Chapter 1. Introduction

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Abbreviations

EEA	Executive Office of Energy and Environmental Affairs
FEMA	Federal Emergency Management Agency
MEMA	Massachusetts Emergency Management Agency
MVP	Municipal Vulnerability Preparedness
SHMCAP	State Hazard Mitigation and Climate Adaptation Plan

1.1 Introduction

ResilientMass is the umbrella initiative for the state's climate adaptation and resilience programs, policies, and initiatives. The 2023 Massachusetts State Hazard Mitigation and Climate Adaptation Plan (MA SHMCAP) is a fundamental component of ResilientMass and serves as a blueprint that identifies the risks to the Commonwealth and the actions that state agencies and partners will take to reduce those risks over the next five years. The MA SHMCAP is designed to be both visionary and practical in its approach to protecting human health and wellbeing, critical assets, environmental resources, the economy, and cultural resources in the Commonwealth now and into the future.

Led by the Massachusetts Emergency Management Agency (MEMA) in close coordination with the Executive Office of Energy and Environmental Affairs (EEA), the 2023 MA SHMCAP serves as an update to the 2018 MA SHMCAP. The 2023 MA SHMCAP reflects the progress made since the release of the 2018 plan. It builds on the best available science, including the findings, data, and engagement leveraged through the *2022 Massachusetts Climate Change Assessment* (MA Climate Assessment, as described in Section 1.2.1). The MA Climate Assessment is a statewide analysis that uses the best available data and science to detail how Massachusetts' people, environments, and infrastructure could be affected by climate change and its related hazards through the end of the century.

The 2023 MA SHMCAP includes a robust update to the 2018 Risk Assessment, an assessment of the risk and vulnerability of a broader range of critical assets and services, and an assessment of 88 state agencies' current capacities and capabilities to manage these risks, as presented in Chapter 4 (State Capabilities and Capacity) and Chapter 5 (Risk Assessment). Additionally, the 2023 MA SHMCAP development process involved an assessment of the vulnerabilities of state agency assets and services with the participation

from the same 88 agencies, as presented in Chapter 6 (State Agency Vulnerabilities). The 2023 MA SHMCAP meets Federal Emergency Management Agency (FEMA) requirements to ensure the Commonwealth is eligible for federal disaster recovery and hazard mitigation funding.

The 2023 MA SHMCAP development process included engagement of a state agency working group made up of members of the Resilient Massachusetts Action Team (RMAT) and other partners. The RMAT is an interagency steering committee responsible for implementing, monitoring, and maintaining the MA SHMCAP. Engagement with the RMAT allowed all partners to work as a team during each step of the development process to ensure that the SHMCAP reflected the Commonwealth's capabilities and vulnerabilities, critical assets and services, and that the state has sufficient resources and capacity to implement the 2023 MA SHMCAP. Chapter 2 (Planning Process) describes in detail the engagement tools and approaches that the MA Climate Assessment and 2023 MA SHMCAP teams used to ensure state agencies, local municipalities, regional organizations, and others were engaged and involved throughout the 2023 MA SHMCAP development process.

1.1.1 Key Concepts and Terms

The following key terms and concepts are referred to throughout the 2023 MA SHMCAP.

- **Climate adaptation:** Actions taken at the individual, local, regional, and national levels to reduce risks from changed climate conditions and prepare for impacts from additional changes projected for the future.
- **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.
- **Community lifelines:** The most fundamental services in the community that, when stabilized, enable all other aspects of society to function. The integrated network of assets, services, and capabilities that provide community lifeline services supports a community's recurring needs. Lifelines enable the continuous operation of critical government and business functions and are essential to human health and safety or economic security.
- **Consequence**: The effect of a hazard occurrence. Consequence is demonstrated by the impact on population, physical property (e.g., state facilities, local jurisdiction assets and general building stock, and critical facilities), responders, operations, the environment, the economy, and public confidence in state governance. A consequence analysis meets the EMAP standard for hazards identified in state plans.
- **Critical infrastructure:** Physical or virtual systems and assets so vital that their incapacity or destruction may have a debilitating impact on the security, economy, public health, safety, and environment of any local, state, Tribal, or federal jurisdiction.
- **Environmental Justice and other priority populations:** In Massachusetts, an "Environmental Justice population" is defined as "a neighborhood where one or more

of the following criteria are true: the annual median household income is 65 percent or less of the statewide annual median household income, minorities make up 40 percent or more of the population, 25 percent or more of households identify as speaking English less than 'very well,' minorities make up 25 percent or more of the population, and the annual median household income of the municipality in which the neighborhood is located does not exceed 150 percent of the statewide annual median household income."

