Shelburne recognizes the importance of proactive climate resilience planning. Climate change poses an array of challenges that impact the Town's natural environment, infrastructure, economy, and well-being of its residents. In response to this concern, Shelburne pursued a Planning Grant through the Massachusetts Municipal Vulnerability Preparedness (MVP) program, administered by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). This program was born under Massachusetts Governor Baker's Executive Order 569 and aims to provide technical support, climate data, and planning tools for Massachusetts communities. The program offers municipalities the opportunity to analyze vulnerabilities, bolster preparedness strategies, and enhance resilience in the face of climate challenges. The Shelburne MVP Community Resilience Building (CRB) Summary of Findings serves as a comprehensive documentation of Shelburne's CRB process, encompassing its technical assessments, community involvement, and proposed strategies.

MVP Objectives in Shelburne

- Increase the resilience of the community
- Raise awareness of climate threats
- Identify priority actions to move forward
- Create implementation pathways

1.1 Infrastructure and Critical Facilities

Drinking Water and Wastewater

The Shelburne Falls Fire District (SFFD) serves approximately 2000 people within areas of Shelburne, Buckland, and Colrain. Two groundwater supply wells, located in Colrain, provide water to be treated and then stored in two storage tanks located in Shelburne and Buckland. Surrounding the two wells, the SFFD owns approximately 14 acres of land to protect the water quality. Additionally, the SFFD is working to identify a greater area surrounding the wells in order to further protect the recharge area. The Fox Brook Reservoir in Colrain serves as emergency backup drinking water supply, and there are two additional water storage tanks that can store approximately six additional days of water. The SFFD has a backup generator that runs on propane and automatically switches on during power outages. It can be utilized for up to one week and can assist by pumping 130,000 gallons of water per day (Shelburne, 2021).

The Buckland and Shelburne Sewer District provides municipal wastewater treatment for the village of Shelburne Falls. The treatment plant, located in Buckland, is designed to treat 0.25 million gallons of wastewater per day and as of 2019 it was treating on average 70% of the design capacity (0.17 million gallons per day). The collection system is largely over 100 years old and has been found to be inefficient due to groundwater and stormwater inflow that the system must treat. A pump station located in Shelburne aids in conveying the wastewater from Shelburne to the treatment plant in Buckland. During years of higher precipitation, the system treats a significantly greater amount of wastewater than during dry years. Both the pump station and the treatment plant have diesel back-up generators that automatically switch on during power outages and can run for 2-3 days at a time. Outside of the village of Shelburne Falls, much of the town is served by private septic systems (Shelburne, 2021).

Both the water and wastewater facilities are classified as critical infrastructure by Eversource and therefore are high priority for restoring power after storm events.

Transportation

The primary access routes for Shelburne are Interstate 91, which runs north to south, and Route 2, which runs east to west. Route 2 intersects Shelburne, while I-91 is most easily accessible through Greenfield. Additionally, Route 112 passes along the Town's northwest border and is a popular route for tourists heading north into Vermont. Within Shelburne, there are approximately 58 miles of State and Town maintained roads. Approximately 10 miles of the local roads in Shelburne are gravel.

Shelburne is a part of the Franklin Regional Transit Authority (FRTA), which provides bus services to Shelburne. The fixed route bus is scheduled four times daily during the week and service is also available for older and disabled community members who require door-to-door transit services.

Emergency Response

Shelburne operates an Emergency Management Committee, which plays a crucial role in disaster preparedness, response, and recovery within Shelburne. The Committee developed a Comprehensive Emergency Management Plan (CEMP) in 2018, which contains an emergency management program to be utilized for planning and response to disaster and emergency situations. The Committee also took part in developing the Town's Hazard Mitigation Plan in 2020, a plan developed through the Massachusetts and Federal Emergency Management Agencies (MEMA/FEMA) to reduce the Town's vulnerability to hazard impacts.

Shelburne has two fire districts. One covers the Shelburne Falls village area and includes the Shelburne Falls Water District described in Section 1.1.1. The other fire district is in rural Shelburne. There is one Police Station in Shelburne with six full-time officers that serve the Town of Shelburne and the Town of Buckland.

1.2 Demographics and Community Assets

The Town of Shelburne is a picturesque, rural community nestled in the Northeast Berkshire Mountains. This residential community has an economy primarily based on agriculture, small businesses, and tourism. Its scenic beauty attracts tourists year-round. Shelburne is known for its strong sense of community and local engagement. Residents actively participate in local events, town meetings, and volunteer organizations, which help maintain the Town's unique character and charm.

During the end of the 20th century, Shelburne experienced modest growth, although the population of the town declined between 2000 and 2010. Approximately 1,884 residents live in Shelburne, as reported in the 2020 American Community Survey (US Census Bureau, 2020). Shelburne has a lower-than-average percent of youth, and a higher-than-average percent of residents over the age of 65, when compared with the State. Shelburne's residents are predominantly white (98.5%), with a small Black or African American population, and a small Asian population. The median household income is lower than the State median income. See Table 1 below for additional demographics information

Figure 1 The Village of Shelburne Falls (Greenfield Recorder)

Table 1. Demographics Data in Shelburne

Population	Shelburne	Massachusetts
2021	1,886	6,981,974
2010	1,893	6,547,790
Age		
Under 18 years	9.5%	19.2%
65+ years	33.9%	18.1%
Economics		
Median household income	$72,236	$89,026
Persons in poverty	10.8%	10.4%
Additional Information		
Bachelor's degree or higher	53.8%	45.2%
With a disability	15.6%	7.9%

The Town provides public health and community support for its residents, including those who may be more vulnerable during climate hazard events. Climate vulnerable populations include: residents at risk of isolation, such as youth or older adults who are unable to drive; those who have limited English

speaking skills who may be uninformed if translations are not provided for emergency communications; or low income populations that may not have the means to make necessary alterations to their home to protect against extreme temperatures and precipitation. People of color may also be more vulnerable to impacts of climate change due to systemic barriers.

Climate resilience planning explores ways to build community networks and increase residents' access to resources. The Town has several well-used community facilities that can also be used as emergency shelters, including the Mohawk Trail Regional School in Buckland, and Fellowship Hall, the Cowell Gym, the Senior Center, and the Shelburne-Buckland Community Center in Shelburne. The Shelburne-Buckland Community Center is a hub for social gatherings and events. At this time, the Buckland-Shelburne Elementary School is not being considered as an emergency shelter location, but that could change in the future.

1.3 Land Use and Natural Resources

Shelburne is home to an abundance of natural resources, including forests, rivers and water bodies, wildlife, farms, and trails. The western border of the Town falls along the Deerfield River, and many other streams, wetlands, and ponds pass through Shelburne. These water bodies drew much of the town's development and still provide opportunities for water-based recreational activities, such as fishing, swimming, and boating. The Town also benefits from groundwater resources for residential and agricultural use. The natural landscape, characterized by rolling hills, lush vegetation, and picturesque vistas, is a valuable resource that attracts tourists and provides recreational opportunities for residents. The Franklin Land Trust trails, Mahican Mohawk Trail, Mass Audubon High Ledges Wildlife Sanctuary, Shelburne Fire Tower, and Route 2 (Mohawk Trail) are popular tourist attractions. These assets support community resilience and may also be vulnerable to climate impacts themselves.

PROCESS AND TIMELINE

The MVP planning process engaged municipal leaders, key stakeholders, and the general public through a series of meetings described in the following sections. The 2023 "Community Resilience Building Workshop Summary of Findings" Report reflects the results of this process.

Figure 2. MVP Planning Process

1.4 Core Team Meetings

A key staff meeting was held on July 12, 2023, to discuss the project scope and develop the Core Team. Once the team was built, the Town convened its first Core Team meeting, which included participants from a broad range of municipal departments, on July 27, 2023. Three additional meetings were held throughout the planning process: August 23, October 15, and December 7, 2023. The Core Team guided the planning process by providing key information about the town and reviewing materials for the Community Resilience Building Workshop, the Listening Session, and this Summary Report. The Core Team provided input on the most important natural hazards in Shelburne, as well as existing work the Town has undertaken to adapt to climate change impacts. In addition, they developed the invitation list for the Community Resilience Building Workshop described below.

1.5 Community Resilience Building Workshop

Figure 3. A photo from Shelburne's CRB Workshop

The objective of the Community Resilience Building (CRB) Workshop was to capture ideas from a diverse set of perspectives and to build a broad coalition of stakeholders to move climate resilience forward in Shelburne. Municipal staff, members of town boards and committees, and representatives from local organizations, regional partners, state agencies, and adjacent towns were invited to participate in the CRB Workshop. The workshop was held over eight hours in a single day, covering topics including natural hazards, critical features, strengths and vulnerabilities in the community, and development of climate change mitigation actions. The workshop utilized the CRB Risk Matrix to facilitate discussion and record input. Nearly 30 participants joined the workshop. The CRB Workshop's central objectives were to:

- Identify existing and future strengths and vulnerabilities
- Develop prioritized actions for the community
- Identify immediate opportunities to collaboratively advance actions to increase resilience

The completed matrix of actions is available in Appendix B: Community Resilience Building Workshop Materials. Additionally, a list of workshop participants is included in Section 7.1 of this report.

Figure 4: A photo from Shelburne's CRB Workshop

1.6 Listening Session

As part of the CRB process, the Town held a public listening session on October 23, 2023, as part of an existing Selectboard meeting via zoom. There were 41 people in attendance. To promote the event, materials were posted to the Town's webpage, Facebook posts were shared, an email blast was distributed through several local networks, and a postcard invitation was mailed to all Shelburne residents in the 01370 ZIP code. The listening session presented an overview of the planning process, climate impacts in Shelburne, and the results of the CRB Workshop. Throughout the listening session, polls were used to capture real-time feedback from attendees. Team members recorded notes and input from attendees, which were incorporated into this report. A summary of the input is provided in this section, and a full summary of the meeting, interactive polling results, and comments from the public review period are available in Appendix C: Public Listening Session Materials.

When asked, "What do you think is Shelburne's greatest strength?", the overwhelming answer was "the people." Shelburne's strong sense of community was a common theme in both the CRB Workshop and the Listening Session. When asked, "How prepared do you think Shelburne is to handle the impacts of climate change?", most respondents answered, "somewhat prepared." People added that they were excited about this project and were very interested in staying involved as the community takes additional steps towards becoming more resilient.

When the project team presented the top action items resulting from the CRB workshop, the community provided consensus on these items and added one additional action item:

- *Educate residents and workers to become equipment operators and create pathways to replenish our key infrastructure roles, such as chief operator for the sewer district and emergency volunteers.*

The Listening Session raised awareness for the public comment period on this report. Residents could share their email if they would like a copy of the report directly emailed to them; otherwise, a copy of the report was made available on the Town's website. Residents were invited to submit comments and questions through an online form between November 10 and December 4, 2023. The revisions made to this report based on public comments can be found in Appendix C.

TOP HAZARDS

During the Core Team meetings, members discussed the Town's greatest threats under climate change. The team recalled previous weather events and the changing impacts under climate change, and identified the four hazards they were most concerned about impacting the town. At the CRB workshop, participants discussed and confirmed these top four hazards, which were then used to inform the remainder of the workshop.

Figure 5: A photo from Shelburne's CRB Workshop

1.7 Top Hazards

The CRB Workshop focused on four main climate hazards that are of primary concern when considering the interface between the built and natural environment: extreme winter weather/wind events, inland flooding, extreme temperatures (heat/cold), and drought. These hazards are discussed in more detail in the following sections.

Extreme Winter Weather/Wind Events

Inland Flooding

Extreme Temperatures (Heat/Cold)

Drought

1.8 Current Concerns and Future Challenges

Extreme Winter Weather and Wind Events

Winter weather and wind events often go hand in hand, as nor'easters frequent Shelburne during the winter months. Nor'easters can include snow, freezing rain, and heavy winds that can cause extensive damage to the community. Heavy snow and ice combined with high winds can lead to fallen trees and downed power lines, cutting off power to residents and critical facilities that do not have backup power. Power outages during winter months pose additional concerns when residents and businesses rely on electricity for heat. Downed trees can also block roadways, which combined with icy and snow-covered roads, can impact evacuation routes and increase emergency management personnel response times. During the 2017 snowstorm, Route 2 was closed for two days, resulting in limited emergency access for residents.

Increasing temperatures due to climate change are predicted to result in fewer days falling below 32°F, thus resulting in a decrease in annual snowfall predictions. However, climate predictions also indicate that extreme snow events may become increasingly intense and produce heavier snowfall in the short-term (ResilientMA, 2022). In the long-term, ice storms and repeated freeze-thaw cycles in one season are of growing concern. Ice storms that impact trees tend to be the most damaging to infrastructure. Repeated freeze-thaw cycles can also be disruptive to farms and natural resources, and infrastructure exposed to the elements, such as roadways.

During the 2008 ice storm in Shelburne, three-quarters of the Town was without power. Three years later, in 2011, an early-winter snowstorm caused widespread power outages across Massachusetts, which caused some Shelburne residents to be without power for more than one week. Also in 2011, Fellowship Hall was used as a shelter for residents during Hurricane Irene. During the 2016 snowstorm, the Highland Village elder housing lost power overnight, and the Senior Center was used as an unofficial warming center for residents. In more recent years, Shelburne has experienced several more winter storms, blizzards, and nor'easters, including:

- Winter Storm Riley, March 2018
- Winter Storm Quinn, March 2018
- Winter Storm Skylar, March 2018
- Winter Storm Uri, January 2021
- Winter Storm Orlena, February 2021
- North American Blizzard, January 2022
- Nor'easter, March 2023

Inland Flooding

Across the northeast, precipitation is anticipated to increase in both frequency and intensity (ResilientMA, 2022). Between 1961 and 2015, the 24-hour 100-year precipitation event increased from 6.5 to 8 inches (Figure 3-2). Additional data and modeling efforts predict that the 24-hour 100-year event will increase to 8.9 inches by 2030, and to 10.2 inches by 2070 (ResilientMA, 2022).

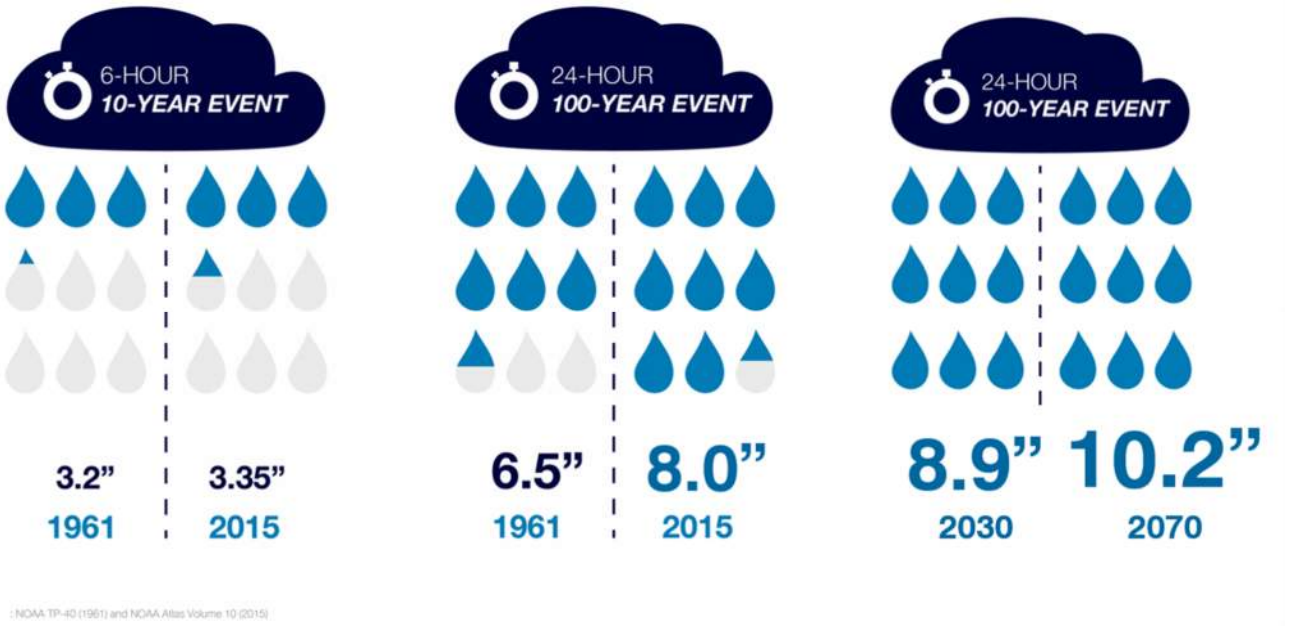

Figure 6. Precipitation Trends and Projections in Massachusetts

During July 2023, the Town experienced 18 inches of rain, resulting in flooding of roads, homes, and other property. Precipitation projections indicate an increase in frequency of storms of this size, leading to increased riverine and stormwater flooding, road closures, and damage to property, natural resources, and drainage infrastructure. The Town can prepare for these precipitation events by incorporating climate change considerations into regulatory tools and into the design of public infrastructure, which often has a long useful life and can be costly to retrofit.

In Shelburne, the 100-year (2080) floodplain covers approximately 2% of the Town. Key areas of riverine flooding concern include areas surrounding the Deerfield River, Dragon Brook, Hinsdale Brook, and beaver dams. Stormwater flooding due to poor drainage, increased impervious area, and undersized infrastructure is also a concern. During the CRB Workshop, community members noted the frequent occurrence of basements flooding due to inadequate drainage around and near homes, and road washouts from undersized culverts. Several participants also noted that some important facilities like the school are located in the floodplain.

Extreme Temperatures (Heat and Cold)

Since 1970, annual temperatures in the Northeast have been warming at an average rate of 0.5°F per decade, while winter temperatures have been warming at an average of 1.3°F per decade. In the Deerfield River Watershed in 2005, there was on average one observed day a year with temperatures above 90°F, which is predicted to increase to 10 days by mid-century, and 22 days by end-of-century. Additionally, increasing temperatures are resulting in fewer days below 32°F, with 170 days observed annually in the Deerfield River Watershed in 2005, and a prediction of 148 days by mid-century, and 123 days by end-of-century (ResilientMA, 2022).

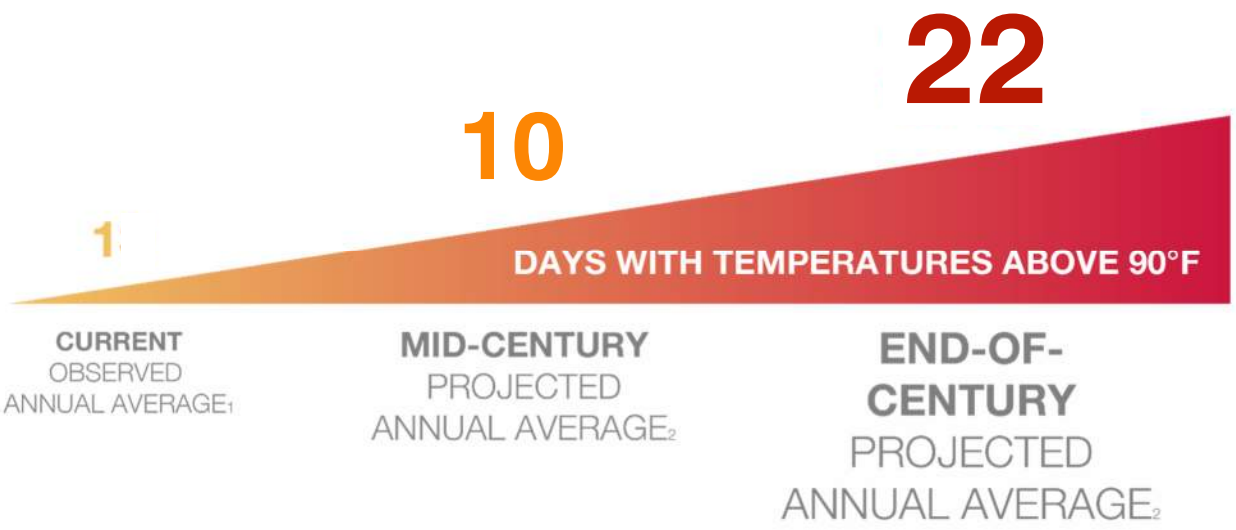

Figure 7. Days Over 90°F in Shelburne

Extreme temperatures in Shelburne impact agricultural yields and strain the electric grid's capacity due increased demand on heating and cooling systems. Extreme temperatures and temperature fluctuations also trigger cascading hazards, such as when rain falls on frozen ground and causes flooding.

Drought

Episodic droughts, or droughts lasting one to three months, are predicted to occur more frequently in the late summer and early fall as a result of climate change. Under a high emissions scenario, episodic drought frequency could increase as much as 75% (ResilientMA, 2022). Droughts can negatively impact natural resources. For example, root systems can weaken, ponds, vernal pools and wetlands can dry up, and low water flows can disturb aquatic habitat and harm wildlife. Droughts also increase wildfire vulnerability, which is a primary concern in the forested areas surrounding the Town.

Shelburne is home to numerous farms that produce fruit, vegetables, dairy products, meat, and maple syrup. Changes in precipitation can be detrimental to crops and livestock. Droughts cause a decrease in soil moisture, reduce crop yields, and lead to water shortages for irrigation. Increased irrigation due to a drought can lead to higher production costs and potential environmental concerns. Droughts can also stress crops, making them more vulnerable to pests and diseases. Inadequate moisture can also affect the size, quality, and marketability of agricultural products.

Figure 8: Participants identify concerns and challenges during the CRB Workshop

VULNERABILITIES

The workshop participants' main area of concern was their population's susceptibility to climate change. Shelburne's aging demographics and rural landscape leads to increased isolation, which is a significant risk to preparedness and resilience. Compounding this risk is the limited number of younger residents to help coordinate long-term climate change preparedness.

All areas of concern were grouped within the following three categories: infrastructural, societal, and environmental.

1.9 Infrastructure

Workshop participants identified key infrastructural features in Shelburne that are most vulnerable to climate change impacts or may be so in the future. These features include:

- The changing climate can impact the way farms produce crops. Longer periods of drought and extreme weather can leave crops vulnerable and increase maintenance costs.
- Snowstorms and high winds can lead to downed power lines and power outages, requiring the use of generators or backup power sources. However, there is a limited distribution of generators at town buildings.
- Weather events and evacuations can lead to bottlenecks and chokepoints on roads and evacuation routes. The rural sections of Town are most vulnerable, along with the Route 2 corridor.
- Culverts are inadequately sized and aging.
- There are many telecommunication and cell network dead spots throughout the Town.
- Ability to communicate with vulnerable populations during and ahead of emergencies is deficient.
- Water and wastewater infrastructure is aging and inefficient, and there is concern surrounding drought impacts on water supply.
- Emergency shelters may not be adequately supplied to be run as heating and cooling centers during severe weather events.
- Dam failures pose a significant threat to the community.

1.10 Societal

Workshop participants discussed the impact of climate change on vulnerable populations and essential services, which included:

- Older adults and residents with disabilities may be at higher risk during extreme weather events.
- Many existing agricultural operations do not have a plan for future ownership and management to keep the farms running.
- Medical facilities are limited and not easily accessible across the community.
- Low-income families may not be able to afford increased heating and cooling costs, the costs related to flood mitigation of their homes, or the price of alternative housing if they were displaced during extreme weather events.
- Local businesses in Shelburne Falls may not be sustainable if tourism decreases due to the shifting climate.

1.11 Environmental

Workshop participants identified key environmental features in Shelburne that are most vulnerable to climate change impacts. These features include:

- Forest land and protected recreational areas may face challenges with the shifting climate, such as introduction of invasive species and pests.
- Fox Brook Reservoir is at risk during drought events.
- Brooks and streams may pose flood risks to the town, particularly where they cross underneath or run alongside roadways.
- Deerfield River poses a significant flood risk to the town, especially with upstream dam structures at risk of failing during large storm events.
- Railroads and transport of hazardous materials increase vulnerability in the community if hazardous materials were to spill due to railway failure from an extreme weather event.
- Sustainable agriculture is at risk from drought, flooding, and crop-destroying invasive species.

STRENGTHS

Many workshop participants felt that Shelburne's greatest assets included their businesses and strong community culture. Shelburne is a rural community with many farms producing crops and livestock, and a small business and cultural district located in Shelburne Falls. This draws in tourists and residents alike. Shelburne's environmental assets also contribute to the Town's economy and support its ability to successfully weather shocks like intense precipitation and flooding when they are not compromised by the event.

1.12 Infrastructure

Workshop participants identified key infrastructural features in Shelburne that provide strength against climate change impacts. These features include:

- Farms providing local crops and employment opportunities.
- Generators, though insufficient, protecting some of Shelburne's critical buildings.
- Heating and cooling shelters, while inadequate and difficult to publicize, providing needed relief for residents during times of extreme temperatures.

1.13 Societal

Workshop participants identified key societal aspects of Shelburne that provide strength against climate change impacts. These aspects include:

- A large population of retired adults have time to dedicate to volunteer efforts in Shelburne.
- Local medical facilities (clinics and pharmacy) make healthcare accessible for residents.
- Libraries and cultural facilities strengthen the community by providing gathering places.
- Local businesses support Shelburne's economy and draw in tourists.

1.14 Environmental

Workshop participants identified key environmental features in Shelburne that provide strength against climate change impacts. These features include:

- Forested land and protected recreational areas provide recreation opportunities for community members and provide ecological benefits, such as carbon storage and sequestration, reduced risk of flooding, and soil retention.
- The Fox Brook Reservoir acts as an emergency water supply for Shelburne and surrounding towns.
- The Deerfield River is a source of recreation and tourism for the town and provides ecological benefits.
- Riparian buffers provide wildlife habitat and protect the community by preventing erosion and slowing down water during storm events.

TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

After discussing the likely impacts of the Town's top climate hazards and listing vulnerability and strengths, workshop participants brainstormed possible actions to address climate change impacts, reduce vulnerabilities and reinforce strengths in Shelburne. The CRB Workshop Guide leads participants through an iterative process, using small teams to generate action items, and then gaining consensus on prioritization as a larger group through voting. The outcome is a list of low, medium, and high priority action items that were agreed upon by workshop participants. The prioritization process was informed by cost and available funding sources, technical and political feasibility, and community benefit. Action items that were generated by multiple small teams organically and repeated throughout the workshop were most often prioritized as high. In some cases, the actions were prioritized as medium because they are ongoing processes that the town is already working on. This process is documented in the CRB Workshop materials and notes, located in Appendix B.

A list of action items generated through this process is included below, organized in alphabetical order by the features. Potential partners for implementation and an estimated implementation timeline are included with each action item, with a note on whether ongoing monitoring will be needed.

The Town can use this list to track progress on short-term, long-term, and ongoing action items over time. Short-term projects are to occur in less than 5 years, and long-term projects are 5-10 years.

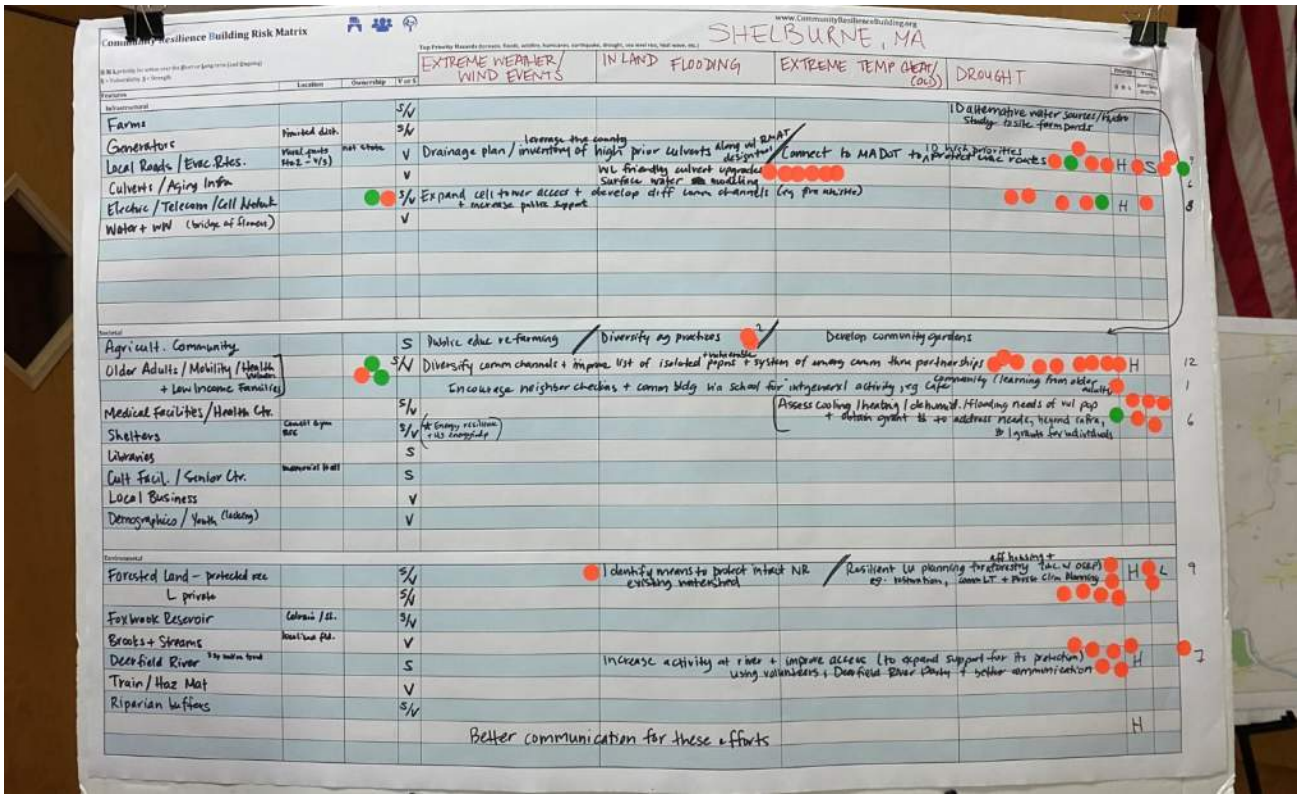

Figure 9: Participants identify recommendations to improve resilience during the CRB workshop

1.15 High Priority Actions

Feature: Culverts/Aging Infrastructure

- Action: Create a resilient drainage plan based on hydrologic and hydraulic modeling to identify areas of concern and locations for upgrades, leveraging the FRCOG inventory of high priority culverts, surface water modeling and the Resilient MA Design Standards Tool to prioritize and quantify upgrades, including utilizing wildlife passage-friendly designs and potential dam removal. Leverage funding such as MassDEP Culvert Upgrades.
    - ***Possible partners for implementation:*** *MassDEP, FRCOG, Trout Unlimited Deerfield River Watershed Chapter, Deerfield River Watershed Association (DRWA), MassAudubon, FRCOG, UMass College of Natural Sciences, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program, MA Department of Ecological Restoration, UMass Department of Landscape Architecture and Regional Planning (LARP)*
    - ***Timeline:*** *Short Term*

Feature: Deerfield River

- Action: Increase activity at the Deerfield River, improve access, and communicate with community and related groups to expand support for its protection, using volunteers and public engagement events/River parties.

