

*Town of* **Ayer**  
Massachusetts

# HAZARD MITIGATION PLAN UPDATE TOWN OF AYER

PUBLIC OUTREACH & INFORMATION FORUM



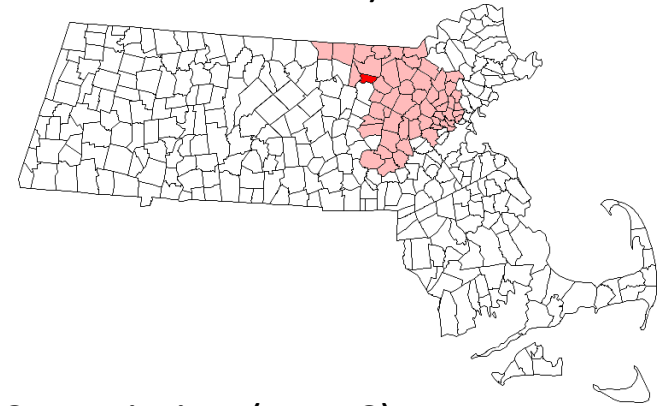
JUNE 29, 2023

# Ayer Hazard Mitigation Planning (HMP) Working Group

2023-2024

## Introductions

- Town of Ayer
  - Fire Chief – Emergency Management Director
  - Town Manager
  - Assistant Town Manager (outreach coordinator)
  - Public Works Director
  - Chief of Police
  - Building Commissioner
  - Conservation Agent
- Montachusett Regional Planning Commission (MRPC)
  - Karen Chapman, Planning & Development Director
  - Jeffrey Legros, Principal Planner
  - Ryan Doherty, Regional Planner



# Ayer Hazard Mitigation Plan (HMP)

2023-2024

## Public Input Survey:

[www.surveymonkey.com/AyerHMP2023](https://www.surveymonkey.com/AyerHMP2023)



The graphic features two speech bubbles at the top: an orange one on the left saying "WE NEED YOUR" and a green one on the right saying "FEEDBACK". To the right of the green bubble is the Ayer Library seal, which is circular and contains the text "AYER-MASS" at the top, "AYER LIBRARY" in the center, and "Incorporated Feb. 14, 1871" at the bottom. Below the speech bubbles, the title "HAZARD MITIGATION PLAN" is written in large, bold, black capital letters. Underneath the title is a definition of a natural hazard in all caps: "A NATURAL HAZARD IS DEFINED AS 'AN EVENT OR PHYSICAL CONDITION THAT HAS THE POTENTIAL TO CAUSE FATALITIES, INJURIES, PROPERTY DAMAGE, INFRASTRUCTURE DAMAGE, AGRICULTURAL LOSS, DAMAGE TO THE ENVIRONMENT, INTERRUPTION OF BUSINESS, OR OTHER TYPES OF HARM OR LOSS'". In the bottom row, there is a yellow starburst on the left with the text "Take the survey!", a QR code in the center, and a blue starburst on the right with the text "Help Ayer Stay Safe!". At the very bottom, a line of text states: "Paper Copies are available in the Select Board's Office".

**WE NEED YOUR FEEDBACK**

**HAZARD MITIGATION PLAN**

A NATURAL HAZARD IS DEFINED AS "AN EVENT OR PHYSICAL CONDITION THAT HAS THE POTENTIAL TO CAUSE FATALITIES, INJURIES, PROPERTY DAMAGE, INFRASTRUCTURE DAMAGE, AGRICULTURAL LOSS, DAMAGE TO THE ENVIRONMENT, INTERRUPTION OF BUSINESS, OR OTHER TYPES OF HARM OR LOSS"

Take the survey!



Help Ayer Stay Safe!

Paper Copies are available in the Select Board's Office

# PROCESS & PURPOSE

## Purpose

- Previous HMP expired in May 2021
- Prepare a current, updated Plan accepted by MEMA and FEMA
- Valid for 5 years
- Eligibility for mitigation grants from FEMA for implementation of projects

## Process

- Form a Working Group
- Host a public meeting
- Gather data and analyze
- Make recommendations to working group
- Submit a draft report to the public for review
- Host a second public meeting to present and discuss
- Incorporate public comments and finalize the Plan

## Capabilities Assessment

**Critical Facilities**

**Flood Zones**

**Local Hazards &  
Vulnerabilities**

**Evaluation of past  
occurrences and future  
likelihoods**

**Natural Hazards Risk  
Matrix**

# MAJOR COMPONENTS OF A HAZARD MITIGATION PLAN

# Natural Hazards Matrix

Ayer Natural Hazard Matrix				
Natural Hazard	Likelihood of Occurrence	Location	Impacts	Hazard Index
Natural Hazard Separated by Flood, Atmospheric Related and Winter Related, Other Natural Hazards, and Geologic Hazards	3 = Highly Likely 2 = Possible 1 = Unlikely	3 = Regional/State 2 = Multi Community/Regional 1 = Local/Town	4 = Catastrophic 3 = Critical 2 = Limited 1 = Negligible	Ranking Determined by Combining the Likelihood, Location and Impacts of a Natural Hazard
<b>Flood-Related Hazards</b>				
• Heavy Rain	2	1	2	5
• Snow Melt	1	1	1	3
• Dam Failure	2	2	3	7
• Ice Jams	1	2	3	6
• Beavers	3	1	2	6
<b>Atmospheric Related and Winter Related Hazards</b>				
• High Winds	2	2	3	7
• Hurricanes	1	3	3	7
• Tornadoes	1	2	3	6
• Nor'easters	2	3	2	7
• Severe Thunderstorms	2	1	2	5
• Heavy Snow	3	2	3	8
• Ice Storms	2	2	3	7
• Blizzard	1	2	3	6
<b>Other Natural Hazards</b>				
• Major Urban Fires	1	1	3	5
• Wildland Fire	3	1	2	6
• Drought	1	3	2	6
• Extreme Temperatures	1	3	2	6
<b>Geologic Hazards</b>				
• Earthquakes	1	2	2	5
• Landslides	1	1	1	3
• Tsunami	NA	NA	NA	NA

**Key**

Highly likely: 90 to 100 percent probability of occurrence in the next year or a recurrence interval of less than 1 year.

Possible : 10 to 90 percent probability of occurrence in the next year or a recurrence interval of 1 to 10 years.

Unlikely: Less than 10 percent probability of occurrence in the next year or a recurrence interval of greater than 11 years.

Catastrophic: Immediate onset or extended duration of event, resulting in catastrophic damage and uninhabitable conditions.

Critical: Fast speed of onset or long duration of event resulting in devastating damage and loss of services for weeks or months.

Limited: Moderate speed of onset or moderate duration of event, resulting in some damage.

Negligible: Slow speed of onset or short duration of event resulting in little to no damage.