Massachusetts also refers to priority populations as "people or communities who are disproportionately impacted by climate change due to life circumstances that systematically increase their exposure to climate hazards or make it harder to respond. In addition to factors that contribute to Environmental Justice status (i.e., income, race, and language), other factors like physical ability, access to transportation, health, and age can indicate whether someone or their community will be disproportionately affected by climate change. This is driven by underlying contributors such as racial discrimination, economic disparities, or accessibility barriers that create vulnerability. The term priority populations acknowledges that the needs of people with these experiences and expertise must take precedence when developing resilience solutions to reduce vulnerability to climate change." The 2023 MA SHMCAP refers to Environmental Justice, priority populations, and those that also face social vulnerabilities as **"Environmental Justice and other priority populations."**

- **Functions:** The programs and services an agency provides to its customers to fulfill its mission. These programs and services depend on the mission of each agency and could include activities such as planning, policy development, regulatory enforcement, research, permitting, outreach, education, or stewardship of critical resources.
- **Hazard mitigation:** Hazard mitigation is any sustained action taken to reduce or eliminate the long-term risk to human life and property from hazards. An example of hazard mitigation is elevating or strengthening a bridge to reduce damage, disruption, or loss from a flood or earthquake. It also includes developing regulations to require new construction to include new methods and procedures to reduce risks from current hazards and increasing risks from climate change.
- **Resilience:** The capacity of individuals, communities, businesses, institutions, and governments to adapt to changing conditions and prepare for, withstand, and rapidly recover from disruptions to everyday life, such as hazard events.
- **Risk:** The potential for an unwanted outcome resulting from an event or occurrence, as determined by its likelihood and the associated consequences. Risk may degrade or hinder the performance of essential functions and affect critical assets associated with continuity operations.
- **Vulnerability:** For the 2023 MA SHMCAP, vulnerability was determined by assessing the likelihood of hazards that have occurred in Massachusetts in the past and are likely to occur there in the future. Based on an understanding of the hazards and climate influences, the 2023 MA SHMCAP Risk Assessment evaluated the vulnerability of people

and public health and safety, infrastructure, natural resources, economy, and governance for each hazard. The Risk Assessment also identified disproportionate impacts and sensitivities, as well as the magnitude of consequences from each vulnerability.

1.1.2 Purpose, Vision, and Principles

The 2023 MA SHMCAP represents a comprehensive planning effort that results in a mitigation and adaptation strategy. Specifically, it focuses on strategies to address risks to the human health and safety, communities, critical assets and infrastructure, natural resources and environment, cultural resources, governance, and economy of the Commonwealth. The 2023 MA SHMCAP aligns with Massachusetts' vision, ensuring that the Commonwealth is prepared to withstand, respond to, recover from, and mitigate all types of emergencies and disasters.

The resulting 2023 MA SHMCAP reflects the leadership of state agencies and active involvement of other participants, including subject matter experts, local municipalities, and regional and community organizations. The 2023 MA SHMCAP considers key issues such as sustainability, adaptation of the built and natural environment, considerations of social vulnerability, and assessments of environmental justice and other priority populations who may be disproportionately impacted by hazards and the effects of climate change.

The development and implementation processes associated with the 2023 MA SHMCAP are compliant with Emergency Management Accreditation Program (EMAP) standards. For example, the MA SHMCAP includes climate adaptation and hazard mitigation actions to reduce risks and loss, incorporates agency plans and procedures to ensure actions can be implemented, and identifies risks that could impact the continuity of government services.

The RMAT, in conjunction with EEA, MEMA, FEMA, and other partners, will annually evaluate the 2023 MA SHMCAP to measure the progress of each action. The MA SHMCAP Action Tracker will be updated in 2023 and will continue to serve as a living repository for all identified actions and provide a method for the Commonwealth to track and measure progress on action implementation.

