



Arlington Hazard Mitigation Plan 2020 Update



**Public Meeting
Arlington Select Board
January 27, 2020**

Martin Pillsbury
Metropolitan Area Planning Council

Why is Arlington doing this Plan?

- The **Federal Disaster Mitigation Act of 2000** requires towns to adopt a Hazard Mitigation Plan to be eligible for FEMA mitigation grants.
- Arlington's first plan was approved by FEMA in 2012 and now must be updated
- This updated plan will meet FEMA's requirements and make the Town eligible for FEMA mitigation grants



A Plan for Mitigating Damages from Natural Hazards

- **Flooding**
- **High winds, hurricanes, tornadoes**
- **Winter storms, snow & ice**
- **Brush fires**
- **Earthquakes, landslides**
- **Extreme temperatures**
- **Drought**



A Mitigation Plan , not an Emergency Response Plan

What is Hazard Mitigation?

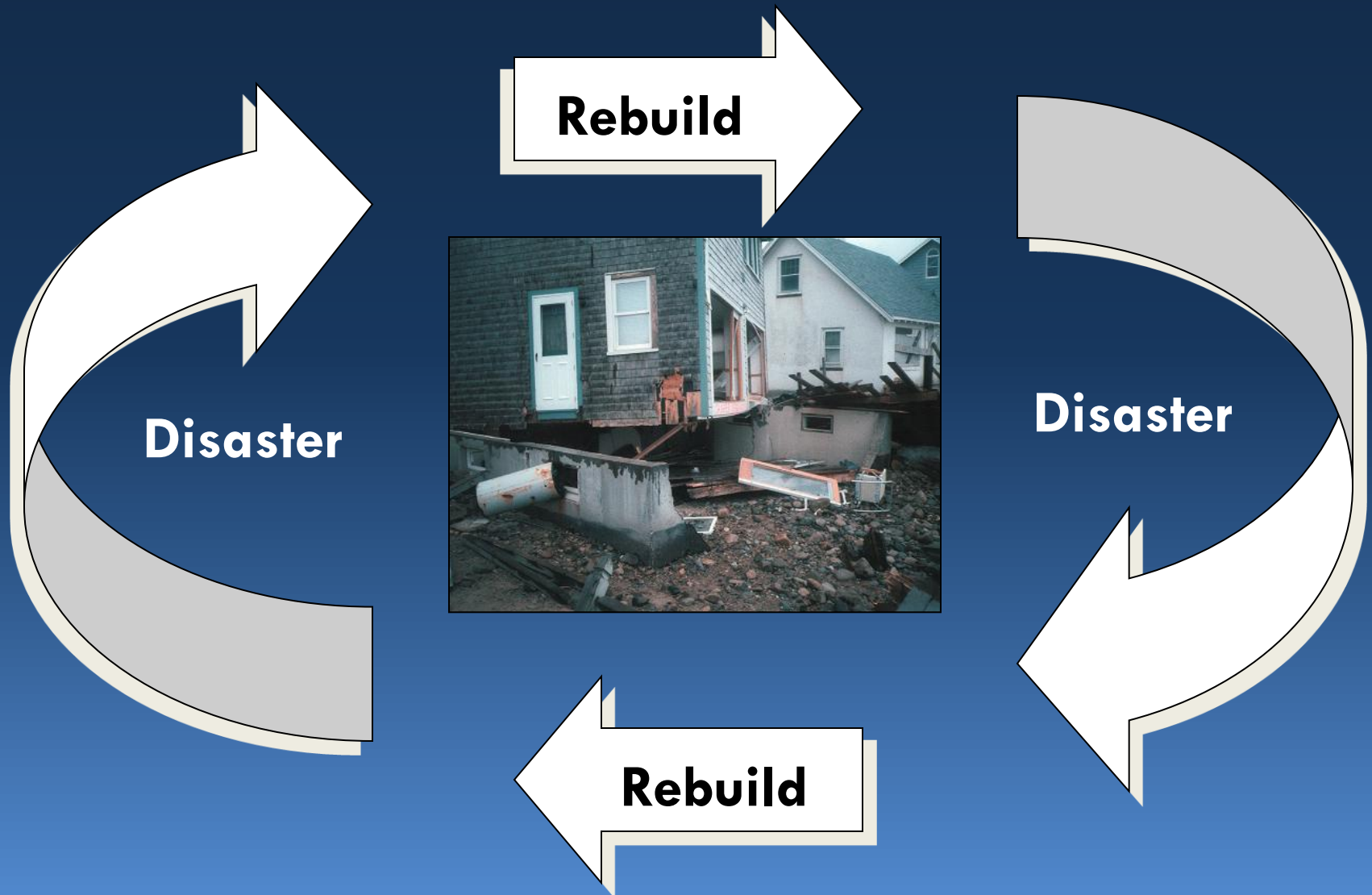


To reduce or prevent loss of life, injuries and property damage by using long-term strategies ***before*** a disaster happens (**Pre-Disaster Mitigation**)

What preventive actions are being taken **NOW** to reduce future risks and damages?

What additional actions can be taken in the **FUTURE** to reduce vulnerability and increase resilience?

Breaking the Cycle of Disaster & Rebuilding



