

Douglas, MA

Hazard Mitigation Plan Update

Public Workshop #1 – February 12, 2025

Douglas Municipal Center – Resource Room

7:00 PM



Craig Pereira, CFM, NCI

WELCOME!



Tonight's Agenda

- Hazard Mitigation Planning Overview
- Federal/State Guidance
- Hazard Mitigation Process
 - Risk Assessment
 - Goals
 - Projects/Actions
 - Implementation
- Hazard Index
- 2017 Plan Report Card
- Project Schedule



Douglas Local Hazard Mitigation Team (LHMT)

- Matthew Benoit – Director of Community Development
- Mark Dunleavy – Patrolman/Information Technology
- Kristin Harris – Board of Health
- Kelly Manning – Assistant Fire Chief/Project Manager
- Nick Miglionico – Police Chief
- Robert Sullivan – System's Manager Water/Sewer Department
- Matt Wojcik – Town Administrator
- Gabriella Spitzer – Environmental Planner, Horsley Witten Group, Inc.
- Craig Pereira – Project Manager, Horsley Witten Group, Inc.



Why Hazard Mitigation Planning?

Disaster Mitigation Act of 2000, Interim Final Rule, 44 CFR Parts 201 and 206 states, “All communities must have an approved Multiple Hazards Mitigation Plan in order to qualify for future federal disaster mitigation grants”.

Hazard Mitigation:

“Reduction or elimination of long-term risk to life, property, and the environment”

Natural Hazard:

“Any event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, and agricultural loss, damage to the environment, interruption of business, or other types of harm and/or loss”



Federal and State Guidance

Federal

- FEMA's *Local Mitigation Planning Policy Guide* (April 19, 2023)
 - Climate Change
 - Environmental Justice/Socially-Vulnerable Populations
 - High-Hazard Potential Dam Program
 - Hazards...

State

- *ResilientMass Plan: 2023 Massachusetts State Hazard Mitigation and Climate Adaptation Plan*
- *2022 Massachusetts Climate Change Assessment, Volume II Statewide Report*
- *2022 Massachusetts Climate Change Assessment, Volume III Regional Report*



ResilientMass Plan: 2023 Massachusetts State Hazard Mitigation and Climate Adaptation Plan

Considers the exposure and vulnerability of state assets, human populations, lifelines, critical facilities, economic activity, natural resources, and other infrastructure/resources across five sectors:

- Human Sector
- Governance Sector
- Infrastructure Sector
- Natural Environment Sector
- Economy Sector



2022 Massachusetts Climate Change Assessment, Volume II Statewide Report

Includes an analysis of the most significant impacts that climate change poses to the Commonwealth across the five sectors and based on three factors:

