

# Massachusetts State Hazard Mitigation and Climate Adaptation Plan

## Chapter 5: Technological and Human-Caused Hazards

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## Acronyms and Abbreviations

CEMP	Comprehensive Emergency Management Plan
CPG	Comprehensive Preparedness Guide
EAP	Emergency Action Plan
EMAP	Emergency Management Accreditation Program
FEMA	Federal Emergency Management Agency
HIRA	Hazard Identification and Risk Assessment
MAESF	Massachusetts Emergency Support Function
MEMA	Massachusetts Emergency Management Agency
NGO	Nongovernmental Organization
SHMCAP	State Hazard Mitigation and Climate Adaptation Plan
THIRA	Threat Hazard Identification and Risk Assessment



# 5. Technological and Human-Caused Hazards

As discussed in *Chapter 3: Introduction to Risk Assessment* and the Risk Assessment Methodology appendix (Appendix A), the Hazard Identification and Risk Assessment (HIRA) portion of the State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) meets the requirements of the Federal Emergency Management Agency (FEMA) State Mitigation Plan Guide (FP 302-094-2) and Emergency Management Accreditation Program (EMAP) Standard 4.1: Hazard Identification, Risk Assessment and Consequence Analysis for the natural hazards that were assessed.

The purpose of this chapter is to introduce 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 and to aid in maintaining the Commonwealth's EMAP accreditation.

## 5.1 Massachusetts THIRA

In 2012, FEMA issued guidelines that required all state administrative agencies and urban areas (designated under the Urban Areas Security Initiative) receiving FEMA Preparedness Grant funding to complete and submit a Threat Hazard Identification and Risk Assessment (THIRA) to the FEMA regional federal preparedness coordinator. The Comprehensive Preparedness Guide

(CPG) 201 was issued by FEMA to provide guidance for conducting a THIRA (FEMA, 2018). The Commonwealth maintains a THIRA that is developed following CPG 201 and updated annually; the THIRA serves as a risk assessment and consequence analysis process for technological and human-caused hazards as well as some natural hazards that are addressed in the HIRA included in this SHMCAP. The last version of the THIRA was issued in 2017 (Commonwealth of Massachusetts, 2017a). Development of the THIRA involved approximately 50 stakeholders representing local, regional, and State government offices, the Federal Government, as well as nongovernmental organizations (NGOs) and the private sector.

The Massachusetts THIRA follows a four-step process, as described in CPG 201:

1. **Identify the Threats and Hazards of Concern.** Based on a combination of past experience, forecasting, expert judgment, and other available resources, identify a list of the threats and hazards of primary concern to a community.
2. **Give the Threats and Hazards Context.** Describe the threats and hazards of concern, showing how they may affect a community.
3. **Establish Capability Targets.** Assess each threat and hazard in context to develop a specific capability target for each core capability. The capability target defines success for the capability. This step consists of two substeps: the first is to develop impact and outcome statements, and the second is to establish targets. The capability targets outlined in the most recent THIRA were integrated into the goals of this SHMCAP.
4. **Apply the Results.** For each core capability, estimate the resources required to meet the capability targets.

The 2017 THIRA assesses the consequences and capability targets for the following technological and human-caused hazards:

- Cyberattack – Critical Infrastructure (human-caused)
- Hazmat Release – Chemical (technological)
- Complex Coordinated Attack – Active Shooter (human-caused)

In addition to technological and human-caused hazards, earthquakes and floods are assessed. The context and profile of the natural hazards is closely linked to the risk assessment in this plan. The THIRA demonstrates how the capability targets are met through identification and application of required resources and procedures. The results of the assessment are included in the 2017 THIRA.

## 5.2 Comprehensive Emergency Management Plan

The Comprehensive Emergency Management Plan (CEMP), together with its functional and incident-specific annexes, is an all-hazards plan developed to address the natural and human-caused hazards that threaten Massachusetts. The plan describes the system that will be used in Massachusetts to prevent, prepare for, respond to, and recover from an emergency or disaster. It also identifies and assigns specific areas of responsibility for coordinating resources to support the response to an emergency or disaster (Commonwealth of Massachusetts, 2017b). The CEMP was developed with critical stakeholder input and was drafted in accordance with relevant federal and state laws. It conforms to federal guidance, including the CPG 101, FEMA's National Response Framework, and FEMA's National Incident Management System. The CEMP also complies with the Emergency Management Standard published by EMAP.