Six Tools & Techniques for Hazard Mitigation



1. Prevention
2. Property Protection
3. Public Education
4. Natural Resources Protection
5. Structural Projects
6. Emergency Services Protection

How the Plan Was Developed

- The Town coordinated the plan through its Hazard Mitigation Team, with multiple Town departments.
- MAPC provided technical assistance to the Town to prepare the plan under a MEMA grant.
- Two public meetings, the first in June 2019 during plan development, and the second (tonight) for review of the draft plan.
- Next Steps: submittal of the draft plan to MEMA and FEMA for review and approval, adoption by the Town.

Plan Development Steps

8. MEMA & FEMA
Plan Approval &
Town Adoption

1. Hazard Identification
& Mapping

7. Second Public
Meeting/Stakeholders



**Local Team
& MAPC**

2. Inventory & Map
Critical Facilities

6. Recommend
Mitigation
Strategies

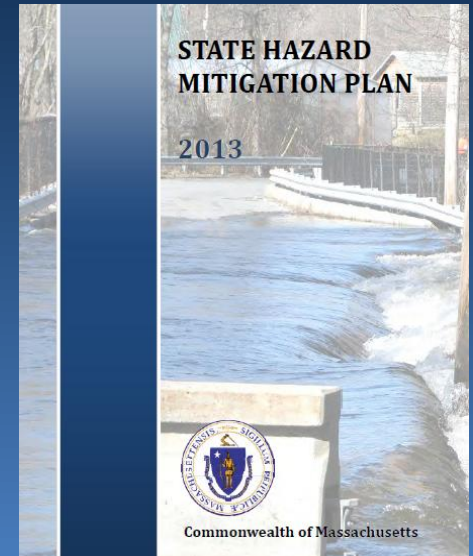
3. Assessment of Risks
& Vulnerabilities

5. Review Existing
Mitigation

4. First Public
Meeting/Stakeholders

Hazard Identification & Mapping

- State & Federal data on floodplains, snowfall, wind speeds, hurricanes earthquakes, etc.
- Massachusetts State Hazard Mitigation Plan
- Coordinate with Local Team to get local information on hazard areas and Critical Facilities