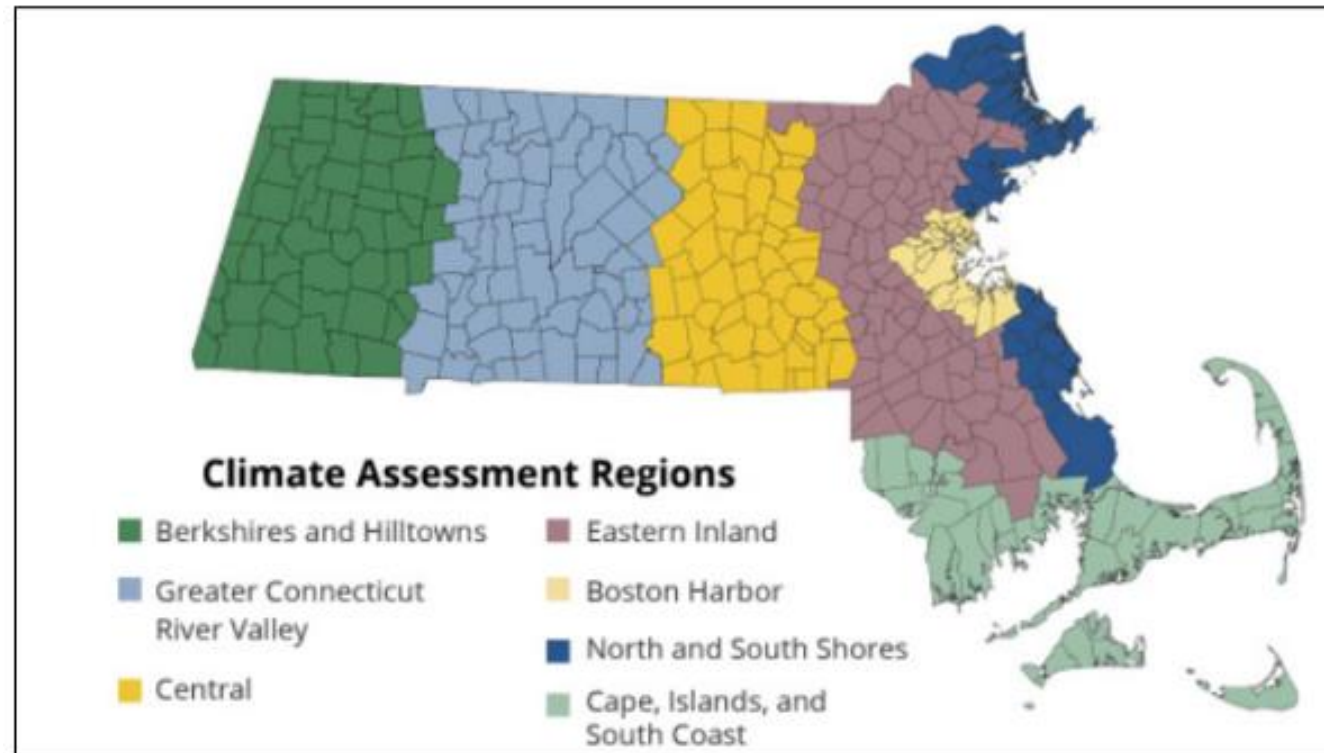
- Magnitude of consequence: How large of a climate effect is expected?
- Disproportionality of exposure: Will populations in environmental justice areas be disproportionately affected?
- Need for effective adaptation: is enough currently being done to adapt to this impact?



2022 Massachusetts Climate Change Assessment, Volume III Regional Report

Subdivides the state into seven climate regions and summarizes the highest urgency climate impacts across the five sectors.

- Douglas falls within the Central Region
- Particularly vulnerable to climate stressors including:
 - Increasing temperatures
 - More extreme precipitation



2022 Massachusetts Climate Change Assessment, Volume III Regional Report

Human Sector

- **Reduction in Food Safety and Security** due to production and supply chain issues, as well as spoilage during power outages
- **Health and Cognitive Effects from Extreme Heat**, including premature death and learning loss.

Infrastructure Sector

- **Damage to Electric Transmission and Distribution Infrastructure** associated with heat stress and extreme events.
- **Loss of Urban Tree Cover** due to heat, drought, and increased pests.

Natural Environment Sector

- **Freshwater Ecosystem Degradation** due to warming waters, drought, and increased runoff.
- **Forest Health Degradation** from warming temperatures, changing precipitation, increasing wildfire frequency, and increasing pest occurrence.



2022 Massachusetts Climate Change Assessment, Volume III Regional Report

Governance Sector

- **Increase in Costs of Responding to Climate Migration**, including planning for abrupt changes in local populations.
- **Increase in Demand for State and Municipal Government Services**, including emergency response, food assistance, and state-sponsored health care.

Economy Sector

- **Reduced Ability to Work**, particularly outdoor workers during extreme heat, as well as commute delays due to damaged infrastructure.
- **Decrease in Agricultural Productivity** as crop yields are impacted by precipitation patterns, extreme weather, pests, and other climate factors.



Mitigation Process

- **Assess Risks**
- Establish Goals
- Identify Projects/Actions
- Update/Maintain Plan

Assess Risks

Natural Hazards Affecting Douglas, MA

Flood-Related Hazards

- Riverine/Flash Flooding
- Inland/Urban Flooding/Heavy Rain
- Dam Failures
- Beaver Activity

Winter-Related Hazards

- Blizzards/Heavy Snow/Nor' easters
- Ice Storms
- Extreme Cold

Wind-Related Hazards

- Hurricanes/Tropical Storms
- Tornadoes
- High Winds
- Lightning/Thunderstorms
- Hail