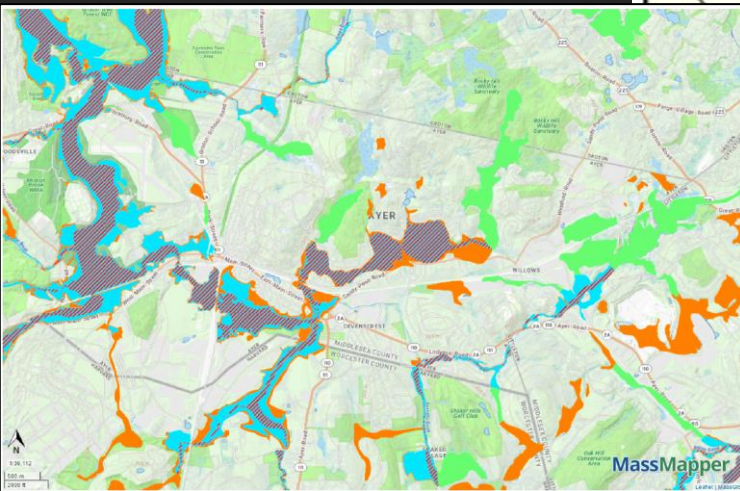
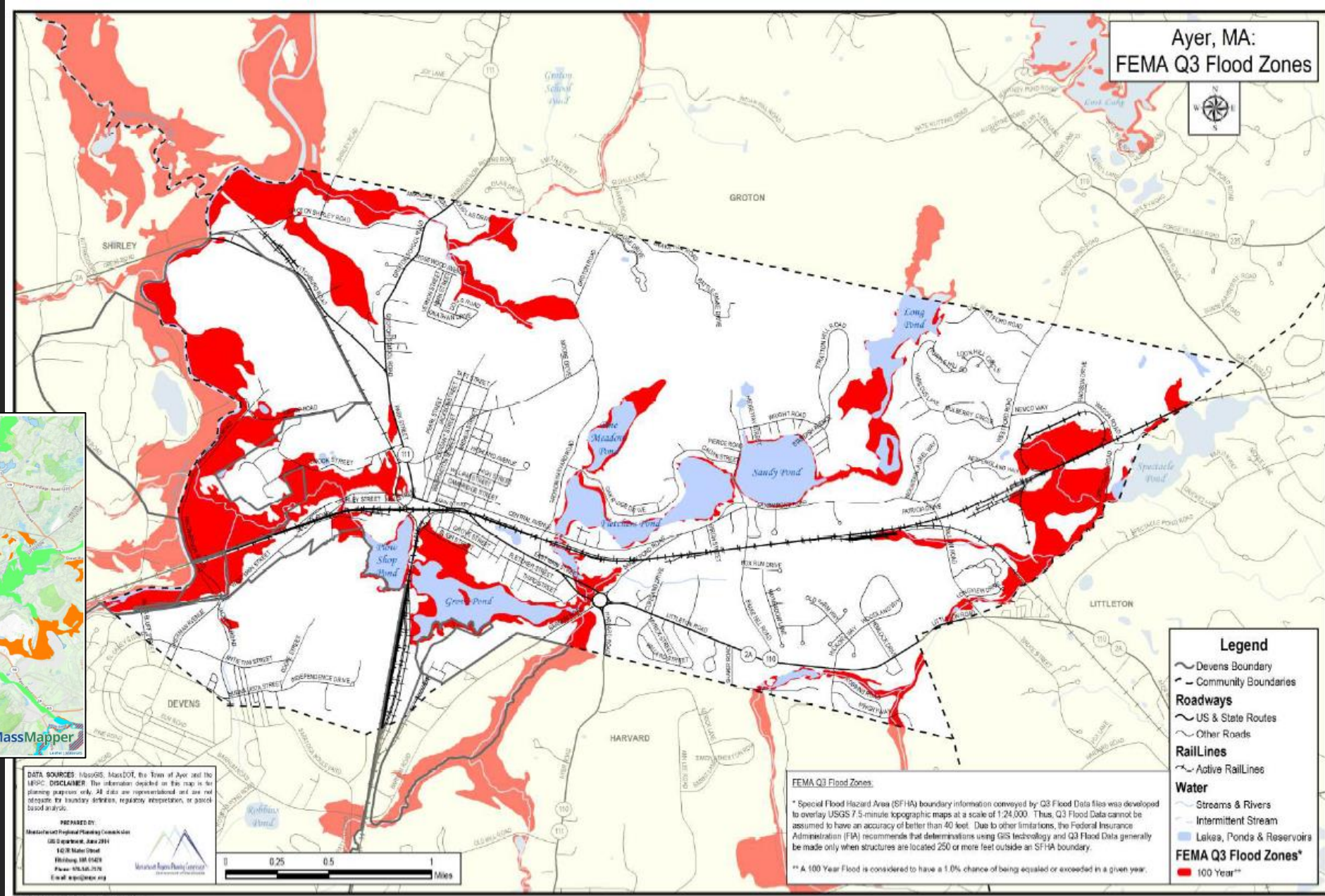
## 2015 - 2016 Montachusett Region Hazard Mitigation Plan Town of Ayer

# Critical Facilities

Table 30: Ayer Critical Facilities		
Feature Type	Name	Address
Animal Shelters	Ayer Animal Medical Center	196 West Main Street
City/Town Halls	Ayer Town Hall	1 Main Street
Clinics	Advocates Community Counseling	11 Depot Square
District Court	Ayer District Courthouse	25 East Main Street
DPW Facilities	Ayer DPW	25 Brooks Street
Early Education Childcare Facilities	Mullan, Janet	6 Forest St
	Aver Kiddie Depot	33 Shirley St
	Stevens, Patricia	23 High St
	Boisseau, Brenda M.	22 Fletcher St
	Duncanson, Tiffany	10 Atherton St.
	Aguiar Muniz, Claudia	2 Myrick St
	Bourne, Karen	142 Oak Ridge Dr
Elderly Housing	Duncanson, Linda	9 Hatch St.
	Ayer Housing Authority	18 Pond Street
Emergency Operations Centers	Pleasant Street School Apartments	62 Pleasant Street
	Ayer Police Station	54 Park Street
Emergency Shelters	Ayer Fire Station	1 West Main Street
	Nashoba Valley Medical Center	200 Groton Road
End Of Life Facilities	Ayer Town Hall	1 Main Street
	Ayer High School	141 Washington Street
	Woodlawn Cemetery	
	Woodlawn Cemetery	
	Anderson Family Funeral Homes	46 Washington St
Fire	Saint Marys Cemetery	
	Ayer Fire Station	1 West Main Street
Freight	Panam Southern Rr Auto Yard	
	Devens Intermodal Rail Terminal	
Hazmat Sites	Cains Foods, L.P. (Warehouse)	3 Nemco Way
	Cains Foods, L.P. (Manufacturing Facility)	114 East Main Street
	Cargill Inc- Horizon Milling	35 Nemco Way
	Cpf Inc/Northeast Hotfill	25 Copeland Drive
	Epic Enterprises Inc.	11 Copeland Drive
	Jiffy Lube	38 Park Street
	Jp Sullivan & Co.	50 Barnum Road
	L3 Communications Essco	90 Nemco Way
	National Grid- Ayer 201	Bishop Road
	National Grid- Sandy Pond 237	Westford Road
	Steward Health Care Systems D/B/A Nashoba	200 Groton Road
	Verizon	26 Pleasant Street
	Nashoba Valley Express Co., Inc.	81 Central Avenue
	National Grid- Sandy Pond HvdC	Radisson Road
Hospitals	Nashoba Valley Medical Center	200 Groton Street
Long Term Care Facility	Nashoba Park	15 Winthrop Avenue
	Apple Valley Center	400 Groton Road
Other Critical Facilities	Ayer Water Storage Tank	Off Washington Street
Other Government Buildings	Ayer Dpw	25 Brooks Street