- ***Possible partners for implementation:*** *Deerfield River Watershed Association, Trout Unlimited Deerfield River Watershed Chapter, Great River Hydro, Appalachian Mountain Club, GCC Outdoor Education Department, Mohawk Trail Regional School District (MTRSD), Businesses operating on the river (e.g., Crab Apple, Berkshire East, Adventure East, Zoar), Franklin Land Trust, Franklin County Chamber of Commerce, Mohawk Trail Association.*
- ***Timeline***: *Ongoing*

Feature: Farms / Water

- Action: Identify alternative water sources and complete a hydrologic study to inventory existing farm/fire ponds and assess feasibility and siting of new farm/fire ponds and efficient irrigation systems.
  - ***Possible partners for implementation:*** *UMass Agriculture, UMass Sustainable Development, UMass College of Natural Sciences, Mass Association of Conservation Commissions (MACC), MA Department of Environmental Protection, USDA Soil and Water Conservation Program, USDA Forest Service's VFA program, Great River Hydro*
  - ***Timeline:*** *Long*

Feature: Forested Land / Protected Recreational Areas

- Action: Create a Resilient Land Use Plan for protecting forest and natural land while maintaining land for affordable housing, through identifying actions such as formation of a community land trust, climate resilient forest planning, and/or establishing dynamic forest restoration blocks, etc. Could be incorporated into the Open Space Plan Update.
  - ***Possible partners for implementation:*** *Mass Audubon, Franklin Land Trust (land conservation), The Trustees, MA Dept. of Conservation & Recreation, MA Dept. of Fish & Game, FRCOG, UMass Forestry, Ohketeau Cultural Center, Woodlands Partnership of Northwest Massachusetts, Massachusetts Woodlands Institute, Franklin County Community Land Trust* (affordable housing).
  - ***Timeline:*** *Long*

Feature: Generators / Electric Infrastructure

- Action: Establish energy resilience through promoting development of renewable energy (e.g., wind, solar, hydro) and evaluating system vulnerabilities and improvements to energy grid/microgrid (e.g., burying powerlines) while considering possible adverse environmental or economic impacts.
  - ***Possible partners for implementation:*** *UMass Clean Energy Extension, MassDOER (including R-STEP grants), Sunwealth, Co-op Power, Cape & Vineyard Electric Co-op (CVEC), Eversource*
  - ***Timeline:*** *Short*

Feature: Local Roads and Evacuation Routes

- Action: Create a resilient roadway improvement plan, connecting with MassDOT to identify and assess priority roads, bottlenecks / chokepoints, and evacuation route protection, and come up with engineering solutions for paved and unpaved roads to address increased runoff and freeze-thaw cycles.
  - ***Possible partners for implementation:*** *MassDOT, FRCOG, MassDEP, Pioneer Valley Planning Commission, Legislators, UMass LARP, The Conway School of Landscape Design*

- ***Timeline:*** *Short*

Feature: Older Adults / Disability (mobility, health)

- Action: Improve community connections and emergency communications with vulnerable populations, by improving the list of isolated and vulnerable populations, creating a system of emergency communications through the community through increased partnerships around town, including neighbor wellness check-ins and school-based intergenerational gatherings. Promote Reverse 911 system and expand awareness about shelter locations.
  - ***Possible partners for implementation:*** *Senior Center, Council on Aging, MTRSD, Public libraries, Medical Reserve Corps (MRC), Mary Lyon Foundation, MEMA, Arts & Cultural Groups, Women's Club, Shelburne Grange, Greenfield Community College, local religious organizations, Life Path, Franklin County Sheriff's Office, Ohketeau Cultural Center.*
  - ***Timeline****: Short/Ongoing*

Feature: Telecommunications / Cell Network

- Action: Improve townwide emergency communication infrastructure by identifying communications (cell, landline) coverage dead spots, working with cell service providers to harden cell communication infrastructure, and developing different communication channels (such as radio or fire whistle) to reach areas where cell service is poor.
  - ***Possible partners for implementation:*** *MEMA, FEMA, Neighboring MVP communities, Mass. Dept. of Public Utilities (DPU), MTRSD, Local mobile network operators/ providers, Western Region Homeland Security Advisory Council (WRHSAC), US Cybersecurity and Infrastructure Security Agency (CISA), Franklin County Amateur Radio Club*
  - ***Timeline:*** *Long/Ongoing*

1.16 Medium Priority Actions

Feature: Agricultural Community

- Action: Improve public education around sustainable farming practices for both farmers and youth, tactics to diversify agricultural practices for climate resilience, and develop community gardens
  - ***Possible partners for implementation:*** *Franklin County Technical School, MTRSD, UMass Sustainable Agriculture, MassDAR, Conway School of Landscape Design, Red Gate Farm (Ashfield), Americorps*
  - ***Timeline:*** *Long/Ongoing*

Brooks and Streams

- Inventory beaver dams, prioritize action items around beaver dams
  - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited Deerfield River Watershed Chapter, Mass Audubon, GCC, MTRSD, Mass Association of Conservation Commissions (MACC), USDA Soil and Water Conservation Program, MassDEP*
  - ***Timeline:*** *Long*

Dams

- Contact Deerfield River dam owners to get copy of their dam failure plan, and build townwide emergency communication and preparedness plan for event of dam failure
    - ***Possible partners for implementation:*** *Great River Hydro, US Cybersecurity and Infrastructure Security Agency (CISA), Franklin County REPC, MEMA, FRCOG, Brookfield Renewable US.*
    - ***Timeline:*** *Short*

Emergency Response and Infrastructure Workforce

- Educate residents and workers to become equipment operators and create pathways to replenish our key infrastructure roles, such as chief operator for the sewer district and emergency volunteers.
    - ***Possible partners for implementation:*** *Shelburne Emergency Management Committee, Shelburne Falls Fire District, Shelburne Police Department, Shelburne Highway Department, Franklin County Technical School, Mohawk Trail Regional School*
    - ***Timeline:*** *Short/Ongoing*

Forested Land / Protected Recreational Areas

- Evaluate opportunities to conserve land, either as farmland or forest, either as operation farmland or protected land, and increase awareness about how land conservation can increase Shelburne's resilience.
    - ***Possible partners for implementation:*** *Franklin Land Trust, MassAudubon, UMass Sustainable Development, UMass Public Policy, UMass Agriculture, FRCOG, MassDAR*
    - ***Timeline:*** *Short*

Fox Brook Reservoir

- Identify means to protect intact watershed
    - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited Deerfield River Watershed Chapter, Franklin Land Trust, Mass Association of Conservation Commissions (MACC), USDA Soil and Water Conservation Program, Mass Audubon.*
    - ***Timeline:*** *Long*

Heating and Cooling Shelters

- Install generators, potentially connected to renewable energy microgrids, at critical and highly vulnerable facilities such as heating and cooling centers to improve resilience during severe storm events
    - ***Possible partners for implementation:*** *MEMA, FEMA, MRC, DOER, MTRSD, UMass Clean Energy Extension, Eversource*
    - ***Timeline: Short***
- Evaluate shelters available and develop capacity where needed (e.g., cooling, showers, kitchen) for designated shelters.
    - ***Possible partners for implementation:*** *MEMA, FEMA, MRC, Salvation Army, Red Cross, Franklin County REPC, FRCOG, Neighboring communities, Western Region Homeland Security Advisory Council (WRHSAC).*
    - ***Timeline:*** *Long*

Local Roads and Evacuation Routes

- Educate residents for shelter-in-place preparedness

- **Possible partners for implementation:** *MRC, MEMA, FEMA, MTRSD, GCC, UMass Public Health, Public Health Institute of Western MA, Senior Center, Council On Aging, Senior SAFE program, Franklin County Sheriff's Office.*
- **Timeline:** *Short/Ongoing*

Low Income Families

- Assess residents' home cooling / heating / humidity / flood prevention vulnerabilities and obtain grant funding to support needed improvements to private residences
  - **Possible partners for implementation:** *Senior Center, FRCOG, Council on Aging, MRC, MTRSD, Mary Lyon Foundation, LifePath, Mass Save.*
  - **Timeline:** *Short*
- Develop a program to provide / install communication channels like computers, DSL
  - **Possible partners for implementation:** *GCC, Americorps, Senior Center, LifePath, Franklin County Sheriff's Office*
  - **Timeline:** *Long*
- Organize an outreach program with local schools focused on agriculture and other green jobs, get grant funding to hire an intern to help with these town-wide initiatives
  - **Possible partners for implementation:** *Franklin County Technical School, Mass Audubon youth climate corps, MTRSD, UMass Agriculture, GCC, Americorps, MassDAR, Woodlands Partnership of Northwest Massachusetts*
  - **Timeline:** *Short/Ongoing*

Medical Facilities (Clinics, Pharmacies)

- Support the development of a community clinic, build community and individual health
  - **Possible partners for implementation:** *MTRSD, GCC, Centers for Disease Control and Prevention Rural Health, MRC, Senior Center, Council on Aging (COA), Mary Lyon Foundation, Baystate Medical System.*
  - **Timeline:** *Short*

Riparian Buffers

- Assess riparian erosion and explore action items
  - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited Deerfield River Watershed Chapter, Mass Audubon, GCC, MTRSD, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program, Franklin Land Trust, Woodlands Partnership of Northwest Massachusetts*
  - ***Timeline:*** *Long*

Water and Wastewater Infrastructure

- Push for funding and policy around rural infrastructure improvements
  - ***Possible partners for implementation:*** *Senator Mark, Rep. Blais, UMass Amherst Public Policy, UMass Boston Public Policy, FRCOG, Legislators, MMA*
  - ***Timeline:*** *Long*
- Assess / Evaluate water and wastewater lines and pump stations, including need to rebuild Bridge of Flowers to protect water line (due for replacement in 2024), identify redundancies and coordinate with Buckland
  - ***Possible partners for implementation:*** *Shelburne Falls Fire & Water District, MassDOT, MassDEP, FRCOG, Great River Hydro*
  - ***Timeline:*** *Short*
- Identify potential impacts of drought on public wells, increase education on water use restrictions
  - ***Possible partners for implementation:*** *MassDEP, UMass group that did well-water testing for PFAs, Shelburne Falls Fire & Water District, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program*
  - ***Timeline:*** *Long/Ongoing*

1.17 Low Priority Actions

Feature: Libraries / Cultural Facilities

- Action: Identify resources, prioritize capacities and amenities at libraries and cultural facilities
  - ***Possible partners for implementation:*** *library staff, West County Arts & Culture, Shelburne Falls Arts Co-op, Mass Cultural Council*
  - ***Timeline:*** *Long/Ongoing*

Local Businesses

- Inventory of local businesses through a business association and the arts council
  - ***Possible partners for implementation:*** *a local business association (if revived), arts councils, Mohawk Trail Association, Franklin County Chamber of Commerce, FRCOG, Mass Cultural Council*
  - ***Timeline:*** *Short/Ongoing*
- Assess agrotourism and its reliance on climate (e.g., maple syrup production), think of long-term impacts and opportunities to diversify
  - ***Possible partners for implementation:*** *UMass Sustainable Development, UMass Agriculture, FRCOG, Conway School of Landscape Design, Franklin Tech, GCC, USDA, MassDAR, Mass Office of Travel and Tourism*

- *Timeline:* *Long*

Railroads / Transport of Hazardous Materials

- Evaluate communication plans for derailment, fire, hazardous waste spills, or other emergencies
  - *Possible partners for implementation:* *Transportation companies, USDOT, MADOT, MEMA, FEMA, Mass Department of Fire Services, Franklin County REPC, MassDEP, US Cybersecurity and Infrastructure Security Agency (CISA).*
  - *Timeline:* *Long*

ADDITIONAL INFORMATION

1.18 CRB Workshop Participants

The CRB Workshop participants included the Core Team, Town staff, Town Boards and Committees, local organizations, adjacent municipalities, and regional partners. The full list of CRB Workshop invites is shown in the sections below.

Table 2. Core Team

Name	Title	Affiliation	Attendance
Tom Williams	Emergency Management Director	Shelburne Emergency Management Committee	X
John Taylor	Fire Chief	Shelburne Fire Department	X
Sylvia Smith	Former Town Moderator, Senior Center Advisor, Rural Resident	Shelburne Resident	X
Jacqui Goodman	Former Teacher, Village Resident	Shelburne Resident	
Tricia Yacovone-Biagi	Town MVP Liaison, Rural Resident	Planning Board	X
Will Flanders	Town Official, Village Resident	Planning Board	X

Table 3. Additional Town Staff, Boards, Committees, Local Organizations

Name	Title	Affiliation	Attendance
Joe Judd	Town Clerk	Town of Shelburne	
Terry Narkewicz	Town Administrator	Town of Shelburne	
Penny Spearance	Emergency Management Committee Member	Town of Shelburne	
Mary Lou Gallup	Recreation Committee	Town of Shelburne	X
Sheryl Stanton	Superintendent of Schools	MTRSD	X
Juli Moreno	Senior Center Director	Shelburne Senior Center	
Christopher Demars	Veteran's Agent	Shelburne Office of Veteran Services	
Faith Williams	Housing Authority experience	Planning Board	X
Laurie Wheeler	Library Director	Arms Public Library	X
Greg Bardwell	Shelburne Police	Town of Shelburne	
Elizabeth Antaya	Shelburne Center Library Director	Shelburne Center Library	
Jay Readinger	Finance Committee	Town of Shelburne	X
Ron Kelter	Board of Health	Town of Shelburne	X
Carolyn Wheeler	Agricultural Commission	Town of Shelburne	X

Table 4. Adjacent Communities

Name	Title	Affiliation	Attendance
Heather Butler	Town Administrator	Town of Buckland	X
Herb Guyette	Director of Emergency Management	Town of Buckland	X
Paul McLatchy III	Town Administrator	Town of Ashfield	
George Stephan	Director of Emergency Management	Town of Ashfield	
Kevin Fox	Town Administrator	Town of Colrain	
Jim Lyons	Director of Emergency Management	Town of Colrain	

Table 5. Community and Regional Organizations

Name	Affiliation	Attendance
Roland Giguere	Grange	
Jodi Stetson or Launie York	4-H	
Penny Spearance	Women's Club, Senior Center	
Leader	Trinity Church	
Rev. Marianne MacCullaugh	First Congregational Church	X
John Walsh		
Laurie Benoit	Mary Lyon Foundation	X
Jim Perry, President	Deerfield River Watershed Association	X
Representative	Nolumbeka Project	
Andrew Randazzo	Mass Audubon	X
Eric Halloran, President	Trout Unlimited Deerfield River Watershed Chapter	X
Carmela Lanza-Weil	Medical Reserve Corps, Shelburne Falls Business Association (former)	X
Michelle Olanyk	West County Arts & Culture	X
Tim Smith	Apex Orchards	
	Hager's Farm Market	
John Wheeler	Greenfield Farmer's Coop	X
Matthew Cole	Great River Hydro	X
Liam Cregan	Franklin Land Trust	X
Alison Cornish	BTS Center and Town of Buckland	X

Table 6. State / Government Officials

Name	Title	Affiliation	Attendance
Paul Mark	State Senator, Franklin Country	Massachusetts Senate	
Jim McGovern	Congressperson	US House of Representatives (Noho office listed)	
Natalie Blais	State Representative, 1st Franklin District	Massachusetts House of Representatives	
Tara Jacobs	Governor's Councilor	MA Governor's Council	
Kimberly Noake-MacPhee	Environmental Planner	Franklin Regional Council of Governments	
Michael Gorski	Western Regional Director	MA Department of Environmental Protection	
Priscilla Geigis	Deputy Commissioner for Conservation and Resource Stewardship	MA Department of Conservation and Recreation	
Mark Talbot	Hazard Mitigation Unit Supervisor	Massachusetts Emergency Management Agency	
Natasha Sawabi	Student Intern	USDA Natural Resources Conservation Service	
Rachael Phillips-Barnes	Assistant State Conservationist for Field Operations	USDA Natural Resources Conservation Service	

CRB Workshop Project Team

Key Staff:

- Tricia Yacovone-Biagi, Shelburne MVP Liaison
- Core Team Members as noted above

Facilitators from Weston & Sampson:

- Doris Jenkins, EIT
- Joanna Nadeau, AICP
- Indrani Ghosh, PhD

1.19 Acknowledgement

The project team would like to recognize Shelburne's Core Team members for leading by example throughout the MVP planning process. The team would also like to acknowledge Tricia Yacovone-Biagi for her dedication to spearheading and coordinating this project. A special thanks to the Massachusetts Executive Office of Energy and Environmental Affairs for providing the grant funding to conduct the MVP Planning process, and to the Nature Conservancy for providing the Community Resilience Building Guidebook. An additional thanks to all of the CRB Workshop and Listening Session participants, and to the Project Team for facilitating successful events.

1.20 Citation for this Report

Town of Shelburne. 2023. Community Resilience Building Workshop Summary of Findings. Prepared by Weston & Sampson.

REFERENCES

Community Resilience Building Workshop Guide. Accessed August 2023. https://www.communityresiliencebuilding.com/_files/ugd/29a871_ed557c1fca834ca898961d7705dfef03.pdf

ResilientMA. 2023. https://resilient.mass.gov/home.html

Shelburne. 2021. Town of Shelburne Hazard Mitigation Plan.

US Census Bureau. 2020 Decennial Census. https://data.census.gov/all?q=shelburne+ma

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APPENDIX A

Core Team Meeting Materials

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #1 Agenda

Microsoft Teams
Thursday, July 27, 2023
11:00 am – 12:00 am

Introductions	5 minutes
Project Overview	5 minutes
Core Team Role	5 minutes
Community Resilience Building Workshop Overview	30 minutes
Data Sources	5 minutes
Wrap Up and Next Steps	5 minutes

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #1 Meeting Notes

Microsoft Teams
Thursday, July 27, 2023
11:00 am – 12:00 am

Attendees

- Tricia Yacovone-Biagi (Shelburne)
- Will Flanders (Shelburne)
- Sylvia Smith (Shelburne)
- Jacqui Goodman (Shelburne)
- John Taylor (Shelburne)
- Tom Williams (Shelburne)

- Doris Jenkins (Weston & Sampson)
- Joanna Nadeau (Weston & Sampson)

Core Team Role

- Provide input on specific workshop coals
- Help prepare materials for the workshop and provide feedback on drafts
- Provide local expertise that will help the project run smoothly

Community Resilience Building Workshop Overview

- Review and select climate hazards for the workshop
- Help identify community assets and review the maps
- Help to identify invite list that is representative of Shelburne's community

Data Sources

- Make sure all town documents are included, such as existing action items included in the HMP
    - Hazard Mitigation Plan 2021 (FRCOG, 2021)
    - Comprehensive Economic Development Strategy Performance Report (2023)
    - Open Space and Recreation Plan (2014, update coming 2024)
    - Town of Shelburne Capital Management Plan (FRCOG, 2017)
    - State Climate Projections
    - Demographics

Wrap Up and Next Steps

- Schedule next core team meeting
- Send out invite for the CRB workshop
- Advertisement options for the CRB workshop such as Facebook, Greenfield Recorder, mailer

TOWN OF SHELBURNE

Core Team Meeting #1

July 27, 2023

Photo: The Berkshire Edge

1

1

WELCOME CORE TEAM

Weston & Sampson Team

- Indrani Ghosh, PhD, Project Manager
- Doris Jenkins, Resiliency Engineer
- Joanna Nadeau, Resiliency Planner

Shelburne, MA Team

- Tricia Yacovone-Biagi, Town MVP Liaison, Rural Resident
- Will Flanders, Town Official, Village Resident
- Tom Williams, Shelburne Emergency Management Director, Rural Resident
- John Taylor, Shelburne Fire Chief, Rural Resident
- Sylvia Smith, former Town Moderator, Rural Resident
- Jacqui Goodman, former Teacher, Village Resident

2

2

WELCOME CORE TEAM

ROLE – *MORE ON THIS LATER*

- Confirm framework for process
- Provide data and local expertise
- Participate in and promote the CRB workshop
- Finalize priority actions for the final report

TODAY'S OBJECTIVES

- Review Process
- Discuss Goals & Plan for CRB Workshop
- Identify top climate hazards

3

3

MA CLIMATE PROJECTIONS

By end of century:

Changes in precipitation

- 18% increase in consecutive dry days
- 57% increase in days with > 1 in. rainfall
- 7.3 inches additional annual rainfall
- Increase in flooding

Rising temperatures

- 10.8°F increase in average annual temperature
- 42% decrease in days/year with min. temperatures < 32* F
- 1,280% increase in 90-degree days/year

Winter weather

- Overall a decrease in annual snowfall
- Likely to have fewer events with a lot of snow
- Freeze –thaw cycle to change

Regional changes

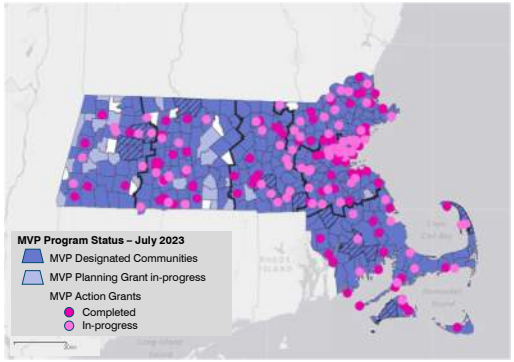
- Increase in frequency and magnitude of hurricanes and nor'easters
- 4-10.5 feet of sea level rise

Source: State Hazard Mitigation and Climate Adaptation Plan, September 2018 / resilientma.org / Northeast Climate Adaptation Science Center

4

MUNICIPAL VULNERABILITY PREPAREDNESS (MVP) PROGRAM

- Improved resilience and preparedness
- Collaboration with stakeholders
- Increased education, planning, and implementation
- Funding for resilience-related actions



Weston & Sampson

5

5

MVP PROGRAM

1. MVP Planning Grant
- Define climate hazards
- Identify community vulnerabilities and strengths
- Develop and prioritize adaptation actions
- Receive MVP designation

2. MVP Action Grant
- Implement priority adaptation actions identified during the planning process

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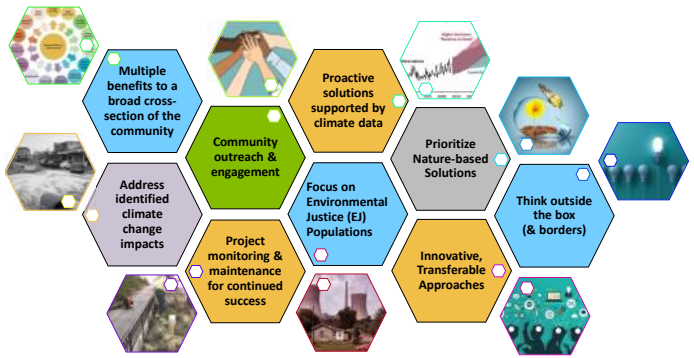
MVP CORE PRINCIPLES



7

What Can the MVP Action Grant Fund?

- Assessments
- Outreach & Education
- Management Measures
- Redesign & Retrofit
- Nature-Based Solutions
- Ecological Restoration
- Water Quality & Infiltration
- Flood Protection
- Extreme Heat Mitigation
- Drought Mitigation
- Energy Resilience
- Chemical Safety
- Land Acquisition
- Housing
- Mosquito Control

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CORE TEAM INVOLVEMENT

Virtual engagement options include webinars, videos, surveys, social media campaigns, and more!

1. Core Team Kickoff | *Thanks for coming!*
2. Existing Plans and Stakeholder List | *Seeking input today*
3. Critical Facilities List and Hazard Map | *August (tbd)*
4. Review Goals | *August (tbd)*
5. Community Resilience Building Workshop | *September (tbd)*
6. Finalize Priorities | *October (tbd)*
7. Public Listening Session and Input | *November (tbd)*
8. Report | *December 2023*

Note: Project timeline was set to allow for Shelburne to apply for an MVP Action Grant in FY24

Weston & Sampson

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ENGAGEMENT SCHEDULE

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CRB WORKSHOP OUTLINE

WORKSHOP OBJECTIVES:

- Identify vulnerabilities and strengths
- Brainstorm projects or action items
- Prioritize projects or action items

TODAY'S DISCUSSION:

- Identify Goals
- Date, Time, Invite List
- Identify Hazards

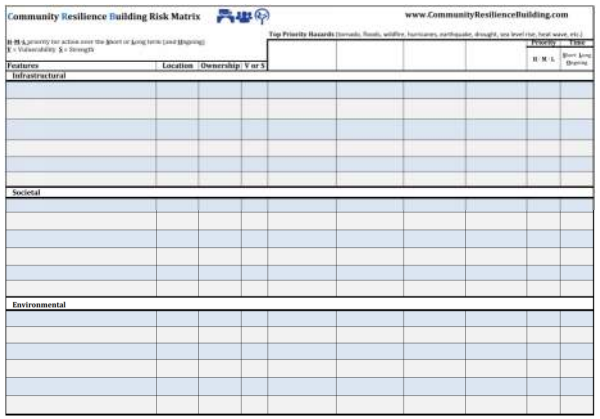
Photos: Town of Egremont

Recommended workshop topic areas include:

11

RISK MATRIX

Survey with Core Team prior to CRB



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CLIMATE HAZARDS IN SHELBURNE

Pick 4 for the CRB Workshop

Flooding

Extreme Temperatures

Drought

Winter weather (Nor'easters, ice storms, snowstorms, blizzards)

Wind events (thunderstorms, hurricanes, tornadoes)

Brushfires/Wildfires

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STAKEHOLDER LIST

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CRB Workshop

- After Labor Day (September 4, 2023)
  - Wednesday or Thursday
- One day, 6-8 hours
- In-person, town hall?
- Weekday timing
  - Early start (8 am) or delayed (10 am)
- Lunch options
  - Local catering

Potential Dates: September 13, 14, 20, 21

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CLIMATE DATA

- Massachusetts Climate Change Projections (ResilientMA, 2022)
- Climate Change Assessment (MA EEOA, 2022)
- Climate Resilient Design Standards Tool (ResilientMA, 2022)
- Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (2018)
- Massachusetts Climate Change Adaptation Report (MA EEA, 2011)

APPLICABLE PLANS/INFO

- Town of Shelburne Hazard Mitigation Plan (FRCOG, 2021)
- Comprehensive Economic Development Strategy Performance Report (2023)
- Open Space and Recreation Plan (2014, update coming 2024)
- Town of Shelburne Capital Management Plan (FRCOG, 2017)

Other ongoing efforts?