Assess Risks

Natural Hazards Affecting Douglas, MA

Geologic-Related Hazards

- Earthquakes

Extreme Heat-Related Hazards

- Extreme Heat

Drought-Related Hazards

- Drought

Brushfire/Wildfire-Related Hazards

- Brushfires/Wildfires

Environmental-Related Hazards

- Invasive Species (aquatic plant species)
- Vector-borne

Changes in Groundwater-Related Hazards

- Changes in Groundwater

Climate Change:

As an overarching hazard affecting all hazard types, each hazard profile will include a 'climate change impacts on' section



Assess Risks

Natural Hazard Profiles/Hazard Index

Flood-Related Hazards

- Riverine/Flash Flooding: Moderate
- Urban Flooding/Heavy Rain: Moderate
- Dam Failures: Low
- Beaver Activity: Moderate

Winter-Related Hazards

- Blizzards/Snow/Nor' easters: High
- Ice: High
- Extreme Cold: Moderate

Wind-Related Hazards

- Hurricanes/Tropical Storms: Moderate
- Tornadoes: Moderate
- High Winds: High
- Lightning/Thunderstorms: Moderate
- Hail: Moderate



Assess Risks

Natural Hazard Profiles/Hazard Index

Geologic-Related Hazards

- Earthquakes: Low

Extreme Heat-Related Hazards

- Extreme Heat: Moderate

Drought-Related Hazards

- Drought: Moderate

Brushfire/Wildfire-Related Hazards

- Brushfires/Wildfires: High

Environmental-Related Hazards

- Invasive Species: Low
- Vector-borne: Moderate

Changes in Groundwater-Related Hazards

- Changes in Groundwater: Low



2025 Hazard Index

<i>Natural Hazard</i>	<i>Frequency (i.e. Very Low, Low, Moderate, High, Very High)</i>	<i>Location (i.e. small, medium, large)</i>	<i>Severity (i.e. Minor, Limited, Critical, Catastrophic)</i>	<i>2024 Hazard Index (i.e. ranked by combining frequency and severity; 10 - high, 1 - low)</i>
Flood-Related Hazards				
- Riverine Flash Flooding ¹	Low (High4)	Medium (Small)	Minor (Minor1)	3Medium (Moderate5)
- Inland Urban Flooding Heavy Rain ¹	Low (Very High5)	Medium (Medium)	Minor (Minor1)	3Medium (Moderate6)
- Dam Failures ¹	Very Low (Very Low1)	Small (Medium)	(Limited2)	3Medium (Low3)
- Beaver Activity ¹	(Very High5)	(Medium)	(Minor1)	(Moderate6)
Winter-Related Hazards				
- Snow Blizzard Winter Storm Nor'easter	Very High (Very High5)	Large (Large)	Limited (Limited2)	2High (High7)
- Ice ¹	Very High (Very High5)	Large (Large)	(Limited2)	2High (High7)
- Extreme Cold	Very High (Moderate3)	Large (Large)	(Limited2)	4Low (Moderate5)
Wind-Related Hazards				
- Hurricanes Tropical Storms	Low (Moderate3)	Large (Large)	(Limited2)	3Medium (Moderate5)
- Tornadoes	Very Low (Low2)	Small (Medium)	(Limited2)	4Low (Moderate4)
- High Winds	Moderate (Very High5)	Small (Large)	(Limited2)	2Medium (High7)
- Lightning Thunderstorms	Moderate (Moderate3)	Small (Medium)	Minor (Minor1)	2High (Moderate4)
- Hail ¹	(High4)	(Medium)	(Minor1)	(Moderate5)
Geologic-Related Hazards				
- Earthquakes ¹	Very Low (Very Low1)	Large (Large)	Minor (Minor1)	5Highest (Low2)
Hazards				
- Extreme Heat ¹	Moderate (Very High5)	Large (Large)	Limited (Minor1)	4Low (Moderate6)
Drought-Related Hazards				
- Drought	Very Low (Moderate3)	Large (Large)	Minor (Minor1)	4High (Moderate4)
Hazards				
- Brushfire Wildfire ¹	Moderate (Very High5)	Medium (Small)	Minor (Limited2)	4Medium (High7)
Hazards				
- Aquatic Plant Invasive Species ¹	(Low2)	(Small)	(Minor1)	(Low3)
- Vector Borne ¹	(Very High5)	(Large)	(Minor1)	(Moderate6)
Changes to Groundwater-Related Hazards				
- Changes in Groundwater ¹	(Very Low1)	(Small)	(Minor1)	(Low2)

