Appendix E

Planning Process Supporting Documentation

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1. Project Schedule

Massachusetts State Hazard Mitigation and Climate Adaptation Plan Schedule

Task	Deliverable/Activity	Date
A1. Planning Process and Project Management	PMT Kickoff Meeting	March 30, 2017
	Project Work Plan (Draft)	April 13, 2017
	Project Work Plan (Final)	April 26, 2017
	Weekly Progress Reports	Duration of project
	Biweekly Project Management Conference Calls	Duration of project
A2. Conduct a Risk Assessment that Identifies Hazards and Climate Adaptation Impacts and Vulnerability	Initial Risk Assessment Methodology Review Meeting	May 12, 2017
	Draft 2 of the Risk Assessment Methodology	May 26, 2017
	Conference Call to Review Draft 2 Risk Assessment Methodology	May 26, 2017
	Final Draft of Risk Assessment Methodology	June 22, 2017
	Conference Call to Review Final Draft of Risk Assessment Methodology	June 23, 2017
	Final Risk Assessment Methodology	June 29, 2017
	Interim Draft Risk Assessment Sections	Rolling delivery October-December 2017
	Draft 1 Risk Assessment	January 2, 2018
	Draft 1 Risk Assessment Review Meeting	February 2, 2018
	Draft 2 Risk Assessment	March 23, 2018
	Draft 2 Risk Assessment Review Meeting	March 29, 2018
	Final Risk Assessment	July 6, 2018
A3. State Agency Vulnerability Assessments	Draft 1 State Agency Vulnerability Assessment Survey Framework	September 5, 2017
	Draft 2 State Agency Vulnerability Assessment Survey Framework	September 14, 2017
	Final Agency Vulnerability Assessment Survey Framework	September 15, 2017
	Draft 1 State Agency Vulnerability Assessment Survey Content	August 16, 2017
	Draft 2 State Agency Vulnerability Assessment Survey Content	September 5, 2017
	Final Draft State Agency Vulnerability Assessment Survey Content	September 22, 2017
	Final State Agency Vulnerability Assessment	October 6, 2017

Task	Deliverable/Activity	Date
	Survey Content	
	Draft 1 State Agency Vulnerability Assessment Survey Tool	October 13, 2017
	Draft 1 State Agency Vulnerability Assessment Survey Tool Review Conference Call	October 17, 2017
	~~Draft 2 State Agency Vulnerability Assessment Survey Tool~~	N/A
	~~Draft 2 State Agency Vulnerability Assessment Survey Tool Review Conference Call~~	N/A
	Final State Agency Vulnerability Assessment Survey Tool	October 23, 2017
	In-person Kickoff / Training Workshop	October 25, 2017
	Assessment Report Template Draft 1	November 10, 2017
	Assessment Report Template Draft 2	January 16, 2018
	Assessment Report Template Final	N/A (no comments received on Draft 2)
	Draft Assessment Reports from State Agency Vulnerability Assessment Survey Tool	March 2, 2018
	Additional State Agency Training Workshop	May 15, 2018
	State Agency Consultations	May 16-17, 2018 May 22, 2018
	On-call Technical Support	May 16-August 3, 2018
	Deadline for Additional State Agency Vulnerability Assessment Surveys	June 15, 2018
	Draft Assessment Reports for Additional State Agencies	June 29, 2018
	Deadline for State Agency Review of Draft Assessment Reports and Provision of Edits	July 27, 2018
	Final Assessment Reports for Surveys Completed by Original Deadline of January 31, 2018	August 17, 2018
	Final Assessment Reports for Additional Surveys Completed by Second Deadline of June 15, 2018	August 17, 2018
A4. Develop a State Capability and Adaptive Capacity Analysis Report	Draft 1 State Capability and Adaptive Capacity Analysis Report	December 15, 2017
	Draft 1 State Capability and Adaptive Capacity Analysis Report Review Meeting	January 3, 2018
	Draft 2 State Capability and Adaptive Capacity	March 30, 2018

Task	Deliverable/Activity	Date
	Analysis Report	
	Draft 2 State Capability and Adaptive Capacity Analysis Report Review Meeting	April 6, 2018
	Final State Capability and Adaptive Capacity Analysis	June 1, 2018
A5. Develop a State Hazard Mitigation and Climate Adaptation Strategy	Design and facilitate three identical risk assessment review and goals development workshops	January 9-11, 2018
	Draft 1 Goals Document	January 30, 2018
	Conference Call to review Draft 1 Goals Document	February 9, 2018
	Draft 2 Goals Document	February 16, 2018
	Conference Call to review Draft 2 Goals Document	February 23, 2018
	Final Goals Document	March 2, 2018
	Design and facilitate mitigation and adaptation strategy development workshops (stakeholders and state agencies)	April 5-April 13, 2018
	Draft 1 List of Actions	April 20, 2018
	Conference Call to review Draft 1 List of Actions	April 27, 2018
	PMT Coordination Call to Discuss Action Prioritization Process	May 18, 2018
	Submit Action Proposal Spreadsheet to Climate Coordinators for Review and Finalization	May 21, 2018
	Action Prioritization Tool Finalized and Submitted to PMT	May 29, 2018
	Final List of Actions Due from Climate Coordinators	June 1, 2018
	Action Prioritization Tool Submitted to Climate Coordinators to Apply to Final List of Actions	June 1, 2018
	Draft 1 Hazard Mitigation and Climate Adaptation Strategy	June 1, 2018
	PMT Coordination Call to Review Draft 1 Hazard Mitigation and Climate Adaptation Strategy	June 4, 2018
	Prioritized Actions Due from Climate Coordinators	June 8, 2018
	Draft 2 Hazard Mitigation and Climate Adaptation Strategy	June 15, 2018

Task	Deliverable/Activity	Date
	PMT Coordination Call to Review Draft 2 Hazard Mitigation and Climate Adaptation Strategy	June 18, 2018
	Final Hazard Mitigation and Climate Adaptation Strategy	July 6, 2018
A6. Develop and Document the Process for Plan Maintenance, Review, Evaluation, and Implementation	Draft 1 of Plan Implementation and Maintenance document	June 1, 2018
	PMT Coordination Call to Review Draft 1 Plan Implementation and Maintenance document	June 8, 2018
	Draft 2 of Plan Implementation and Maintenance document	June 15, 2018
	PMT Coordination Call to Review Draft 2 Plan Implementation and Maintenance document	June 18, 2018
	Final Plan Implementation and Maintenance document	July 6, 2018
A7. Compile and Finalize Plan	Draft 1 State Hazard Mitigation and Climate Adaptation Plan	July 6, 2018
	PMT Meeting to Review Draft 1 State Hazard Mitigation and Climate Adaptation Plan	July 9, 2018
	Revised Draft 1 State Hazard Mitigation and Climate Adaptation Plan Submitted to FEMA Region 1	July 13, 2018
	Draft 2 State Hazard Mitigation and Climate Adaptation Plan Submitted to PMT and Secretariats	August 10, 2018
	Final Draft State Hazard Mitigation and Climate Adaptation Plan Submitted to Governor's Office	August 31, 2018
	Final State Hazard Mitigation and Climate Adaptation Plan Published and Adopted by Governor Baker	September 17, 2018
	FEMA Approval (anticipated)	October 1, 2018