1.2 Overview of 2023 SHMCAP

The 2023 MA SHMCAP drew from a range of state and local sources of data and information, including the MA Climate Assessment. These sources provided findings, information, and data to inform components of the 2023 MA SHMCAP Risk Assessment and strategy development. The MA Climate Assessment reflected the best available science and engaged key partners to identify priority impacts from climate change

projections. The 2023 MA SHMCAP affirmed these priority impacts through further analysis and engagement and used them to help state agencies develop actions and inform the 2023 MA SHMCAP hazard mitigation and climate adaptation strategy.

The MA Climate Assessment developed priority impacts and an urgency framework in which climate impacts were evaluated for the magnitude and urgency of their consequences across the Commonwealth. Each priority impact was assigned a score based on the following:

- **Magnitude of Consequence**: *How large of a climate effect do we expect from this impact?*
- **Disproportionality of Exposure**: *Will populations living in environmental justice areas be disproportionally affected*?
- **Need for Effective Adaptation**: *Are we currently doing enough to adapt to this impact, or are there gaps in effective adaptation actions*?

These component scores were averaged to create an urgency score within each of the five sectors (Human, Infrastructure, Natural Environment, Governance, and Economy) using the scales presented in Figure 1-1. The items with the highest scores were identified as "urgent priority impacts," depicted in Figure 1-2. Additional information on the priority impacts and how they were used during the 2023 MA SHMCAP risk assessment are presented in Section 1.2.1.

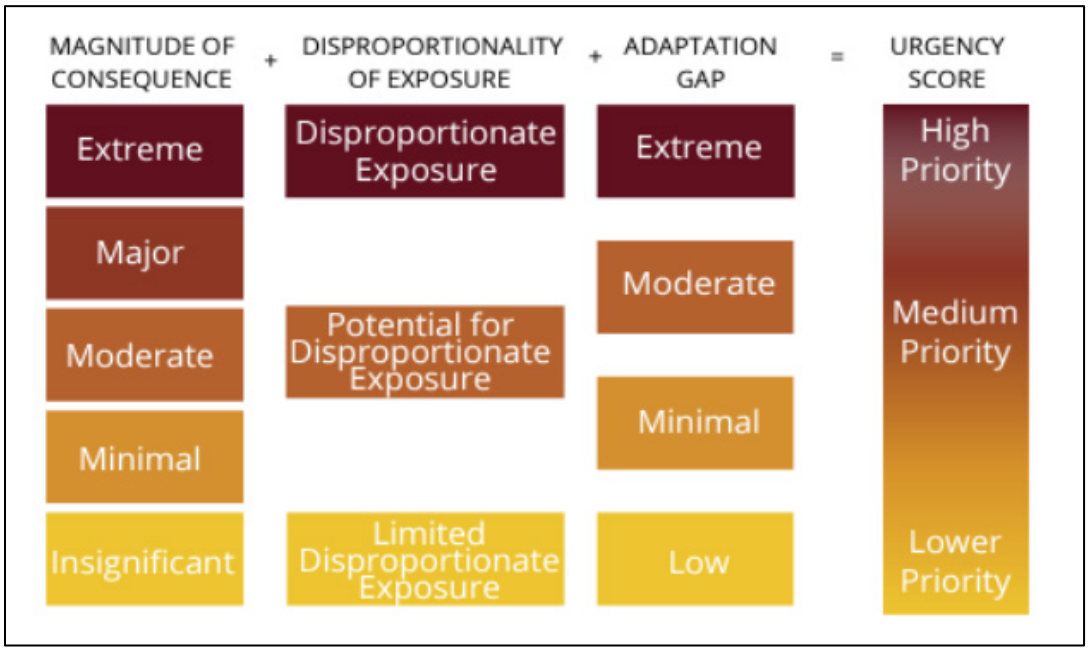

Figure 1-1. Urgency score components used in the MA Climate Assessment.

The MA Climate Assessment identified 37 priority impacts across the following five sectors:

- **Human:** Impacts to people's health, welfare, and safety.
- **Infrastructure:** Impacts to buildings, transportation systems, and electricity and water systems.
- **Natural Environment:** Impacts to ecosystems and natural resources, and how plants and animals can thrive there.
- **Governance:** Impacts to state and local government-owned buildings, government finances, and the ability of the government to run effectively.
- **Economy:** Impacts to people's ability to work and make a living due to damage to infrastructure, our natural environment, and people's health.

Figure 1-2. Priority impacts from the MA Climate Assessment (the most urgent priority impacts are identified in bold font).