Critical Facilities

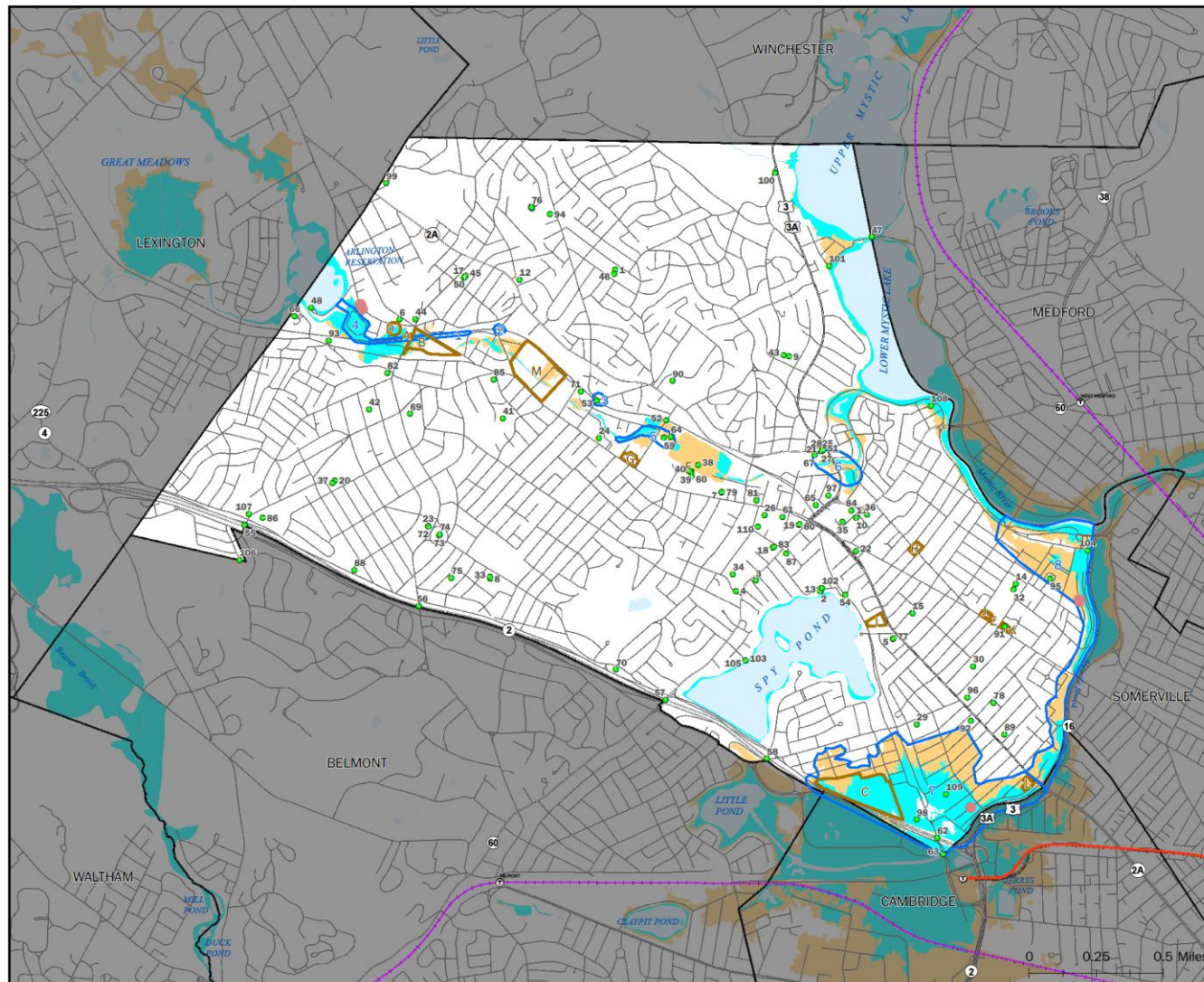
106 sites identified including:

- Disaster response sites such as fire and police stations
- Sites requiring assistance, such as elderly housing
- Critical infrastructure (dams, pump stations, communications)