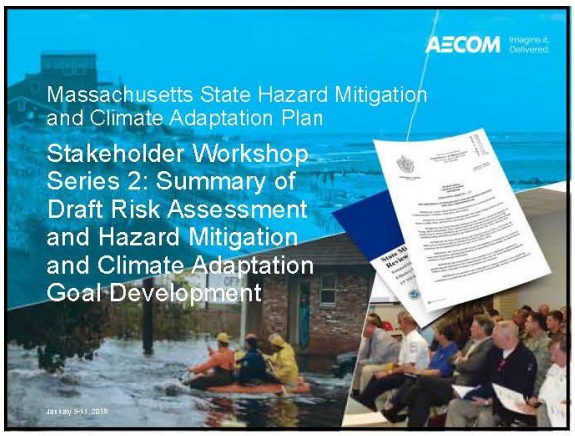
2. List of Organizations, Agencies, and Other Stakeholders

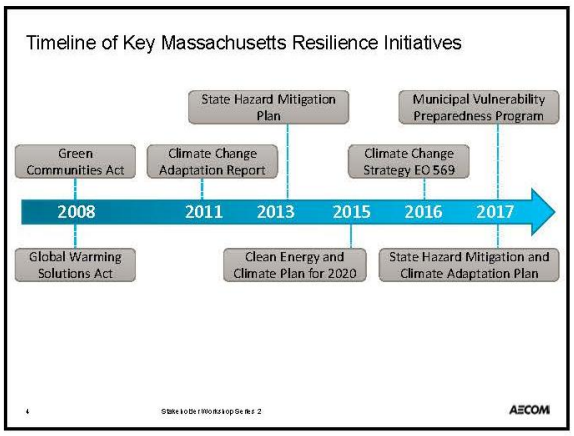
List of Organizations, Agencies, and Other Stakeholders who participated in the Planning Process

A Better City Initiative
American Society of Adaptation Professionals
Anchor QEA
Arup Laboratories
Barnstable County Cape Cod Cooperative Extension
Beals and Thomas, Inc.
Berkshire Environmental Action Team (BEAT)
Berkshire Regional Planning Commission
Boston Councilor Lydia Edwards
Boston Harbor Now
Boston University Initiative on Cities
Cape Cod Chamber of Commerce
Cape Cod Commission
CDM Smith
Central Massachusetts Regional Planning Commission
Charles River Watershed Association
Charlton Emergency Management
Charter Contracting Company
City of Boston - Environment, Energy, and Open Space Department
City of Boston - Office of Public Health
City of Cambridge
City of Cambridge
City of Chelsea
City of Chicopee
City of Chicopee Planning Department
City of Everett
City of Framingham
City of Greenfield
City of Holyoke
City of Lawrence
City of Medford
City of Melrose
City of Nashua
City of New Bedford
City of Newburyport
City of North Adams - Ambulance Service
City of Pittsfield
City of Somerville
City of Worcester
Clarendon Hill Consulting
Climate Creatives
Climate Resources Group
Coast Guard Sector Boston
Communities Responding to Extreme Weather
Comprehensive Environmental Inc. (CEI)
Concord Water and Sewer
Conservation Law Foundation
Conservation Works
Converge Strategies, LLC
Devens Enterprise Commission
DLS
Eastie Farm
Eversource Energy
Federal Emergency Management Agency
Fort Point Associates, Inc.
Franklin Regional Council of Governments
Fuss & O'Neill
GEI Consultants Inc.
Geosyntec Consultants
Gloucester Emergency Management
Green International Affiliates, Inc.
GZA GeoEnvironmental, Inc.
Harborkeepers
Harvard University Zofnass Program
Housatonic Valley Association
John F. Kennedy Library Foundation
Joy Conway Consulting
Kathleen Baskin
Kleinfelder, Inc.
MA Department of Capital Asset Management and Maintenance
MA Department of Correction
MA Division of Ecological Restoration
MA Division of Fisheries and Wildlife
MA Executive Office of Public Safety & Security
MA Executive Office of Technology Services & Security
MA Office of Coastal Zone Management
MA Office of Technical Assistance
MA Trial Court
Manomet, Inc.
Mass Audubon
Massachusetts Association of Realtors
Massachusetts Chapter of the American Institute of Architects
Massachusetts Clean Energy Center
Massachusetts Institute of Technology
Massachusetts Water Resources Authority
Massachusetts Water Resources Authority - Water Supply Citizen's Advisory Committee (WSCAC)
MassBays National Estuary Program
MassDevelopment
MassDOT
Meister Consultants Group

Merrimack Valley Planning Commission
Metropolitan Area Planning Council
Mystic River Watershed Association
National Oceanic and Atmospheric Administration
Newburyport Resiliency Committee
Nitsch Engineering
Noble Wickersham & Heart, LLP
North Cambridge Consulting
Northern Middlesex County of Governments
Nover-Armstrong Associates, Inc.
OARS - Assabet, Sudbury and Concord River Watersheds
Old Colony Planning Council
One Architecture + Urbanism
Pioneer Valley Planning Commission
Precision Weather Forecasting, Inc.
Reground, LLC
Resilience Action Partners
Resilience Partners
RPS ASA
Salem State University
Sierra Club
Soil4Climate
Stantec, Inc.
State of Rhode Island
SumCo Eco-Contracting
Tellus Institute
Tetra Tech, Inc.
The Climate Reality Project
The Nature Conservancy
Tighe & Bond, Inc.
Town of Adams
Town of Arlington
Town of Arlington
Town of Ashby
Town of Becket
Town of Boxborough
Town of Dalton
Town of Dover
Town of Duxbury
Town of Easton
Town of Great Barrington
Town of Hinsdale
Town of Hudson
Town of Hudson - Planning Department
Town Of Lanesborough - Department of Public Works
Town of Mattapoisett - Water & Sewer Department
Town of Milford
Town of Millis
Town of Monterey
Town of North Reading
Town of Rehoboth
Town of Scituate
Town of Shrewsbury
Town of South Hadley
Town of Spencer
Town of Spencer - Department of Public Works
Town of Stockbridge
Town of Sudbury
Town of Swansea - Conservation Commission
Town of Weston
Town of Westport - Planning Board
Town of Weymouth
TRC Environmental Corp
Tufts University
United States Environmental Protection Agency
United States Environmental Protection Agency - Office of Research and Development
United States Geological Survey
University of Massachusetts - Amherst
University of Massachusetts - Dartmouth
University of Massachusetts - Medical School
US Forest Service
Vanasse, Hangen, Brustlin, Inc.
WeSpire
Weston & Sampson, Inc.
Wluka Real Estate Corp.
Woodard & Curran, Inc.
Woods Hole Sea Grant

3. Representative Stakeholder Workshop Series Presentation


AECOM
Imagine it. Delivered.
Massachusetts State Hazard Mitigation and Climate Adaptation Plan
Stakeholder Workshop Series 2: Summary of Draft Risk Assessment and Hazard Mitigation and Climate Adaptation Goal Development
January 9-11, 2018