Weston & Sampson

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THANKS FOR COMING

Next Steps:

- **Schedule next Core Team meeting (mid-August)**
- **Core team to review workshop invite list**
  Send feedback by Aug. 4
- **Send invite for CRB Workshop**
  WSE to share RSVP form
- **Advertise CRB Workshop to the public**

Photo: The Greenfield Recorder

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Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #2 Agenda

Microsoft Teams
Wednesday, August 23, 2023
2:00 pm – 3:00 pm

CRB Workshop Attendees

- Review RSVPs (24 Yes as of 8/23/23)

CRB Workshop Materials

- Workshop Agenda
- CRB Matrix
  - Confirmation of Climate Hazards
  - Asset Category Grouping
- Map of Community Assets
- Overview of PowerPoint Slides
  - Optional input by September 8, 2023

CRB Workshop Preparations

- Fellowship Hall
  - Fee for use?
  - Building access at 8 am
  - Tables / Chairs
  - Print Flyer to hang on entry door
- Food / Drinks
  - Breakfast – Local business for coffee / pastries?
  - Lunch – Keystone Market (Sandwich platters, fruit platters, drinks, chips, plates / utensils)

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #2 Meeting Notes

Microsoft Teams
Wednesday, August 23, 2023
2:00 pm – 3:00 pm

Attendees

- Tricia Yacovone-Biagi (Shelburne)
- Will Flanders (Shelburne)
- Sylvia Smith (Shelburne)
- Tom Williams (Shelburne)

- Doris Jenkins (Weston & Sampson)
- Joanna Nadeau (Weston & Sampson)

CRB Workshop Attendees

- RSVPs (24 Yes as of 8/23/23) – Good representation of people at this time
    - Several Shelburne committees will be present and regional groups
- Tricia will send out follow-up email to everyone who has not responded

CRB Workshop

- We will be pre-assigning attendees to tables, will share table numbers at the sign in desk
- Break down the agenda to include the breakout discussion time specifically
    - Review PowerPoint Slides by September 8, 2023
- Include Hurricane Irene and most recent storms in July that have impacted/not impacted for Shelburne. Discuss how these storms are very localized – surrounding communities impacted but not Shelburne and vice versa
- Include high-intensity short duration storms in climate hazards

CRB Workshop Preparations

- Fellowship Hall
    - Tricia will provide building access at 8 am
    - Tricia and Sylvia will follow up on a projector to use
- Food / Drinks
    - Breakfast – Shelburne Falls Coffee Roasters
    - Lunch – Keystone Market (Sandwich platters, fruit platters, drinks, chips, plates / utensils)

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #3 Agenda

Microsoft Teams
Monday, October 16, 2023
2:00 pm – 3:00 pm

Listening Session Prep

- Selectboard meeting timing and format
- Question format
- Slido poll overview
- Follow up survey format

Listening Session Advertisement

- Town Web page text
- Eblast and social media posts
- Mailer
- Greenfield Recorder

Presentation

- Agreement on priority action item language
- Where Shelburne is
- Future grant funding opportunities

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #3 Meeting Notes

Microsoft Teams
Monday, October 16, 2023
2:00 pm – 3:00 pm

Attendees

- Tricia Yacovone-Biagi (Shelburne)
- Will Flanders (Shelburne)
- Jacqui Goodman (Shelburne
- John Taylor (Shelburne)

- Doris Jenkins (Weston & Sampson)
- Joanna Nadeau (Weston & Sampson)

Listening Session Prep

- Selectboard meeting starts at 5:30. Our slot starts at 6:00
- Generally, questions are held for the end or put in the chat
- Slido polls would be great if we can get people to participate – make instructions super clear
    - Ask for feedback on prioritization and town preparedness
- Follow up survey will be part of summary of findings review

Listening Session Advertisement

- Town Web page text
- Eblast and social media posts
    - Shelburne falls in a nutshell FB group
- Mailer
    - Tricia is coordinating this with a local printer
- Greenfield Recorder

Presentation

- Simplify priority action item language for the presentation, keep as full text in report
- Emphasize that Shelburne is catching up to other towns, but that we have lots of examples to follow
- Emphasize that this project is grant funded, and how other grants can be matched with in kind hours rather than exclusively capital funds

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #4 Agenda

Microsoft Teams
Thursday, December 7, 2023
11:00 am – 12:00 pm

EOI / FY25 Grant progress update

- Selectboard meeting
- Tricia's new position
- Timeline

Summary of Findings Report

- Public comments
- Timeline for final report

Additional Items

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant Project

Core Team Meeting #4 Meeting Notes

Microsoft Teams
Thursday, December 7, 2023
11:00 am – 12:00 pm

Attendees

- Tricia Yacovone-Biagi (Shelburne)
- Will Flanders (Shelburne)
- Jacqui Goodman (Shelburne
- John Taylor (Shelburne)
- Tom Williams (Shelburne)

- Doris Jenkins (Weston & Sampson)
- Joanna Nadeau (Weston & Sampson)

EOI / FY25 Grant progress update

- Selectboard meeting
- Tricia's new position as Town MVP Coordinator
- Timeline
    - John Taylor: it is important to remind residents that this next step won't mean boots on the ground, actual construction likely would not happen until 2025
    - Tom W: what would the money from a FY25 grant go towards?
        - Joanna: Technical work and community engagement
    - John Taylor: The Bardswell ferry road flooding location has been on the town's radar since Irene and nothing has happened, so this is good significant progress in pushing things to get done

Summary of Findings Report

- Public comments
    - Relocalization
        - unsure exactly what this refers to, but potentially bringing a focus back to community sustainability through local initiatives
    - Renewables
        - Tricia: account for differing perspectives and all of the pros and cons associated with each
        - John: could add line about "while being mindful of / considering any adverse economic or environmental impacts"
    - Dam removal:
        - Add dam removal to the culverts / aging infrastructure item

- Add Woodlands Partnership of Northwest Massachusetts and Mass Audubon as partners

- #5 community infrastructure:
  - J. Taylor: For power, we defer to the energy contractors to restore power post storm event
  - This is likely covered in the HMP
- For ranking of top 5, remove the numbers and the color gradient – show all as evenly ranked among the top 5
- In line edits in executive summary
  - Some of these edits may not be widely representative, this data is taken is directly pulled from census data
  - Adjust to state that poorly insulated homes is something that all of new England faces, both in heat and cold. Low income households may have difficulty upgrading their homes to have adequate insulation, which is an equity issue.
- John: SFFD Generator – Double check the capacity of the generator? What is needed to turn it on / is it always ready to go? Tom to ask about this.
- Comment on the prioritization
  - Tricia followed up with this commentor directly to share the logic behind the prioritization and the feeling of consensus at the CRB workshop on the top items
  - In sentence 1.5 We can add a sentence referencing the CRB Workshop procedure to show our methodology, and mention the overwhelming consensus between participants on the top priority items, refer to the appendix that has the notes and boards
  - Emphasize that some of the high priority items are based on short-term wins to help build momentum and authenticity to the effort and get people on board
- In regard to attendance / invites, state that we sent out mailers too if we have not already

Additional comments:

J. Taylor: Buckland and Shelburne Sewer District are responsible for the municipal wastewater treatment – update on page 1, paragraph 3

- Timeline for final report
  - Our goal is to have the report finalized by first week of January

J. Taylor: page 19 – change the wording to be forested areas dispersed throughout town – the interface between the natural and built environment

Additional Items

- Core team is going to meet on their own to discuss next steps

APPENDIX B

Community Resilience Building Workshop Materials

Community Resilience Building (CRB) Workshop
Wednesday, September 13, 2023 from 9 AM to 3 PM
Fellowship Hall (17 Little Mohawk Rd, Shelburne Falls, MA 01370)

9:00 Registration & Refreshments — **15 Minutes**

9:15 - Welcome & Introductions — **20 Minutes**

- Town Appointed Official
- MVP Regional Coordinator
- MVP Core Team
- Consulting Team
- Participant Introductions

9:35 - MVP Workshop Purpose & Overview — **50 Minutes**

- Project Overview
- Recent Planning Efforts
- Overview of Data Being Used During Workshop
- Hazards
- Existing Climate Change
- Projected Climate Change

10:25 - Large Group Exercise #1 — **10 Minutes**

- Review and Prioritize Top Four Hazards

10:35 - BREAK — **10 Minutes**

10:45 - Presentation: Risk Matrix Overview — **20 Minutes**

- Hazards
- Features
    - Infrastructure, Societal, Environmental
    - Vulnerability or Strength
    - Location
    - Ownership
- Overview of Maps Being Used During Workshop
- Overview of Community Actions

11:15 - Small Group Exercise #1 — **20 Minutes**

- Infrastructure and Buildings Features
    - Vulnerability and/or Strength, Location, Ownership

11: 35 - Small Group Exercise #2 — **20 Minutes**

- Societal Features
    - Vulnerability and/or Strength, Location, Ownership

11:55 - Small Group Exercise #3 — **20 Minutes**

- Environmental Features
    - Vulnerability and/or Strength, Location, Ownership

12:15 – Report Out from Small Groups — **20 Minutes**

- Combine output to make master matrix

12:25 – Lunch Break **15 Minutes**

12:40 - Presentation: MVP Community Actions/Strategies **20 Minutes**

- Participants can eat while project team presents

1:00 Small Group Exercise #4 **50 Minutes**

- Identify MVP Community Actions
- Prioritize Actions

1:50 - BREAK **10 Minutes**

2:00 – Report Out from Small Groups **30 Minutes**

2:30 - Large Group Exercise #2 **20 Minutes**

- Identify High Priority MVP Priority Actions

2:50 - Wrap-up and Closing Remarks **10 Minutes**

Town of Shelburne Community Resilience Building Workshop
Wednesday, September 13, 2023 9:00 am – 3:00 pm

Table Number		Name	Signature
1	Sylvia	Smith	
1	Mary Lou	Gallup	
1	Andrew	Randazzo	
1	Herbert	Guyette	
1	John	Wheeler	
1	Marianne	MacCullagh	
2	John	Taylor	
2	Carolyn	Wheeler	
2	Heather	Butler	
2	Matthew	Coe	
2	Liam	Cregan	
2	Laurie	Wheeler	
3	Will	Flanders	
3	Jay	Readinger	
3	Laurie	Benoit	Mary Lyon Foundation
3	Carmela	Lanza-Weil	
3	Ron	Ketter	
3	Michelle	Olanyk	
4	Tricia	Yacovone-Biagi	
4	Tom	Williams	
4	Jim	Perry	
4	Alison	Cornish	
4	Sheryl	Stanton	
4	John	Walsh	
4	Eric	Halloran	
2	Faith	Williams	

Don't see your name? Ask one of the facilitators where you should sit!

MVP

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COMMUNITY RESILIENCE BUILDING WORKSHOP

Town of Shelburne, Massachusetts
September 13, 2023

Photo: The Berkshire Edge

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1

MEET THE CORE TEAM

Tricia Yacovone-Biagi
TOWN MVP LIASON
Town of Shelburne

John Taylor
FIRE CHIEF
Town of Shelburne

Will Flanders
TOWN OFFICIAL
Town of Shelburne

Sylvia Smith
FORMER TOWN MODERATOR
Town of Shelburne

Tom Williams
EMERGENCY MANAGEMENT DIRECTOR
Town of Shelburne

Jacqui Goodman
FORMER TEACHER
Town of Shelburne

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MEET THE SUPPORT TEAM

INDRANI GHOSH, PhD
SENIOR PROJECT MANAGER
Weston & Sampson

DORIS JENKINS
RESILIENCY ENGINEER
Weston & Sampson

JOANNA NADEAU, AICP
RESILIENCY PLANNER
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TELL US ABOUT YOURSELF

- What is your name?
- What is your relationship to Shelburne?
- What are you looking forward to accomplishing today?

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GROUND RULES AND ETIQUETTE

- Help stay on schedule
- Be present/leave technology outside
- One speaker at a time
- Assume positive intent
- Be solution and project focused
- Be respectful
- Think big!

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AGENDA

01 Large Group: Overview of Project, Data Resources & Science

02 Large Group: Prioritize Top Hazards

03 Small Group: Fill Out Risk Matrix

04 Lunch

05 Small Group Exercises: Identify & Prioritize Strategies

06 Large Group: Determine Overall Priority Actions

6

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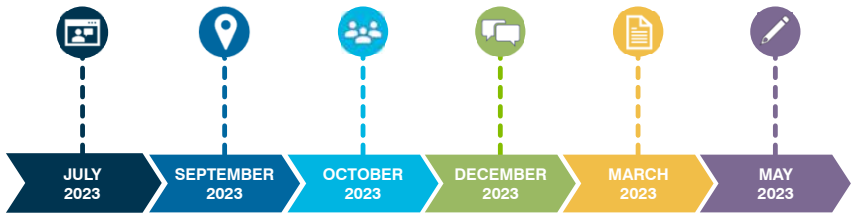
PROJECT SCHEDULE



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WHY WE'RE HERE

Climate change projections for end of century:

Changes in precipitation

- 18% increase in consecutive dry days
- 57% increase in days with > 1 in. rainfall
- 7.3 inches additional annual rainfall
- Increase in flooding

Rising temperatures JD1

- 10.8°F increase in average annual ambient temperature
- 42% decrease in days/year with min. temperatures < 32° F
- 1,280% increase in 90-degree days/year

Winter weather

- Overall a decrease in annual snowfall
- Likely to have fewer events with a lot of snow
- Freeze –thaw cycle to change

Regional changes

- Increase in frequency and magnitude of hurricanes and nor'easters
- 4-10.5 feet of sea level rise

Source: State Hazard Mitigation and Climate Adaptation Plan, September 2018 / resilientma.org / Northeast Climate Adaptation Science Center

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WHAT IS MVP?

PRESS RELEASE

Healey-Driscoll Administration Awards $31.5 Million in Climate Resiliency Funding to Communities

- The Executive Office of Energy and Environmental Affairs' MVP grant and designation program, which builds on Governor Baker's Executive Order 569 as well as other administration-led state and local partnerships, provides communities with technical support, climate change data and planning tools to identify hazards and develop strategies to improve resilience.
- "Our Administration is committed to partnering with cities and towns to develop practical and cost-effective solutions to build the climate-resilient communities of tomorrow," said Lieutenant Governor Karyn Polito.

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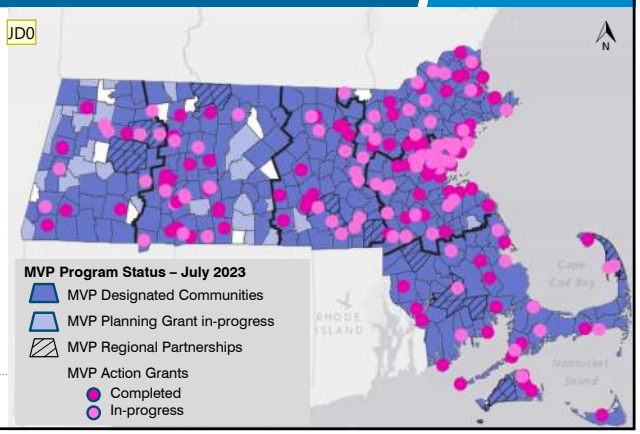
WHAT IS MVP?

- Improved resilience and preparedness
- Collaboration with stakeholders
- Increased education, planning, and implementation
- Funding for resilience-related actions



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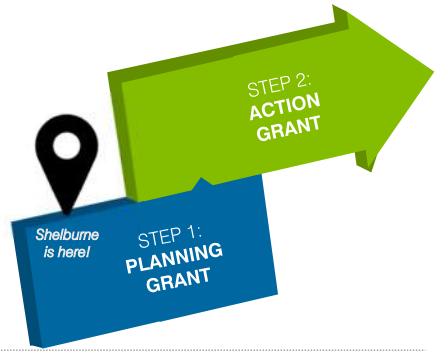
WHAT IS MVP?

1. MVP Planning Grant
   - Define climate hazards
   - Identify community vulnerabilities and strengths
   - Develop and prioritize mitigation actions
   - Receive MVP designation
2. MVP Action Grant
   - Implement priority adaptation actions identified during the planning process



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WHAT CAN THE MVP ACTION GRANT FUND?

- Assessments
- Outreach & Education
- Management Measures
- Redesign & Retrofit
- Nature-Based Solutions
- Ecological Restoration
- Water Quality & Infiltration
- Flood Protection
- Extreme Heat Mitigation
- Drought Mitigation
- Energy Resilience
- Chemical Safety
- Land Acquisition
- Housing
- Mosquito Control

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AGENDA

01 **Large Group: Overview of Project, Data Resources & Science**

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CLIMATE DATA

- Massachusetts Climate Change Projections (ResilientMA, 2022)
- Climate Change Assessment (MA EEOA, 2022)
- Climate Resilient Design Standards Tool (ResilientMA, 2022)
- Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan (2018)
- Massachusetts Climate Change Adaptation Report (MA EEA, 2011)

APPLICABLE PLANS/INFO

- Town of Shelburne Hazard Mitigation Plan (FRCOG, 2021)
- Comprehensive Economic Development Strategy Performance Report (2023)
- Open Space and Recreation Plan (2014, update coming 2024)
- Town of Shelburne Capital Management Plan (FRCOG, 2017)

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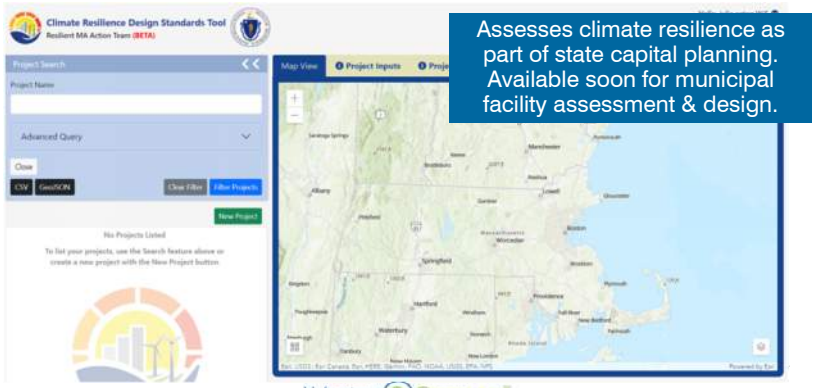
RMAT RESILIENT DESIGN STANDARDS



Assesses climate resilience as part of state capital planning. Available soon for municipal facility assessment & design.

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COMMUNITY AND CRITICAL FACILITIES

- Safety & Security
- Health & Medical
- Transportation
- Food, Water, Shelter
- Parks & Greenspace
- Communications
- Cultural, Historic, & Events
- Energy
- Hazardous Material Management

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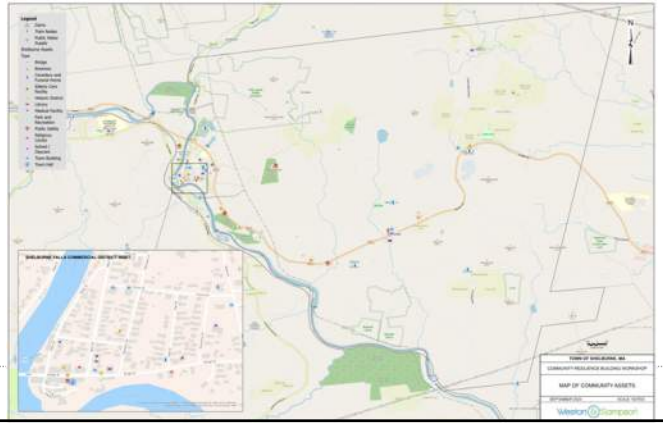
LIFELINES AND CRITICAL FACILITIES



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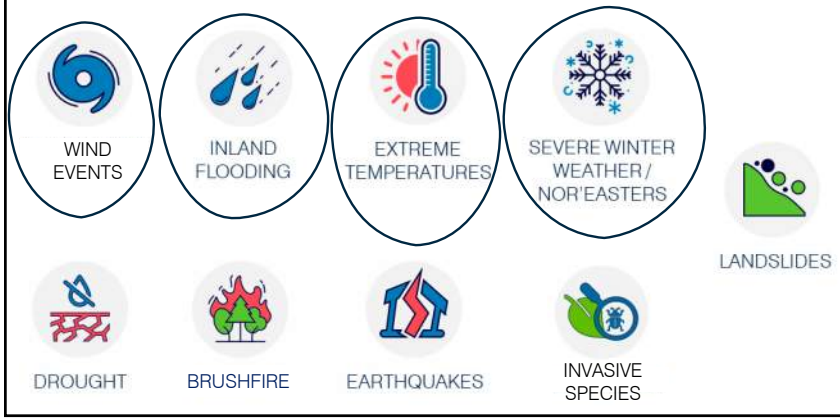
NATURAL HAZARDS IMPACTING SHELBURNE



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Tropical Storms: Maximum sustained wind speed 39 mph or higher
Hurricanes: Maximum sustained wind speed 74 mph or higher

2005: Tropical Storm Tammy
2011: Hurricane Irene
2012: Hurricane Sandy
2017: Hurricane Jose
2018: Hurricane Florence
2019: Hurricane Dorian
2020: Hurricane Isaias
2021: Hurricane Henri

JD0

Upward trend in North Atlantic hurricane activity since 1970

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WIND EVENTS (HURRICANES, TORNADOES)

Extreme Wind: Damaging wind, often occurring during hurricanes and tropical storms, that can cause threat to life and property.

High Wind Threats:

Extreme	Sustained wind speeds greater than 58 mph
High	Sustained speeds of 40 to 57 mph
Moderate	Sustained speeds of 26 to 39 mph
Low	Sustained wind speeds of 21 to 25 mph
Very Low	Sustained wind speeds around 20 mph
Non-threatening	Breezy conditions

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WIND EVENTS (HURRICANES, TORNADOES)

Tornados: A funnel-shaped vortex of violently rotating wind advancing beneath a large storm system.

TORNADO:	TORNADO WATCH	TORNADO WARNING
A violent, rotating column of air with winds ranging from 65 to over 200 mph	CONDITIONS ARE *FAVORABLE* FOR TORNADOES TO DEVELOP	A TORNADO HAS FORMED AND IS *IMMINENT*

In the last two decades, five tornadoes have been reported in Franklin County.

No tornadoes have impacted Shelburne since 1964.

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SEVERE WINTER WEATHER/NOR'EASTERS

Severe Winter Weather: heavy snow, ice accumulation, freezing temps & wind chill
Nor'easter: Storms or wind blowing from the northeast

2008 Ice Storm,
- ¾ of the Town out of power

2011 Early Snowstorm
- Wide spread power outages lasting over 1 week

2016 Snowstorm
- Highland Village elder housing lost power overnight
- Senior Center used as an unofficial warming center

2017 Snowstorm
- Route 2 closed for 1-2 days

Nor'easters along the Atlantic coast are increasing in frequency and intensity

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SEVERE WINTER WEATHER/NOR'EASTERS

More recently…

March 2, 2018: Winter Storm Riley
March 8, 2018: Winter Storm Quinn
March 13, 2018: Winter Storm Skylar
January 16, 2021: Winter Storm Uri
February 1, 2021: Winter Storm Orlena
January 29, 2022: North American Blizzard
March 13, 2023: Nor'easter

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SEVERE WINTER WEATHER/NOREASTERS

- The blizzard of 2013 left nearly 400,000 Massachusetts residents without power.[1]
- "Heavy blizzards are among the most costly and disruptive weather events for Massachusetts communities."[2]
- Snowpack likely to decrease annually, but snowfall will occur with heavy intensity
- Extended power outages, cost of snow removal, repairing damages, and loss of business can have a severe economic impact.
- The elderly and infirmed are populations of particular concern during these events

1. Resilient MA Climate Change Clearinghouse for the Commonwealth, "Extreme Weather," 2019
2. "Massachusetts State Hazard Mitigation and Adaptation Plan," 2018, P4-226

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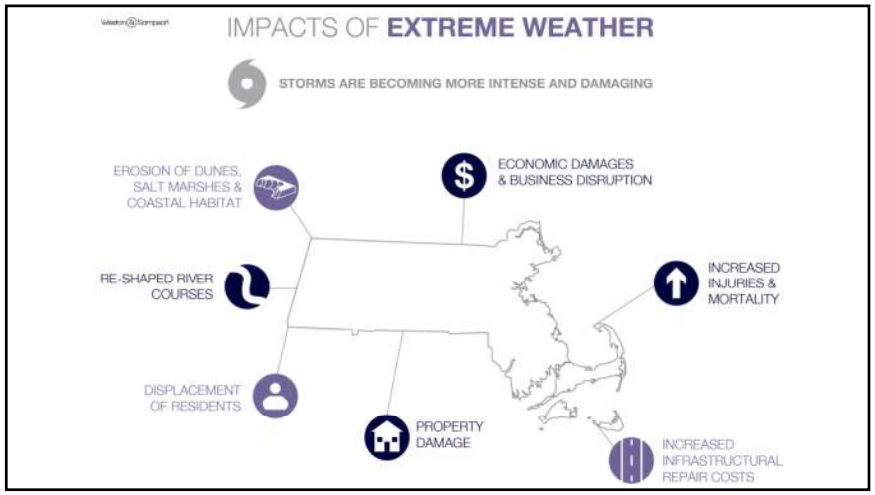

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INLAND FLOODING

Inland Flooding: Non-coastal flooding, including riverine flooding and stormwater flooding.

Stormwater Flooding:

- Poor drainage
- High amounts of impervious surface
- Undersized culverts

Riverine Flooding:

- Overtopping of banks along rivers and other waterbodies
- Can be caused by beaver activity

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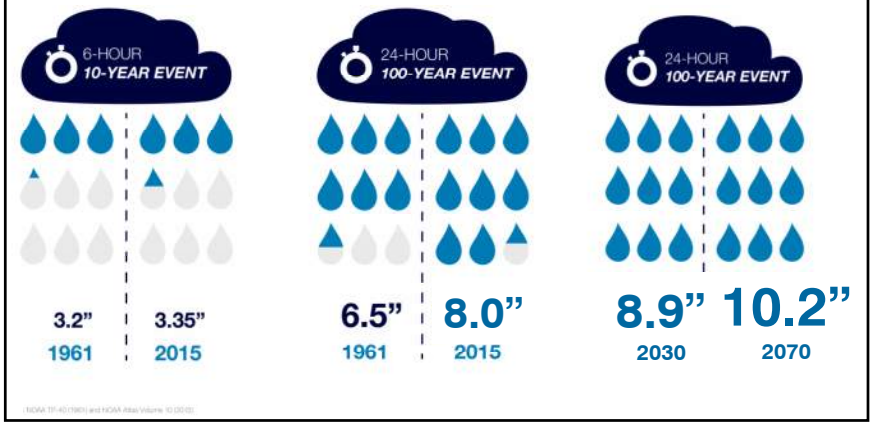
INLAND FLOODING



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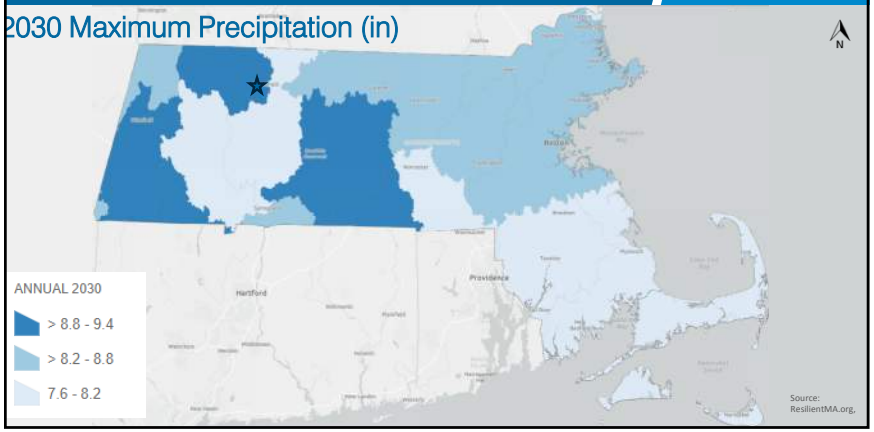
INLAND FLOODING



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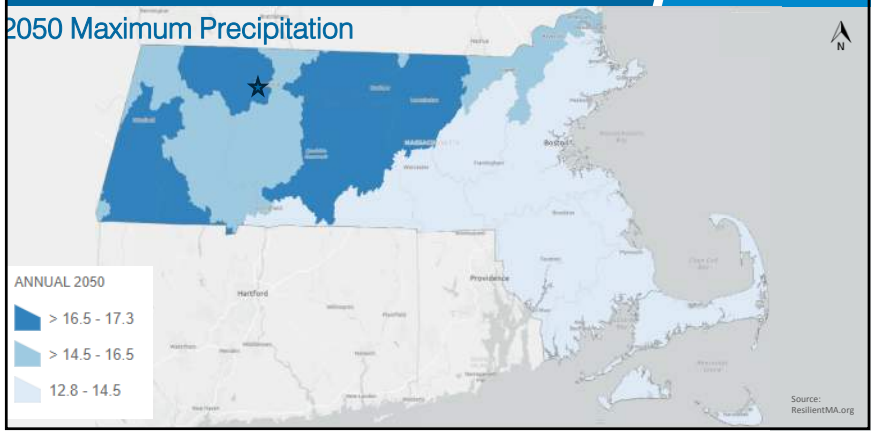
INLAND FLOODING

2050 Maximum Precipitation



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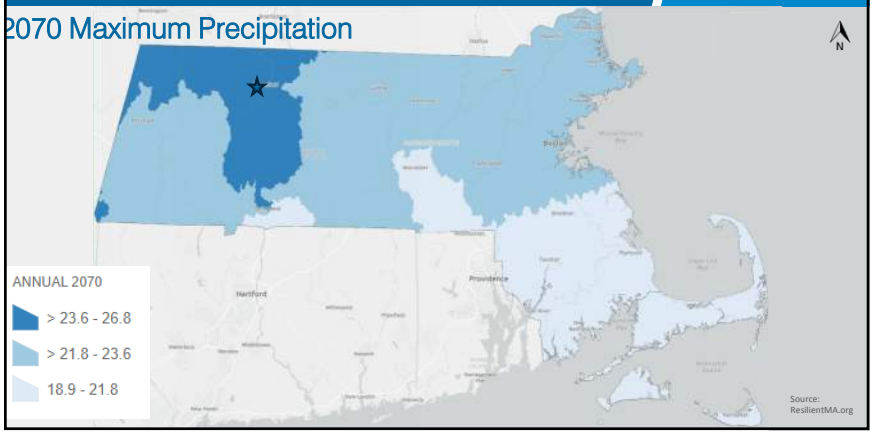
INLAND FLOODING

2070 Maximum Precipitation



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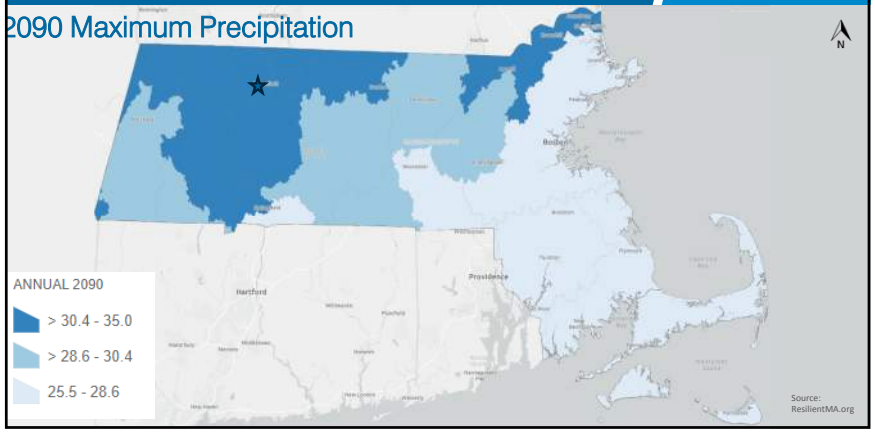
INLAND FLOODING

2090 Maximum Precipitation



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INLAND FLOODING

Key areas of concern in Shelburne

- Deerfield River
- Dragon Brook
- Hinsdale Brook
- Beaver Dams

In Shelburne, the 100-year floodplain covers about 333 acres, or approximately 2% of the town (1980)