A Place to Grow	Menotomy Preschool	Bellington St Underground Tank
ABC Pre-school	LABBB Collaborative	Turkey Hill Water Storage Tank
Little Sprouts	Arlington High School	Calvary Church, United Methodist
Arlington Children's Center, Inc.	Ottoson Middle School	Church of Our Saviour
Arlington Creative Start	Germaine Lawrence School	First Baptist Church
		First Parish Unitarian Universalist Church
Arlington Heights Nursery School	Bishop Elementary School	Highrock Church
Arlington Infant-Toddler Center	Covenant School	Park Ave Congregational Church
Brackett After School Program	Peirce Elementary	Pleasant St Congregational Church
Bright Start After School @ Bishop	Stratton Elementary School	Saint Agnes Parish
Fidelity House Preschool	Upper Mystic Lake Dam	St Athanasius Greek Orth. Church
Fidelity House School Age Child Care	Arlington Reservoir Dam	Saint Camillus
Great Expectations Preschool	Mrs. T's Company Inc.	St. John's Episcopal Church
Kids Care Club	Community safety building	St. Paul Lutheran Church
Kids Care Club at Thompson School	Grove St Bridge	Trinity Baptist Church
Gibbs School	Brattle St Bridge	Bright View
Peirce Playcare and Extended Day	Pond Lane Bridge	Spring Board Day Care
Rogers-Pierce Children's Center	Dow Ave Bridge	Casa Esme
Sunshine Nursery School	Park Ave Bridge	Sunrise
The Afterschool Connection, Inc.	Pleasant St Bridge	Natural Gas Distributor
Fire Police Support Service (garage)	Lake St Bridge	Police Substation
Headquarters Fire Station	DPW office	Fox Library
Park Circle Fire Station	Municipal admin (in HS)	Dept of Children and Families
Highland Fire Station	Library	Tracks Under Field
Arlington Fire Administration	Minuteman man under rte 2	Reed Street Pump Station
Arlington Town Hall	Alewife brook bridge	Old Mystic Pump Station
Fire/Police Dispatch	DPW garage	Intervale Pump Station
Arlington Police Department	Winslow Towers	Pond Land Pump Station
Hardy Elementary	Drake Village	Gould Road Pump Station
Leslie Ellis School	Qusack Building	Magnolia Field Pump Station
Thompson Elementary	Park Ave nursing & Rehab Center	1 Arizona Terrace
Brackett	Spring St Pump Station	Gould Road Pump Station
Ecole Bilingue School	Brattle Court Pump Station	Standish Pump Station
Arlington Catholic HS	Park Circle Fire Station (Towers)	Dow Pump Station
St Agnes Elementary	Park Circle Tower (1,000,000 gal)	Mystic Lake Pump Station
Cyrus E Dallin	Park Circle Tower	Arlington Senior Center

Flood Hazard Areas—FEMA & Local



FEMA Hazard Mitigation Planning Grant ARLINGTON, MA

Map 3: Flood Zones

- Critical
- Development
- Locally Identified Flooding
- Water Bodies
- All Roads**
 - Interstate
 - U.S. Highway
 - State Route
 - Streets
- * See details in separate table
- Rail**
 - Stations
 - Commuter Rail
 - Trains
- Flood Zones, (Annual)**
 - Zone A:
 - Zone AE:
 - Zone AH:
 - Zone AO:
 - Zone VE: 1% with Velocity Hazard
 - 0.2% Annual
- Subway Lines**
 - Blue
 - Green
 - Orange
 - Red
 - Silver



The information depicted on this map is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel level analyses.

Produced by MAPC Data Services
60 Temple Place, Boston, MA 02111 (617) 451-2770

Data Sources:
Metropolitan Area Planning Council (MAPC)
Massachusetts Geographic Information System (MassGIS)

Flood Zones datalayer updated by MassGIS October 2013
from finalized data provided by
Federal Emergency Management Agency (FEMA)

ARLINGTON, MA
Date: 1/22/2020

Path: K:\Data\Server\Project\Current_Project\Environment\PCMR\project\1\env\PCMR_Map3.mxd

