

SHELBURNE HAZARD MITIGATION PLAN UPDATE PUBLIC FORUM



September 14, 2020

Multi-Hazard Mitigation Plan


- The purpose of hazard mitigation is to reduce potential losses from future disasters.
- Mitigation plans identify the natural hazards that impact communities, identify actions to reduce losses from those hazards, and establish a coordinated process to implement the plan.

Shelburne Multi-Hazard Mitigation Plan 2014

- Inventoried *historic* hazard events – frequency, magnitude and damages
- Vulnerability assessment for flooding was prepared based on damages from *past* events and location in 100 year floodplain
- Prioritized all hazards and included action items for each hazard

Massachusetts' Changing Climate

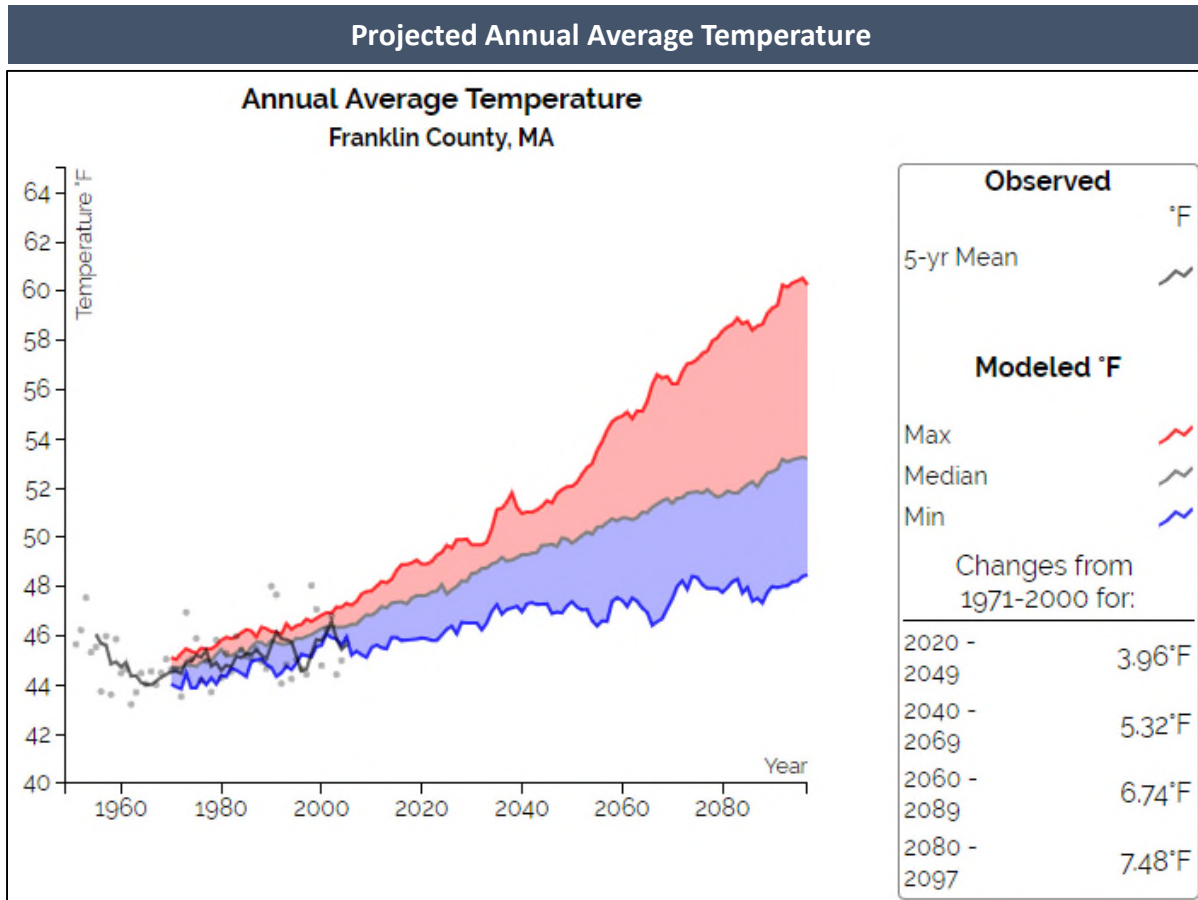
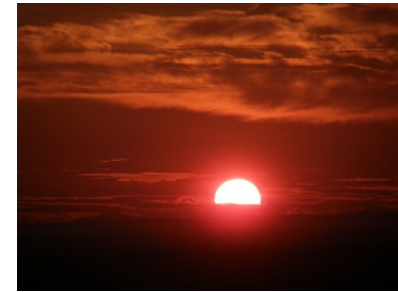
- **Changing weather**
 - Higher temperatures
 - Shorter winters
 - More frequent & intense storms
 - Droughts
- **Amplifies existing risks**
 - Community and regional infrastructure
 - Local and regional economies
 - Public health
 - Natural resources and our environment