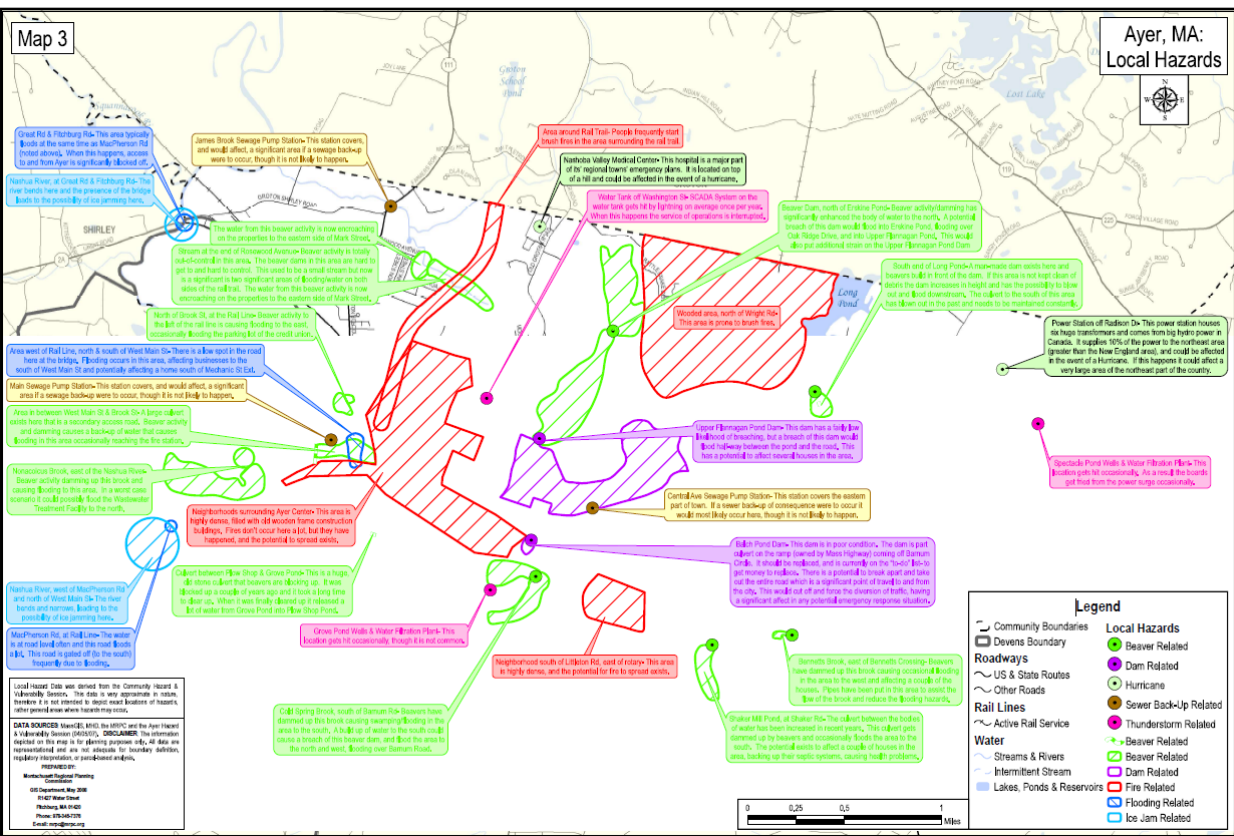


# FLOOD ZONES

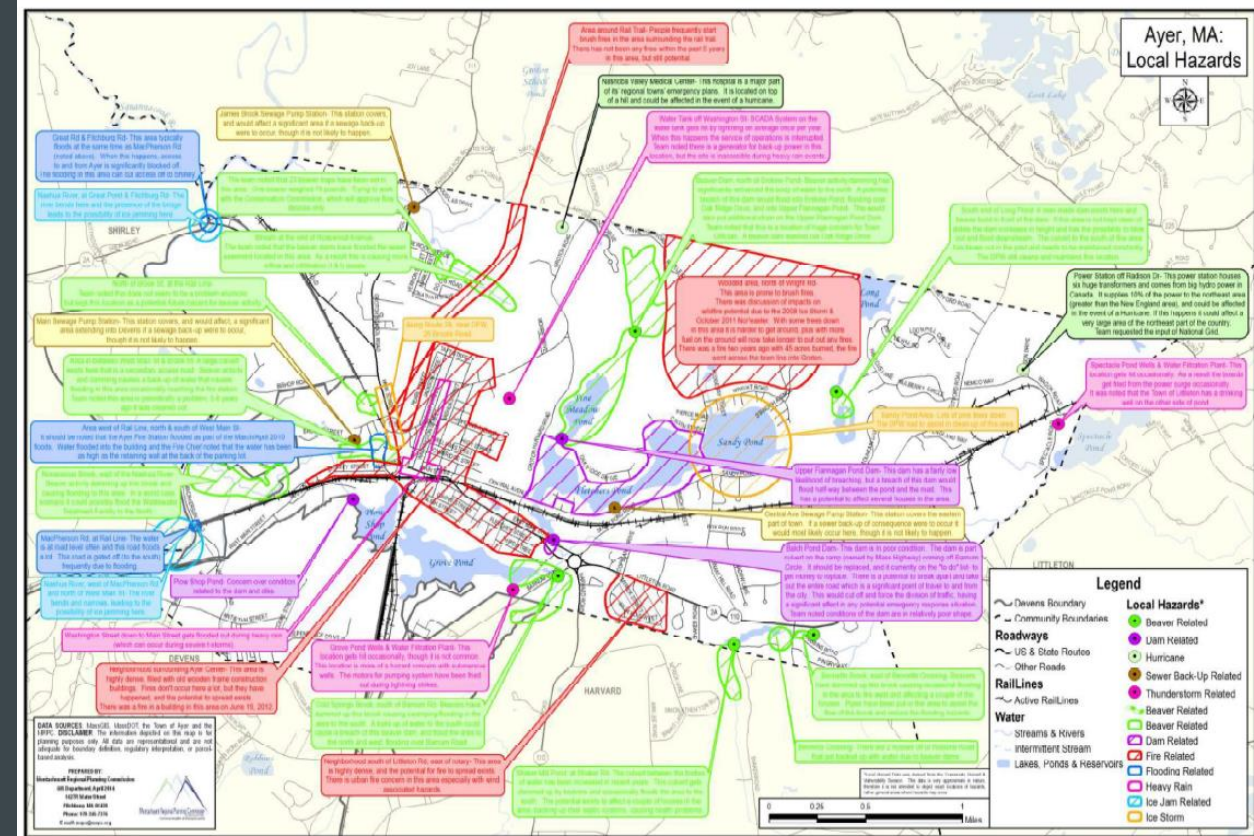




# Local Hazards Map 2008



# Local Hazards Map 2016





## Multi-Jurisdictional Hazard Mitigation Plan

### **2015 Hazards:**

1. Atmospheric and Winter Weather Hazards
  - Blizzards/Ice-storms
  - Severe Thunderstorms
  - Hurricanes
  - Tornados/Extreme Wind Events
2. Flood Related Hazards
3. Other Natural Hazards
  - Major Urban Fires
  - Wildland Fire
  - Drought
  - Extreme Temperatures
4. Geologic Hazards
  - Earthquakes
  - Landslides

## **Town of Ayer Hazards**



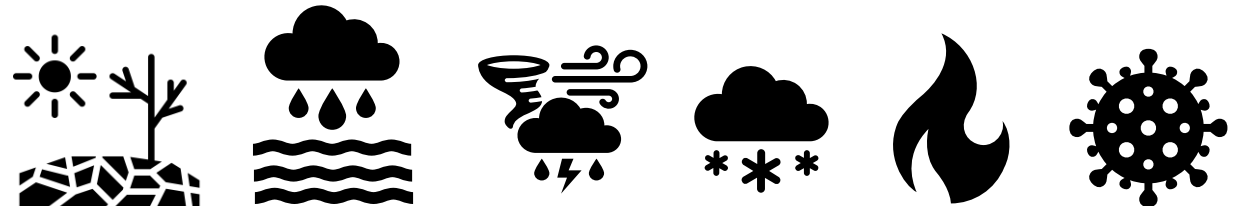
## Community Resilience Building/ Municipal Vulnerability Preparedness

### **2020 Hazards:**

1. Extreme Precipitation & Inland Flooding
2. Heat & Drought
3. Extreme Storms & Wind
4. Winter Snow/Ice Storms

## June 2023 HMP Public Input Forum

### **Today's Community Concerns?:**



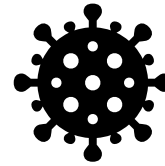
# 2023 – 2024

## Ayer Hazard Mitigation Plan

What are the Hazards of greatest concern or potential risk?:



**Flooding**



**Infectious Disease**



**Severe Winter Storms**



**Wildfire**



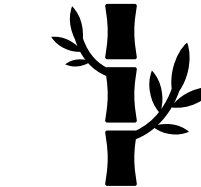
**Other Severe Storms**



**Earthquake**



**Drought**



**Invasive Plants**

## Earthquakes of 1638 & 1663

Two documented earthquakes occurred in 1638 and 1663 in Concord, NH and Quebec with 6.5 and 7.5 magnitudes were felt in Massachusetts.

## The New England Hurricane of 1815

The Great September Gale of 1815, or the Great Storm of 1915 as it was known then is one of 5 major hurricanes to strike New England since 1635 and at that time the first hurricane to strike New England in 180 years. The storm made landfall on Long Island, New York before moving through parts of Connecticut, Rhode Island, Massachusetts and into New Hampshire where the eye passed near Jaffrey and Hillsborough.

## Flood of 1936

The Great Flood of 1936 was one of the worst floods in Massachusetts history. Several factors, including extreme cold winter temperatures which led to ice buildup in rivers, heavy snowpack, and an abrupt March thaw and rain event, led to some of the worst flooding on record.

## Floods of Connie & Diane

The Hurricanes of Connie and Diane travelled up the east coast only 1-week apart in August of 1955. After receiving 4-6 inches of rain from Connie, rivers were swollen, and the ground was saturated. Then, Diane hit Southern New England and brought up to 20 inches of rain over a 2-day period. The rainfall and flooding were record-breaking in many areas. Hurricane Diane led to the Federal Flood Insurance Act of 1956.

## Blizzard of 1978

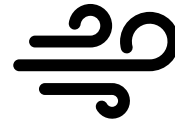
One of the most severe Nor'easter's of all time. Up to 3-feet of snow accumulated blocking roads and trapping people in their homes for days. The Commonwealth's first ever statewide road closure was issued.



1675-1676



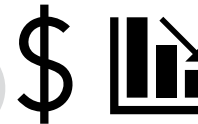
1800's



1907



1936

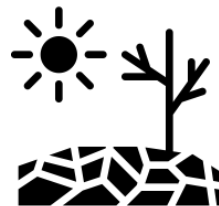


1938



1955

1962  
1969



1978



# A Timeline of Historical Occurrences of Natural Hazards

## Earthquakes of 1727, 1744, 1761, & 1755

Massachusetts experienced several earthquakes with estimated magnitudes between 4.6 and 6.2.

## Severe Storm Wind Event

## Financial Crisis of 1929 & The Great Depression

## Hurricane of 1938

The Great New England Hurricane of '38 made landfall at the astronomical high tide and was one of the most destructive and powerful storms of all time. The storm caused severe damage to trees, buildings, homes, and caused significant flooding. Only two years after the Great Flood of '36, all the town's bridges were washed out. Street trees and forests were severely impacted, and the storm scarred and changed the landscape. Signs of it can still be seen today.

## Severe, Long-term Statewide Drought

A long-term, 7-year multistate drought was one of the worst on record in Massachusetts and resulted in water-supply shortages in many areas.



## Statewide Level-II Drought, 2001 - 2003

Statewide period of drought from December of 2001 until January of 2003. Level-II, "Significant Drought" was reached for several months.

## 2008 Wildfire

April 2008, a large wildfire burned 100's of acres of the Devens, South Post Training Area following a period of region-wide drought.

