

Freetown, MA

Hazard Mitigation Plan

Public Workshop #1 – November 29, 2023

Freetown Police Department – Community Room 6:00 PM



Craig Pereira, CFM, NCI

WELCOME!



Freetown Local Hazard Mitigation Committee

- Paul Ashley – Captain, Fire Department
- Harrie Ashley – Chief, Fire Department/Emergency Management
- Carl Bizarro – Building Commissioner
- Chuck Macomber – Highway Surveyor
- Scott Rose – Chief, Police Department
- Victoria Alfaro-Duran – Planning and Land Use Administrator
- Craig Pereira – Project Manager, Horsley Witten Group, Inc.
- Kellie King – Environmental Planner, 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)

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:

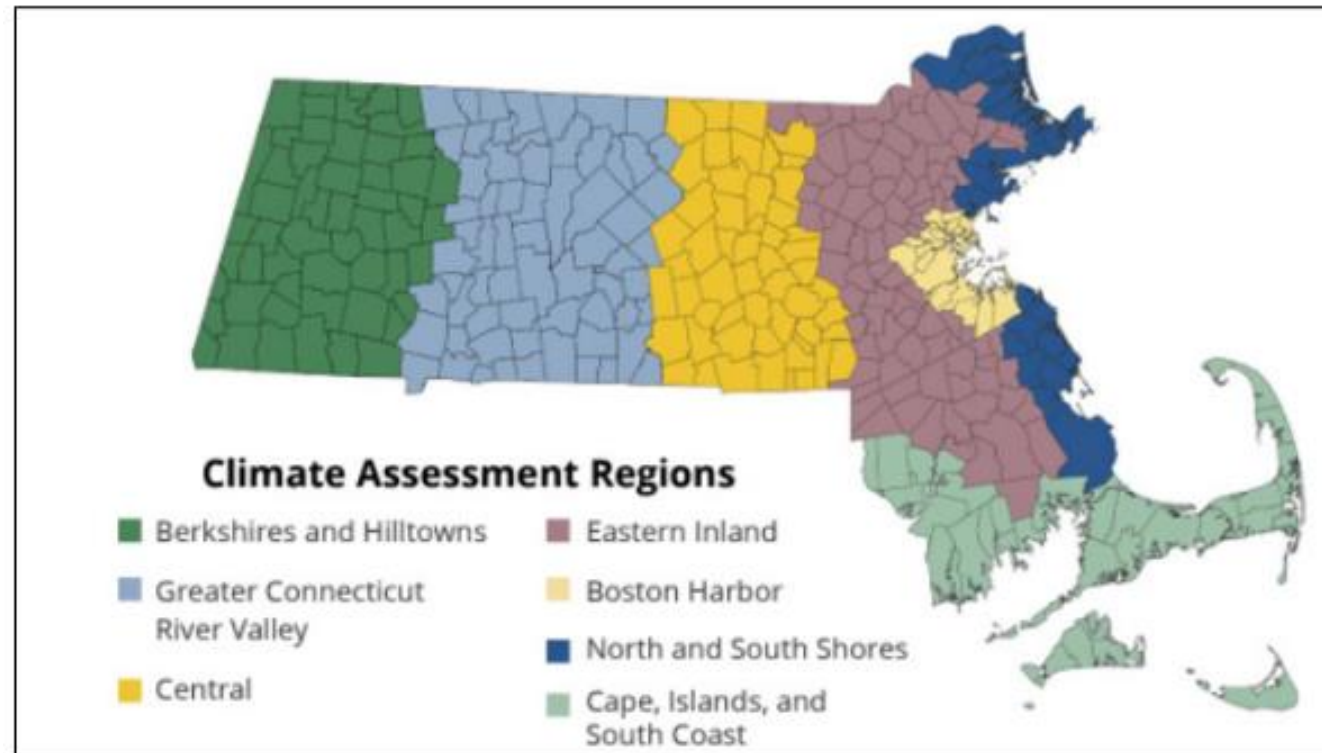
- Magnitude of consequence: How large of a climate effect is expected?
- Disproportionality of exposure: Will populations in environmental justice areas be disproportionately affected?
- Need for effective adaptation: is enough currently being done to adapt to this impact?



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.