PRECIPITATION DURING **HEAVY EVENTS** IN THE NORTHEAST **INCREASED BY MORE THAN 70%** BETWEEN 1958-2010

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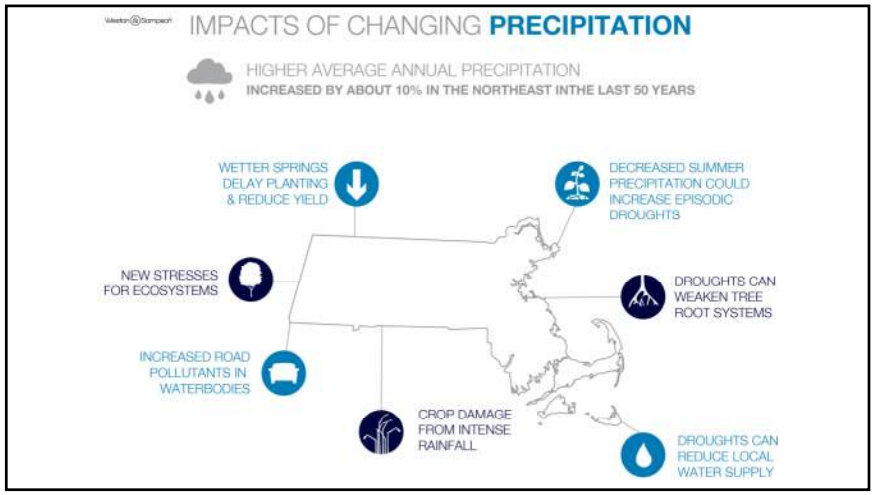
IMPACTS OF CHANGING PRECIPITATION
HIGHER AVERAGE ANNUAL PRECIPITATION
INCREASED BY ABOUT 10% IN THE NORTHEAST INTHE LAST 50 YEARS
WETTER SPRINGS DELAY PLANTING & REDUCE YIELD
DECREASED SUMMER PRECIPITATION COULD INCREASE EPISODIC DROUGHTS
NEW STRESSES FOR ECOSYSTEMS
DROUGHTS CAN WEAKEN TREE ROOT SYSTEMS
INCREASED ROAD POLLUTANTS IN WATERBODIES
CROP DAMAGE FROM INTENSE RAINFALL
DROUGHTS CAN REDUCE LOCAL WATER SUPPLY

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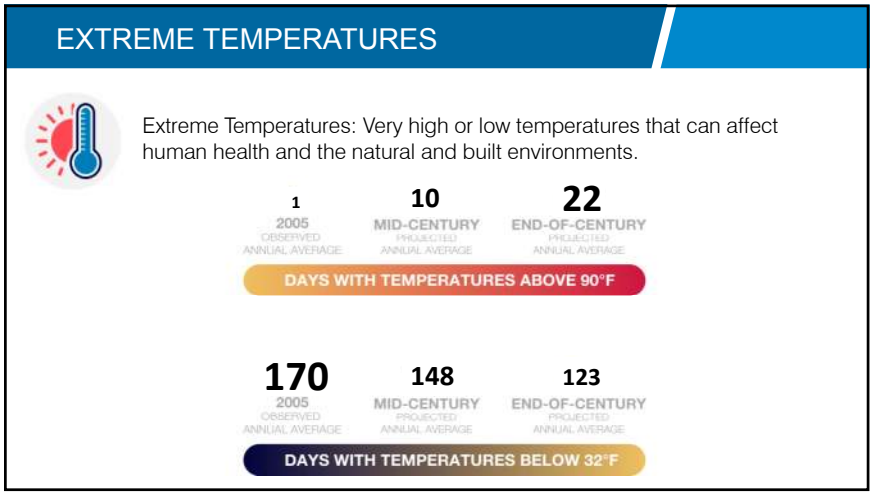
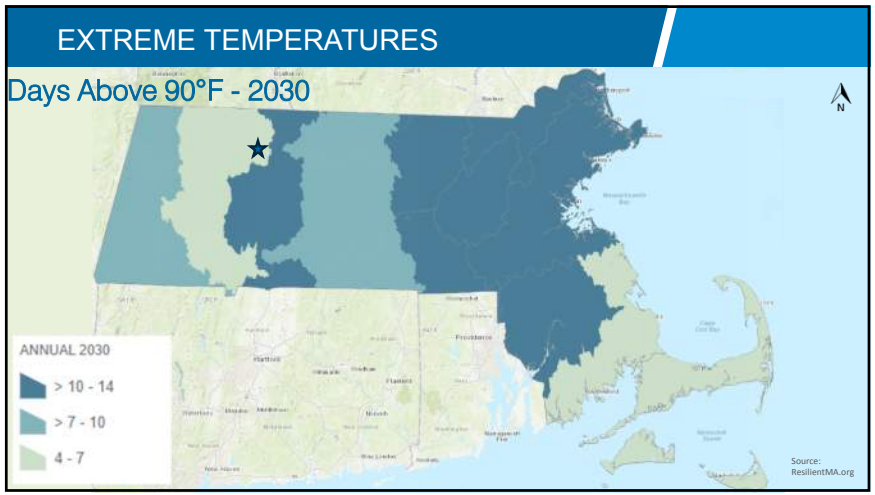

EXTREME TEMPERATURES
Extreme Temperatures: Very high or low temperatures that can affect human health and the natural and built environments.
1
2005 OBSERVED ANNUAL AVERAGE
10
MID-CENTURY PROJECTED ANNUAL AVERAGE
22
END-OF-CENTURY PROJECTED ANNUAL AVERAGE
DAYS WITH TEMPERATURES ABOVE 90°F
170
2005 OBSERVED ANNUAL AVERAGE
148
MID-CENTURY PROJECTED ANNUAL AVERAGE
123
END-OF-CENTURY PROJECTED ANNUAL AVERAGE
DAYS WITH TEMPERATURES BELOW 32°F

34


EXTREME TEMPERATURES
Days Above 90°F - 2030
ANNUAL 2030
> 10 - 14
> 7 - 10
4 - 7
Source: ResilientMA.org

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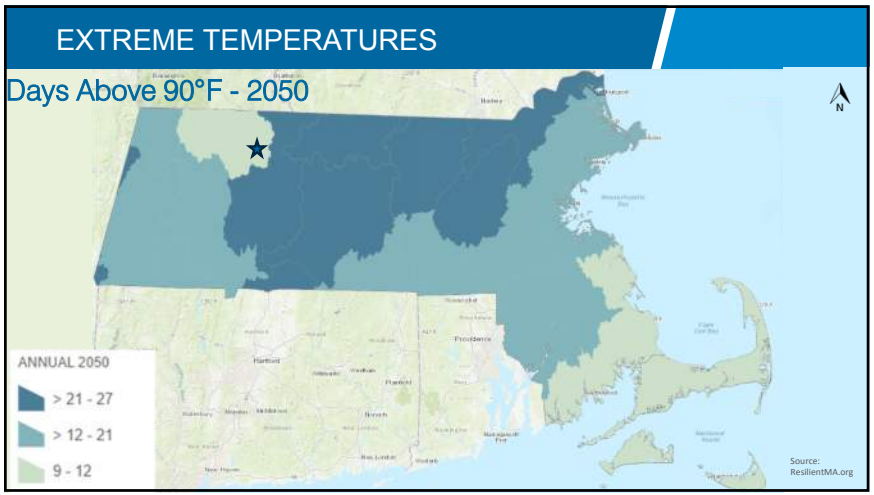
EXTREME TEMPERATURES
Days Above 90°F - 2050
ANNUAL 2050
> 21 - 27
> 12 - 21
9 - 12
Source: ResilientMA.org

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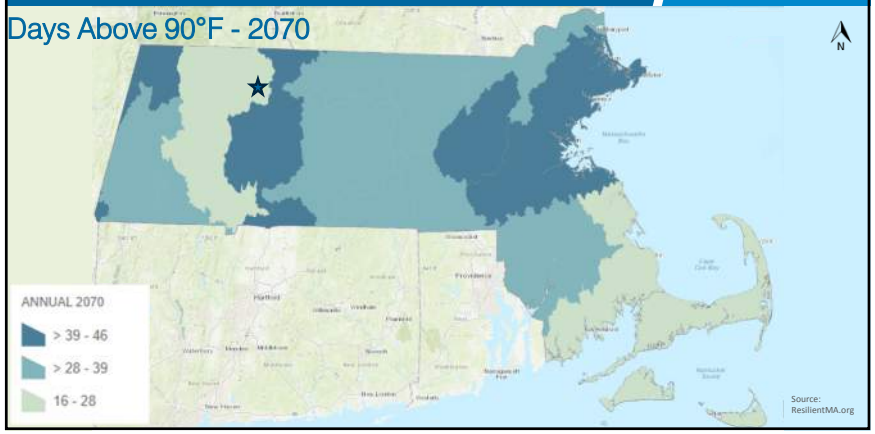
EXTREME TEMPERATURES

Days Above 90°F - 2070



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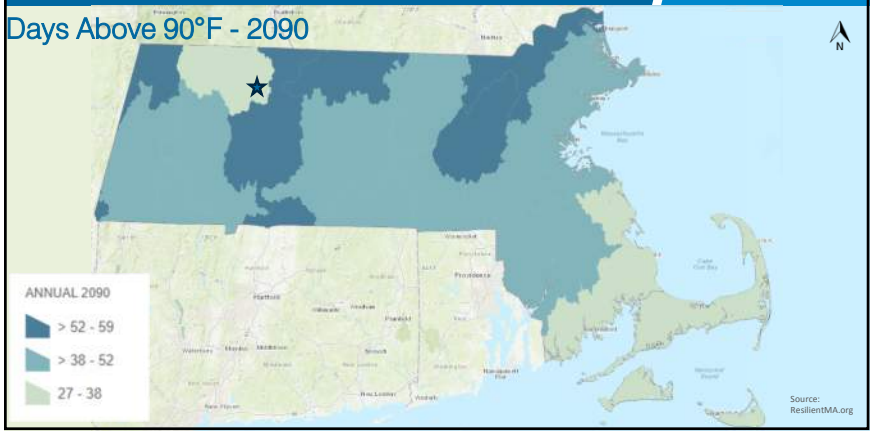
EXTREME TEMPERATURES

Days Above 90°F - 2090



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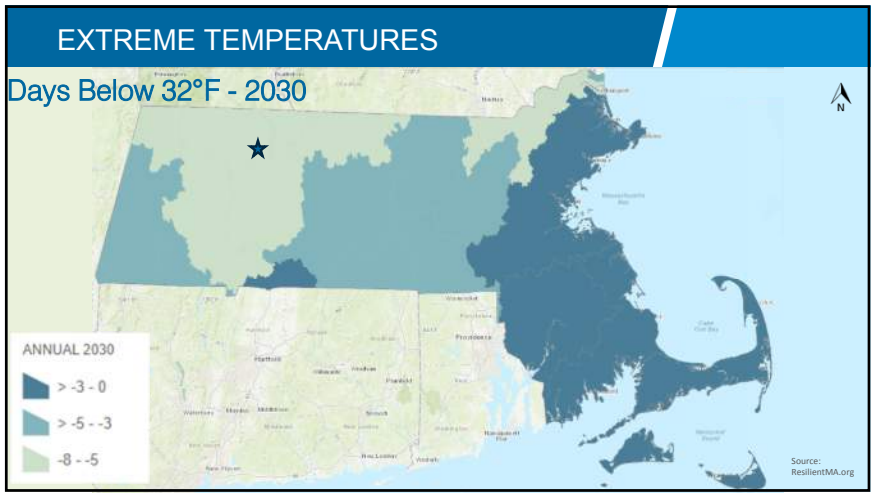
EXTREME TEMPERATURES

Days Below 32°F - 2030



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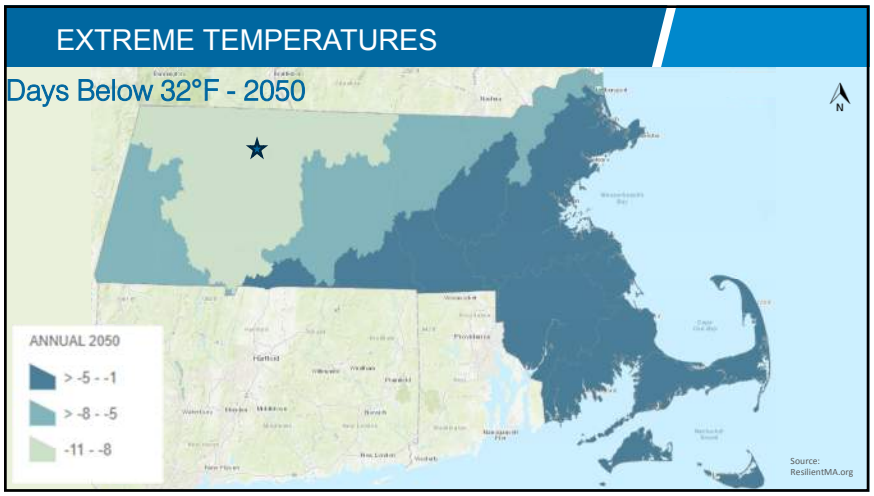
EXTREME TEMPERATURES

Days Below 32°F - 2050



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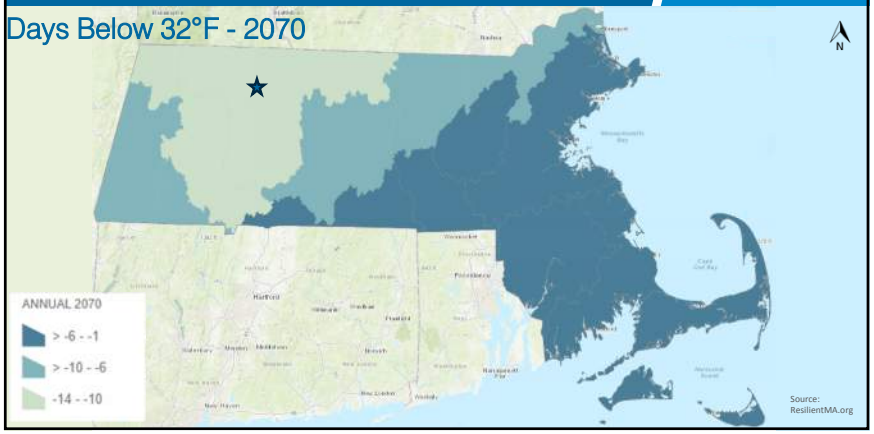
EXTREME TEMPERATURES

Days Below 32°F - 2070



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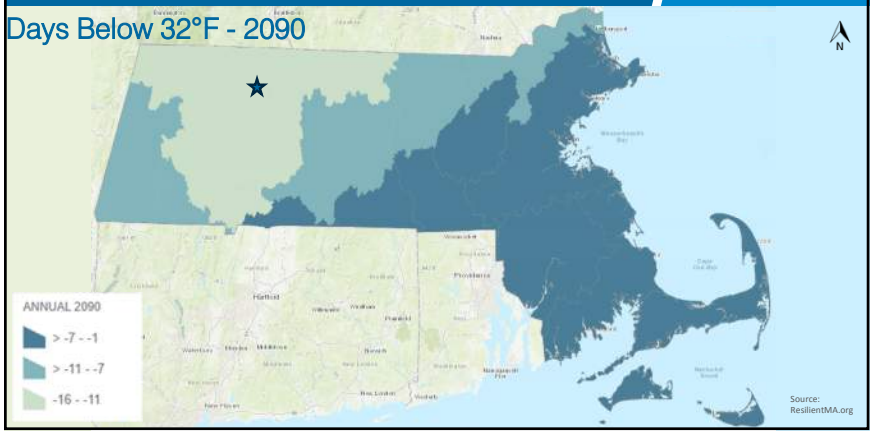
EXTREME TEMPERATURES

Days Below 32°F - 2090



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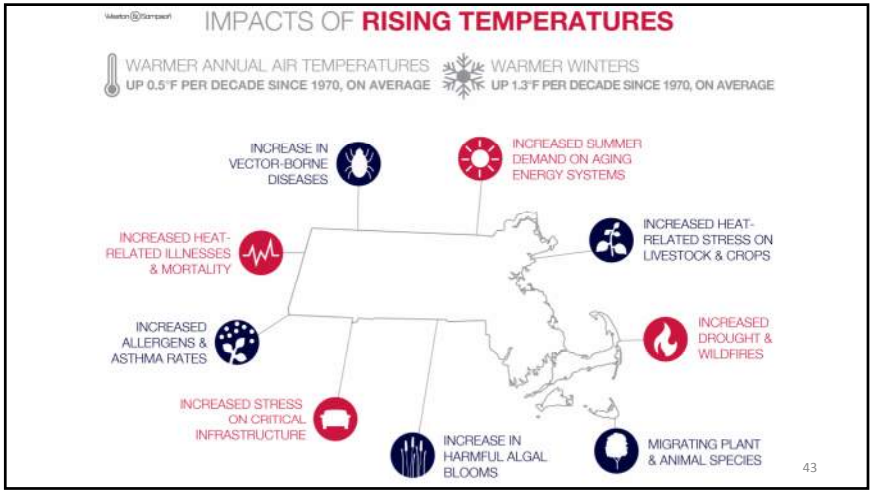
IMPACTS OF RISING TEMPERATURES



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INVASIVE SPECIES

Invasive Species: A non-native organism (disease, parasite, plant, or animal) that spreads and can cause harm to the environment, economy, or human health.

Examples of pests threatening Massachusetts' forests include:

- **Asian long-horned beetle**
- **Emerald ash borer**
- **Hemlock Wooly Adelgid**
- **Spongy (Gypsy) Moth**

Invasive plants are also a threat to our native New England species

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DROUGHT

Drought: A prolonged period of very low rainfall, leading to a shortage of water.

More rainfall during large events could mean longer gaps of little or no rainfall locally.

Hot days combined with soil moisture increase drought conditions

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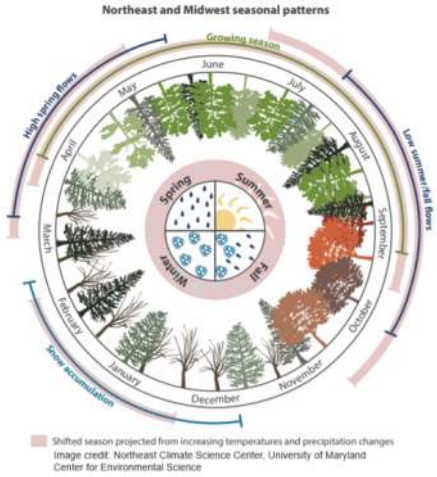

The drought in 2022 affected Franklin county and impacted agricultural activities.

The occurrence of droughts **lasting 1 to 3 months** could go up by as much as **75% over existing conditions** by the end of the century, under the high emissions scenario.

What was the drought response in 2022?

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BRUSHFIRE

Brushfire: An unplanned, destructive fire that spreads quickly over woodland, brush, or an urban environment.

In recent years, there have been no occurrences of wildfires in Shelburne.

Annually, there are between 2 to 10 brush fires in town, which typically consume less than one acre of land.

https://www.mass.gov/doc/2019-mfirs-annual-report/download

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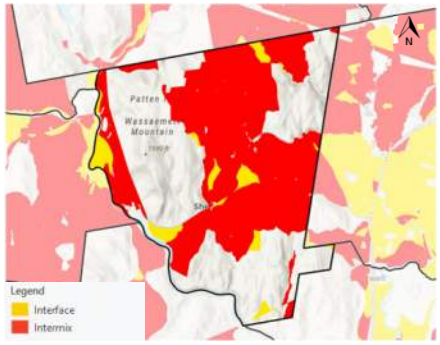
BRUSHFIRE

Brushfire Hazard Areas

Interface: Structures are adjacent to wild vegetation

Intermix: Structures intermingle with wild vegetation



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EARTHQUAKES

Earthquake: A sudden or violent shaking of the ground as a result of volcanic activity or movements within the earth's crust.

New England experiences an average of 6 earthquakes per year

There is no record of any damage to the Town of Shelburne caused by earthquakes

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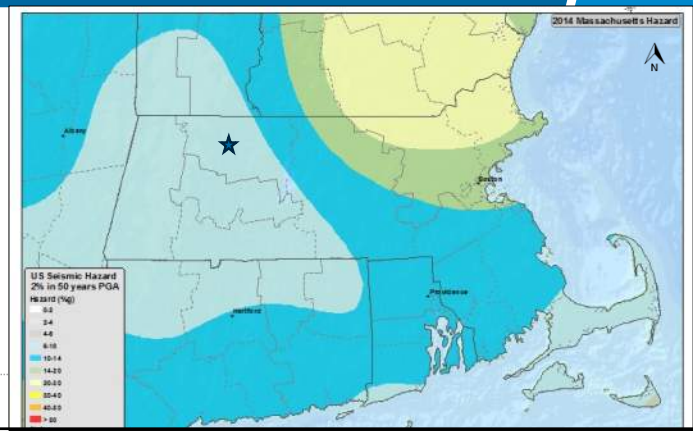
EARTHQUAKES



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LANDSLIDES

Landslide: Sliding of a mass of earth or rock down a steep slope.

Hinsdale Brook

- Flooding along the Hinsdale Brook has caused frequent erosion, landslides and slumping along the banks of the brook.
- This has resulted in the temporary closure of an evacuation route, Brook Road

Deerfield River Valley (northwest side of town)

- Shelburne has completed slope stabilization work on both private and public property around the river to prevent landslides.

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QUESTIONS?

52

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AGENDA

02 Large Group: Prioritize Top Hazards

53

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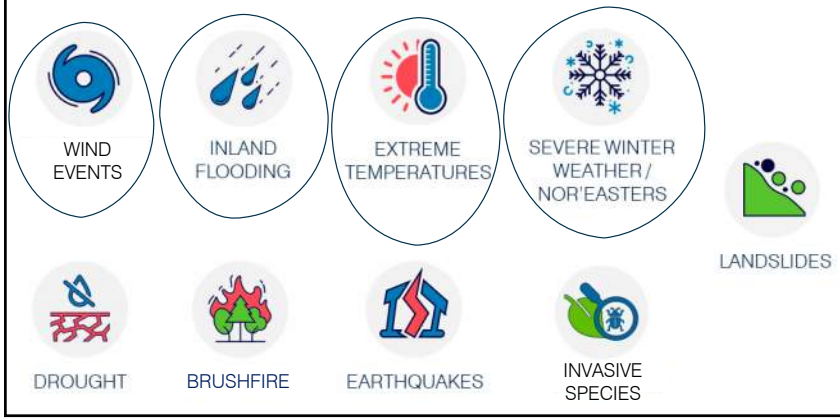
NATURAL HAZARDS IMPACTING SHELBURNE



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10 MINUTE BREAK

55

55

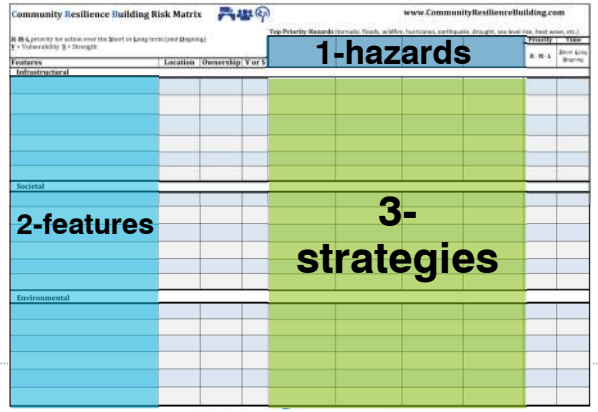
AGENDA

03 Small Group: Risk Matrix Features

56

56

RISK MATRIX



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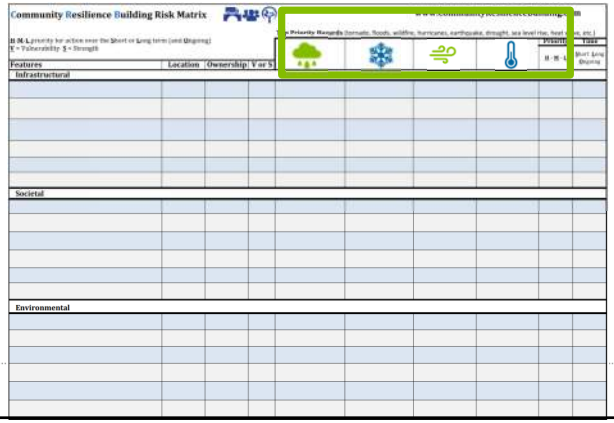
RISK MATRIX: HAZARDS



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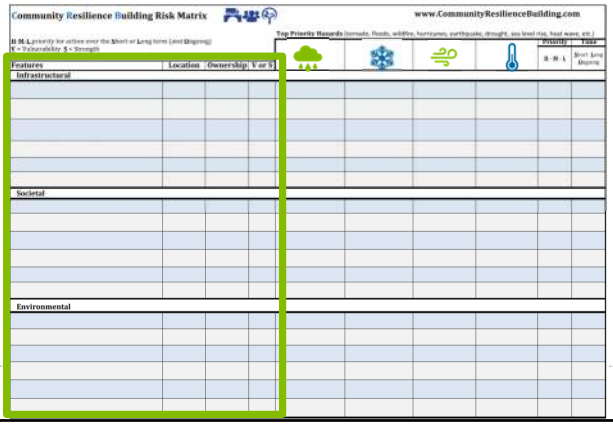
RISK MATRIX: FEATURES



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RISK MATRIX: FEATURES

FEATURES	LOCATION	OWNERSHIP	VULNERABILITY OR STRENGTH
Infrastructural	Town wide	State	Vulnerability
Societal	Multi- vs. Single-neighborhood	Town	Strength
Economic	Specific location	Private	Both
Environmental		Shared	

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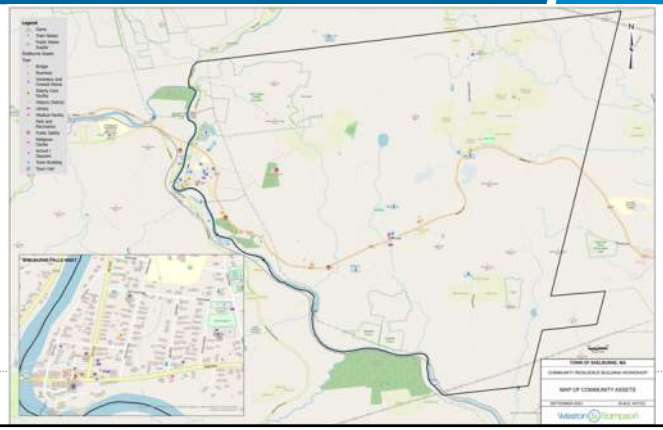
LIFELINES AND CRITICAL FACILITIES



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RISK MATRIX: INFRASTRUCTURAL FEATURES

- Emergency Services
- Drinking Water
- Wastewater
- Stormwater
- Electrical & Communications Network and Infrastructure
- Dams
- Culverts and Bridges
- Roadways
- Emergency Shelters

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RISK MATRIX: SOCIETAL FEATURES

- Agriculture
- Tourism
- Historic Villages and Buildings
- Senior Populations
- Emergency Shelters
- Schools
- Climate Migration
- Health Department
- Community members with disabilities

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RISK MATRIX: SOCIETAL FEATURES

Population	Franklin County	Massachusetts
2022	70,894	6,981,974
2010	71,372	6,547,790
Age		
Under 18 years	16.4%	19.2%
65+ years	24.9%	18.1%
Economics		
Median household income	$64,949	$89,026
Persons in poverty	10.7%	10.4%
Additional Information		
Bachelor's degree or higher	38.8%	45.2%
With a disability	12.1%	7.9%

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US Census Bureau, ACS 2021 Estimates

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RISK MATRIX: ENVIRONMENTAL FEATURES

- Open Space and Trails
- Parks
- Ponds & Lakes
- Wetlands, Streams & Rivers
- Trees & Forests
- Agriculture & Farmland
- Invasive Species
- Wildlife

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3 Small Group Exercises

01 Infrastructure and Building Features

02 Societal Features

03 Environmental Features

20 minutes for each exercise
Feature, owner, location, strength/vulnerability

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REPORT OUT

Choose a speaker for your table to report out key features

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LUNCH (15 MIN BREAK)

While you eat, we will present on item 5

68

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AGENDA

05 MVP Community Actions / Strategies

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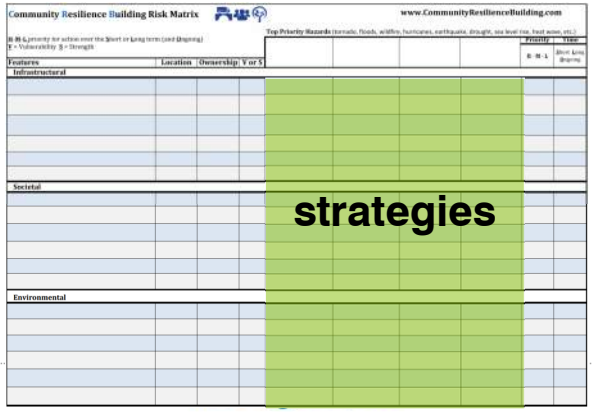
RISK MATRIX: STRATEGIES



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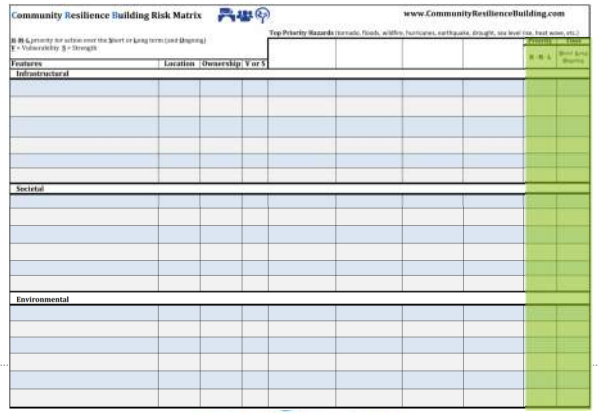
RISK MATRIX: PRIORITY & TIMEFRAME



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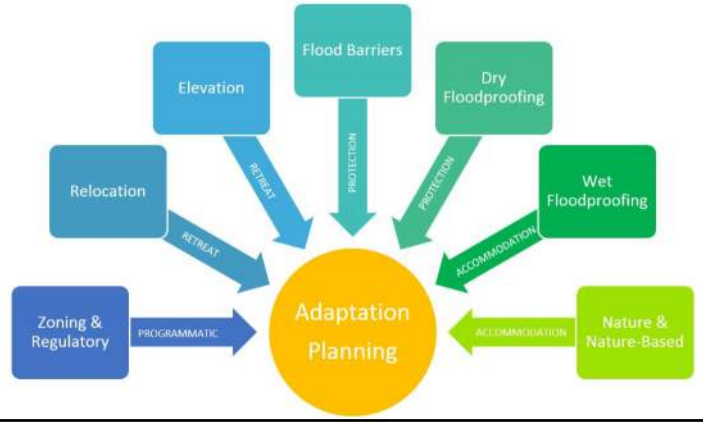
ADAPTATION STRATEGY TYPES