## Flooding of 2010

A series of several precipitation events over a 5-week period in March following a recent snow storm and a winter of heavy snowpack, resulted in major flooding throughout Massachusetts. The Nashua River was hit especially hard. Parts of Clinton and Lancaster were underwater for days. **Emergency Declaration.**

**Severe Storms** – A June 1, 2011, storm resulted in hail, tornadoes, and high winds causing damage throughout Massachusetts. **Emergency Declaration.**

## October Nor'easter

October 29, 2011, snowstorm brought 24" to 32" of snow to towns throughout Massachusetts with wind gusts of up to 69mph. Known as the Halloween Nor'easter, or Snowtober, it was the 14<sup>th</sup> multi-billion-dollar weather-related disaster of 2011. It resulted in over 400,000 power outages and 6 deaths in Massachusetts. **Emergency Declaration.**

## Hurricane Sandy

October 27<sup>th</sup> to November 28<sup>th</sup>, 2012. Hurricane Sandy affected 24 states, including the entire east coast from Florida to Maine, and inflicted \$65 Billion in damage. **Emergency Declaration.**



1986

2001

2003

2007

2009

2010

2011

2011

2012

2012

2013



## Flooding of 1987

Over 6-inches of rain fell in early April within the upper Nashua River basin. The rain and snowmelt caused a dam to fail in Fitchburg washing out Bemis Road Bridge and causing downstream flooding through Leominster and into Ayer.

**2002 Wildfire** – August 14, 2002, a wildfire burned a large area of the Devens, South Post Training Area in Lancaster and affected air quality throughout the region.

## Regional Level-I

## Drought, 2007 - 2008

An unusual period of drought occurred between October 2007 to March 2008.

## Ice Storm of 2008

One of the region's worst ever ice storms. Power outages statewide for weeks and severe tree damage statewide.

## Hurricane Irene Flooding

August 27<sup>th</sup> to 29<sup>th</sup> 2011, Hurricane Irene hit the Mid-Atlantic and Northeast U.S. resulting in \$13.5 Billion in damages including substantial flooding in Massachusetts and throughout New England. **Emergency Declaration.**

## Wildfires of 2012

Unseasonably dry conditions led to at least 4 brush fires in different parts of Worcester County on April 18, 2012. In nearby Lancaster, a brushfire occurred off South Meadow Road. Firefighters were able to contain and extinguish the blaze quickly, but it posed a real risk of spreading if it had not been reported or responded to so quickly. Brush fires which occurred in Leicester/Paxton, Northbridge, Petersham, were considerably larger and more resource intensive.

**Winter Storm Nemo** – Feb. 8<sup>th</sup> & 9<sup>th</sup> 2013.

Nor'Easter caused heavy snow and coastal flooding throughout Massachusetts. The February 2013 North American Blizzard, or the Blizzard of 2013, produced up to 2-feet of snow and 30-50 mph winds. **Emergency Declaration.**

## 2013 Wildfire

October 2013, a large brushfire, scorched a large wooded area off Hilltop Road in nearby Lancaster requiring assistance from Harvard and Groton to control. Chiansaws were used to clear a path for a brush truck to get water to the area.

## Strong Winds of 2016

No less than 9 Strong Wind events occurred in Northern Worcester County between March and December 2016. High wind and several heavy rain events caused downed trees, downed power lines, flooding, and power outages in Ayer and throughout the region.

## Flooding of 2017

Flooding conditions were experienced on the Nashua River between April 4-7, 2017. Several roadways, including Route 117, were closed in Ayer due to the flooding.

## Covid-19 Pandemic

Global outbreak of the novel coronavirus (SARS-CoV-2). Covid-19 resulted in over 1.69 million total cases and 20,029 deaths in Massachusetts between March of 2020 and March of 2022. 191k of those cases and 2,559 deaths occurred within Worcester County. **Emergency Declaration.**



2013

2016

2017

2018

2020

2030

2040

2050

2060



## January 2015 Blizzard

January 26 - 27, 2015, an historic winter storm with 34 to 36-inches of snow reported in nearby Acton and Hudson. Blizzard conditions were reported for several hours throughout the region. **Emergency Declaration.**

## Statewide Level III Drought

July 2016 to April 2018. Statewide drought conditions led to instances of wildfire, water bans, and a gypsy moth outbreak. Usually, early season rain events cause a fungus that controlss gypsy moth populations. However, without any moisture, populations grew out of control which decimated tree foliage in most of Southern New England.

## Wildfire 2018

A brush fire burned about 3-acres near the railroad tracks off Pine Hill Road in Lancaster, near Devens. Multiple Fire Departments responded to the 2-alarm wildfire.

### Sources:

[Costliest U.S. Tropical Cyclones Table Updated](#), Natinal Oceanic & Atmospheric Administration – NHC. Accessed 14 Mar 2022

[Hurricane Sandy Situation Report #6"](#) (PDF). United States Department of Energy Office of Electricity Delivery & Energy Reliability. October 31, 2012. Archived from [the original](#) (PDF) on March 2, 2013. Retrieved March 13, 2022.

[Storm Events Database](#), National Oceanic & Atmospheric Administration – National Weather Service. Accessed 17 March 2022.

[Ayer Community Resilience Building Report](#) (MVP), 2020. Town of Ayer, Prepared by ARCADIS U.S., Inc., Municipal Vulnerability Preparedness Program, Massachusetts EOEEA.

Online Archives of Local Contemporary Newspapers, News Media Outlets and [Wikipedia Online Encyclopedia](#). Accessed February and March 2022.

Be prepared  
for natural  
hazards  
at home.

Visit  
[Ready.gov](https://www.ready.gov)  
to get tips &  
make a plan.



## Wildfires

If there is a wildfire in the area, be ready to evacuate on short notice.

[Get Wildfire Tips](#)



## Thunderstorms & Lightning

Lightning is a leading cause of injury and death from weather-related hazards. Learn what to do before, during and after.

[Get Tips for Thunderstorms and Lightning](#)



## Flooding

If you approach a flooded road or walkway, follow this rule: turn around, don't drown!

[Prepare for Flooding Now](#)



## Make a Plan

Be Prepared. Make an emergency plan today and practice it.

[Emergency Plan Info](#)



## Build a Kit

Make sure your emergency kit is stocked with the right items.

[Emergency Supply List](#)



## Emergency Alerts

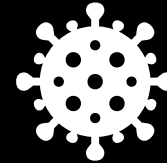
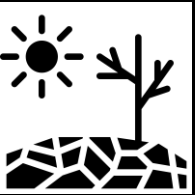
Wireless emergency alerts allow officials to provide the public with life-saving information quickly.

[More on Emergency Alerts](#)





# Natural Hazards



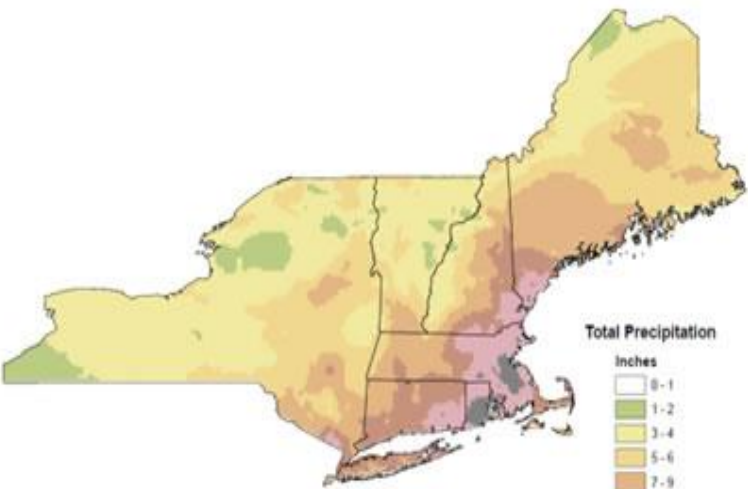
Flooding







Precipitation Totals for March 2010



Source: National Weather Service. "Flooding in Massachusetts".  
[www.weather.gov/safety/flood-states-ma](http://www.weather.gov/safety/flood-states-ma), Accessed Feb. 22, 2022.

1955 Connie & Diane  
**The Great Flood of 1936**  
 Flooding can occur  
 along the Nashua River  
 and low-lying roadways  
 during heavy rain,  
 sudden spring thaws,  
 and seasonal periods.