- Freetown falls within the Cape, Islands, and South Coast Region
- Particularly vulnerable to climate stressors including:
 - Sea level rise
 - Storm surge
 - Increasing temperatures
 - More extreme precipitation



2022 Massachusetts Climate Change Assessment, Volume III Regional Report

Human Sector

- Increase in Vector Borne Diseases Incidence and Bacterial Infections
- Health and Cognitive Effects from Extreme Heat, Health Effects of Extreme Storms and Power Outages, Emergency Service Response Delays and Evacuation Disruptions, Reduction in Food Safety and Security, and Damage to Cultural Areas

Infrastructure Sector

- Damage to Electric Transmission and Distribution Infrastructure
- Reduction in Clean Water Supply

Natural Environment Sector

- Marine Water Ecosystem Degradation
- Coastal Wetland Degradation
- Coastal Erosion



2022 Massachusetts Climate Change Assessment, Volume III Regional Report

Governance Sector

- Increase in Demand for State and Municipal Government Services
- Reduction in State and Municipal Revenues

Economy Sector

- Reduction in the Availability of Affordably Priced Housing
- Decrease in Marine Fisheries and Aquaculture Productivity

2030	2050	2070	2090
NEAR TERM The summer mean temperature could increase by 3.6°F from the historical period (1950-2013), increasing tick activity and the risks of Lyme disease.	MID-CENTURY Sea surface temperatures increase by 3.1°F, reducing marine fish catch and increasing risks from harmful bacterial infections.	MID-LATE CENTURY The historical 10 percent annual chance daily rainfall event (2.4 to 4 inches) could occur five times more frequently.	END OF CENTURY Tropical cyclone frequency could increase by nearly 50 percent, leading to damage from storm surge, heavy rainfall, and high winds.



Mitigation Process

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



Assess Risks

Natural Hazards Affecting Freetown, MA

Flood-Related Hazards

- Riverine/Flash Flooding
- Inland/Urban Flooding/Heavy Rain
- Dam Failures
- Coastal Flood Hazards

Winter-Related Hazards

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

Wind-Related Hazards

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



Assess Risks

Natural Hazards Affecting Freetown, MA

Geologic-Related Hazards

- Earthquakes

Extreme Heat-Related Hazards

- Extreme Heat

Drought-Related Hazards

- Drought

Brushfire/Wildfire-Related Hazards

- Brushfires/Wildfires

Invasive Species-Related Hazards

- Multiple (aquatic)

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: Low
- Inland/Urban Flooding/Heavy Rain: High
- Dam Failures: Low
- Coastal Flood Hazards: Moderate

Winter-Related Hazards

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

Wind-Related Hazards

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



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: Moderate

Invasive Species-Related Hazards

- Multiple: Moderate

Changes in Groundwater-Related Hazards

- Changes in Groundwater: TBD



Hazard Index

<i>Natural Hazard</i>	<i>Frequency (i.e. Very Low, Low, Medium, High)</i>	<i>Location (i.e. small/local, medium/regional, large/multiple communities)</i>	<i>Severity (i.e. minor, serious, extensive, catastrophic)</i>	<i>Hazard Index (i.e. ranked by combining frequency and severity; 10 - high, 1 - low)</i>
Flood-Related Hazards				
- Riverine/Flash Flooding ¹	Low	Medium/Regional	Minor	3
- Inland/Urban Flooding/Heavy Rain	High	Medium/Regional	Extensive	7
- Dam Failures ¹	Very Low	Medium/Regional	Minor	2
- Coastal Flood Hazards ¹	Medium	Large/Multiple	Serious	5
Winter-Related Hazards				
- Blizzards/Snow/Nor' easter	High	Large/Multiple	Serious	6
- Ice ¹	Very Low	Medium/Regional	Minor	2
- Extreme Cold ¹	High	Medium/Regional	Serious	6
Wind-Related Hazards				
- Hurricanes	High	Large/Multiple	Extensive	7
- Storm Surge ¹	Medium	Small/Local	Minor	4
- Tornadoes*/High Winds	High	Medium/Regional	Extensive	7
- Lightning/Thunderstorms ¹	Low	Small/Local	Minor	3
- Hail	Low	Medium/Regional	Minor	3
Geologic-Related Hazards				
- Earthquakes	Very Low	Small/Local	Serious	3
Extreme Heat-Related Hazards				
- Extreme Heat ¹	High	Small/Local	Serious	6
Drought-Related Hazards				
- Drought ¹	High	Large/Multiple	Serious	6
Brushfire/Wildfire-Related Hazards				
- Brushfire/Wildfire ¹	High	Small/Local	Minor	5
Invasive Species-Related Hazards				
- Multiple ¹	High	Small/Local	Serious	6
Changes in Groundwater-Related Hazards				
- Changes in Groundwater ¹				

Notes: Tornadoes not a major issue for Freetown.