Timeline of Key Massachusetts Resilience Initiatives
State Hazard Mitigation Plan
Municipal Vulnerability Preparedness Program
Green Communities Act
Climate Change Adaptation Report
Climate Change Strategy EO 569
2008
2011
2013
2015
2016
2017
Global Warming Solutions Act
Clean Energy and Climate Plan for 2020
State Hazard Mitigation and Climate Adaptation Plan
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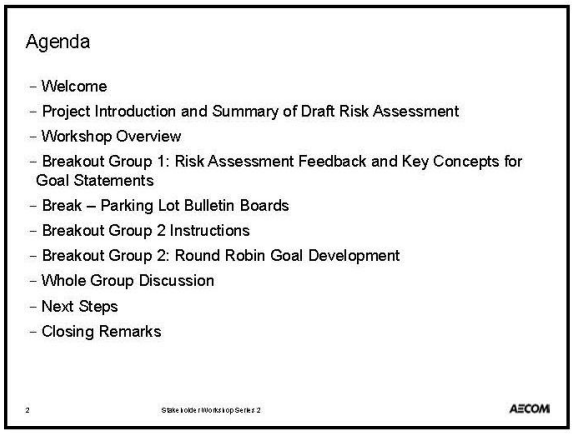
Agenda
– Welcome
– Project Introduction and Summary of Draft Risk Assessment
– Workshop Overview
– Breakout Group 1: Risk Assessment Feedback and Key Concepts for Goal Statements
– Break – Parking Lot Bulletin Boards
– Breakout Group 2 Instructions
– Breakout Group 2: Round Robin Goal Development
– Whole Group Discussion
– Next Steps
– Closing Remarks
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State Hazard Mitigation and Climate Adaptation Plan
www.resilientma.com
Welcome
5
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Project Introduction
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State Hazard Mitigation and Climate Adaptation Plan
Credit: Jesse Costa/WBUR
Credit: Michael Dwyer/AP
Credit: Robin Lubbock/WBUR
Credit: Charles Krupa/AP
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Natural Hazards Analyzed

Category	Natural Hazard
Hydrologic	Coastal Flooding and Sea Level Rise
	Drought
	Inland Flooding
	Dam Failure
Atmospheric	Average/Extreme Temperature
	Hurricanes/Tropical Storms
	Nor'easter
	Tornado
	Severe Winter Storm
	Other Severe Weather (Strong Winds, Extreme Precipitation)
Geologic	Coastal Erosion
	Tsunami
	Earthquake
	Landslide
Other	Invasive Species
	Wildfire

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Draft Risk Assessment

- Statewide risk assessment update that identifies natural hazards and climate threats and assesses impacts and vulnerability
- Methodology developed by consulting team and approved by the PMT
- Includes:
  - Hazard analysis and characterization
  - Exposure analysis that looks at vulnerabilities to the hazards and climate stressors identified in the hazard analysis
  - Climate change analysis that considers how climate change may exacerbate existing hazards
  - Hazard profiles that summarize results for each hazard
- Draft 1 Risk Assessment completed in January
  - Available for review: https://resilientma.com/updates/

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Massachusetts Climate Projections

http://www.massclimatechange.org/

Username: coming soon **Password:** c0mingS00n

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Five Main Sectors for Exposure Analysis

- Government
- Built environment (non-government)
- Natural resources and environment
- Economy
- Vulnerable populations

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Massachusetts Climate Projections

Variables		By Mid-Century	By End of Century
TEMPERATURE	Annual average temperature increase by	2.8-6.2°F (50.4-53.8 °F)	3.8-10.8 °F (51.4-58.4 °F)
	Summer max temperature increases by	2.6-6.1°F (81.5-85.6 °F)	3.6-12.5°F (82.5-91.4 °F)
	Days per year with daily max temperature > 90°F increases by	7-26 days (up to 31 days total)	11-64 days (up to 69 days total)
	Days per year with a daily min temperature < 32°F decreases by	19-40 days (down to 106 days total)	24-64 days (down to 82 days total)
PRECIPITATION	Total annual precipitation will increase by	1-6 inches (up to 53 inches total)	1.2-7.3 inches (up to 54.3 inches total)
	Number of days > 1 inch will increase by	1-3 days (up to 10 days total)	1-4 days (up to 11 days total)
	Number of days > 2 inch will increase by	0-1 days (up to 2 days total)	0-1 days (up to 2 days total)
SEA LEVEL RISE	Median (Boston)	1.1-1.2 feet	2.3-3.0 feet
	Likely range that SLR is between	0.8-1.4 feet (medium emissions scenario) and 0.8-1.5 feet (high emissions scenario)	1.5-3.1 feet (medium emissions scenario) and 2.0-4.0 feet (high emissions scenario)
	Exceptionally unlikely SLR will exceed	2.4-2.7 feet	8.2-9.7 feet

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Impacts from Increasing Temperatures

- **Public health**
  - Increase in heat-related illnesses and mortality
  - Urban residents face greater risks
- **Health of plants, animals, and ecosystems**
  - Increased pests
  - Changes to growing seasons
- **Economic sectors**
  - More sick days due to heat-related illnesses
  - Reduced crop production and impacts to livestock and fisheries
- **Infrastructure**
  - Larger demands on energy systems
  - Stress on train tracks, roads and bridges, and other critical infrastructure

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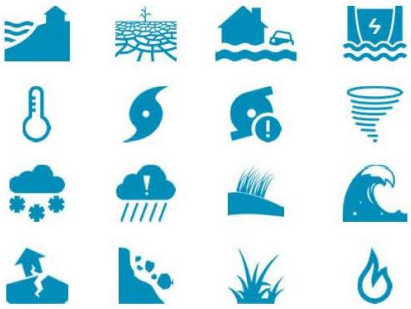
Hazard Profiles



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Impacts from Changing Precipitation Conditions

- **Increased total rainfall**
  - Impact on the frequency of minor but disruptive flooding events
  - Impact agriculture, forestry, and natural ecosystems
- **More intense downpours**
  - Increased risk of flooding
  - Increased damage to property and critical infrastructure
  - Impacts to water quality
- **Changes to rainfall and snowfall patterns**
  - Impacts to certain habitats and species with specific physiological requirements
  - Reduced snow cover for recreation and tourism
  - Potential increase in frequency of episodic droughts

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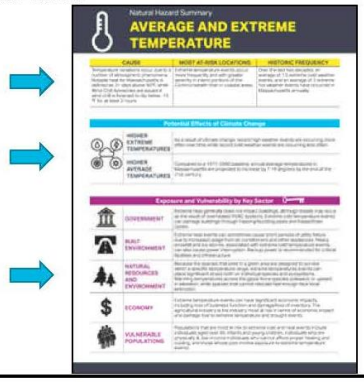
Hazard Profiles



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Impacts from Sea Level Rise

- **Local impacts shaped by:**
  - Ocean currents
  - Wind patterns
  - Land and shoreland elevations
  - Subsidence and accretion rates
  - Tidal zones
- **Will exacerbate many existing coastal hazards including:**
  - Severe storms and storm surge
  - Tidal inundation
  - Salt water intrusion
- **More regular flooding of developed and natural low-lying coastal areas**
- **Increased erosion of existing coastal landforms**
- **Damage to coastal buildings and infrastructure**

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Draft Risk Assessment – Key Takeaways

- **Climate change will exacerbate most of the natural hazards assessed**
- **Greater exposure to natural hazards and related climate change impacts**
- **Noteworthy natural hazards affected by climate change:**

