

# Massachusetts State Hazard Mitigation and Climate Adaptation Plan

## Chapter 1: Introduction and Assurances

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Prepared for:



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# Table of Contents

<b>Acronyms and Abbreviations .....</b>	<b>ii</b>
<b>1. Introduction and Assurances .....</b>	<b>1-1</b>
1.1 Purpose .....	1-1
1.2 Authority and Scope.....	1-3
1.3 Adoption by the State .....	1-5
1.4 Assurances.....	1-5
1.5 Plan Organization and Key Revisions .....	1-6
1.5.1 Organization .....	1-6
1.5.2 Key Revisions .....	1-7

## Tables

Table 1-1: Organization of the 2018 SHMCAP .....	1-6
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# Acronyms and Abbreviations

§	Section
CFR	Code of Federal Regulations
DMA	Disaster Mitigation Act
EOEEA	Executive Office of Energy and Environmental Affairs
EMAP	Emergency Management Accreditation Program
FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance
FMAG	Fire Mitigation Assistance Grants
HMGP	Hazard Mitigation Grant Program
PA	Public Assistance
PDM	Pre-Disaster Mitigation
PMT	Project Management Team
SHMCAP	State Hazard Mitigation and Climate Adaptation Plan
SHMP	State Hazard Mitigation Plan
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act



# 1. Introduction and Assurances

## 1.1 Purpose

This plan is a fully integrated, innovative, and actionable State Hazard Mitigation and Climate Adaptation Plan (SHMCAP). The purpose of this SHMCAP is to identify risks and vulnerabilities associated with natural disasters and climate change, and to develop long-term strategies for protecting people and property from future hazard events and climate change impacts. This is the first statewide integrated hazard mitigation and climate adaptation plan of its kind that empowers state agencies to tactically and effectively achieve multiple risk management objectives.

The plan is intended to help the Commonwealth of Massachusetts reduce the impact of hazards and climate change. It also helps the Commonwealth and its residents to better understand when, where, why, and how natural hazards occur; how natural hazards are expected to be affected by climate change; how to reduce the cost of recovery and rebuilding through making a more resilient Commonwealth; and how preparedness and adaptation planning can reduce health impacts. This plan outlines specific actions that should be taken by the State, local governments, and the general public to manage the risks of natural hazards and climate change, and reduce the future costs of rebuilding. To help the Commonwealth be better prepared for future events and

conditions, the plan incorporates lessons learned from recent disasters, as well as the most recently available downscaled climate projections.

The SHMCAP is an update of the 2013 Massachusetts State Hazard Mitigation Plan (SHMP), which was approved October 11, 2013. This plan was updated in compliance with the Disaster Mitigation Act of 2000 (Public Law 106-390) and the regulations of Parts 201 and 206 of 44 Code of Federal Regulations (CFR). As a condition for receiving non-emergency Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) assistance and Federal Emergency Management Agency (FEMA) mitigation grants, states are required to prepare and submit to FEMA a Standard State Mitigation Plan following the criteria established in Section (§) 201.4. Mitigation plans are required for states to be eligible for the following:

- Public Assistance (PA) Categories C through G
- Fire Mitigation Assistance Grants (FMAG)
- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM) Grant
- Flood Mitigation Assistance (FMA)

In addition to serving as the Commonwealth’s hazard mitigation plan, this plan satisfies a key requirement of *Executive Order 569 Establishing an Integrated Climate Change Strategy for the Commonwealth*, which was signed in September 2016 by Governor Charlie Baker, and directs the Executive Office of Energy and Environmental Affairs (EOEEA) to publish a statewide climate adaptation plan. This plan summarizes the best available scientific information on climate change in Massachusetts; describes the interactions of climate change and natural hazards; and develops adaptation strategies to mitigate risk and increase resilience. This SHMCAP has been developed in response to this recognition of the need to address—and the benefits of addressing—climate change through an integrated strategy.

