



DRAFT **Community Resilience Building (CRB)** Summary of Findings

Shelburne, Massachusetts
November 2023



MVP
Municipal Vulnerability
Preparedness

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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, which is a significant health and safety concern in light of climate hazards. Shelburne also does not have a large population of younger residents to help coordinate climate change preparedness. The themes of increased connectivity and improved emergency communication are prevalent in the top five priority action items that resulted from the CRB workshop voting process.

1

Improve community connections and emergency communications with vulnerable populations

2

Create a resilient drainage infrastructure improvement plan

3

Create a resilient roadway improvement plan

4

Create a resilient land use plan

5

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 can be utilized for up to one week and can assist by pumping 130,000 gallons of water per day (Shelburne, 2021).

The SFFD provides municipal wastewater treatment for the village of Shelburne Falls. The treatment plant is designed to treat 0.25 million gallons of wastewater per day; as of 2019, it was treating on average 70% of the design capacity (0.17 million gallons per day). The collection system is over 100 years old and has been found to be inefficient due to groundwater and stormwater inflow that the system must treat. During years of higher precipitation, the system treats a significantly greater amount of wastewater than during dry years. Outside of the village of Shelburne Falls, much of the town is served by private septic systems (Shelburne, 2021).

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 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.



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. 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.

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 and kayaking. 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 Mass Audubon High Ledges Wildlife Sanctuary and 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

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 8**, 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

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 3. A photo from Shelburne's CRB Workshop



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, 2023.

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: 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.

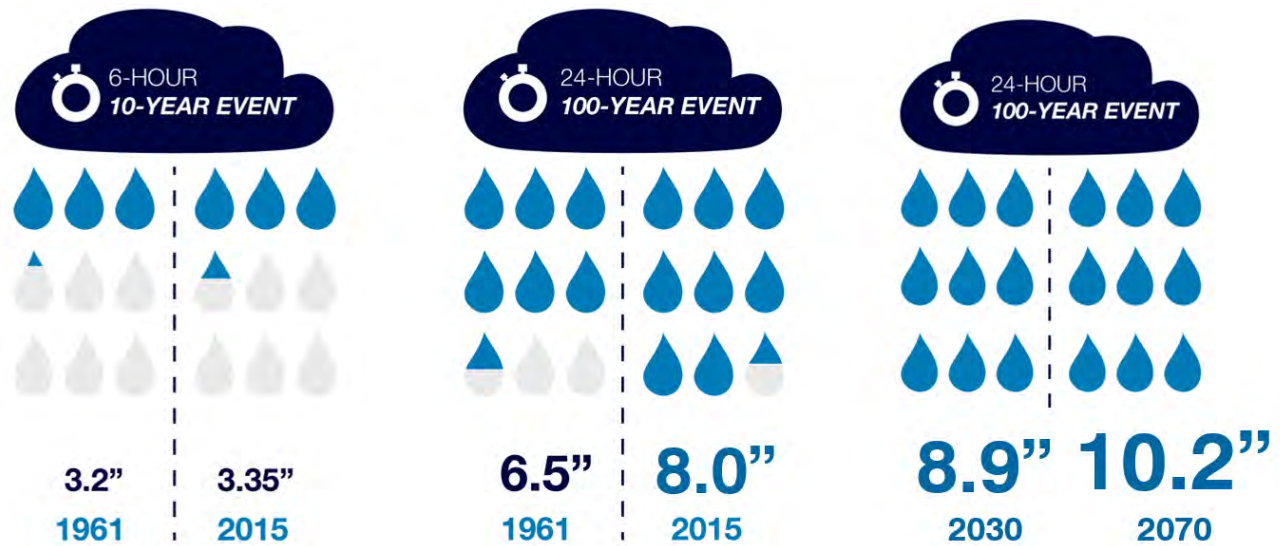
Increasing temperatures due to climate change are predicted to result in fewer days falling below 32°F, thus resulting in a decrease in annual snowfall predictions. However, climate predictions also indicate that extreme snow events may become increasingly intense and produce heavier snowfall in the 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).



(NOAA TP-40 (1961) and NOAA Atlas Volume 10 (2015))

Figure 6. Precipitation Trends and Projections in Massachusetts

During July 2023, the Town experienced 18 inches of rain. This change in precipitation patterns can lead to increased riverine and stormwater flooding, causing property damage, road closures, damage to the stormwater system, and damage to natural resources. 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 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).