Coastal flooding

Coastal erosion

Inland flooding

Average/extreme temperatures

Drought

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Risk Assessment – Next Steps
- Review of Draft 1
- Draft 2 Risk Assessment issued March 2018
• Reflect comments on Draft 1
• Incorporate results of state agency vulnerability assessments
- Final Risk Assessment issued April 2018
- Incorporated into, and inform other sections of, the 2018 Plan
Massachusetts
State Hazard Mitigation and Climate Adaptation Plan
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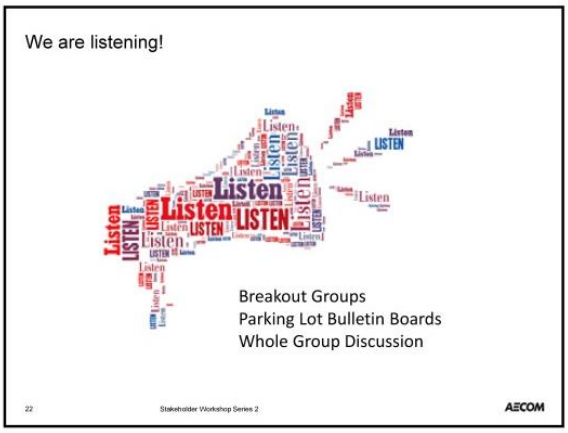
We are listening!
Listen
LISTEN
Breakout Groups
Parking Lot Bulletin Boards
Whole Group Discussion
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Workshop Overview
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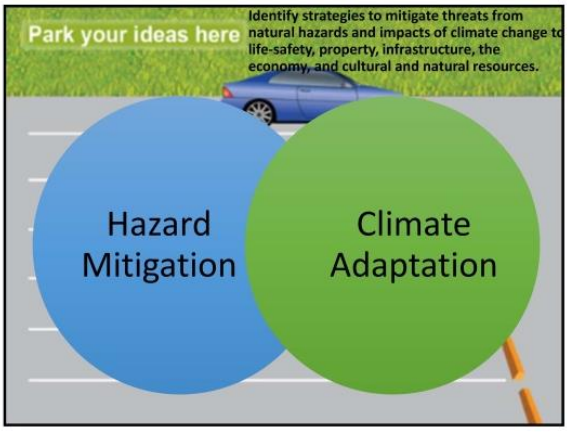
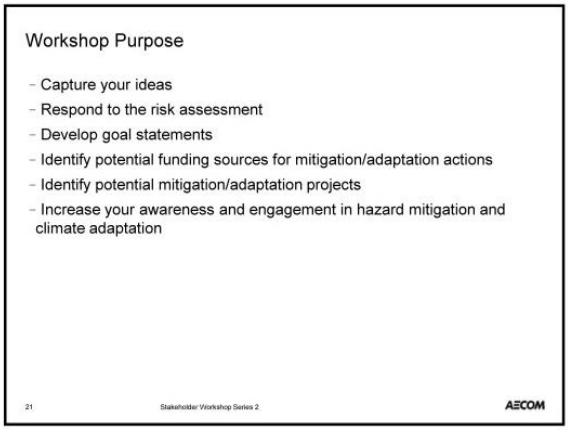

Park your ideas here
Identify strategies to mitigate threats from natural hazards and impacts of climate change to life-safety, property, infrastructure, the economy, and cultural and natural resources.
Hazard Mitigation
Climate Adaptation


Workshop Purpose
- Capture your ideas
- Respond to the risk assessment
- Develop goal statements
- Identify potential funding sources for mitigation/adaptation actions
- Identify potential mitigation/adaptation projects
- Increase your awareness and engagement in hazard mitigation and climate adaptation
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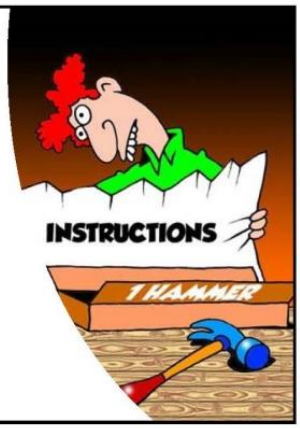
Park your ideas here
FUNDING IDEAS FOR MITIGATION/ADAPTATION ACTIONS
What funding opportunities exist?
Note: Look beyond MEMA and FEMA. Can your organization fund mitigation/adaptation?

Breakout Group 1: Instructions

- Purpose
  - Gather your feedback from the risk assessment presentation
  - Develop key concepts for new goal statements



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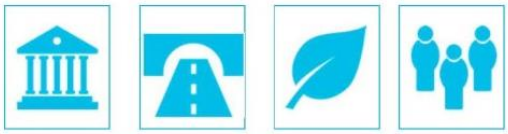
Hazard Mitigation and Climate Adaptation Categories

- The Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan defines four primary categories of hazard mitigation and climate adaptation actions to reduce long-term risk and vulnerabilities and increase resilience.



Institutional Capacity, Plans and Regulations

Structure and Infrastructure

Natural System Protection

Education and Awareness Programs

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Breakout Group 1: Part 1 (15 minutes) Risk Assessment Feedback

- Were you surprised by the risk assessment results or were they in line with your current understanding of risk in the Commonwealth?
- Did you feel that something may have been missed in the risk assessment? Were your concerns represented?
- How do you foresee using the risk assessment to justify projects or work in your department or organization?

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Key Concepts to Consider

- Adaptation
- Adaptive capacity
- Agriculture
- Best available science and data
- Biodiversity and habitat
- Capability
- Capacity building
- Capital improvement
- Climate adaptation and resilience
- Climate change
- Climate projections
- Coastal zone and oceans
- Critical facilities
- Cultural and historical assets
- Data gathering
- Economic development
- Energy
- Energy and emissions
- Engaging agencies/stakeholders
- Exposure
- Extreme weather
- Forests
- Green building
- Hazard mitigation
- Housing
- Human health and welfare
- Infrastructure
- Integrated planning
- Key infrastructure
- Land development
- Land use planning
- Local economy and government
- Natural environment protection
- Natural hazards
- Natural infrastructure
- Natural resource management
- Natural resources and habitat
- Nature-based solutions
- New and future development
- Ocean and coast
- Partnerships
- Public health
- Resilience
- Risk management
- Risk reduction
- Sea level rise
- Sensitivity
- Specific hazards including climate change??
- Sunny Day Flooding
- Sustainability
- Sustainable construction
- Transportation
- Vulnerability
- Water
- Water management

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Breakout Group 1: Part 2 (30 minutes) Key Concepts for Goal Statements

- Develop key concepts toward the development of goal statements.
- Develop concepts in each of the 4 broad risk reduction categories:
  1. Institutional Capacity, Plans and Regulations
  2. Structure and Infrastructure
  3. Natural Systems Protection
  4. Education and Awareness Programs
- These concepts will be combined to form goal statements later in the workshop.

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Current Mitigation Plan

- The goals will be used as general guidelines that explain what the Commonwealth wants to achieve.
- The goals will be broad statements, representing the long-term vision for hazard reduction and enhancement of mitigation capabilities statewide.
- The goals will be long-term (or short-term goals that assist in gaining long-term effects), and represent a global vision for the Commonwealth.
- The goals will be based any of the following:
  - Policy development
  - Programmatic design and/or support
  - Projects (structural and non-structural)

