



2023 Maine State Hazard Mitigation Plan



**Plan Prepared by
Maine Emergency Management Agency**



Janet T. Mills
GOVERNOR

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September 27, 2023

Ms. Lori Ehrlich
Regional Administrator
FEMA Region 1
220 Binney Street
Cambridge, Massachusetts 02142

Dear Ms. Ehrlich:

I am pleased to present and formally adopt the 2023 Maine State Hazard Mitigation Plan. This plan complies with current federal requirements under the [Stafford Act for state hazard mitigation plans](#) and maintains eligibility for millions of dollars in state-allocated disaster recovery and hazard mitigation funding for the State of Maine and over one billion dollars in national competitive funds.

Maine is exposed to numerous natural hazards, many of which are exacerbated by climate change. This plan provides an assessment of current and anticipated risk from these natural hazards, an analysis of existing capabilities and adaptive capacity, and a mitigation strategy to implement risk reduction and to fill capability gaps on a long-term and sustainable basis. The goals of the plan align with Maine's commitment to clean energy and climate resilience as presented in [Maine Won't Wait, a Four-Year Plan for Climate Action](#).

This plan is a living document containing multiple risk and capability assessment products, all of which reside on the [Maine Emergency Management Agency's Website](#). State executive offices and agencies will begin immediately to advance and track their assigned mitigation actions.

This plan includes assurances that the State will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding. The Maine Emergency Management Agency will amend the plan whenever necessary to reflect changes in State or Federal statutes and regulations. The planning team will make improvements with the advent of new information to ensure that every component continues to serve the State of Maine as needed. For example, the planning team will monitor, evaluate, and update state hazard mitigation actions in anticipation of new climate change trends and natural hazard risk findings.

The Maine State Hazard Mitigation Plan is a product of stakeholder engagement with over one hundred contributing mitigation partners representing local, county, state, tribal, and federal government, non-profit organizations, academic institutions, students, and other members of the



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public. Suggestions provided by mitigation partners were thoughtful, diverse, informative, and each one has made the plan a success. Thank you to those who were involved for your contributions, and I look forward to your continued involvement in future updates of this plan as we all work together towards a more resilient Maine.

Sincerely,



Janet Mills
Governor



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Section 1 – Executive Summary

Hazard Mitigation is any sustained action to reduce or eliminate long-term risk to people and property from the effects of natural hazards.

Mitigation is acting now – before the next disaster occurs.

Though the occurrence of natural hazards cannot be avoided, Maine can certainly take positive action to reduce their impacts and invest in our future. As reported by the National Institute of Building Sciences, [every dollar invested in mitigation saves up to thirteen dollars](#) that would be spent on costly repairs to vulnerable infrastructure. Mitigation also saves lives by reducing the impacts of natural disasters, [which cause an average of 363 deaths per year in the United States](#) as reported by National Oceanic and Atmospheric Administration.

Planning is the first step towards effective mitigation. The 2023 State Hazard Mitigation Plan (SHMP) presents Maine’s many natural hazard risks and strategic guidance to reduce or eliminate our greatest vulnerabilities. The SHMP is updated every five years to posture the state for new climate change impacts, policy improvements, new development trends, and many other factors affecting Maine’s risk landscape. The goals of the plan have therefore expanded to address our improved understanding of climate change risks and the expansive efforts of state and federal agencies in advancing climate resilience policies. These goals are as follows:

Protect lives, property, and the environment from all natural hazard risks and associated impacts of climate change now and in the future.

Enhance state natural hazard mitigation capabilities through greater coordination among federal, state, county, and local partners.

Improve hazard mitigation literacy and awareness among the public, business owners, academic institutions, and state, county, and local officials.

Implement mitigation actions that preserve or restore the functions of natural systems and emphasize sustainable development.

Build equity into all facets of the State Hazard Mitigation Program.