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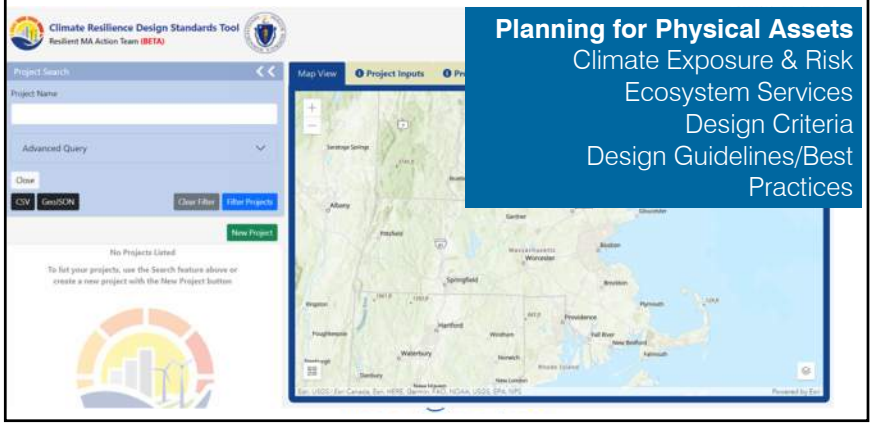
CLIMATE RESILENCE DESIGN STANDARDS



Planning for Physical Assets
Climate Exposure & Risk
Ecosystem Services
Design Criteria
Design Guidelines/Best Practices

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NATURE-BASED SOLUTIONS

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STORMWATER/LID STRATEGIES

- Create Sub-Surface Stormwater Storage
- Implement Green Infrastructure (GI) Opportunities For Stormwater Management
- Reduce Impervious Surfaces in Developed Areas

75

STREAM RESTORATION

BANK RESTORATION & STABILIZATION


Live Crib Wall


Vegetated Retaining Wall


Joint Planting


Gabions

CULVERT WIDENING TO IMPROVE HABITAT & FLOW

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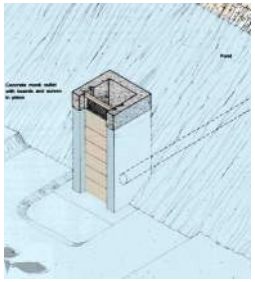
DAMS

Dams with Potential for Increased Storage or Drawdown



Dam Removal Candidate

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ROAD-STREAM CROSSINGS

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GRAVEL ROADS

- Road Surfaces
- Sub Surface Drainage
  - French Mattress
  - Underdrain
- Ditches
- Outlet Protection
  - Rock Apron
  - Splash/Plunge Pool
- Bank Stabilization
- Sediment Control & Traps
- Green Infrastructure

MVP

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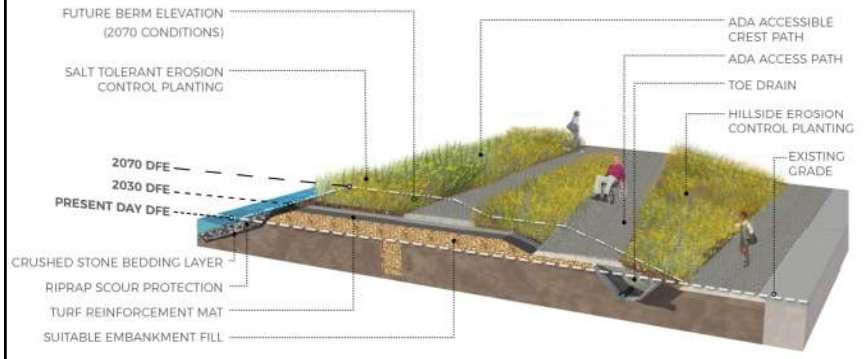
VEGETATED BERM



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RE-EVALUATE LOCAL REGULATIONS & POLICIES

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RENEWABLE ENERGY/MICROGRIDS

82

CHILDCARE

Information Background Outcomes Objectives Criteria

KNOWLEDGE

TRANSPORTATION

FOOD

TRANSLATION

TECHNOLOGY

REDUCE BARRIERS TO PARTICIPATION

83

WORK WITH VOLUNTEERS

NJ0

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PUBLIC HEALTH

- Wellness checks
- Database of residents at risk of isolation
- Community Emergency Response Teams (CERT)
- Mobile markets
- Housing upgrades and investment

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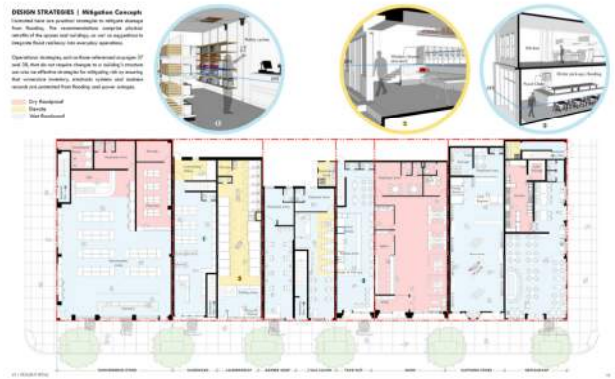
LOCAL BUSINESSES



SHELTERS, HEATING & COOLING CENTERS

HOUSEHOLD PREPAREDNESS

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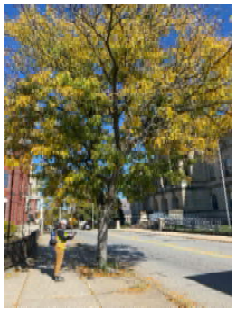
WETLAND RESTORATION

Wetlands in Troy, New York

REMOVAL OF INVASIVE SPECIES

Invasive Japanese Knotweed in Arlington, MA

TREE OR FOREST MANAGEMENT



Tree species, placement, and maintenance recommendations

LAND ACQUISITION

As part of an MVP Action Grant, Mattapoisett purchased 120 acres of forest, streams, freshwater wetlands, and coastal salt marsh as conservation land to prevent development in vulnerable areas

Image from EOEAA, 2019

REMEDIATE CONTAMINATED SITES

Medfield State Hospital, Remediation along the Charles River

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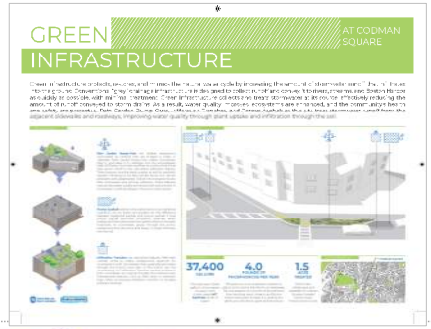
EDUCATION, OUTREACH, SIGNAGE



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Small Group Exercises

01 Identify community actions for infrastructure, societal, and environmental features (30 min)

02 Prioritize community actions (15 min)

03 Identify action timeline (5 min)

50 MINUTES TOTAL

95

95

10 MINUTE BREAK

96

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REPORT OUT

Choose a speaker for your table to report out on your top 3-5 actions

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AGENDA

06 **Large Group: Determine Overall Priority Actions**

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CONSENSUS ON PRIORITY ACTIONS

- Each participant gets 3 stickers
- Place your stickers on the 3 priority action items you most agree with

NOTE: All the priority action items determined here today will be included in the final report!

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QUESTIONS?

Next Steps

Community listening session (October 2023)

Final Project Report (March 2024)

MVP Action Grants (April 2024)

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transform your environment

101

thank you

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Legend

- Dams
- Train Nodes
- Public Water Supply

Shelburne Assets

Type

- Bridge
- Business
- Cemetery and Funeral Home
- Elderly Care Facility
- Historic District
- Library
- Medical Facility
- Park and Recreation
- Public Safety
- Religious Center
- School / Daycare
- Town Building
- Town Hall

N

SHELBURNE FALLS COMMERCIAL DISTRICT INSET

Esri Community Maps Contributors, MassGIS, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Map data © OpenStreetMap.com

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Scale In Feet

TOWN OF SHELBURNE, MA

COMMUNITY RESILIENCE BUILDING WORKSHOP

MAP OF COMMUNITY ASSETS

SEPTEMBER 2023 SCALE: NOTED

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Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

SHELBURNE, MA

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S	EXTREME WEATHER/ WIND EVENTS	INLAND FLOODING	EXTREME TEMP (HEAT/ COLD)	DROUGHT	Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Farms			S/V				ID alternative water sources/hydro study to site farm ponds		
Generators	limited dist.		S/V						
Local Roads / Evac. Rtes.	rural parts Rte 2 - V/S)	not state	V	Drainage plan / leverage the county inventory of high prior culverts	along w/ RMAT designation	Connect to MADOT to ID high priorities protect evac routes		H	S
Culverts / Aging Infra			V		WL friendly culvert upgrades Surface water ~~sto~~ modeling				
Electric / Telecom / Cell Network			S/V	Expand cell tower access + increase power support	develop diff comm channels	(eg fire whistle)		H	
Water + WW (bridge of flowers)			V						
Societal									
Agricult. Community			S	Public educ re-farming	Diversify ag practices (2)	Develop community gardens			
Older Adults / Mobility / Health Vulnerab + Low Income Families			S/V	Diversify comm channels + improve list of isolated + vulnerable popns + system of emerg comm thru partnerships				H	
				Encourage neighbor checkins + comm bldg via school for intergenerxl activity, eg Cafe			community (learning from older adults)		
Medical Facilities / Health Ctr.			S/V			Assess cooling / heating / dehumid. / flooding needs of vul pop + obtain grant $ to address needs, beyond infra, $ / grants for individuals			
Shelters	Council Gym BSC		S/V	(* Energy resilience + HS energy mtg)					
Libraries			S						
Cult Facil. / Senior Ctr.	memorial hall		S						
Local Business			V						
Demographics / Youth (Clocking)			V						
Environmetal									
Forested Land - protected ree			S/V		Identify means to protect intact NR existing watershed	Resilient LU planning for forestry eg. restoration,	aff housing + (inc. w OSRP) comm LT + Forest Clim Planning	H	L
L private			S/V						
Foxbrook Reservoir	Colrain / St.		S/V						
Brooks + Streams	localized fld.		V						
Deerfield River (3 sp native trout)			S		Increase activity at river + improve access (to expand support for its protection) using volunteers; Deerfield River Party + better communication			H	
Train / Haz Mat			V						
Riparian buffers			S/V						
				Better communication for these efforts				H	

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S	EXTREME winter WEATHER/ WIND EVENTS	INLAND FLOODING	EXTREME TEMPERATURES	DROUGHT	Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Town Hall / Town Buildings (does it have a generator?)	Shelburne Falls	Town	V+S						
Water and Wastewater Systems — Water Wells, water dist + Sewer; WTP is in Buckland; Rural: Collection wells + Septic	Call Road → Route 112 for water Dist	Water = Shelburne Falls Fire District; Sewer = Buckland Sewer	V						
Electric / Gas / Telecom Utilities — Gas = Propane or Oil Tanks; CELL SERVICE	Town Wide	Elect+Tel = Private; Propane/Oil = Private	V						
Dams / Bridges — Route 2, Iron									
Farms — Lots of farms going out of service, left to transition back to natural land	Rural Shelburne	Private or Protected (conserved by a) Land Trust	V+S	Educational Efforts based on youth/schools (Franklin Technical Schools)			• Efficient water/irrigation • BIOCHAR. • Agricultural Preservation Regulations		
Local Roads / Intersections / Railroads/Airports									
Evacuation Routes (Roads)									
Public Safety Facilities (Police, Fire) — Emergency Service Radios use cell towers = poor service		District Fire + Police = Town	V+S						
Route 2/112 • Culverts/Aging Infra	Town wide	Town	S (can/ could be stronger)		• Wildlife friendly updates to culverts when upsizing • Surface Water Modelling/Assessment				
Warming/Cooling Shelters									
Societal									
Elderly Citizens / Elderly Care Facilities / Nursing Homes (Elderly people/ Fill town pool/ no youth to fill it)	Town wide		S/V						
Faith-based organizations/ Religious facilities — Churches do not have a lot of youth members	Town wide		S						
Homeless Population									
Climate Vulnerabile Populations / Environemental Justice Communities									
Agricultural Community									
Youth / Schools / Daycares — Largest geographic School district in state (9 Towns)	Regional		V (Limited $$)	Mass Audobon Youth Climate Corps	Get a funded intern position Green Job Education Program				
Medical Facilities (Clinics, Pharmacies)									
Local Businesses									
~~Oakdale~~ Tribal Center			S						
Arts + Culture → tourism, don't always have places to stay airbnb + housing issue	Downtown Shelburne Falls		S/V						
Environmetal									
Parks and Recreation Areas	Townwide	Private + Public + Non-profits	V/S				"Dynamic Forest Restoration Blocks"		
Public Drinking Water Supply					• Provides a forester • Assesses vuln. of each stand • Provides Recommendation • could be all municipal parcels at each site				
Protected Open Space / Wildlife Sanctuary				DCR Forest Stewardship funding Climate Plans for Public/Private Lands					
Forested Land — • Lots of Protected land being managed • Private land owners not managing land	Townwide	Private + Public	V/S		} Passive + Active Management	"Resilient Land Use Planning" → housing, Ag, forestry	Community Land Trust • land is owned by the trust • keeps land affordable and in use for housing		
Deerfield River / Watershed	Shelburne Falls	Commercial on the banks	V/S						
Brooks and Streams		Private Lands					CPA funding		
Riparian Buffers									

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

H-M-L priority for action over the **Short** or **Long** term (and **Ongoing**)
V = Vulnerability **S** = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S	EXTREME WEATHER/ WIND EVENTS	INLAND FLOODING	EXTREME TEMP (HEAT/ COLD)	DROUGHT (increased fire risk)	Priority H-M-L	Time Short Long Ongoing
Infrastructural	look upstream, too			prepare/respond	prepare/respond	prepare/respond	prepare/respond		
Town Hall / Town Buildings — Hwy Dept. — town records/archive (contents)		town							
Water and Wastewater Systems — wells & sewage treatment (involves Buckland)	wells – Shelburne; treatment – Buckland; Bridge of Flowers/water main	Shelburne – Buckland towns	V						
Electric / Gas / Telecom Utilities — both land/wired (V to wind) and cell towers; more prevalent as supply; generators		S = reverse 911; mixed	electric V; telecommunication	community-driven pro-active communication to Eversource; communication services	micro-grid/advocacy + development (local control) esp public services	back-up generators for heat/cool centers – air quality; Q: what constitutes full/partial shelter? How to communicate this?			
Dams / Bridges — culverts (undersized = V) + the river itself (and its channel; properly sized = S); high water affects structure		mixed	V/S	pro-active re-designs to current standards/projected needs; FRCOG culvert assessment – implementation	→ w/ prioritization; MASS DEP culvert upgrade funding – investigate				
Farms — food supply = S/V; economically = S; water absorption = S		private + nonprofit	V/S	tap farmers' resources to respond to crises	incorporate schools to help w/ funding		more funding for irrigation, water capture, etc. – but pro-actively, not reactively		
Local Roads / Intersections — freeze/thaw cycles affecting mud season; gravel roads/washouts/undermining		town, State	V	study possibility of re-engineering esp un-paved roads – road improvement plan →	address increased precipitation + water flows →	address freeze/thaw changes			
Evacuation Routes (Roads)	Closing Bardwell Ferry's Bridge eliminated evac. rte.	Shelburne; Conway Towns	↓	legislation push – funding + policy push re: rural infrastructure					
Public Safety Facilities (Police, Fire)		town	S/V						
Cowell Gym; Schools (shelter) — MTR – some generator-supported space (3)		School District	S/V						
Senior Center (heating, cooling, shelter, disseminate info)		3 town foundation	S/V						
Societal — what equipment are they dependent on? where are people, what needs do they have?									
Elderly Citizens / Elderly Care Facilities / ~~Nursing Homes~~ Assisted Living — distributed throughout town; working kitchens	LaBelles; Highland Village	private; public	V	identify vulnerable populations; what are needs? transportation needs	assessment through community / integrity of residence — build intergenerational connections between elderly + youth		①		
Faith-based organizations/ Religious facilities	located high		S						
Homeless Population / Displacement			V						
Climate Vulnerabile Populations / Environemental Justice Communities — esp. elderly			V/S						
Agricultural Community — food security/local source; mutual aid; access to/use of heavy equipment			S	(see farms above)					
Youth / Schools / Daycares — water St.; capstone project			S						
Medical Facilities (Clinics, Pharmacies) — new community clinic in-process	Baker's Pharmacy; Topolski MD		S	support development of community clinic — build community; individual health					
Local Businesses — emergency supplies; staging area (Audubon Hardware; Shelburne Farm; Garden)	McCuskers (Buckland); Keystone (Shelburne); Zigs Stations		S/V						
Inter-group communication (i.e. town + power company dropping levels)			S	"drop-in/conversations/connectors/mixers around town that helps communicate what's happening; needs					
Tourist population — economic vulnerability; unable to respond in emergency			V						
Environmetal — NGO's			S						
Parks and Recreation Areas (3)	distributed throughout town		V/S						
Public Drinking Water Supply — back-up power for water supply?	see map		V/S						
Protected Open Space / Wildlife Sanctuary — Mass Audubon	High Ledges	mixed – but mostly private	V/S						
Forested Land — invasive species; tourist/recreation draw; carbon sequestration		mixed – mostly private	V/S						
Deerfield River — 3 species of trout – uniqueness in Mass.; flooding; river recreation (tubers, kayakers)			V/S	clearer alliances – coordination – communication amongst interested groups	more activity = more awareness; care / more volunteers with more access		②		
Brooks and Streams		multiple ownership / communication	V/S						
Riparian Buffers — invasive species expanding – Japanese Knotweed; re-establish riparian buffers – helps mitigate conditions		farmers	V/S						
Train / Haz Mat	Highly dependent on mitigation/prevention actions		↑			communication re: evacuation plans for derailment/fire/spills			

Community Resilience Building Risk Matrix

Table 3

www.CommunityResilienceBuilding.org

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S	EXTREME WEATHER / WIND EVENTS	INLAND FLOODING	EXTREME TEMP (HEAT/COLD)	DROUGHT	Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Town Hall / Town Buildings			S						
Water and ~~Wastewater~~ Systems ✓		bridge - FD.	V/S	• Expand cell tower access + increase comm support.	• Rebuild bridge w/ protection of water line (Fire Dist)		•		S
Electric / Gas / Telecom Utilities	✓ cell network apps		V/S	• Develop alt comm channels (radio)	X - Generate renewable energy locally (wind, hydro, solar) - Explore energy grid redesign for W. F. CO control.		• Bury power lines • Increase generators		M/L
Dams / Bridges ✓	+ Harriman Res.		V	• - Contact dam owner to get preparedness plan.	• Develop mitigation + preparedness plan (e.g. Mohawk HS would be flooded, making it an unsafe shelter)				S
Farms ✓			V		•	•	•		
Local Roads / Intersections Rte 2 ✓	Bridges = aging Infrastructure culverts/erosion		V/S	•	•	Q: design criteria for culv • Educate residents for shelter in place / preparedness • Develop road assessment	• Fund hardened infrastructure		S M/L
Evacuation Routes (Roads) Rte 2			V/S	•	•				
Public Safety Facilities (Police, Fire) ✓			V/S	•	•				
Waste water ✓		2 Towns	V		• ~~Backup~~ WW lines / pump sta. Eval vuln of		• ?		S
Societal									
~~Elderly Citizens~~ / Elderly Care Facilities / Nursing Homes									
Faith-based organizations / Religious facilities Trinity Fellowship Hall			S/V		• promote Reverse 911 system / expand awareness				S
Homeless Population					improve system! Ex: Dir have one / ERC				
Climate Vulnerabile Populations / Environemental Justice Communities Seniors / low-income / single parent HHs			V	• Diversify comm. channels for emerg. response (eg hours)	• List of Seniors + fam (exists) Evacuation + local partners to	• Installing comm channels - DSL, computers	• [regional solutions]		S
Agricultural Community / Food insecurity / costs			V/S	• Community access kitchen / sites for preserving food.	• Food system plan - food needs + poss sources. local	• more local food system from local producers; educate to grow	food. community garden. (S)		M
Youth / Schools / Daycares Shelter stops when school in session									
Medical Facilities (Clinics, Pharmacies) NRHS Comm Health Ctr	BFMC		S/V	Action: Comm HC development w/ resilient design	•	[Develop HC on hill (L)]			S
Local Businesses Tourist Based			S/V	•	•	•	•		
Shelters Cowell / Fellowship Hall BSE			V/S		Public educ + awareness w/ shelters Electronic barriers				
community support / network			S	•	•	•	•		
Environmetal									
Parks and Recreation Areas ✓			S						
Public Drinking Water Supply ✓ Private wells	Colrain + Buckland		S/V	•	• evaluate opps.	•	•		
Protected Open Space / Wildlife Sanctuary ✓			S/V	•	• preserve farmland (Ch 61)	•	•		
Forested Land									
Deerfield River ✓			S/V	•	•	•	X		
Brooks and Streams Dragon Brook, etc. ✓			S	•	• ID lands to protect to maintain resilience in OSRP • Increase awareness w/ land preservation opps of critical resilient landscapes.				
Riparian Buffers riverside ✓									
train / hazardous mat'ls ✓			V	•	•	•	•		
dirt roads ✓ (gravel)			V/S	•	•				

S = absorption
V = erosion

Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.org

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S	INLAND FLOODING	EXTREME TEMPS	DROUGHT	SEVERE WEATHER (WIND, WINTER WEATHER NOREASTERS)	Priority H-M-L	Time Short Long Ongoing
Infrastructural									
Town Hall / Town Buildings			V/S						
Water and Wastewater Systems			V	IMPROVE WASTEWATER RESIENCE for PUMP STATION.		IDENTIFY REDUNDANT SOURCES (ALT.)	COLLABORATE W/ BUCKLAND		
Electric / Gas / Telecom Utilities			V	COLLABORATE W/ PROVIDERS INVENTORY DEAD SPOTS	REDUNDATE COMM (HAM RADIO)		PRIORITIZE ABOVE GRID UTILITIES INVENTORY VULNERABILITIES		
Dams / Bridges			S						
Farms	Rural		V	table	AGRICULTURE/DIVERSITY	DRAINAGE/FIRE POND FARM POND/INVENTORY	HYDROLOGIC STUDY		S/O
Local Roads / Intersections	Mostly rural		V	DRAINAGE PLANS/PRIORITIZATION DESIGN CONCEPTS/IDEAS			INVENTORY BASELINE ASSESSMENT		S/O
Evacuation Routes (Roads)	Rt. 2 - Strength Str. - state Rd.	unlessed/closed maintain	V/S	MADOT CONSULT/IDENTIFY BOTTLENECKS/CHOKE POINTS			SNOW EVAC. PRIORITY STATE HIWAY PROJECTS		
Public Safety Facilities (Police, Fire)	Village's Rural		V/S						
Generators in General		S - if no harvetshom		INSTALL GEN SETS.	INVENTORY/GAPS	PUMP WATER	FEASABILITY/FUNDING - PRIORITIZATION		
Fire Ponds?									
Societal									
Elderly Citizens / Elderly Care Facilities / Nursing Homes	Rural Village		V	IMPROVE COMMUNICATIONS (WELLNESS CHECKS)	IDENTIFY OUTREACH PROVIDERS	WARMING/COOLING SHELTERS	LOCAL SUPPORT FOR MEDICAL CAPACITY		
Faith-based organizations/ Religious facilities			V/S						
Homeless Population			S						
Climate Vulnerable Populations / Environemental Justice Communities			S		~~INVENTORY~~ IDENTIFY VULNERABLE POPULATION		WELLNESS CHECKS ~~&~~ OUTREACH		
Agricultural Community	Farmers		V	EDUCATION (PUBLIC)					
Youth / Schools / Daycares									
Medical Facilities (Clinics, Pharmacies)		S - We have V - Rcanty 2 DGFH							
Local Businesses			V	INVENTORY THROUGH BUS. ASSOC (LOCAL ORGS) ARTS COUNCIL		AGRITOURISM/MAPLE SYRUP PRODUCTION) LONG-TERM IMPACT) (ALTERNATIVES?) DIVERSITY	NETWORKING		
Libraries; cultural facilities			S	IDENTIFY RESOURCES/TYPE PRIORITIZE CAPACITIES/AMENITIES					
Community Centers			S						
Environmetal									
Parks and Recreation Areas			S						
Public Drinking Water Supply			S/V	IMPACT ON PUBLIC WELLS		EDUCATION - RESTRICTIONS?			
Protected Open Space / Wildlife Sanctuary			S	CONSERVE INTACT RESOURCES (WATERSHED)					S/O
Forested Land			S/V						
Deerfield River			V						
Brooks and Streams			V	BEAVER DAMS INVETORY PRIORITY					
Riparian Buffets			S	INVENTORY EROSION					
TRAIN/HAZMAT									

Shelburne CRB Workshop Notes

Hazards:

- July 10-11, 2023 – got 5" rain
- July total = 18" rain
- Q: Why are western MA #s for future max precipitation higher than other parts of the state?
- Experience here is related to S VT; what happens there affects us.
- Banks are not the only thing flooding – **flooding occurs frequently in basements from inadequate drainage.**
- **Fire/smoke in the air is a big health impact**
- Q: Is increasing precipitation projection due to hurricanes? Both flashy storms and hurricanes make up precip estimates.
- We see temp and precip fluctuations leading to flowing: frozen ground melting and snowmelt runoff – "rain on snow"
- **Invasive species list can include others of concern, like the jumping worms** that are here, impacting Shelburne (& S VT). They decimate forest plants, change soil stability, lead to landslides. Like knotweed.
- Q: How should we prioritize hazards? What impacts humans? Barriers to adaptation? Disrupting natural ecosystems.
- ""It is valuable to shift from a recovery and response mindset to prevention and mitigation. It's helping us think beyond just people, to other species. The whole concept of climate adaptation opens up a much bigger window [perspective] than what we've done before."
- **We didn't include the Highway Department.**
- **Baystate Medical is accessed via Rte 2 – this is a vulnerability.**

Group conversation:

- Flooding in Dragon Brook
- **Communication issues between departments have occurred, including around COVID.**
- Forestry Foundation owns properties.
- Emergency Assistance from the Mary Lyon Foundation – students as community service
- W. County Arts and Culture – Michelle
- **Buckland – working through MVP too.**
- Carmela – they do volunteer deployment via MPC form online

Table 3 notes

Schools are a place for shelter. Mohawk, Buck-Shelburne – regional school district. Schools in flood zones, or needing to be used as school and shelter simultaneously would be a problem.

Add Fellowship Hall as a shelter– that's where people were evacuated for Irene.

Gym – cooled and heated. No showers, no kitchen.

How do people know where to go? Lack of designated shelters – and info.

Roads and bridges – Route 2. Strength, in extreme temps and drought. Some **hazards on bridges – Iron Bridge; Bridge of Flowers.** Aging infrastructure is an existing vulnerability. Also the spread out pattern of development with one road in and out to some places.

Dirt roads – many miles of dirt roads in the town, of concern. Permeable vs. erosion. Costs less to maintain (?). Cost of repair and maintenance is better than paved, and once paved, can't go back. Plowing damage and repair. May not be able to keep up with maintenance (now/future). Need people? Equipment? Hiring outside firms? Staff is hard to keep employed. Some older roads may need redesign.

Culverts – undersized/capacity is a vulnerability. **Road failures recently have been from culverts** during 100 yr flood.

Electric infrastructure – wind storms can cause trees down. Route 2 – from the grid.

Water/Wastewater – community water system is strength, esp because it's gravity fed (delivery from storage not V to power outage, but pumping is), and wells provide redundancy. But people along the river can have contamination in their systems. Power outage cuts off private wells. Drought is a hazard for water. Water pipe from groundwater goes over the Bridge of Flowers, owned by the FD.

Q: Table wonders if WW system is vulnerable to drought?

Regional Hospital.

Community Health Center of Franklin County is expanding at the high school. Resilient design may be needed, including resilient to dam failure.

Public health mobile clinic was expanded for COVID outreach. FRCOG pays for BOH services.

Vulnerability – Police Dept – Buckland requires bridge access. Does villag get separate if the iron bridge goes out? Dam could wipe them out.

Vulnerable populations – age and disability. Climate migration?

People have generators more widely now than before. Not a clean power source though…

Ag community throughout – Strength: local food access. V: one road in and out to most places. Declining. Shelburne Farm and Garden, local business, can help support with equipment for rescue at times. Food system plan might be useful, to identify what we eat and what is already grown nearby. How can we scale up a sustainable food system?

Cell service – **dead zones, emergency alerts could not be delivered bc of lack of service.**

Businesses – Tourism is major industry. Would people stop coming here? Could they support more people migrating? Limited small scale timber harvesting. Agriculture. Lots of self-employed people working from home – **loss of cell/internet connection would disrupt work. If clear weather, good. Water dependent.**

Trains with haz materials – can derail in extreme weather, heat, fire. CSX has taken over rail way from Pan Am and replacing ties, addressing some vulnerabilities.

Dragon Brook doesn't flood b/c it's a natural watershed. It would be a vulnerability if it's not protected and cared for.

River/drought did not affect Deerfield recreation businesses (Zoar) and fishermen.

Brook going to Fall River -> **assess culverts and redesign**

Fire is an issue – and if area above the town is affected.

General reportout:

Where people have interest in partnering with the Town on these projects, contact Tricia. MVP funds can be used for public-private partnerships.

Not much new building happening in Shelburne, but lots of opportunities for retrofits!

Rural funding – does exposure/risk relate to density? W/o redundancies it can be more critical. MVP coordinator will help you get funding. Regional partnerships make applications more competitive.

FRCOG can help with financial administration barriers.

Are state agencies using design standards?

Can you help us initiate conversations w/ DOT for implementing actions? They need improvements to Rte 2.