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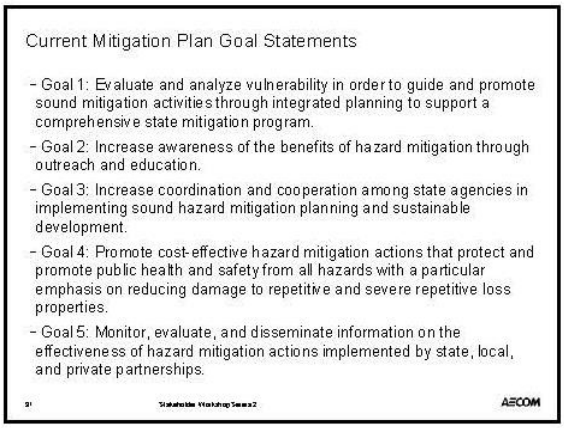
Current Mitigation Plan Goal Statements
- Goal 1: Evaluate and analyze vulnerability in order to guide and promote sound mitigation activities through integrated planning to support a comprehensive state mitigation program.
- Goal 2: Increase awareness of the benefits of hazard mitigation through outreach and education.
- Goal 3: Increase coordination and cooperation among state agencies in implementing sound hazard mitigation planning and sustainable development.
- Goal 4: Promote cost-effective hazard mitigation actions that protect and promote public health and safety from all hazards with a particular emphasis on reducing damage to repetitive and severe repetitive loss properties.
- Goal 5: Monitor, evaluate, and disseminate information on the effectiveness of hazard mitigation actions implemented by state, local, and private partnerships.
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Breakout Group 1: Risk Assessment Feedback and Key Concepts for Goal Statements
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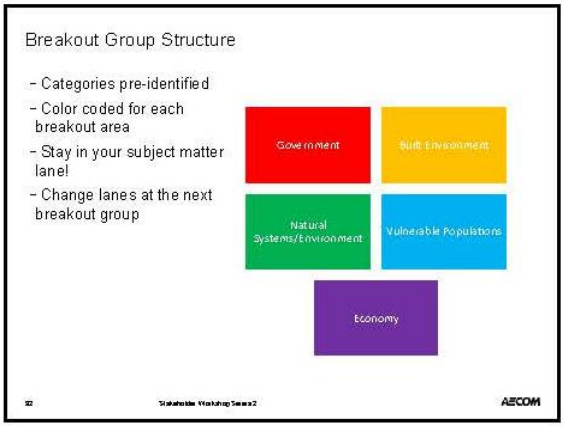
Breakout Group Structure
- Categories pre-identified
- Color coded for each breakout area
- Stay in your subject matter lane!
- Change lanes at the next breakout group
Government
Built Environment
Natural Systems/Environment
Vulnerable Populations
Economy
AECOM


Break – Parking Lot Bulletin Boards
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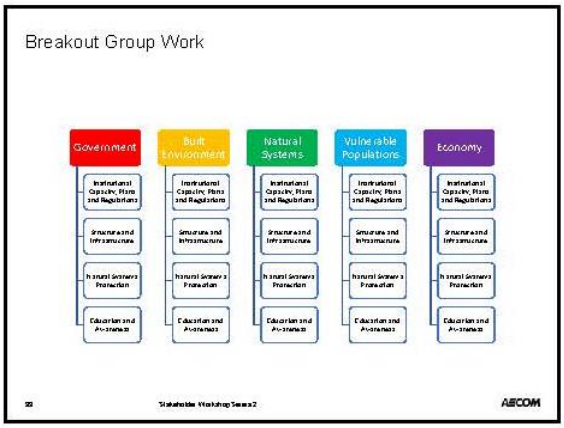
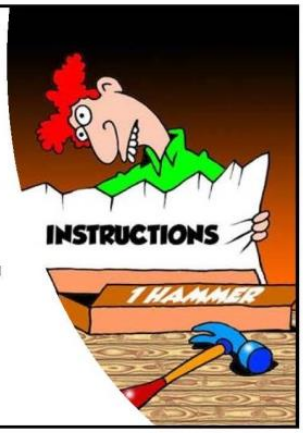

Breakout Group Work
Government
Built Environment
Natural Systems
Vulnerable Populations
Economy
AECOM


Breakout Group 2 Instructions
AECOM

Breakout Group 2: Instructions

- Purpose
  - Develop goal statements based on key concepts.
- Outcomes
  - The result of Breakout Group 2 will be draft goal statements developed with the input of all stakeholders.
  - Goal statements represent four primary categories of hazard mitigation and climate adaptation actions to reduce long-term risk and vulnerabilities and increase resilience.



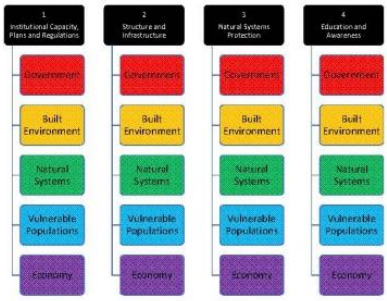
37 Stakeholder Workshop Series 2

Part 2: Develop Draft Goal Statements (30 minutes)

- Use key concepts to develop draft goal statements.
- Add objectives or other comments if time permits.
- Focus on the goal not how to achieve it.

40 Stakeholder Workshop Series 2

Breakout Group Work – Mix the Groups



38 Stakeholder Workshop Series 2 AECOM

What Makes a Good Goal Statement?

- Goals are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mission/strategy.

41 Stakeholder Workshop Series 2 AECOM

Part 1: Report Out Key Concepts (10 minutes)

- A representative from each category will introduce – report-out the key concepts from their first breakout group.
- How did your group develop the concepts?
- How do the concepts relate specifically to your category of expertise?

39 Stakeholder Workshop Series 2 AECOM

Goal Statement Examples

42 Presentation Title AECOM

Breakout Group Structure

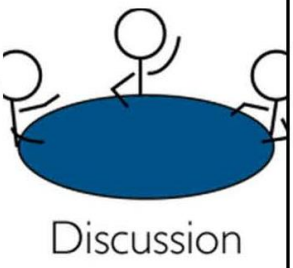
- Go to group based on # on your nametag.
- Each breakout group works on 1 of the 4 broad mitigation categories.

1 Institutional Capacity, Plans and Regulations	2 Structure and Infrastructure
3 Natural Systems Protections	4 Education and Awareness Programs

43 Stakeholder Workshop Series 2 AECOM

Whole Group Discussion

- For each goal statement:
  - Gut reaction to each new goal statement?
  - How do the goals relate to the work you do? Do they further that work or support it? Are they in direct conflict or do they present challenges?
- What do you think is still missing or not adequately covered in the goal statements?

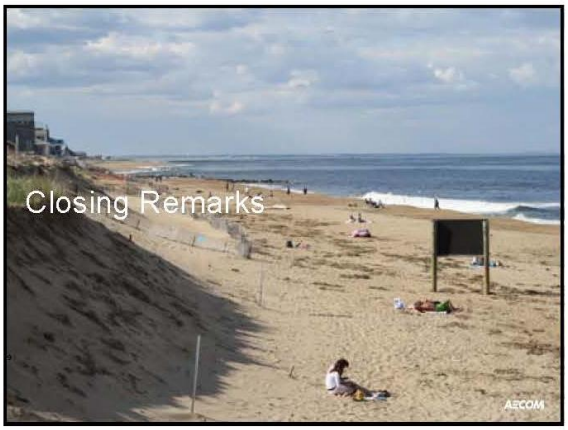


46 Stakeholder Workshop Series 2 AECOM

Next Steps

- Further develop goal statements.
- Further develop mitigation actions with your help in March.
- Develop a system for prioritizing those actions in March.