1.2.1 Key Revisions since the 2018 MA SHMCAP

The 2023 MA SHMCAP updates the 2018 MA SHMCAP to reflect changes in development, populations, mitigation priorities, and recent hazards, including updated data science and related planning efforts. Like the 2018 MA SHMCAP, the 2023 MA SHMCAP presents an integrated planning effort to help the Commonwealth mitigate hazards and adapt to impacts from climate change. Due to the interconnected relationships between hazards and climate change, the 2023 MA SHMCAP promotes the continuation and enhancement of highly collaborative integrated planning efforts. In addition to integrating climate

change, the structure of the plan was further revised based on the integrated nature of the plan, scope of work, and the Commonwealth's preferences.

The primary difference between the 2023 and the 2018 MA SHMCAPs is the use of updated climate and hazard information and data, including:

- Incorporation of new population growth and development data
- The addition of the MA Climate Assessment findings
- The addition of groundwater to the hazards included in the risk assessment
- Incorporation of new Hazus data
- Inclusion of new data and mapping regarding environmental justice and other priority populations
- Addition of a section on state agency vulnerability findings
- A systematic evaluation of local hazard mitigation plans
- A robust assessment of the Commonwealth's capabilities, capacity, and vulnerability developed through close coordination with state agencies
- A revised approach to developing global/statewide and state agency actions to inform the strategy

Documentation of key changes since the 2018 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 MA SHMCAP and highlighted in the following subsections.

1.2.1.1 Updated Hazard and Climate Science and Other Data

The 2023 MA SHMCAP includes updated references to reflect the latest science, updated analyses with the latest data, and additional analyses of the 2018 plan. The list below outlines some of the new data, analyses, and information sources that were used to update the MA SHMCAP. For a full discussion of the latest methods and updates, refer to Chapter 5 (Risk Assessment).

1.2.1.1.1 Incorporating Updated Changes in Development

The 2023 MA SHMCAP incorporates considerations of changes in development and the impact these changes may have on risk and vulnerability at the state and local level. Changes in development in hazard-prone areas were analyzed using three approaches. First, the analysis evaluated population projections through mid-century and considered how these changes would impact housing and development pressure in hazard-prone areas. Second, the team analyzed a database of construction projects in Massachusetts to develop trends in recent and expected development. Third, the team systematically reviewed local hazard mitigation plans to understand how municipalities identified changes in development.

1.2.1.1.2 Considering Vulnerability and Distribution of Impacts Across Popuuations

The 2023 MA SHMCAP considered environmental justice and priority populations throughout the plan development processes. To build on the acknowledgment that historical inequities can result in disproportionate and unequal exposure to hazard impacts, the 2023 MA SHMCAP utilized EEA's Environmental Justice map to identify communities experiencing environmental injustice. The Risk Assessment analysis also considered how other factors such as income, age, ability, and socioeconomic conditions could impact exposure, vulnerability, and recovery for populations across the Commonwealth.

1.2.1.1.3 FEMA Hazus 6.0

The 2023 MA SHMCAP analyses used the latest publication of FEMA Hazus 6.0 for earthquakes and hurricanes. The analyses used Level 1 probabilistic analysis to estimate damage from hurricane wind gusts and displacement and Level 2 probabilistic analysis for the Hazus earthquake models. Updated data sources include new population estimates, new soil classification data, and the latest surficial geology map. Further details on the use of Hazus 6.0 are available in Chapter 5 (Risk Assessment). Hazus 6.0 presents data on building infrastructure that is more current and complete than the previous Hazus data.

1.2.1.1.4 Expanded Assessment of Existing Hazards with Latest Scientific Information

Development of the 2023 MA SHMCAP involved conducting a geospatial and data analysis that was not conducted in for the 2018 MA SHMCAP and includes new hazards from changes in groundwater. All hazards include the latest scientific information, with the latest data sets and references published after 2018. For additional information on groundwater risks in Massachusetts, refer to Chapter 5 (Risk Assessment).