Assess Risks

Risk and Vulnerability Assessment - Assets

Economic Assets

- Businesses/Large Employers
- Historic Assets

Social Assets

- Vulnerable Populations
- Cultural Locations

Natural Resources

- Lifeline and Utility Systems
- Wetlands
- Conservation/Recreation Sites

Essential Buildings/Critical Facilities

- Municipal Buildings
- Hazardous Facilities
- Roadways/Bridges
- GIS Mapping/Overlay Analyses



Mitigation Process

- Assess Risks
- **Establish Goals**
- Identify Projects/Actions
- Update/Maintain Plan

Revisit Goals + Mission Statement

Douglas LHMC developed a mission statement for the 2025 update...

“Douglas’s population and land use are changing, and climate risks are growing. In that context, the mission of the Douglas Hazard Mitigation Plan is to plan effectively to reduce risks and protect the whole community”

Douglas LHMC developed over-arching goals to support the mission statement...

1. Protect the public’s health, safety and welfare.
2. Minimize social distress and economic losses/business disruptions from hazards.
3. Reduce property damage caused by natural hazards and their downstream impacts, including dam failure.
4. Provide an ongoing forum for the education and awareness of natural hazard mitigation issues, programs, policies, projects, and resources.
5. Adapt to/mitigate for the existing and projected impacts of climate change towards a suitable, resilient community.
6. Protect the community’s assets, including the Town’s cultural, historical, and natural/environmental assets from hazards.



Mitigation Process

- Assess Risks
- Establish Goals
- **Identify Projects/Actions**
- Update/Maintain Plan

Identify Projects/Actions

Mitigation Measures (Categories)

- Planning and Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services
- Public Education and Awareness



Identify Projects/Actions

Mitigation Actions

Mitigation actions will be developed based on:

- Review of existing plans, studies, and reports
- The Town's identified risks and vulnerabilities
- Public input
- Municipal coordination

Mitigation actions will include:

- Brief description of the intended action
- Responsible party (primary/supporting)
- Proposed time frame for completion
- Potential funding mechanism



Identify Projects/Actions

Prioritization of Actions – STAPLEE Method

- **Social:** is the action socially acceptable?
- **Technical:** is the action technically feasible and provide appropriate level of protection?
- **Administrative:** does the Town have the capability to complete the action?
- **Political:** will the community support or oppose the action?
- **Legal:** does the Town have the legal authority to complete the action?
- **Economic:** is the action cost-effective?
- **Environmental:** will the action affect the natural environment?



Mitigation Process

- Assess Risks
- Establish Goals
- Identify Projects/Actions
- **Implementation/Update/Maintain Plan**

Implementation/Update/Maintain the Plan

- Town's Capability
- Plan Adoption
- Incorporation into other Municipal Documents
- Annual Review/Meeting
- Update after Disaster/5 Years (planning horizon)



2017 Plan Report Card

STRUCTURE AND INFRASTRUCTURE

Tree trimming and tree wire installation needed across town to protect utility wires. Repeat every four years.

...partially completed (50%) of system, carry remaining 50% into 2025 Update

Identify/Resolve issues causing flooding on Wallis Street on the west side of Whitin Reservoir.

...not completed, carry forward into 2025 Update

Identify/Resolve issues causing flooding on Wallis Street near stream between Whitin Reservoir and Bad Luck Lake. Upgrade undersized, old stone culvert.

...not completed, carry forward into 2025 Update

Identify/Resolve issues causing flooding on Walnut Street (100-year flood zone).

...not completed, carry forward into 2025 Update



2017 Plan Report Card

STRUCTURE AND INFRASTRUCTURE

Identify/Resolve issues causing flooding on Charles Street (100-year flood zone). Upgrade undersized culvert.

...not completed, carry forward into 2025 Update

Identify/Resolve issues causing flooding on North Street Gilboa Street (100-year flood zone). Upgrade drainage system.