48 Stakeholder Workshop Series 2 AECOM

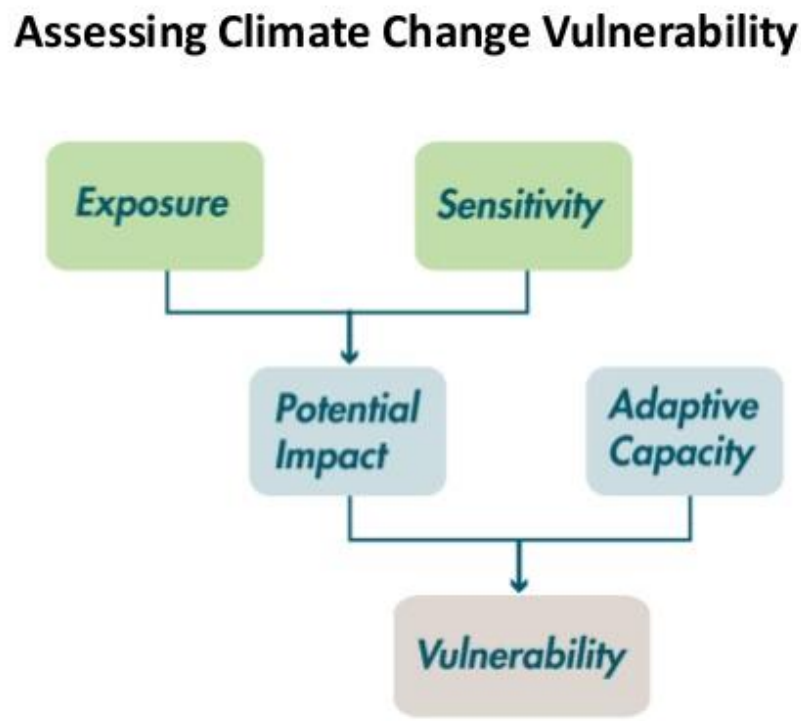

Closing Remarks –
AECOM


Thank You!
AECOM

4. State Agency Vulnerability Assessment Survey – Word Version

Massachusetts State Hazard Mitigation and Climate Adaptation Plan
State Agency Vulnerability Assessment Survey

Welcome to the State Agency Vulnerability Assessment Survey. This survey is designed to facilitate compliance with *Executive Order No. 569 – Establishing an Integrated Climate Change Strategy for the Commonwealth*, which mandates that each Executive Branch agency must complete a climate change vulnerability assessment. This survey will assist your agency in identifying key assets, functions, missions and services/programs that may be affected by natural hazards, now and as they may exist in the future. It will also assist you in assessing your overall degree of exposure, sensitivity, and adaptive capacity to climate change and natural hazards. Your input on this survey will be used in the 2018 Massachusetts State Hazard Mitigation and Climate Adaptation Plan.



Glick et al. 2011

The survey will ask a range of questions pertaining to your agency's evaluation of the following natural hazards, including how those risks are likely to change as a result of climate change. The natural hazards are organized by primary climate interaction, and representative related climate change impacts are also provided.

Primary Climate Interaction	Natural Hazard	Related Climate Change Impacts
Sea Level Rise and Storm Surge	Coastal Flooding (including daily tidal flooding from sea level rise)	Beach erosion, marsh migration, inundation of coastal and marine ecosystems, elimination of wetlands
	Hurricanes/ Tropical Storms	
	Nor'easter	
	Coastal Erosion	
Precipitation	Extreme Precipitation	Flash flooding, urban flooding, public health impacts from mold, worsened indoor air quality, vector-borne diseases from stagnant water
	Inland/Riverine Flooding	
	Severe Winter Storm	
	Ice Storms	
	Landslide	
	Dam Failure	
Temperature	Increase in Average Summer Temperature	Shifting in seasons (longer summer, early spring including earlier timing of spring peak flow), increase in length of growing season, increase of invasive species, frequent energy brown-outs from higher energy demands, public health impacts from high heat exposure, poor outdoor air quality
	Extreme Temperatures/Heat Waves	
	Drought	
	Wildfires	
Other Extreme Events	Tornadoes	Damage to property, infrastructure, and loss of life
	Tsunami	
	Earthquake	

Agency Name:

Point of Contact Name and Title:

Phone:

Email:

Definitions of Key Terms

Adaptive capacity: The ability of a system (or, in this case, your agency) to adapt to changing circumstances, both in the short- and long-term. For example, an agency which can operate remotely likely has greater adaptive capacity than an agency which must operate from a flood-prone building. Similarly, a facility that can continue to operate during extended periods of drought due to a resilient water supply system has greater adaptive capacity than one that may encounter water restrictions.

Assets: For the purposes of this survey, there are two main types of assets: physical and non-physical. These are defined below.

> **Physical assets:** These include any tangible facilities, equipment, landholdings, natural resources, etc. that meet the definition of criticality below by playing a significant role in the operation and mission of your agency.
>
> **Non-physical assets:** This category captures non-tangible resources, such as power, Internet connectivity, or cloud-based data that are essential to your agency's functions (functions are defined below).

Climate change: A statistically significant variation in climate data or patterns over a given period of time, due to either natural climate variability or human activity.

Climate change adaptation: Measures taken in response to actual or projected climate change in order to eliminate, minimize, or manage related impacts on people, infrastructure, and the environment.

Climate change impact: Consequences of climate change on natural and human systems.

Climate interaction: The manifestation of a change in climatic conditions through one or more weather variables, such as a change in precipitation or sea level rise, to create an impact.

Criticality: This definition is provided to aid agencies with the identification of critical assets or functions for the purpose of this survey. Criticality is based on three parameters: scope, time, and severity.

Scope describes the geographic area and population that would be affected by the loss or inoperability of an asset or function. An asset or function is considered critical if it serves a region or the entire state, or would affect greater than 10,000 people.

Time describes the length of time that an asset or function can be inoperable without consequences. An asset or function is considered critical if it is inoperable immediately after a hazard event or one to two days after an event.

Severity describes the consequences of the loss and inoperability of an asset or function. There are a multitude of consequences, including public health and safety, economic losses, environmental effects, interdependencies, political effects, and psychological effects. An asset or function is considered critical if the consequences include loss of life or severe injuries, significant economic loss, extensive environmental contamination, significant impact on other agencies, significant impact to service delivery, or significant loss of confidence in the agency.

These parameters and examples should be taken into consideration when identifying your critical assets and functions for the purpose of this survey.

Exposure: The extent to which physical and non-physical assets, functions, and population groups are in direct contact with natural hazards or their related climate change impacts. Exposure is often determined by examining the number of people or assets that lie within a geographic area affected by a natural hazard or by determining the magnitude of the climate change impact. For example, measurement of flood depth outside a building or number of heat waves experienced by a county are measurements of exposure.

Functions: The programs and services an agency provides to its customers in order to fulfill its mission. These programs and services depend on the mission of your agency and could include activities such as planning, policy development, regulatory enforcement, research, permitting, or outreach/education, or stewardship of critical resources.

Natural hazard: Natural events that threaten lives, property, and other assets.

Natural resources: These are components of natural systems that exist without human involvement. For the purpose of this survey, key natural resource categories include forested ecosystems, aquatic ecosystems, coastal ecosystems, wetland ecosystems, and old field ecosystems.

Sensitivity: Sensitivity refers to the impact on a system, service, or asset when exposed to natural hazards. For example, if a facility is exposed to storm surge, how will its ability to function be affected? When a critical threshold has been identified, the level of sensitivity of your agency, a specific asset, function, or population group served to a hazard indicates how much or to what extent does the occurrence of a hazard exceed the critical threshold for that asset or function such that it would disrupt the ability of the agency/asset/function to continue normal operation. If the critical threshold is not exceeded, then the sensitivity to a certain hazard is low, even if it is exposed.

Vulnerability: The overall vulnerability of your agency to a hazard is determined by combining your exposure, sensitivity, and adaptive capacity. Agencies or assets that are highly vulnerable may be highly sensitive to a certain natural hazard or climate change impact, highly exposed, and/or have low adaptive capacity. On the other hand, agencies or assets that have low sensitivity or high adaptive capacity may not be impacted by a natural hazard or climate change impact at all.