**Goal for Building
Resilience to a
Changing Climate:**

**Protect life,
property, natural
resources and the
economy**

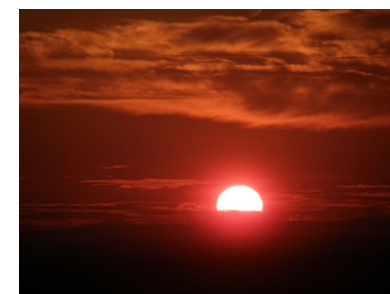
Higher Temperatures



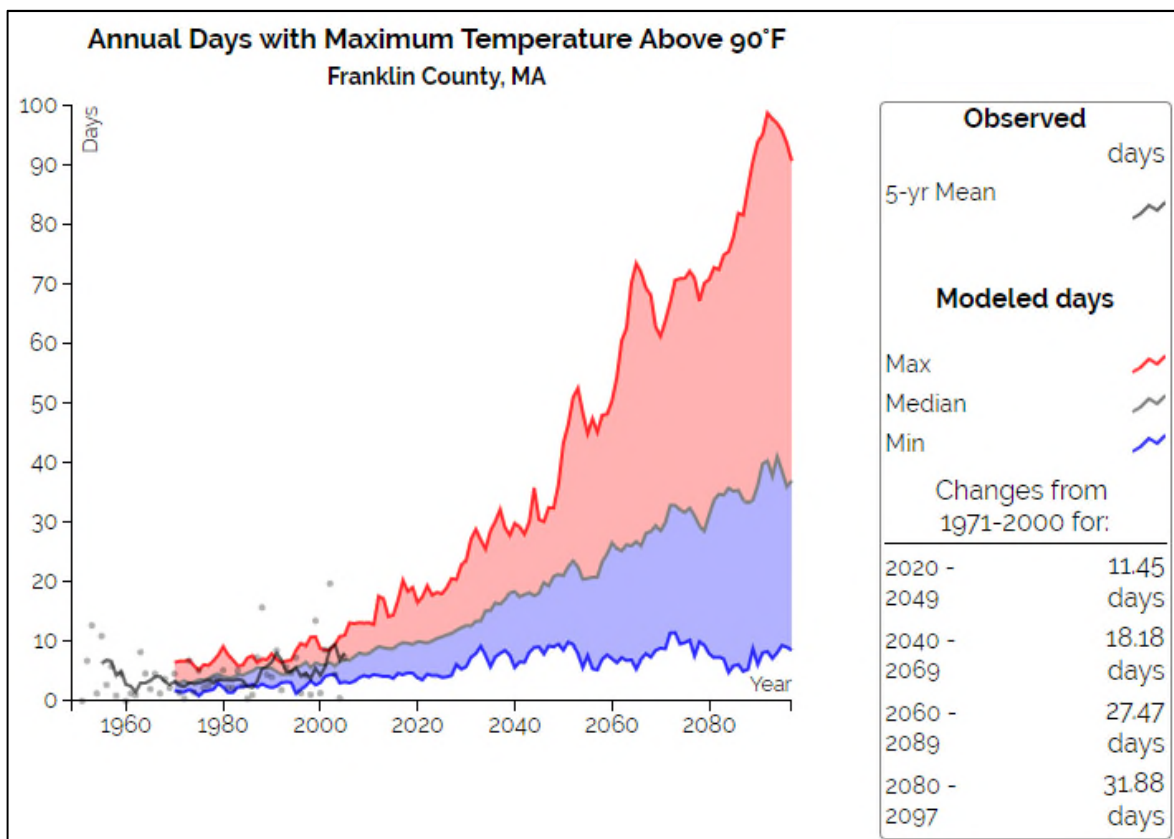
The average annual temperature is projected to increase from 45.3°F to 50.6°F (5.32°F change) by mid-century, and to 52.8°F (7.48°F change) by the end of this century