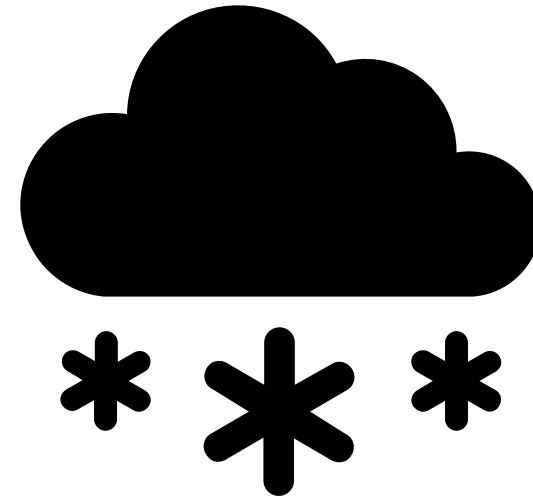
April 1987

2010 and 2017

Flooding along McPherson Road in Devens, Nov. 2021



# Severe Winter Storms





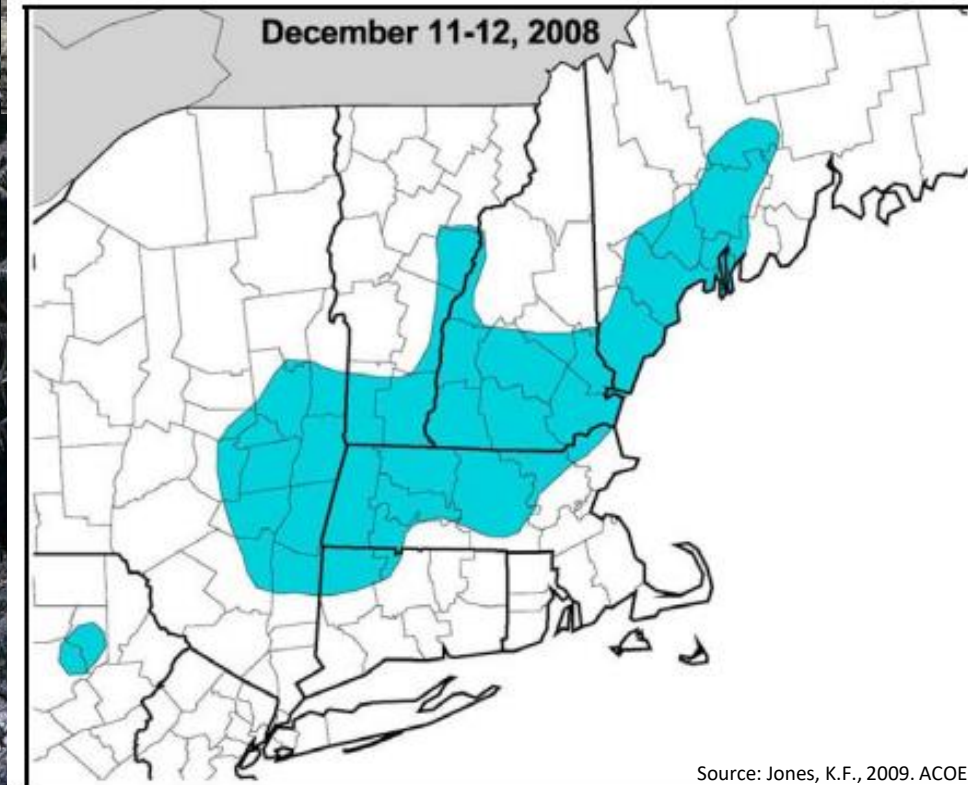
# The Blizzard of '78

## December 2008 Ice Storm

### Halloween Nor'easter of 2011

#### 2015 Blizzard

#### Winter Storm Nemo 2013



© Worcester Telegram & Gazette



Other  
Severe  
Weather



Tornados

Severe Thunderstorms

Hail

Extreme Wind

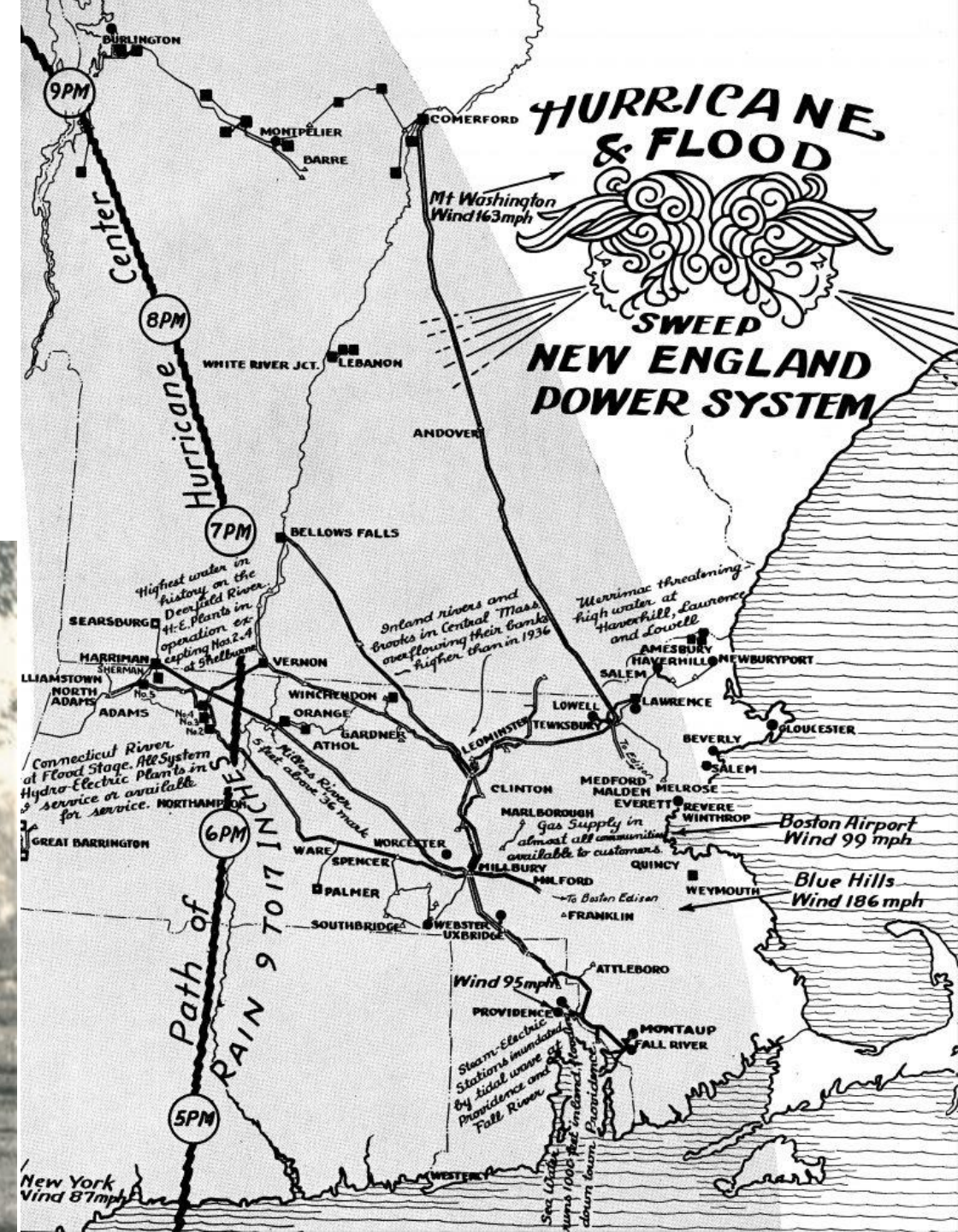
Tropical Storms

Hurricanes

## The Hurricane of 1938

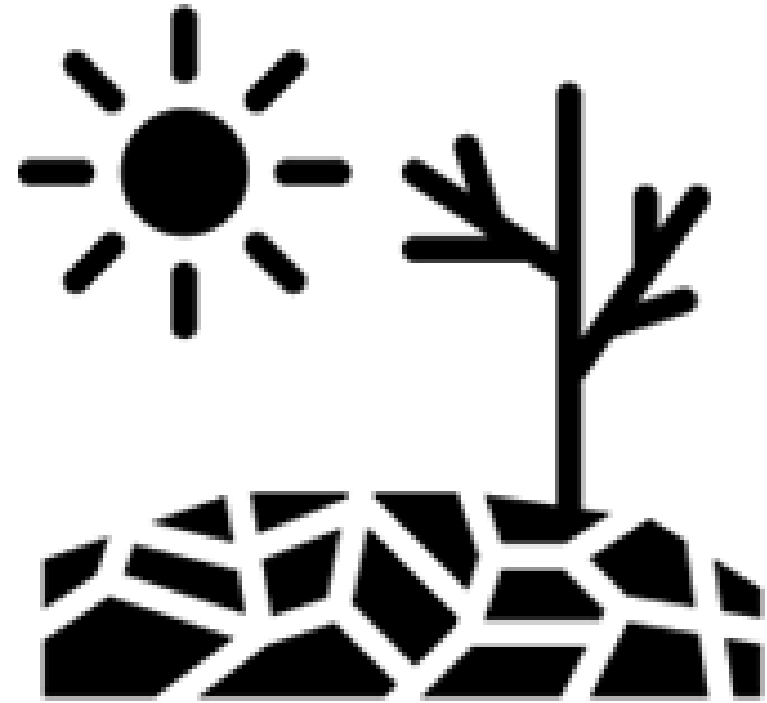


Tree damage from the The Hurricane of 1938  
Parker Road, Shirley, Massachusetts  
image courtesy of the Shirley Historical Society



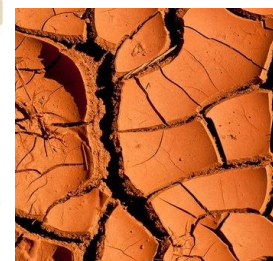


Drought



Date Period	Region or Watershed Basin Affected	Drought Level	Reference
Dec 2001 – Jan 2003	Statewide	Level 2 drought was reached for several months	DCR 2017 - 2022
Oct 2007 – March 2008	Statewide except Western and Cape & Island Regions	Level 1 drought	DCR 2017 - 2022
Aug 2010 – Nov 2010	Connecticut River Valley, Central, and Northeast Regions	Level 1 drought	DCR 2017 - 2022
Jul 2016 – Apr 2017	Statewide	Level 3 drought	DCR 2017 - 2022
May 2020 – Nov 2020	Statewide with unique drought status for Nashua River Basin	Level 2 drought	DCR 2017 - 2022
Mar 2021 – Apr 2021	Western, Connecticut River Valley, Central, Cape Cod Regions	Level 1 drought	DCR 2017 - 2022