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Section I: General Agency Information

1. **What is your agency's mission?**

2. **a. Please identify up to 10 physical assets and/or non-physical assets that are critical to the function of your agency. Also, if known, for each critical asset identify the critical threshold(s), which if exceeded is likely to disrupt its normal operation. For example, is there a critical elevation threshold above which a facility will be inoperable due to flooding?**

Critical Physical/ Non-Physical Assets (refer to the "criticality" definition to aid in identification of critical assets)	Reason for Criticality (Select from Drop-down List)	If known, identify any critical threshold(s), which if exceeded is likely to disrupt normal operation of the asset. Otherwise enter "Don't know".	Location		Who Owns / Manages the Asset?	If Another Agency, Provide the Point of Contact
			Street address if available, or lat/long coordinates	Municipality		
	Choose Reason for Criticality					
	Choose Reason for Criticality					
	Choose Reason for Criticality					
	Choose Reason for Criticality					
	Choose Reason for Criticality					
	Choose Reason for Criticality					
	Choose Reason for Criticality					
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	Choose Reason for Criticality					

b. Please identify up to 10 critical functions (i.e. programs or services) that your agency provides. Functions may include planning, outreach/education, permitting, policy enforcement, research, billing, training, public services, contract administration, etc. Also, if known, for each critical function identify the critical threshold(s), which if exceeded is likely to disrupt provision of the program or service. For example, is there a critical power outage threshold above which a service cannot be provided?

Critical Functions (refer to criticality definition to aid in identification of critical functions)	Reason for Criticality (Select from Drop-Down List)	If known, identify any critical threshold(s), which if exceeded is likely to disrupt normal operation of the program or service. Otherwise enter "Don't know".	Provide description of customers / audience served	Municipality(ies) Served
	Choose Reason for Criticality			
	Choose Reason for Criticality			
	Choose Reason for Criticality			
	Choose Reason for Criticality			
	Choose Reason for Criticality			
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c. Please identify up to 10 critical population groups that your agency serves. Some examples of critical population groups include but are not limited to hospital patients, children, elderly, and prisoners.

Critical Population Groups Served	Reason for Criticality (Select from Drop-Down List)	Municipality(ies) Served
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	

3. What are your agency's primary concerns regarding impacts from climate impacts and natural hazards under present and future climate change scenarios (select all that apply)?

☐ Impacts to specific facilities
☐ Impacts to infrastructure controlled by others (e.g. electricity, data, transit, and access)
☐ Response capabilities (i.e. expertise)
☐ Response capacity (i.e. sufficient resources or personnel)
☐ Health and welfare of the building occupants
☐ Likelihood of occurrence of extreme climate events or changes in the future that may not have been experienced in the past
☐ Ability to assist clients/stakeholders
☐ Loss of workforce productivity
☐ Failure to provide critical services
☐ Failure to meet agency mission or goals
☐ Other:
☐ Not a concern

4. Is your agency required for (select all that apply):

☐ Disaster preparedness before an event
☐ Emergency response during and immediately after an event
☐ Recovery to acceptable level of service after an event

5. How does your agency serve local communities:

a. What impacts would occur to the community if your agency's operations were temporarily interrupted by a natural hazard or extreme weather event?

b. How quickly would those impacts be experienced by the community?

c. **How might long-term impacts of climate change disrupt community operations?**

d. **What impacts would be experienced by the community?**

e. **Are any of your agency's assets designated as shelters or community resources in emergencies or extreme weather events?**

6. **What interdependencies do you have as an agency:**
   a. **What other state agencies, regional authorities, or local municipalities could be impacted by loss of your agency's operations?**

   b. **Do your operations depend on any other agencies, regional authorities, or local municipalities? If so, which agency/ies?**

   c. **Do your operations depend on any private utility company? If so, which company/ies?**

   d. **Does your agency depend on the regular delivery or transport of resources or people to and from facilities?**

Section II: Climate Change Exposure and Sensitivity

This portion of the survey will ask you to evaluate your agency's exposure and sensitivity to natural hazards and climate change. Detail should be provided for your agency's critical assets, functions, and populations identified in Section I when possible. If you are not able to provide responses for individual critical elements, a higher level agency-wide response can be provided. You will indicate previous occurrences of each hazard, your level of concern about that hazard in the present day, and your anticipated level of concern under climate change conditions. There is also the option to add additional hazards and climate change impacts you may be aware of.

For future risk, we ask that you consider the 2070 planning horizon as you think about exposure and sensitivity to future conditions. Reference materials are provided (see the hyperlinks included in the following table) for each natural hazard to help you understand how each of these hazards is likely to change as the climate changes.

Also, please access newly available downscaled climate change projections and mapping for Massachusetts via the following website: http://www.resilientma.org/.

Primary Climate Interaction	Natural Hazards (Click here to access reference material that will help you understand how each hazard is likely to change as the climate changes)	Related Climate Change Impacts	To the best of your knowledge, list which critical assets, functions, or population groups (as identified in Question 2) have been impacted by each hazard identified in the preceding column *(add additional rows as needed to accommodate your critical items)*	To the best of your knowledge, indicate if the critical asset, function or population group served by your agency has been negatively impacted by this hazard in the past.	Based on how the natural hazard is likely to change in the future as a result of climate change (see supplemental reference maps identified in the second column), to what extent is the critical asset, function, or population group served exposed to each hazard? High (i.e. all of asset is exposed) Medium (i.e. some of asset is exposed) Low (i.e. asset is minimally exposed) Not Exposed (i.e. no exposure)	On a scale of 1 to 5, rate how sensitive the critical asset, function, or population group served is to the natural hazards. Sensitivity should be determined based on whether a critical threshold has been exceeded. If exceeded for a hazard, then assign a "5". If a critical threshold has not been exceeded, or if a critical threshold has not been identified, a qualitative assessment should be conducted to assign a score based on consideration of the nature of the critical item and the natural hazard and related climate change impacts. In other words, to what degree is the critical item affected or impacted by exposure? N/A = no relevance 1 = minimally sensitive if minimum disruption to function/minimal impact to population group served 5 = extremely sensitive if significant disruption to function/significant impact to population group served	Notes or Explanation (use this column to document information that is specific to a critical item) or Additional Comments
Sea level Rise and Storm Surge	Coastal Flooding (including daily tidal flooding from sea level rise)	Beach erosion, marsh migration, inundation of coastal and marine ecosystems, elimination of wetlands		Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Hurricanes/ Tropical Storms			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Nor'easter			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Coastal Erosion			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
Precipitation	Extreme Precipitation	Flash flooding, urban flooding, public health impacts from mold, worsened indoor air quality, vector-borne diseases from stagnant water		Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Inland/Riverine Flooding			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Severe Winter Storm			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	

Primary Climate Interaction	Natural Hazards (Click here to access reference material that will help you understand how each hazard is likely to change as the climate changes)	Related Climate Change Impacts	To the best of your knowledge, list which critical assets, functions, or population groups (as identified in Question 2) have been impacted by each hazard identified in the preceding column *(add additional rows as needed to accommodate your critical items)*	To the best of your knowledge, indicate if the critical asset, function or population group served by your agency has been negatively impacted by this hazard in the past.	Based on how the natural hazard is likely to change in the future as a result of climate change (see supplemental reference maps identified in the second column), to what extent is the critical asset, function, or population group served exposed to each hazard? High (i.e. all of asset is exposed) Medium (i.e. some of asset is exposed) Low (i.e. asset is minimally exposed) Not Exposed (i.e. no exposure)	On a scale of 1 to 5, rate how sensitive the critical asset, function, or population group served is to the natural hazards. Sensitivity should be determined based on whether a critical threshold has been exceeded. If exceeded for a hazard, then assign a "5". If a critical threshold has not been exceeded, or if a critical threshold has not been identified, a qualitative assessment should be conducted to assign a score based on consideration of the nature of the critical item and the natural hazard and related climate change impacts. In other words, to what degree is the critical item affected or impacted by exposure? N/A = no relevance 1 = minimally sensitive if minimum disruption to function/minimal impact to population group served 5 = extremely sensitive if significant disruption to function/significant impact to population group served	Notes or Explanation (use this column to document information that is specific to a critical item) or Additional Comments
				Choose an item.	Choose an item.	Choose an item.	
	Ice Storms			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Landslide			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Dam Failure			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
Temperature	**Increase in Average Summer Temperature**	**Shifting in seasons (longer summer, early spring including earlier timing of spring peak flow), increase in length of growing season, increase of invasive species, frequent energy brown-outs from higher energy demands, public health impacts from high heat exposure, poor outdoor air quality**		Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Extreme Temperatures/Heat waves			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Drought			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Wildfires			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	