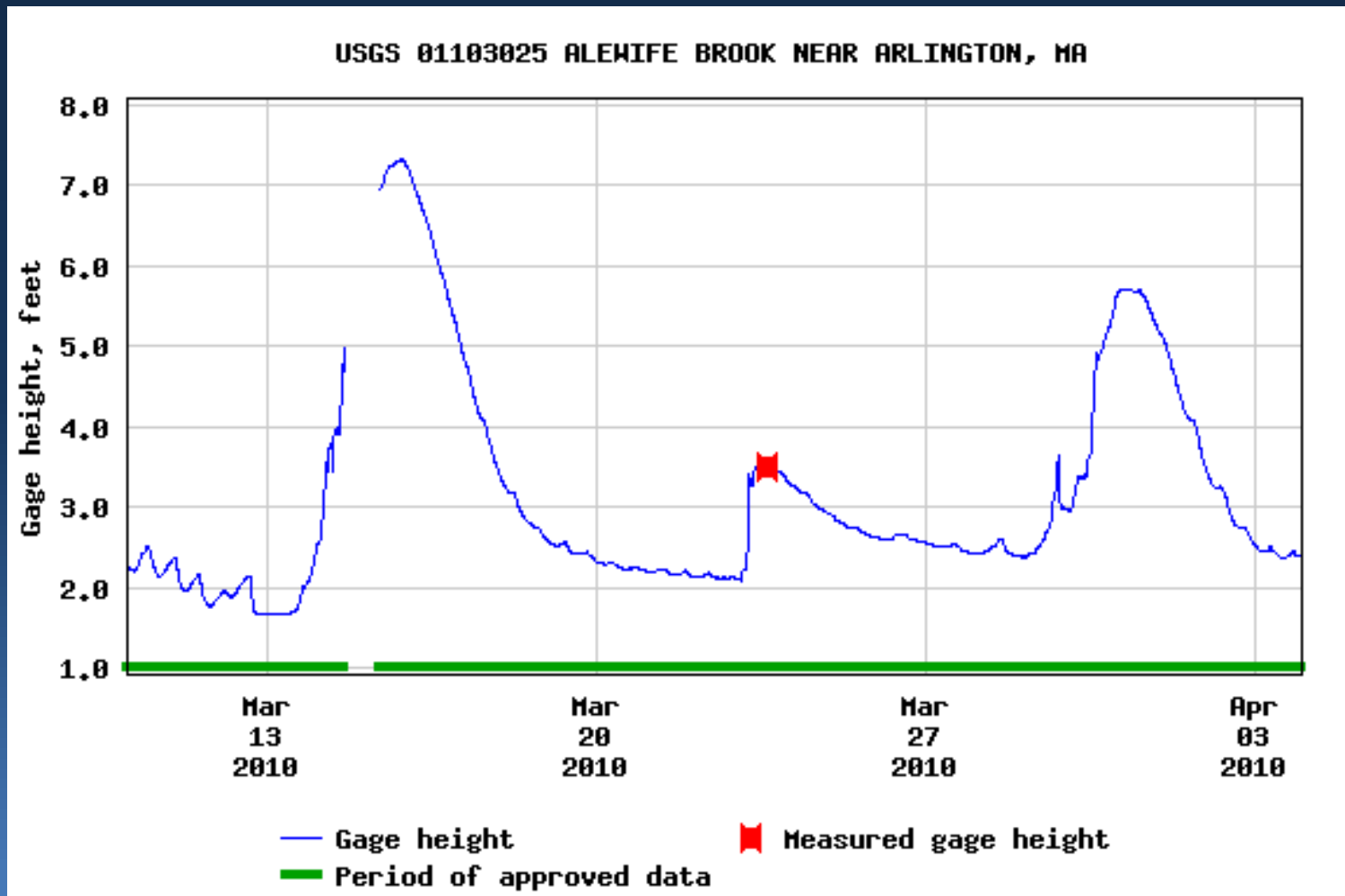
Locally-Identified Hazard Areas

10 potentially hazard prone areas for flooding and brushfires were identified by the Local Team:

1	Minuteman Bikeway	Flooding
2	Forest Street	Flooding
3	Brattle Street	Flooding
4	Colonial Village	Flooding
5	Grove Street	Flooding
6	Garden Street	Flooding
7	East Arlington	Flooding
8	Sunnyside Avenue	Flooding
9	Thorndike	Brush Fire
10	Summer St	Brush Fire