This plan also demonstrates the Commonwealth’s commitment to emergency management. After receiving accreditation in 2006 through the Emergency Management Accreditation Program (EMAP), a national voluntary standards, assessment, and accreditation process for disaster preparedness programs, the Commonwealth has maintained its accreditation through a self-assessment, an on-site assessment, and a committee review in 2013. The

The purpose of the Disaster Mitigation Act is to establish a national disaster hazard mitigation program to (1) reduce the loss of life and property, human suffering, economic disruption, and disaster assistance costs resulting from natural disasters; and (2) to provide a source of pre-disaster hazard mitigation funding that will assist states and local governments (including Indian Tribes) in implementing effective hazard mitigation measures that are designed to ensure the continued functionality of critical services and facilities after a natural disaster.

Commonwealth is preparing for another EMAP accreditation assessment in 2019. This SHMCAP serves to support the Commonwealth's continued accreditation of its Emergency Management Program.

## 1.2 Authority and Scope

This plan was prepared pursuant to the:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), as amended by the Disaster Mitigation Act of 2000 (DMA) (P.L. 106-390);
- National Flood Insurance Act of 1968, as amended [42 United States Code 4001 et seq.];
- 44 CFR Part 201 Mitigation Planning;
- 44 CFR Part 206, Subpart N Hazard Mitigation Grant Program, Section 206.434 Eligibility; and
- Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth.

DMA amended the Stafford Act to authorize a program for pre-disaster mitigation, to streamline the administration of disaster relief, to control the federal costs of disaster assistance, and for other purposes. DMA provides the legal basis for FEMA mitigation planning requirements for state, local, and Indian Tribal governments as a condition of mitigation grant assistance.

Section 104 of the DMA requires state, local, and Indian Tribal governments to develop a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerability of the area under the jurisdiction of the government.

As identified in 44 CFR §201.3(c), the State is responsible for coordinating state and local activities related to hazard evaluation and mitigation, and is to:

- Prepare a Standard State Mitigation Plan following the criteria in §201.4 as a condition of receiving non-emergency Stafford Act assistance and FEMA mitigation grants. The plan may address severe repetitive loss properties in their plan (§201.4 (c)(3)(v)) to receive the reduced cost share for the FMA and severe repetitive loss programs.
- Review and update the Standard State Mitigation Plan every 5 years from the date of the approval of the previous plan to continue program eligibility.
- Make available the use of up to 7 percent of HMGP funding for planning in accordance with §206.434.

- Provide technical assistance and training to local governments to assist them in applying for HMGP planning grants and in developing local mitigation plans.

The plan must:

- Describe the current process used to update the plan, including how other state and federal agencies and other stakeholders were involved in the process in multiple sectors.
- Prepare a risk assessment that describes natural hazards and makes a connection between vulnerability and proposed hazard mitigation actions, focusing on areas most at risk by evaluating where populations, infrastructure, and critical facilities are vulnerable to hazards; and identifying to what extent injuries or damage may occur. The risk assessment should also consider the probability of future hazard events associated with climate change.
- Develop mitigation strategies to guide long-term reduction of the potential losses identified in the risk assessment, describe the process of evaluating and prioritizing actions, and identify funding sources.
- Describe existing State pre- and post-disaster hazard management policies, programs, and capabilities for mitigating hazards, and how the State supports developing local and Tribal mitigation plans.
- Identify criteria for prioritizing jurisdictions to receive planning and project grants under federal and non-federal programs.
- Describe the process to keep the plan current through monitoring, evaluating, and updating the plan, as well as the process to monitor implementation of the mitigation strategies.
- Document how the plan is formally adopted.
- Include assurances that the State will comply with all applicable Federal statutes and regulations.
- Develop a strategy to reduce the number of repetitive loss properties, including severe repetitive loss properties.

Massachusetts updated and received FEMA approval of its state plan following presidentially declared disasters in 1986, 1987, 1989, 1993, and 1998. In addition, Massachusetts' SHMP was reviewed and approved by FEMA Region I in 2000, 2004, 2007, 2010, and 2013.