1: Ranked by the Freetown LHMC.

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



Assess Risks Vulnerability Assessment – Overlay Analyses

FEMA A/100-YR Flood Zone

- 1,065 parcels
- \$690,417,010

FEMA X/500-YR Flood Zone

- 187 parcels
- \$81,712,790

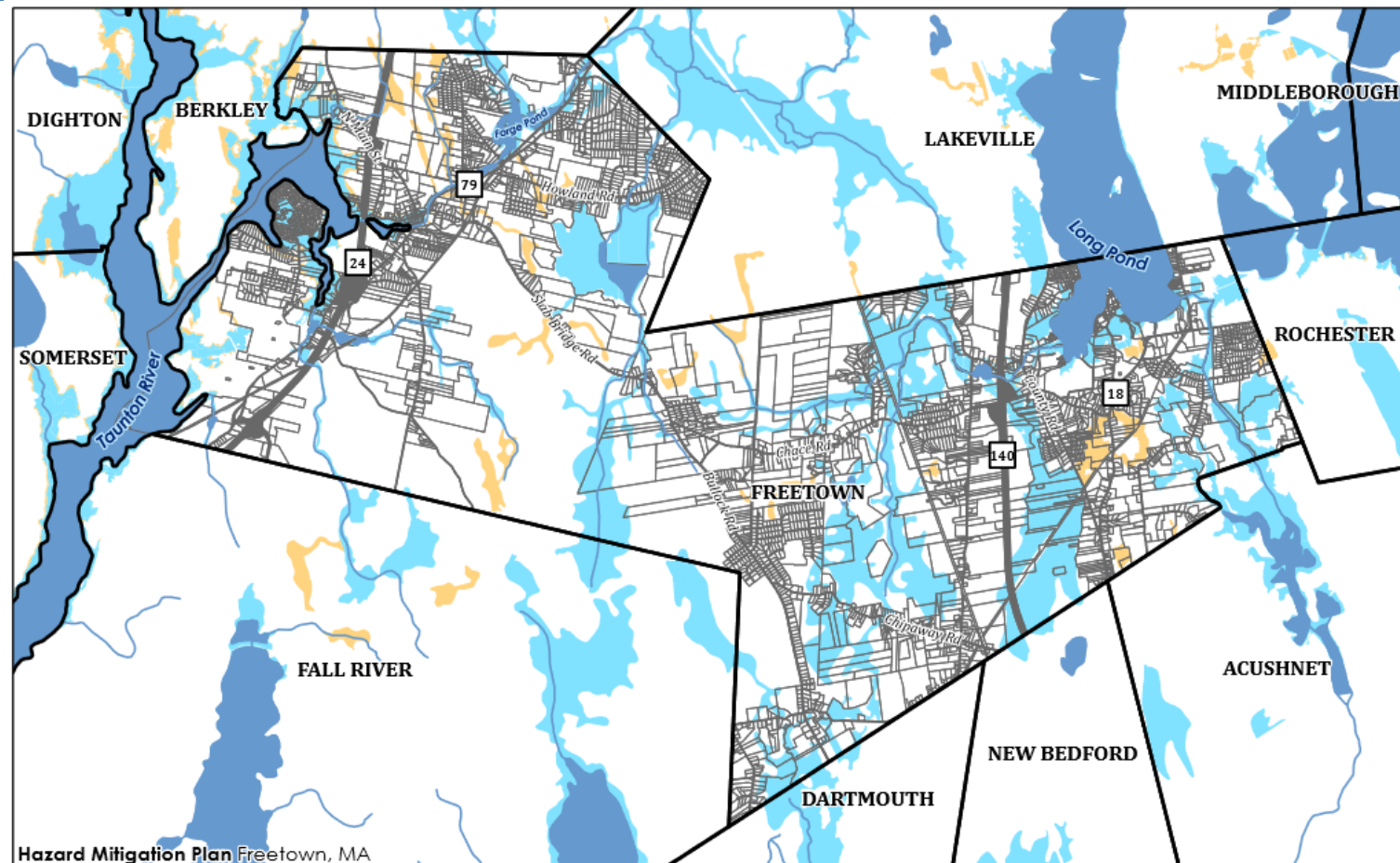
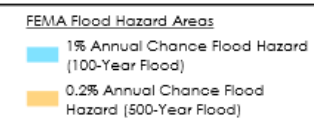