Source: Resilient MA, 2018

Extreme Temperatures



Projected Annual Days with a Maximum Temperature Above 90°F

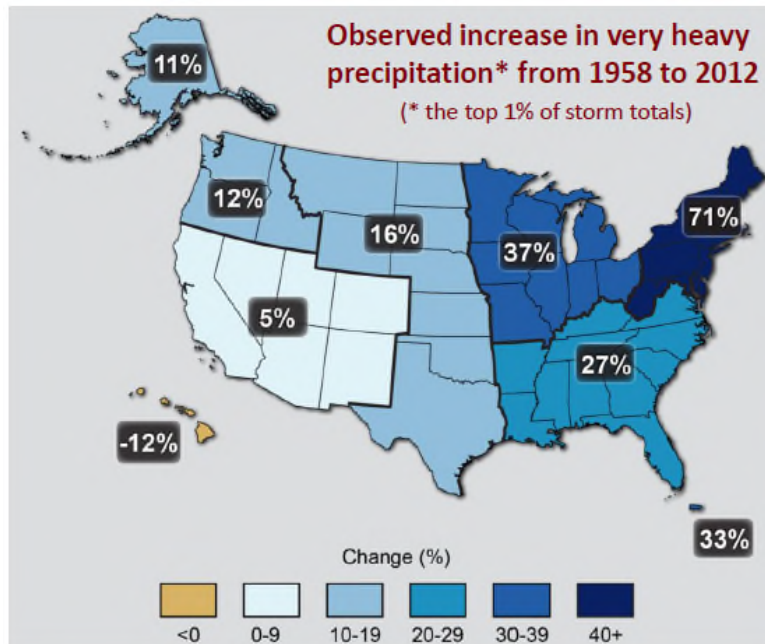


- Projected to increase by 18 days by the 2050s, and by 32 days by the end of the century for a total of 36 days over 90°F
- 1971 to 2000 average of 4 days per year

Source: Resilient MA, 2018

Changes in Precipitation

Observed Increase in Heavy Precipitation



- Total annual precipitation is projected to increase by 3 inches by mid-century, and by 4 inches by the end of this century
- Less snow / more rain in winter
- Heavier precipitation events overall

Source: Resilient MA, 2018

Extreme Weather Events

- Tropical storms
- Tornadoes
- Thunderstorms
- Snow storms
- Drought

The frequency, intensity, duration and geographic extent of these extreme storms is likely to increase.



Recent Severe Storms

2019 Microburst

Microburst wreaks havoc in Deerfield, Montague -

The Recorder 7/31/2019

Montague and Deerfield took heavy damage from Tuesday afternoon's storm, with Eversource reporting about 800 power outages from downed trees and utility poles between the two towns.

In addition, the storm damaged crops and greenhouses.