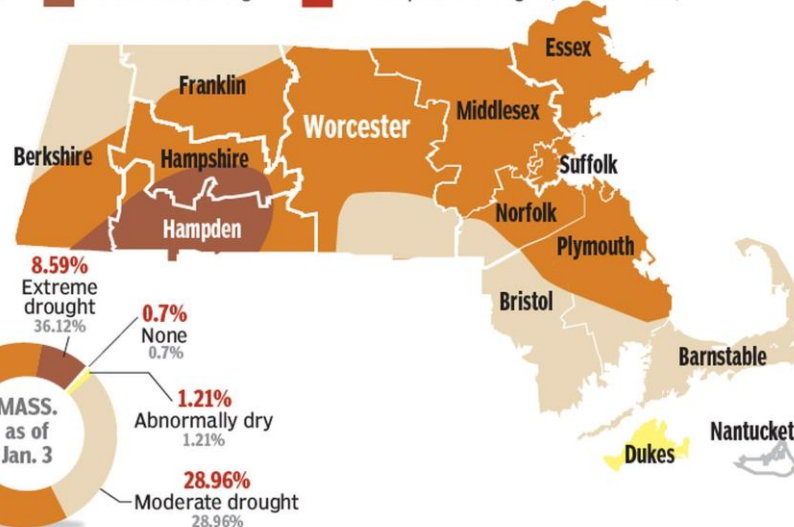
Date	Area affected	Recurrence interval (years)	Remarks	Reference
1879-83	–	–	Kinnison 1931 referenced these periods as two of three worst droughts on record in 1931, the third being the then current drought of 1929-1932.	Kinnison 1931
1908-12	–	–		
1929-32	Statewide	10 to >50	Water-supply sources altered in 13 communities. Multistate.	USGS 1989
1939-44	Statewide	15 to >50	More severe in eastern and extreme western Massachusetts. Multistate.	USGS 1989
1957-59	Statewide	5 to 25	Record low water levels in observation wells, northeastern Massachusetts.	USGS 1989
1961-69	Statewide	35 to >50	Water-supply shortages common. Record drought. Multistate.	USGS 1989
1980-83	Statewide	10 to 30	Most severe in Ipswich and Taunton River basins; minimal effect in Nashua River basin. Multistate.	USGS 1989
1985-88	Housatonic River Basin	25	Duration and severity as yet unknown. Streamflow showed mixed trends elsewhere.	USGS 1989
1995	–	–	Based on statewide average precipitation	DMP 2013
1998-1999	–	–	Based on statewide average precipitation	DMP 2013
Dec 2001 - Jan 2003	Statewide	–	Level 2 drought (out of 4 levels) was reached statewide for several months	DCR 2017
Oct 2007 - Mar 2008	Statewide except West and Cape & Islands regions	-	Level 1 drought (out of 4 levels)	DCR 2017
Aug 2010 - Nov 2010	Connecticut River Valley, Central and Northeast regions	–	Level 1 drought (out of 4 levels)	DCR 2017
Oct 2014 - Nov 2014	Southeast and Cape & Islands regions	–	Level 1 drought (out of 4 levels)	DCR 2017
Jul 2016 - Apr 2017	Statewide	–	Level 3 drought (out of 4 levels)	DCR 2017



## Drought conditions

Massachusetts as of Jan. 3, 2017

None
  D0 Abnormally dry
  D1 Moderate drought
  D2 Severe drought
  D3 Extreme drought
  D4 Exceptional drought (none in Mass.)



Source: U.S. Drought Portal (drought.gov)

DON LANDGREN JR./T&G STAFF

Source: Massachusetts Drought Management Plan (2019), Massachusetts, Executive Office of Energy and Environmental Affairs.



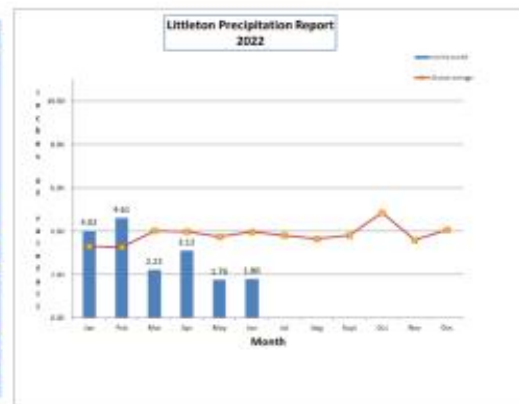


Home

# July 26, 2022 Drought Update

POSTED ON: JULY 26, 2022 - 1:39PM

As of July 1, 2022, we are 4.79" precipitation deficit for the year compared to the 30-year average.



**Town of Ayer, MA**  
August 4, 2022 · 🌐

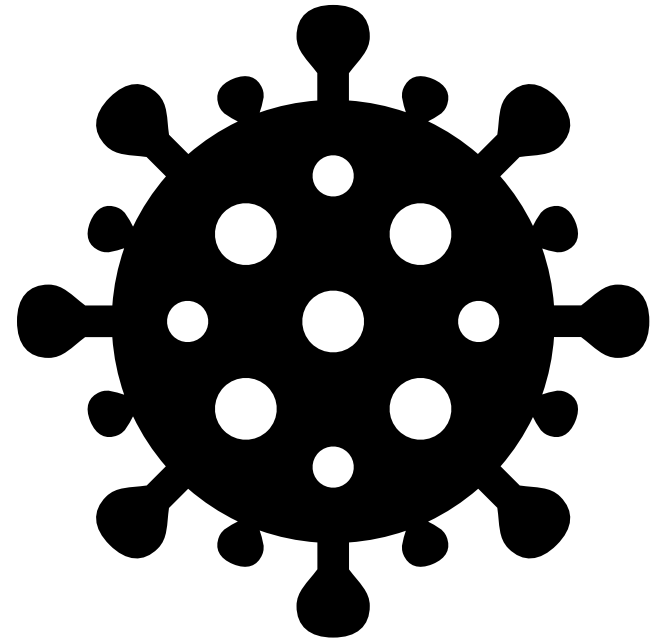
Ayer Water Supply Reaching Critical Levels: State of Water Supply Conservation as of August 4, 2022

Per the Ayer DPW, due to the severe drought in our region, and water use, the Town's water supply has reached critical levels and the Town of Ayer is issuing a State of Water Supply Conservation as of today, August 4, 2022. Effective immediately, all non-essential outdoor water uses are restricted. We ask that all residents use water wisely both indoors and outdoors. For mo... [See more](#)

As of July 26, 2022, Ayer has received only 1.28" of precipitation compared to the average 3.8" for the month of July.

The Ayer DPW is closely monitoring the drought conditions and assess daily the need for more restrictive conservation efforts to maintain a resilient Water Supply.