The SHMP provides eligibility for the FEMA Hazard Mitigation Assistance (HMA) grant program. These programs seek to fund effective and innovative activities that address future risks to natural disasters. Addressing these risks help Maine and our communities become more resilient. While some HMA opportunities can be used for capacity-building activities, others are directed toward physical infrastructure projects. Maine state agencies, tribal nations, local governments, and municipalities have all applied for HMA grants to assist with updating local hazard mitigation plans, project scoping, building code training, and management costs. Maine would be ineligible to apply for HMA grants without an approved hazard mitigation plan.

The State Hazard Mitigation Plan provides strategic guidance and hazard mitigation assistance in our ever-changing landscape of risk

The Mitigation Planning Process involved coordination with over one hundred local, state, tribal, federal, and non-governmental participants, to the collective benefit of this and many other state planning mechanisms that are now integrated with MEMA’s mitigation goals. This plan is intended to support not only our communities but also State agencies practicing natural hazard mitigation, equitable resource provision, and climate change resilience.

Our communities have an opportunity to identify their own mitigation strategies through development of Local Hazard Mitigation Plans (LHMP). The SHMP guides local and regional planners to create successful mitigation plans with best-available resources. Conversely, local mitigation efforts are integrated in the SHMP to build a stronger statewide mitigation strategy representing all levels of government. The LHMP update process is typically managed by County Emergency Management Agencies, the SHMP process is managed by the Maine Emergency Management Agency (MEMA), and both plans are regulated by the Federal Emergency Management Agency (FEMA).



Natural hazard events are widespread within Maine, ranging from flooding, drought, extreme cold, extreme heat, damaging winds, wildfires, ice storms, heavy snowfall, landslides and mass wasting, severe erosion, and earthquakes. Many of the most impactful natural disasters involve a cascade of events, where one event can give way to many others. For example, droughts may lead to wildfires, and wildfires that destroy soil-stabilizing vegetation will lead to widespread erosion, landslides, and poor water quality when rains eventually return. Hurricanes are a combination of many hazards: coastal storm surge, inland flooding, damaging wind, thunderstorms, tornadoes, and rip currents all coincide with these massive storms. Recent impacts due to climate change have increased risks from other natural hazards, including poor air quality driven by wildfires and extreme heat, an ever-expanding damage from forest pests responding to drought and heat, and public health risks from freshwater and marine harmful algal blooms in warming, nutrient-rich freshwater and marine ecosystems.

Though the resilient and self-sufficient nature of Mainers has traditionally been enough to handle the impacts of our natural hazards, conditions are changing drastically. Currently there are six Presidentially Declared Disasters, with another two disaster declarations pending in 2023. Now more than ever, the SHMP will serve Maine with strategic guidance and hazard mitigation assistance in our ever-changing landscape of risk. Through strong partnership, we can move toward a more resilient Maine.