1.2.1.1.5 Coastal Flooding Analysis

The 2023 MA SHMCAP includes several analyses to understand risk, exposure, and vulnerability from coastal flooding in the Commonwealth. Current and future flood depths were derived from the MassGIS Q3 Flood Zones, covering the entire coast of Massachusetts at a 2-meter grid resolution for six extreme flooding events. Coastal flood damages to buildings were estimated using differentiated depth-damage functions for residential, industrial, and commercial categories; estimated property values from readily available sources; and relevant building characteristics for residential, industrial, and commercial structures. The analysis also included the use of updates to the Massachusetts Coast Flood Model (MC-FRM), which incorporate risk projections of storm flooding based on the complex interconnections between winds, waves, wave setup, storm surge, wave runup, and overtopping. The model also provided information on inundation depths related to sea level rise to improve the understanding of potential impacts to communities and emergency services during flood events. This model was not available in 2018.

1.2.1.1.6 Evaluation of Flooding from Precipitation

The 2023 MA SHMCAP incorporated new information based on the MA Climate Assessment to improve the understanding of flooding from precipitation, which includes riverine flooding, flooding from extreme precipitation events, and impacts on high-hazard dams.

1.2.1.2 Inclusion of Priority Impacts and High Consequence Vulnerabilities

As mentioned in Section 1.2.1, the 2023 MA SHMCAP viewed hazards through the lens of priority impacts developed for the MA Climate Assessment. The 2023 MA SHMCAP expanded this lens by including high-consequence vulnerabilities identified through the 2023 MA SHMCAP's robust hazards and risk analysis. The priority impacts and high-consequence vulnerabilities for the 2023 MA SHMCAP are presented in Table 1-1. Additional information is available in Chapter 5 (Risk Assessment).

Table 1-1. Summary of Priority Impacts and High-Consequence Vulnerabilities Identified in the 2023 MA SHMCAP, Organized by Sector

Human Sector	High-Consequence Vulnerability	Priority Impact
Health and cognitive effects from extreme heat		✓
Health effects from degraded air quality		✓
Emergency service response delays and evacuation disruptions		✓
Reduction in food safety and security		✓
Increase in mental health stressors		✓
Health effects from aeroallergens and mold		✓
Health effects of extreme storms and power outages		✓
Damage to cultural resources		✓
Increase in vector borne diseases incidence and bacterial infections		✓
Loss of life or injury due to high vulnerability dams, hurricanes, wildfires, extreme flooding, or extreme temperatures	✓	
Disproportionate impacts on unhoused populations from extreme temperatures or extreme flooding	✓	

Infrastructure Sector	High-Consequence Vulnerability	Priority Impact
Damage to inland buildings		✓
Damage to electric transmission and utility distribution infrastructure		✓
Damage to rails and loss of rail/transit service		✓
Loss of urban tree cover		✓
Damage to coastal buildings and ports		✓
Reduction in clean water supply		✓
Damage to roads and loss of road service		✓
Loss of energy production and resources		✓
Increased risk of dam overtopping or failure		✓
Damage or loss of unreinforced masonry buildings due to earthquakes	✓	
Damage to infrastructure, utilities, and buildings in liquefaction zones due to earthquakes	✓	
Damage or loss to homes and critical facilities in the wildland urban interface	✓	
Natural Environment	**High-Consequence Vulnerability**	**Priority Impact**
Loss of biodiversity, habitats, and native species due to climate change impacts	✓	
Freshwater ecosystem degradation		✓
Coastal wetland degradation		✓
Marine ecosystem degradation		✓
Forest health degradation		✓
Shifting distribution of native and invasive species		✓
Coastal erosion		✓
Soil erosion		✓

Governance	High-Consequence Vulnerability	Priority Impact
Reduction in state and municipal revenues		✓
Increase in costs of responding to climate migration		✓
Increase in demand for state and municipal government services		✓
Damage to coastal state and municipal buildings and land		✓
Increase in need for state and municipal policy review and adaptation coordination		✓
Damage to inland state and municipal buildings and land		✓
Inability to carry out mission and services due to damage, disruption, or loss of state assets and services	✓	
Economy	**High-Consequence Vulnerability**	**Priority Impact**
Reduced ability to work		✓
Decrease in marine fisheries and aquaculture productivity		✓
Reduction in the availability of affordably priced housing		✓
Economic losses from commercial structure damage and business interruptions		✓
Damage to tourist attractions and recreation amenities		✓
Decrease in agricultural productivity		✓
Damage, disruption, or loss of coastal infrastructure such as seaports, airports, and maritime industries	✓	

1.2.1.3 Hazard Snapshots

The Risk Assessment for the 2023 MA SHMCAP designed a framework to consider risks across all hazards through a "hazard snapshot," which provides a high-level overview of the hazards. The snapshots consider the locations where the hazards are most likely to occur and the scale, likelihood, magnitude, and intensities of the hazards, with considerations of warning time. Refer to Chapter 5 (Risk Assessment) for additional information regarding hazard snapshots.