MVP Planning Grant Update

The Community Resilience Building Workshop took place on Wednesday 13 September 2023 at Fellowship Hall. Twenty-five stakeholders attended, representing Shelburne town officials, non-governmental organizations, Buckland town officials, MTRSD, business, and the farming and faith communities. At least four participants left early for other engagements and did not participate in the voting. Three staff from Weston & Sampson, Inc., the consultants hired for the MVP Planning Grant, led the workshop.

Attendees

Representatives from these Shelburne town boards, committees, or divisions participated:

- Planning Board
- Emergency Management
- Fire (Shelburne Center and Shelburne Falls)
- Agricultural Commission
- Board of Health
- Finance
- Recreation

Non-governmental organizations present included:

- Environmental groups (Mass Audubon, Deerfield River Watershed Association, Trout Unlimited, Franklin County Land Trust)
- Health and well-being organizations (Medical Reserve Corps, Council on Aging)
- Education-oriented non-profits (Mary Lyon Foundation, Library)

The diversity of the group at the meeting served as a model of resilience planning and allowed for the vital exchange of ideas and perspectives necessary to understand the complex network of systems impacted by the climate emergency.

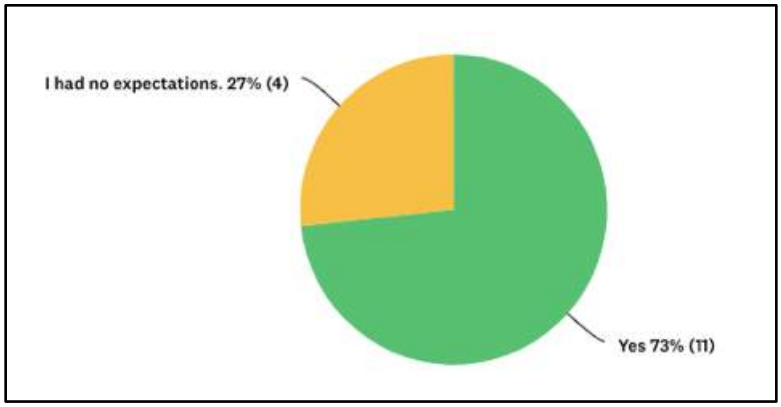
Workshop format

The workshop followed the Nature Conservancy's Community Resilience Building matrix which provides a structured format to sort through and prioritize the town's infrastructural, societal, and environmental strengths and vulnerabilities. The last part of the all-day meeting culminated in

the prioritization of items voted to be the most critical for action. The long list ranged from the sizing of culverts and integrity of dams, to concerns about incomplete communications networks and loss of evacuation routes, to the presence of detrimental invasive species in our forests and along our riversides, to the area's overall energy resilience and the vulnerability of older structures housing our elders.

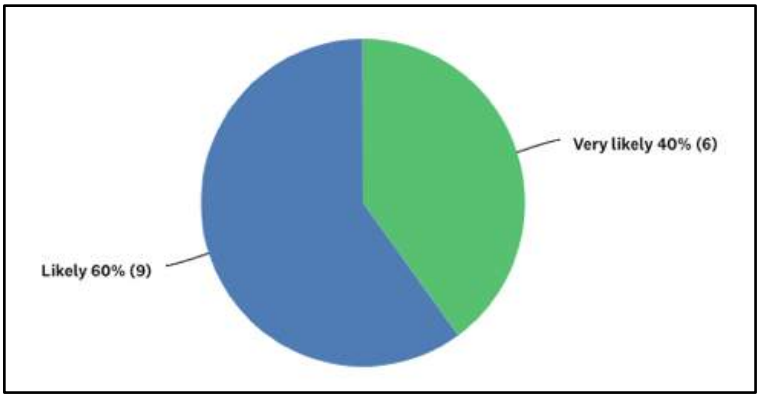
Post-workshop survey

After the workshop, participants received a link to a 9-question survey about their experience and impressions. Fifteen people completed the survey. The results were overwhelmingly positive. When asked if the **workshop met their expectations**, four people said they had no expectations for the workshop. The remaining 11 (73%) said their expectations were met:

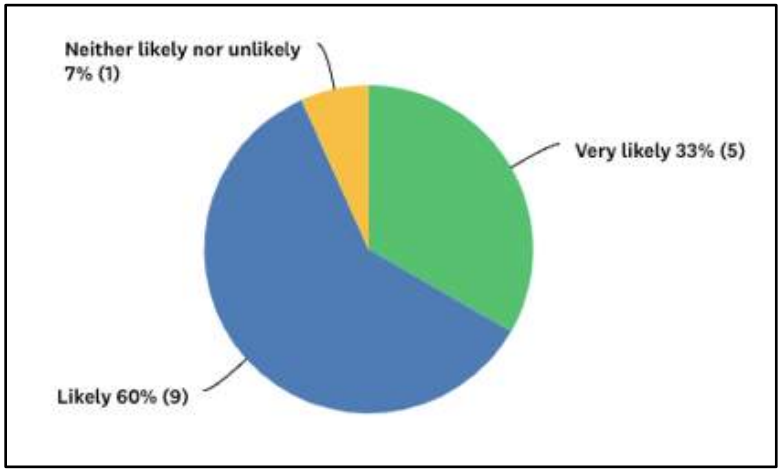


All 15 respondents (100%) agreed that the workshop provided them with **valuable information about climate and community resilience**.

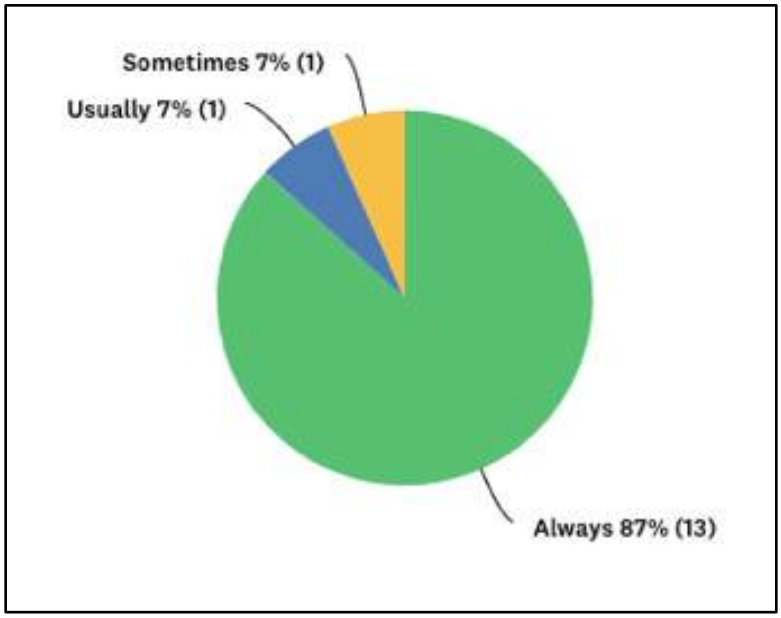
All 15 indicated that they were ***likely*** (9) **or *very likely*** (6) **to use information from the workshop** in their own committee or organization:



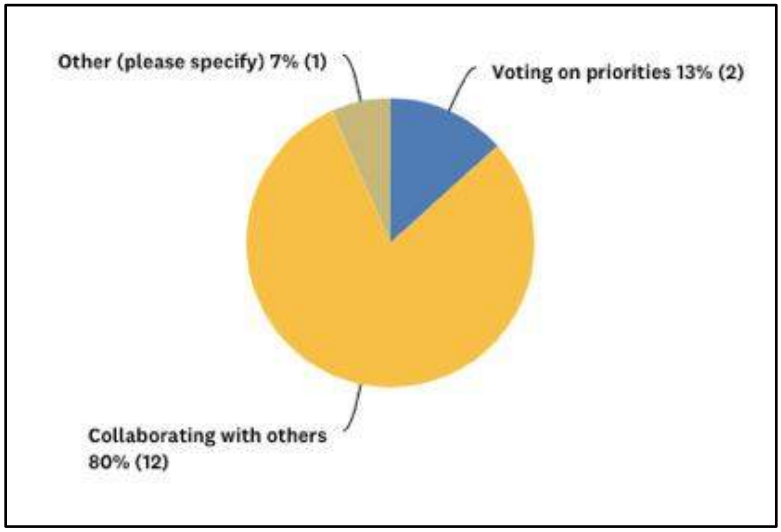
Similarly, 14 of the 15 people who completed the survey said they were ***likely*** (9) **or *very likely*** (5) **to become involved in future resilience-building** efforts in the community. One said they were neither likely nor unlikely to do so:



While most participants (13) felt their opinions were always **valued and respected by others** at the workshop, one said their opinions were usually valued and respected and another said theirs were sometimes valued and respected:



The vast majority (12) said that ***collaborating with others*** **was the MOST valuable aspect** of the meeting, while two said *voting on priorities* was of most value to them, and one chose the option for *Other* to report having a tie between *collaborating with others* and *presentations*:



Opinions about **what was of LEAST value** varied greatly among the participants, with the most (5) choosing the option for *None of the above*, followed by *Food* (4) and three choosing *Other*, which allowed them to make suggestions for improvements, such as:

- Calling this ‘community resilience,’ doesn't really address the work that we did - municipal vulnerability preparedness is much more meaningful.
- It would have been good to have some kind of physical/mental break (other than more snacks) a couple of times during the day. … The presentations were too full of info. Editing the slides down to a few of the most important points and shortening the time we had to spend looking at them would be, for me, better.
- Might have been able to accomplish the goals in 4 hours rather than 6?

The survey asked **what things participants would change for future workshops**. About half (8) said they wouldn’t change anything about the workshop. The other seven comments broke almost evenly into these groups:

- Two suggested improvements for the speakers: Speak more slowly; repeat for everyone the questions that are asked.
- Two shared that they would have preferred to better understand the ‘process’ or ‘intent’ of the workshop ahead of time.

- Two suggested having more participants who were ‘municipal officials’ or ‘at-large community members.’
- One hoped that the consultants would provide solutions that are based on “the many great MVP plans already out there” rather than one “based on our small group’s limited views.”

Finally, the attendees had an opportunity to provide **open-ended feedback** about the workshop. Ten people provided comments and five people had none. The ten responses fall broadly in these categories.

- The workshop was well run.
    - Presenters and materials were great/Great presenters
    - Happy with how well you kept to the agenda and time.
    - Great workshop/day
    - Good food
- Some parts of the workshop fell short.
    - More explanation on grant opportunities and partnering with other agencies would be very useful.
    - (A reason) people don’t evacuate from weather events…(is) care of their animals. We did not talk about animals at all.
    - The voting categories got muddy, especially towards the end.
    - Vulnerable populations…are already suffering now due to climate change …and their plight is foreign to (the participants).
- Specific areas for improvement were noted.
    - Have the slides with all the stats available on the table to refer to.
    - Label the brooks and streams on the map.
    - Maybe put a bigger map … on a wall so we could stand around it instead of hunching over the table.
- Six of the ten respondents specifically mentioned something about the group’s composition.
    - Wide spectrum of people with influence.
    - Good mix of attendees.
    - I enjoyed meeting everyone.
    - Really good to sit in the room with so many engaged people.

- Having a selectperson there would have been very good … (and) also glad that Mary Lyon Foundation was there.
- I am a bit uncomfortable that…town officials might have resistance to the process and the plans put forth. Hopefully the listening session … (and) future educational opportunities will have a positive impact on buy-in.

What's next

In the coming weeks, Weston & Sampson, Inc., will prepare a summary of the workshop to present at a public listening session and receive input from the community. We will be advertising the event broadly, and welcome your support in getting the word out. The community's feedback will be incorporated into the plan for submission to the Commonwealth's Executive Office of Energy and Environmental Affairs as the final step in the MVP Planning Grant. The consultants are keeping the project on track so Shelburne will be able to submit letters of interest and applications for MVP Action Grants in the coming cycle.

Photos

Here are a few photos from the event, courtesy of Weston & Sampson, Inc.:


3 Small Group Exercises
EXIT

APPENDIX C

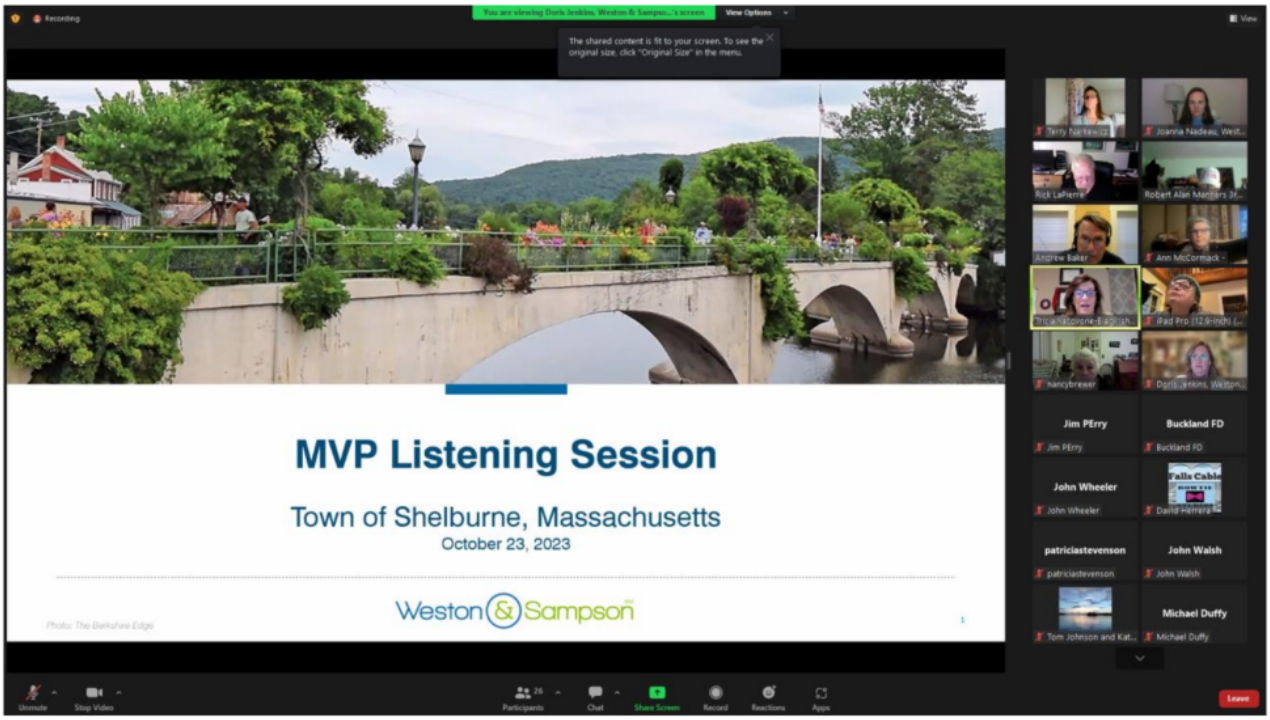
Public Listening Session Materials

Town of Shelburne, MA

Municipal Vulnerability Preparedness Planning Grant

Listening Session Meeting Notes

Zoom – Selectboard Meeting
Thursday, July 27, 2023
6:00 pm – 6:45 pm



Notes:

- 41 Attendees attended the listening session, and multiple cameras and people calling in had more than one person in the frame / on the line. Estimated total attendance is close to 50 people.

Comments/Questions:

- Question: Most of what this project is talking about is what the police and highway department are planning for already. With uncertainty about climate change, why is the town spending money and working with the state on this?
    - Answer: the town departments have expressed challenges keeping up with the maintenance associated with the assets talked about in this project, due to the increased stresses placed on the assets by the climate hazards. The goal of this project is to help the town to be proactive rather than reactive.
        - The town has spent no money on this project - $36,000 was grant funded, the town's match consists entirely of volunteer hours

- Comment: On dirt roads around town culverts are washing out and narrowing the road. Dangerous for cars and pedestrians, not two-lane roads anymore.
- Question: Are we considering partnering with Buckland on projects?
    - Answer: Buckland was at the CRB workshop and was open to coordinating.
- Question: How do you plan on educating workers to become equipment operators and ways to replenish our emergency volunteer participants? Lacking a chief operator for sewer district. Major workforce issue.
    - Answer: This will be added as an action item in the report.

MVP Listening Session

Town of Shelburne, Massachusetts

October 23, 2023

Photo: The Berkshire Edge

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MEET THE CORE TEAM

Tricia Yacovone-Biagi
TOWN MVP LIASON
Town of Shelburne

John Taylor
FIRE CHIEF
Town of Shelburne

Will Flanders
TOWN PLANNING BOARD
Town of Shelburne

Sylvia Smith
COUNCIL ON AGING BOARD MEMBER
Town of Shelburne

Tom Williams
EMERGENCY MANAGEMENT DIRECTOR
Town of Shelburne

Jacqui Goodman
CULTURAL COUNCIL BOARD MEMBER
Town of Shelburne

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2

2

MEET THE SUPPORT TEAM

INDRANI GHOSH, PhD
SENIOR PROJECT MANAGER
Weston & Sampson

DORIS JENKINS
RESILIENCY ENGINEER
Weston & Sampson

JOANNA NADEAU, AICP
SENIOR RESILIENCY PLANNER
Weston & Sampson

Weston & Sampson

3

3

LOGISTICS

mute

chat

raise your hand

we're using Slido!

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4

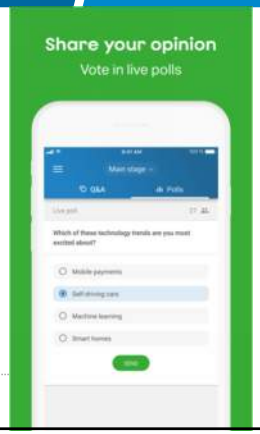
4

SLIDO INSTRUCTIONS

Please use slido to provide feedback.

1. Open a web browser (on a phone or computer)
2. Type in slido.com
3. Enter code: **SHELBURNE**

Joining as a participant? Enter code here



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slido

What do you think is Shelburne's greatest strength?

ⓘ Start presenting to display the poll results on this slide.

6

AGENDA

01 Overview of Future Climate Projections

02 Overview of Massachusetts MVP

03 Community Resiliency Building Workshop

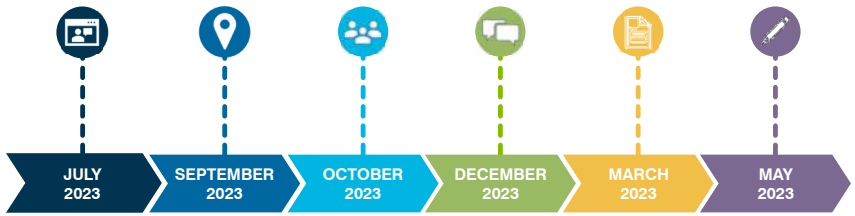
04 Top 5 Priority Action Items

05 Questions and Discussion

7

7

PROJECT SCHEDULE



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WHY WE'RE HERE

Climate change projections for end of century:

Changes in precipitation
- 18% increase in consecutive dry days
- 57% increase in days with > 1 in. rainfall
- 7.3 inches additional annual rainfall
- Increase in flooding

Rising temperatures
- 10.8°F increase in average annual ambient temperature
- 42% decrease in days/year with min. temperatures < 32° F
- 1,280% increase in 90-degree days/year

Winter weather
- Overall, a decrease in annual snowfall
- Likely to have fewer events with a lot of snow
- Freeze –thaw cycle to change

Regional changes
- Increase in frequency and magnitude of hurricanes and nor'easters
- 4-10.5 feet of sea level rise

Source: State Hazard Mitigation and Climate Adaptation Plan, September 2018 / resilientma.org / Northeast Climate Adaptation Science Center

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WHAT IS MVP?

OFFERED BY Governor Maura Healey and Lt. Governor Kim Driscoll – Executive Office of Energy and Environmental Affairs

PRESS RELEASE

Healey-Driscoll Administration Awards $31.5 Million in Climate Resiliency Funding to Communities

- The Executive Office of Energy and Environmental Affairs' MVP grant and designation program, which builds on Governor Baker's Executive Order 569 as well as other administration-led state and local partnerships, provides communities with **technical support, climate change data and planning tools** to identify hazards and develop strategies to **improve resilience**.
- "Our Administration is committed to partnering with cities and towns to develop **practical and cost-effective solutions** to build the **climate-resilient communities** of tomorrow," said Lieutenant Governor Karyn Polito.

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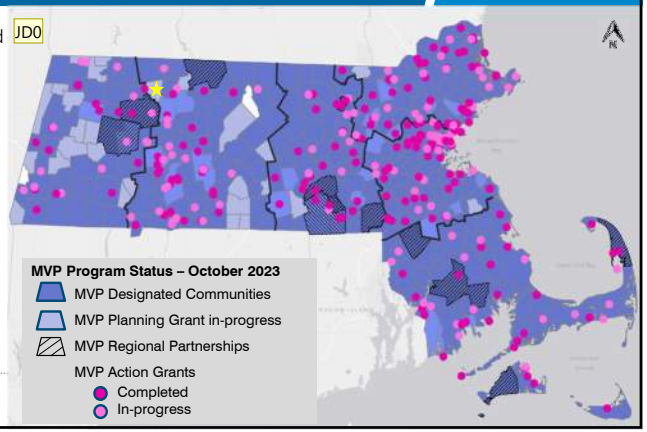
NJ1

WHAT IS MVP?

- Improved resilience and preparedness
- Collaboration with stakeholders
- Increased education, planning, and implementation
- Funding for resilience-related actions

JD0



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WHAT IS MVP?

1. MVP Planning Grant
   - Define climate hazards
   - Identify community vulnerabilities and strengths
   - Develop and prioritize mitigation actions
   - Receive MVP designation
2. MVP Action Grant
   - Implement priority adaptation actions identified during the planning process

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WHAT CAN THE MVP ACTION GRANT FUND?

- Assessments
- Outreach & Education
- Management Measures
- Redesign & Retrofit
- Nature-Based Solutions
- Ecological Restoration
- Water Quality & Infiltration
- Flood Protection
- Extreme Heat Mitigation
- Drought Mitigation
- Energy Resilience
- Chemical Safety
- Land Acquisition
- Housing
- Mosquito Control

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HOW DO WE FUND RESILIENCY WORK?

Grant funding opportunities

- Federal grant funding
- State level grant funding
- Regional planning council grant funding

Many grants will cover between **75%-100% of project costs**, with the match as either cash match or **in-kind person hours**.

Shelburne will be applying for an MVP Action Grant this Spring to advance the projects that we will be talking about today!

FEMA

MVP

frcog Franklin Regional Council of Governments

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COMMUNITY RESILIENCE BUILDING

September 13, 2023

- 25 participants
- 6 hours
- 28 Priority Action ideas generated to make Shelburne more resilient

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COMMUNITY RESILIENCE BUILDING

Focus on 4 Climate Hazards

Identified:

- Vulnerabilities
- Strengths
- Priority Action Items

Across 3 Categories

- Infrastructure
- Societal
- Environmental

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FEATURE ATTRIBUTES

FEATURES	LOCATION	OWNERSHIP	VULNERABILITY OR STRENGTH
Infrastructural	Town wide	State	Vulnerability
Societal	Multi- vs. Single-neighborhood	Town	Strength
Environmental	Specific location	Private	Both
		Shared	

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TOP HAZARDS IN SHELBURNE

Extreme Weather/ Wind Events

Flooding

Extreme Temperatures

Drought

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slido

Which of the climate hazards most concerns you?

ⓘ Start presenting to display the poll results on this slide.

19

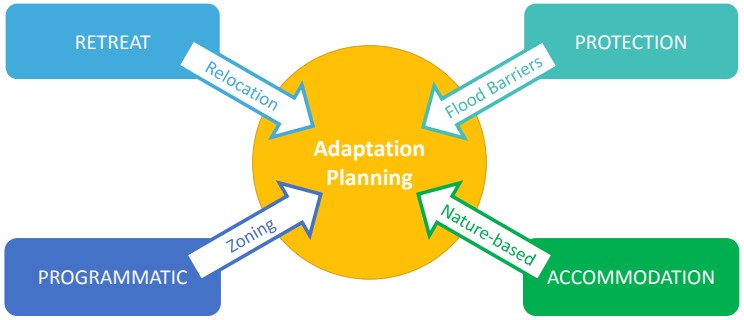
slido

How prepared do you feel Shelburne is for future climate impacts?

ⓘ Start presenting to display the poll results on this slide.

20

ADAPTATION STRATEGY TYPES



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GENERATING ACTION ITEMS

Four groups of 6 participants each

- Action items to promote resiliency for infrastructural, societal, and environmental features
- Voted within the group to determine the top 2 within each category, to share with the room

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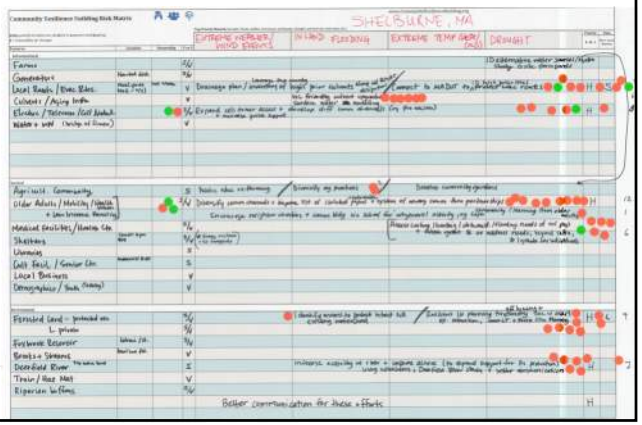
CONSENSUS ON PRIORITY ACTIONS

Voting to achieve consensus

- Each participant got 3 stickers to vote

NOTE: All the action items identified will be included in the report (even those not voted a top priority)



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CONSENSUS ON PRIORITY ACTIONS #1

Societal
Town wide
Town
Vulnerability

Improve community connections and emergency communications with vulnerable populations

- Improve the list of isolated and vulnerable populations
- Create a system of emergency communications through the community through increased partnerships around town, such as neighbor wellness check-ins and school-based intergenerational gatherings.
- Promote Reverse 911 system and expand awareness about shelter locations.

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CONSENSUS ON PRIORITY ACTIONS #2

Infrastructural/
Environmental
Town wide
Town
Vulnerability

Create a resilient drainage plan

- Complete hydrologic and hydraulic modeling to identify areas of concern and locations for upgrades
- Leverage the FRCOG inventory of high priority culverts and the Resilient MA Design Standards Tool to prioritize and quantify upgrades
- Leverage funding such as MassDEP Culvert Upgrades.

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CONSENSUS ON PRIORITY ACTIONS #3

Infrastructural
Town wide
Shared
Both

Create a resilient roadway improvement plan

- Coordinate with MassDOT to identify and assess priority roads, bottlenecks / choke points, and protect evacuation routes
- Identify engineering solutions for paved and unpaved roads to address increased runoff and freeze-thaw cycles.

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CONSENSUS ON PRIORITY ACTIONS #4

Environmental
Town wide
Shared
Strength

Create a resilient land use plan

- Protect forest / natural land while maintaining land for affordable housing
- Identify priority actions such as formation of a community land trust, resilient forest climate planning, and/or establishing dynamic forest restoration blocks.

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CONSENSUS ON PRIORITY ACTIONS #5

Infrastructural
Town wide
Private
Both

Improve townwide emergency communication infrastructure

- Identify communications (cell, landline) coverage dead spots
- Expand cell tower access and develop different communication channels (such as radio or fire whistle) to reach areas where cell service is poor.

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QUESTIONS?

Questions about the CRB workshop or the five priority action items?

40

40

slido

Rank these 5 action items in order from most urgent to least urgent.

ⓘ Start presenting to display the poll results on this slide.

41

slido

Who within the community should be involved in advancing these projects?

ⓘ Start presenting to display the poll results on this slide.

42

28 priority action items total

The summary of findings report will be released in November for public comment!