Acronym Definitions

Acronym/abbrev.	Definition	Acronym/abbrev.	Definition
AADT	Annual Average Daily Traffic	EOP	Emergency Operations Plan
ALA	American Lung Association	EPA	Environmental Protection Agency
AOP	Aquatic Organism Passage	ERC	Energy Release Component
APA	Approval Pending Adoption	ESP	Energy Security Plan
AQI	Air Quality Index	EWL	Extreme Water Levels
AQS	Air Quality System	FEMA	Federal Emergency Management Agency
ARP	Acid Rain Program	FERC	Federal Energy Regulatory Commission
ASDSO	Association of Dam Safety Officials	FHWA	Federal Highway Administration
BCA	Benefit Cost Analysis	FMA	Flood Mitigation Assistance
BFE	Base Flood Elevation	FMAG	Fire Management Assistance Grant
BGS	Bureau of General Services	FMP	Floodplain Management Program
BI	Bureau of Insurance	FPA	Forest Practices Act
BIL	Bipartisan Infrastructure Law	GDP	Gross Domestic Product
BLD	Beech Leaf Disease	GEO	Governor's Energy Office
BRIC	Building Resilient Infrastructure and Communities	GeoLib	Maine GeoLibrary
BTM	Browntail Moth	GHGs	Greenhouse Gases
BTU	British Thermal Unit	GIS	Geographic Information System
C&CB	Capacity & Capacity-Building	GMRI	Gulf of Maine Research Institute
CDC	Maine Center for Disease Control	GOPIF	Governor's Office of Policy Innovation and the Future
CDC	U.S. Center for Disease Control	HABS	Harmful Algal Blooms
CDS	Congressionally Directed Spending	HAZMAT	Hazardous and Toxic Materials
CDWVG	Community Wildlife Defense Grant	HMA	Hazard Mitigation Assistance
CEJEST	Climate and Economic Justice Screening Tool	HMGP	Hazard Mitigation Grant Program
CEO	Code Enforcement Officer	HWA	Hemlock Woolly Adelgid
CFR	Code of Federal Regulations	IA	Individual Assistance
CIKR	Critical Infrastructure and Key Resources	ICCOH	Interagency Coordinating Committee on Hurricanes
CME	Coronal Mass Ejections	IFW	Department of Inland Fisheries and Wildlife
CMP	Central Maine Power	IJA	Infrastructure Investment and Jobs Act
COPD	Chronic Obstructive Pulmonary Disease	IJC	International Joint Commission
CPC	Climate Prediction Center	KBDI	Keetch-Byram Drought Index
CPF	Community Project Funding	LHMP	Local Hazard Mitigation Plan
CRS	Community Rating System	LID	Low Impact Development
CSAPR	Cross-State Air Pollution Rule	LIHEAP	Maine Low Income Home Energy Assistance Program
CWPP	Community Wildfire Protection Plan	LPDM	Legislative Pre-Disaster Mitigation
DACF	Department of Agriculture, Conservation and Forestry	MBMAP	Maine Beach Mapping Program
DAFS	Department of Administrative and Financial Services	MC	Senator George J. Mitchell Center for Sustainability Solutions
DEP	Department of Environmental Protection	MEGIS	Maine Office of GIS
DFIRM	Digital Flood Insurance Rate Map	MEMA	Maine Emergency Management Agency
DHS	Department of Homeland Security	MEDW	Maximum Envelopes of Water
DMR	Department of Marine Resources	MFS	Maine Forest Service
DOE	Department of Energy	MHPC	Maine Historic Preservation Commission
DOT	Maine Department of Transportation	MMA	Maine Municipal Association
DSP	Dam Safety Program	MOMs	Maximum of MEOWs
DTF	Drought Task Force	MRSA	Maine Revised Statutes Annotated
DWP	CDC Drinking Water Program	MS4	Municipal Separate Storm Sewer Systems
EAB	Emerald Ash Borer	MWW	Maine Won't Wait
EAL	Expected Annual Loss	NAAQS	National Ambient Air Quality Standards
EMA	Emergency Management Agency	NBRC	Northern Border Regional Commission
EMP	Electromagnetic Pulse	NBRC	Northern Border Regional Commission
EOP	Emergency Operations Plan	NEDEWS	Northeast Drought Warning System