Primary Climate Interaction	Natural Hazards (Click here to access reference material that will help you understand how each hazard is likely to change as the climate changes)	Related Climate Change Impacts	To the best of your knowledge, list which critical assets, functions, or population groups (as identified in Question 2) have been impacted by each hazard identified in the preceding column *(add additional rows as needed to accommodate your critical items)*	To the best of your knowledge, indicate if the critical asset, function or population group served by your agency has been negatively impacted by this hazard in the past.	Based on how the natural hazard is likely to change in the future as a result of climate change (see supplemental reference maps identified in the second column), to what extent is the critical asset, function, or population group served exposed to each hazard? High (i.e. all of asset is exposed) Medium (i.e. some of asset is exposed) Low (i.e. asset is minimally exposed) Not Exposed (i.e. no exposure)	On a scale of 1 to 5, rate how sensitive the critical asset, function, or population group served is to the natural hazards. Sensitivity should be determined based on whether a critical threshold has been exceeded. If exceeded for a hazard, then assign a "5". If a critical threshold has not been exceeded, or if a critical threshold has not been identified, a qualitative assessment should be conducted to assign a score based on consideration of the nature of the critical item and the natural hazard and related climate change impacts. In other words, to what degree is the critical item affected or impacted by exposure? N/A = no relevance 1 = minimally sensitive if minimum disruption to function/minimal impact to population group served 5 = extremely sensitive if significant disruption to function/significant impact to population group served	Notes or Explanation (use this column to document information that is specific to a critical item) or Additional Comments
Other Extreme Events	**Tornadoes**	**Damage to property, infrastructure, and loss of life**		Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Tsunami			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
	Earthquake			Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	
				Choose an item.	Choose an item.	Choose an item.	

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Section III: Agency Capability and Adaptive Capacity

General

7. **How would you rate your agency's overall ability to withstand natural hazards and climate impacts in terms of potential physical damage or disruption to its assets, mission, functions, staff, and the public?**
   - ☐ Excellent (very unlikely to result in damage/disruption)
   - ☐ Good (unlikely to result in damage/disruption)
   - ☐ Satisfactory (may result in damage/disruption)
   - ☐ Fair (likely to result in damage/disruption)
   - ☐ Poor (very likely to result in damage/disruption)

   Please explain why you assigned this rating.

8. **How long would it take your agency to return to essential functionality after a severe extreme weather event, like a hurricane or tornado, that results in significant damage to critical assets and/or functions?**
   - ☐ Months
   - ☐ Weeks
   - ☐ Days
   - ☐ Hours

9. **Does your agency have any remote operation capability (could services be provided from an alternate location if assets were temporarily damaged?)?**

10. **Is your agency currently incorporating natural hazard mitigation and climate change adaptation into your programs?**
    - ☐ Currently incorporating
    - ☐ Planning to incorporate
    - ☐ Not incorporating
    - ☐ Don't know

    If currently incorporating, please describe below.

11. **Please identify any current obstacles, challenges, or needs as it relates to improving or maintaining your agency's ability to withstand natural hazards and climate impacts.**

12. **Please describe your agency's *current capabilities or available resources* to either accommodate or recover from natural hazards under present and future climate change scenarios. This should include but not be limited to any vulnerability assessments, capital improvement, climate change**

adaptation plans, or adaptive management plans to retrofit, relocate, or retire your physical assets over time. For example, this may include the prioritization of projects (and/or funding) that will either fortify or relocate a critical structure determined to be at high risk of flooding.

13. **Please tell us about *internal agency plans, policies, or procedures* in place or being considered to reduce the potential risk of disruption to your agency's mission, functions, and/or programs caused by natural hazards or climate impacts. This should include long-term hazard mitigation or climate adaptation measures in addition to emergency preparedness and response activities (e.g., continuity of operations plans, redundant systems, backup facilities, etc.). For example, this may include a telecommute plan or policy that is activated during a weather emergency or other workplace disruption. It could also include conducting disaster drills or training exercises with agency staff to test and improve existing plans or procedures, as well as your agency's overall readiness for potential adverse and disruptive events.**

14. **Are there critical agency plans, policies, regulations, or procedures not currently being addressed that could be adjusted to better consider climate change?**
    ☐ Yes
    ☐ No
    ☐ Don't know
    If yes, please describe below.

Specific

15. **Please use the table below to identify any specific hazard mitigation, climate adaptation, or emergency response measures that have been identified to intervene and reduce the vulnerability of your agency's at-risk critical assets, functions, or population groups (as identified in Section I; add additional rows as needed).**
    For each measure please indicate whether it is already in place and/or readily deployable, or if it is still in the planning, design or procurement phase (including those measures that are contingent on future funding).

    For those measures that are already in place, please tell us how effective they are in reducing asset vulnerability. Are there any improvements/enhancements required?

Critical Asset, Function, or Population Group	Mitigation/Adaptation/Emergency Response Measure	Status	Effectiveness/ Improvements Required

16. **Is your agency/department currently involved in conducting any studies or developing any plans and/or programs which would further support the State's hazard mitigation and climate adaptation program (see https://www.mass.gov/plans-planning-guidance and https://www.mass.gov/topics/climate-action), including any plans and/or programs that address man-made hazards (including disease/pandemics, cyber security, nuclear power, hazardous materials, infrastructure/energy protection, and anti-terrorism)? [Studies can include hazard specific information, vulnerability assessments, data gathering which supports risk assessments, including economic data, or statistical data of other types.]**

    ☐ Yes

    ☐ No

    If yes, please briefly describe the type of study, plan and/or program underway, and list the anticipated year of completion:

Note: Based on your responses to Questions 7-16, the State Hazard Mitigation and Climate Adaptation Plan Consultant Team will calculate your agency's overall adaptive capacity score (qualitative scores, such as high, medium, low). Next, the sensitivity scores determined in Section II will be combined with the adaptive capacity scores, to determine the vulnerability scores (using the matrix below) for your agency's critical assets/functions. The answers to the survey questions and the vulnerability scores will be incorporated into a vulnerability assessment report for your agency that is intended to provide sufficient information to enable your agency to begin to develop actionable strategies for adaptation and hazard mitigation.

Adaptive Capacity Low ↓ High	Sensitivity: Low → High	
	Moderate Vulnerability	High Vulnerability
	Low Vulnerability	Moderate Vulnerability

Section IV: Conclusion

17. Is there anything else you would like to add about the vulnerability of your agency, both in its services and overall mission, to the effects of natural hazards and climate change?

Thank you for your participation in the Massachusetts State Hazard Mitigation and Climate Adaptation Plan State Agency Vulnerability Assessment Survey. If you have any questions about this survey, please feel free to contact us at mitigation@massmail.state.ma.us.