Next Steps

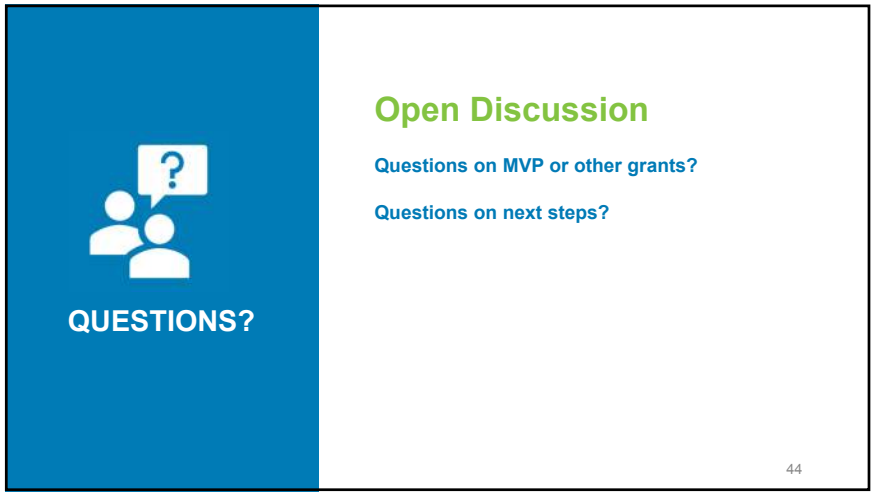
Draft Summary of Findings Report (November '23)

Final Summary of Findings Report (March '24)

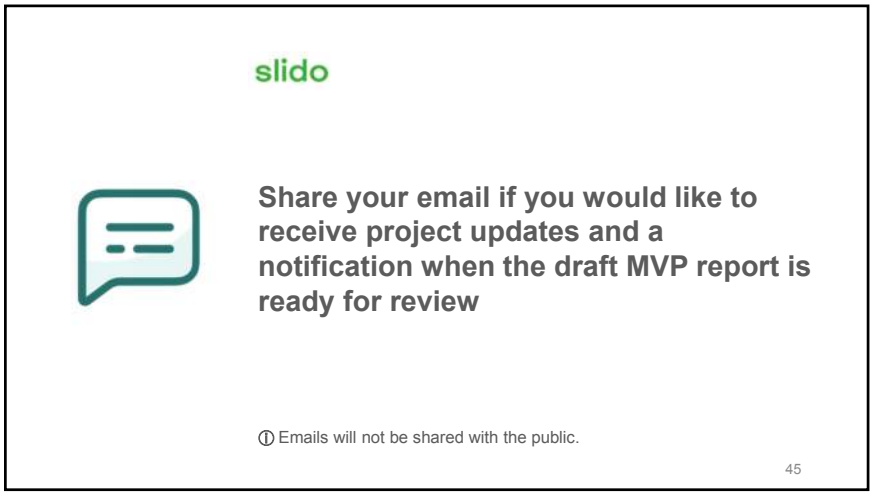
MVP Action Grants (December '23 - April '24)

43

43


QUESTIONS?
Open Discussion
Questions on MVP or other grants?
Questions on next steps?
44

44


slido
Share your email if you would like to receive project updates and a notification when the draft MVP report is ready for review
ⓘ Emails will not be shared with the public.
45

45


thank you
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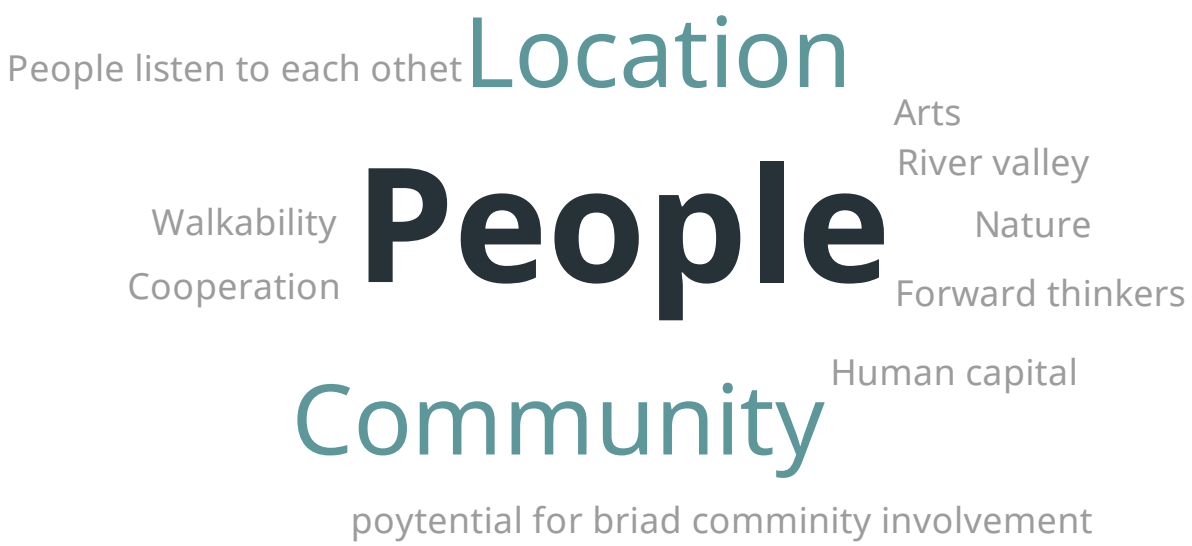
46

What do you think is Shelburne's greatest strength?

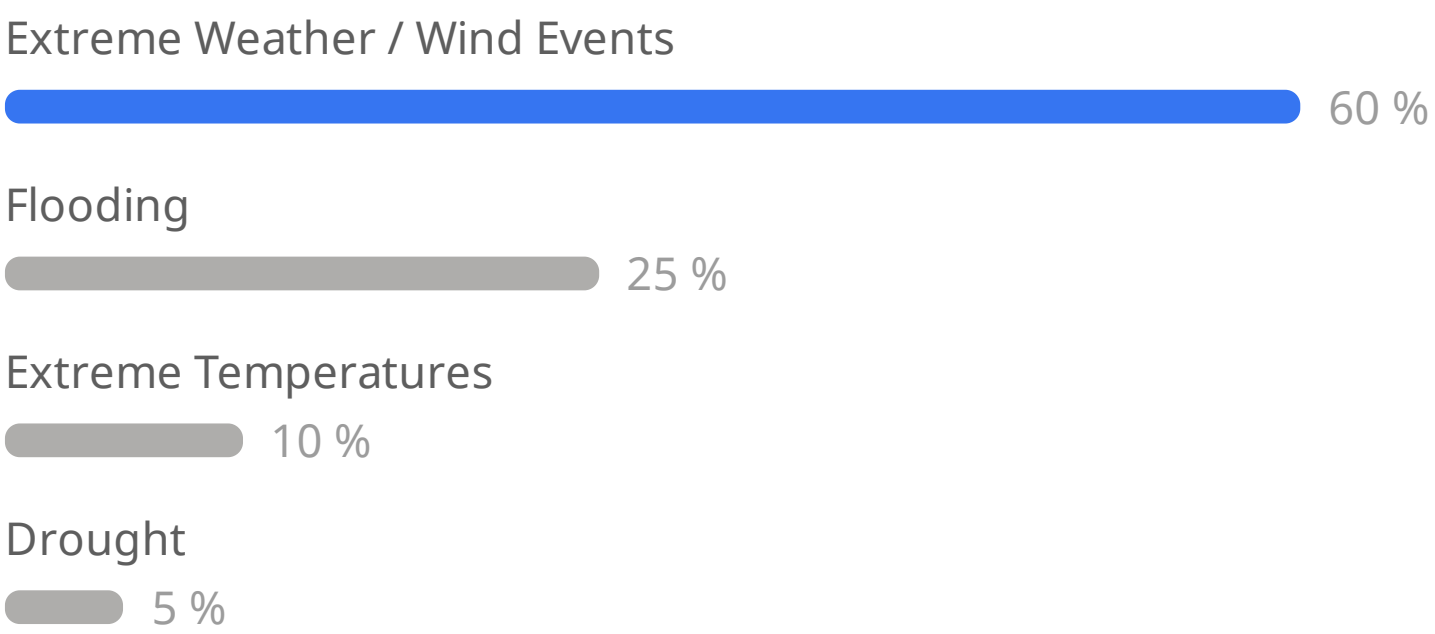
0 1 4



Multiple-choice poll

Which of the climate hazards most concerns you?

0 2 0



Multiple-choice poll

How prepared do you feel Shelburne is for future climate impacts?

0 1 9

I feel the Town is completely prepared

0 %

I fell the Town is somewhat prepared

79 %

I do not feel the Town is prepared

21 %

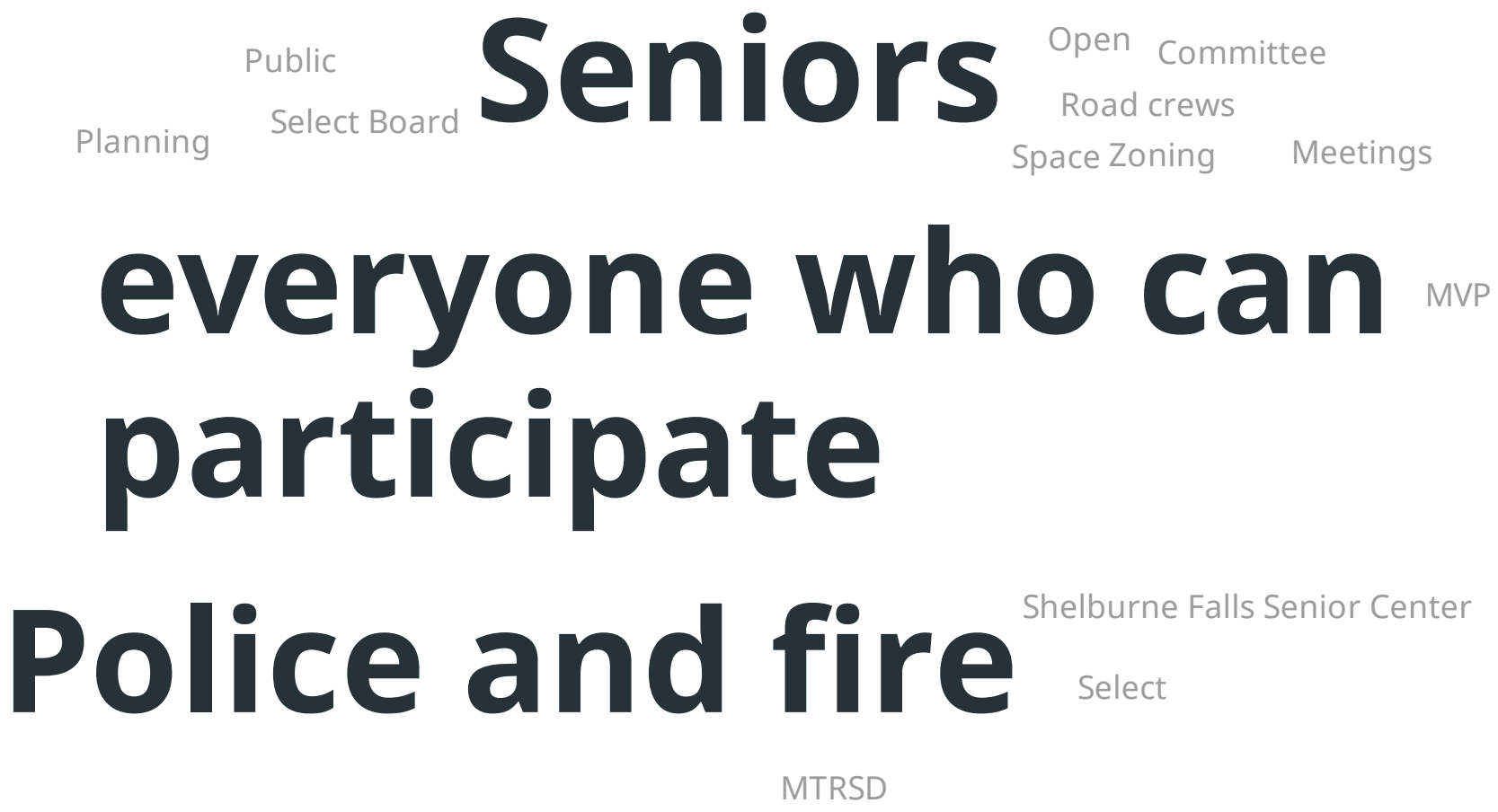
Rank these 5 action items in order from most urgent to least urgent.

0 2 0

1. Improve community connections and emergency communications with vulnerable populations — 3.85
2. Improve townwide emergency communication infrastructure — 3.65
3. Create a resilient roadway improvement plan — 2.65
4. Create a resilient land use plan — 2.45
5. Create a resilient drainage plan — 2.40

Who within the community should be involved in advancing these projects?

0 2 0



EXECUTIVE SUMMARY

Weston & Sampson, on behalf of the Town of Shelburne, Massachusetts, is pleased to present this Summary of Findings report for the Community Resilience Building (CRB) Workshop. The Town of Shelburne obtained the Massachusetts Vulnerability Preparedness (MVP) Planning Grant to expand the assessment of the Town's vulnerability to climate change and to identify priority action items that advance the MVP program's priorities for community resilience. The CRB Workshop was extremely collaborative in nature, involving stakeholders representing multiple facets of the municipal government, town committees, neighboring communities, non-profits, and community businesses. The MVP Planning Grant was leveraged as an opportunity to craft a coordinated vision for Shelburne's future and to identify future areas of collaboration.

Four main climate hazards were considered during the CRB Workshop, including extreme winter weather/wind events, inland flooding, extreme temperatures (heat/cold), and drought.

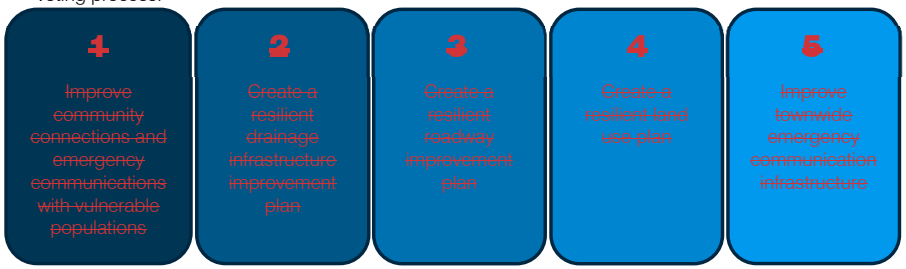
Extreme Winter Weather/Wind Events

Inland Flooding

Extreme Temperatures (Heat/Cold)

Drought

The workshop participants' main area of concern was their population's susceptibility to climate change. Shelburne's aging population and rural landscape leads to increased risk of isolation~~, which~~ and is a significant health and safety concern. Low-income populations may face difficulty in ~~light of~~adapting to protect themselves and their homes against climate hazards. Shelburne also does not have a large population of younger residents to help coordinate climate change preparedness. The themes of maintained or improved infrastructure function, increased connectivity and improved emergency communication are prevalent in the top five priority action items that resulted from the CRB workshop voting process.



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INTRODUCTION

In the face of an increasingly dynamic climate, the Town of Shelburne recognizes the importance of proactive climate resilience planning. Climate change poses an array of challenges that impact the Town's natural environment, infrastructure, economy, and well-being of its residents. In response to this concern, Shelburne pursued a Planning Grant through the Massachusetts Municipal Vulnerability Preparedness (MVP) program, administered by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA). This program was born under Massachusetts Governor Baker's Executive Order 569 and aims to provide technical support, climate data, and planning tools for Massachusetts communities. The program offers municipalities the opportunity to analyze vulnerabilities, bolster preparedness strategies, and enhance resilience in the face of climate challenges. The Shelburne MVP Community Resilience Building (CRB) Summary of Findings serves as a comprehensive documentation of Shelburne's CRB process, encompassing its technical assessments, community involvement, and proposed strategies.

~~MVP Objectives in Shelburne~~

- ~~Increase the resilience of the community~~
- ~~Raise awareness of climate threats~~
- ~~Identify priority actions to move forward~~
- ~~Create implementation pathways~~

1.1 Infrastructure and Critical Facilities

Drinking Water and Wastewater

The Shelburne Falls Fire District (SFFD) serves approximately 2000 people within areas of Shelburne, Buckland, and Colrain. Two groundwater supply wells, located in Colrain, provide water to be treated and then stored in two storage tanks located in Shelburne and Buckland. Surrounding the two wells, the SFFD owns approximately 14 acres of land to protect the water quality. Additionally, the SFFD is working to identify a greater area surrounding the wells in order to further protect the recharge area. The Fox Brook Reservoir in Colrain serves as emergency backup drinking water supply, and there are two additional water storage tanks that can store approximately six additional days of water. The SFFD has a backup generator that runs on propane and automatically switches on during power outages. It can be utilized for up to one week and can assist by pumping 130,000 gallons of water per day (Shelburne, 2021).

The ~~SFFD~~Buckland and Shelburne Sewer District provides municipal wastewater treatment for the village of Shelburne Falls. The treatment plant, located in Buckland, is designed to treat 0.25 million gallons of wastewater per day~~;~~ and as of 2019~~,~~ it was treating on average 70% of the design capacity (0.17 million gallons per day). The collection system is largely over 100 years old and has been found to be inefficient due to groundwater and stormwater inflow that the system must treat. A pump station located in Shelburne aids in conveying the wastewater from Shelburne to the treatment plant in Buckland. During years of higher precipitation, the system treats a significantly greater amount of wastewater than during dry years. Both the pump station and the treatment plant have diesel back-up generators that automatically switch on during power outages and can run for 2-3 days at a time. Outside of the village of Shelburne Falls, much of the town is served by private septic systems (Shelburne, 2021).

SHELBURNE, MASSACHUSETTS
CRB Summary of Findings

Both the water and wastewater facilities are classified as critical infrastructure by Eversource and therefore are high priority for restoring power after storm events.

Transportation

The primary access routes for Shelburne are Interstate 91, which runs north to south, and Route 2, which runs east to west. Route 2 intersects Shelburne, while I-91 is most easily accessible through Greenfield. Additionally, Route 112 passes along the Town's northwest border and is a popular route for tourists heading north into Vermont. Within Shelburne, there are approximately 58 miles of State and Town maintained roads. Approximately 10 miles of the local roads in Shelburne are gravel.

Shelburne is a part of the Franklin Regional Transit Authority (FRTA), which provides bus services to Shelburne. The fixed route bus is scheduled four times daily during the week and service is also available for older and disabled community members who require door-to-door transit services.

Emergency Response

Shelburne operates an Emergency Management Committee, which plays a crucial role in disaster preparedness, response, and recovery within Shelburne. The Committee developed a Comprehensive Emergency Management Plan (CEMP) in 2018, which contains an emergency management program to be utilized for planning and response to disaster and emergency situations. The Committee also took part in developing the Town's Hazard Mitigation Plan in 2020, a plan developed through the Massachusetts and Federal Emergency Management Agencies (MEMA/FEMA) to reduce the Town's vulnerability to hazard impacts.

Shelburne has two fire districts. One covers the Shelburne Falls village area and includes the Shelburne Falls Water District described in Section 1.1.1. The other fire district is ~~located~~ in rural Shelburne. There is one Police Station in Shelburne with six full-time officers that serve the Town of Shelburne and the Town of Buckland.

1.2 Demographics and Community Assets

The Town of Shelburne is a picturesque, rural community nestled in the Northeast Berkshire Mountains. This residential community has an economy primarily based on agriculture, small businesses, and tourism. Its scenic beauty attracts tourists year-round. Shelburne is known for its strong sense of community and local engagement. Residents actively participate in local events, town meetings, and volunteer organizations, which help maintain the Town's unique character and charm.

During the end of the 20th century, Shelburne experienced modest growth, although the population of the town declined between 2000 and 2010. Approximately 1,884 residents live in Shelburne, as reported in the 2020 American Community Survey (US Census Bureau, 2020). Shelburne has a lower-than-average percent of youth, and a higher-than-average percent of residents over the age of 65, when compared with the State. Shelburne's residents are predominantly white (98.5%), with a small Black or African American population, and a small Asian population. The median household income is lower than the State median income. See Table 1 below for additional demographics information

~~*Figure 1 The Village of Shelburne Falls (Greenfield Recorder)*~~

Figure 1 The Village of Shelburne Falls (Greenfield Recorder)

Table 1. Demographics Data in Shelburne

Population	Shelburne	Massachusetts
2021	1,886	6,981,974
2010	1,893	6,547,790
Age		
Under 18 years	9.5%	19.2%
65+ years	33.9%	18.1%
Economics		
Median household income	$72,236	$89,026
Persons in poverty	10.8%	10.4%
Additional Information		
Bachelor's degree or higher	53.8%	45.2%
With a disability	15.6%	7.9%

The Town provides public health and community support for its residents, including those who may be more vulnerable during climate hazard events. Climate vulnerable populations include: residents at risk of isolation, such as youth or older adults who are unable to drive~~, or;~~ those who have limited English speaking skills who may be uninformed if translations are not provided for emergency communications; or low income populations that may not have the means to make necessary alterations to their home to protect against extreme temperatures and precipitation. People of color may also be more vulnerable to impacts of climate change due to systemic barriers.

Climate resilience planning explores ways to build community networks and increase residents' access to resources. The Town has several well-used community facilities that can also be used as emergency shelters, including the Mohawk Trail Regional School in Buckland, and Fellowship Hall, the Cowell Gym, the Senior Center, and the Shelburne-Buckland Community Center in Shelburne. The Shelburne-Buckland Community Center is a hub for social gatherings and events. At this time, the Buckland-Shelburne Elementary School is not being considered as an emergency shelter location, but that could change in the future.

1.3 Land Use and Natural Resources

Shelburne is home to an abundance of natural resources, including forests, rivers and water bodies, wildlife, farms, and trails. The western border of the Town falls along the Deerfield River, and many other streams, wetlands, and ponds pass through Shelburne. These water bodies drew much of the town's development and still provide opportunities for water-based recreational activities, such as fishing, swimming, and ~~kayaking~~boating. The Town also benefits from groundwater resources for residential and agricultural use. The natural landscape, characterized by rolling hills, lush vegetation, and picturesque vistas, is a valuable resource that attracts tourists and provides recreational opportunities for residents. The Franklin Land Trust ~~owns a 20-acre parcel with many hiking~~ trails, ~~and the~~Mahican Mohawk Trail, Mass Audubon High Ledges Wildlife Sanctuary, Shelburne Fire Tower, and Route 2 (Mohawk ~~Mahican~~ Trail) are popular tourist attractions. These assets support community resilience and may also be vulnerable to climate impacts themselves.

PROCESS AND TIMELINE

The MVP planning process engaged municipal leaders, key stakeholders, and the general public through a series of meetings described in the following sections. The 2023 "Community Resilience Building Workshop Summary of Findings" Report reflects the results of this process.

~~*Figure 2. MVP Planning Process*~~
Figure 2. MVP Planning Process

1.4 Core Team Meetings

A key staff meeting was held on July 12, 2023, to discuss the project scope and develop the Core Team. Once the team was built, the Town convened its first Core Team meeting, which included participants from a broad range of municipal departments, on July 27, 2023. Three additional meetings were held throughout the planning process: August 23, October 15, and December 7, 2023. The Core Team guided the planning process by providing key information about the town and reviewing materials for the Community Resilience Building Workshop, the Listening Session, and this Summary Report. The Core Team provided input on the most important natural hazards in Shelburne, as well as existing work the Town has undertaken to

adapt to climate change impacts. In addition, they developed the invitation list for the Community Resilience Building Workshop described below.

1.5 Community Resilience Building Workshop

Figure 3. A photo from Shelburne's CRB Workshop

The objective of the Community Resilience Building (CRB) Workshop was to capture ideas from a diverse set of perspectives and to build a broad coalition of stakeholders to move climate resilience forward in Shelburne. Municipal staff, members of town boards and committees, and representatives from local organizations, regional partners, state agencies, and adjacent towns were invited to participate in the CRB Workshop. The workshop was held over eight hours in a single day, covering topics including natural hazards, critical features, strengths and vulnerabilities in the community, and development of climate change mitigation actions. The workshop utilized the CRB Risk Matrix to facilitate discussion and record input. Nearly 30 participants joined the workshop. The CRB Workshop's central objectives were to:

- Identify existing and future strengths and vulnerabilities
- Develop prioritized actions for the community
- Identify immediate opportunities to collaboratively advance actions to increase resilience

The completed matrix of actions is available in Appendix B: Community Resilience Building Workshop Materials. Additionally, a list of workshop participants is included in Section 7.1 of this report.

Figure 4: A photo from Shelburne's CRB Workshop

1.6 Listening Session

As part of the CRB process, the Town held a public listening session on October 23, 2023, as part of an existing Selectboard meeting via zoom. There were 41 people in attendance. To promote the event, materials were posted to the Town's webpage, Facebook posts were shared, an email blast was distributed through several local networks, and a postcard invitation was mailed to all Shelburne residents in the 01370 ZIP code. The listening session presented an overview of the planning process, climate impacts in Shelburne, and the results of the CRB Workshop. Throughout the listening session, polls were used to capture real-time feedback from attendees. Team members recorded notes and input from attendees, which were incorporated into this report. A summary of the input is provided in this section, and a full summary of the meeting, interactive polling results, and comments from the public review period are available in Appendix C: Public Listening Session Materials.

When asked, "What do you think is Shelburne's greatest strength?", the overwhelming answer was "the people." Shelburne's strong sense of community was a common theme in both the CRB Workshop and the Listening Session. When asked, "How prepared do you think Shelburne is to handle the impacts of climate change?", most respondents answered, "somewhat prepared." People added that they were excited about this project and were very interested in staying involved as the community takes additional steps towards becoming more resilient.

When the project team presented the top action items resulting from the CRB workshop, the community provided consensus on these items and added one additional action item:

- *Educate residents and workers to become equipment operators and create pathways to replenish our key infrastructure roles, such as chief operator for the sewer district and emergency volunteers.*

The Listening Session raised awareness for the public comment period on this report. Residents could share their email if they would like a copy of the report directly emailed to them; otherwise, a copy of the report was made available on the Town's website. Residents were invited to submit comments and questions through an online form between November 10 and ~~November 30~~December 4, 2023. The revisions made to this report based on public comments can be found in Appendix C.

TOP HAZARDS

During the Core Team meetings, members discussed the Town's greatest threats under climate change. The team recalled previous weather events and the changing impacts under climate change, and identified the four hazards they were most concerned about impacting the town. At the CRB workshop, participants discussed and confirmed these top four hazards, which were then used to inform the remainder of the workshop.

Figure 5: A photo from Shelburne's CRB Workshop

1.7 Top Hazards

The CRB Workshop focused on four main climate hazards that are of primary concern when considering the interface between the built and natural environment: extreme winter weather/wind events, inland flooding, extreme temperatures (heat/cold), and drought. These hazards are discussed in more detail in the following sections.




Extreme Winter Weather/Wind Events	Inland Flooding	Extreme Temperatures (Heat/Cold)	Drought

1.8 Current Concerns and Future Challenges

Extreme Winter Weather and Wind Events

Winter weather and wind events often go hand in hand, as nor'easters frequent Shelburne during the winter months. Nor'easters can include snow, freezing rain, and heavy winds that can cause extensive damage to the community. Heavy snow and ice combined with high winds can lead to fallen trees and downed power lines, cutting off power to residents and critical facilities that do not have backup power. Power outages during winter months pose additional concerns when residents and businesses rely on electricity for heat. Downed trees can also block roadways, which combined with icy and snow-covered roads, can impact evacuation routes and increase emergency management personnel response times. During the 2017 snowstorm, Route 2 was closed for two days, resulting in limited emergency access for residents.

Increasing temperatures due to climate change are predicted to result in fewer days falling below 32°F, thus resulting in a decrease in annual snowfall predictions. However, climate predictions also indicate that extreme snow events may become increasingly intense and produce heavier snowfall in the short-term (ResilientMA, 2022). In the long-term, ice storms and repeated freeze-thaw cycles in one season are of growing concern. Ice storms that impact trees tend to be the most damaging to infrastructure. Repeated freeze-thaw cycles can also be disruptive to farms and natural resources, and infrastructure exposed to the elements, such as roadways.

During the 2008 ice storm in Shelburne, three-quarters of the Town was without power. Three years later, in 2011, an early-winter snowstorm caused widespread power outages across Massachusetts, which caused some Shelburne residents to be without power for more than one week. Also in 2011, Fellowship Hall was used as a shelter for residents during Hurricane Irene. During the 2016 snowstorm, the Highland Village elder housing lost power overnight, and the Senior Center was used as an unofficial warming center for residents. In more recent years, Shelburne has experienced several more winter storms, blizzards, and nor'easters, including:

- Winter Storm Riley, March 2018
- Winter Storm Quinn, March 2018
- Winter Storm Skylar, March 2018
- Winter Storm Uri, January 2021
- Winter Storm Orlena, February 2021
- North American Blizzard, January 2022
- Nor'easter, March 2023

Inland Flooding

Across the northeast, precipitation is anticipated to increase in both frequency and intensity (ResilientMA, 2022). Between 1961 and 2015, the 24-hour 100-year precipitation event increased from

6.5 to 8 inches (Figure 3-2). Additional data and modeling efforts predict that the 24-hour 100-year event will increase to 8.9 inches by 2030, and to 10.2 inches by 2070 (ResilientMA, 2022).

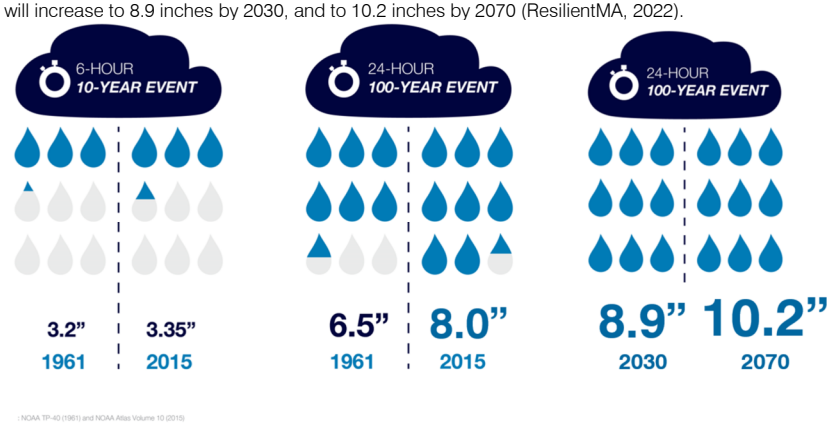


Figure 6. Precipitation Trends and Projections in Massachusetts

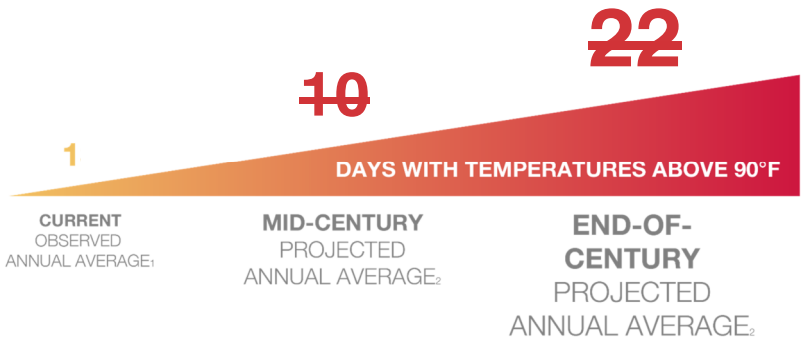
During July 2023, the Town experienced 18 inches of rain~~. This change~~, resulting in ~~precipitation patterns can lead~~flooding of roads, homes, and other property. Precipitation projections indicate an increase in frequency of storms of this size, leading to increased riverine and stormwater flooding, ~~causing property damage,~~ road closures, and damage to ~~the stormwater system, and damage to~~property, natural resources, and drainage infrastructure. The Town can prepare for these precipitation events by incorporating climate change considerations into regulatory tools and into the design of public infrastructure, which often has a long useful life and can be costly to retrofit.

In Shelburne, the 100-year (2080) floodplain covers approximately 2% of the Town. Key areas of riverine flooding concern include areas surrounding the Deerfield River, Dragon Brook, Hinsdale Brook, and beaver dams. Stormwater flooding due to poor drainage, increased impervious area, and undersized infrastructure is also a concern. During the CRB Workshop, community members noted the frequent occurrence of basements flooding due to inadequate drainage around and near homes, and road washouts from undersized culverts. Several participants also noted that some important facilities like the school are located in the floodplain.