Figure A.1 Flood Risks & Repetitive Loss Areas

Date: 7/7/2023

Data Sources: Bureau of Geographic Information (MassGIS), ESRI

This map is for informational purposes and may not be suitable for legal, engineering, or surveying purposes.



Assess Risks

Vulnerability Assessment – Overlay Analyses

MC FRM 2030 Scenario

- 317 parcels
- \$292,614,020

MC FRM 2050 Scenario

- 6 parcels
- \$2,753,100

MC FRM 2070 Scenario

- 18 parcels
- \$7,465,100

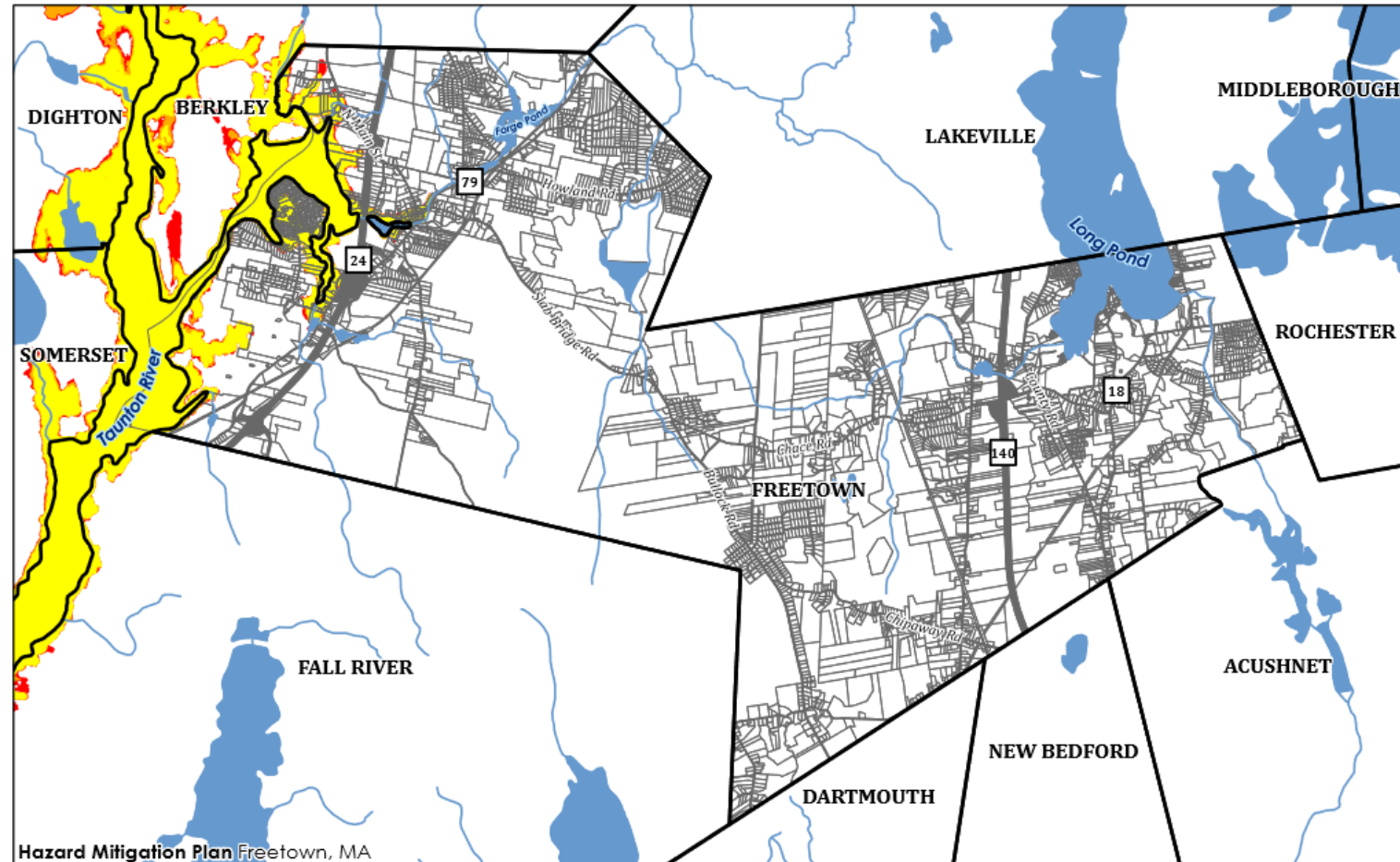


Figure A.4 MA Coast Flood Risk Model (MC-FRM) 1% Annual Exceedance Probability

Date: 7/11/2023
Data Sources: Bureau of Geographic Information (MassGIS), MA EAA, ESRI