# Infectious Disease & Pathogens





# Vector Borne Diseases

## Mosquito-borne Diseases



West Nile Virus

Eastern Equine Encephalitis

## Tick-borne Diseases

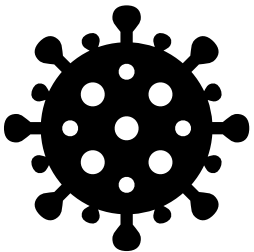
Lyme Disease



babesiosis

Anaplasmosis

## Pathogens



SARS-CoV-2



Avian Influenza Virus

Wildfire

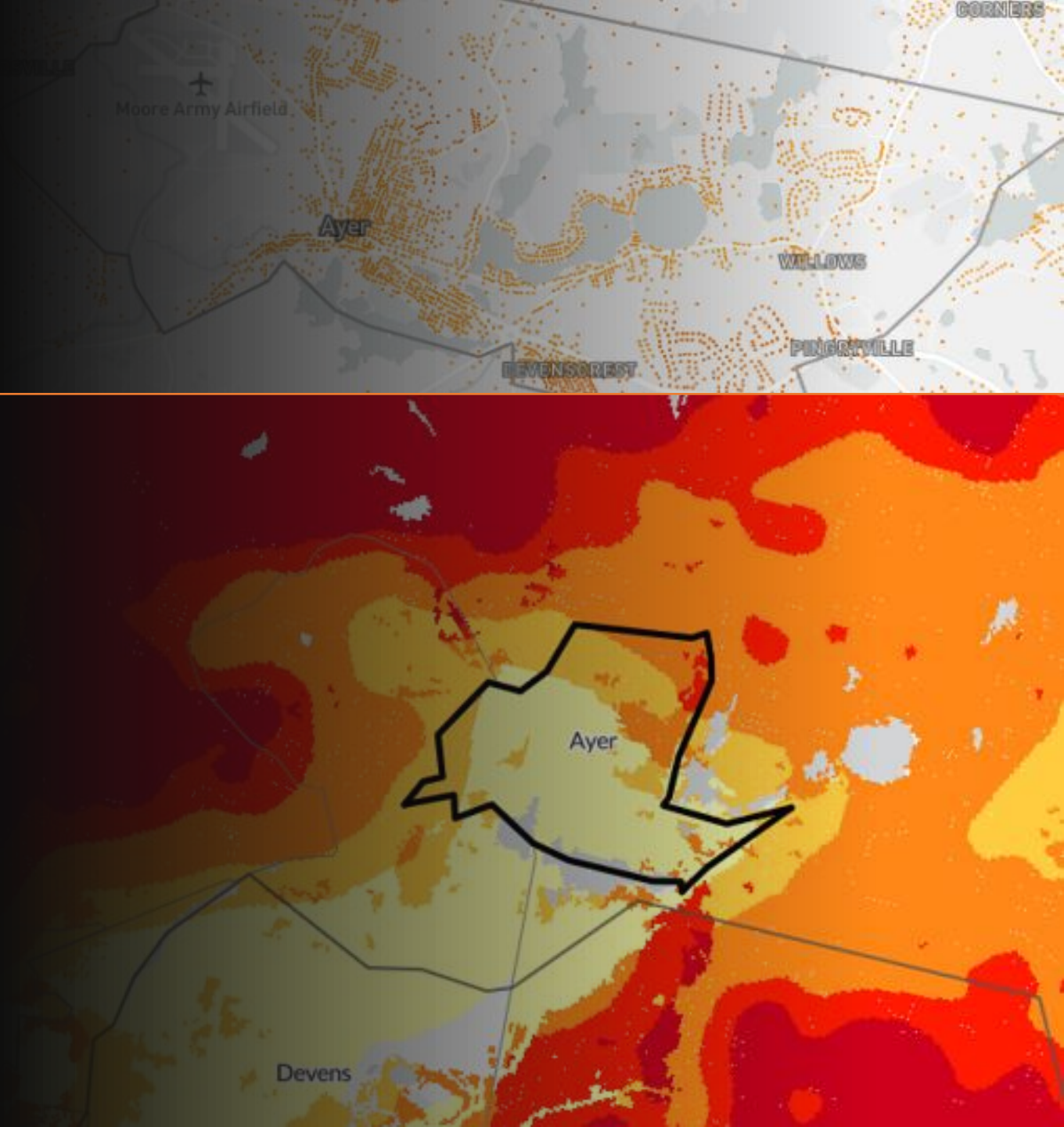


# Wildfire Risk in Ayer

Ayer has a relatively low risk of wildfire—lower than 71% of communities in the US.

However, on average, populated areas in Ayer have a greater risk than 49% of communities in Middlesex County and a greater risk than 55% of all Massachusetts Communities.

<https://wildfirerisk.org/>



# Understand your risk

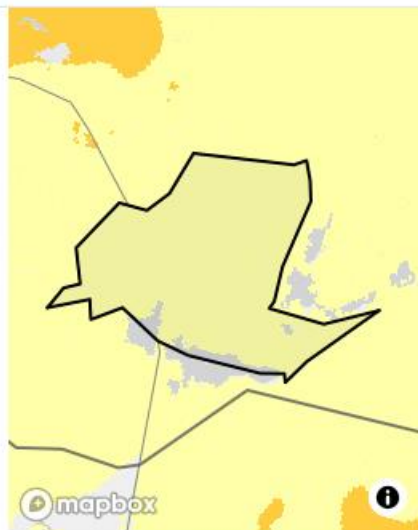
Wildfire risk is based on several factors. Understanding which factors affect your community can help you identify strategies to reduce your risk.



## Risk to Homes

The relative risk to a house for every location on the landscape, whether a house currently exists there or not.

[Learn more >](#)



## Wildfire Likelihood

The probability of a wildfire burning in any given year.

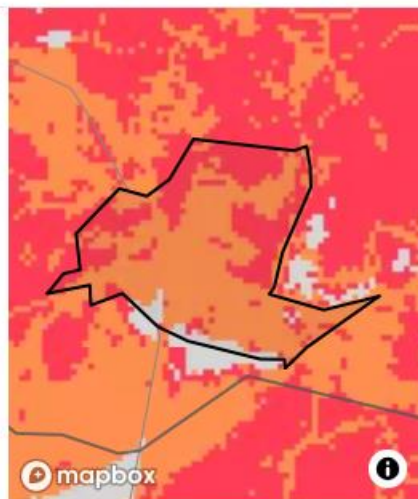
[Learn more >](#)



## Exposure

Whether homes may be subjected to wildfire directly or indirectly (such as from embers).

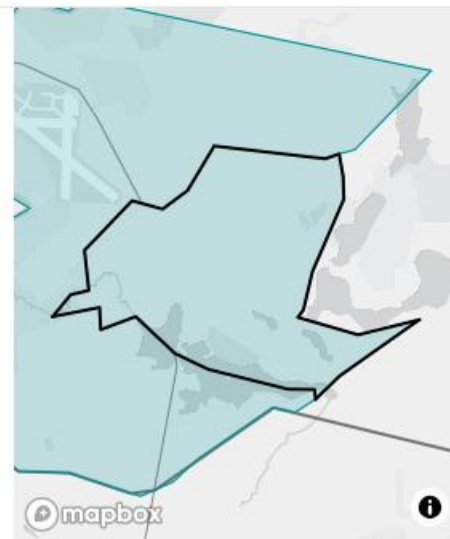
[Learn more >](#)



## Vulnerable Populations

People that may be disproportionately impacted by wildfire because of social and economic factors.

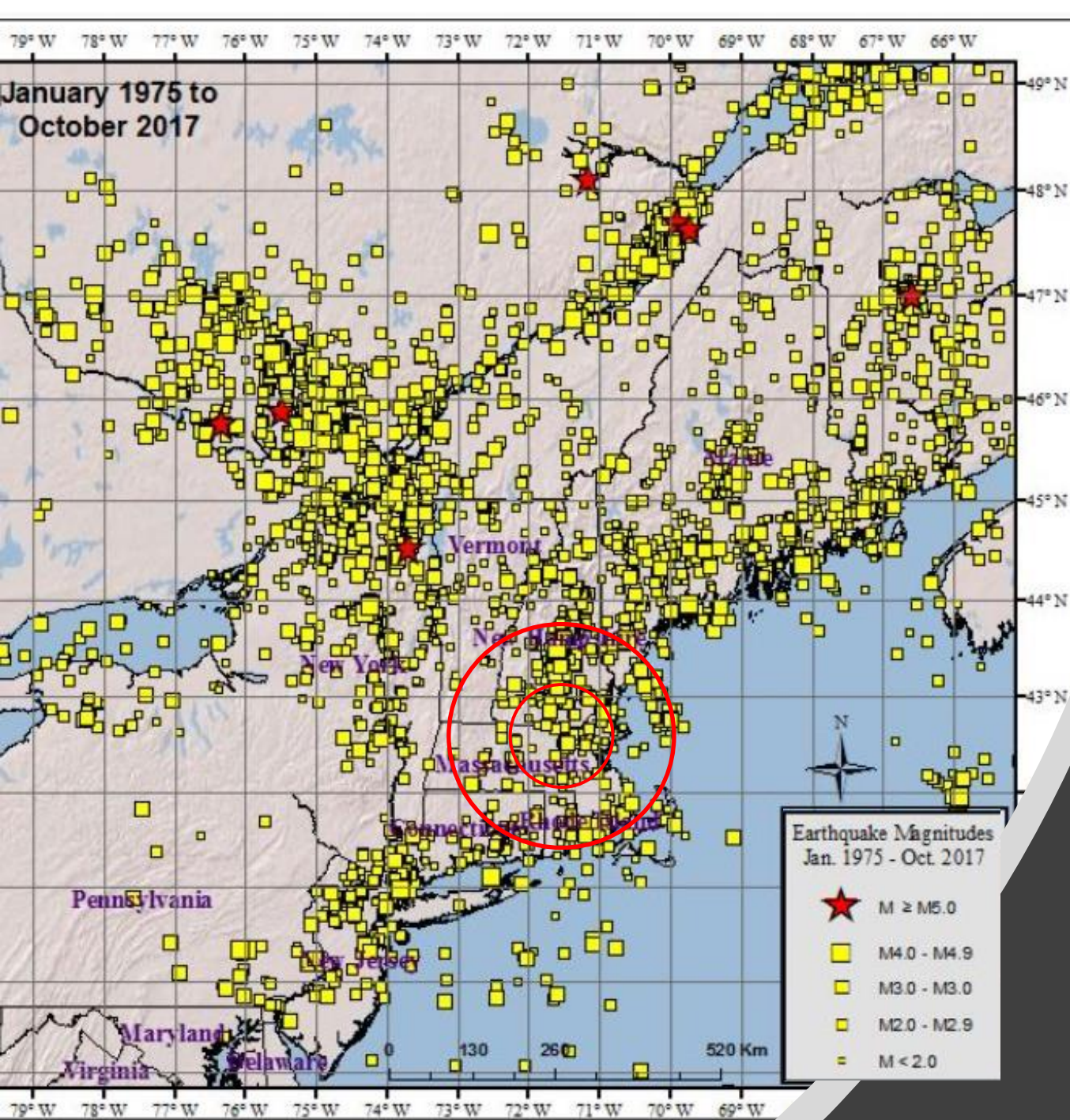
[Learn more >](#)