Extreme Temperatures (Heat and Cold)

Since 1970, annual temperatures in the Northeast have been warming at an average rate of 0.5°F per decade, while winter temperatures have been warming at an average of 1.3°F per decade. In the Deerfield River Watershed in 2005, there was on average one observed day a year with temperatures above 90°F, which is predicted to increase to 10 days by mid-century, and 22 days by end-of-century. Additionally, increasing temperatures are resulting in fewer days below 32°F, with 170 days observed

annually in the Deerfield River Watershed in 2005, and a prediction of 148 days by mid-century, and 123 days by end-of-century (ResilientMA, 2022).



~~*Figure 7. Days Over 90°F in Shelburne*~~

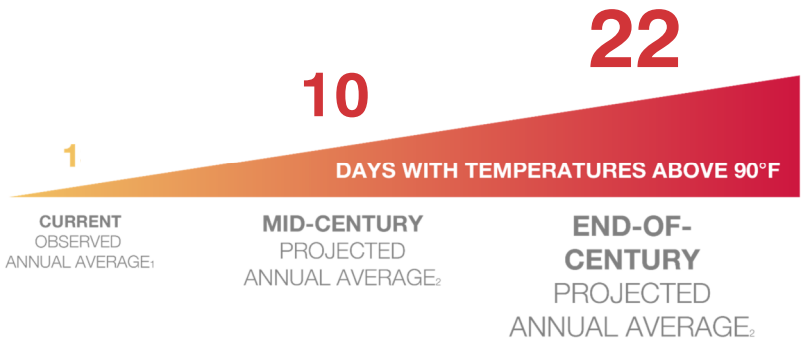


Figure 7. Days Over 90°F in Shelburne

Extreme temperatures in Shelburne ~~put a~~ impact agricultural yields and strain ~~on~~ the electric grid's capacity~~, as these conditions lead to high~~ due increased demand on heating and cooling systems ~~in~~

~~both residential and commercial properties.~~ Extreme temperatures ~~can~~and temperature fluctuations also ~~be tied other~~trigger cascading hazards, ~~resulting in compounding impacts. An example of this occurs~~ such as when ~~fluctuating winter temperatures result in precipitation~~rain falls on frozen ground~~, causing an increase in~~ and causes flooding.

Drought

Episodic droughts, or droughts lasting one to three months, are predicted to occur more frequently in the late summer and early fall as a result of climate change. Under a high emissions scenario, episodic drought frequency could increase as much as 75% (ResilientMA, 2022). Droughts can negatively impact natural resources. For example, root systems can weaken, ponds, vernal pools and wetlands can dry up, and low water flows can disturb aquatic habitat and harm wildlife. Droughts also increase wildfire vulnerability, which is a primary concern in the forested areas surrounding the Town.

Shelburne is home to numerous farms that produce fruit, vegetables, dairy products, meat, and maple syrup. Changes in precipitation can be detrimental to crops and livestock. Droughts cause a decrease in soil moisture, reduce crop yields, and lead to water shortages for irrigation. Increased irrigation due to a drought can lead to higher production costs and potential environmental concerns. Droughts can also stress crops, making them more vulnerable to pests and diseases. Inadequate moisture can also affect the size, quality, and marketability of agricultural products.

Figure 8: Participants identify concerns and challenges during the CRB Workshop

VULNERABILITIES

The workshop participants' main area of concern was their population's susceptibility to climate change. Shelburne's aging demographics and rural landscape leads to increased isolation, which is a significant risk to preparedness ~~for a variety of climate hazards. Shelburne also does not have a large population~~and resilience. Compounding this risk is the limited number of younger residents to help coordinate long-term climate change preparedness.

All areas of concern were grouped within the following three categories: infrastructural, societal, and environmental.

1.9 Infrastructure

Workshop participants identified key infrastructural features in Shelburne that are most vulnerable to climate change impacts or may be so in the future. These features include:

- The changing climate can impact the way farms produce crops. Longer periods of drought and extreme weather can leave crops vulnerable and increase maintenance costs.
- Snowstorms and high winds can lead to downed power lines and power outages, requiring the use of generators or backup power sources. However, there is a limited distribution of generators at town buildings.
- Weather events and evacuations can lead to bottlenecks and chokepoints on roads and evacuation routes. The rural sections of Town are most vulnerable, along with the Route 2 corridor.
- Culverts are ~~undersized~~inadequately sized and aging.
- There are many telecommunication and cell network dead spots throughout the Town.
- Ability to communicate with vulnerable populations during and ahead of emergencies is deficient.
- Water and wastewater infrastructure is aging and inefficient, and there is concern surrounding drought impacts on water supply.
- Emergency shelters ~~are~~may not be inadequately supplied to be run as heating and cooling centers during severe ~~storm~~weather events.
- ~~Dams~~Dam failures pose a significant threat to the community ~~if a failure were to occur~~.

1.10 Societal

Workshop participants discussed the impact of climate change on vulnerable populations and essential services, which included:

- Older adults and residents with disabilities may be at higher risk during extreme weather events.
- Many existing agricultural operations do not have a plan for future ownership and management to keep the farms running.
- Medical facilities are limited and not easily accessible across the community.
- Low-income families may not ~~have resources for~~be able to afford increased heating and cooling costs, the costs related to flood mitigation of their homes, or the price of alternative housing if they were displaced during extreme weather events.
- Local businesses in Shelburne Falls may not be sustainable if tourism decreases due to the shifting climate.

1.11 Environmental

Workshop participants identified key environmental features in Shelburne that are most vulnerable to climate change impacts. These features include:

- Forest land and protected recreational areas may face challenges with the shifting climate, such as introduction of invasive species and pests.
- Fox Brook Reservoir is at risk during drought events.
- Brooks and streams may pose flood risks to the town, particularly where they cross underneath or run alongside roadways.
- Deerfield River poses a significant flood risk to the town, especially with upstream dam structures at risk of failing during large storm events.
- Railroads and transport of hazardous materials increase vulnerability in the community if hazardous materials were to spill due to railway failure from an extreme weather event.
- Sustainable agriculture is at risk from drought, flooding, and crop-destroying invasive species.

STRENGTHS

Many workshop participants felt that Shelburne's greatest assets included their businesses and strong community culture. Shelburne is a rural community with many farms producing crops and livestock, and a small business and cultural district located in Shelburne Falls. This draws in tourists and residents alike. Shelburne's environmental assets also contribute to the Town's economy and support its ability to successfully weather shocks like intense precipitation and flooding when they are not compromised by the event.

1.12 Infrastructure

Workshop participants identified key infrastructural features in Shelburne that provide strength against climate change impacts. These features include:

- Farms providing local crops and employment opportunities.
- Generators ~~and electrical infrastructure~~, though insufficient, protecting some of Shelburne's critical buildings.
- Heating and cooling shelters, while inadequate~~, provide~~ and difficult to publicize, providing needed relief for residents during times of extreme temperatures.

1.13 Societal

Workshop participants identified key societal aspects of Shelburne that provide strength against climate change impacts. These aspects include:

- A large population of retired adults have time to dedicate to volunteer efforts in Shelburne.
- Local medical facilities (clinics and pharmacy) make healthcare accessible for residents.
- Libraries and cultural facilities strengthen the community by providing gathering places.
- Local businesses support Shelburne's economy and draw in tourists.

1.14 Environmental

Workshop participants identified key environmental features in Shelburne that provide strength against climate change impacts. These features include:

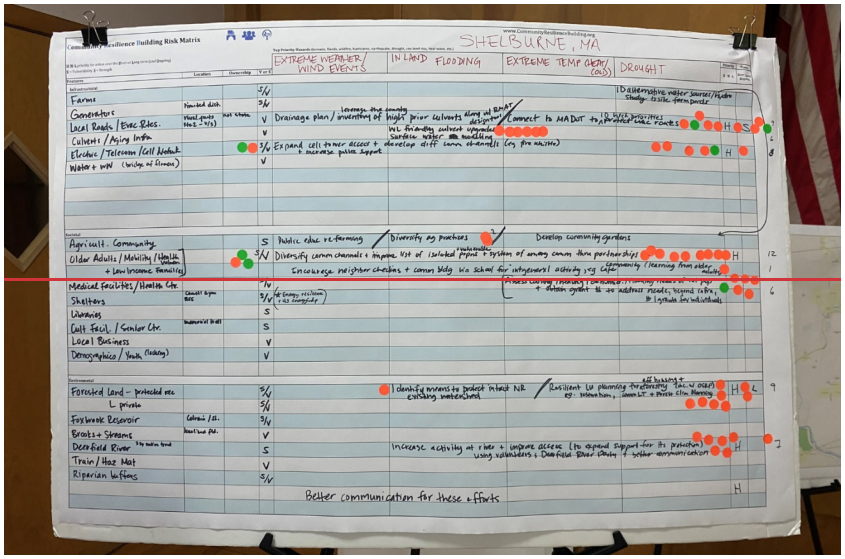
- Forested land and protected recreational areas provide recreation opportunities for community members and provide ecological benefits, such as carbon storage and sequestration, reduced risk of flooding, and soil retention.
- The Fox Brook Reservoir acts as an emergency water supply for Shelburne and surrounding towns.
- The Deerfield River is a source of recreation and tourism for the town and provides ecological benefits.
- Riparian buffers provide ~~habitat for~~ wildlife habitat and ~~offer flood buffers that~~ protect the community~~.~~
- by preventing erosion and slowing down water during storm events.

TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

After discussing the likely impacts of the Town's top climate hazards and listing vulnerability and strengths, workshop participants brainstormed possible actions to address climate change impacts, reduce vulnerabilities and reinforce strengths in ~~town. Participants were asked~~Shelburne. The CRB Workshop Guide leads participants through an iterative process, using small teams to ~~rank~~generate action items~~.~~, and then gaining consensus on prioritization as a larger group through voting. The outcome is a list of low, medium, ~~or~~and high priority~~.~~ action items that were agreed upon by workshop participants. The prioritization process was informed by cost and available funding sources, technical and political feasibility, and community benefit. Action items that were generated by multiple small teams organically and repeated throughout the workshop were most often prioritized as high. In some cases, the actions were prioritized as medium because they are ongoing processes that the town is already working on. ~~In other cases, the prioritization was informed by cost, technical and political feasibility, and community benefit.~~ This process is documented in the CRB Workshop materials and notes, located in Appendix B.

A list of action items generated through this process is included below, organized in alphabetical order by the features. Potential partners for implementation and an estimated implementation timeline are included with each action item, with a note on whether ongoing monitoring will be needed.

The Town can use this list to track progress on short-term, long-term, and ongoing action items over time. Short-term projects are to occur in less than 5 years, and long-term projects are 5-10 years.



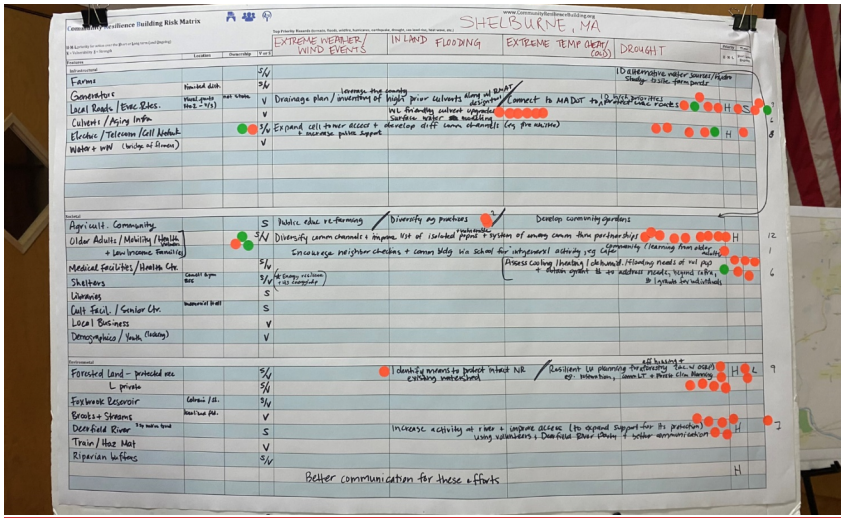


Figure 9: Participants identify recommendations to improve resilience during the CRB workshop

1.15 High Priority Actions

Feature: Culverts/Aging Infrastructure

- Action: Create a resilient drainage plan based on hydrologic and hydraulic modeling to identify areas of concern and locations for upgrades, leveraging the FRCOG inventory of high priority culverts, surface water modeling and the Resilient MA Design Standards Tool to prioritize and quantify upgrades, including utilizing wildlife passage-friendly designs- and potential dam removal. Leverage funding such as MassDEP Culvert Upgrades.
    - ***Possible partners for implementation:*** *MassDEP, FRCOG, Trout Unlimited Deerfield River Watershed Chapter, Deerfield River Watershed Association (DRWA), MassAudubon, FRCOG, UMass College of Natural Sciences, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program, MA Department of Ecological Restoration, UMass Department of Landscape Architecture and Regional Planning (LARP)*
    - ***Timeline:*** *Short Term*

Feature: Deerfield River

- Action: Increase activity at the Deerfield River, improve access, and communicate with community and related groups to expand support for its protection, using volunteers and public engagement events/River parties.

- ***Possible partners for implementation:*** *Deerfield River Watershed Association, Trout Unlimited ~~DRWChapter~~ Deerfield River Watershed Chapter, Great River Hydro, Appalachian Mountain Club, GCC Outdoor Education Department, Mohawk Trail Regional School District (MTRSD), Businesses operating on the river (e.g., Crab Apple, Berkshire East, Adventure East, Zoar), Franklin Land Trust, Franklin County Chamber of Commerce, Mohawk Trail Association.*
- ***Timeline****: Ongoing*

Feature: Farms / Water

- Action: Identify alternative water sources and complete a hydrologic study to inventory existing farm/fire ponds and assess feasibility and ~~location~~siting of new farm/fire ponds and ~~/or~~ efficient irrigation systems.
  - ***Possible partners for implementation:*** *UMass Agriculture, UMass Sustainable Development, UMass College of Natural Sciences, Mass Association of Conservation Commissions (MACC), MA Department of Environmental Protection, USDA Soil and Water Conservation Program, USDA Forest Service's VFA program, Great River Hydro*
  - ***Timeline:*** *Long*

Feature: Forested Land / Protected Recreational Areas

- Action: Create a Resilient Land Use Plan for protecting forest~~/~~ and natural land while maintaining land for affordable housing~~:~~, through identifying actions such as formation of a community land trust, climate resilient forest planning, and/or establishing dynamic forest restoration blocks, etc. Could be incorporated into the Open Space Plan Update.
  - ***Possible partners for implementation:*** *Mass Audubon, Franklin Land Trust (land conservation), The Trustees, MA Dept. of Conservation & Recreation, MA Dept. of Fish & Game, FRCOG, UMass Forestry, Ohketeau Cultural Center, Woodlands Partnership of Northwest Massachusetts, Massachusetts Woodlands Institute, Franklin County Community Land Trust* (affordable housing).
  - ***Timeline:*** *Long*

Feature: Generators / Electric Infrastructure

- Action: Establish energy resilience through promoting development of renewable energy (e.g., wind, solar, hydro~~),~~) and evaluating system vulnerabilities and improvements to energy grid/microgrid (e.g., burying powerlines~~),~~) while considering possible adverse environmental or economic impacts.
  - ***Possible partners for implementation:*** *UMass Clean Energy Extension, MassDOER (including R-STEP grants), Sunwealth, Co-op Power, Cape & Vineyard Electric Co-op (CVEC), Eversource*
  - ***Timeline:*** *Short*

Feature: Local Roads and Evacuation Routes

- Action: Create a resilient roadway improvement plan, connecting with MassDOT to identify and assess priority roads, bottlenecks / chokepoints, and evacuation route protection, and come up with engineering solutions for paved and unpaved roads to address increased runoff and freeze-thaw cycles.

- ***Possible partners for implementation:*** *MassDOT, FRCOG, MassDEP, Pioneer Valley Planning Commission, Legislators, UMass LARP, The Conway School of Landscape Design*
- ***Timeline:*** *Short*

Feature: Older Adults / Disability (mobility, health)

- Action: Improve community connections and emergency communications with vulnerable populations, by improving the list of isolated and vulnerable populations, creating a system of emergency communications through the community through increased partnerships around town, including neighbor wellness check-ins and school-based intergenerational gatherings. Promote Reverse 911 system and expand awareness about shelter locations.
  - ***Possible partners for implementation:*** *Senior Center, Council on Aging, MTRSD, Public libraries, Medical Reserve Corps (MRC), Mary Lyon Foundation, MEMA, Arts & Cultural Groups, Women's Club, Shelburne Grange, Greenfield Community College, local religious organizations, Life Path, Franklin County Sheriff's Office, Ohketeau Cultural Center.*
  - ***Timeline****: Short/Ongoing*

Feature: Telecommunications / Cell Network

- Action: Improve townwide emergency communication infrastructure by identifying communications (cell, landline) coverage dead spots, ~~expanding cell tower access~~working with cell service providers to harden cell communication infrastructure, and developing different communication channels (such as radio or fire whistle) to reach areas where cell service is poor.
  - ***Possible partners for implementation:*** *MEMA, FEMA, Neighboring MVP communities, Mass. Dept. of Public Utilities (DPU), MTRSD, Local mobile network operators/ providers, Western Region Homeland Security Advisory Council (WRHSAC), US Cybersecurity and Infrastructure Security Agency (CISA), Franklin County Amateur Radio Club*
  - ***Timeline:*** *Long/Ongoing*

1.16 Medium Priority Actions

Feature: Agricultural Community

- Action: Improve public education around sustainable farming practices for both farmers and youth, tactics to diversify agricultural practices for climate resilience, and develop community gardens
  - ***Possible partners for implementation:*** *Franklin County Technical School, MTRSD, UMass Sustainable Agriculture, MassDAR, Conway School of Landscape Design, Red Gate Farm (Ashfield), Americorps*
  - ***Timeline:*** *Long/Ongoing*

Brooks and Streams

- Inventory beaver dams, prioritize action items around beaver dams
  - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited ~~DRW~~ Deerfield River Watershed Chapter, Mass Audubon, GCC, MTRSD, Mass Association of*

Conservation Commissions (MACC), USDA Soil and Water Conservation Program, MassDEP
- ***Timeline:*** *Long*

Dams
- Contact Deerfield River dam owners to get copy of their dam failure plan, and build townwide emergency communication and preparedness plan for event of dam failure
  - ***Possible partners for implementation:*** *Great River Hydro, US Cybersecurity and Infrastructure Security Agency (CISA), Franklin County REPC, MEMA, FRCOG, Brookfield Renewable US.*
  - ***Timeline:*** *Short*

Emergency Response and Infrastructure Workforce
- Educate residents and workers to become equipment operators and create pathways to replenish our key infrastructure roles, such as chief operator for the sewer district and emergency volunteers.
  - ***Possible partners for implementation:*** *Shelburne Emergency Management Committee, Shelburne Falls Fire District, Shelburne Police Department, Shelburne Highway Department, Franklin County Technical School, Mohawk Trail Regional School*
  - ***Timeline:*** *Short/Ongoing*

Forested Land / Protected Recreational Areas
- Evaluate opportunities to ~~preserve~~conserve land, either as farmland or forest, either as operation farmland or protected land, and increase awareness about ~~land preservation opportunities of resilient landscapes~~how land conservation can increase Shelburne's resilience.
  - ***Possible partners for implementation:*** *Franklin Land Trust, MassAudubon, UMass Sustainable Development, UMass Public Policy, UMass Agriculture, FRCOG, MassDAR*
  - ***Timeline:*** *Short*

Fox Brook Reservoir
- Identify means to protect intact watershed
  - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited ~~DRW~~ Deerfield River Watershed Chapter, Franklin Land Trust, Mass Association of Conservation Commissions (MACC), USDA Soil and Water Conservation Program, Mass Audubon.*
  - ***Timeline:*** *Long*

Heating and Cooling Shelters
- Install generators, potentially connected to renewable energy microgrids, at critical and highly vulnerable facilities such as heating and cooling centers to improve resilience during severe storm events
  - ***Possible partners for implementation:*** *MEMA, FEMA, MRC, DOER, MTRSD, UMass Clean Energy Extension, Eversource*
  - ***Timeline: Short***
- Evaluate shelters available and develop capacity where needed (e.g., cooling, showers, kitchen) for designated shelters.

  - ***Possible partners for implementation:*** *MEMA, FEMA, MRC, Salvation Army, Red Cross, Franklin County REPC, FRCOG, Neighboring communities, Western Region Homeland Security Advisory Council (WRHSAC).*
  - ***Timeline:*** *Long*

Local Roads and Evacuation Routes
- Educate residents for shelter-in-place preparedness
  - ***Possible partners for implementation:*** *MRC, MEMA, FEMA, MTRSD, GCC, UMass Public Health, Public Health Institute of Western MA, Senior Center, Council On Aging, Senior SAFE program, Franklin County Sheriff's Office.*
  - ***Timeline:*** *Short/Ongoing*

Low Income Families
- Assess residents' home cooling / heating / humidity / flood prevention vulnerabilities and obtain grant funding to support needed improvements to private residences
  - ***Possible partners for implementation:*** *Senior Center, FRCOG, Council on Aging, MRC, MTRSD, Mary Lyon Foundation, LifePath, Mass Save.*
  - ***Timeline:*** *Short*
- Develop a program to provide / install communication channels like computers, DSL
  - ***Possible partners for implementation:*** *GCC, Americorps, Senior Center, LifePath, Franklin County Sheriff's Office*
  - ***Timeline:*** *Long*
- Organize an outreach program with local schools focused on agriculture and other green jobs, get grant funding to hire an intern to help with these town-wide initiatives
  - ***Possible partners for implementation:*** *Franklin County Technical School, Mass Audubon youth climate corps, MTRSD, UMass Agriculture, GCC, Americorps, MassDAR, Woodlands Partnership of Northwest Massachusetts*
  - ***Timeline:*** *Short/Ongoing*

Medical Facilities (Clinics, Pharmacies)
- Support the development of a community clinic, build community and individual health
  - ***Possible partners for implementation:*** *MTRSD, GCC, Centers for Disease Control and Prevention Rural Health, MRC, Senior Center, Council on Aging (COA), Mary Lyon Foundation, Baystate Medical System.*
  - ***Timeline:*** *Short*

Riparian Buffers

- Assess riparian erosion and explore action items
  - ***Possible partners for implementation:*** *FRCOG, DRWA, Trout Unlimited ~~DRW~~ Deerfield River Watershed Chapter, Mass Audubon, GCC, MTRSD, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program, Franklin Land Trust, Woodlands Partnership of Northwest Massachusetts*
  - ***Timeline:*** *Long*

Water and Wastewater Infrastructure

- Push for funding and policy around rural infrastructure improvements
  - ***Possible partners for implementation:*** *Senator Mark, Rep. Blais, UMass Amherst Public Policy, UMass Boston Public Policy, FRCOG, Legislators, MMA*
  - ***Timeline:*** *Long*
- Assess / Evaluate water and wastewater lines and pump stations, including need to rebuild Bridge of Flowers to protect water line~~;~~ (due for replacement in 2024), identify redundancies and coordinate with Buckland
  - ***Possible partners for implementation:*** *Shelburne Falls Fire & Water District, MassDOT, MassDEP, FRCOG, Great River Hydro*
  - ***Timeline:*** *Short*
- Identify potential impacts of drought on public wells, increase education on water use restrictions
  - ***Possible partners for implementation:*** *MassDEP, UMass group that did well-water testing for PFAs, Shelburne Falls Fire & Water District, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program*
  - ***Timeline:*** *Long/Ongoing*

1.17 Low Priority Actions

Feature: Libraries / Cultural Facilities

- Action: Identify resources, prioritize capacities and amenities at libraries and cultural facilities
  - ***Possible partners for implementation:*** *library staff, West County Arts & Culture, Shelburne Falls Arts Co-op, Mass Cultural Council*
  - ***Timeline:*** *Long/Ongoing*

Local Businesses

- Inventory of local businesses through a business association and the arts council
  - ***Possible partners for implementation:*** *a local business association (if revived), arts councils, Mohawk Trail Association, Franklin County Chamber of Commerce, FRCOG, Mass Cultural Council*
  - ***Timeline:*** *Short/Ongoing*
- Assess agrotourism and its reliance on climate (e.g., maple syrup production), think of long-term impacts and opportunities to diversify
  - ***Possible partners for implementation:*** *UMass Sustainable Development, UMass Agriculture, FRCOG, Conway School of Landscape Design, Franklin Tech, GCC, USDA, MassDAR, Mass Office of Travel and Tourism*

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  - ***Timeline:*** *Long*

Railroads / Transport of Hazardous Materials

- Evaluate communication plans for derailment, fire, hazardous waste spills, or other emergencies
  - ***Possible partners for implementation:*** *Transportation companies, USDOT, MADOT, MEMA, FEMA, Mass Department of Fire Services, Franklin County REPC, MassDEP, US Cybersecurity and Infrastructure Security Agency (CISA).*
  - ***Timeline:*** *Long*

ADDITIONAL INFORMATION

1.18 CRB Workshop Participants

The CRB Workshop participants included the Core Team, Town staff, Town Boards and Committees, local organizations, adjacent municipalities, and regional partners. The full list of CRB Workshop invites is shown in the sections below.

Table 2. Core Team

Name	Title	Affiliation	Attendance
Tom Williams	Emergency Management Director	Shelburne Emergency Management Committee	X
John Taylor	Fire Chief	Shelburne Fire Department	X
Sylvia Smith	Former Town Moderator, Senior Center Advisor, Rural Resident	Shelburne Resident	X
Jacqui Goodman	Former Teacher, Village Resident	Shelburne Resident	
Tricia Yacovone-Biagi	Town MVP Liaison, Rural Resident	Planning Board	X
Will Flanders	Town Official, Village Resident	Planning Board	X

Table 3. Additional Town Staff, Boards, Committees, Local Organizations

Name	Title	Affiliation	Attendance
Joe Judd	Town Clerk	Town of Shelburne	
Terry Narkewicz	Town Administrator	Town of Shelburne	
Penny Spearance	Emergency Management Committee Member	Town of Shelburne	
Mary Lou Gallup	Recreation Committee	Town of Shelburne	X
Sheryl Stanton	Superintendent of Schools	MTRSD	X
Juli Moreno	Senior Center Director	Shelburne Senior Center	
Christopher Demars	Veteran's Agent	Shelburne Office of Veteran Services	
Faith Williams	Housing Authority experience	Planning Board	X
Laurie Wheeler	Library Director	Arms Public Library	X
Greg Bardwell	Shelburne Police	Town of Shelburne	
Elizabeth Antaya	Shelburne Center Library Director	Shelburne Center Library	
Jay Readinger	Finance Committee	Town of Shelburne	X
Ron Kelter	Board of Health	Town of Shelburne	X
Carolyn Wheeler	Agricultural Commission	Town of Shelburne	X

Table 4. Adjacent Communities

Name	Title	Affiliation	Attendance
Heather Butler	Town Administrator	Town of Buckland	X
Herb Guyette	Director of Emergency Management	Town of Buckland	X
Paul McLatchy III	Town Administrator	Town of Ashfield	
George Stephan	Director of Emergency Management	Town of Ashfield	
Kevin Fox	Town Administrator	Town of Colrain	
Jim Lyons	Director of Emergency Management	Town of Colrain	

Table 5. Community and Regional Organizations

Name	Affiliation	Attendance
Roland Giguere	Grange	
Jodi Stetson or Launie York	4-H	
Penny Spearance	Women's Club, Senior Center	
Leader	Trinity Church	
Rev. Marianne MacCullaugh	First Congregational Church	X
John Walsh		
Laurie Benoit	Mary Lyon Foundation	X
Jim Perry, President	Deerfield River Watershed Association	X
Representative	Nolumbeka Project	
Andrew Randazzo	Mass Audubon	X
Eric Halloran, President	Trout Unlimited Deerfield River Watershed Chapter ~~Trout Unlimited~~	X
Carmela Lanza-Weil	Medical Reserve Corps, Shelburne Falls Business Association (former)	X
Michelle Olanyk	West County Arts & Culture	X
Tim Smith	Apex Orchards	
	Hager's Farm Market	
John Wheeler	Greenfield Farmer's Coop	X
Matthew Cole	Great River Hydro	X
Liam Cregan	Franklin Land Trust	X
Alison Cornish	BTS Center and Town of Buckland	X

Table 6. State / Government Officials

Name	Title	Affiliation	Attendance
Paul Mark	State Senator, Franklin Country	Massachusetts Senate	
Jim McGovern	Congressperson	US House of Representatives (Noho office listed)	
Natalie Blais	State Representative, 1st Franklin District	Massachusetts House of Representatives	
Tara Jacobs	Governor's Councilor	MA Governor's Council	
Kimberly Noake-MacPhee	Environmental Planner	Franklin Regional Council of Governments	
Michael Gorski	Western Regional Director	MA Department of Environmental Protection	
Priscilla Geigis	Deputy Commissioner for Conservation and Resource Stewardship	MA Department of Conservation and Recreation	
Mark Talbot	Hazard Mitigation Unit Supervisor	Massachusetts Emergency Management Agency	
Natasha Sawabi	Student Intern	USDA Natural Resources Conservation Service	
Rachael Phillips-Barnes	Assistant State Conservationist for Field Operations	USDA Natural Resources Conservation Service	

CRB Workshop Project Team

Key Staff:

- Tricia Yacovone-Biagi, Shelburne MVP Liaison
- Core Team Members as noted above

Facilitators from Weston & Sampson:

- Doris Jenkins, EIT
- Joanna Nadeau, AICP
- Indrani Ghosh, PhD

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1.19 Acknowledgement

The project team would like to recognize Shelburne's Core Team members for leading by example throughout the MVP planning process. The team would also like to acknowledge Tricia Yacovone-Biagi for her dedication to spearheading and coordinating this project. A special thanks to the Massachusetts Executive Office of Energy and Environmental Affairs for providing the grant funding to conduct the MVP Planning process, and to the Nature Conservancy for providing the Community Resilience Building Guidebook. An additional thanks to all of the CRB Workshop and Listening Session participants, and to the Project Team for facilitating successful events.

1.20 Citation for this Report

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