This map is for informational purposes and may not be suitable for legal, engineering, or surveying purposes.

Municipal Boundaries	MC-FRM 1% Annual Exceedance Probability
Parcels	2030
Right of Way (ROW)	2050
Road (Public & Private)	2070
Rail	
Surface Waterbodies	
Lakes & Ponds	
Rivers & Streams	



Assess Risks

Vulnerability Assessment – Overlay Analyses

SLOSH Category 1

- 204 parcels
- \$163,500,840

SLOSH Category 2

- 102 parcels
- \$43,256,880

SLOSH Category 3

- 72 parcels
- \$111,177,700

SLOSH Category 4

- 33 parcels
- \$14,758,600

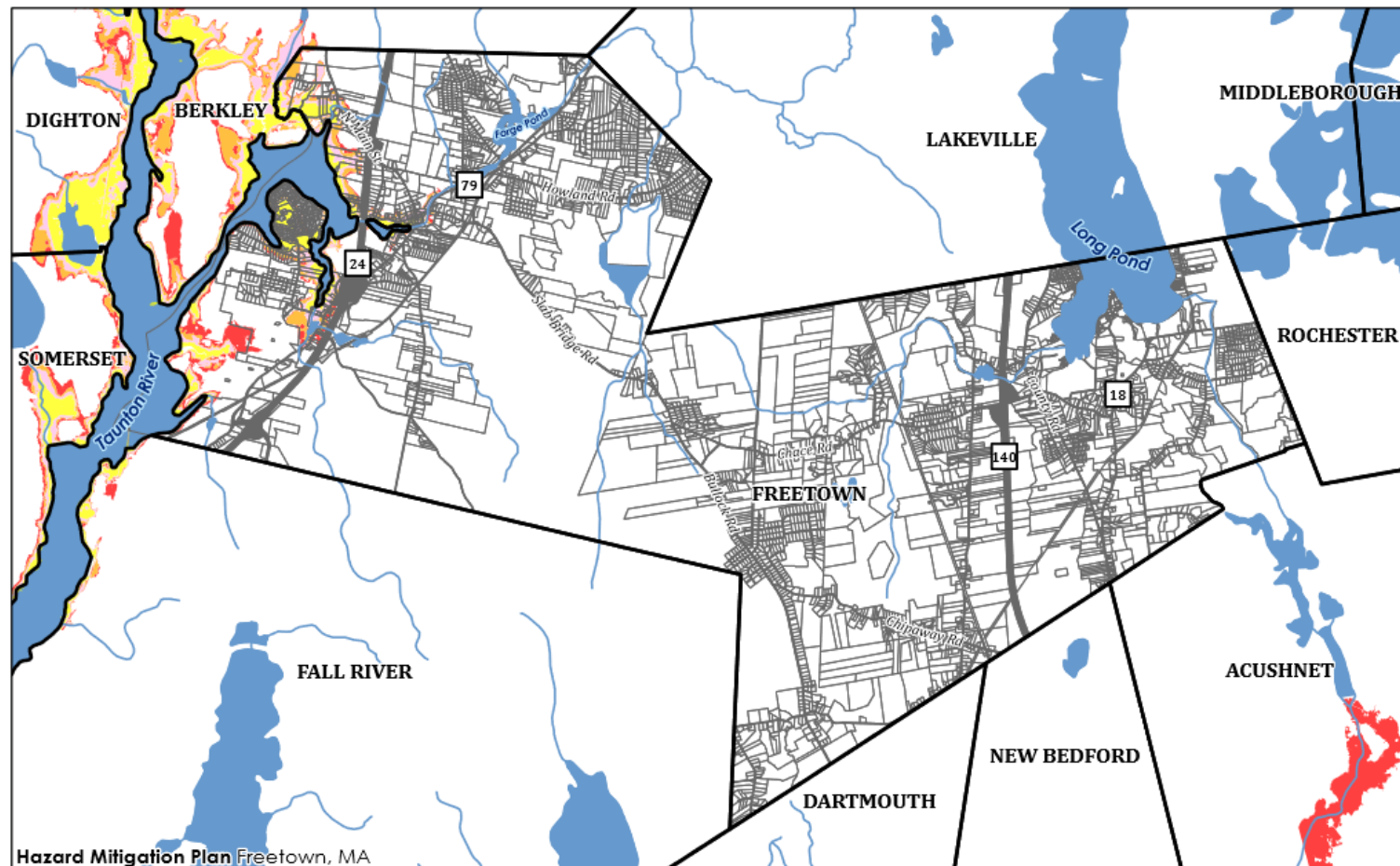
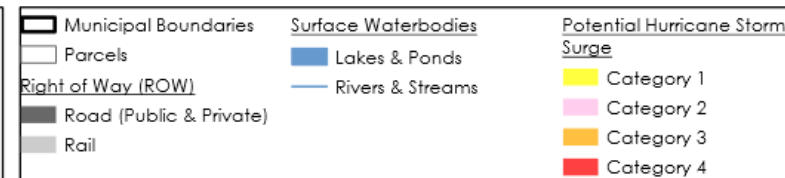