1.2.1.4 State Agency Vulnerability Assessment Chapter

The 2023 MA SHMCAP includes a new chapter that summarizes the vulnerabilities of state agencies and their assets and services. This chapter was informed by a fall 2022 survey taken by 85 state agency representatives (which also informed the capability and capacity analysis), the Risk Assessment, the RMAT meeting series, and input from state agencies. Refer to Chapter 6 (State Agency Vulnerabilities) for additional information.

1.2.1.5 Evaluation of Local Hazard Mitigation Plans

To better understand vulnerabilities and consequences from current and future hazards across the Commonwealth, the MA SHMCAP team evaluated 37 local hazard mitigation plans. The plans were selected from municipalities that reflect the diversity of Massachusetts' communities, climate, land use, and hazard exposure. The plans were evaluated to determine how hazards and climate change have affected local municipalities in the past, understand information related to changes to these hazards and their impacts due to changes in climate, develop population patterns, and understand how local municipalities are considering and preparing for current and future climate and hazard risks.

1.2.1.6 State Agency Action Development Process

The 2023 MA SHMCAP incorporated three rounds of action development to build state agency and cross-government actions through an iterative process. The process began with brainstorming actions and ended with identifying key milestones for proposed projects, prioritizing projects based on an updated prioritization tool. Each action includes leads, key partners, funding sources, consistency with 2023 MA SHMCAP goals, and scale and populations affected for each action.

1.2.2 Key Team Members

To develop a plan that is broadly supported and implementable, MEMA and EEA led the 2023 update to the MA SHMCAP. The Commonwealth hired the ERG (Eastern Research Group, Inc.) team to work closely with its project management team (PMT) composed of representatives from MEMA and EEA, as well as the RMAT; the Governor's Office and the Office of Climate Innovation and Resilience; and other federal, state, and local technical and issue area experts and stakeholders. Key team members and their respective roles are outlined below:

- **ERG:** Supported PMT in development of 2023 MA SHMCAP. ERG was the prime contractor and technical lead for the development of the MA SHMCAP and the engagement lead for the RMAT meeting series, the local municipality and regional agency meetings. ERG coordinated with various entities to synthesize and incorporate input on priorities, approaches, and actions in the 2023 MA SHMCAP.
- **IEc:** IEC was a subcontractor to ERG and incorporated results of the MA Climate Change Assessment into the 2023 MA SHMCAP. IEc contributed to the Risk Assessment sections on coastal flooding, flooding from precipitation, and dam safety, and provided some of the underlying data for extreme temperature.
- **LydRiv Communications:** LydRiv is a small, local business that worked with ERG to design focus group engagement with local and regional entities. LydRiv Communications held nine focus group meetings to collect input on community and

organizational priorities related to hazard mitigation and climate adaptation planning, actions, and the desired type and scale of state agency support.

1.2.2.1.1 Project Management Team

To support MA SHMCAP planning and development, a project management team (PMT) was co-chaired by the MEMA State Hazard Mitigation Officer and Massachusetts EEA Assistant Secretary of Climate Change. The PMT carried out the following actions:

- Helped raise awareness of the MA SHMCAP and integrate it into additional state efforts.
- Identified resources, data, and other information.
- Helped evaluate and prioritize hazard mitigation and climate adaptation actions.
- Reviewed and provided comments on draft SHMCAP deliverables.
- Approved and endorsed the final MA SHMCAP prior to submission to FEMA.

1.2.2.1.2 Other Key Partners

Members of the RMAT, municipalities, nongovernmental organizations, community partners, and others who participated in the development of the 2023 MA SHMCAP are listed in Chapter 2 (Planning Process).

1.2.3 Legal and Institutional Context

1.2.3.1 Federal Laws and Policies

The 2023 MA SHMCAP was developed in compliance with the Disaster Mitigation Act of 2000, which was established to mitigate the impacts from natural disasters and provide funding for qualifying pre- and post-disaster actions at the state and local level. This document fulfills eligibility requirements for federal disaster recovery and hazard mitigation funding through FEMA and under the Robert T. Stafford Disaster Relief and Emergency Assistance Act. The plan was prepared in accordance with the following federal regulations and guidelines:

- National Flood Insurance Act of 1968, as amended [42 United States Code 4001 et seq.].
- 44 CFR Part 201—Mitigation Planning.
- 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.
    - Review and update the Standard State Mitigation Plan every five 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 Hazard Mitigation Grant Program (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.