Acronym/abbrev.	Definition
NESEC	Northeast State Emergency Consortium
NESIS	Northeast Snowfall Impact Scale
NFWF	National Fish and Wildlife Foundation
NHC	National Hurricane Center
NIPP	National Infrastructure Protection Plan
NO ₂	Nitrogen Dioxide
NOAA	National Oceanic and Atmospheric Administration
NOFO	Notice of Funding Opportunity
NOx	Nitrogen Oxides
NWS	National Weather Service
OAG	Office of the Attorney General
PAR	Population at Risk
PFAS	Per- and Polyfluorinated Substances
pH	Potential Hydrogen
PM	Particulate Matter
PROTECT	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation
PSP	Paralytic Shellfish Poisoning
RAPT	Resilience Analysis and Planning Tool
RFAC	River Flow Advisory Commission
RLF	Revolving Loan Fund
RPO	Regional Planning Organization
SAX	Saxitoxin
SBA	U.S. Small Business Administration
SBW	Spruce Budworm
SDP	Substantial Damage Plan
SFHA	Special Flood Hazard Area
SFM	Office of the State Fire Marshal
SHMP	State Hazard Mitigation Plan
SJ	Silver Jackets
SLR	Sea Level Rise
SMBPP	State of Maine Beach Profiling Program
SMPDC	Southern Maine Planning and Development Commission
SOx	Sulfur Dioxide
SPI	Standard Precipitation Index
STORM	Safeguarding Tomorrow through Ongoing Risk Mitigation
SVI	Social Vulnerability Index
TCI	The Climate Initiative
THIRA/SPR	Threat and Hazard Identification and Risk Assessment/Stakeholder Preparedness Review
TN	Tribal Nations
TNC	The Nature Conservancy
TORRO	Tornado and Storm Research Organization
TPI	Third Party Inspector
TRAPPD	Transportation Risk Assessment for Planning and Project Delivery
UEI	Unique Entity Identifier
UMS	University of Maine System
USD	U.S. Dollar
USDA	U.S. Department of Agriculture
USDM	U.S. Drought Monitor
USEPA	U.S. Environmental Protection Agency
USG	Unhealthy Sensitive Group
NPG	National Preparedness Goal
NPS	National Preparedness System
PA	Public Assistance
SLOSH	Sea Lake and Overland Surges from Hurricanes

Acronym/abbrev.	Definition
USGS	U.S. Geological Survey
UV	Ultraviolet Radiation
VM	Volunteer Maine
VOC	Volatile Organic Compounds
WMO	World Meteorological Organization
WUI	Wildland Urban Interface
AAR	After action report
HES	Hurricane Evacuation Study
HHPD	High Hazard Potential Dams
ME-CFRM	Maine Coastal Flood Risk Model
MICA	Maine Interagency Climate Adaptation
MWW	Maine Won't Wait plan
NBRC	Northern Border Regional Commission
PT	Planning Team
SFA	Northeast-Midwest State Foresters Alliance
SHMP	State Hazard Mitigation Plan
AOP	Culvert Aquatic Organism Passage Program
ARPA	American Rescue Plan Act
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BBCS	Bureau of Building Codes and Standards
CAG	Community Action Grants
CCGP	Coastal Community Grant Program
CDBG	Community Development Block Grant
CDC	U.S. Center for Disease Control
CIG	Conservation Innovation Grants
CRP	Community Resilience Partnership
CWDG	Community Wildfire Defense Grant
DSS-WISE	Decision Support System for Water Infrastructure Security
EAP	Emergency Action Plan
EMPG	Emergency Management Performance Grant
FIRM	Flood Insurance Rate Map
FPMS	USACE Flood Plain Management Services
HHPD	High Hazard Potential Dams
HMA	Hazard Mitigation Assistance
HSGP	FEMA Homeland Security Grant Program
HUD	Housing and Urban Development
IBC	International Building Code
IEBC	International Existing Building Code
IECC	International Energy Conservation Code
IMC	International Mechanical Code
IRC	International Residential Code
LIDAR	Light Detection and Ranging
LUPC	Land Use Planning Commission
MCC	Maine Climate Council
MCFI	Maine Coastal Mapping Initiative
ME-CFRM	Maine Coastal Flood Risk Model
MGS	Maine Geological Survey
MPAP	Municipal Planning Assistance Program
MSCU	Municipal Stream Crossing Upgrade Grant
MUBEC	Maine Uniform Building and Energy Code
NBRC	Northern Border Regional Commission
NDSP	National Dam Safety Program
NFIP	National Flood Insurance Program
NFPP	National Fish Passage Program