USGS Gauge-Alewife Brook 2010

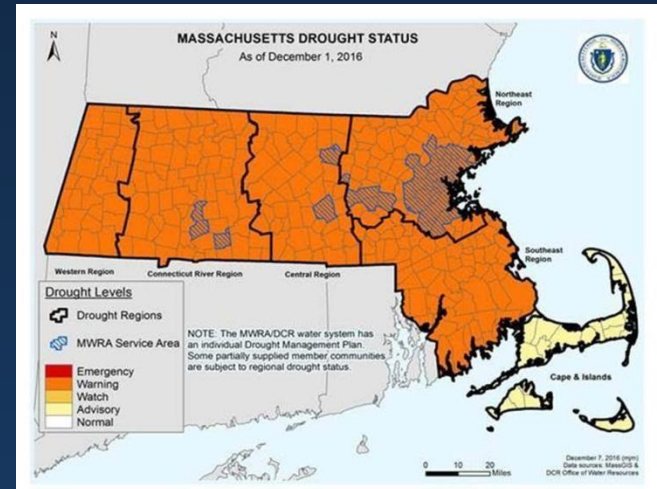


Other Natural Hazards

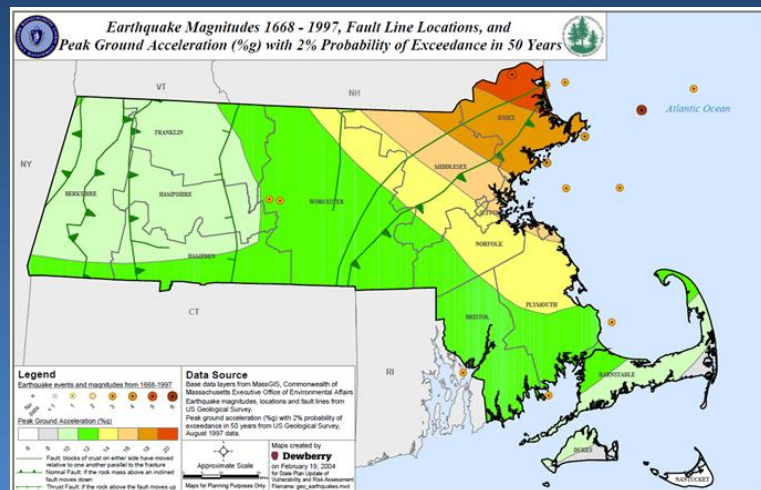
Extreme Heat

		Temperature (°F)															
Relative Humidity (%)		80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
	40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
	45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
	50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
	55	81	84	86	89	93	97	101	106	112	117	124	130	137			
	60	82	84	88	91	95	100	105	110	116	123	129	137				
	65	82	85	89	93	98	103	108	114	121	128	136					
	70	83	86	90	95	100	105	112	119	126	134						
	75	84	88	92	97	103	109	116	124	132							
	80	84	89	94	100	106	113	121	129								
	85	85	90	96	102	110	117	126	135								
	90	86	91	98	105	113	122	131									
	95	86	93	100	108	117	127										
	100	87	95	103	112	121	132										
Category		Heat Index				Health Hazards											
Extreme Danger		130 °F – Higher				Heat Stroke or Sunstroke is likely with continued exposure.											
Danger		105 °F – 129 °F				Sunstroke, muscle cramps, and/or heat exhaustion possible with prolonged exposure and/or physical activity.											
Extreme Caution		90 °F – 105 °F				Sunstroke, muscle cramps, and/or heat exhaustions possible with prolonged exposure and/or physical activity.											
Caution		80 °F – 90 °F				Fatigue possible with prolonged exposure and/or physical activity.											