The CEMP includes several annexes that are grouped into the following categories:

- **Massachusetts Emergency Support Function (MAESF) Annexes:** These annexes identify state agencies, NGOs, and volunteer and private sector organizations that have been assigned responsibilities, each of which is designated a MAESF. These annexes describe the policies, planning assumptions, concept of operations, and responsibilities for their activities.
- **Functional Annexes:** These annexes describe the framework through which MAESFs coordinate and execute activities related to a specific response strategy. Each annex sets forth the concepts and procedures for critical emergency response actions.
- **Hazard Annexes:** These annexes detail special planning and response considerations and response protocols associated with specific hazards that have been identified through the THIRA process.

Table 5-1 identifies these annexes, which illustrate the extent of natural, technological, and human-caused hazards that are addressed through the CEMP.

## 5.3 Nuclear Plans

The Massachusetts Emergency Management Agency (MEMA) has developed and maintains detailed radiological emergency response plans and implementing procedures for communities and facilities falling within the two nuclear Emergency Planning Zones in Massachusetts. All plans and procedures are reviewed annually, updated as needed, and tested through regular exercises (Commonwealth of Massachusetts, 2017b).

**Table 5-1: Comprehensive Emergency Management Plan Annexes**

Annex Category	Annex Title	
<b>Massachusetts Emergency Support Function Annexes</b>	Transportation	
	Communications	Hazardous Materials and Environmental Protection
	Public Works and Engineering	Agriculture, Animals, and Natural Resources
	Firefighting	Energy
	Business and Industry	Public Safety and Security
	Mass Care, Emergency Assistance, and Human Services	Recovery
	Volunteers and Donations	Public Information and External Affairs
	Public Health and Medical Services	Military Support
	Search and Rescue	
<b>Functional Annexes</b>	Access and Functional Needs	MEMA Continuity of Operations Plan
	Air Operations Plan	Preventive Radiological / Nuclear Detection Plan
	Cape Cod Emergency Traffic Plan	Recovery Annex
	Communications and Warning Plan	Regional Catastrophic Coordination Plan (RCCP)
	Continuity of Operations / Continuity of Government Plan	Staging and Logistics Annex
	Cultural / Historical Resources Annex	State Emergency Dispensing Site Plan
	Debris Management Plan	State Emergency Repatriation Plan
	Disaster Housing Plan	State Law Enforcement Mobilization Plan
	Emergency Alert System Plan	Strategic National Stockpile Plan
	Emergency Petroleum Fuel Plan	Technical Search and Rescue Coordination Plan
	Evacuation Coordination Plan	Volunteers and Donations Management Plan
	Family Assistance Center Plan	
	Fire Mobilization Plan	
Mass Care and Shelter Coordination Plan		
<b>Hazard Annexes</b>	Drought Management	Massachusetts Radiological Emergency Response
	Energy Assurance	Pandemic Influenza Operations
	Hazardous Materials	Regional Catastrophic Coordination Plan (RCCP) Cyber Disruption
	Improvised Nuclear Device	RCCP Improvised Explosive Device
	Large Volume / High Concentration Ethanol	State Cyber Disruption
	Major Air Crash Event	Terrorism Incident Response
	Mass Fatality Management	

Source: Commonwealth of Massachusetts, 2017b.



## 5.4 Dam Emergency Action Plans

Owners of all dams classified or reclassified as having "high" or "significant" hazard potential by the Department of Conservation and Recreation's Office of Dam Safety are required by law to develop an Emergency Action Plan (EAP) for the dam and to provide this plan to the Office of Dam Safety and local and state emergency management officials. The EAP must be prepared, maintained, and updated by the dam owner. All EAPs must be updated annually and submitted to the Department of Conservation and Recreation and MEMA. EAPs are subject to approval by the Commissioner of the Department of Conservation and Recreation.

Each EAP must include the following items: a list of equipment, personnel, and material available to implement the plan; a notification procedure for informing local emergency agencies; an inundation map showing the area that would be flooded in the event of a dam failure; and a procedure for warning local residents in the event of a dam failure, with a list of names and telephone numbers of downstream residents who may be affected by a dam failure (Commonwealth of Massachusetts, 2017b).

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