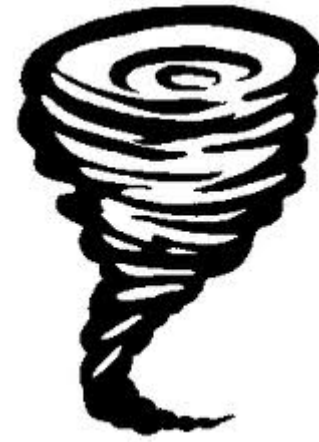


Recent Severe Storms

2008 Ice Storm



Recent Severe Storms 2017 Conway Tornado



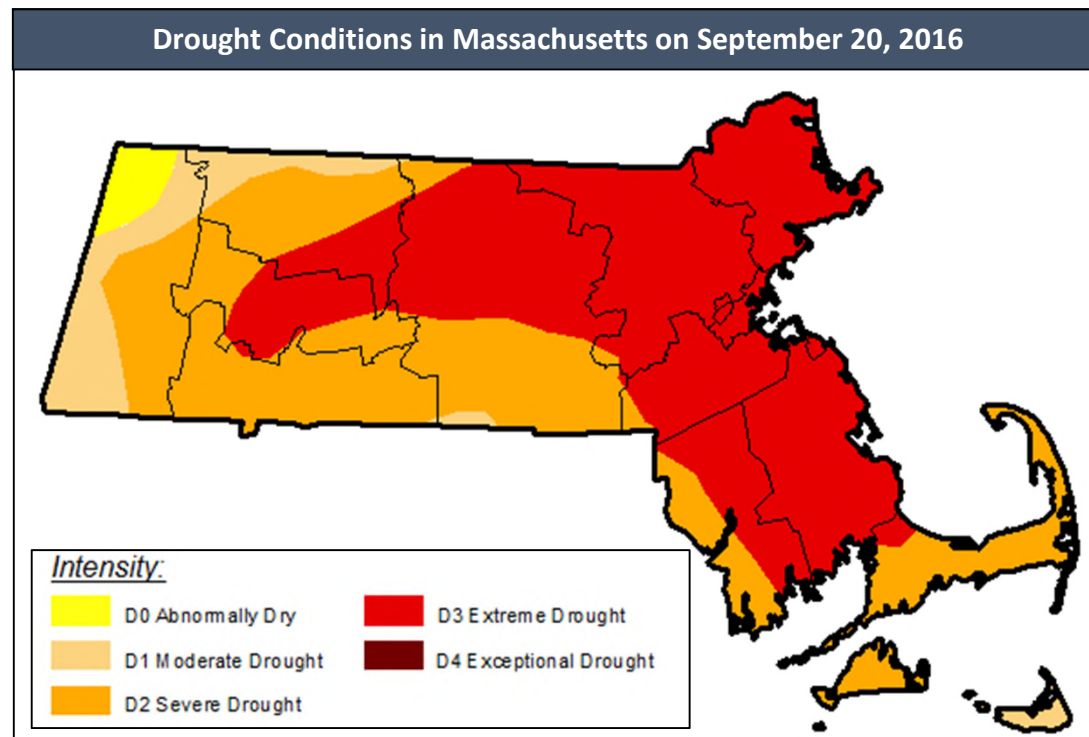
Recent Severe Storms

2011 Tropical Storm Irene



Recent Severe Storms

2016 Drought



2020 Hazard Identification & Risk Analysis

- **Identify Past, Current and *Future* Hazards**

- **Determine Top Priority**

Hazards

- Which hazards pose the greatest threat to the town currently and in the future?

- **Consider Impacts to Critical Facilities and Infrastructure:**

- Roads and bridges
- Power grid
- Drinking Water
- Wastewater Treatment
- Communications
- Housing
- Emergency Shelters / Town Buildings
- Schools
- Access to Hospitals / Medical Facilities
- Farms / Agriculture

Vulnerable Populations in Shelburne

Vulnerable Population Category	Number	Percent of Total Population (1,935)
Population Age 65 Years and Over	482	25%
Population with a Disability	340	18%
Population who Speak English Less than "Very Well"	32	2%
Vulnerable Household Category	Number	Percent of Total Households (881)
Low Income Households (annual income less than \$35,000)	246	28%
Householder Age 65 Years and Over Living Alone	137	16%
Households Without Access to a Vehicle	65	7%
Home Built Prior to 1975	749	76%
Living in a Mobile Home	6	<1%

Note: Individuals and households may be counted under multiple categories.

Source: U.S. Census American Community Survey 2013-2017 Five-Year Estimates.

Shelburne Hazard Identification and Risk Analysis

Type of Hazard	Location of Occurrence	Probability of Future Events	Impact	Overall Hazard Vulnerability Rating
Severe Winter Storms	Large	Very High	Limited	High
Hurricanes / Tropical Storms	Large	Moderate	Catastrophic	High
Severe Thunderstorms / Wind / Microbursts	Large	Very High	Limited	High
Extreme Temperatures	Large	Very High	Limited	High
Invasive Species	Large	Very High	Minor	Medium
Flooding	Medium	Very High	Limited	Medium
Dam Failure	Medium	Very Low	Catastrophic	Medium
Earthquakes	Large	Very Low	Limited	Medium
Drought	Large	High	Minor	Medium
Wildfires	Medium	High	Minor	Medium
Tornadoes	Isolated	Very Low	Catastrophic*	Low
Landslides	Isolated	Low	Limited	Low

2020 Key Hazard Problem Statements

- Shelburne's **emergency shelter** at the Mohawk Trail Regional School in Buckland is located in the dam inundation area and on the other side of the Deerfield River from Shelburne.
- Shelburne's **reliance on Route 2** as the major transportation and evacuation route in town places residents and emergency responders at risk if the road is impacted by a hazard.
- Heavy precipitation exacerbates **flooding issues at road/stream crossings** and increases landslide potential; chronic problem areas include Hinsdale Brook along Brook Road and Dragon Brook.
- The **Iron Bridge and the Bridge of Flowers** over the Deerfield River, including the **water and sewer mains** located on the bridges, are vulnerable to flooding.
- A failure of one of the **High Hazard dams** on the Deerfield River would result in catastrophic flooding in the village of Shelburne Falls. . A public notification plan is needed for a High Hazard dam failure event. Elderly and disabled residents and students would need assistance evacuating.
- The Shelburne Town Hall lacks **redundancy and digital backup for public records**. Some, but not all, records are backed up.
- **Emergency communication infrastructure** in several areas of town are susceptible to hazards, including the radio tower on Cooper Lane, the stone tower on Tower Road, and the radio complex on Old Albany Road.
- Shelburne's forests make up approximately 72% of the town and are vulnerable to **drought**, which could also increase the risk to other hazards including **wildfire and pests**.
- **Cyber-attacks** on local government is a growing threat. Keeping up with current best practices in cyber security can be challenging for a small community like Shelburne.