Earthquake





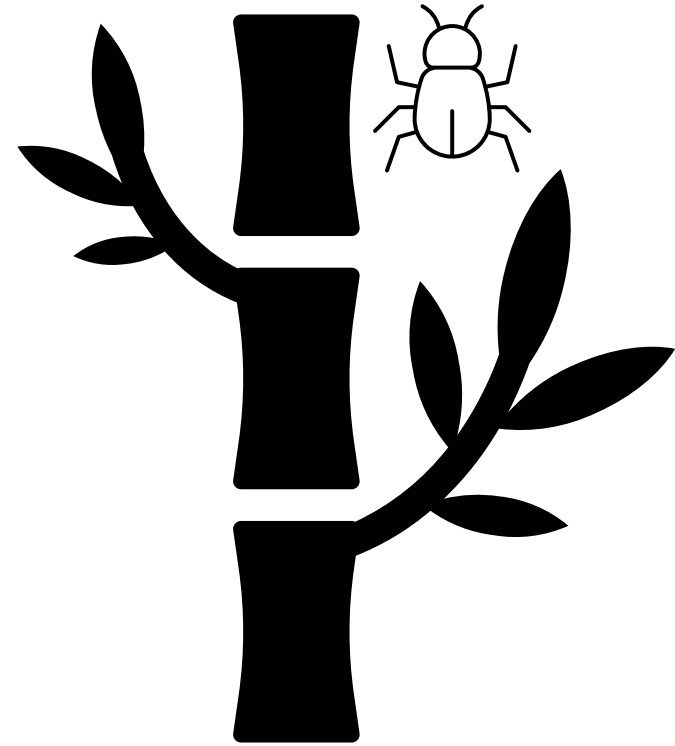
## Map of Earthquakes in the Northeastern United States 1975 to 2017

## Number of Felt Earthquakes in the Northeast States

<b>State</b>	<b>Years of Earthquake Record</b>	<b>Number of Felt Earthquakes</b>	<b>Years with Damaging Earthquakes</b>
Connecticut	1678-2016	115	1791
Maine	1766-2016	454	1973, 1904
Massachusetts	1668-2016	408	1727, 1755
New Hampshire	1638-2016	320	1638, 1940
New Jersey	1738-2016	98	1884
New York	1737-2016	551	1737, 1929, 1944, 1983, 2002
Rhode Island	1766-2016	34	
Vermont	1843-2016	50	
Total Number of Felt Earthquakes		2030	



# Invasive Plants & Insects





**Mile-a-Minute Weed**



**Oriental Bittersweet**







# Climate- influenced Natural Hazards

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# Climate-influenced Natural Hazards

## 1. Flood Related Hazards

## 2. Atmospheric and Winter Weather Hazards

- Blizzards/Ice-storms
- Severe Thunderstorms
- Hurricanes
- Tornadoes/Extreme Wind Events

## 3. Other Natural Hazards

- Major Urban Fires
- Wildland Fire
- Drought
- Extreme Temperatures
- Landslides
- Infectious Vector-borne Disease & Pathogens
- Invasive species



## About vulnerable populations

Social and economic factors can make it more difficult for some people to prepare for, respond to, and recover from the impacts of natural hazard events like flooding, drought, wildfire, and severe storms. Vulnerable populations may lack access to resources, experience cultural and institutional barriers, have limited mobility, or have medical conditions exacerbated by stress, poor air quality, humidity, loss of power, and other situations resulting from natural hazards.

For example, people over age 65 and people who are disabled are more susceptible to air pollution and particulates associated with wildfire smoke or mold and mildew resulting from flooding. Language barriers can make it difficult to follow directions during an evacuation or to access support after a disaster. Race and ethnicity are strongly correlated with disparities in health and access to aid and resources. Natural Hazards disproportionately impact people with low incomes because of factors such as inadequate housing, lack of access to a vehicle or reliable transportation, and a diminished ability to purchase emergency supplies or services and, if necessary, evacuate or relocate.

### Vulnerable populations

All areas in Ayer

Indicator	Number	Percent
<u>Families in poverty</u>	48 ±43	5.4% ±5%
<u>People with disabilities</u>	510 ±212	13% ±5.6%
<u>People over 65 years</u>	679 ±221	17.2% ±5.9%
<u>People under 5 years</u>	260 ±127	6.6% ±3.3%
<u>People of color</u>	630 ±543	16% ±13.9%
<u>Black</u>	203 ±268	5.2% ±6.8%
<u>Native American</u>	15 ±23	0.4% ±0.6%
<u>Hispanic</u>	83 ±98	2.1% ±2.5%
<u>Difficulty with English</u>	0 ±64	0% ±1.7%
<u>Households with no car</u>	134 ±87	7.2% ±4.7%
<u>Mobile homes</u>	14 ±27	0.7% ±1.6%

# QUESTIONS TO PUBLIC

## **Question 1**

- What natural hazard events (flooding, icing, extreme temperatures) stand out in your mind during the last 5 to 7 years?

## **Question 2**

- What critical facilities or infrastructure (roads, bridges, culverts) experienced impacts due to natural hazards in the last 5 to 7 years?



# QUESTIONS TO PUBLIC

## **Question 3**

- What changes have you witnessed over the last 5-10 years related to hazard events and weather patterns due to climate change?

## **Question 4**

- What neighborhoods, natural features, areas, specific locations, new homes, businesses, buildings, developments, or groups of people are most at risk to changing climate and increasing natural hazards?

# QUESTIONS TO PUBLIC

## **Question 5**

- What, if any, changes in local priorities happened during the previous 5 years?

## **Question 6**

- How can this plan be used to increase Ayer's resiliency to the impacts of climate change and support the Town's recent 2020 Municipal Vulnerability Preparedness (MVP) Community Resilience Building goals and actions?

# QUESTIONS TO PUBLIC

## Question 7

- What recommendations would you make to the Town to better communicate Hazard and Emergency Services & Response information to the public.



# NEXT STEPS

## Project Tasks

- Data gathering
- Drafting the report
- Updating the maps
- Updating and revising the recommended projects and actions
- Presentation of draft report to the public for feedback
- Submit final report to MEMA and FEMA

# Ayer Hazard Mitigation Plan (HMP)

2021-2022

## Public Input Survey:

[www.surveymonkey.com/AyerHMP2023](https://www.surveymonkey.com/AyerHMP2023)



The graphic features two speech bubbles at the top: an orange one on the left saying "WE NEED YOUR" and a green one on the right saying "FEEDBACK". To the right of the green bubble is the Ayer-Mass seal, which includes the text "AYER-MASS", "AYER LIBRARY", and "Incorporated Feb. 14, 1871". Below the bubbles, the title "HAZARD MITIGATION PLAN" is written in large, bold, black capital letters. Underneath the title is a definition of a natural hazard in all caps: "A NATURAL HAZARD IS DEFINED AS 'AN EVENT OR PHYSICAL CONDITION THAT HAS THE POTENTIAL TO CAUSE FATALITIES, INJURIES, PROPERTY DAMAGE, INFRASTRUCTURE DAMAGE, AGRICULTURAL LOSS, DAMAGE TO THE ENVIRONMENT, INTERRUPTION OF BUSINESS, OR OTHER TYPES OF HARM OR LOSS'". At the bottom, there are three elements: a yellow starburst on the left with the text "Take the survey!", a QR code in the center, and a blue starburst on the right with the text "Help Ayer Stay Safe!". At the very bottom, a line of text states: "Paper Copies are available in the Select Board's Office".

**WE NEED YOUR FEEDBACK**

**HAZARD MITIGATION PLAN**

A NATURAL HAZARD IS DEFINED AS "AN EVENT OR PHYSICAL CONDITION THAT HAS THE POTENTIAL TO CAUSE FATALITIES, INJURIES, PROPERTY DAMAGE, INFRASTRUCTURE DAMAGE, AGRICULTURAL LOSS, DAMAGE TO THE ENVIRONMENT, INTERRUPTION OF BUSINESS, OR OTHER TYPES OF HARM OR LOSS"

Take the survey!



Help Ayer Stay Safe!

Paper Copies are available in the Select Board's Office

# Thank you...

Questions or Comments?

Please remember to take the public survey:

[www.surveymonkey.com/AyerHMP2023](http://www.surveymonkey.com/AyerHMP2023)

Please send any information, comments or answers for the “Questions to the Public” to the Ayer Hazard Mitigation Working Group’s designated Outreach Coordinator, Assistant Town Administrator, Carly Antonellis:

[cantonellis@ayer.ma.us](mailto:cantonellis@ayer.ma.us)