The 2018 SHMCAP provides a framework that links pre- and post-disaster mitigation and resiliency planning and implementation. The plan recognizes that extreme weather events associated with climate change presents a serious threat to public safety, lives, and property; and it takes an integrated approach to addressing hazards associated with climate change. The intent is to prepare for the impacts of climate change by assessing vulnerability and adopting strategies

to increase the adaptive capacity and resiliency of infrastructure and other assets. This approach supports State administration of HMGP and non-disaster programs such as the PDM grant program and the FMA program. It also adheres to Executive Order 569. The SHMCAP represents the Commonwealth's commitment to mitigation and adaptation activities, comprehensive state mitigation planning, and improved state program management. It demonstrates the Commonwealth's leadership in planning and preparing for impending climate change, and enhancing the resilience of government investments.

### 1.3 Adoption by the State

This SHMCAP was adopted by Governor Charlie Baker on September 17, 2018, as required by 44 CFR Section §201.4(c)(6). A signed adoption letter from the Governor is included at the beginning of this plan.

This plan was reviewed by the Project Management Team (PMT) that was assembled for oversight of, and contribution to, the development of the SHMCAP. The PMT consists of staff across Secretariats and agencies, including representatives from the following entities:

- Coastal Zone Management
- Department of Conservation and Recreation
- Department of Energy Resources
- Department of Public Health
- Department of Transportation
- Division of Capital Asset Management and Maintenance
- Executive Office of Energy and Environmental Affairs
- Executive Office of Public Safety and Security
- Massachusetts Bay Transportation Authority
- Massachusetts Emergency Management Agency

Refer to *Chapter 9: Planning Process* for a complete list of individuals on the PMT.

### 1.4 Assurances

The Commonwealth of Massachusetts does comply, and assures it will continue to comply, with all applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding, in compliance with Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards 2 CFR 200 and 2 CFR 3002. This

includes managing and administering FEMA funding in accordance with applicable Federal statutes and regulations. The Commonwealth also assures it will amend the SHMCAP in accordance with 44 CFR 13.11(d). This includes amending the plan whenever necessary to reflect changes in State or Federal laws and statutes, as described in *Chapter 8: Plan Implementation and Maintenance*.

## 1.5 Plan Organization and Key Revisions

### 1.5.1 Organization

The 2018 SHMCAP is organized into 10 chapters, each of which has multiple sections and subsections. Table 1-1 provides a summary of the contents of each chapter in the plan.

**Table 1-1: Organization of the 2018 SHMCAP**

Chapter	Description
1. Introduction and Assurances	Provides an introduction of the integrated hazard mitigation and climate adaptation plan. Includes an overview of the purpose, authority, assurances, and organization of the plan.
2. Planning Context	Describes the organization of State government and provides an overview of Executive Order 569. This chapter summarizes demographic, housing, and development trends since the preparation of the 2013 SHMP, and summarizes climate change projections for Massachusetts.
3. Introduction to Risk Assessment	Identifies the natural hazards included in the 2018 SHMCAP plan and describes the four climate change interactions included in the plan: precipitation, sea level rise, rising temperatures, and extreme weather. This chapter reviews the sectors addressed in the plan and identifies vulnerable populations. Chapter 3 also describes methodologies, data, and key terms.
4. Risk Assessment	Examines the natural hazards that have the potential to impact the Commonwealth. Describes the hazards, identifies past occurrences and vulnerable locations, populations, State-owned facilities, infrastructure, and natural resources. Explores the interaction between climate change and each of 13 hazards. Non-climate-influenced hazards are also included.
5. Technological and Human-Caused Hazards	Introduces other State emergency management plans that assess technological and human-caused hazards to demonstrate that the Commonwealth’s Emergency Management Program accounts for both natural and non-natural hazards.
6. State Capability and Adaptive Capacity Analysis	Includes an evaluation of existing Commonwealth capabilities for enabling hazard mitigation and climate adaptation, and an adaptive capacity analysis for specific state agencies. Describes local capabilities and coordination and concludes with a series of key findings and recommendations.
7. Hazard Mitigation and Climate Adaptation Strategy	Includes the 2018 SHMCAP mission statement, five goal statements, and a list of initial actions developed by stakeholders and state agencies to meet those goals.
8. Plan Implementation and Maintenance	Outlines procedures and strategies for effective plan implementation, as well as the process and schedule for monitoring, evaluating, and updating the plan on a routine basis.
9. Planning Process	Summarizes the process of updating the plan, including the PMT, stakeholder outreach and engagement, and the state agency vulnerability assessment survey.
10. Coordination of Local Hazard Mitigation and Climate Adaptation Planning	Describes funding and technical assistance provided by the State to local jurisdictions. Provides the status of local hazard mitigation and climate adaptation plans and discusses their integration with the SHMCAP.