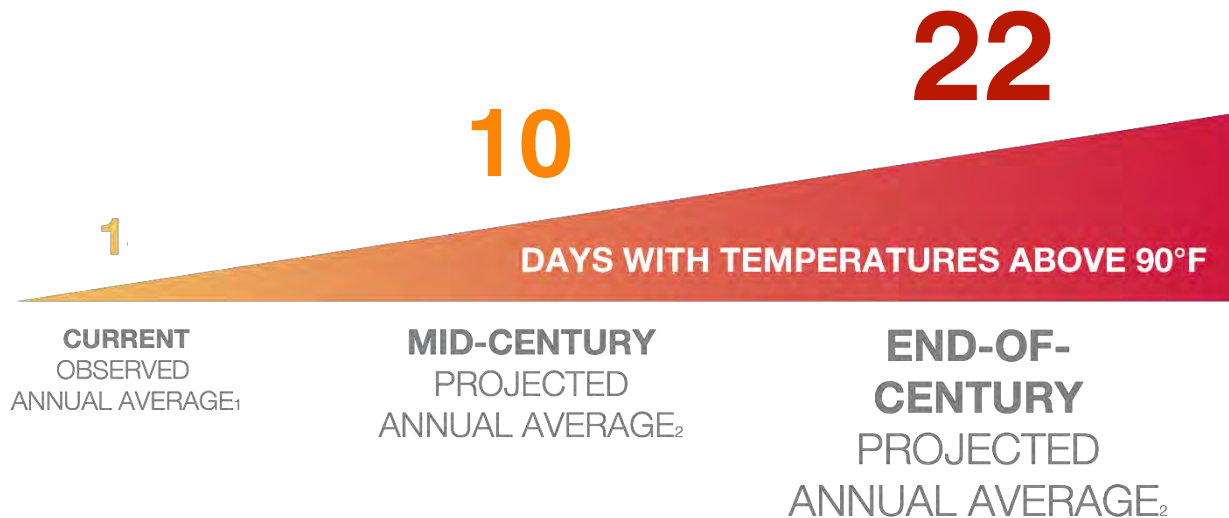


Figure 7. Days Over 90°F in Shelburne

Extreme temperatures in Shelburne put a strain on the electric grid's capacity, as these conditions lead to high demand on heating and cooling systems in both residential and commercial properties. Extreme temperatures can also be tied other hazards, resulting in compounding impacts. An example of this occurs when fluctuating winter temperatures result in precipitation on frozen ground, causing an increase in 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 of younger residents to help coordinate 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 and aging.
- There are many telecommunication and cell network dead spots throughout the Town.
- Water and wastewater infrastructure is aging and inefficient, and there is concern surrounding drought impacts on water supply.
- Emergency shelters are inadequately supplied to be run as heating and cooling centers during severe storm events.
- Dams 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 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.
- 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.

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 protecting some of Shelburne's critical buildings.
- Heating and cooling shelters, while inadequate, provide 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.
- 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 and offer flood buffers that protect the community.

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 in town. Participants were asked to rank action items as a low, medium, or high priority. 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.

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.

Priority Hazards (Storms, Floods, Wildfire, Hurricanes, Temperature Changes, Sea Level Rise, Heat Waves, etc.)	EXTREME WEATHER / WIND EVENTS	IN LAND FLOODING	EXTREME TEMP (HEAT / COOL)	DROUGHT	Priority	Monitoring
Infrastructure						
Farms	S/V					
Generators	S/V					
Local Roads / Evac. Routes	V	V				
Culverts / Aging Infra	V	V				
Electric / Telecom / Cell Towers	S/V					
Water + WWT (bridge of Amherst)	V					
Social						
Agricult. Community	S					
Older Adults / Mobility / Health + Low Income Families	S/V					
Medical facilities / Health Ctr.	S/V					
Shelters	S/V					
Libraries	S					
Cult Facil. / Senior Ctr.	S					
Local Business	V					
Demographics / Youth (leaving)	V					
Environmental						
Forested Land - protected rec L private	S/V					
Foxbrook Reservoir	S/V					
Brooks + Streams	V					
Deerfield River	S					
Train / Haz Mat	V					
Riparian buffers	S/V					

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. 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, 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 assess feasibility and location of farm 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/natural land while maintaining land for affordable housing; identifying actions such as formation of a community land trust, climate resilient forest planning, and/or establishing dynamic forest restoration blocks. 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).
 - **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, 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, 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 farmland, either as operation farmland or protected land, and increase awareness about land preservation opportunities of resilient landscapes
 - **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, 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, Mass Audubon, GCC, MTRSD, Mass Association of Conservation Committees (MACC), USDA Soil and Water Conservation Program*
 - **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, 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 Laurie 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	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

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

Shelburne. 2021. Town of Shelburne Hazard Mitigation Plan.

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

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