- 44 CFR Part 206, Subpart N—Hazard Mitigation Grant Program, Section 206.434 Eligibility.

1.2.3.2 State Laws, Policies, and Planning

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 EEA to publish a statewide climate adaptation plan.

1.2.3.3 Local Policies and Planning

Massachusetts has 351 cities and towns and two federally recognized Tribes, each of which develops and enforces local laws and policies related to hazard mitigation and climate adaptation. These local and Tribal governments are key to successful implementation of the identified actions and can directly contribute to risk mitigation efforts through targeted training, technical assistance, and funding supported by the Commonwealth. The 2023 MA SHMCAP considered content from 37 local hazard mitigation plans to inform local conditions, ensure alignment between local and statewide hazards, and ensure congruency through the Risk Assessment and Vulnerability Assessment. When developing the 2023 MA SHMCAP, the Commonwealth held several meetings with local jurisdictions to solicit input on proposed statewide/global actions and evaluate if the proposed actions were likely to reduce risk and increase resilience for local communities.

1.2.4 MA SHMCAP Adoption by the Commonwealth

This MA SHMCAP was adopted by Governor Maura Healey on September 12, 2023, as required by 44 CFR §201.4(c)(6). A signed adoption letter from the governor is included at the beginning of this plan.

1.2.5 Assurances

The Commonwealth of Massachusetts complies (and will continue to do so) 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 in 2 CFR 200 and 2 CFR 3002. Compliance with these regulations includes managing and administering FEMA funding in accordance with applicable federal statutes and regulations. The Commonwealth also assures it will amend the MA SHMCAP in accordance with 44 CFR 13.11(d), including amending the plan whenever necessary to reflect changes in state or federal laws and statutes, as described in Chapter 7 (State Strategy, Actions, and Implementation Plan).

1.2.6 Plan Organization and How to Use the 2023 MA SHMCAP

The 2023 MA SHMCAP is organized into seven chapters, each of which has multiple sections and subsections. Table 1-2 provides a summary of the contents of each chapter in the plan.

Table 1-2. Organization of the 2023 MA SHMCAP, Including Chapters and Brief Descriptions.

Chapter	Brief Description
1. Introduction	Provides an overview of the purpose, vision, approach, and principles of the plan; reviews previous related efforts; and outlines key terms and concepts, assurances, and organization of the plan.
2. Planning Process	Describes the state agencies, their processes, and their roles in developing the plan; describes the Commonwealth's approach to the engagement and participation of state, regional, local, and community entities in the development of the plan and its actions.
3. Profile of Massachusetts Setting and Climate Projections	Provides an overview of the Commonwealth's setting and climate projections, such as geography, demographics, and state assets, to provide critical context.
4. State Capability and Adaptive Capacity Analysis	Describes the capabilities and capacities present within each state agency to implement hazard mitigation and climate adaptation actions to improve resilience and reduce risk in the Commonwealth. Provides key findings and recommendations based on an adaptive capacity analysis, which included a survey.
5. Risk Assessment and Hazard Analysis	Examines the natural hazards that have historically exposed or are likely in the future to expose the Commonwealth; identifies vulnerable populations and community assets, geographic hot spots, critical assets and services, infrastructure, natural and cultural resources, and economic assets that are at risk to current and future hazards based on climate change projections.
6. State Agency Vulnerabilities	Describes state agency physical and non-physical assets and functions of concern, in addition to social and environmental vulnerabilities faced by the Commonwealth.

Chapter	Brief Description
7. State Strategy, Actions, and Implementation Plan	Presents a strategy that includes actions designed to address priority impacts and vulnerabilities to reduce risk across the Commonwealth. The strategy describes the process used to prioritize the actions, as well as the hazard and climate impacts and vulnerabilities that will be addressed by implementing the actions identified in the strategy. This chapter also describes the implementation and maintenance of the plan, the timing, the responsible parties, and the tools that will be used to track actions and measure progress toward risk reduction; as well as describing revisions and updates to be made annually to address emerging concerns.