...completed

Obtain 60 kw generator for Water Booster Station at 102 Main Street.

...not completed, carry forward into 2025 Update

Obtain portable generator for Water Pump Station at 29 West Street for chemical feed and monitoring equipment purposes, and also the Sewer Pump Station at 120 Gilboa Street.

...partially completed (sewer pump station is completed), carry forward chemical feed/monitoring needed for backup into 2025 Update



2017 Plan Report Card

STRUCTURE AND INFRASTRUCTURE

The Town should investigate the cause of losing pressure in hydrants, and back system up, to ensure adequate fire-fighting capabilities.

...partially completed (high-hazard areas), other locations currently ongoing (Depot St./Caswell Court/Upper North St.)

Establish a private/ham radio frequency to communicate available resources, evacuation, and other pertinent information to residents quickly and effectively if power goes down.

...not completed, carry forward into 2025 Update

PREPAREDNESS, COORDINATION AND RESPONSE

As Douglas is at the end of National Grid's electric distribution system and therefore takes longer to restore power, create a plan to distribute water to residents in the event of a prolonged power outage.

...completed

Continue to participate in the National Flood Insurance Program (NFIP) or other training offered by the State and/or FEMA that addresses flood hazard planning and management.

...completed



2017 Plan Report Card

PREPAREDNESS, COORDINATION AND RESPONSE

Investigate Community Rating System (CRS) benefits and requirements and decide whether to participate.

...not completed, carry forward into 2025 Update

Road information coordination and planning for snow removal.

...not completed, carry forward into 2025 Update

Consider updating Stormwater and Drainage Standards for Site Plan Review, Development Impact Statements, and Subdivision Control Regulations.

...completed

Evacuation plan updates.

...not completed, remove (routes to remain fluid based on type of event/timing of event/severity of event)



2017 Plan Report Card

PREPAREDNESS, COORDINATION AND RESPONSE

Maintain fire access roads in Douglas Forest and isolated areas.

...not completed, carry forward into 2025 Update

EDUCATION AND AWARENESS

Provide information to residents and businesses on severe snowstorms, ice storms, nor'easters, severe thunderstorms, high winds, tornadoes, lightning, flooding, hurricanes, tropical storms, and microbursts. Information should include evacuation procedures and encourage the acquisition of additional gasoline, water, and other resources should traffic prevent proper evacuation. Incorporate this information into school programs for students to bring home information to parents.

...completed



2017 Plan Report Card

EDUCATION AND AWARENESS

Provide information to residents and businesses on droughts, and water conservation through low-impact landscaping and other measures (to conserve water for firefighting). Integrate lessons from Mass Audubon. Incorporate into school programs for students to bring home information to parents.

...not completed, carry forward into 2025 Update

Provide information to residents and businesses, possibly through town-wide mailings, about proper brush and tree clearance, and other firefighting measures.

...not completed, carry forward into 2025 Update

Provide information to residents and businesses on earthquakes, building code construction standards, shelters, and other pertinent information.

...completed



2017 Plan Report Card

EDUCATION AND AWARENESS

Provide information to animal-owning residents about Central Mass Disaster Animal Response Team's resources, including evacuation best practices, in case of an emergency.

...completed

Provide information to residents and businesses on generator safety and usage in the event of a power outage.

...completed

LOCAL PLANS AND REGULATIONS

Use MA Drought Management Plan as a template for Town's own drought plan and integrate State's recommendations and actions according to Town's needs.

...not completed, carry forward into 2025 Update



2016 Plan Report Card

LOCAL PLANS AND REGULATIONS

Review and update local plans and development review processes (planning, zoning, stormwater management, conservation, etc.) to ensure new construction will not be affected by hazards.

...not completed, carry forward into 2025 Update

Monitor implementation of Hazard Mitigation Plan.

...completed



Project Schedule

Draft update available for public comment: **Summer 2025**

Draft update to MEMA: **Fall 2025**



Online Community Survey

Community Survey Now Open!

...access two ways:

- Click on the link to take the survey

<https://www.surveymonkey.com/r/DouglasHazardMitigationPlanCommunitySurvey>

- Click on the QR Code to take the survey



Contact Us

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THANK YOU!