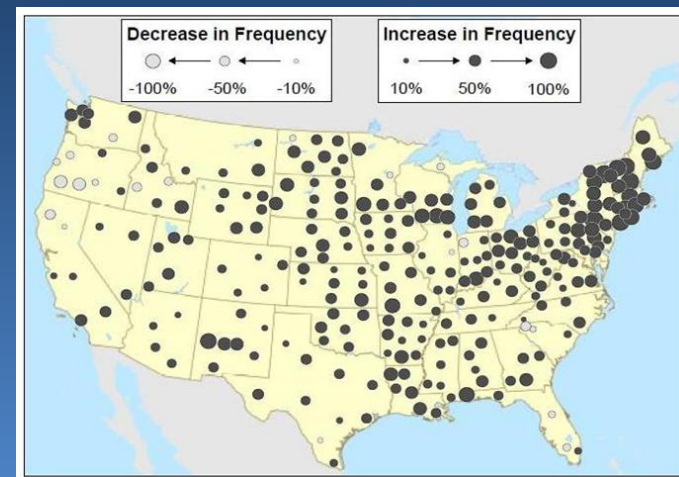
Drought



Earthquakes



Extreme Precipitation



Vulnerability Analysis: Estimated Damages

FEMA'S HAZUS-MH Program

HURRICANE Estimated Damages

100-year Hurricane property damage:	\$ 35,730,000
500-year Hurricane property damage:	\$ 151,940,000

EARTHQUAKE Estimated Damages

Magnitude 5 total property damage:	\$ 857,620,000
Magnitude 7 total property damage:	\$ 6,319,160,000

FLOODING: Estimated Damages:

100-year flood property damage:	\$ 102,380,000
500-year flood property damage:	\$ 167,800,000

Mitigation Strategies

The Mitigation Strategies from the previous plan were updated by the Local Team considering the following:



- What are the Town's existing Mitigation measures?
- Where are the gaps? What additional actions will further reduce vulnerability?
- What are the mitigation priorities, costs, timelines?
- Incorporated findings and recommendations from the MVP Community Resilience Building Workshop.

Mitigation Strategy Summary

Flooding and Stormwater

Minuteman Bikeway	Reconstruct or improve to withstand flooding (Mill Brook localized drainage, low lying area).
Mill Brook	Address flooding at Colonial Village.
Alewife Brook	Address flooding at Sunnyside Avenue.
Sanitary Sewer Overflows	Implement program to eliminate Sanitary Sewer Overflows.
Land Protection	Acquire priority open space parcels for many uses including maintaining flood storage and water infiltration capacity and for conservation.
FIRM mapping and bylaws	Update the town's zoning floodplain overlay map consistent with the FEMA Flood Information Rate Maps (FIRM).
Forest & Brattle Streets	Install pumps to remove flood water in low areas of the road.
Grove Street	Renovate DPW building and IT Data Center and create flood water storage.
Town-wide	Study feasibility of creating stormwater utility.
Town-wide	Develop a stronger wetlands, erosion control, and stormwater education outreach program for town residents and builders.
Town-wide	Develop a public/private partnership to facilitate drainage improvements, including "green" and "grey" infrastructure solutions and adjacent public lands/parks.

Mitigation Strategy Summary

WIND HAZARDS

Town-wide: High Winds	Conduct a street tree inventory and Increase available funds for tree maintenance; coordinate with utilities.
-----------------------	---

GEOLOGIC HAZARDS

Town-wide: Earthquakes	Investigate options to make all public buildings earthquake resistant.
---------------------------	--

WINTER HAZARDS

Town-wide Snow disposal	Identify a new permanent snow disposal location.
Town-wide Public Buildings	Identify public buildings that may be vulnerable to snow loads and conduct a structural assessment if needed.

WILDFIRE HAZARDS

Town-wide	Provide public information about brushfire hazards and preventative measures.
-----------	---

DROUGHT HAZARDS

Town-wide	Adopt guidelines for new development and town properties to promote drought-tolerant landscaping and site design.
-----------	---

Final Steps: Plan Review and Approval

- The draft plan is available on the Town's website
<https://www.arlingtonma.gov/home/showdocument?id=49986>
- Please send comments by **February 10** to
Emily Sullivan, esullivan@town.arlington.ma.us
- The plan will be submitted to MEMA and FEMA, and revised if required
- After FEMA review the Select Board will adopt the plan, and FEMA will issue a letter of plan approval
- The Town will be eligible for FEMA mitigation grants





Questions ?