Actions Accomplished since the 2014 Plan

- Subdivision Regulations were updated in 2016 to more fully address stormwater management and erosion and sediment control, require dam inundation areas be shown on development plans, and require new utilities to be placed underground.
- The Zoning Bylaw was updated to include Open Space Design, which includes priority resources to be protected and is the preferred form of subdivision development in the rural zoning district.
- The Zoning Bylaws were amended to include regulations and performance standards for large-scale industrial and commercial facilities, which address the storage and use of hazardous materials
- The Shelburne Falls Fire District received a HMP Grant to move electrical equipment out of the floodplain at the well site.
- The owner of the Davenport dam addressed the problems with the condition of the dam.

2020 High Priority Action Items

Action Type	Action Description	Hazards Addressed
Critical Facilities & Infrastructure	To reduce the risk of losing information due to a disaster, develop a standardized system for backing up important town records.	All Hazards
Critical Facilities & Infrastructure	Prioritize buildings and incorporate into capital planning the completion of electrical work at Town buildings for use with the mobile back-up generators.	All Hazards
Local Plans & Regulations / Education & Awareness	Participate in emergency exercises and planning related to flooding and dam failure on the Deerfield River. Update communications and evacuation plans in coordination with surrounding communities. Establish a plan for notifying residents within the inundation area of evacuation procedures to follow.	Flooding, Dam Failure
Local Plans & Regulations / Education & Awareness	Formalize agreements for use of the Senior Center, and potentially other buildings, as a warming and cooling center, and establish notification procedures for informing the public when centers are in operation.	Extreme Temperatures
Local Plans & Regulations	Participate in tabletop exercises and trainings for hazardous material accidents and mass casualty incidents.	Manmade Hazards

2020 Medium Priority Action Items

Action Type	Action Description	Hazards Addressed
Critical Facilities & Infrastructure	Assess and identify an alternative emergency shelter location in Shelburne in the event the Mohawk Trail Regional School cannot be accessed by Shelburne residents. Establish a plan for setting up and operating the alternative shelter.	All Hazards
Critical Facilities & Infrastructure / Nature-Based Solutions	Hire a consultant to conduct a geomorphic engineering assessment of the Hinsdale Brook to determine possible bank stabilization measures to mitigate damages to the environment and nearby infrastructure. Seek funding to implement recommended measures.	Flooding, Landslides
Critical Facilities & Infrastructure / Nature-Based Solutions	Hire a consultant to explore options for mitigating flooding at Bardwells Ferry Road and Allen Road, including implementing an upstream flood mitigation project to keep water within the channel and floodplain. Seek funding to implement feasible options.	Flooding
Education & Awareness	Once new FEMA floodplain maps are available for Shelburne, conduct public outreach about the floodplain and the National Flood Insurance Program (NFIP).	Flooding
Education & Awareness	Provide public education and outreach to raise awareness about invasive species, including training sessions about the Outsmart Invasive Species program.	Invasive Species
Education & Awareness / Local Plans & Regulations	Consider participating in the Pioneer Valley Mosquito Control District. Joining the PVMCD would allow Shelburne to receive weekly monitoring of vector species and the presence of West Nile Virus and EEE via trapping, sorting, lab testing, and reporting.	Invasive Species, Extreme Temperatures
Critical Facilities & Infrastructure / Education & Awareness	Protect the Town's Information Technology through periodic training of staff on threat detection and avoidance, reviewing procedures with the Town's IT provider for recovery from an attack, and updating firewalls, security software, passwords, and additional procedures against cyber threats.	Manmade Hazards

Next Steps

- Identify any actions that are missing
- Provide comments on the plan by September 30, 2020 – available on the Shelburne website at
- Comments may be submitted to Alyssa Larose, FRCOG Senior Planner, at alarose@frcog.org or 413-774-3167 x127

THANK YOU!