### 1.5.2 Key Revisions

In addition to updating the plan to reflect changes in development, mitigation priorities, and recent hazards, revisions were made to the content, structure, and plan update process. A primary difference between the 2013 and 2018 plans is that this SHMCAP serves as both a hazard mitigation plan and a climate adaptation plan, whereas the previous plan was a traditional hazard mitigation plan. The integrated nature of this plan provides the opportunity to identify climate change impacts, describe the effect climate change is anticipated to have on natural hazards, and prepare an integrated strategy to understand and mitigate risks. In addition to integrating climate change, the structure of the plan was further revised and reorganized based on the integrated nature of the plan, scope of work, and the preferences of the State.

Significant focus was placed on the state capability and adaptive capacity analysis chapter for the 2018 update, and more attention was given to integrating the Commonwealth's capability and capacity to adapt to climate change and future hazard conditions. Some content from the previous plan, including information from other sections, has been incorporated and/or consolidated into *Chapter 6: State Capability and Adaptive Capacity Analysis* to make the plan a more concise and reader-friendly document. Specific and notable changes since the 2013 Plan include:

- The inclusion of a more detailed description of the Commonwealth's comprehensive statewide program for advancing natural hazard risk reduction and climate resilience across the state (Section 6.2.1).
- An extension of the state capability assessment summary to include climate adaptation capabilities (Section 6.2.2).
- The addition of a new section focused on the adaptive capacity of the Commonwealth and specific state agencies with respect to climate change and natural hazards (Section 6.2.3).
- A revised section on local capabilities and coordination, including an expanded summary of local capabilities, examples from local communities, and the identification of opportunities for the Commonwealth to help build or enhance local capabilities and coordination for implementing hazard mitigation and climate adaptation across the state (Section 6.3).
- A new concluding section on key findings and recommendations (Section 6.4), including a discussion on existing obstacles and challenges, as well as emerging capabilities and opportunities that relate to hazard mitigation and climate adaptation.

The planning context chapter, previously called the State Profile, was updated with current socioeconomic data. The focus of *Chapter 2: Planning Context* is to highlight key changes, trends, policies, and programs that shape development and influence vulnerability to hazards.

In addition to the incorporation of climate change, other changes were made to the risk assessment chapter. *Chapter 4: Risk Assessment* includes an additional hazard: invasive species. Chapter 4 also includes a discussion of dam overtopping as part of the inland flooding hazard profile. The risk assessment chapter has been restructured around four primary climate change interactions: changes in precipitation, sea level rise, rising temperatures, and extreme weather.

The process of preparing this SHMCAP differed from the previous plan in that it involved greater interagency coordination and program integration. This was a result of the increased focus on the state capability and adaptive capacity analysis and the state agency vulnerability assessment process. The process of developing goal statements and actions was also much more collaborative than was previously undertaken, and was driven by a robust stakeholder engagement program that is described in *Chapter 7: Hazard Mitigation and Climate Adaption Strategy* and *Chapter 9: Planning Process*.

Finally, the plan has been reformatted and enhanced through the inclusion of graphic summaries, icons, tables, figures, and callout boxes. These elements increase the user-friendliness and readability of the document.

Documentation of key changes since the 2013 SHMP as required by CFR Part 201 (i.e., changes in development, changes in risks/vulnerabilities, changes in priorities and goals, progress with mitigation efforts) is provided in the appropriate chapters of the SHMCAP.