Figure A.3 Sea, Lake, and Overland Surges from Hurricanes (SLOSH)

Date: 7/7/2023
Data Sources: Bureau of Geographic Information (MassGIS), ESRI

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Mitigation Process

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



Establish Goals

Mission Statement & Goals

Freetown Local Hazard Mitigation Committee will develop a mission statement for the 2024 update...

“To reduce the loss of life, property, infrastructure and cultural resources throughout the community from natural disasters through a multiple hazard mitigation program that involves increased coordination, planning, education, and capital improvements”

Freetown Local Hazard Mitigation Committee will develop overarching goals to support the mission statement.



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
- 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)



Freetown, MA

MVP/Community Resilience-Building Workshop (2019)

Top Emergent Themes

Long Pond and Assawompset Pond Complex Stewardship

Flooding Resilience & Septic System Management

- Review existing management plan for the Assawompset Pond and conduct a study of flooding impacts on water quality while including engagement with neighboring towns.
- Consider milfoil management and partner with Lakeville for improved regulation, education, and monitoring.
- Explore grant and loan funding for septic system maintenance.



Freetown, MA

MVP/Community Resilience-Building Workshop (2019)

Top Emergent Themes

Town-Wide Communications

Emergency Communications Practices

- Examine and update town radio system while also considering an upgrade to repeater system.
- In partnership with local and regional stakeholders and advocates, develop materials and presentations appropriate for all ages regarding natural hazards and emergency preparedness measures.
- Public emergency evacuation routes and plans on the Town's website.



Freetown, MA

MVP/Community Resilience-Building Workshop (2019)

Top Emergent Themes

Senior Housing and Resource Improvements

Council on Aging Infrastructure and Senior Mixed-Use Housing Development

- Consider building improvements such as developing a larger facility, adding showers, and improving electrical infrastructure.
- Ensure that 55+ housing is prioritized in zoning regulations addressing resilience issues.
- Consider repurposing the police station for social and medical daycare and emergency animal shelter.
- Continue working with Acushnet and Mass Development to solve remaining issues on the property located on Route 18 and ensure this mixed-use senior housing development comes to fruition.



Online Community Survey

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



Project Schedule

Draft update available for public comment: **early 2024**

Draft update to MEMA: **mid-March 2024**



Contact Us

Victoria Alfaro-Duran, Planning & Land Use Administrator

- planning@freetownma.gov
- (508) 644-2201 Ext. 6

Craig Pereira, Project Manager

- cpereira@horsleywitten.com
- (401) 263-6048

THANK YOU!

